

Small for Gestational Age and Fetal Growth Restriction from 34 weeks - Detection and Management

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• Directorate(s)	Women's Health
• Department(s)	Maternity
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• Used by which staff?	All clinicians; including Access Holder Lead Maternity Carers (LMCs)
• Excluded	
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Contents

1. Purpose of policy	2
2. Policy statements.....	2
3. Abbreviations and definitions.....	3
4. Principles and goals	3
5. Supporting evidence.....	4
6. Associated documents.....	5
7. Disclaimer	6
8. Corrections and amendments	6
9. Appendix 1: Accessing antenatal growth charts	7
10. Appendix 2: Fundal height measurement technique	8
11. Appendix 3: SAG algorithm and risk assessment tool	11
12. Appendix 4: Referral processes	12
13. Appendix 5: Processes for NWH staff: SGA pathway	14
15. Appendix 6: SGA / FGR management algorithm	17
16. Appendix 7: Induction of labour	18

1. Purpose of policy

The purpose of this policy is:

- To optimise detection of Small for Gestational Age (SGA) and Fetal Growth Restriction (FGR) by means of documenting the correct procedure for the measurement of fundal height (see [appendix 2](#)) and use of a customised growth chart (see [appendix 1](#)) to aid interpretation of fundal height and ultrasound estimated fetal weight.
- To ensure that the New Zealand Maternal Fetal Medicine (NZMFM) Network document titled: 'Guideline for the management of suspected small for gestational age singleton pregnancies and infants after 34 weeks' gestation'; is followed within Auckland District Health Board (Auckland DHB) by means of a planned approach to care.
- This policy describes the clinical pathway for singleton pregnancies with SGA/FGR between 34 and 40 weeks referred to Auckland DHB. Pregnancies under 34 weeks are not included on this pathway; however once they reach 34 weeks they may enter the pathway. Pregnancies with SGA/FGR at >40 weeks are very high risk and must be urgently assessed outside the pathway via Women's Assessment Unit (WAU).

2. Policy statements

This policy describes a clinical pathway based on the New Zealand Maternal Fetal Mortality (NZMFM) network SGA guideline (published in September 2013 and revised in 2014) which has undergone national consultation with obstetricians including in Auckland DHB. The SGA guideline can be found at, www.healthpoint.co.nz/public/new-zealand-maternal-fetal-medicine-network. The SGA guideline will be updated by a multi-disciplinary team in 2020/2021 with funding from the Accident Compensation Commission (ACC).

Until this update occurs,

- Auckland DHB supports the implementation of the current NZMFM network SGA guideline for all women who are referred to Auckland DHB for management of SGA from 34 weeks' gestation.
- Auckland DHB further encourages all Lead Maternity Carers (LMCs) to refer women according to the national guideline.
- The Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines) (Ministry of Health (MOH), 2012) state that intrauterine growth restriction (IUGR) /small for gestational age requires consultation.
- All women with SGA/FGR diagnosed after referral to Auckland DHB must have a named specialist responsible for their care. The LMC should continue to provide primary care.

3. Abbreviations and definitions

The following terms are used within this guideline:

Term	Definition
BMI	Body mass index
EFW	Estimated fetal weight
GAP	Growth assessment protocol
GROW	An on-line application for customised assessment of fetal growth and birth weight
FGR /IUGR	Fetal growth restriction/ intrauterine growth restriction: <ul style="list-style-type: none"> • EFW or abdominal circumference (AC) crossing centiles by at least 30%, or • SGA with EFW<3rd centile and/or middle cerebral artery (MCA), cerebro-placental ratio (CPR)<5th centile and/ or uterine or umbilical artery Doppler >95th centile and/or oligohydramnios (depth of deepest pocket <2cm) • Static fetal growth of EFW or AC.
SFH	Standardised Fundal Height
SGA	Small for gestational age estimated fetal weight < 10 th centile on customised growth chart, or birth weight < 10 th customised birth weight centile

4. Principles and goals

- Each pregnant woman should be provided with a customised growth chart that estimates the expected growth in fundal height and/or estimated fetal weight (EFW) (if scanning for growth occurs) for her individual pregnancy (see [appendix 1](#)). Fundal height measurements should be recorded from 26-28 weeks onwards and should not be plotted more frequently than fortnightly. For technique of measurement of fundal height (see [appendix 2](#)). At Auckland DHB the customised chart is the ‘GROW’ chart which is under licence from the Perinatal Institute Perinatal.org.uk.
- Women with BMI >35: The BMI at which fundal height measurement is unreliable depends on distribution of maternal adipose tissue and also maternal height. As a guide, a plan for growth scans is usually recommended with a BMI of >35 (Royal College of Obstetricians and Gynaecologists (RCOG) Guideline 2013, NZMFM SGA Guideline 2014). Estimated fetal weight measurements from growth scans should be plotted on the GROW chart and individual biometry measurements on the population ultrasound chart. Growth scans in women with BMI >35 should be performed if clinical assessment is not possible because of body habitus (which is often the case). Suggested timing for growth scan(s) is 30-32 and 36-38 weeks. The latter one is the most important. Further information can be found at, perinatal.org.uk/Final_SGA_Algorithm_April_2019_GAP.pdf.

- Fundal height > 90th centile: The primary purpose of a customised antenatal growth chart is to increase antenatal detection of the SGA/FGR baby. When SFH is tracking along or above the 90th centile, gestational diabetes needs exclusion as soon as possible. An ultrasound scan is not indicated unless there is clinical concern re polyhydramnios or there is a rapid increase in fundal height. In women who do not have gestational diabetes, intervention is not usually recommended at National Women's Health when a baby is suspected to be large for gestational age in the absence of (gestational diabetes melitis (GDM), but a specialist referral should be considered. See flowchart: Diabetes Screening found at: adhb.hanz.health.nz/Policy/Diabetesin20pregnancy.
- **Note:** Customised growth charts are designed to aid in the detection of SGA/FGR, and have not yet been evaluated for detection and management of large for gestational age pregnancies
- A woman at major risk of SGA: growth scans should be carried out at regular intervals according to the SGA Assessment Tool for New Zealand (see [appendix 3](#)) and www.perinatal.org.uk/Final_SGA_Algorithm_April_2019_GAP.pdf.
- The recommended frequency of scanning in the SGA Assessment Tool was developed in 2019 with multidisciplinary input (ACC GAP working group, Te Kāhui Oranga ō Nuku, New Zealand College of Midwives) and takes into consideration the severity of the risk factor and past obstetric history. Even though education and use of customised growth charts increase detection of SGA babies up to 50 to 60%, ultrasound remains the gold standard in high-risk situations. For how to access customised antenatal growth charts (see [appendix 1](#)).
- For referral process for self-employed midwife LMCs, hospital staff and private obstetricians (see [appendix 4](#)).
- National Womens staff processes for a First Specialist Appointment (FSA) for SGA/FGR. Divided in to responsibilities of Obstetrician, clinic scheduler/receptionist and Day Assessment Unit (DAU) midwives (see [appendix 5](#)).
- National Women's Hospital (NWH has developed an SGA pathway (adapted from the NZMFM SGA guideline) to guide clinical management of suspected SGA/FGR (see [appendixes 5](#) and [6](#)).
- [Appendix 7](#) explains the process for induction of labour.

5. Supporting evidence

- Anderson, N. H., Sadler, L. C., Stewart, A. W., & McCowan, L. M. E. (2012). Maternal and pathological pregnancy characteristics in customised birthweight centiles and identification of at-risk small-for-gestational-age infants: a retrospective cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 119(7), 848-856.
- Gardosi, J., & Francis, A. (1999). Controlled trial of fundal height measurement plotted on customised antenatal growth charts. *BJOG: An International Journal of Obstetrics & Gynaecology*, 106(4), 309-317.

- Gardosi, J., Giddings, S., Clifford, S., Wood, L., & Francis, A. (2013). Association between reduced stillbirth rates in England and regional uptake of accreditation training in customised fetal growth assessment. *BMJ open*, 3(12).
- Gardosi, J., et al. Reducing stillbirths in the West Midlands. 2013; Available from: http://medweb4.bham.ac.uk/websites/key_health_data/2011/pdf.
- Jayawardena, L., & Sheehan, P. (2019). Introduction of a customised growth chart protocol increased detection of small for gestational age pregnancies in a tertiary Melbourne hospital. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 59(4), 493-500.PMMRC.
- 2018. Twelfth Annual Report of the Perinatal and Maternal Mortality Review Committee: Reporting mortality 2016. Wellington: Health Quality & Safety Commission.
- Royal College of Obstetricians and Gynaecologists, The investigation and management of small-for-gestational-age fetus: Green top guideline No 31, 2013.
- Roex, A., Nikpoor, P., van Eerd, E., Hodyl, N., & Dekker, G. (2012). Serial plotting on customised fundal height charts results in doubling of the antenatal detection of small for gestational age fetuses in nulliparous women. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 52(1), 78-82.
- Veglia, M., Cavallaro, A., Papageorghiou, A., Black, R., & Impey, L. (2018). Small-for-gestational-age babies after 37 weeks: impact study of risk-stratification protocol. *Ultrasound in Obstetrics & Gynecology*, 52(1), 66-71.
- Ministry of Health. 2012. Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines). Wellington: Ministry of Health.
- NZMFM. (2014). Guideline for the Management of Suspected Small for Gestational Age Singleton Pregnancies After 34 weeks. www.healthpoint.co.nz/public/new-zealand-maternal-fetal-medicine-network.
- NZMFM. (2014). New Zealand Obstetric Doppler Guideline. www.healthpoint.co.nz/public/new-zealand-maternal-fetal-medicine-network.

6. Associated documents

Auckland DHB documents

- Antenatal Corticosteroids to Improve Neonatal Outcomes Guideline
- Biophysical Profiling of Fetal Wellbeing Guideline
- Customised Antenatal Growth Chart Guideline
- Fetal Surveillance Policy
- Group & Screen Requirements in Maternity Policy
- Hypertension - Antenatal, Intrapartum & Postpartum Management Guideline
- Induction of Labour Guideline
- Magnesium Sulphate for Pre-eclampsia and for Neuroprotection in Pre-Term Births <30 weeks Guideline

Clinical Forms

CR3509: National Women's Maternity Service - Secondary Referral

Patient information

- SGA/FGR patient pamphlet
- Induction of Labour
- Your baby's movements and what they mean

7. Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

8. Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed **before** the scheduled date, they should contact the owner or [Document Control](#) without delay.

9. Appendix 1: Accessing antenatal growth charts

Accessing customised antenatal growth chart on an Auckland DHB login:

- It is required that all GROW users at Auckland DHB undergo standardised training in use of the GROW tool and in standardised measurement of fundal height. This includes an initial three hour face to face education session and a yearly on-line session.
- At booking interview, measure the woman's weight, height, record her ethnicity, last menstrual period (LMP) and estimated date of delivery (EDD) and enter in Healthware. Also record and enter the weight, gestation at delivery and sex of any previous babies. The GROW chart will automatically calculate the birth weight centile of any previous infants enabling identification of previous SGA babies.
- From within the Auckland DHB network on HealthWare:
 - Ensure that the booking weight and height are entered in the Pregnancy tab
 - When fundal height is measured at an antenatal assessment save the form and the fundal height will automatically be plotted on the GROW chart. The same applies to an estimated fetal weight from a DHB scan. You need to reopen the GROW chart after saving the form to decide if interval growth is within normal limits.
- If outside Auckland DHB, the GROW programme can be accessed from:
www.gestation.net/grow-nz.aspx
- Complete the data requested
- The programme will calculate the woman's body mass index (BMI)
- The customised chart will then appear on the screen with a graph of the optimal fundal height and estimated fetal weight parameters represented by the centile curves (three, 10, 50, 90, 97) for the current pregnancy
- Enter the woman's estimated delivery date
- Press print
- Add chart to the woman's clinical record
- Make sure a copy of the chart goes with the woman for any ultrasound scans or obstetric consultations.

10. Appendix 2: Fundal height measurement technique

Mother semi-recumbent, with bladder empty:

- Explain the procedure to the Mother and gain verbal consent
- Wash hands
- Have a non-elastic tape measure to hand
- Ensure the mother is comfortable in a semi-recumbent position, with an empty bladder
- Expose enough of the abdomen to allow a thorough examination.

Palpate to determine top of fundus;

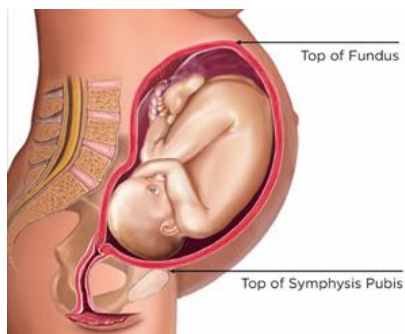
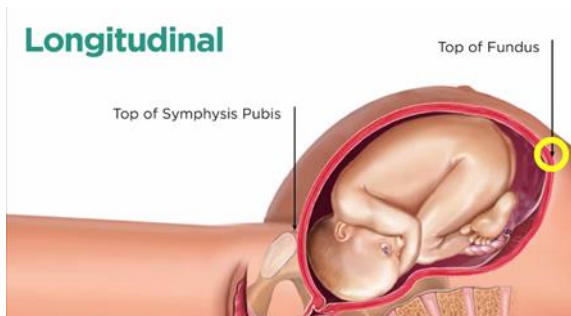


- Ensure the abdomen is soft (not contracting and baby not actively moving)
- Perform abdominal palpation to enable accurate identification of the uterine fundus.

Secure tape with hand at top of fundus:



- Use the tape measure with the centimetres on the underside to reduce bias
- Secure the tape measure at the fundus with one hand.



Measure along longitudinal axis of uterus:



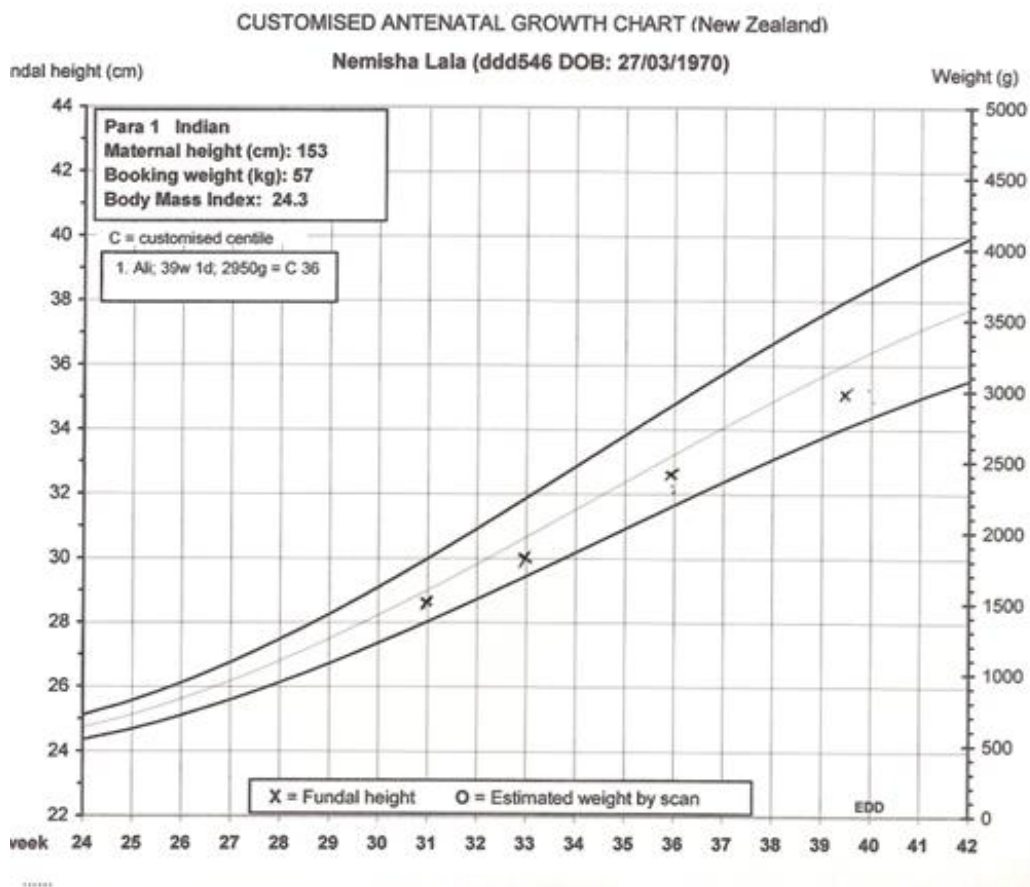
- Measure along the longitudinal axis to the highest point of the uterus, which is not always in the midline
- Measure only once.

Measure to top of symphysis pubis:



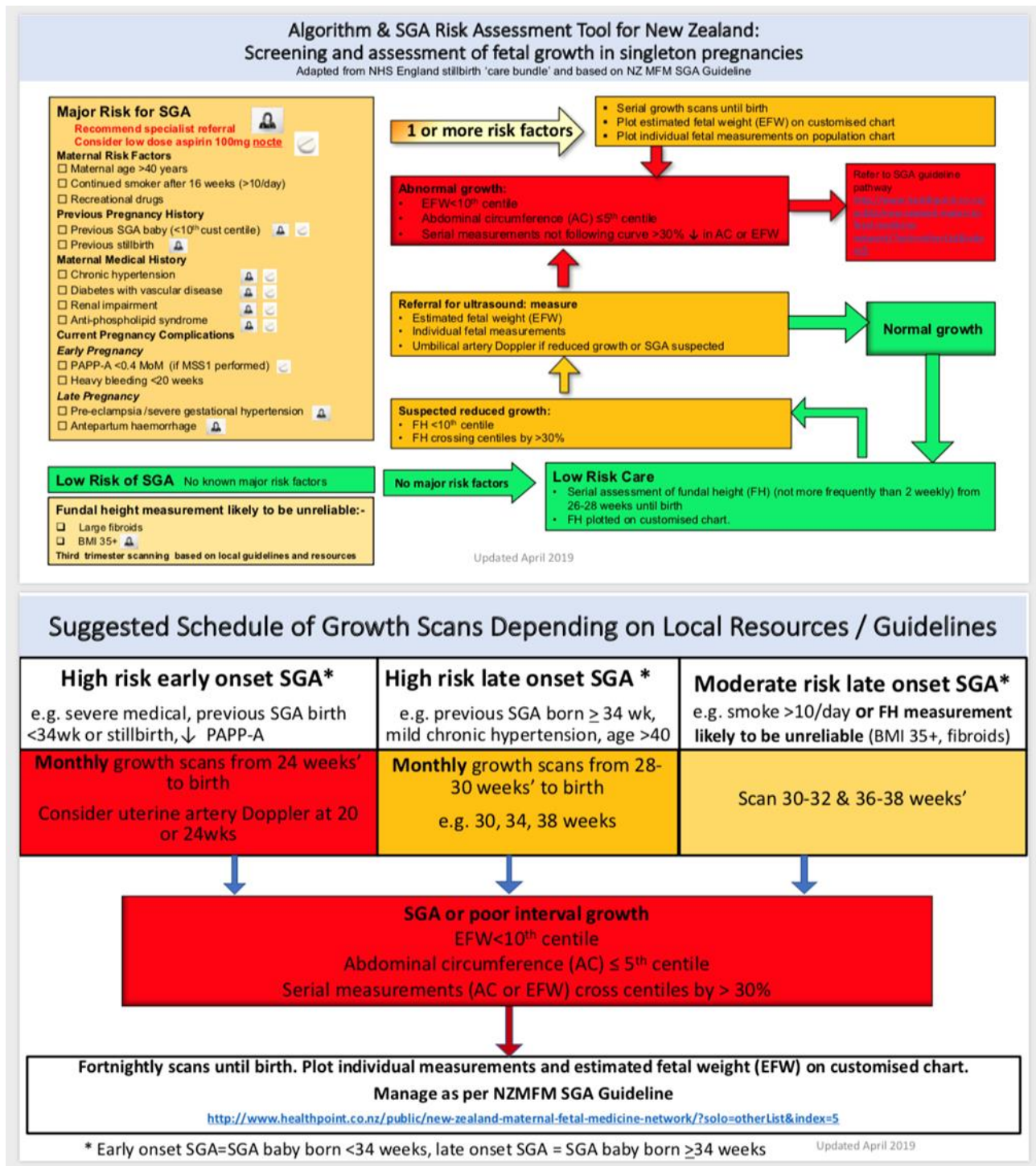
- Measure from the top of the fundus to the top of the symphysis pubis
- The tape measure should stay in contact with the skin.

Plot on customised chart, record fundal height in clinical record:



- Record the measurement in complete centimetres (e.g. 35.5 is plotted as 36cms) and record in the antenatal record. Within Auckland DHB this value will be plotted automatically on the GROW chart after saving in HealthWare. After recording the fundal height measurement in Healthware, save the form and reopen the GROW chart to check the interval growth in fundal height. For those without access to an electronic version of GROW, plot the measurement on paper accurately in weeks and days of gestation. Use a ruler for accuracy.
- For a short video to demonstrate standardised fundal height measurement and common pitfalls, click on the following link or copy and paste into your browser:
 - <https://www.youtube.com/watch?v=nyfUh5zIB1U>

11. Appendix 3: SAG algorithm and risk assessment tool



Note: If a previous infant had a birth weight <10th centile low dose aspirin (100 mg) taken in the evening should be considered before 16 weeks to reduce the risk of recurrent SGA. Early specialist review should also be planned.

12. Appendix 4: Referral processes

Referral process for LMC midwives

Auckland DHB must accept all referrals with SGA or FGR, as per the definitions above.

- Clinic appointments will be offered within a week of referral for eligible referrals.
- If the gestation is 40 weeks or more, contact the Women's Assessment Unit Obstetrician, Phone: 021942708 to arrange same day assessment.
- If the umbilical artery Doppler is abnormal, or there is oligohydramnios, contact the Women's Assessment Unit SMO, phone: 021942708 to arrange same day assessment.
- Otherwise use the maternity secondary referral form to refer to clinic. Include with the referral the following:
 - Copy of all previous ultrasound reports, including dating scans that may have been done prior to registration with an LMC (unless available on line)
 - Estimated fetal weight plotted on customised growth chart and ultrasound measurements plotted on a population ultrasound chart the Australasian Society for Ultrasound in Medicine (ASUM) chart is recommended.
 - If booking documentation for delivery at National Women's Health has not been sent more than one week prior, please include a copy
 - Please also include contact details of referrer and whether it is a request for a consultation only, or a transfer of care.
- Send the referral to the 'Maternity Walk in centre' by Fax 09 6311475 or scan and email to walkincentre@adhb.govt.nz
- Referrals directly to day assessment unit (DAU) for SGA or FGR that do not meet the criteria for SGA/FGR from 34 weeks are not part of this pathway. In particular, ultrasound appointments at either Green Lane or Auckland Hospital utilising 'SGA slots' must not be scheduled. LMC midwives should refer to the Greenlane maternity outpatients via the Walk In Centre as a secondary referral, if there are concerns about growth under 34 weeks.

Internal referrals

Community midwives, after consulting with the obstetric team, are to complete a referral on HealthWare and contact the scheduler directly for a pre-allocated SGA appointment. See *Triaging and Actioning of referrals* (see [appendix 5](#)).

Obstetric doctors must follow the process as for *First Specialist Appointment - actions for doctors who have assessed a patient with a new diagnosis of SGA > 34 weeks* ([appendix 5](#) Step number 3) It is recommended that subsequent follow-up for SGA/FGR with abnormal middle cerebral artery (MCA) Doppler, abnormal cerebro-placental ratio, abnormal umbilical or uterine artery Doppler, oligohydramnios or EFW < 3rd centile, takes place via DAU twice weekly, with a named specialist responsible for care. These women are considered to have FGR and are an at risk group. In practice it can be feasible for some appointments to be via the usual antenatal clinic appointment system to allow better continuity of care with the named specialist.

Referrals from private obstetricians

Private obstetricians are encouraged to use this policy/pathway and to access DAU as per the pathway. Auckland DHB would encourage all private practitioners to be familiar with the national guideline which can be located as follows: www.healthpoint.co.nz – then clicking through the following tabs.

Public hospitals / Auckland District health Board / New Zealand Maternal Fetal Medicine Network (NZMFMN)

Auckland DHB would encourage access via the external National Women’s Health website to this policy, and printing of the SGA algorithm (see [appendix 6](#)) and Combined SGA Worksheet and Patient Information Sheet as required. Folders will be given to the women when they come to DAU.

To access DAU, please follow the instructions *First Specialist Appointment - Actions for doctors who have assessed a patient with a new diagnosis of SGA > 34 weeks* (see [appendix 5](#) no. 3) Please provide the following:

- Copy of all previous ultrasound reports, including dating scans that may have been done prior to registration with an LMC (unless available on line)
- Estimated fetal weight plotted on customised growth chart and ultrasound measurements plotted on a population ultrasound chart (ASUM chart recommended)
- If booking documentation for delivery at National Women’s Health has not been sent more than one week prior, please include a copy.

Please also include contact details of referrer and whether it is a request for a consultation only, or a transfer of care.

13. Appendix 5: Processes for NWH staff: SGA pathway

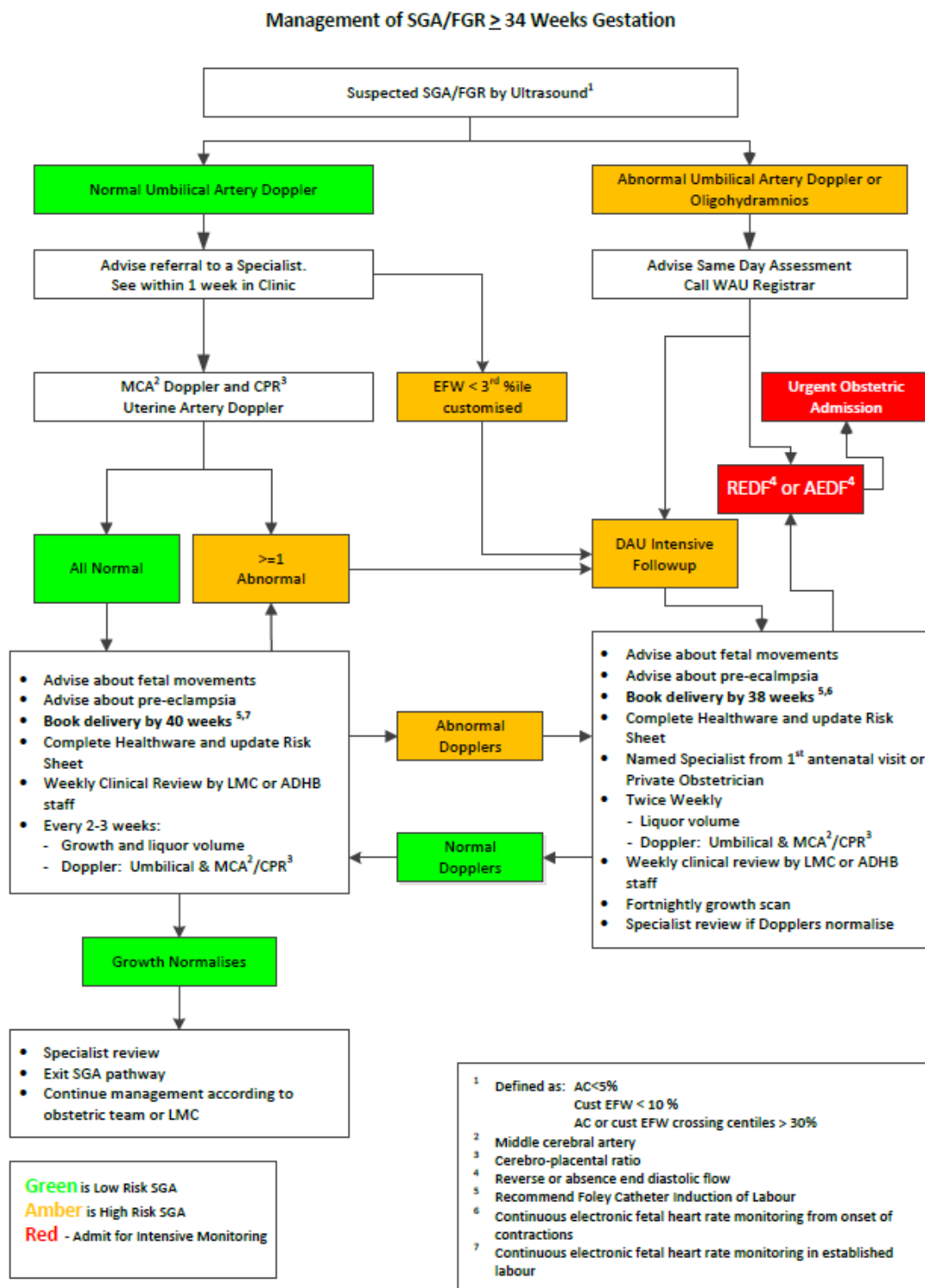
Step	Action
1.	<p>Triaging and actioning referrals</p> <ul style="list-style-type: none"> • All external referrals for SGA/FGR will be triaged to check eligibility for the pathway. • Referrals with SGA less than 34 weeks must be managed on a case-by-case basis. They must not be on this pathway. • All eligible women must be offered a face to face consultation with a specialist or senior trainee who will explain the pathway. This discussion should support the women to make an informed choice about progressing on the pathway. Documentation must reflect this discussion and any alternate decisions made by the women. An interpreter must be provided where required. • A first specialist appointment (FSA) must be scheduled in the Green Lane specialist clinic within one week of receipt of referral. Clinic bookings must be reserved for this purpose. • An ultrasound for Middle Cerebral Artery (MCA), umbilical and uterine artery Doppler must be scheduled prior to the FSA in the National Women’s Health Ultrasound Department at the Green Lane Clinical Centre. When completing the ROERS please indicate who the LMC is so that they can receive a copy of the report. <ul style="list-style-type: none"> ○ The walk-in centre midwife, community midwife or team doctor must put in a ROERS request, and ○ Add a comment to additional booking information on ROERS the date and time of the pre-allocated scan slot e.g. ‘SGA slot Monday 25/1/14 @ 1000am’ ○ Green Lane pre-allocated ultrasound slots are as follows: <ul style="list-style-type: none"> - Monday 2 x SGA women at 10am - Tuesday 2 x SGA women at 1pm - Wednesday 2 x SGA women at 1pm - Thursday 2 x SGA women at 10am - Friday 2 x SGA women at 10am <p>Note: If there are no scheduled scan spaces available please contact, Team Leader Ultrasound on 021 716700.</p> <ul style="list-style-type: none"> • The following is compiled for the clinic appointment, and given to the woman during the appointment: <ul style="list-style-type: none"> ○ SGA/FGR pamphlet ○ ‘Your baby’s movements and what they mean’ pamphlet ○ ‘Induction of Labour’ pamphlet ○ Relevant research information.
2.	<p>First specialist appointment (FSA) - actions for clinic schedulers</p> <ul style="list-style-type: none"> • Book FSA within one week of referral using pre-allocated slots. • Book ultrasound on same day as FSA, using pre-allocated slots;

Step	Action
	<ul style="list-style-type: none"> ○ If slot not available within required timeframe contact the Service Clinical Director for maternity ○ If on a Friday, the next week's Monday/Tuesday/Wednesday slots are not assigned, they may be reassigned to non-SGA women - not before ○ If on a Tuesday, the next Thursday/Friday slots are not assigned, they may be reassigned to non-SGA women - not before.
3.	<p>First specialist appointment (FSA) - actions for doctors who have assessed a patient with a new diagnosis of SGA</p> <ul style="list-style-type: none"> ● Clinical assessment according to SGA/FGR algorithm (appendix 6) and agree plan with the woman. ● In fetuses with SGA who are considered to also have FGR delivery is recommended by 38 weeks (abnormal MCA, Cerebroplacental ratio (CPR), uterine, umbilical artery Doppler, oligohydramnios). Earlier birth may be indicated if concern for maternal or fetal wellbeing. ● Similarly, in fetuses with reduced growth velocity that are not SGA delivery is recommended by 38 weeks if there is abnormal MCA, CPR, umbilical or uterine artery Doppler or oligohydramnios. If these Doppler parameters remain normal and there are no concerns re fetal or maternal wellbeing delivery by 40 weeks should be considered. ● Ensure you discuss fetal movements and pre-eclampsia. ● Give the woman the SGA/FGR pamphlet. ● If high risk SGA/FGR twice weekly monitoring is required refer the patient to DAU. ● If on the lower risk SGA pathway consider clinic follow up as scans are every two to three weeks. ● Plan the DAU review for a day when the named specialist is available to be contacted by phone, otherwise provide an alternative responsible clinician. ● Plan the DAU review for a day when the named specialist is available to be contacted by phone, otherwise arrange an alternative contact. ● Phone DAU extension 25907 to book appointments: <ul style="list-style-type: none"> ○ DAU first scan slot ○ DAU first appointment ○ Induction slot - must be requested in advance from the first clinic visit, not left until later. If the induction needs to be brought forward this should be arranged by DAU staff members based on the algorithm, or according to medical advice. ○ If Caesarean section is the planned mode of birth, the scheduler must be informed by means of a surgical booking form. If a previous booking request was for after 39 weeks, and if delivery sooner is indicated, a new booking form must be submitted. ● If seeing the woman on WAU or the ward, ensure the woman is given a copy of the SGA/FGR pamphlet. ● Record the clinical assessment and plan on the electronic maternity clinical record (Healthware) and include details of appointments. Ensure Healthware Risk sheet is updated with correct 'SGA pathway' option and IOL date/timing. ● If any urgent action is required from the LMC, contact them by phone.

Step	Action
4.	<p>Actions for DAU midwives</p> <ul style="list-style-type: none"> ● Arrange first DAU appointment as requested from team doctors see <u><i>First specialist appointment (FSA) - actions for doctors who have assessed a patient with a new diagnosis of SGA (Appendix 5 no 3)</i></u>. ● If DAU appointments are requested outside this process, please advise the referring practitioner as follows: <ul style="list-style-type: none"> ○ LMC self-employed midwife to complete a maternity secondary referral form and fax it to the walk-in centre as soon as possible; ○ Community or high risk midwife to refer to relevant obstetric team; ○ If abnormal umbilical artery Doppler, oligohydramnios or reduced fetal movement advise urgent referral to WAU. ● Follow the algorithm to arrange follow up DAU appointments and scans. ● Put in Radiology order entry and results sign off (ROERS) request for the next scan: <ul style="list-style-type: none"> ○ ROERS must be done by 0800h of the day in question ○ Add a comment to additional booking information on ROERS as per protocol including date and time and include name of LMC so a report can be sent to them ○ If there are no scheduled scan spaces available please contact Team Leader Ultrasound, on 021 716700. ● Use the DAU ultrasound booking planner to coordinate appointments. ● Referrals directly to DAU for SGA or FGR outside the above process must not be accepted by Auckland DHB staff. In particular, appointments at either Green Lane or Auckland Hospital utilising ‘SGA slots’ must not be scheduled outside the above process.

15. Appendix 6: SGA / FGR management algorithm

This Auckland DHB algorithm must be followed by staff members in DAU. For any deviations the named specialist or delegate must be contacted. There is no need for the on call team to be involved providing the Doppler and liquor are normal and the algorithm is followed.



16. Appendix 7: Induction of labour

Induction of Labour (IOL)

- Follow the SGA/FGR pathway ([appendix 6](#)) for recommended timing of birth;
- IOL may be booked in advance from the FSA; if timing changes due to a change in risk status according to the algorithm, this must be discussed with the patient, the change in plan documented, and the IOL booking change communicated appropriately.
- Recommended method for IOL is Foley balloon catheter for IOL; for low risk SGA cases patient may be offered entry to OBLIGE and if declines given a choice of method.
- IOL to be booked to start in the morning
- WAU Clinical Charge Midwife (CCM) to check Neonatal intensive care unit (NICU) availability with the NICU Clinical Charge Nurse (CCN) if admission considered likely. Ideally this should occur the day before the planned IOL/ caesarean section and again on the day.