

Additional notes to support presentation of GAP PowerPoint 2020.

Slides 1 and 2.

No additional notes.

Slide 3.

Using population-based standards 3.5kgs is classified as average

Does your Trust have an average size?

This is to engage the audience about what they classify as average

SGA – using population-based standards 2.5kgs is classified as SGA. Then ask at what gestation? Term = 37-42 wks. Does it depend on the size of the mother? What investigations does the baby have if <2.5kgs? In future pregnancies what care pathway would the mother be on?

Using customised SGA is classified as <10th customised centile at birth. The important factor with planning future pregnancies to use the customised birth weight centile rather than a population-based definition e.g. 2.8kgs at 42 weeks may be below the 10th customised centile, for a taller heavier multip.

LGA – using population-based standards 4.5kgs is classified as LGA. But at what gestation? Does it depend on the size of the mother? What investigations does the baby have if > 4.5kgs? In future pregnancies, would the mother be screened for GDM?

Using customised LGA is classified as >90th centile at birth.

The important factor with screening for GDM for future pregnancies to use the customised birth weight centile rather than a population-based definition e.g. 4.1kgs at 37 weeks may be above the 90th customised centile for a shorter lighter primip.

Slide 4.

Laura's baby is 3.950kg's Manjit's baby is 2.950kg, both at term

Both Laura and Manjit are holding appropriately grown babies for them, on the 50th centile. If you switch the babies over would it be a different picture?

It should be a different picture; Laura should have a heavier baby compared to Manjit.

Slide 5.

Population charts are based on white British, normal BMI, non-smoking, breast feeding primigravida women.

Not appropriate for current care provision, - maternal characteristics have altered and a diversity of ethnic groups

Only 18-22% of babies will be detected as SGA using population-based standards
= poor detection rate

We can improve detection rates by using customized growth charts, as the software takes into consideration the term optimal weight for the mother using her individual physiological characteristics e.g. height, weight, ethnic origin and parity

Slide 6.

Associated risks of FGR:

- 4 - 8 x more likely to die in utero
- Link to NN deaths, probably associate with prematurity, these babies do not cope well in labour and are susceptible to infection
- Associated with SIDs
- European studies link FGR with not reaching mile stones compared with appropriately grown baby.
- Term cerebral palsy- in absence of hypoxia in labour
- Barker hypothesis- FGR is linked to increased chronic health disease in later life- type 2 diabetes, coronary heart disease, obesity

Slide 7.

Chart shows the unexplained still births pre-introduction of customised growth charts.

Centile lines identify the 10th, 50th and 90th centiles.

If there was an even distribution of birth weights (a Bell curve) there should be:

- 10% above the 90th centile
- 80% babies between 10th and 90th centiles
- 10% babies below the 10th centile

Graph shows a very different picture – **62%** were below the 10th centile
= 62% of still born babies were SGA/ FGR so were not unexplained stillbirths.

Slide 8.

Classification system that has been used historically; but does not take fetal growth restriction into consideration.

Large percentage of stillbirths have been classified as unexplained; therefore, it is difficult to establish a plan of care for subsequent pregnancies

Slide 9.

Latest MBRRACE report published in 2019

Slide 10

MBRRACE report- unexplained stillbirths has dropped from around half (46%) to around a third (34.6). However, the largest fall in stillbirths and NN deaths is seen in term babies account for half of the reduction. This is a positive sign that late onset fetal growth restricted babies are being detected and delivered safely

Slide 11.

Developed by Gardosi et al. looking at relevant condition at death (ReCoDe)

<http://www.bmj.com/content/331/7525/1113>

If the RECODE classification is used a large proportion of stillbirths attributable to fetal growth restriction

Slide 12.

Using anatomical landmarks in the 3rd trimester to assess fetal growth is too subjective and should not be used

Demonstrate using an abdomen if possible – ask the audience what they interpret by landmarks e.g. umbilicus = 20-24 weeks, demonstrating a variation in interpretation. Fundal height measurements were introduced in the early 1990's using a tape measure.

It is important that we all use a standard technique and start at the mobile growing point = the highest point of the fundus and stop at the fixed point = the top of the symphysis pubis

Some clinicians still incorrectly refer to the 28 weeks = 28cms (McDonalds rule, published 1903), with a +/- of 2-3 cm

Using landmarks and McDonalds rule should not to to assess growth in the 3rd trimester

Image shows population fundal height chart

Individual biometry of the baby = HC, FL and AC and then scanning using Hadlock's formula to calculate an estimated fetal weight (EFW) to be plotted on the customised growth chart. If concerns with EFW assess liquor volume and Doppler.

Slide 13.

RCOG guidelines 2013 remains the latest guidelines (currently being updated and for publication late 2020/2021) support the use of customised growth charts and standardised fundal height measurements and serial scanning for the at-risk mother

Slide 14.

RCOG risk assessment to be taken at booking to identify who is

1. Suitable for serial fundal height measurements from 26-28 weeks' gestation = LOW RISK

2. Who requires serial scanning from 26-28 weeks' gestation until delivery? = INCREASED risk.

Complicated and rarely used in full by trusts. Meant different care in each trust

Slide 15 and 16.

NHS England Saving babies lives version 1 algorithm

Slide 17

NHS England - Saving Babies Lives Care Bundle version 2 ; five identified elements, of which risk assessment and surveillance of fetal growth restriction is the element 2

Slide 18

SBL's algorithm with reliance on advanced Doppler's for growth surveillance.

Increased risk divided into moderate and high-risk groups with different care pathways. See [GAP Guidance](#) for further evidence around elements of this algorithm

Slide 19

New GAP care pathway- phase 1. See [GAP Guidance](#) for further explanations around pathways

Slide 20

New GAP care pathway- phase 2. See [GAP Guidance](#) for further explanations around pathways

Slide 20.

This slide demonstrates women are different sizes and shapes so why should we assume that all women should have the same size baby at term?

Slide 21.

Importance of booking risk assessment for appropriate care pathway

Slide 22

OPTIMAL is the key word.

Need to identify the optimal size at term of this baby in the absence of pathology e.g. do not want to take into consideration does the mother smoke or have hypertension.

Slide 23.

Discuss factors taken into account when generating a chart, note paternal not included due to potential paternal discrepancy.

Does not include fetal factor, such as gender of the baby, as not every mother wishes to know the gender, and there is always potential for error in identifying gender in-utero.

Charts ideally should be generated at the first trimester scan; this ensures a risk assessment can be carried out using all the information that will be highlighted on the chart

E.g. BMI, previous babies SGA/LGA/pre

Slide 24.

Open the software and generate a chart to demonstrate to the audience.

Accessed via- <https://demo.growservice.org/uk>

Username demo_uk

Password demo_uk

Describe the chart e.g. left and right axis

Centiles on the chart are estimated fetal weight centile curves- addition of 3rd and 97th centile lines on all charts

Identify how to plot an EFW and fundal height on the same chart

Do not use your Trust/Health Board username and password to generate charts or centiles for training purposes as any you produce will be include in your report.

Slide 25.

Explains how term optimal weight is calculated – adds and subtracts grams for the different maternal characteristics compared with average mother
E.g. Primp, European, 163cms, 64kgs, delivers at 40 weeks = birth weight 3455.6kgs

Slide 26.

Compare the – in clinical practice charts will look the same.
Laura is European, taller and heavier compared with Manjit, who is Pakistani, shorter and lighter.

Slide 27

Manjit's chart

Look at term optimal weight = 3042 grams at 40 weeks

Slide 28

Laura's chart

Look at term optimal weight = 3559 grams at 40 weeks

Slide 29.

Introduce standardised technique and demonstrate on abdomen model if possible.

Slide 30.

No notes.

Slide 31

Intra observer variation- this is the same clinician measuring more than once to 'make' the measurement fit the expectation. Encourage clinicians to measure only once. Importance of replicating same technique, with the woman in the same position i.e. firm/flat surface 45-degree angle

- Inter observer variation- different clinicians measuring differently. Different technique can alter measurement by 11cm
- Full bladder adds up to 2 cm
- Tape measure- paper, non-elastic and identify where 0cms is
- Frequency- 2 to 3 weekly

Slide 32.

Expose the abdomen for examination; do not measure over the mother's clothes, with the mother lying at a 45% angle. Determine the highest point of the uterus (fundus) - presentation does not alter technique.

Slide 33.

Leave the left hand at the fundus

Slide 34.

Always stop in the same place- the top of symphysis pubis.

Slide 35.

Measurement is along the longitudinal axis of the uterus with a non-elastic tape measure, numbers hidden to reduce bias. Do not correct to the midline.

Slide 36

Plot fundal height measurement on the chart

Look at overall pattern of plots on the chart and decide if the mother needs to be referred for an USS to assess EFW, or whether plots following the same slope of the curve, review every 2-3 weeks for repeat fundal height measurement.

Slide 37.

Descent of the head- does NOT affect fundal height measurement as an uncompromised baby continues to grow until delivery. Therefore, there is no flattening of the curves at term.

Malpresentation- measure and plot as per usual practice. If the trajectory of growth does not follow the expected pattern, this indicated the need for a scan

Multiple pregnancies- fundal height measurements are not appropriate, serial scanning should be performed as per Trust protocol, both individual EFW's can be plotted on the customised growth chart. The risk of FGR is increased in these babies due to placental insufficiency

Serial scans =2-3 weeks. Trust guidance on scanning protocols should be discussed. Obesity- High BMI (usually defined as 35+) - serial fundal height measurements not appropriate as not accurate, should be receiving serial scans as per RCOG guidelines

Slide 38.

Growth is normal. Demonstrate 1st plot is the baseline. Subsequent plots should follow the same curve.

Slide 39.

Growth trajectory is assessed against the 10th centile line for fundal height measurements

Slide 40.

Growth trajectory by EFW is assessed against the 3rd centile line

Slide 41

A first plot is below the 10th centile requires USS to assess EFW.

Do not inform the mother that she is having a small baby; fundal height measurement includes uterus and all its contents e.g. baby, liquor, placenta.

Slide 42

No growth requires referral for USS to assess EFW

Slide 43.

This picture also requires referral for slow growth to assess EFW- the plots are not following the slope of the 10th centile line

Discuss how if just the fundal height measurements were recorded but not plotted- this change in pattern could be missed.

Slide 44

Shows the 10th centile line trajectory

Slide 45

Shows the trajectory of the measurements is equal to the 10th centile- therefore this is **not** slow growth

Slide 46

This trajectory does not mirror the 0th centile line, therefore this is a referral from slow growth

Slide 47

Video demonstration of using a set square to assess growth velocity

Slide 48

Growth is following a normal pattern trajectory; women should be reassured that the fundal height measurement is of the uterus and all its content and is not an estimation of the fetal weight or size. An individual measurement above the 90th centile is not a referral criterion unless there is concern around polyhydramnios or accelerated growth. Accelerated growth is if the trajectory is steeper or faster than the 90th centile line.

Slide 49.

Summary of GAP implementation.

Slide 50

Elements of GAP

Slide 51

E-learning information

Slide 52

Username and passwords will be sent to from PI when we receive your emails

Slide 53

Working through the course- how to generate a chart etc

Slide 54

Test information- pass mark is 100%

Slide 55

Competency document information

Slide 56

GROW web application to generate a customised birthweight centile

Slide 57

Midwife at delivery ensures that details correspond with the GROW chart

Slide 58

For cross boundary working- enter the unit that has given the antenatal care this will be low risk women having fundal height measurements)

Slide 59 and 60

Midwife will enter birth details

Slide 61

Identify early pregnancy assessment for low and increased risk for fetal growth restriction

Slide 62

Once details entered the birthweight centile will be in a green box if between 10th and 90th centile, or a red box if below the 10th or above the 90th centiles.

Slide 63

Use the edit button if an error was made in the information entered.

Slide 64 and 65

The input of the birth weight centiles will generate the Trust reports, giving quarterly data on the number of babies born SGA (your Trusts baseline population rate)

The percentage of these SGA babies identified from a referral from a fundal height measurement and a percentage of those detected antenatally by scan. These can be compared with the GAP user average (GUA)

Show local report- discuss submission rates, aiming for above 80%

Then local referral and detection rates

Slide 66

Generating customised birthweight centiles will then identify those babies that were 'missed' antenatally.

Slide 67

The GAP-SCORE electronic 'missed case' audit tool to review cases- approximately 20-30 cases per 6 months in an average Trust of 3500

Slide 68.

GAP-SCORE- use and benefits of the audit tool. Anyone requiring access and training to GAP-SCORE, email Perinatal Institute for an individual log in account

These additional notes are to support and guide discussion for the GAP leads in cascade training; they are not designed as a script. For any further guidance contact the specialist midwives at the Perinatal Institute.