ADVANCED MATERNAL AGE (AMA) AND OUTCOMES

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. **AIM**
   - To provide appropriate antenatal advice and management to a woman ≥ 40 years of age at expected time of birth

2. **PATIENT**
   - Pregnant woman ≥ 40 years of age at expected time of birth

3. **STAFF**
   - Medical and midwifery staff
   - Genetic counsellor

4. **EQUIPMENT**
   - Nil

5. **CLINICAL PRACTICE**
   - Discuss antenatally and counsel sensitively with woman about increased maternal and fetal risks of AMA in pregnancy, keeping information in perspective. Give information handout (see appendix 1)
   - Organise consultation with obstetric team as recommended by Australian College of Midwives (ACM) Guidelines for consultation and referral category B
   - Provide woman with age-appropriate counselling regarding her options for aneuploidy screening. The woman should be referred for genetic counselling if further information is requested or indicated (e.g. high risk result following aneuploidy screening)
     - Internal referral form accessible here: https://www.cesphn.org.au/documents/antenatal-shared-care-1/2202-rhw-genetics-referral-template/file (appendix 2)
     - External referrals (e.g. by GP's) should be addressed to Dr Jason Pinner and Dr Debra Kennedy (email to SESLHD-RHWPrenatalGenetics@health.nsw.gov.au)
   - Recommend low dose aspirin if advanced maternal age co-exists with any of the following risk factors[9]:
     - nulliparity
     - more than 10 year inter-pregnancy interval
     - family history of pre-eclampsia
     - multiple pregnancy
   - Recommend early gestational diabetes screening (14 -16 weeks gestation)
   - Recommend antenatal visits schedule be followed as for nulliparous woman
   - Recommend induction of labour at 39-40 weeks' gestation for woman ≥40 years of age. Consider any co-existing medical comorbidities, psychosocial risk factors and woman's preferences when planning Induction of labour
   - Discuss with woman who declines induction of labour by 40 weeks gestation, the increased chance of stillbirth (from 1:1000 to 1:500) and document in medical record

6. **DOCUMENTATION**
   - Medical record
   - Antenatal card

ADVANCED MATERNAL AGE (AMA) AND OUTCOMES cont'd

7. EDUCATIONAL NOTES

- An increasing number of women ≥ 40 years of age are having babies (4.8% in NSW and 7.0% in South Eastern Sydney Local Health District in 2019)[7]

Risks Associated with AMA

- Most women with AMA will have uncomplicated pregnancies and births[2,5,6] . There is a spectrum of risk for both women and their neonates with rising maternal age outlined below.
- AMA is associated with an increased rate of comorbidities which contribute to maternal and fetal risk. This includes cardiovascular disease (e.g. pre-existing essential hypertension), renal disease, diabetes, autoimmune disease and obesity[3]
- The increased rate of infertility in AMA is associated with assisted reproductive technologies and higher rates of multiple pregnancies
- Miscarriage risk increases with maternal age. Up to 1 in 4 women will miscarry prior to 35 years of age, whereas as many as 1 in 2 women will miscarry after 40 years of age. Most miscarriages will occur within the first trimester[1]
- Obstetric complications such as placental abruption, placenta praevia, malpresentation, low birthweight, preterm and post–term delivery and postpartum haemorrhage are higher in older mothers[5]
- The FASTER trial (2005) studied 36056 women, 1364 who were ≥ 40 years of age, with the following being statistically significant[1]:

	< 35 years of age (% of obstetric complications)	≥ 40 years of age (% of obstetric complications)	Adjusted OR (odds ratio)
Fetal loss (10-24 weeks)	0.8	2.2	2.4
Chromosomal abnormality	0.2	1.9	9.9
Congenital anomaly	1.7	2.9	1.7
Gestational diabetes	2.9	7.3	2.4
Placenta praevia	0.5	1.9	2.8
Placental abruption	0.7	1.6	2.3
Preterm delivery	7.8	11.8	1.4
Low birth weight	5.2	7.5	1.6
Caesarean section	21.7	40.5	2.0
Perinatal loss	0.3	0.7	2.2

- The FASTER trial (2005) did not show statistical significance for pre-eclampsia. However, a cohort study (of 76000 singleton pregnancies in the UK) published in 2013 (Khalil et al) showed an increased risk of pre-eclampsia for woman ≥ 40 years of age when compared to women < 35 years of age, with an OR 1.49[1]

Stillbirth and Induction of Labour in AMA

- Advanced maternal age is associated with an increase in antenatal and intrapartum stillbirth, independent of comorbidities
- For women ≥40 years of age, the approximate risk of stillbirth at 40 weeks is 1 in 500 compared with women ≤35 years who have a stillbirth risk of approximately 1 in 1000. This risk is comparable to women ≤35 years of age at a gestation at 42 weeks' [5]
- Nulliparous women have a higher risk of stillbirth at all gestations compared to multiparous women[5]
- According to the RCOG Guideline *Induction of Labour at Term in Older Mothers* (2013), induction of labour at 39-40 weeks' gestation should be considered in women ≥40 years of age to reduce late antenatal stillbirths[5]

ADVANCED MATERNAL AGE (AMA) AND OUTCOMES cont'd

- A systematic review and meta-analysis showed that induction of labour at term in women ≥35 years was not associated with increased risk of caesarean section, assisted vaginal delivery or postpartum haemorrhage when compared with expectant management[2]
- In a randomised control trial, induction of labour at 39 weeks' gestation (versus expectant management) in women > 35years of age, was not associated with negative maternal or neonatal outcomes in the short-term[6]
- A large retrospective cohort study reported that to balance the risks of caesarean delivery, neonatal intensive care admission, severe maternal perineal trauma and low newborn Apgar's, the optimal time for delivery of a woman ≥ 35 years of age was between 38 weeks and 5 days' gestation and 39 weeks and 6 days' gestation[4]

8. **RELATED POLICIES/ PROCEDURES /CLINICAL GUIDELINES**
   - Genetic counselling: reproductive genetic carrier screening and aneuploidy screening (including the non-invasive prenatal screening (NIPS) test)
   - Diabetes in Pregnancy (GDM) – Gestational – Screening and Management SESLHD/282
   - Hypertension – Management in Pregnancy
   - Fetal Growth Assessment (Clinical) in Pregnancy
   - Fetal Movements - Identification and Management of Reduced Patterns
   - Oxytocin for induction or Augmentation of Labour
   - Induction of Labour for women with a post-dates low risk pregnancy
   - Australian College of Midwives (ACM) Guidelines for consultation and referral

9. RISK RATING
   - Low

10. NATIONAL STANDARD
   - Standard 2 – Partnering with Consumers
   - Standard 5 - Comprehensive Care

11. **REFERENCES**

1 Cleary-Goldman J et al for the FASTER Consortium 2005. Impact of Maternal Age on Obstetric Outcome. AJOG 105:983-90
2 Fonseca MJ, Santos F, Afreixo V, Silva IS, Almeida MDC. Does induction of labour at term increase the risk of cesarean section in advanced maternal age? A systematic review and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2020 Oct; 253:213-219. doi: 10.1016/j.ejogrb.2020.08.022. Epub 2020 Aug 25. PMID: 32889327.
3 Khalil, A, Syngelaki, A, Maiz, N, Zinevich, Y and Nicolaides, K. H. 2013. Maternal age and adverse pregnancy outcome: a cohort study. Ultrasound Obstet Gynecol, 42:634-643. doi:10.1002/uog.12494
4 Nicholson JM, Kellar LC & Kellar GM 2006. The impact of the interaction between increasing gestational age and obstetrical risk on birth outcomes: evidence of a varying optimal time of delivery. J Perinatol 26:392
5 Royal College of Obstetricians and Gynaecologists. 2013. Induction of Labour at Term in Older Mothers: Scientific Paper no. 34 February 2013

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6 Walker K, Bugg G, Macpherson M, McCormick C, Grace N, Wildsmith C, Bradshaw L, Smith GC & Thornton JG. 2016. Randomized Trial of Labour Induction in Women 35 Years of Age or Older. N Engl J Med 374:813-822
7 Centre for Epidemiology and Evidence. *New South Wales Mothers and Babies 2019*. Sydney: NSW Ministry of Health, 2019
8 Centre of Research Excellence Stillbirth. Safer Baby Bundle Handbook and Resource Guide: Working together to reduce stillbirth. Centre of Research Excellence Stillbirth, Australia, 2019
9 Brown MA, Magee LA, Kenny LC, et al. Hypertensive Disorders of Pregnancy: International Society for the Study of Hypertension in Pregnancy (ISSHP), Classification, Diagnosis, and Management Recommendations for International Practice. Hypertension. 2018;72(1):24-43. doi:10.1161/HYPERTENSIONAHA.117.10803

REVISION & APPROVAL HISTORY
Reviewed and endorsed Maternity Services LOPs 12/10/21
Approved Quality & Patient Care Committee November 2016
Reviewed and endorsed Maternity Services LOPs 26/9/16
Approved Quality & Patient Safety Committee 18/6/09E
Endorsed Obstetrics Clinical Guidelines Group May 2009

FOR REVIEW : OCTOBER 2026

…./Appendices

Appendix 1

Advanced Maternal Age

Information for Women aged 40 years or more at the time of expected birth

Pregnancy in women aged 40 years or older is becoming more common. Most women aged 40 years or older will have an uncomplicated pregnancy and birth. However, women should be aware of the related risks/concerns that occur with maternal age so that a plan for care can be made and individualised to you and your baby's needs.

Definition

'Advanced Maternal Age' is considered any women 40 years and over at time of birth.

The Risks/Concerns

Most women aged 40 years or older will have a health pregnancy. There are things to consider for both mother and baby. The degree of the risk varies depending on the specific risk factors related with any medical conditions and previous obstetric history.

Main Concerns for the Mother

Increased chance of:

- Diabetes in pregnancy (called Gestational Diabetes)
- Blood Clots (called Venous Thrombosis)
- High Blood pressure (called Hypertension or Pre-eclampsia)
- Low lying placenta
- Early separation of the placenta (called Placental Abruption)
- Prolonged Labour
- Caesarean Birth
- Instrumental Birth

Main Concerns for Baby

Increased chance of:

- Chromosomal abnormalities e.g. Down Syndrome
- Stillbirth
- Low birth weight (often called fetal growth restriction – FGR)
- Preterm birth

To help reduce some of these concerns we recommend:

Pre-pregnancy

- Good control of pre-existing medical conditions
- Stop smoking
- Reduce weight if overweight (BMI over 30)
- Folic acid daily (400mcg)

During Pregnancy

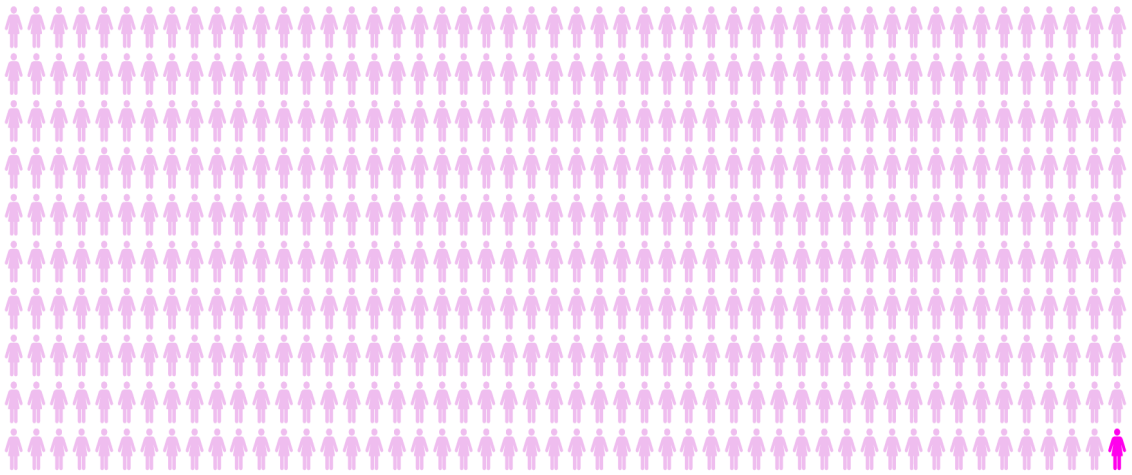
- Offer First Trimester Screening (variable costs involved)
  - Nuchal translucency (NT) ultrasound + blood test (serum screening) between 11-14 weeks gestation.
  - Non-Invasive Prenatal Screen (NIPS) blood test from 10 weeks' gestation.
- You may be referred to a genetic counsellor for further discussion
- You may be recommended to take low dose aspirin during your pregnancy
- Consultation with Obstetrician/obstetric antenatal clinic to individualise your care

- Antenatal visits schedule recommended as for a first time mum (even if this is NOT your first baby)
- An ultrasound between 18 and 20 weeks of pregnancy to look for any problems with your baby's anatomy and the location of your placenta

Timing and Mode of Birth

Research has shown that once you have reached 40 weeks the chance of stillbirth slightly increases (1:500) compared to women under 35 years old (1:1000). Because of this, we recommend induction of labour between 39 - 40 weeks gestation.
You will have an opportunity to discuss this at a clinic appointment with your midwife or doctor. How and when you birth will depend on your specific circumstances and wishes. This will always be discussed with you and your partner, allowing us to come to a plan that is suitable for you.

1:500 looks like this

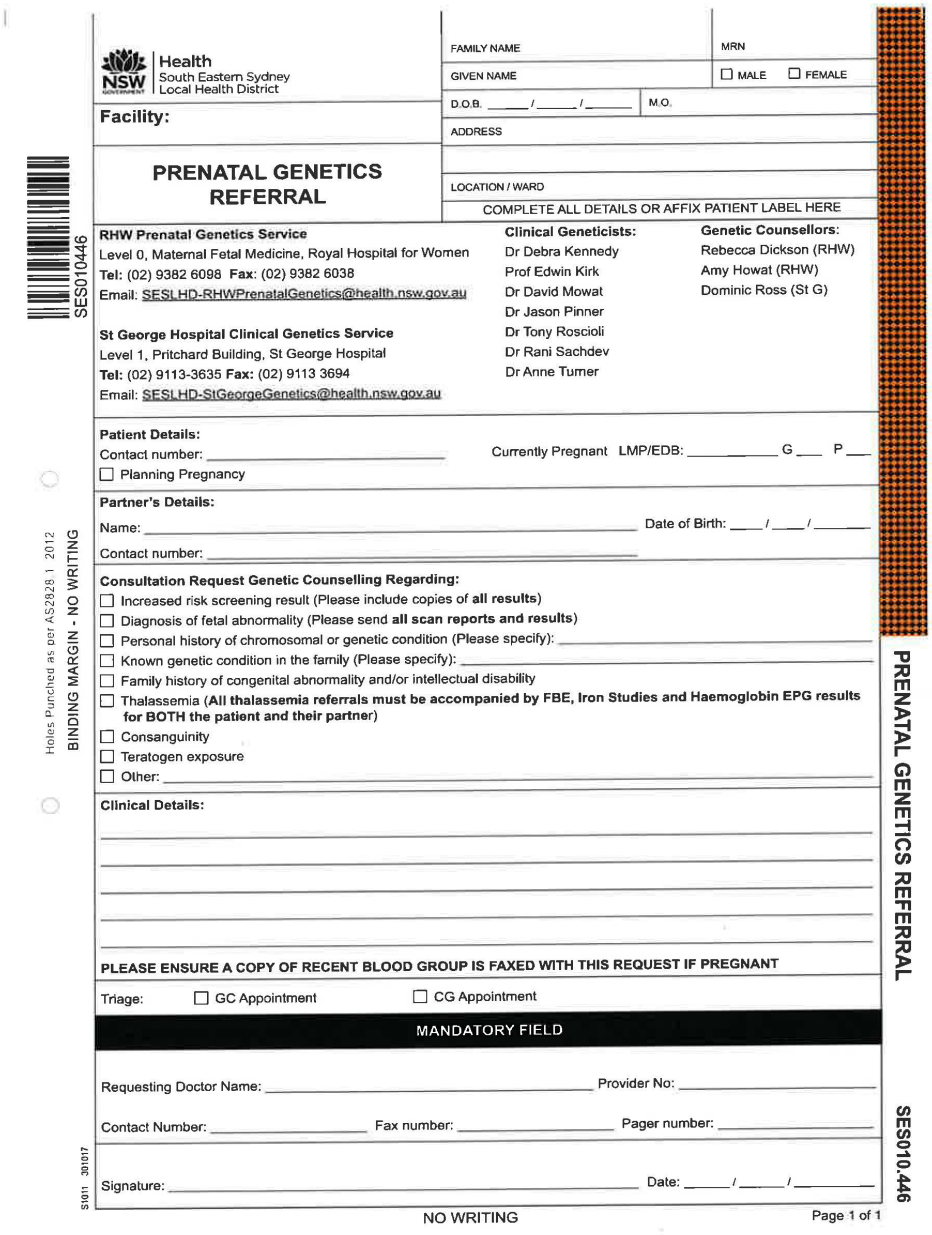


References:

1. Cleary-Goldman J et al for the FASTER Consortium 2005. Impact of Maternal Age on Obstetric Outcome. AJOG 105:983-90
2. Fonseca M, J. Santos F. Afreixo V. Silva I, S. Almeida M, D,C. Does induction of labour at term increase the risk of cesarean section in advanced maternal age? A systematic review and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2020 Oct; 253:213-219.
3. Khalil, A., Syngelaki, A., Maiz, N., Zinevich, Y and Nicolaides, K. H. 2013. Maternal age and adverse pregnancy outcome: a cohort study. Ultrasound Obstet Gynecol, 42:634-643.
4. Centre of Research Excellence Stillbirth. Safer Baby Bundle Handbook and Resource Guide: Working together to reduce stillbirth. Centre of Research Excellence Stillbirth, Australia, 2019

Adapted from NHS Royal Devon and Exeter
Patient information - Raised Maternal Age in Pregnancy 2019

Appendix 2



Health
South Eastern Sydney
Local Health District

Facility:

PRENATAL GENETICS REFERRAL

FAMILY NAME | MRN
GIVEN NAME | ☐ MALE ☐ FEMALE
D.O.B. ____ / ____ / ____ | M.O.
ADDRESS
LOCATION / WARD
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE

SES010446

RHW Prenatal Genetics Service
Level 0, Maternal Fetal Medicine, Royal Hospital for Women
Tel: (02) 9382 6098 **Fax:** (02) 9382 6038
Email: SESLHD-RHWPrenatalGenetics@health.nsw.gov.au

St George Hospital Clinical Genetics Service
Level 1, Pritchard Building, St George Hospital
Tel: (02) 9113-3635 **Fax:** (02) 9113 3694
Email: SESLHD-StGeorgeGenetics@health.nsw.gov.au

Clinical Geneticists:
Dr Debra Kennedy
Prof Edwin Kirk
Dr David Mowat
Dr Jason Pinner
Dr Tony Roscioli
Dr Rani Sachdev
Dr Anne Turner

Genetic Counsellors:
Rebecca Dickson (RHW)
Amy Howat (RHW)
Dominic Ross (St G)

Patient Details:
Contact number: _____ Currently Pregnant LMP/EDB: _____ G ___ P ___
☐ Planning Pregnancy

Partner's Details:
Name: _____ Date of Birth: ____ / ____ / _____
Contact number: _____

Consultation Request Genetic Counselling Regarding:
☐ Increased risk screening result (Please include copies of **all results**)
☐ Diagnosis of fetal abnormality (Please send **all scan reports and results**)
☐ Personal history of chromosomal or genetic condition (Please specify): _____
☐ Known genetic condition in the family (Please specify): _____
☐ Family history of congenital abnormality and/or intellectual disability
☐ Thalassemia (**All thalassemia referrals must be accompanied by FBE, Iron Studies and Haemoglobin EPG results for BOTH the patient and their partner**)
☐ Consanguinity
☐ Teratogen exposure
☐ Other: _____

Clinical Details:
_____
_____
_____
_____
_____

PLEASE ENSURE A COPY OF RECENT BLOOD GROUP IS FAXED WITH THIS REQUEST IF PREGNANT

Triage: ☐ GC Appointment ☐ CG Appointment

MANDATORY FIELD

Requesting Doctor Name: _____ Provider No: _____
Contact Number: _____ Fax number: _____ Pager number: _____
Signature: _____ Date: ____ / ____ / _____

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NO WRITING

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