Metro South Health

Quality healthcare every day

Metro South Health and Hospital Service

GP Maternity Share Care Education Alignment Maternity 2

In partnership with Mater Mothers' Hospital

ICARE² values

Queensland Government

Metro South Health

Quality healthcare every day

Metro South Health and Hospital Service Maternity Shared Care AM2

Saturday 7th September 2024

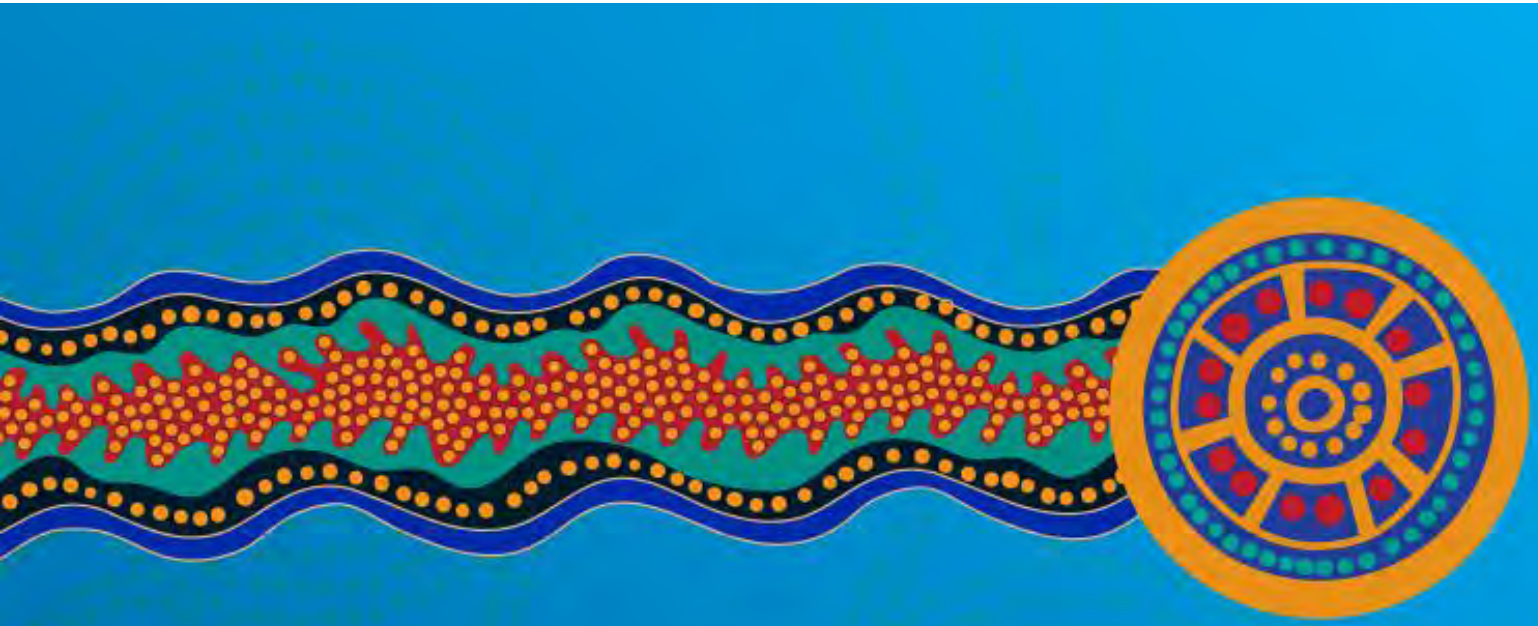
ICARE² values

INTEGRITY COMPASSION ACCOUNTABILITY RESPECT ENGAGEMENT EXCELLENCE

Queensland Government

Metro South Health

Quality healthcare every day



Metro South Health acknowledges the traditional Custodians of the land on which we live, work and walk, recognising their shared country, their continuing connection to the lands, the waters, and communities.

We pay respects to the Elders past, present, and emerging and extend that respect to Aboriginal and Torres Strait Islander peoples here today.

ICARE² values

INTEGRITY COMPASSION ACCOUNTABILITY RESPECT ENGAGEMENT EXCELLENCE

Queensland Government

In our education today, we will use the terms women, people, patients or individuals, when referring to those who are pregnant or planning to become pregnant. We also use the term mother, especially in the case of "mother-to-infant transmission". We respectfully acknowledge that some pregnant people or those planning pregnancy may not identify as 'female' or as having a lived experience of 'womanhood' or 'motherhood'.

Acknowledgments

- Metro South Health and Hospital Service
- Maternity Services at Logan/Beaudesert/Redland Hospitals for their clinical input and support
- The Alignment team at MMH
- The > 1800+ GPs who've been through MMH or our Alignment process and given us their feedback
- Dr Wendy Burton
- Brisbane South PHN
- Yourselves

- And a big THANK YOU to our sponsor today – Queensland Fertility Group and the Brisbane South Private Hospital

House keeping

- **Raise your hand** if you want to contribute to the discussion or to ask any questions.
- **Phones on silent please**.

Session 1

Time	Session name	Presenter	Delivery
8:00 am	Welcome, Housekeeping, learning objectives.	Dr Kim Nolan	GP Facilitator
8:10 am – 8:40 am	Task 1 Breakout groups – Case Discussion	Breakout	Facilitated groups
8:40 am	Preconception Consult 1 – Opportunistic and Planned Preconception Advice	Group Spokesperson Dr Kim Nolan	Facilitated groups Power Point Presentation & Forum Discussion
9:20am	Preconception Consult 2 – PCOS patient, Post Bariatric Surgery Pregnancy Planning	Group Spokesperson Dr Kate Hawk	Facilitated groups Power Point Presentation & Forum Discussion
10:00 am	Preconception Consult 3 – Pre-eclampsia prevention, Reproductive Carrier Screening	Group Spokesperson Dr Elisha Broom	Facilitated groups Power Point Presentation & Forum Discussion
10:40 am	Morning Tea	ALL	ALL

Session 2

Time	Session name	Presenter	Delivery
11:00 am	Preconception Consult 4 – Reducing risks in teenagers – STI's, Substance Use, Dietary issues	Group Spokesperson Dr Kim Nolan	Facilitated groups Power Point Presentation & Forum Discussion
11:40 am	Preconception Consult 5 – Subfertility, Cervical Screening Anomalies, HSV, Previous Preterm Birth	Group Spokesperson Dr Sanja Savic	Facilitated groups Power Point Presentation & Forum Discussion
12:20 pm	Preconception Consult 6 - Recurrent miscarriage	Group Spokesperson Dr Kim Nolan	Facilitated groups Power Point Presentation & Forum Discussion
1:00 pm	Lunch	ALL	ALL

Session 3

Time	Session name	Presenter	Delivery
1:45 pm	Task 2 Breakout groups – Case Discussion	Breakout	Facilitated groups
2:00 pm	Postnatal Consult 1 – Case Discussion Heavy or Prolonged Bleeding	Group Spokesperson Dr Kim Nolan Dr Sanja Savic	Facilitated groups Power Point Presentation & Forum Discussion
2:15 pm	Postnatal Consult 2 – Case Discussion Breastfeeding Issues Child Health Presentation	Bernadette Duffy, Child Health Nurse & Lactation Consultant	Facilitated groups Power Point Presentation & Forum Discussion
2.55 pm	Neonatal Examination		Video – Dr David Cartwright
3:05 pm	Postnatal Consult 3 –Case Discussion Common Neonatal Concerns	Dr Ryan Mills	Facilitated groups Power Point Presentation & Forum Discussion

Learning Objectives:

1. Increase GP awareness of the benefits to maternal and infant health that the preconception consult can identify and thereby modify (biomedical, behavioural and social factors).
2. Discuss practical means of incorporating these into everyday care of women and men of reproductive age.
3. Improve assessment of the subfertile couple and those who have experienced recurrent miscarriage.
4. Improve GP understanding of reproductive carrier screening and become aware of the expanding capacity within MSHHS to manage complex Materno-Fetal issues.
5. Improve GP management of the family postnatally, including updates to assist GPs in supporting the breastfeeding mother, and managing common neonatal health concerns.

Today's aim

- Educate
- Update
- Equip
- Empower

How are we going to achieve this?

- By utilising the existing skill base within General Practice and the Maternity Team
- Highlighting the existing resources at Queensland Health, RANZCOG and SpotOnHealth Pathways (soon to be renamed Brisbane South HealthPathways)
- Improving communication channels between primary, secondary and tertiary level care
- Managing expectations!

And ultimately…..

Improve the health outcomes for women, their babies and their children

Mother and Child: Hood by Henry Moore 1898-1986
– St Paul's Cathedral, London

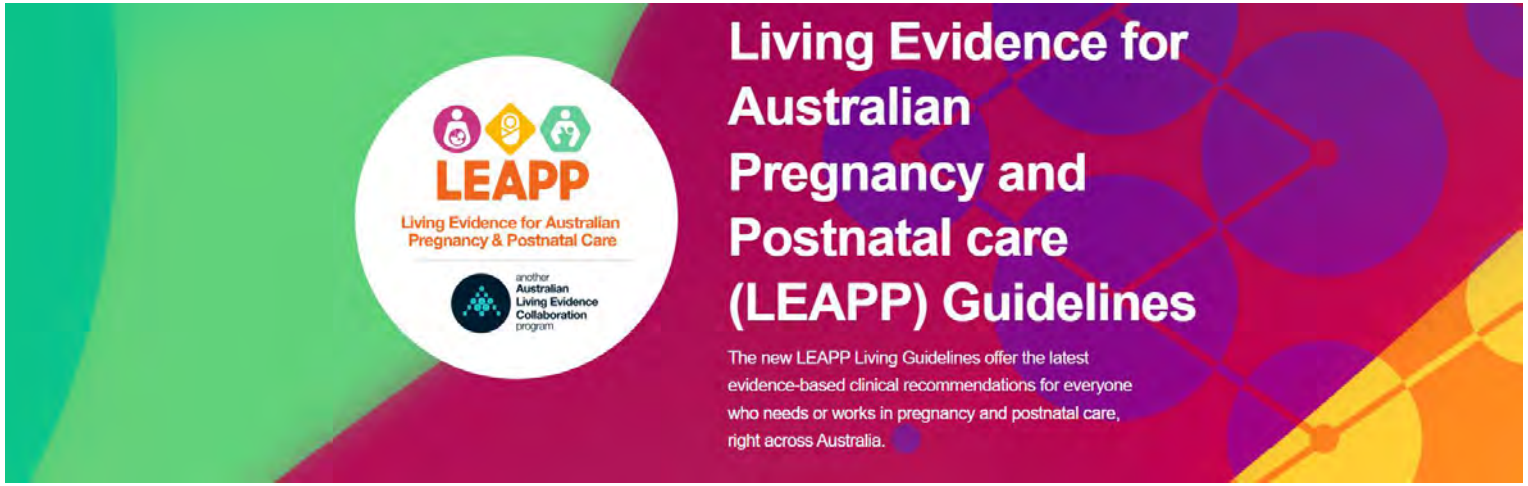
Introducing today's team …..

- Facilitator: Dr Kim Nolan , GP - GPLO Maternity Share Care
- Lisa Miller, GPLO Midwife Manager

From Logan, Beaudesert and Redland Hospital Teams

- Dr Sanja Savic
- Dr Kate Hawke
- Dr Elisha Broom
- Dr Ryan Mills
- Bernadette Duffy, LC and Child Health Nurse

Australian Pregnancy Care Guidelines



- Living Evidence in Australian Pregnancy and Postnatal Care (LEAPP) project established in 2023
- Updating and establishing the Pregnancy Care Guidelines as “living’ guidelines” (key recommendations in areas of uncertainty or rapidly moving research able to be continually updated, keeping pace with the best available evidence)

Pregnancy Care Guidelines currently incorporates content from the 2020 edition but will be progressively updated, with draft recommendations undergoing public consultation also being published.
Information on the date and approval status of recommendations is included with each recommendation.

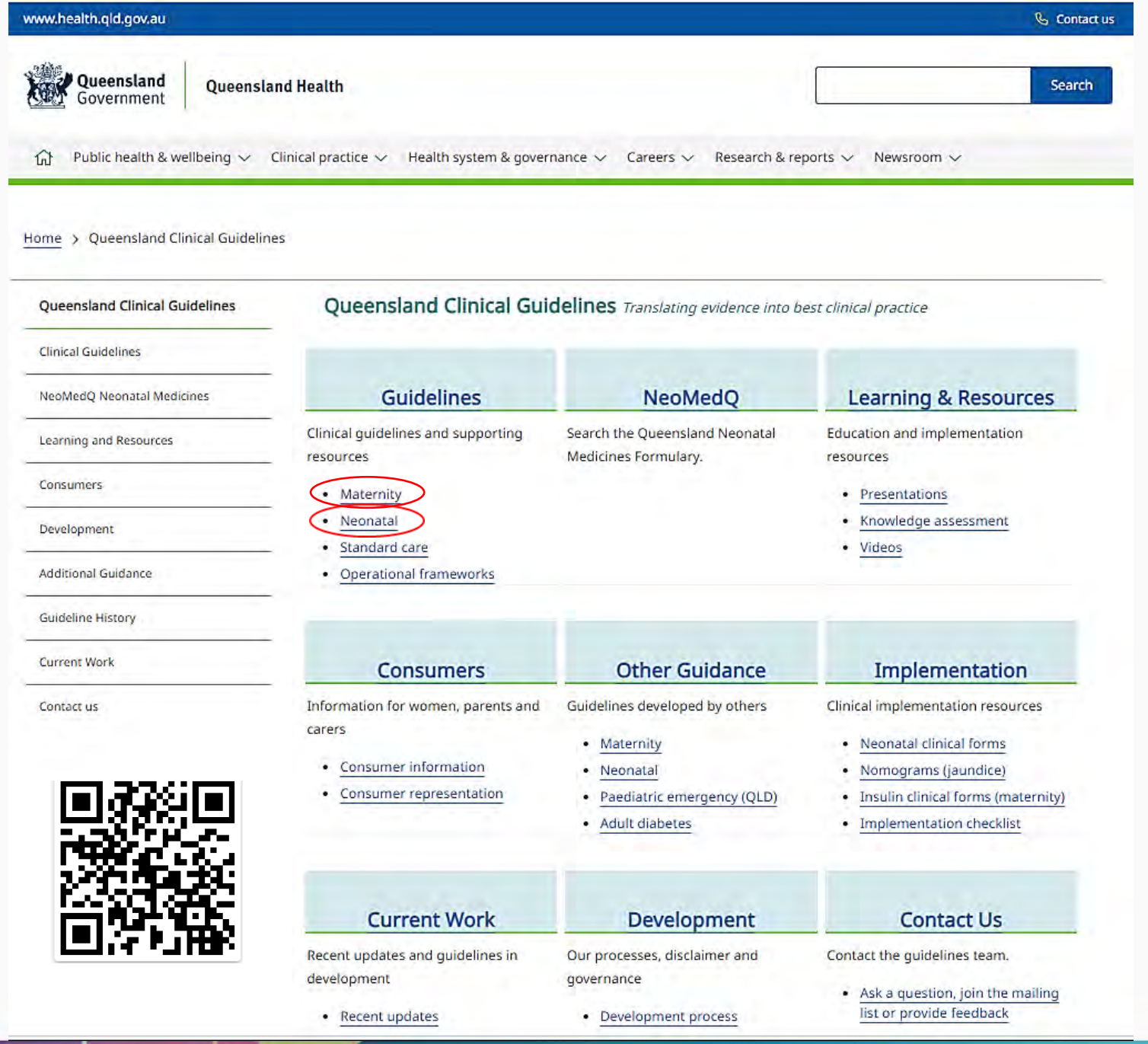
Over the next five years, continuing to update the existing Australian Pregnancy Care Guidelines and developing new Australian Postnatal Care Guidelines, informed by the latest evidence from around the globe.

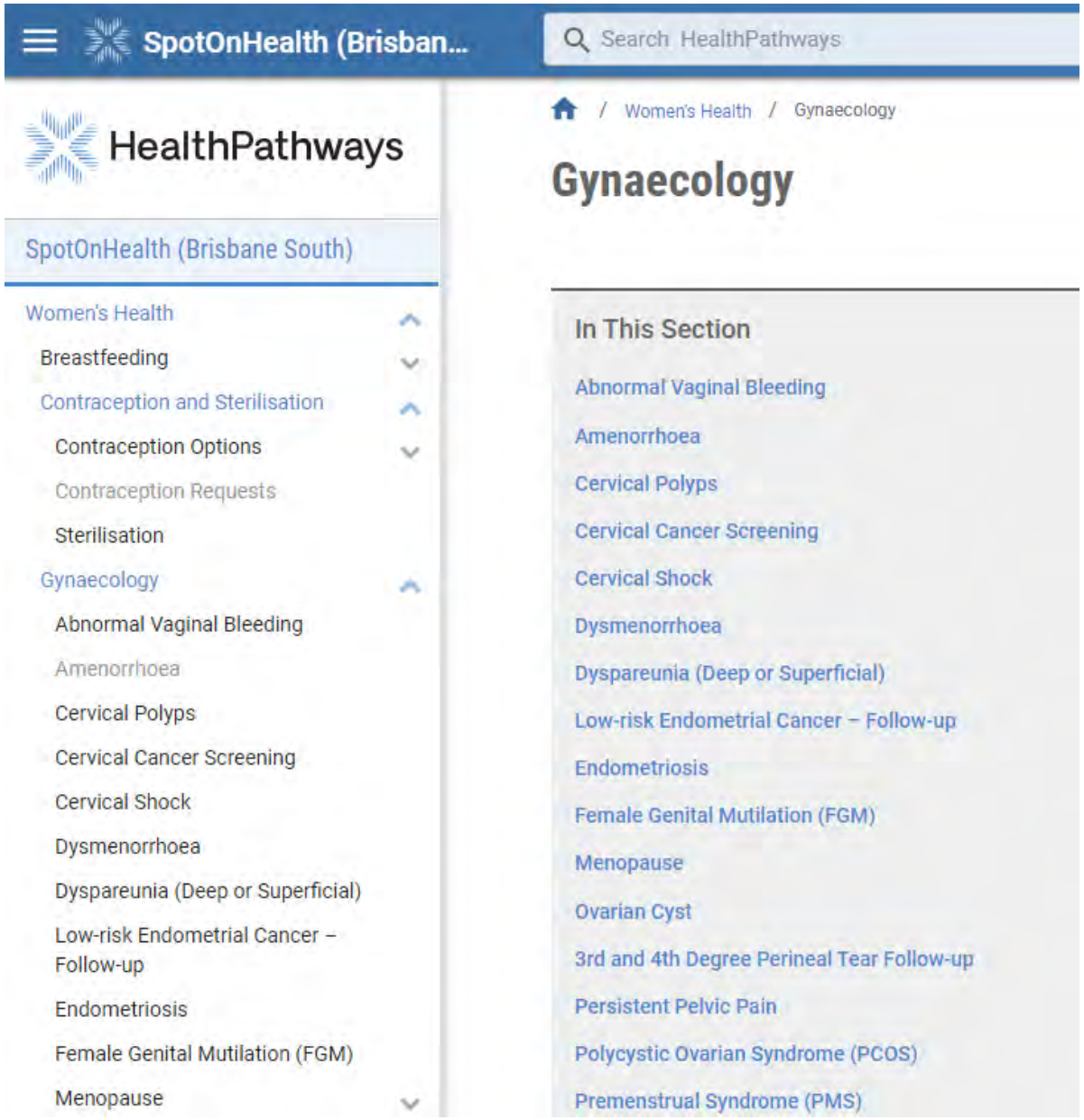
Australian Living Evidence Collaboration. (2023 version 1).
Australian pregnancy care guidelines.
https://leappguidelines.org/

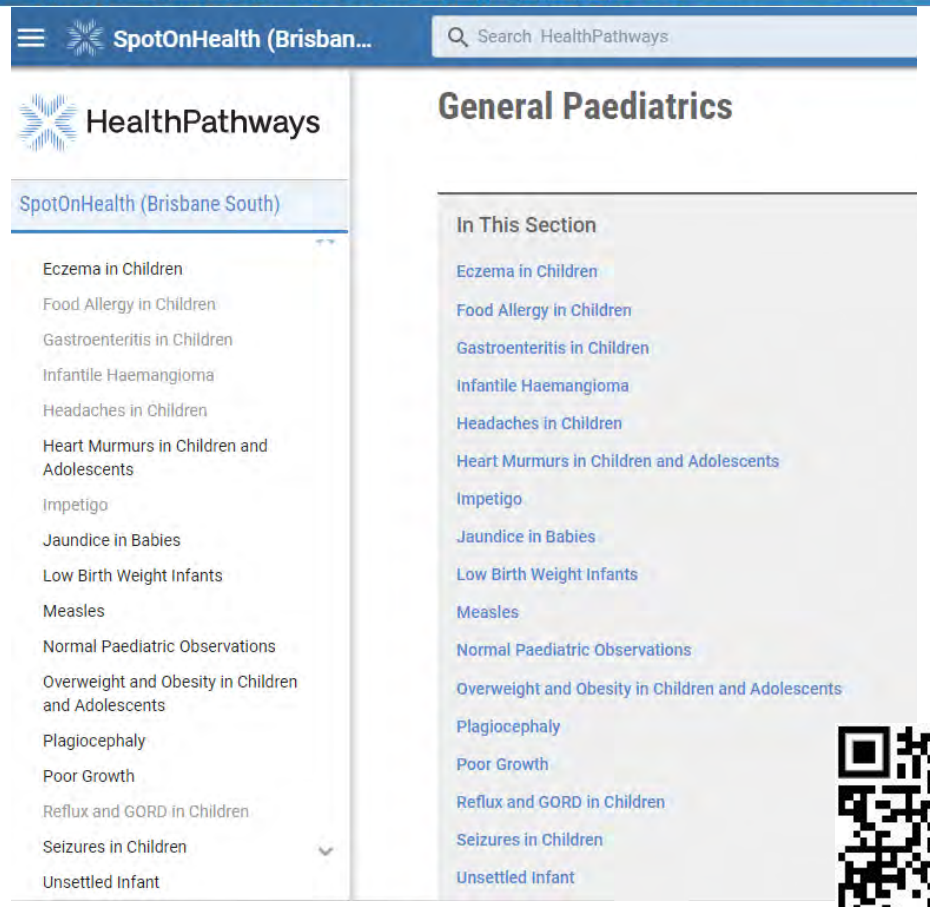
Queensland Clinical Guidelines

QHealth Maternity Guidelines has evidence-based guidelines, consumer and education resources

https://www.health.qld.gov.au/qcg







Community HealthPathways “Brisbane South Health Pathways”

CPD Hours for HealthPathways Use

About Continuing Professional Development (CPD)

From 1 Jan 2023, the Medical Board of Australia (MBA) requires all medical practitioners (except those who are exempt) to:

- create a performance development plan.
- undertake 50 hours of CPD per year. This includes:
  - 25 hours of performance review and measuring outcomes (no less than 5 hours per category).
  - 12.5 hours of learning/educational activities.
  - 12.5 hours of free choice.

By 1 Jan 2024, all medical practitioners will need to have identified a CPD home. This is typically their Australian Medical Council (AMC) accredited specialist college:

- RACGP
- ACRRM
- AMA's CPD Home

Specialist colleges may have additional requirements to those set by the MBA, e.g.:

- RACGP requires practitioners to complete a CPR course every 3 years.
- ACRRM requires practitioners to complete an advanced life support (ALS) course every 3 years.

Using HealthPathways for CPD

HealthPathways is a source of contemporary and practical clinical information, localised to the geographical region of the medical practitioner. Application of knowledge contained within pathways to the individual patient provides an opportunity for reflection upon current understanding of the patient's clinical condition, and how it may be improved.

Australian College of Rural and Remote Medicine (ACRRM)

Complete 30 minutes of performance review and 30 minutes of educational activity:

- Enter details into the Reflective Activity Template.
- Submit to ACRRM online.

The Royal Australian College of General Practitioners (RACGP)

Complete 30 minutes of performance review and 30 minutes of educational activity:

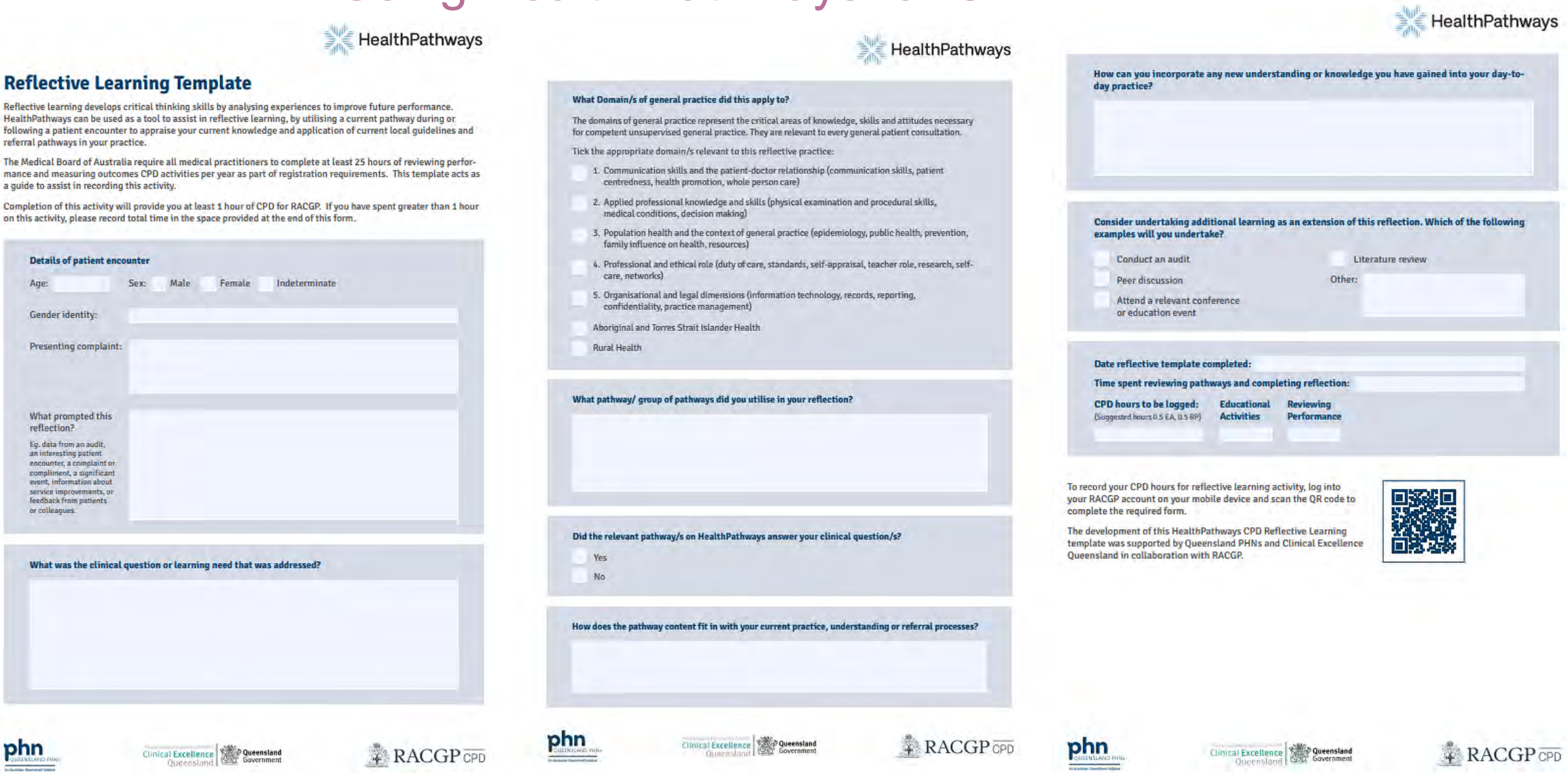
> **Educational activity**
>
> - Reading, viewing, or listening to educational material
> - Active learning courses (online or face to face)
> - Study towards formal qualifications
> - Supervised practice attachments
> - Attending lectures, forums, or workshops

> **Performance review**
>
> Measures that analyse and reflect on your actual work processes. This often includes:
>
> - feedback from peers, colleagues, and patients.
> - undertaking teaching activities, or supervising colleagues.
> - undertaking practice accreditation activities.

- Enter details into the Reflective Activity Template.
- Submit to RACGP online, or through the myCPD app (available on Android or iOS).

[CPD Hours for HealthPathways Use](https://brisbanesouth.communityhealthpathways.org/145650.htm)
https://brisbanesouth.communityhealthpathways.org/145650.htm

Using Health Pathways for CPD Points



HealthPathways

Reflective Learning Template

Reflective learning develops critical thinking skills by analysing experiences to improve future performance. HealthPathways can be used as a tool to assist in reflective learning, by utilising a current pathway during or following a patient encounter to appraise your current knowledge and application of current local guidelines and referral pathways in your practice.

The Medical Board of Australia require all medical practitioners to complete at least 25 hours of reviewing performance and measuring outcomes CPD activities per year as part of registration requirements. This template acts as a guide to assist in recording this activity.

Completion of this activity will provide you at least 1 hour of CPD for RACGP. If you have spent greater than 1 hour on this activity, please record total time in the space provided at the end of this form.

Details of patient encounter

Age: Sex: Male Female Indeterminate

Gender identity:

Presenting complaint:

What prompted this reflection?

Eg. data from an audit, an interesting patient encounter, a complaint or compliment, a significant event, information about service improvements, or feedback from patients or colleagues.

What was the clinical question or learning need that was addressed?

HealthPathways

What Domain/s of general practice did this apply to?

The domains of general practice represent the critical areas of knowledge, skills and attitudes necessary for competent unsupervised general practice. They are relevant to every general patient consultation.

Tick the appropriate domain/s relevant to this reflective practice:

1. Communication skills and the patient-doctor relationship (communication skills, patient centredness, health promotion, whole person care)
2. Applied professional knowledge and skills (physical examination and procedural skills, medical conditions, decision making)
3. Population health and the context of general practice (epidemiology, public health, prevention, family influence on health, resources)
4. Professional and ethical role (duty of care, standards, self-appraisal, teacher role, research, self-care, networks)
5. Organisational and legal dimensions (information technology, records, reporting, confidentiality, practice management)

Aboriginal and Torres Strait Islander Health

Rural Health

What pathway/ group of pathways did you utilise in your reflection?

Did the relevant pathway/s on HealthPathways answer your clinical question/s?

Yes

No

How does the pathway content fit in with your current practice, understanding or referral processes?

HealthPathways

How can you incorporate any new understanding or knowledge you have gained into your day-to-day practice?

Consider undertaking additional learning as an extension of this reflection. Which of the following examples will you undertake?

Conduct an audit

Literature review

Peer discussion

Other:

Attend a relevant conference or education event

Date reflective template completed:

Time spent reviewing pathways and completing reflection:

CPD hours to be logged: (Suggested hours 0.5 EA, 0.5 RP)	Educational Activities	Reviewing Performance

To record your CPD hours for reflective learning activity, log into your RACGP account on your mobile device and scan the QR code to complete the required form.

The development of this HealthPathways CPD Reflective Learning template was supported by Queensland PHNs and Clinical Excellence Queensland in collaboration with RACGP.

phn Clinical Excellence Queensland Queensland Government RACGP CPD

https://brisbanesouth.communityhealthpathways.org/files/Resources/CPDReflectiveLearningTemplateV1.3RACGP.pdf

Tracking CPD points & reviewing performance AM2 Sat 7th Sept. 2024

Blue Case – Tiffany	**Green Case – Kelsey**	**Red Case – Zuri**
3 Things Learnt	3 Things Learnt	3 Things Learnt
1.	1.	1.
2.	2.	2.
3.	3.	3.
How will your patient care change?	How will your patient care change?	How will your patient care change?

Online resources

- Metro South Health GP Maternity Share Care Clinical Guidelines – in Draft
- Australian Pregnancy Care Guidelines (Australian Govt)
- Queensland Clinical Guidelines - Maternity and Neonatal
- Metro South Health Refer Your Patient
- Mater Mothers' Hospital GP Maternity Shared Care Guidelines – 2024 version
- RANZCOG education resources
- Guidelines for Preventive Activities in General Practice – 10th edition
- Australian Society of Infectious Diseases – Management of Perinatal Infections - 2022
- Australasian Diabetes in Pregnancy Society
- Brisbane South Health Pathways - Women's Health & Paediatrics
- King Edward Memorial Hospital - Obstetrics and Gynaecology Guidelines (health.wa.gov.au)
- Safer Baby Bundle Online education and resources
- Australian STI Management Guidelines
- Syphilis in Pregnancy Clinical Guidelines and resources
- COPE: Centre of Perinatal Excellence - 2023 National Perinatal Mental Health Guideline

AM2 Case Discussion – Blue Group

- Tiffany is a 25-year-old childcare worker who presents for her first cervical screening test and a pill script.
- She tells you she has just met the “man of her dreams”
- You know that her sister has coeliac disease and suffered a severe perinatal depressive episode a few years ago
- What can you undertake opportunistically in this consultation and ongoing, knowing that she wishes to have a family in the future?

She has a 20 min appointment - Outline your approach

Summarise also what you will do when she returns in 8 months wanting to try for a baby.

Contraceptive Options:

Following information should be provided about each contraceptive method:

- relative effectiveness
- correct usage
- mechanism of action
- common side-effects
- health risks and benefits
- signs and symptoms that would necessitate a return for review
- time to return to fertility after discontinuation
- emergency contraception if suspected failure of method
- sexually transmitted infection (STI) protection

Using contraception can help you prevent becoming pregnant. Different methods may suit you at different times in your life.

In a multicultural society like Australia, information should be presented using language and formats that can be easily understood by the patient.

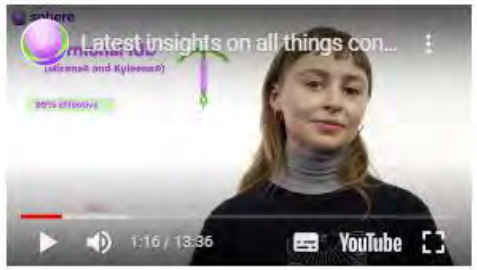
1. https://www.kemh.health.wa.gov.au/~/media/HSPs/NMHS/Hospitals/WNHS/Documents/Clinical-guidelines/Obs-Gyn-Guidelines/Contraception.pdf?thn=0
2. https://www.fpnsw.org.au/health-information/individuals/non-english-speaking/fact-sheets-community-languages
3. https://www.true.org.au/factsheets/choose-a-topic/contraception

FOR CONSUMERS

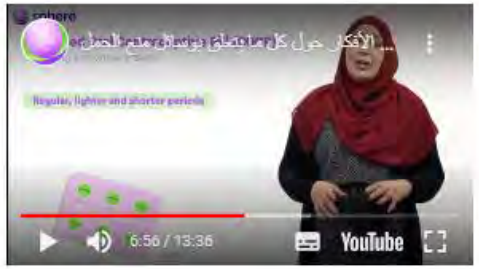
Which contraceptive method is right for you?

As part of the EXTEND-PREFER project, the team developed an educational video discussing the different contraceptive methods available in Australia. This video has also been translated into Arabic, Cantonese, Hindi and Mandarin.

English



Arabic



Cantonese

Hindi

Mandarin

[Contraception videos in languages (Sphere)]

https://www.spherecre.org/resources/for-consumers/contraceptive-options

Delay in return to fertility after use of contraceptive methods

Evidence regarding resumption of pregnancy after contraceptive discontinuation are currently inconclusive.

Delay of fertility after ceasing contraception remains a big concern for women using contraception.

Essentially, **no delay in return of fertility** following:

- Discontinuation of progestogen-only pill or CHC, or "morning after pill"
  - Can occur very quickly – days or weeks.
  - 79% - 96% of women can fall pregnant within 12/12 of ceasing pill. (C)
  - Incidence of post pill amenorrhoea (1 year post cessation) – 1-3%
- Discontinuation of progestogen-only implant (B) – fertility returns 1-2 weeks in most, no long-term infertility risk
- Discontinuation of hormone intrauterine contraception (B)
  - Quick return to fertility in uncomplicated use; PID and infection risk is very low
  - Infection can occur in the weeks following insertion but is usually mild and can be treated with oral antibiotics.
- Can be a delay of up to 1-1.5 year in the return of fertility after discontinuation of DMPA (C) – i.e., back to pregnancy rate as seen in general population. Ten months is the median time it takes to return to fertility.

A. Evidence based on randomised controlled trials

B. Evidence based on other robust experimental or observational studies

C. Evidence is limited but advice relies on expert opinion and has endorsement of respected authorities

1. Return of fertility after discontinuation of contraception a systematic review and meta-analysis, Contraception and Reproductive Medicine (2018) 3:9 https://contraceptionmedicine.biomedcentral.com/articles/10.1186/s40834-018-0064-y
2. The effects of contraception on future fertility, O & G (accessed 23.06.2023) https://www.oandg.com.au/blog/contraception-and-fertility
3. https://www.fsrh.org/standards-and-guidance/documents/cec-ceu-guidance-young-people-mar-2010/ (Amended May 2019) - Faculty of Sexual & Reproductive Healthcare Clinical Guidance

Figure 1. Family Planning Alliance Australia contraceptive efficacy card

Reproduced with permission from Family Planning Alliance Australia, How effective is my contraceptive method? Hamilton Valley, NSW: FPAA, 2020.

Long-acting reversible contraceptives: New evidence to support clinical practice AJGP April 2022, 51(4) - [RACGP - Long-acting reversible contraceptives]

Mirena lifespan extended to eight years

With Australian uptake still relatively low, it is hoped the change will encourage more women to consider the long-acting reversible contraception.

The duration of the use of Mirena extended from five years to eight makes the IUD the longest-acting hormonal contraceptive in Australia.

Bayer's decision to extend Mirena's duration of use is based on the Phase III MIRENA Extension Trial, which evaluated the contraceptive efficacy and safety of the IUD between five and eight years.

The study showed efficacy remains at more than 99% during years six to eight of use, while its safety profile remained the same, with no new or unexpected safety findings.

NOTE: Extended use refers to use of these methods for contraception and does not include their use for heavy menstrual bleeding or menopausal hormone therapy.

One Key Question: routinely ask women of reproductive age, "Would you like to become pregnant in the next year?"

- Parenthood is a life goal for most people
- Parents want and expect a healthy baby, but few even think about their "reproductive health plan"
- Approximately 10% of reproductive-age (15–44 years) women get pregnant each year in Australia
- 35% (- 50%) pregnancies are unplanned (Hewitt et al 2010)
- Preconception Consult recommended – for fertile men and women **at any time** during the reproductive period (and for those planning ART – includes months leading up to treatment)
- Opportunistic at reproductive health consultations e.g., Contraceptive, Cervical screening, STI checks, time of vaccinations or other preventative health checks
- Barriers

  - Provider

  - Client

  - System – organisational and societal level

From Jean Hailes Preconception presentation https://www.jeanhailes.org.au/health-professionals/webinars/preconception-care-in-general-practice

RACGP Red Book (Guidelines for preventive activities in general practice)

Preventive activities prior to pregnancy

0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	≥80

Consider every woman (and man) of reproductive age for preconception care:

- **Optimising weight and nutrition** – optimising maternal BMI and micronutrient reserves, especially in adolescent women planning pregnancy or those with short interpregnancy interval (< 6 months)
- **Fertility awareness and optimising conception**
- **Effects of age on fertility and risk of chromosomal abnormality**
- **Alcohol consumption and substance use –** consider counselling/pharmacotherapy for either or both parents
- **Smoking and vaping cessation** – in both partners, avoid second hand smoke
- **Interpregnancy intervals** – avoid interpregnancy intervals < 6/12, counsel re risks of repeat pregnancy sooner than 18/12, especially after caesarean section
- **Folic acid and iodine supplementation** – Folic acid supplementation, at least 0.4 mg daily, 5mg if higher risk (for min 1/12 pre pregnancy and first 3/12 of pregnancy) + Iodine 150 mcgm daily prior to planned pregnancy.
- **Vaccination**
- **Assessment and stabilisation of pre-existing medical and mental health conditions** - discuss how these pre-existing conditions may affect, or be affected by pregnancy
- **Review current medication for potential for teratogenicity in women and their partners** including Vitamins, supplements and OTC meds.
- Counsel regarding and offer **Reproductive carrier screening and Prepregnancy genetic counselling** where indicated.
- **First antenatal visit** – Encourage early (ideally before 10 weeks) first antenatal appointment, if and when pregnancy occurs.

RACGP - Guidelines for Preventive Activities in General Practice 10th edition 2024

Your fertility

Thinking about having a baby?

Most people want to become parents one day

Fertility is the ability to have a baby.

Many things can affect women's and men's fertility, including their age, when they have sex, how healthy they are, and whether they have any medical conditions.

5 ways to improve your chance of getting pregnant and having a healthy baby

1. Age

Age is the most important factor when it comes to fertility, as fertility declines with age.

Women younger than 35 and men younger than 40 have a better chance of having a child than people who are older. This is true for natural pregnancies and for pregnancies conceived through assisted reproductive treatments such as IVF (in-vitro fertilisation).

- Women younger than 30 have about a 20 per cent chance of getting pregnant naturally each month. By age 40, the chance of pregnancy is about five per cent each month.
- It takes longer to conceive for women whose male partners are older than 40.
- The combination of both partners' ages determines the likelihood of pregnancy.

IVF can help people with infertility have a family. However, technology cannot make up for the natural decline in fertility that happens as women and men get older.

If you have been trying for 12 months or more (six months if you're a woman older than 35), it's time to talk to your doctor about your options.

If you have a choice, trying for a baby sooner rather than later improves your chance of pregnancy.

2. Timing of sex

Having sex on the days when a woman is fertile, increases the chance of pregnancy. It's all about timing! After having sex, sperm live for about five days. Eggs can only be fertilised for about one day after ovulation (when an egg is released from the ovary).

The best time to have sex to become pregnant is during the 'fertile window', which is the day of ovulation and the five days before that. A woman's **most fertile** time is during the three days leading up to and including ovulation.

How to work out the most fertile days

A woman's menstrual cycle starts on day 1 of her period and finishes the day before the next period. Ovulation happens about 14 days before the period starts.

So, the 'fertile window' days depend on the length of the menstrual cycle.

If on average you have a period every 28 days you ovulate around day 14 and your best chance of conceiving is between days 11 and 14. But if you have a shorter time between periods, say 24 days, ovulation happens around day 10 and your 'fertile window' is between days 7 and 10. If you have 35 days between periods, your fertile window is between days 18 and 21.

If it's all too hard to work out, having sex every 2-3 days improves your chance of getting pregnant.

A few days before ovulation, vaginal mucus tends to become clear and slippery, a bit like raw egg white, which helps some women work out their most fertile time. You can also use an ovulation predictor kit from the supermarket or pharmacy.

To work out your average cycle length and 'fertile window' visit **www.yourfertility.org.au**

3. Being as healthy as possible

For men and women, being a healthy weight increases the chance of pregnancy.

Being in good shape will not only boost your fertility and your general health, it will also give your baby the best start in life.

Carrying extra weight can cause problems with hormone levels, which can affect the menstrual cycle, and the quality of a woman's eggs and a man's sperm.

The good news is that making some changes like eating healthy food and being physically active, can put you on a pathway to a healthier weight. It can be hard, but losing even a few kilos can make a big difference.

It's not about having some kind of 'perfect' body – just a healthy body, because healthier parents have healthier babies.

4. Making smart lifestyle choices

For both men and women, the lead up to conception is just as important as being healthy during pregnancy. You can do this by:

- taking the right dose of folic acid and iodine (for women), before and during pregnancy
- not smoking
- cutting out alcohol
- avoiding recreational drugs
- discussing the safety of any medication you are taking (including natural therapies) with your doctor
- limiting your caffeine intake
- avoiding some chemicals commonly found in the home or workplace
- making sure your vaccinations, especially German Measles (Rubella), are up to date.

5. Managing medical conditions

Some medical conditions can affect fertility including:

- sexually transmitted infections (STIs)
- polycystic ovary syndrome (PCOS)
- endometriosis
- diabetes
- cancer treatment

If either partner has a medical condition, talk to your doctor to make sure it's under control before trying for a baby.

Visit **www.yourfertility.org.au** to find out more about getting your body 'baby-ready'. Find information and a range of videos, interactive tools and personal stories to help improve your chance of becoming pregnant and having a healthy baby.

Your fertility

www.yourfertility.org.au

Your Fertility is a national public education campaign funded by the Australian Government Department of Health.

[Thinking_about_having_a_baby_resource.pdf (yourfertility.org.au)]

I want to have a baby one day in the future

I want to have a baby soon

I have been trying to have a baby for a while

What can improve your chances of having a baby?

Timing

Apart from being healthy, what might help you get pregnant? Sex! (Or intercourse at the right time, to be technical about it)

Age

Why age matters for people who want to have a family.

Healthy eating and exercise

If you're planning a pregnancy in the next few years, healthy eating and regular exercise can boost your fertility.

Drugs and chemicals

Lifestyle factors like Smoking, Alcohol, Caffeine, Drugs, Lubricants and Chemicals can have an affect on your chance of getting pregnant.

Health & Medical

Polycystic Ovary Syndrome, STIs, Healthy Sperm, Endometriosis, Cancer treatment and Diabetes are proven to have various effects on conception.

I want to have a baby one day in the future

Many people want to become parents at some stage.

And many people have no problem getting pregnant.

But it's not always as easy as just stopping contraception.

The good news is that if you choose to make some healthy lifestyle changes now, it will help to increase your chances of having a healthy baby in the future.

And, what's more, getting healthy now is the best way to invest in your future baby's health.

If you think you might want to have kids one day, there are many things you can do now to improve your chance of that happening. A healthy egg and a healthy sperm are the essential ingredients for pregnancy. Overall health can impact the health of eggs and sperm.

Read more about what you can do to make sure your eggs and sperm are healthy when you're ready to start a family.

[For everyone | Your Fertility]

Australian Women's Health Preconception

412 women completed questionnaire in early pregnancy

- 56% took folic acid
- 53% had preconception health check
- 30% overweight or obese pre pregnancy
- 45% of overweight/obese women lost weight before pregnancy
- 16% of obese women categorised themselves as obese

Barriers to addressing overweight and obesity before conception – MJA (2009)
Leonie K Callaway MB BS(Hons), FRACP, PhD, Michael J O'Callaghan FRACP, H David McIntyre FRACP - https://doi.org/10.5694/j.1326-5377.2009.tb02876.x

Does primary care-based preconception care improve pregnancy outcomes?

Preconception care (PCC) involves interventions that identify and modify the behavioural, biomedical and social risks present in reproductive-aged women and men before pregnancy.

Two Australian studies - systematic reviews of primary care-based PCC
Previous systematic reviews show that PCC interventions provided in hospital and community settings **improve pregnancy outcomes and health knowledge, and reduce preconception risk factors**

Conclusion: Primary care-based PCC including brief and intensive education, supplementary medication, and dietary modification **are effective** in improving health knowledge and reducing preconception risk factors in females, although there is limited evidence for males.
Further research is required to determine whether primary care-based PCC can improve pregnancy outcomes.

REFERENCES:

1. Withanage NN, Botfield JR, Srinivasan S, Black KI, Mazza D. Effectiveness of preconception interventions in primary care: a systematic review. Br J Gen Pract. 2022 Nov 24;72(725):e865-e872. https://doi.org/10.3399/bjgp.2022.0040
2. Withanage NN, Botfield JR, Black KI, Mazza D. Improving the provision of preconception care in Australian general practice through task-sharing with practice nurses. Aust J Prim Health. 2023 Jul;29(3):217-221 https://doi.org/10.1071/py22161

Preconception (hw.qld.gov.au)

Clinicians Hub is brought to you by Health and Wellbeing Queensland in partnership with Allied Health Profession's Office of Queensland, Clinical Excellence Queensland.

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PRECONCEPTION

Supporting health behaviours in preconception

Promoting healthy habits during pre-conception

Preconception care (PCC), addressing the health of women and their partner prior to pregnancy, is increasingly recognised as an essential element to achieve healthy outcomes for parents and their children. Assisting women and partners to optimise health through improved nutrition, physical activity, and a healthy weight prior to pregnancy can promote positive child health outcomes and reduce the likelihood of future childhood obesity.[1]

Resource Library

ASK AND ASSESS

ADVISE AND ASSIST

Advise, assist, and empower your patients.

Discuss with each individual the importance of positive health behaviours for personal health and the health of their future children. Where behaviour changes are required, you can work with individuals to create SMART goals which are achievable and sustainable, and which are more likely to become habits.

Healthy eating:

The Healthy Eating for Adults resource outlines the amount of food and drinks adults are recommended to consume each day, along with tips and information

Physical Activity

The Australian Make Your Move resource for adults 18-64 years includes recommendations for incorporating physical activity and minimising sedentary behaviour.

Preconception health:

The Preparing for Your Healthy Pregnancy flyer outlines key behaviour changes recommended for women before pregnancy.

Further resources below can be used to educate and advise individuals to adopt healthy behaviour changes that will help them work towards achieving their health goals:

Resource	Author
PRENCONCEPTION HEALTH	
Planning for Pregnancy	RANZCOG
Preparing for your healthy pregnancy	DoH
Planning for your pregnancy	Pregnancy, birth & baby
Every moment matters - Information about alcohol and pregnancy	FARE
Every moment matters - Alcohol & planning a pregnancy	FARE
How to get ready to be a dad	The Fertility Society of Australia

[Your Fertility: Planting the seedflowchart - FINAL.pdf (yourfertility.org.au)]

[141 - Preconception Health Promotion in Primary Care (apna.asn.au)]

Planting the seed – asking about pregnancy plans

This is a guide for asking patients of reproductive age about their pregnancy plans so you can help them either prevent an unplanned pregnancy or conceive a healthy child when the time is right for them.

"Do you want to try for a baby in the next year?"

NO

Offer contraception advice to prevent unintended pregnancies:

- Ask if patient is currently using a contraceptive method they are happy with.
- If not, offer information on **contraceptive options and/or refer to family planning clinic**
- Recommend a pre-conception health check if pregnancy intention changes.
- Ask again at a later stage (1-2 years or when appropriate).

Acknowledgements and sources:

- Dorney E, Black KI. Preconception care. Aust J Gen Pract. 2018 Jul;47(7):424-429. doi: 10.31128/AJGP-02-18-4485. PMID: 30114868.
- Bellanca HK, Hunter MS. ONE KEY QUESTION®: Preventive reproductive health is part of high quality primary care.Contraception 2013;88(1):3–6. doi:10.1016/j.contraception.2013.05.003.

UNSURE/ MAYBE

Offer a combination of contraception and brief pre-conception health advice.

YES

Offer brief pre-conception health advice (lifestyle and medical factors) and recommend another visit for a pre-conception health check (with partner if applicable).

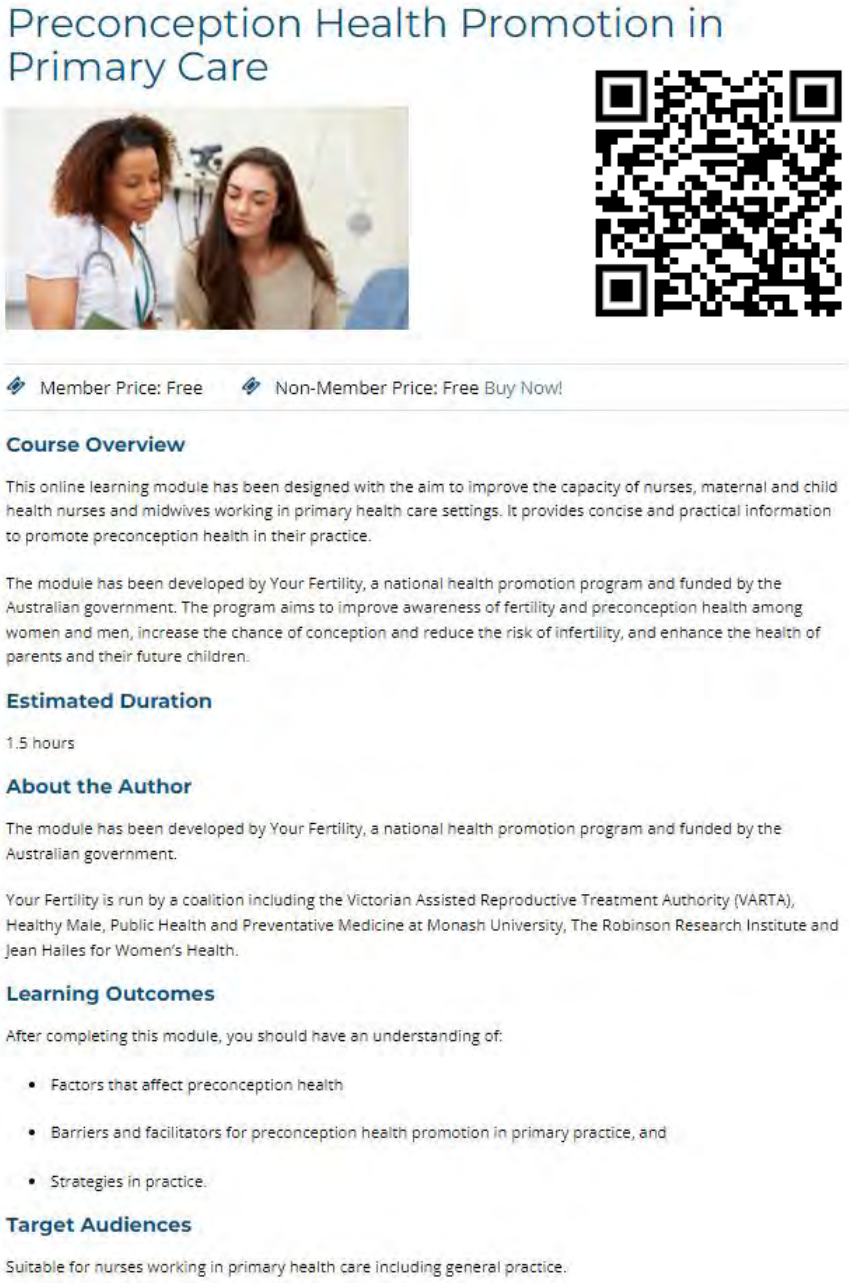
Provide handout with summary information **Your Fertility – Thinking about having a baby?** or mention **Your Fertility website**.

Pre-conception health checklist:

- **Age** – Advise that age affects fertility
- **Pregnancy history** – Screen for modifiable risk factors
- **Weight** – Measure BMI and counsel if under or over-weight
- **Diet** – Provide advice on a healthy diet, and folic acid and iodine supplementation for women
- **Alcohol, smoking and drug use** – Assess intake and provide appropriate advice
- **Genetic screening** – Discuss reproductive carrier screening
- **Medical conditions** – Review current conditions and associated medications that can impact pregnancy (refer to specialist if required)
- **Sexually Transmitted Infections (STIs)** – Screen for STIs
- **Vaccinate as required** – (Measles, mumps, rubella, varicella zoster, hepatitis B)
- **Environmental** – Assess work, home and recreational environments and discuss **TORCH infections**
- **Psychosocial aspects** – Screen for domestic violence and mental health conditions
- **Breast examination** and **cervical screen**
- **Dental health** – Recommend a dental health check.

Online learning module - designed with the aim to improve the capacity of nurses, maternal and child health nurses and midwives working in primary health care settings.
It provides concise and practical information to promote preconception health in their practice.

The module has been developed by Your Fertility, a national health promotion program and funded by the Australian government. The program aims to improve awareness of fertility and preconception health among women and men, increase the chance of conception and reduce the risk of infertility, and enhance the health of parents and their future children



Preconception Health Promotion in Primary Care

Member Price: Free Non-Member Price: Free Buy Now!

Course Overview

This online learning module has been designed with the aim to improve the capacity of nurses, maternal and child health nurses and midwives working in primary health care settings. It provides concise and practical information to promote preconception health in their practice.

The module has been developed by Your Fertility, a national health promotion program and funded by the Australian government. The program aims to improve awareness of fertility and preconception health among women and men, increase the chance of conception and reduce the risk of infertility, and enhance the health of parents and their future children.

Estimated Duration

1.5 hours

About the Author

The module has been developed by Your Fertility, a national health promotion program and funded by the Australian government.

Your Fertility is run by a coalition including the Victorian Assisted Reproductive Treatment Authority (VARTA), Healthy Male, Public Health and Preventative Medicine at Monash University, The Robinson Research Institute and Jean Hailes for Women's Health.

Learning Outcomes

After completing this module, you should have an understanding of:

- Factors that affect preconception health
- Barriers and facilitators for preconception health promotion in primary practice, and
- Strategies in practice.

Target Audiences

Suitable for nurses working in primary health care including general practice.

Identifying this woman's issues

- Age –
- Ethnicity/Indigenous Status –
- BMI –
- BP –
- Obstetric History –
- PHX – Medical and Surgical HX –
- Medications, including OTC/supplements –
- Allergies –
- FHX –
- Social History – including supports/DV
- Occupation –
- Smoking/Alcohol/ Other Substances –
- Healthy diet and exercise –
- Vaccinations (+ Travel) -

- Clinical Assessment –
- Investigations –
- Management Plan –

Opportunistic Preconception Consult

- CST if due +/- STI Screening
- Reproductive Life Plan
  - ? Want children, number/spacing/timing
  - Fertility awareness, Fertility reduction with age, Chance of conception
  - Risk of infertility and fetal abnormality,
  - Avoiding unplanned pregnancy, contraceptive options, emergency contraception
- BMI/BP
- Past History – Medical/Surgical incl Gynae, Medications and Allergies
- Family History
- Social History including Relationship History and Occupation
- Smoking/vaping/alcohol/other substances
- Healthy diet and exercise
- Vaccinations/Travel
- Educate re availability of Genetic Carrier Screening
- Invite her back pre planning to start trying to conceive

Routine Preconception Consultation in couples planning pregnancy

- Personal Obstetric/Reproductive History

ASK ABOUT EVERY PREGNANCY AND THE OUTCOME

including Fetal loss (miscarriage/ectopic/TOP), Stillbirth or NND, Birth defects (esp. Neural Tube Defect), LBW, Pre-term birth, GDM, PET

- Medical History - diabetes, hypertension, epilepsy, thrombophilia, autoimmune disorders, psychiatric disorder, obesity, STIs etc.

Optimisation of these conditions BEFORE pregnancy for benefits on early embryogenesis and on risk reduction in pregnancy

- Surgical History - especially Gynaecological/Cervical surgery, and bariatric surgery within the last 2 years
- Medication use – including OTC meds and vitamins/supplements
- Allergies
- Substance Use
- Ethnicity including First Nations Status
- Consanguinity ?
- Vaccinations + Travel Plans

https://www.jeanhailes.org.au/health-professionals/webinars/preconception-care-in-general-practice

Routine Preconception Consultation in couples planning pregnancy

- Family History – Intellectual disability, Multiple pregnancy losses/SB/NND, children with congenital anomalies, medical conditions e.g., sister/mother with GDM, or PET
- Occupation and Healthy environments: Repeated exposure to hazardous toxins (e.g., paint strippers) in the household and workplace environment can affect fertility and increase the risk of miscarriage and birth defects; Some workplaces increase risk of TORCH infections e.g., childcare work.
- Recommend regular, moderate-intensity exercise (150 mins/week). Undertake Nutritional assessment and discuss Folate/Iodine +/- Vitamin D to be taken at least 4 weeks preconception, and until 12 weeks' gestation.
- Psychosocial health including anxiety and depression, pre-existing mental health conditions, DV, psychological or psychiatric assessment and treatment, medication use , and the risk of exacerbation of mood disorders in pregnancy and postpartum, social supports and family supports.
- Consider and counsel re Reproductive Genetic Carrier Screening (and Haemoglobinopathy Screening if indicated)

https://www.jeanhailes.org.au/health-professionals/webinars/preconception-care-in-general-practice

Routine Preconception Consultation in couples planning pregnancy

EXAMINATION

- BMI /General appearance (Discuss weight optimisation and caution against being overweight or underweight)
- Observations especially BP
- Heart/Chest/ Thyroid/Breasts
- Abdomen/ Scars – Observation/Palp
- CST up to date + STI screen if applicable
- Dental check

- + EXAMINATION of Male Partner

Preconception care (PCC) =

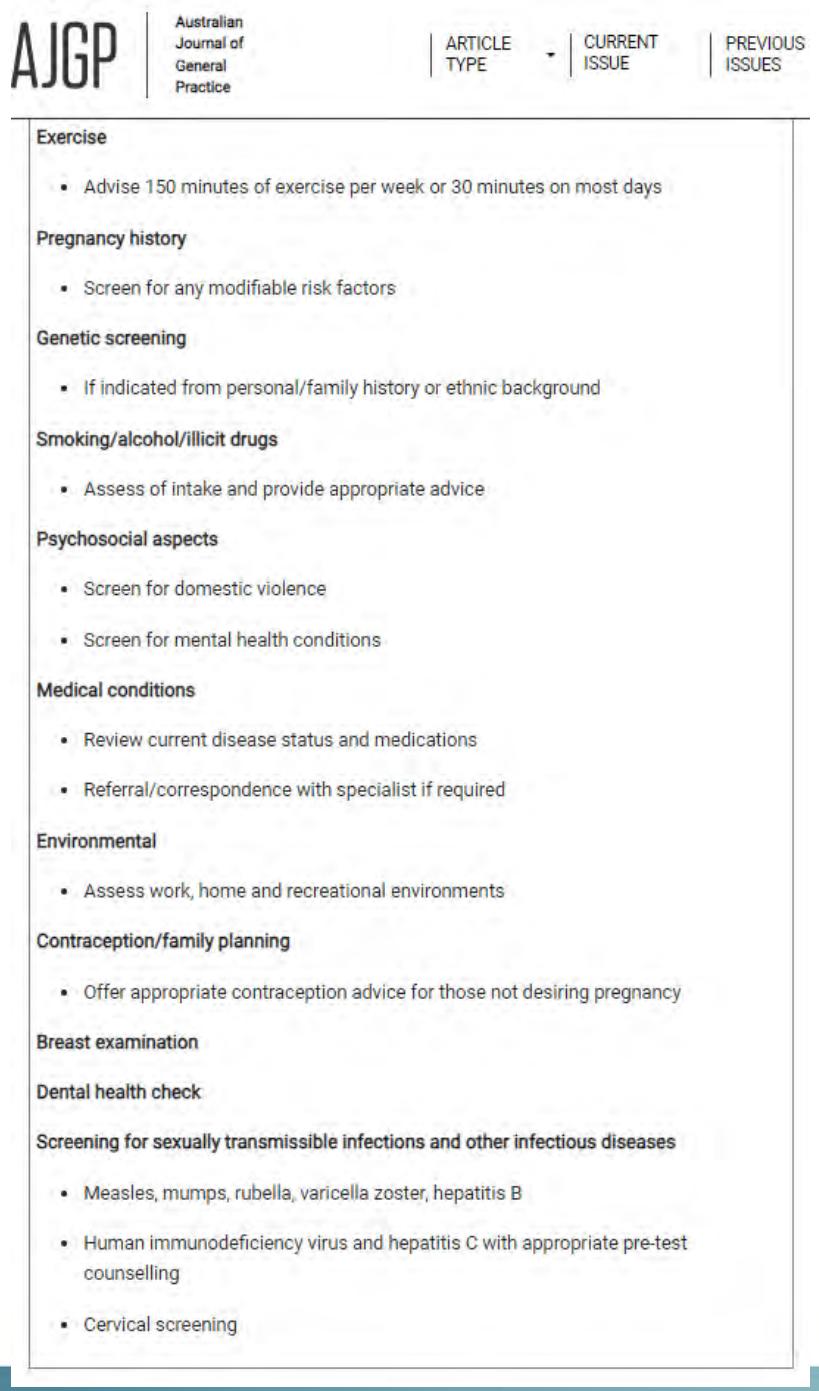
comprises counselling and the provision of biomedical, behavioural and social health interventions to optimise the health of women and their partners prior to pregnancy and improve health related outcomes for themselves and their children

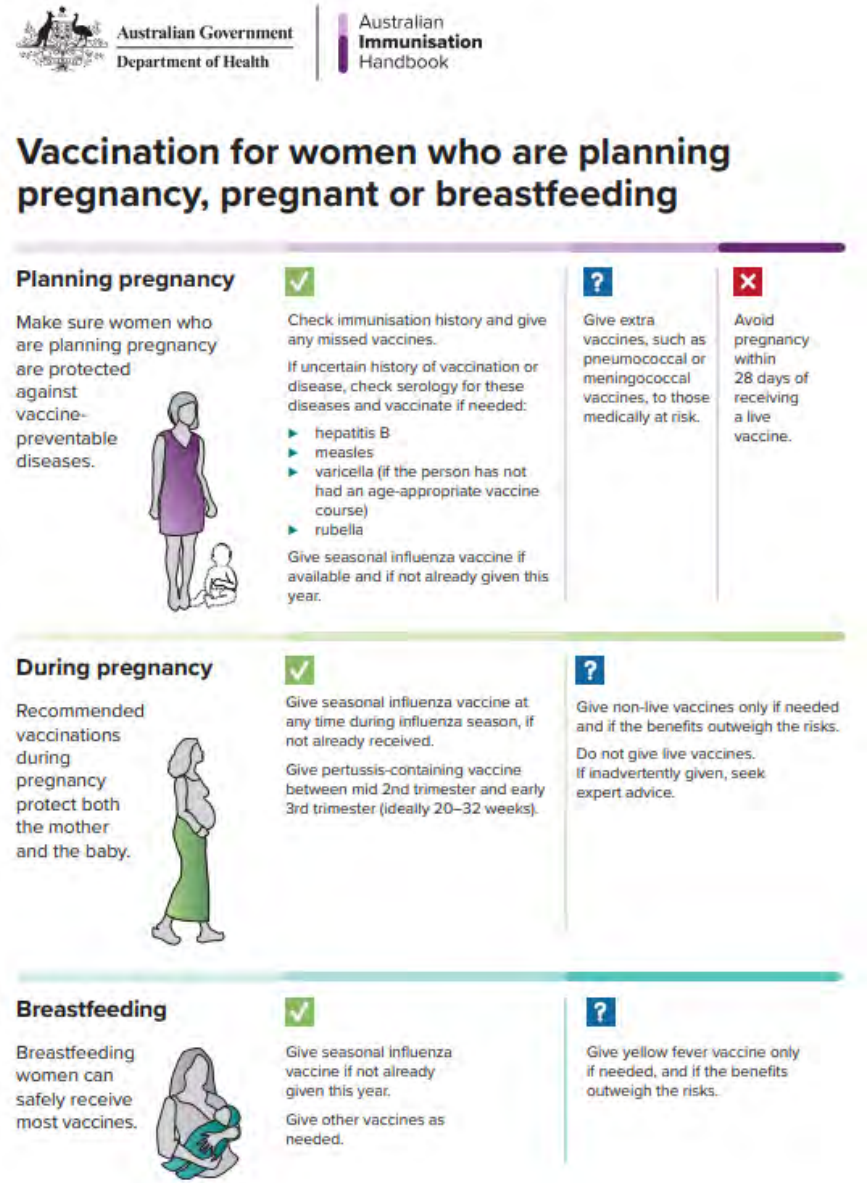
RACGP - Preconception care

AJGP Volume 47, Issue 7, July 2018 Preconception care

Concept of **fetal programming**, whereby the intrauterine environment is understood to have a profound impact on one's entire lifetime health (developmental origins of health and disease DOHAD) is poorly understood and rarely considered by most of our patients.

One example of this is obesity. The offspring of mothers who are obese at the time of conception are more likely to be overweight and develop cardiovascular and metabolic disease.





Infographic. Vaccination for women who are planning pregnancy, pregnant or breastfeeding | The Australian Immunisation Handbook (health.gov.au)

Important to ask women of child-bearing age who present for vaccination about the possibility of pregnancy as part of routine pre-vaccination screening, so that they are not given any vaccines that are not recommended in pregnancy.

Advise women who receive live vaccines to avoid pregnancy within 28 days of vaccination.

Vaccination for women who are planning pregnancy, pregnant or breastfeeding | The Australian Immunisation Handbook (health.gov.au)

Vaccines that are contraindicated in pregnancy: live attenuated vaccines	Vaccines that are not routinely recommended in pregnancy: inactivated viral vaccines	Vaccines that are not recommended in pregnancy	Vaccines that are not routinely recommended in pregnancy: inactivated bacterial vaccines
BCG	Hepatitis A	HPV (inactivated viral vaccine)	Diphtheria-Tetanus (dT)
Oral Typhoid	Hepatitis B	Yellow Fever (live attenuated)	Cholera (oral)
Japanese Encephalitis (Imojev)	Japanese Encephalitis (JEspect – Inactivated)		Haemophilus (Hib)
MMR	IPV – inactivated poliovirus		Meningococcal B or Men ACWY
Rotavirus	Rabies		Pneumococcal Conjugate Vaccine
Varicella	Zoster (recombinant)		Q Fever
Zoster (live)			Typhoid Vi Polysaccharide

Inadvertently giving a live attenuated viral vaccine during pregnancy or shortly before pregnancy:
Women need counselling about the potential (but very unlikely) risk of adverse effects on the fetus if:

- they are pregnant and were inadvertently given a live attenuated viral vaccine
- they become pregnant within 28 days of receiving a live attenuated viral vaccine

Woman does not need to consider terminating the pregnancy if a live attenuated vaccine was inadvertently given. Report to TGA.

Vaccination for women who are planning pregnancy, pregnant or breastfeeding | The Australian Immunisation Handbook (health.gov.au)

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Urgent call as whoopin

Published Thursday, 22 August, 2024

Minister for Health, M **nd Minister for Women**

The Honourable S

- Pregna selves and their unborn baby by getting a free whooping cough va

ases reported compared to just over 100 cases in the same period last

g pregnancy is the best way to protect your baby from the disease.

ing a significant surge in whooping cough cases, posing a health risk to the community,

his highly contagious respiratory infection, also known as pertussis, can lead to severe complications, isation and even death.

nuary to 11 August 2024, there were 7,010 cases reported, compared to just 104 cases in the same period last , representing a staggering 70-fold increase in cases.

Whooping cough is a cyclical disease which peaks every three to five years. During the last peak in 2019, there were only 937 cases of whooping cough reported for the same period.

Health alert: Pertussis (Whooping cough)

Queensland Health advises clinicians remain aware of an increase in cases of pertussis (whooping cough) in the state. Children under 15 years of age account for 60% of all cases since 1 January 2024.

Whooping cough vaccination rates for pregnant women

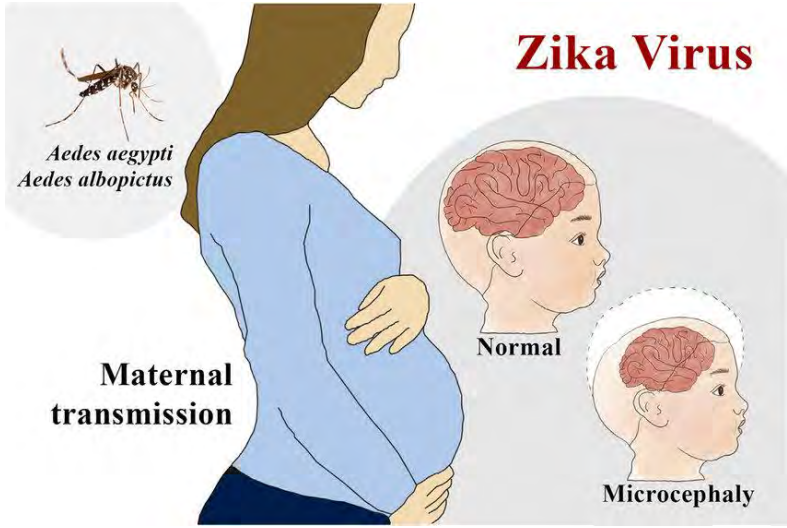
According to the most recent Queensland Health data only 70.7 per cent of pregnant people in Queensland received a whooping cough vaccine in 2023.

Since 2020 when vaccination rates were 77.2 per cent, there has been a downward trend of pregnant women receiving a whooping cough vaccine.

2020	77.2%
2021	74.5%
2022	70.9%
2023	70.7%

Zika Risk – Consider if travel to countries with Aedes infected mosquito species (Zika Travel Information | Travelers' Health | CDC) – Map and recommendations

- For women planning pregnancy - Talk to a health care provider about potential risks. If travel is to continue, prevent mosquito bites and sexual exposure to Zika during and after travel. If traveling without male partner, wait 2 months after return before becoming pregnant.
- Men with a pregnant partner - Prevent mosquito bites during and after travel. Use condoms or do not have sex for the rest of the pregnancy.
- Men with a partner planning pregnancy - Prevent mosquito bites during and after travel. Use condoms or do not have sex for at least 3 months after return.



Timeframes that males and females should consider waiting are different because Zika can be found in semen longer than in other body fluids.

Table 3. Exercise advice for women in the preconception and pregnancy period			
Type	**Duration/frequency**	**Intensity**	**Other information**
Aerobic	150–300 minutes of moderate intensity physical activity per week OR 75–150 minutes of vigorous activity per week OR A combination of the two	This is dependent on baseline level of fitness OR Assess via target heart rate: Age <20 years: 140–155 beats per minute Age 20–29 years: 135–150 beats per minute Age 30–39 years: 130–145 beats per minute Age >40 years: 125–140 beats per minute	Women should aim to be active on most days of the week Aim for exercise sessions to be no longer than 60 minutes Ensure adequate nutrition and hydration
Strength	Aim for two strength sessions per week on non-consecutive days	One to two sets of 12–15 repetitions of each muscle group	Can use light weights, resistance bands or body weights
Contact	Avoid contact sports, sports with a risk of falling and scuba diving		

Table outlines exercise advice of the RCOG and RANZCOG for women in the preconception and pregnancy period.

https://www1.racgp.org.au/ajgp/2018/july/preconception-care

Preconception care in general practice – Investigations

- FBC
- Ferritin
- Thalassaemia Screen (consider ethnic risk, family history, but also MCV)
- TSH and Vit D screen if risk factors, Vitamin B12 in vegans and vegetarians
- Reproductive Carrier Screening

<u>Serology</u>

- Rubella
- Hepatitis B (consider Hep C/HIV if risk factors)
- STI Screen (especially if < 30 yrs.) – swabs give better yield
- Syphilis Serology – now universal antenatally, so consider in all preconception
- Varicella (Routine serological testing for varicella does not provide a reliable measure of vaccine induced immunity; however, it can indicate whether natural immunity has occurred due to prior infection)
- ? Parvovirus

<u>Vaccinations</u>

- MMR - avoid pregnancy for 28 days
- Consider Hepatitis B and Gardasil if missed
- Varicella (if required) – avoid pregnancy for 28 days
- Influenza
- COVID-19
- Pertussis

The Sydney Morning Herald

Healthcare

The common but little-known virus causing disability in hundreds of babies

Every year, about 400 babies are born with physical and intellectual disabilities caused by a virus many pregnant women don't know about.

June 30, 2024 | Henrietta Cook

Discuss the avoidance of TORCH infections and other toxins:

TORCH Infections: Toxoplasmosis, Other (e.g., Syphilis, Varicella, Mumps, Parvovirus and HIV, Listeriosis), Rubella, Cytomegalovirus and Herpes simplex

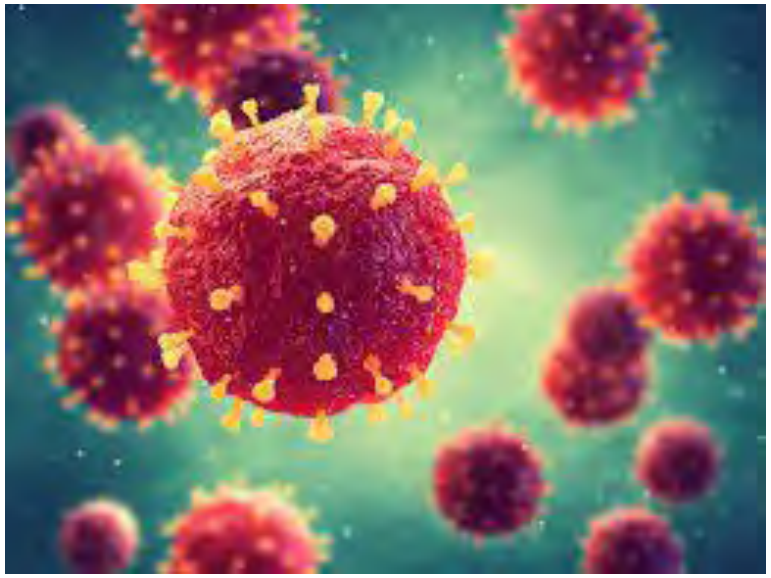
- **Toxoplasmosis:** Avoid cat litter, garden soil, raw/undercooked meat and unpasteurised milk products; wash all fruit and vegetables.
- **Cytomegalovirus, parvovirus B19 (fifth disease):** Discuss the importance of frequent handwashing. Those who work with children or in the healthcare sector and parents of young children can further reduce risk by using gloves when changing nappies.
- Discuss avoidance of children with rashes …….
  - **Rubella** – immunise if not immune (avoid pregnancy for 28 days)
  - **Varicella** – worth discussing as can immunise, but serology will not help in an immunised woman
  - **Parvovirus** (Slapped face/Fifth disease) – increase awareness
- **Listeriosis:** Avoid pâte, soft cheeses (e.g., feta, brie, blue vein), pre-packaged salads, deli meats and chilled/smoked seafood. Wash all fruit and vegetables before eating. Refer to Food Standards Australia New Zealand (https://www.foodstandards.gov.au/consumer/generalissues/pregnancy/Pages/default.aspx) regarding folate, listeria and mercury.
- **Fish:** Limit fish containing high levels of mercury (http://www.betterhealth.vic.gov.au/health/healthyliving/mercury-in-fish)
- STI screen in those considered high risk (including < 30-year-old) or ? universally now that **Syphilis** is more prevalent.

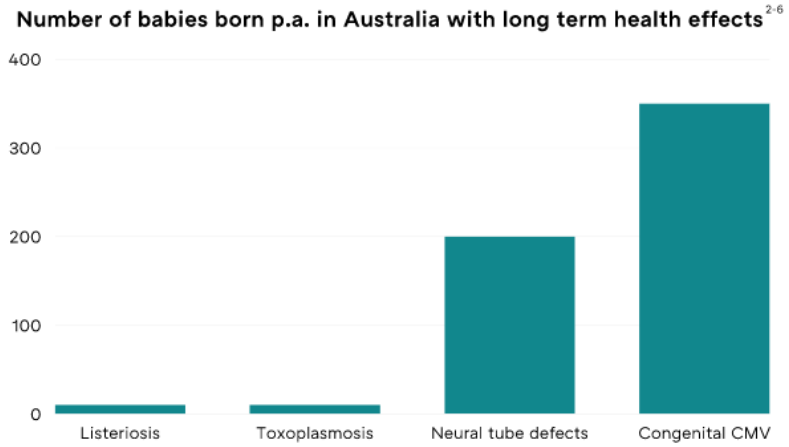
Management of Perinatal Infections 2022 – Australian Society for Infectious Diseases: https://asid.net.au/publications

Parvovirus B19 Infection – Child Care Workers should know if they are immune (preferably pre –pregnancy)

- Over 60% of women of childbearing age are immune to parvovirus.
- Women at increased risk of parvovirus infection include mothers of pre-school and school aged children, childcare workers and school teachers. Even if a woman is susceptible and gets infected with parvovirus B19, she usually experiences only a mild illness.
- **Not practicable to prevent exposure at home**. Exclusion from work of pregnant school teachers or childcare workers is not recommended during a parvovirus epidemic (nor is exclusion of infected children) but whether to stay away from a workplace where there are cases of fifth disease is a personal decision for a woman to make, after discussions with her family, doctor, and employer.
- Communicability is greatest (from about 1/52 after exposure) and **before onset of rash**. Parvovirus infection is probably not communicable after onset of the rash
- **Usual hygiene measures, especially frequent hand washing, is probably the most effective method to reduce the spread.**
- Risk of fetal hydrops appears to be greater when infection occurs earlier in pregnancy. Overall rate of hydrops to be 3.9% - 5.6% if maternal infection occurs between 9 - 20 weeks but discuss with the woman that **most infections in pregnancy are benign**. There is no proven risk of parvovirus-induced congenital anomalies, but there is a **small risk of fetal loss/ hydrops/ anaemia**.
- Spontaneous loss rate of fetuses affected with parvovirus B19 before 20 weeks' gestation is 13% and after 20 weeks' gestation is 0.5%. The reason for this difference is uncertain, ? may be related to multisystem organ damage, which is possible even without anaemia or hydrops
- IgM is detectable within 1-3 weeks of exposure and usually remains detectable for 2-3 months, but sometimes longer. Absence of IgM does not exclude recent infection. PCR for parvovirus can be performed on plasma but is generally unlikely to be positive after onset of rash (myalgias, fever and malaise coincide with peak viraemia).

1. South Australian Perinatal Practice Guideline - Parvovirus in Pregnancy
2. Parvovirus B19 screening and management in pregnancy (nsw.gov.au)
3. Parvovirus B19 infection and its significance in pregnancy





Cytomegalovirus

- Second most common cause of congenital malformation in Australia – neurodevelopmental disability and hearing loss
- Approx. 400 children/year born with or develop CMV due to primary or non-primary maternal infection – from Dept Health and Aged Care[1] (Overall birth prevalence 0.65% [2])
- Approx. half considered preventable, but only 1/6 pregnant women aware of CMV danger in pregnancy [3] and < 20% GPs feel confident speaking with pregnant women re same. [4]
- New consensus recommendations state all pregnant women and health-care providers should be educated about congenital CMV infection and preventive measures. [5,6]

1. https://www.health.gov.au/resources/pregnancy-care-guidelines/part-g-targeted-maternal-health-tests/cytomegalovirus
2. "Management of Perinatal infections" – ASID https://asid.net.au/publications CMV pages 10-14
3. https://pubmed.ncbi.nlm.nih.gov/31025720/ Aust N Z J Obstet Gynaecology 2019 Dec;59(6):843-849.
4. Infections in Pregnancy – What's new in congenital CMV and Syphilis https://app.praxhub.com/education (requires registration)
5. https://pubmed.ncbi.nlm.nih.gov/28693346/ J Maternal Fetal Neonatal Med 2018 Oct;31(19):2515-2520
6. Prevention of congenital cytomegalovirus (CMV) infection (C-Obs 64) – RANZCOG Statement (2019)

Primary CMV during pregnancy has highest risk of transmission (~30%), but periconception CMV also increases risk

- Peri-conceptional primary CMV (acquired around the time of conception) carries a small increment in risk of 5 –16%, with risks decreasing with time.
- Pooled study data reports materno-fetal transmission rates of:
  - 5.5 % with maternal infection in the "preconception" period (3/12 before LNMP)
  - 21% in the "periconception" period (4/52 before & 6/52 after LNMP)
  - 36.5% in 1st TM, 40.3% in 2nd TM and 66% in 3rd TM
- Optimal interval between infection and conception remains to be defined, with **12/12 after primary infection** suggested as the **highest 'risk' period**.
- (? Awaiting a decline in CMV IgM to an undetectable level with a concurrent increase in CMV IgG avidity to a high level is likely to represent a low risk of vertical CMV transmission in future pregnancies)
- It is important to note that 'reactivation' of CMV occurs, meaning there is **never a zero risk** of in-utero transmission, no matter how long from primary CMV infection.

Transmission of CMV occurs across TMs

- Severe adverse neurological outcome risk more likely with primary infection in the first trimester
- A fetus infected late in pregnancy is unlikely to have significant neurological sequelae

Updated "Management of Perinatal infections" 2022 – Australasian Society for Infectious Diseases https://asid.net.au/publications

Who to test for CMV?

Most CMV infections are asymptomatic.

Testing preconception or during pregnancy is not of value routinely.

Features associated with congenital CMV infection (cCMV) include:	
Microcephaly	Amniotic fluid abnormalities (oligohydramnios or polyhydramnios)
Cerebral ventriculomegaly	Hydrops fetalis
Intrauterine growth restriction (IUGR)	Hepatomegaly/Ascites
Abdominal calcification/Hyperechoic bowel	Pseudomeconium ileus
Intracranial calcification	Pleural or pericardial effusions

Possible indications for antenatal or preconception testing:

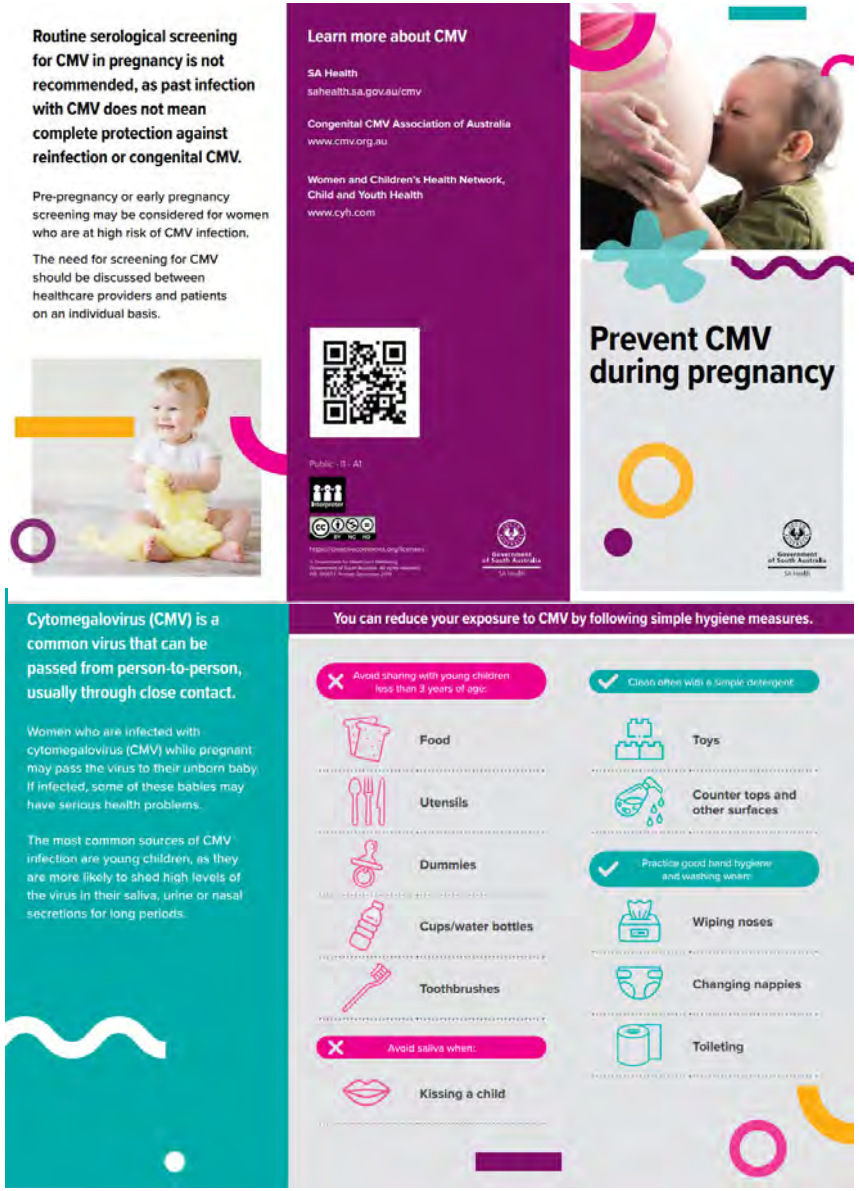
- History suggestive of CMV illness
- Exposure to known CMV infected individual e.g., partner or child with acute CMV infection
- Abnormalities on routine antenatal ultrasound
- ? Consider in women at high risk of infection (childcare workers or young children at home) as studies suggest woman known to be of increased susceptibility (seronegative) are more diligent with hygiene measures.

Prevention of congenital CMV

Education about preventing CMV infection, including hygiene measures to minimise CMV acquisition should be provided to all pregnant women antenatally and preconception.

- Behavioural interventions - providing CMV information, CMV awareness and counselling, infection prevention & control measures (as below) **are effective** in preventing primary maternal infection.
- Major risk factor is frequent, prolonged contact with young children, especially children suspected of shedding CMV.
- **Recommendations for pregnant women, and those parents planning a pregnancy**
  - Do not share food, drinks, or utensils used by young children (less than 3 years of age)
  - Do not put a child's dummy in your mouth
  - Avoid contact with saliva when kissing a child "kiss on the forehead"
  - Careful hand hygiene, when changing nappies or when in contact with urine. Thorough hand washing, or use of gloves especially when changing nappies/feeding young child, wiping a young child's nose or saliva
  - Clean toys, countertops, and other surfaces that come into contact with children's urine or saliva. Do not share a toothbrush with a young child

1. "Management of Perinatal infections" – ASID https://asid.net.au/publications CMV pages 10-14
2. Prevention of congenital cytomegalovirus (CMV) infection (C-Obs 64) – RANZCOG Statement (2019)



"Prevent CMV during pregnancy"
[Prevent CMV during pregnancy brochure (SA Health)]

[Aboriginal-and-Torres-Strait-Islander_CMV-Information-Pamphlet_2020.pdf (cerebralpalsy.org.au)]

Higher Risk Parents:

- Groups at higher risk of primary CMV and annual seroconversion rates are
  - Childcare workers (pooled incidence of 7.4 per 100 person-years)
  - Parents with child in day care (2% p.a. for non-CMV shedding children, 24% p.a. for CMV shedding children)
  - Health care workers seroconvert at a rate comparable to the general population i.e., 2-3% p.a.
- Women working in early childhood education and care services who are pregnant, or expect to become pregnant, should discuss CMV with their doctor, and inform their employer so that their individual risk can be assessed and managed. This includes relocating workers who are pregnant, or who expect to become pregnant, to care for children aged over two to reduce contact with urine and saliva. Cytomegalovirus (CMV) in early childhood education and care services | WorkSafe.qld.gov.au

  (In a landmark NSW decision, a childcare worker and her severely disabled son were awarded $4.65 million. A Court of Appeal ruled that the child's disabilities resulted from the woman being infected with cytomegalovirus (CMV) at work (Hughes v SDN Children's Services 2002)

- Not routinely tested , but if have a result with Anti CMV IgM positivity - caution is needed in interpretation, as CMV IgM can persist for months after primary infection or reappear with reactivation or reinfection.
  - False positives occur with cross reactivity with other herpes viruses or autoimmune disorders.
  - Primary CMV infection is eventually diagnosed in a minority of women with positive CMV IgM (20–25%)

Outcomes of Congenital CMV infection

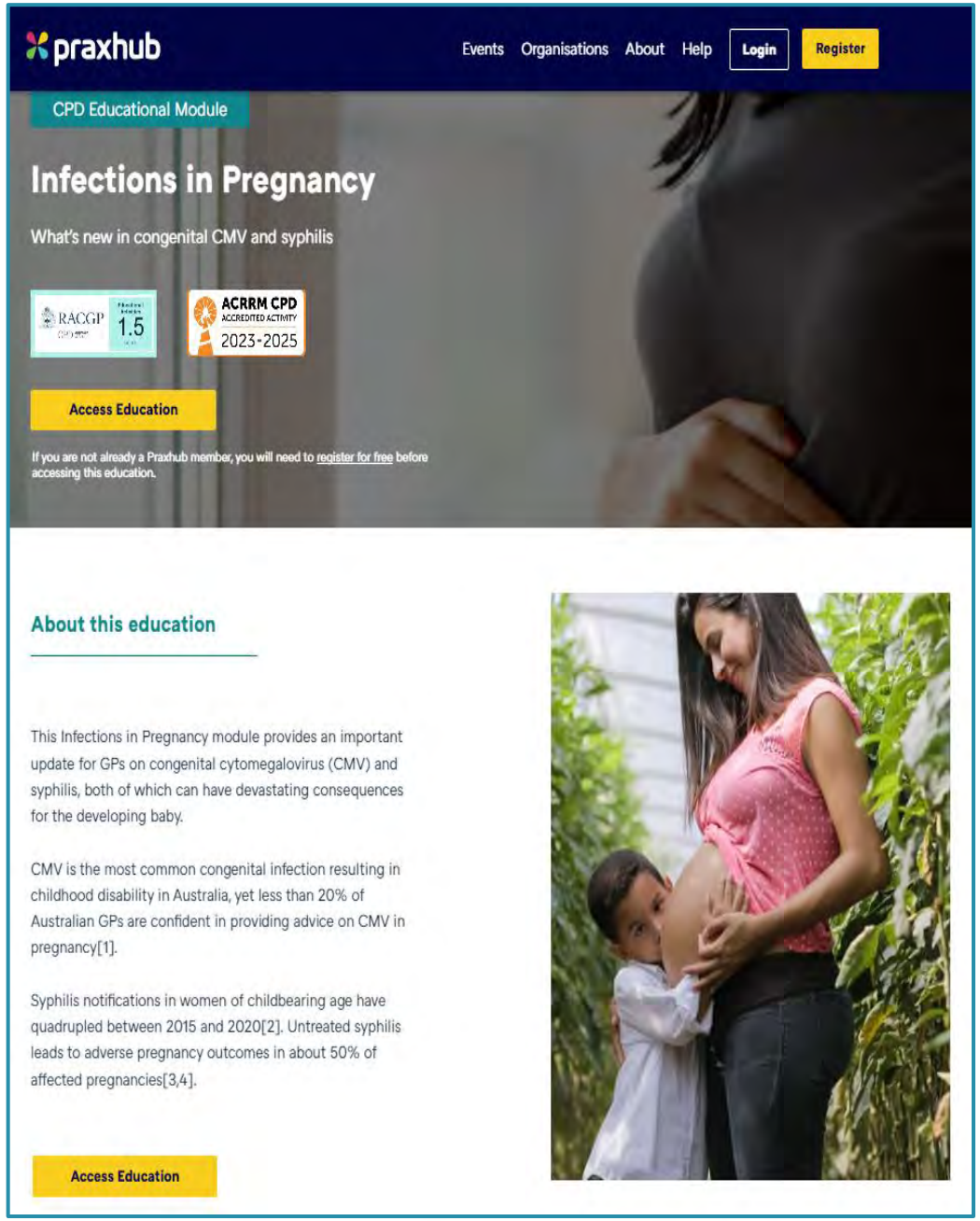
Symptomatic congenital CMV infection

- early mortality (first 3 months) rate between rate 5-10%
- neurological sequelae of microcephaly (35–50%), seizures (10%), chorioretinitis (10–20%), developmental delay (70%)
- Sensorineural hearing loss (SNHL, 25–50%), with **progression expected in about half** (mainly in the first 2 years of life)

Even with asymptomatic congenital CMV -

- Sensory neural hearing loss (SNHL): **~10% of asymptomatic babies will have SNHL at birth**, with **cumulative incidence of late onset hearing loss is 7 -10%**
- Neurodevelopmental: Reported later onset neurodevelopmental concerns in case series, not identified in case control studies vs healthy infants
- Chorioretinitis: 2%

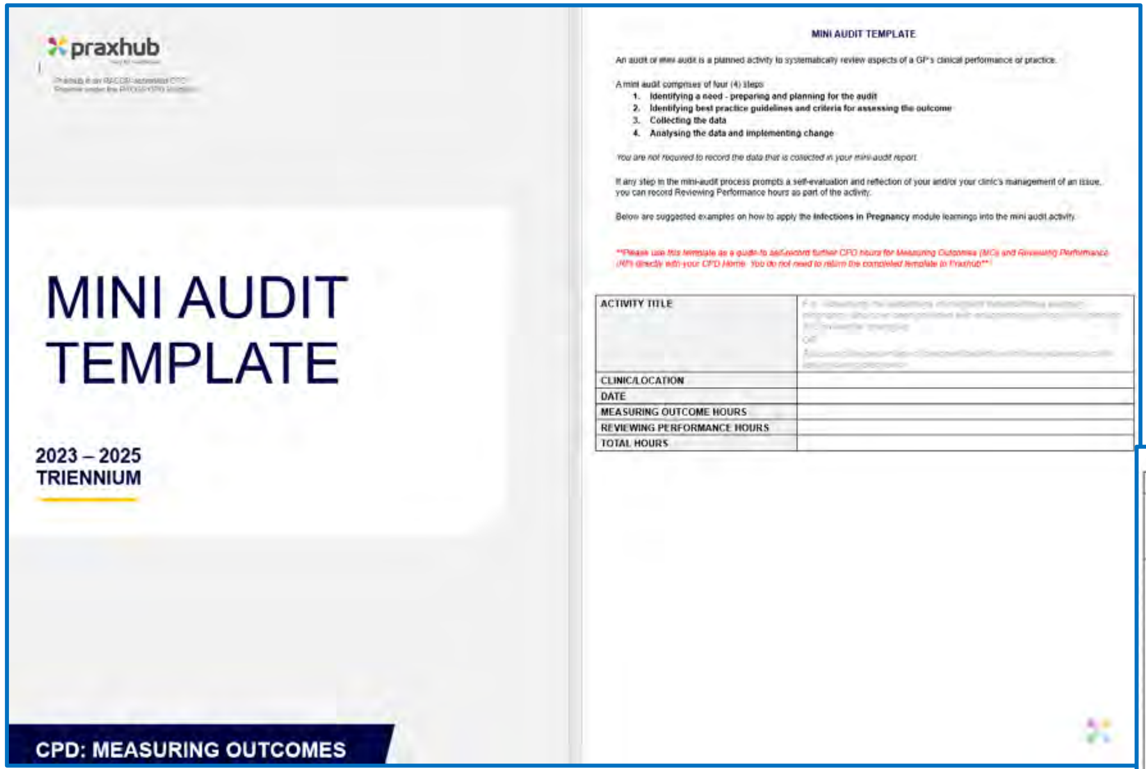
Normal development by 12 months is associated with higher likelihood of normal development long term, and progression after the second year of life is uncommon.



Infections in Pregnancy - What's new in congenital CMV and syphilis

RACGP/ACRRM accredited – 1.5 Educational Activity CPD points
(plus, complete survey questions for Reviewing Performance hours and choose to do a mini-audit (suggested template as below) for Measuring Outcomes hours.

Infections in Pregnancy | University of Melbourne | On.Praxhub


praxhub

MINI AUDIT TEMPLATE

2023 – 2025 TRIENNIUM

CPD: MEASURING OUTCOMES

MINI AUDIT TEMPLATE

An audit or mini audit is a planned activity to systematically review aspects of a GP's clinical performance or practice.

A mini audit comprises of four (4) steps:

1. **Identifying a need - preparing and planning for the audit**
2. **Identifying best practice guidelines and criteria for assessing the outcome**
3. **Collecting the data**
4. **Analysing the data and implementing change**

You are not required to record the data that is collected in your mini-audit report.

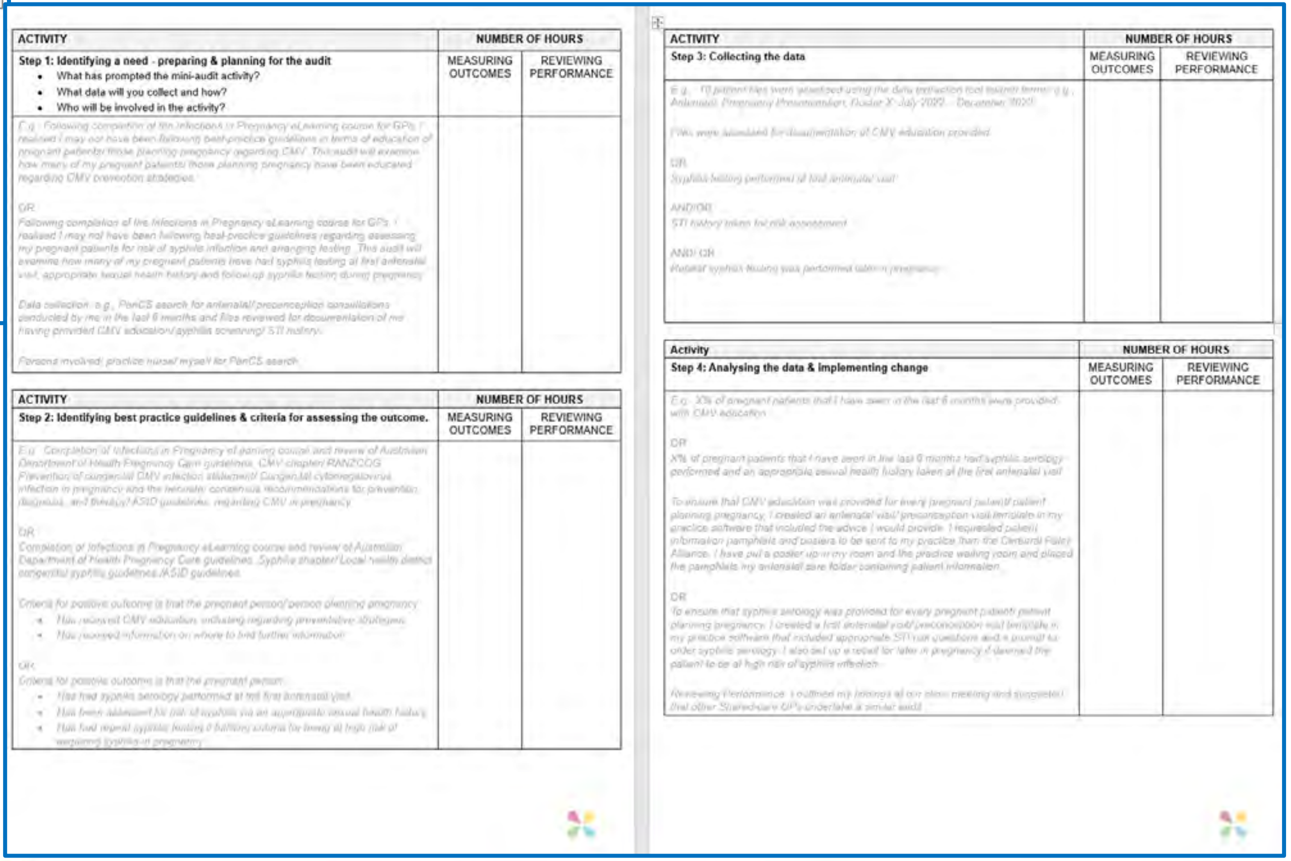
If any step in the mini-audit process prompts a self-evaluation and reflection of your and/or your clinic's management of an issue, you can record Reviewing Performance hours as part of the activity.

Below are suggested examples on how to apply the **Infections in Pregnancy** module learnings into the mini audit activity.

Please use this template as a guide to self-record further CPD hours for Measuring Outcomes (MO) and Reviewing Performance (RP) directly with your CPD Home. You do not need to return the completed template to Praxhub

ACTIVITY TITLE	
CLINIC/LOCATION	
DATE	
MEASURING OUTCOME HOURS	
REVIEWING PERFORMANCE HOURS	
TOTAL HOURS	

Downloadable Mini-audit Template


ACTIVITY	NUMBER OF HOURS	
Step 1: Identifying a need - preparing & planning for the audit • What has prompted the mini-audit activity? • What data will you collect and how? • Who will be involved in the activity?	MEASURING OUTCOMES	REVIEWING PERFORMANCE

ACTIVITY	NUMBER OF HOURS	
Step 2: Identifying best practice guidelines & criteria for assessing the outcome.	MEASURING OUTCOMES	REVIEWING PERFORMANCE

ACTIVITY	NUMBER OF HOURS	
Step 3: Collecting the data	MEASURING OUTCOMES	REVIEWING PERFORMANCE

Activity	NUMBER OF HOURS	
Step 4: Analysing the data & implementing change	MEASURING OUTCOMES	REVIEWING PERFORMANCE

AM2 Case Discussion – Green Group

- Kelsey, a 27-year-old married woman, presents with her husband Jack
- Hoping to plan for their first pregnancy in next 12 months.
- Kelsey has always had irregular periods – went for 7 months last year without a period, and often cycles 6-8/52 apart.
- BMI 43.2
- FHX T2DM in father.

She has a 15 min appointment - Outline your approach

If she presents having undertaken bariatric surgery about 5 months ago, what else do we need to advise before she tries to start a family?

Identifying this woman's issues

- Age –
- Ethnicity/Indigenous Status –
- BMI –
- BP –
- Obstetric History –
- PHX – Medical and Surgical HX –
- Medications, including OTC/supplements –
- Allergies –
- FHX –
- Social History – including supports/DV
- Occupation –
- Smoking/Alcohol/ Other Substances –
- Healthy diet and exercise –
- Vaccinations (+ Travel) -

- Clinical Assessment –
- Investigations –
- Management Plan –

Topic overview

PCOS
- Overview & Diagnosis
- Management

Diabetes
- Pre-conception management
- Referrals

Obesity & Post-bariatric surgery

“An integrative review of preconception care to reduce the risks of obesity in women of reproductive age noted **limited attention and interest by healthcare professionals, which may contribute to women’s unawareness of these risks to preconception health**.” *

GPs have a primary role in identifying, educating and counselling reproductive-aged women with obesity on the relationship between maternal obesity and infertility and adverse pregnancy outcomes, and where the woman is receptive to change, in initiating lifestyle measures.

*** Preconception Care to Reduce the Risks of Overweight and Obesity in Women of Reproductive Age: An Integrative Review**

EunSeok Cha [1,2], Michael J Smart [3], Betty J Braxter [4], Melissa Spezia Faulkner [2,3]
Int J Environ Res Public Health 2021 Apr 26;18(9):4582.
DOI: 10.3390/ijerph18094582

Table 1. Relative risk of adverse pregnancy outcomes with obesity and related comorbidities

	BMI 30–34.9 kg/m²	BMI >35 kg/m²	T2D	OSA	Chronic hypertension	PCOS
Miscarriage	1.3[42]	2.5[42]	1.3[43]	1.0[44]	1.0-2.3[45]	3.0[46]
Congenital malformations	1.2–1.9[47]	1.5[47]	1.7–6.0[43]	1.3[44]	1.4–2.0[48]	1.2–1.4[49]
GDM	2.7[50]	4.1–4.6[50]	–	1.9[51]	1.6[52]	2.8–3.4[53]
Gestational hypertension	2.1[50]	2.6[50]	–	–	–	4.1[53]
Pre-eclampsia	1.43[50]	3.0[50]	1.9–2.5[43]	2.3[54]	7.7[55]	3.3–4.2[53]
Pre-term birth	1.2[50]	1.2–1.7[50]	2.8–4.2[43]	2.3[56]	2.7[52]	1.3–2.2[53]
Macrosomia	2.1[57]	2.6–3.1[58]	4.7[43]	–	2.0[52]	1.0–1.6[59]
Perinatal mortality	1.7[50]	2.0–3.1[58]	2.5–8.9[43]	2.0[60]	2.0–4.0[52]	1.5–3.1[61]
LSCS	1.3–1.6[51,62]	1.8–2.0[62]	1.7[43]	2.0[44]	2.7[52]	1.7[53]
SGA	–	0.6–0.9[50]	0.7[43]	2.7[54]	2.7[52]	1.2–4.6[59]
Thromboembolism	2.7–14.9[63]	–	1.0[43]	4.5[64]	1.6[52]	–
Maternal mortality	2.2[65]	3.4[65]	–	5.3[64]	4.8[66]	–

–, no data available; BMI, body mass index; GDM, gestational diabetes mellitus; LSCS, lower segment caesarean section; OSA, obstructive sleep apnoea; PCOS, polycystic ovary syndrome; SGA, small for gestational age; T2D, type 2 diabetes

RACGP AJGP Vol 51(8), August 2022
"Comorbidities of obesity and preconception counselling: Consideration of bariatric surgery" by ADAM MORTON, FRACP, Senior Staff Specialist, Endocrinology and Obstetric Medicine, Mater Health, Brisbane; doi: 10.31128/AJGP-09-21-6173

Topic overview

PCOS
- Overview & Diagnosis
- Management

Diabetes
- Pre-conception management
- Referrals

Obesity & Post-bariatric surgery

PCOS

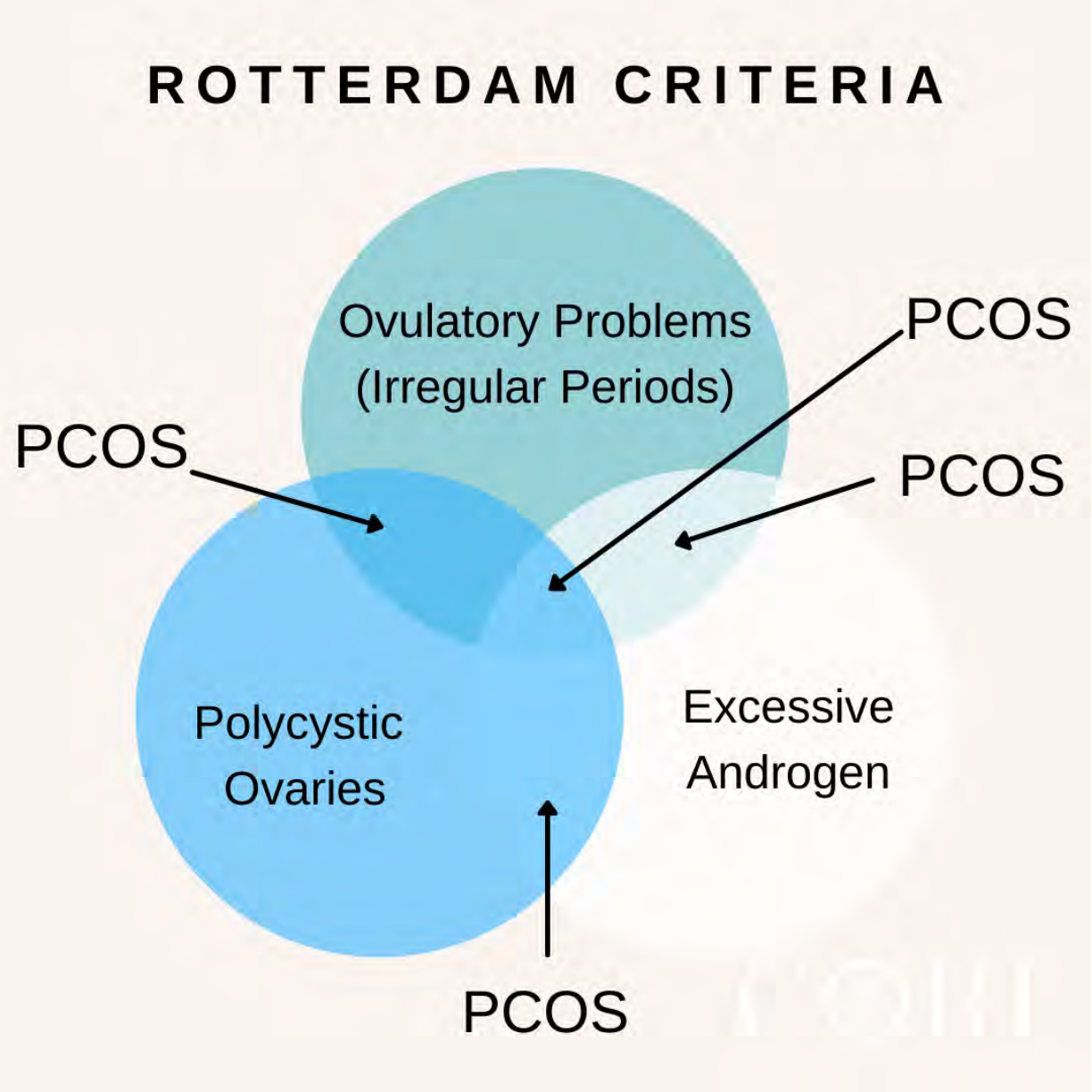
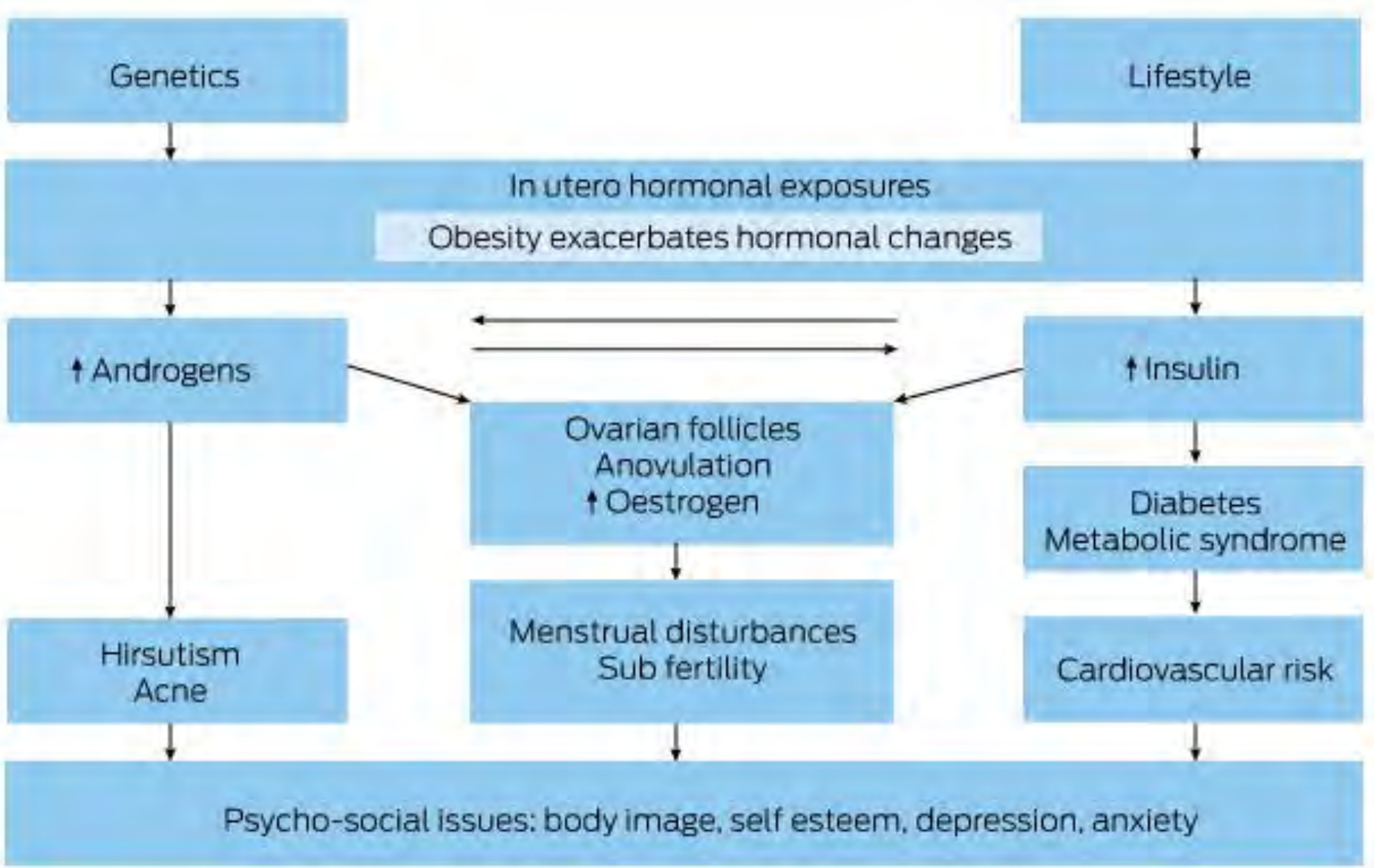
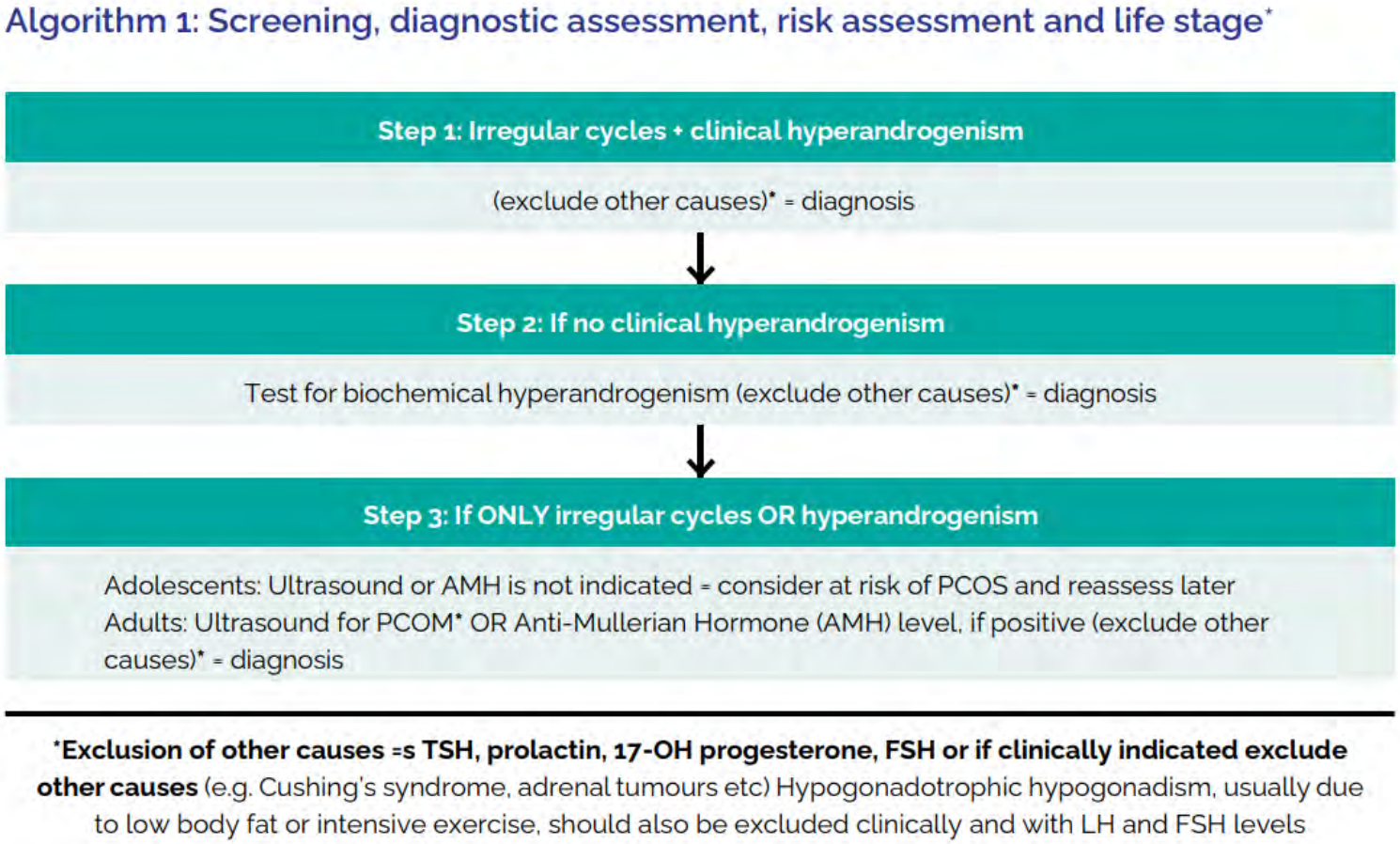


Image: CORE clinic https://www.corephilippines.com/polycystic-ovarian-syndrome-and-the-rotterdam-criteria/

PCOS


Genetics
Lifestyle
In utero hormonal exposures
Obesity exacerbates hormonal changes
↑ Androgens
↑ Insulin
Ovarian follicles
Anovulation
↑ Oestrogen
Diabetes
Metabolic syndrome
Hirsutism
Acne
Menstrual disturbances
Sub fertility
Cardiovascular risk
Psycho-social issues: body image, self esteem, depression, anxiety

PCOS diagnosis



PCOS guideline

monash.edu/__data/assets/pdf_file/0003/3379521/Evidence-Based-Guidelines-2023.pdf

PCOS diagnostic assessment/risk assessment

Algorithm 2: Prevalence, screening, diagnostic assessment and treatment of emotional wellbeing

Psychological domains	Screening protocol/tools	Intervention

Algorithm 3: Lifestyle

Weight stigma
Factors affecting weight gain in PCOS
Obesity and weight assessment
Effectiveness of lifestyle interventions
Healthy lifestyle behaviours (healthy eating and regular physical activity) should be recommended in all women with PCOS, to achieve and/or maintain healthy weight and to optimise general and metabolic health, and quality of life across the life course. Ethnic groups at high cardiometabolic risk require more consideration.
Lifestyle management goals and priorities should be co-developed in partnership with women with PCOS,

PCOS guideline

monash.edu/__data/assets/pdf_file/0003/3379521/Evidence-Based-Guidelines-2023.pdf

PCOS diagnostic assessment/risk assessment

Algorithm 3: Lifestyle

Dietary intervention

General healthy eating principles should be followed for all women with PCOS across the life course, with no evidence to support any one type of diet composition over another for anthropometric, metabolic, hormonal, reproductive or psychological outcomes. .

Exercise intervention

There is a lack of evidence supporting any one type and intensity of exercise being better than another for anthropometric, metabolic, hormonal, reproductive or psychological outcomes.

Health professionals should encourage and advise the following for prevention of weight gain and maintenance of health:

- in adults from 18-64 years, a minimum of 150 to 300 min/week moderate-intensity physical activity or 75 to 150 min/week vigorous-intensity or equivalent combination of both over the week
- in adolescents, > 60 minutes moderate to vigorous-intensity physical activity/day including those that strengthen muscle and bone at least 3 times weekly.
- activity best performed in bouts of > 10 minutes duration, aiming to achieve at least 30 minutes daily on most days.

PCOS guideline

monash.edu/__data/assets/pdf_file/0003/3379521/Evidence-Based-Guidelines-2023.pdf

PCOS diagnostic assessment/risk assessment

Gestational diabetes, impaired glucose tolerance and type 2 diabetes
Regardless of age, gestational diabetes, impaired glucose tolerance and type 2 diabetes (5 fold in Asia, 4 fold in the Americas and 3 fold in Europe) are increased in PCOS, with risk independent of, yet exacerbated by obesity.
Glycaemic status should be assessed at baseline in all with PCOS and thereafter, every one to three years, based on presence of other diabetes risk factors.
In high risk women with PCOS (including a BMI > 25kg/m^2 or in Asians > 23kg/m^2, history of abnormal glucose tolerance or family history of diabetes, hypertension or high risk ethnicity) an oral glucose tolerance test (OGTT) is recommended. Otherwise a fasting glucose or HbA1c should be performed.
An OGTT should be offered in all with PCOS when planning pregnancy or seeking fertility treatment, given increased hyperglycaemia and comorbidities in pregnancy.
If not performed preconception, an OGTT should be offered at < 20 weeks gestation, and all women with PCOS should be offered the test at 24-28 weeks gestation

PCOS guideline (2018)

https://www.monash.edu/__data/assets/pdf_file/0018/1411641/Algorithm-1-20180618.pdf

PCOS management

PCOS management

Weight, insulin resistance	Fertility / anovulation
Healthy lifestyle behaviours	
Target 5-10% loss of body weight in 6 months	Letrozole Clomiphene
Metformin	
Weight loss pharmacotherapy / surgery*	Gonadotrophins

PCOS management

Weight, insulin resistance	Fertility / anovulation	Menstrual regulation / endometrial protection
Healthy lifestyle behaviours		
Target 5-10% loss of body weight in 6 months	Letrozole Clomiphene	cOCP Use lowest effective estrogen dose (20-30 micrograms ethinyl oestradiol or equivalent)
Metformin		
Weight loss pharmacotherapy / surgery*	Gonadotrophins	Mirena / PoP

PCOS management

Weight, insulin resistance	Fertility / anovulation	Menstrual regulation / endometrial protection	Hyperandrogenism
Healthy lifestyle behaviours			
Target 5-10% loss of body weight in 6 months	Letrozole Clomiphene	cOCP Use lowest effective estrogen dose (20-30 micrograms ethinyl oestradiol or equivalent)	
Metformin			Cosmetic therapies
Weight loss pharmacotherapy / surgery*	Gonadotrophins	Mirena / PoP	Anti-androgen therapy (must use contraception)

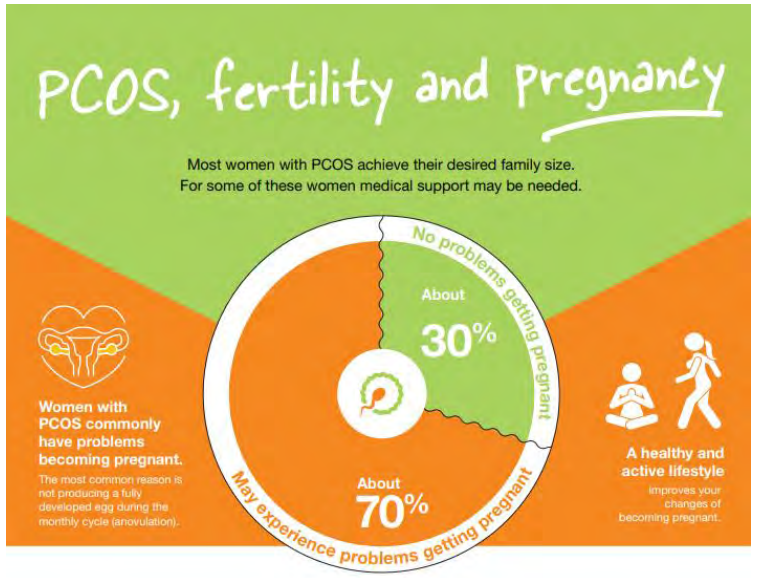
PCOS management

Weight, insulin resistance	Fertility / anovulation	Menstrual regulation / endometrial protection	Hyperandrogenism	Psychological factors
Healthy lifestyle behaviours				
Target 5-10% loss of body weight in 6 months	Letrozole Clomiphene	cOCP Use lowest effective estrogen dose (20-30 micrograms ethinyl oestradiol or equivalent)		Treatment of anxiety & depression
Metformin			Cosmetic therapies	Address body image concerns
Weight loss pharmacotherapy / surgery*	Gonadotrophins	Mirena / PoP	Anti-androgen therapy (must use contraception)	Address disordered eating

More detailed approach to management of each clinical problem in PCOS guideline:
monash.edu/__data/assets/pdf_file/0003/3379521/Evidence-Based-Guidelines-2023.pdf

Practice Tools for Health Practitioners - Monash Centre for Health Research and Implementation (MCHRI)

- PCOS GP Tool
- PCOS and Diabetes – New management Guidelines
- Downloadable Care Plan (For women with PCOS)
- Resources for Women with PCOS
- ASK PCOS App - https://www.monash.edu/medicine/sphpm/mchri/pcos/resources/askpcos-app



Patient's Name:

PCOS MANAGEMENT PLAN			
Patient and GP identified problem List			
Patient problems / needs / relevant conditions	**Goals – changes to be achieved**	**Required treatments and services including patient actions**	**Arrangements for treatments / services (when, who, contact details)**
1. Priorities and Education		Education – PCOS resources https://www.monash.edu/medicine/sphpm/mchri/pcos and ASKPCOS app	
Patient identified priorities Other identified priorities			
Patient's understanding of their condition	Clear understanding of PCOS and patient's role in self-management.	Education – PCOS resources	
2. Lifestyle		Education – PCOS resources	
Nutrition	Maintain general healthy diet.	Set joint agreed SMART goals for small achievable changes	Patient to implement GP to refer to dietician as required
Weight – prevention of excess weight gain and management of weight loss as needed	Weight: Height BMI: Target prevention of weight gain or 5-10% weight loss through caloric restriction	Education – PCOS resources Review 12 monthly for prevention and 1-2 monthly for weight loss	Patient to monitor GP to monitor GP to refer to dietician if needed
Physical activity	Current exercise Patient prioritised/ agreed goals	Education – PCOS resources	Patient to implement/ monitor GP to monitor Refer as needed
Smoking	Cessation.	Smoking cessation strategy: Consider: Quit, Medication	Patient to manage GP to support.
Alcohol intake	Current Target ≤1 standard drink per day	Patient education	Patient to implement GP to monitor / support
3. Metabolic features		Education- PCOS Resources	
BP	Target <130/80	Every 12 months	GP to monitor
Lipids – Check in PCOS with BMI> 25kg/m^2	Under lab recommended range	Fasting lipids at diagnosis and recheck based on global CVD risk	GP to monitor
Glucose Routinely and Around pregnancy	Target prevention, regular screening, early detection and treatment	Assessed in all at baseline, then every 1-3 years, based on additional diabetes risk factors. Fasting plasma glucose or HbA1c ok in PCOS alone, OGTT with additional risk factors. OGTT for all with PCOS before and during pregnancy	GP to monitor
4. Reproductive		Education – PCOS resources	
Menstrual regulation and endometrial protection	≥4 cycles per year (if not on COCP/ IUD)	Lifestyle + Medical treatment	Patient and GP to monitor
Hirsutism Alopecia Acne	Assess impact on QoL, meet patients expectations and reduce adverse patient impact	Cosmetic and/or treatment with COCP alone for at least 6-12/12 first line	Patient and GP to monitor
Fertility	Target optimal fertility Reassurance- Vast majority with PCOS will have a family if desired and no other infertility factors, but many may need oral medication support to do so. Rarely need IVF.	Discuss early family initiation where possible Prevent wt gain/ manage excess weight. Preconception care Further resources at https://www.varta.org.au/	GP to reassure, educate, support lifestyle change and refer for management where needed.
5. Psychological		Education and PCOS resources	
Identify, support and minimise psychological impact	Screen clinically or use brief psychological tool at https://www.monash.edu/medicine/sphpm/mchri/pcos	If positive on routine questions further assess, treat PCOS features and manage psychological issues	GP to refer psychologist and or additional treatment as needed
6. Other			
7. Medication **Current**	**Medication** **Changes**		
List:	Correct use of medication Minimise side effects	Education and PCOS resources	GP to review compliance / side effects.

Downloadable Care Plan

(For women with PCOS)

Topic overview

PCOS
- Overview & Diagnosis
- Management

Diabetes
- Pre-conception care
- Referrals

Obesity & Post-bariatric surgery

Diabetes pre-conception care

- Adverse pregnancy outcomes are more common among those with pre-existing diabetes, including greater likelihood of:
  - Maternal intensive care unit admission (9.1-fold)
  - Neonatal intensive care unit admission (5.5-fold)
  - Major infant morbidity or mortality (5.0-fold)
- Pre-pregnancy care for women with DM reduces adverse maternal and fetal outcomes in pregnancy (strict preconception BSL control shown to decrease the incidence of congenital malformations, miscarriage, birth weight abnormalities and preterm birth)
- Most women have neither achieved optimal glycaemia, nor commenced folic acid therapy by the time of conception
- Women should be offered appropriate contraception if time is required to optimise diabetes management and control.

ADIPS 2020 guideline for pre-existing diabetes and pregnancy

Diabetes pre-conception care

Provide advice and education:

- healthy eating / glycaemic index / carbohydrate content (refer: APD)
- individualised weight management recommendation and healthy pre-pregnancy weight
- folic acid 2.5–5 mg daily in total, taking multivitamin supplem… to ac… commenced ideally 3 months prior to c… gestation
- physical activity
- self-monitoring of blood glucos…
- HbA1c target ≤6.5% (48…
- continuous glucose m…
  - range: 3.5–7.8 mmol…
  - time in range: >70% (ie…
  - time below range: <4… <3.0 mmol/L
  - glycaemic variability (%CV): aim …
- sick day management / ketone testing
- hypoglycaemia management
- driving advice
- contraception until glycaemia optimised
- advise improved maternal and neonatal outcomes with optimal glycaemia
- routine preconception care, as applies to all women planning a pregnancy
- routine vaccination advice

Refer early for pre-conception care
(and early pregnancy care)

Review medications:

- review insulin doses and use of non-insulin glucose-lowering agents
- record preconception insulin requirements
- review and cease or replace medications not advised during pregnancy
- …nd complications and manage / refer as appropriate:

…ions:

…months)

…

…thyroid-stimulating hormone (TSH) and thyroid peroxidase (TPO) autoantibodies (for type 1 diabetes)

coeliac autoantibodies (for type 1 diabetes)

B12 (for type 1 diabetes, metformin use, vegetarian or vegan diet, bowel disorders, bariatric surgery, megaloblastic anaemia) and red blood cell folate

serum creatinine and estimated glomerular filtration rate (eGFR)

spot urine albumin : creatinine ratio (ACR)

routine pre-pregnancy investigations, as for all women planning a pregnancy

Refer to appropriate specialist(s) / centre.

ADIPS 2020 guideline for pre-existing diabetes and pregnancy

Community Diabetes Chronic Disease Dietitian

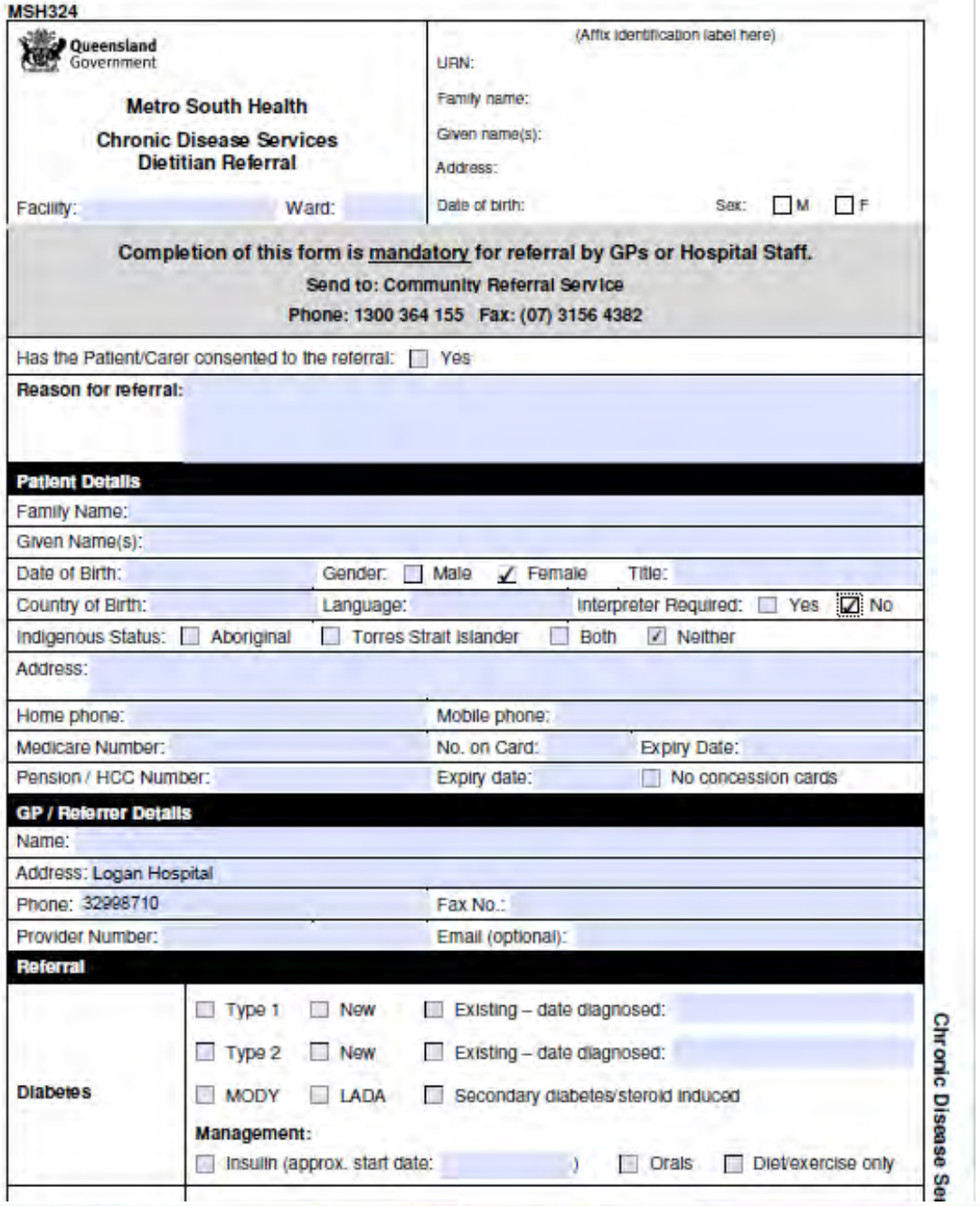
MSHHS

Minimum referral criteria Does your patient meet the minimum referral critiera?

Does your patient meet the minimum referral criteria?

Category 1 (appointment within 30 calendar days)	▸ Condition will require more complex or emergent care if assessment is delayed **AND**
	  ▸ the patient is at increased risk of requiring hospitalisation if assessment is delayed; **AND/OR**
	  ▸ condition will have significant impact on quality of life if care is delayed beyond 14 days
	▸ Newly diagnosed type 1 diabetes (already seen in hospital and requiring follow up care in community).
	▸ Unsatisfactorily controlled long standing diabetes with recent deterioration despite escalation of therapy (HbA1c >86mmol/L or >10%)
	▸ Type 1 or type 2 diabetes with regular episodes (>/= 2 per week) of hypoglycaemia
	▸ Type 1 or 2 diabetes with poor wound healing
	▸ BMI <18.5kg/m2 and/or MST >3 and/or significant unintentional weight loss

Category 2 (appointment within 90 calendar days)	▸ Condition has the potential to require more complex care if assessment is delayed; **AND** ▸ condition has the potential to have some impact on quality of life if care is delayed beyond 30 days ▸ Poorly controlled type 1 or type 2 diabetes (HbA1c >64 – 86 mmol/L or >8 - 10%) ▸ Type 2 diabetes commencing on insulin therapy or change in insulin regimen ▸ Type 1 diabetes requiring 1:1 carbohydrate counting education (refer to DAFNE program at PAH) ▸ Symptomatic Type 1 or Type 2 diabetes with secondary complications (retinopathy, neuropathy etc.)



MSH324

Queensland Government

Metro South Health

Chronic Disease Services
Dietitian Referral

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Facility: Ward: Date of birth: Sex: ☐ M ☐ F

Completion of this form is mandatory for referral by GPs or Hospital Staff.

Send to: Community Referral Service

Phone: 1300 364 155 Fax: (07) 3156 4382

Has the Patient/Carer consented to the referral: ☐ Yes

Reason for referral:

Patient Details

Family Name:

Given Name(s):

Date of Birth: Gender: ☐ Male ☑ Female Title:

Country of Birth: Language: Interpreter Required: ☐ Yes ☑ No

Indigenous Status: ☐ Aboriginal ☐ Torres Strait Islander ☐ Both ☑ Neither

Address:

Home phone: Mobile phone:

Medicare Number: No. on Card: Expiry Date:

Pension / HCC Number: Expiry date: ☐ No concession cards

GP / Referrer Details

Name:

Address: Logan Hospital

Phone: 32998710 Fax No.:

Provider Number: Email (optional):

Referral

Diabetes

☐ Type 1 ☐ New ☐ Existing – date diagnosed:

☐ Type 2 ☐ New ☐ Existing – date diagnosed:

☐ MODY ☐ LADA ☐ Secondary diabetes/steroid induced

Management:

☐ Insulin (approx. start date:) ☐ Orals ☐ Diet/exercise only

Chronic Disease Se

Community Diabetes
Chronic Disease Dietitian
MSHHS

Community Diabetes Chronic Disease Nurse

The Chronic Disease Diabetes Nursing Service offers education, information, management and support to Adult clients diagnosed with all types of diabetes. Education and self-management strategies are offered to all clients to assist in the day to day managing of their diabetes which may include referrals, resources, and equipment such as apps, blood glucose meters, insulin delivery devices and continuous glucose monitoring (CGM) as relevant.

This service is provided by Diabetes Nurse Educators and a Nurse Practitioner (NP is Logan Only).

In scope

- Adults 16 years over - Exception - clients <18 accepted by Endocrinologist, QEII Hospital.
- Newly diagnosed T1 Diabetes not requiring hospital admission
- Type 1 Diabetes
- New T2D on OHA's/ injectables/ and/or Insulin
- Pre pregnancy planning
- Early Pre-existing Diabetes excluding Brisbane south (note: This is on confirmation of pregnancy and prior to first Hospital Antenatal Appointment)
- Recent presentation to ED or admission with DKA (Diabetic Ketoacidosis)
- Recent presentation to ED or admission with Hyperglycaemic Hyperosmolar Syndrome
- Major or problematic episode(s) of hypoglycaemia
- Existing diabetes with recent unintentional weight loss (>5% of bodyweight over a month period)
- Diabetes requiring optimisation in the presence of severe vascular complications, for example stage 3 CKD, proliferative retinopathy, gastroparesis
- Diabetes requiring optimisation in the presence of uncontrolled risk factors for chronic vascular disease (CVD)
- Unsatisfactorily managed diabetes with recent deterioration despite escalation of therapy (HbA1c 64-86mmol/L or 8-10%)
- Self- management education or difficulties in managing diabetes in the absence of adequate community resources
- Diabetes with eating disorders

MSHHS Community Diabetes Chronic Disease Nurse

Category 1 - Pregnancy in clients with pre-existing diabetes on confirmation of pregnancy & prior to being seen by a hospital service

Category 2 - Pre-pregnancy planning

This service is provided by Diabetes Nurse Educators and Nurse Practitioner (NP is Logan Only)

Referral sent via Smart Referral or e-referral (Secure Messaging)

Phone: 07 3338 9082

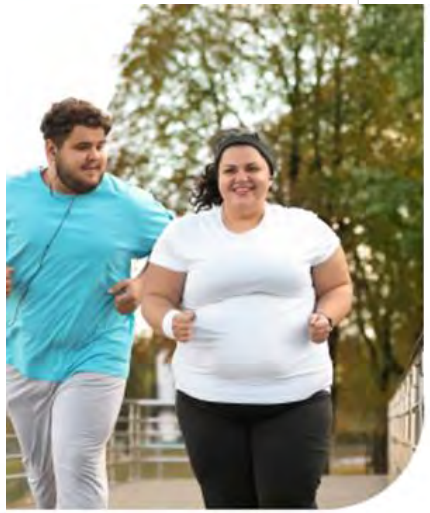
https://metrosouth.health.qld.gov.au/referrals/community/chronic-disease-diabetes/diabetes-nurse

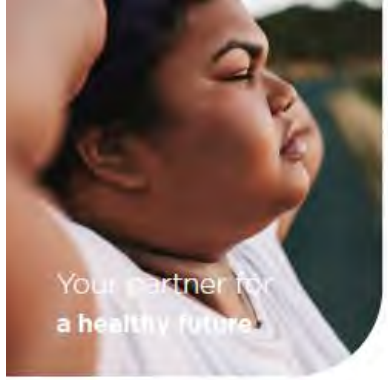
OPEN TO THE PUBLIC

Logan
Healthy Living

Let's do it
differently this time

Practical support to prevent and manage **diabetes, obesity and chronic disease.**





Logan Healthy Living offers practical support for a life not limited by diabetes, obesity and related diagnosis.

We do it differently. Our evidenced-based practice supports you with a team of professionals committed to your success. We tackle the physical, mental, emotional and situational challenges that may hold you back.

Bringing together exercise physiology, physiotherapy, dietetics, psychology and social work, you've never been better supported to change your life.

Our clients help guide their care plan and are inspired to take charge of their journey; we call this 'client centred care'.

Delivered via eight week programs, with post program support, you can transform your life. We're ready, if you are.

Get started

GP Referrals

Your GP will provide a 'Referral Form for group allied health services under Medicare for patients with Type2 diabetes'.

Intake Assessment

To begin your journey with us you will undergo an intake assessment to ensure that you can participate in the program safely and successfully.

Different this time

- Backed by research
- Highly supported activity
- Goal setting & guidance
- Diabetes experts
- Realistic dietary advice
- Discover how your body can help you
- Psychology & social work strategies
- Social connection & peer support
- No cost to participant
- Simple, smart tech
- During and after program support

8 week programs

- Group education
- Group movement sessions
- One to one consults
- Home activity plans with telehealth support

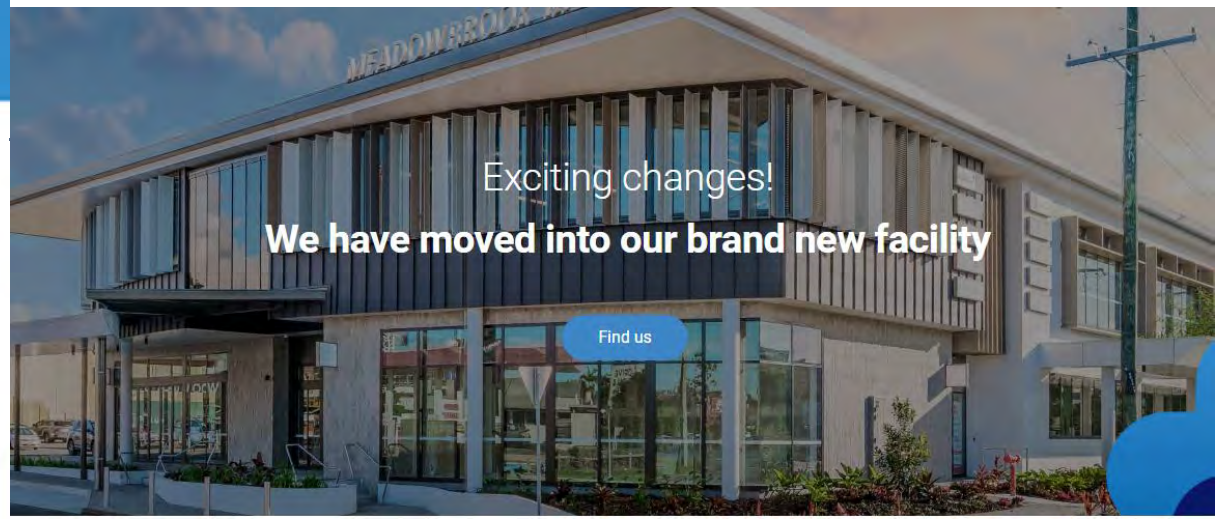
Find us at the Logan Health Care Centre

A Logan Healthy Living, Logan Health Care Centre, 68 University Drive, Meadowbrook QLD 4131

P 07 3365 1057

E lhl@uqhealthcare.org.au

Discover more
lhl.org.au



Logan Healthy Living

LEADS
Logan Endocrinology And Diabetes Service

- Endocrinologists
- Diabetes educators / nurse practitioners
- Diabetes dieticians
- Podiatrists
- Psychologists
- Diabetes nurse navigator
- Social worker

When referring, please note pre-conception status and patient's wishes for conception timeframe

Topic overview

PCOS
- Overview & Diagnosis
- Management

Diabetes
- Pre-conception management
- Referrals

Obesity & Post-bariatric surgery

Queensland Clinical Guidelines

Obesity and pregnancy (including post bariatric surgery) - Queensland Clinical Guidelines" (August 2021) https://www.health.qld.gov.au/__data/assets/pdf_file/0019/142309/g-obesity.pdf

MSHHS maternity population

- 68% of people in Logan area are obese, ? 40-50% in Redland
- Around 22% of women who are pregnant are obese (across Qld) & 24% overweight
- 31% of pregnant Aboriginal/Torres Strait Islander women have a BMI 30 kg/m2 or above, versus 21% of non-Aboriginal/Torres Strait Islander women
- Past bariatric surgery numbers – approx. 5-7/month at Logan Hospital, but growing incidence over few years (0.5% in Qld 2014 - 2019 - from QCG)
- “Pre-pregnancy BMI greater than 25 kg/m^2 and excessive Gestational Weight Gain (GWG) are both implicated in up to 30% of pregnancy complications”

From: Obesity and pregnancy (including post bariatric surgery) - Queensland Clinical Guidelines” (August 2021) https://www.health.qld.gov.au/__data/assets/pdf_file/0019/142309/g-obesity.pdf

and "Queensland Mothers and Babies 2018–2019" - Report of the Queensland Maternal and Perinatal Quality Council 2021 – available at Queensland Maternal and Perinatal Quality Council | Clinical Excellence Queensland | Queensland Health (published Sept 2022)

What can GPs do to help?

- EDUCATE – many couples unaware that excess weight an obesity reduce fertility and chances of a healthy baby

  Weight, fertility, and pregnancy health – Better Health Channel (Victorian Health Dept)
  https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/weight-fertility-and-pregnancy-health#bhc-content

- ENCOURAGE behavioural and lifestyle changes

- SUPPORT

Studies examining potential benefits of more prolonged preconception lifestyle interventions in women with obesity would be valuable.

The National Institute for Health and Care Excellence (NICE) guidelines recommend considering bariatric surgery for individuals with BMI >40 kg/m2 or those with BMI >35 kg/m2 in the presence of other comorbidities “where other weight loss measures have proven unsuccessful”

In the months before pregnancy ……

- Folate (Vitamin B9) – low dose or higher dose ?

  Those at increased risk of NTD
  - patients taking anticonvulsant medication
  - pre-pregnancy diabetes mellitus
  - previous child or family history of NTD
  - 5-methyltetrahydrofolate deficiency (MTFHR deficiency)
  - BMI >30 kg/m2

  or a risk of malabsorption - 5 mg daily dose is recommended.

- Iodine - Increases iodine requirements (by 50-100%) in pregnancy
  - WHO recommends 250 micrograms of iodine daily preconception, during pregnancy and lactation.
  - Supplementation with Iodine of a dose of 150mcg per day is recommended at least one month prior to pregnancy, during pregnancy, and while breastfeeding.
  - **Caution** in women with known thyrotoxicosis, have Grave's disease or a multinodular goitre

- Assess risk of nutritional deficiencies (e.g., vegan diet, lactose intolerance, and calcium, iron or vitamin D deficiency due to lack of sun exposure).
- Obesity - For obese women, study has shown that 10% decrease in pre-pregnancy body mass index (BMI) could decrease stillbirth risk by 10%

Early GDM Screening indications

If high risk, please request HBA1C if <12 weeks (first trimester), or arrange early OGTT

Risk factors for GDM are:

- BMI >30 (pre-pregnancy or on entry to care)
- Ethnicity (Aboriginal and Torres Strait Islander, Pacific or South Sea Islander, Indian subcontinent, South-East Asia, Middle Eastern or African)
- Previous GDM
- Previous elevated BGL
- Maternal age > 40 years
- Family history DM (1st degree relative or sister with GDM)
- Previous macrosomia (birth weight >4500g or > 90th percentile)
- Previous perinatal loss
- Polycystic ovarian syndrome
- Medications (corticosteroids, antipsychotics)
- Multiple pregnancy
- Post Bariatric Surgery (No GTT – HbA1c/fasting BSL in 1st TM)

Queensland Clinical Guideline: Gestational Diabetes Mellitus, February 2021

Sleeve gastrectomy or bypass procedure?

No studies have specifically addressed the most appropriate bariatric surgical procedure for women of reproductive age. [33] Laparoscopic Sleeve Gastrectomy (LSG) may be preferable to Gastric Bypass (GBS) as the latter is associated with:

- significantly greater risk of surgical complications during pregnancy,
- late dumping syndromes,
- maternal anaemia,
- nutritional deficiencies and
- FGR.[10]

Future studies comparing the benefits and risks of restrictive versus malabsorptive bariatric surgery in women of reproductive age desirous of future pregnancy who are morbidly obese would be useful to guide health professionals regarding the optimal procedure for this group. GPs' awareness of the relative risks of the different surgical techniques for future pregnancy is important in counselling reproductive-aged women considering bariatric surgery

RACGP AJGP Vol 51(8), August 2022
"Comorbidities of obesity and preconception counselling: Consideration of bariatric surgery" by ADAM MORTON, FRACP, Senior Staff Specialist, Endocrinology and Obstetric Medicine, Mater Health, Brisbane; doi: 10.31128/AJGP-09-21-6173

Post Bariatric Surgery - Follow Up

- Recommend delaying conception to stabilise weight loss, achieve a varied nutritious diet and reduce associated health impacts
  - Limited evidence on short- and long-term effects of rapid weight loss and changes in micronutrient absorption
  - Fertility may increase as weight is lost and hormonal imbalances resolve, and unplanned pregnancy may occur
- Recommend contraception to avoid unplanned pregnancy (long-acting reversible contraception more effective than oral contraception)
- Evidence limited for optimal surgery to conception interval
  - Recommend minimum of 12-18 months before pregnancy
  - Consider personal health and individual needs rather than adherence to arbitrary timeframe
- Prior to a planned pregnancy, consult with specialist in management of pregnancy after BS
  - Dietitian for preconception, pregnancy and postnatal nutritional support
  - Specialist referral (bariatric surgeon, obstetric medicine) for all pregnant women post BS
- If acute abdominal pain, persistent nausea and vomiting, inability to eat, symptoms of malabsorption (e.g., steatorrhoea),or 'dumping syndrome' (postprandial syndrome) occur, refer to surgeon/specialist

10.2 Bariatric procedures

Table 25. Bariatric procedures

Aspect	Consideration
Context	• In Queensland between 2014–2019, 0.5% (n=1472) of women birthing babies had pre-pregnancy BS[155] • Bariatric procedures are not recommended when imminently planning pregnancy[156]

Types of bariatric surgery	• There is no clear evidence to guide the most appropriate type of surgery for women of childbearing age[157]
	• The most common types are sleeve gastrectomy (46%) and Roux en Y gastric bypass (38.2%); Australian cases mostly sleeve gastrectomies[158]
	  ○ Clinical outcomes at one year post sleeve gastrectomy/Roux en Y surgery demonstrate an average weight loss of 30% total body weight
	  ○ Less common procedures include gastric banding
	• Newer endoscopic techniques (e.g. endoscopic intragastric balloon) are emerging[156,159]
	  ○ Risk profiles are potentially lower with a less invasive approach
	  ○ Less expensive compared to BS
	  ○ Evidence based outcomes of these procedures are limited

Surgery to pregnancy interval	• Recommend delaying conception to stabilise weight loss, achieve a varied nutritious diet[156] and reduce associated health impacts[160,161]
	  ○ Limited evidence on short and long term effects of rapid weight loss and changes in micronutrient absorption[162]
	  ○ Fertility may increase as weight is lost and hormonal imbalances resolve and unplanned pregnancy may occur[162]
	• Recommend contraception to avoid unplanned pregnancy (long acting reversible contraception more effective than oral contraception)[94,157,162]
	• Evidence limited for optimal surgery to conception interval[34,152,162]
	  ○ Recommend minimum of one year before pregnancy[157] with a broad guide of 12–18 months[156]
	  ○ Consider personal health and individual needs rather than adherence to arbitrary timeframe[34]

Recommendation for referral	• Prior to a planned pregnancy, consult with a specialist in the management of pregnancy after BS[157] • Dietitian for preconception, pregnancy and postnatal nutritional support[152] • Specialist referral (bariatric surgeon, obstetric medicine) for all pregnant women post BS[34,162] • If acute abdominal pain, persistent nausea and vomiting, inability to eat, symptoms of malabsorption (e.g. steatorrhoea),or 'dumping syndrome' (postprandial syndrome) occur, refer to specialist[159,162] • If concern for fetal development because of other risk factors (e.g. unplanned pregnancy during rapid weight loss) consider specialist referral • If pregnancy occurs whilst receiving pharmacological management for mental illness consider medication review

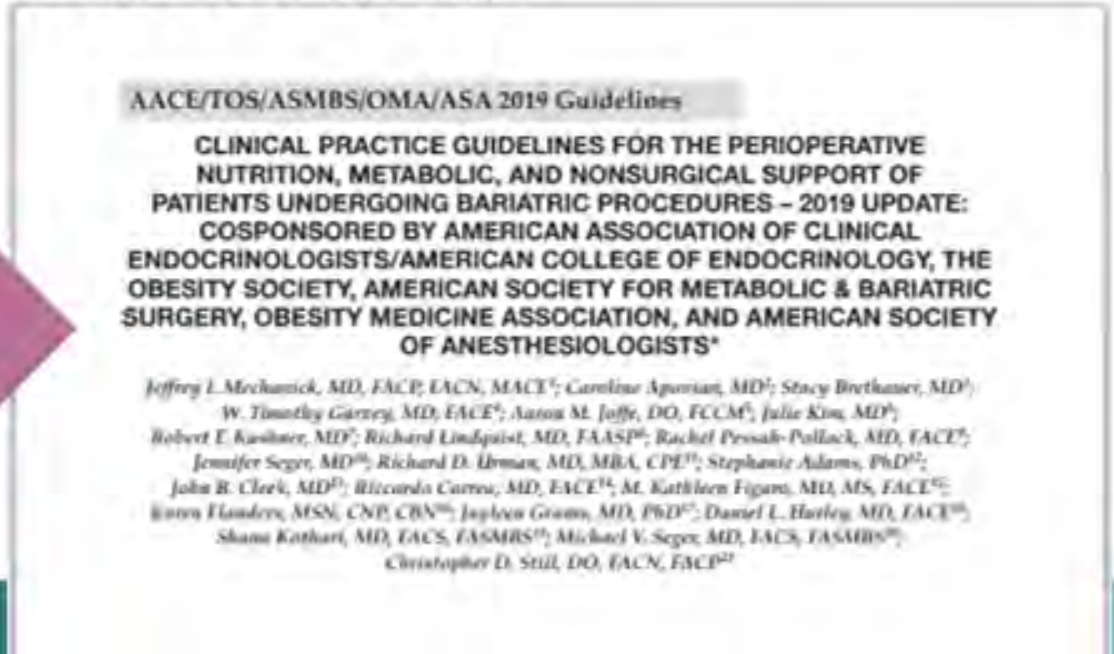
Obesity and pregnancy (including post bariatric surgery) - Queensland Clinical Guidelines" (August 2021)
https://www.health.qld.gov.au/__data/assets/pdf_file/0019/142309/g-obesity.pdf

Pregnancy after bariatric surgery

- 80% of bariatric surgery recipients are women of childbearing age

- Lifelong micronutrient supplementation & monitoring is recommended for all surgery recipients to prevent deficiency.
  - 1-2 multivitamins (iron, folate, thiamine)
  - Calcium supplementation dependant on oral intake
  - Vitamin D titrated to serum levels

Summary on Table 9[1]



AACE/TOS/ASMBS/OMA/ASA 2019 Guidelines

CLINICAL PRACTICE GUIDELINES FOR THE PERIOPERATIVE NUTRITION, METABOLIC, AND NONSURGICAL SUPPORT OF PATIENTS UNDERGOING BARIATRIC PROCEDURES – 2019 UPDATE: COSPONSORED BY AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS/AMERICAN COLLEGE OF ENDOCRINOLOGY, THE OBESITY SOCIETY, AMERICAN SOCIETY FOR METABOLIC & BARIATRIC SURGERY, OBESITY MEDICINE ASSOCIATION, AND AMERICAN SOCIETY OF ANESTHESIOLOGISTS*

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Pregnancy after bariatric surgery

In pregnancy, literature has significant gaps:

- ☒ Analysing different surgery types
- ☒ Correctly reporting biochemistry & potential confounders
- ☒ Considering oral intake, supplement use & compliance

Currently, literature suggests increased risk of:

- ➢ SGA, IUGR & pre-term birth[2]
- ➢ Vitamin A, B12, D, calcium & iron deficiency
  - ➢ Up to 90% of pregnancies[3]

??? role of dietary intake & healthy gestational weight gain

Appendix C: Suggested pregnancy nutrient and biochemical screening post bariatric surgery

Laboratory test		Pre conception	First trimester	2nd and 3rd trimester	Lactation (3 monthly)	Additional measurements/notes
Full blood count		✓	✓	✓	✓	
CHEM20*	Electrolytes Sodium, Potassium, Chloride, Creatinine, Chem Panel	✓	✓	✓		Order individual tests or if all required complete as part of a *CHEM20
	Albumin	✓	✓	✓	✓	
	Calcium	✓	✓	✓	✓	
	Magnesium	✓	✓	✓	✓	
	Phosphate	✓	✓	✓	✓	
	Liver function tests	✓	✓	✓	✓	
	Renal Panel	✓	✓	✓	✓	
Thyroid function—thyroid stimulating hormone (TSH)		✓	✓			At physicians' discretion Add on free thyroxine (FT4) if TSH abnormal
C Reactive Protein		✓	✓		✓	Baseline screen, then at physician's discretion. If systemic inflammation, risk of inaccurate plasma nutrient levels (e.g. vitamins A, B^6, C, D, selenium, zinc). Repeat after resolves
Iron studies		✓	✓	✓	✓	Includes ferritin and transferrin saturation
Vitamin D—25 OH		✓	✓	✓	✓	
Vitamin B_{12} (Cobalamin)		✓	✓	✓	✓	Folic acid supplementation may mask deficiency
Methylmalonic acid (MMA)		✓	✓	✓	✓	Sensitive index of vitamin B_{12} status At physicians' discretion
Folate (Serum)		✓	✓	✓	✓	
Zinc protoporphyrin		✓	✓	✓		
Vitamin A		✓	✓	✓	✓	
Retinol Binding Protein		✓	✓	✓	✓	
Vitamin B_1 (Thiamine diphosphate whole blood—THIAM)		✓				If repeated vomiting
Serum copper and ceruloplasmin			✓			Ceruloplasmin: copper carrying protein
Selenium			✓			
Vitamin E—Alpha-tocopherol (VITE)		If symptomatic anaemia or steatorrhea				
Vitamin B_6 (Pyridoxine)		If multiple or severe deficiencies				
Vitamin C		If deficiency suspected				

Source: Shawe J, et al. Pregnancy after bariatric surgery: Consensus recommendations for periconception, antenatal and postnatal care. Obesity Reviews 2019;20(11):1507-22; Ciangura C, et al. Clinical Practice Guidelines for Childbearing Female Candidates for Bariatric Surgery, Pregnancy, and Post-partum Management After Bariatric Surgery. Obesity surgery 2019;29(11):3722-34; Mechanick JI, et al. Clinical Practice Guidelines for the perioperative nutrition, metabolic and nonsurgical support of patients undergoing bariatric procedures – 2019 Update. Endocrine Practice 2019;25(Supplement 2):1-75; Pathology Queensland communique, January 2021. O'Kane M, Parretti HM, Pinkney J, Welbourn R, Hughes CA, Mok J, et al. British Obesity and Metabolic Surgery Society Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery—2020 update. Obesity Reviews 2020;21(11):e13087.

Appendix D: Recommendations for routine micronutrient supplementation post bariatric surgery

Nutrient	Daily supplements after bariatric surgery		Daily upper limit in pregnancy and lactation		Notes
	Preconception	Pregnancy and lactation	14 to 18 years	19 to 50 years	
Folic acid	5 mg	5 mg	800 micrograms	1,000 micrograms	One month prior to pregnancy and up to 12 weeks gestation
Iodine	150 micrograms	150 micrograms	900 micrograms	1,100 micrograms	
Calcium	1,200–1,500 mg	1,200–1,500 mg	2,500 mg	2,500 mg	Adjusted for dietary calcium intake. May be combined in vitamin D supplement Avoid taking with iron
Iron	45–60 mg	50–80 mg	45 mg	45 mg	Take separate from calcium supplement and acid reducing medications
Vitamin A	5,000 IU	5,000 IU	9,300 IU	10,000 IU	Avoid exceeding an upper limit of 10,000 IU Vitamin A from retinol sources
Vitamin B_1	≥ 12mg	≥ 12mg	Not specified	Not specified	
Vitamin B_{12}	1 mg	1 mg	Not specified	Not specified	Dose dependent on frequency and route of administration
Vitamin D	≥ 1,000 IU	≥ 1,000 IU	3000 IU	3000 IU	Titrate dosage until serum levels of 25-hydroxyvitamin D >50nmol/L (30 ng/mL), accounting for cumulative content within other supplements
Vitamin E	15 mg	15 mg	300 mg/day (α-tocopherol equivs)	300 mg/day (α-tocopherol equivs)	Caution required in pregnancy
Vitamin K	90–120 micrograms	90–120 micrograms	Not specified	Not specified	Caution required in pregnancy
Copper	2 mg	2 mg	8 mg	10 mg	
Zinc	8–15 mg per 1 mg of copper	8–15 mg per 1 mg of copper	35 mg	40 mg	
Selenium	50 micrograms	50 micrograms	400 micrograms	400 micrograms	

Source: Shawe J,et al. Pregnancy after bariatric surgery: Consensus recommendations for periconception, antenatal and postnatal care. Obesity Reviews 2019;20(11):1507-22; Ciangura C, et al. Clinical Practice Guidelines for Childbearing Female Candidates for Bariatric Surgery, Pregnancy, and Post-partum Management After Bariatric Surgery. Obesity surgery 2019;29(11):3722-34; Mechanick JI, et al. Clinical Practice Guidelines for the perioperative nutrition, metabolic and nonsurgical support of patients undergoing bariatric procedures – 2019 Update. Endocrine Practice 2019;25(Supplement 2):1-75; NHMRC. Nutrient Reference Values for Australia and New Zealand. 2006; Australian Government. Clinical Practice Guidelines: Pregnancy Care. 2018.

[Guideline: Obesity and pregnancy (including post bariatric surgery) (health.qld.gov.au)]

Micronutrient monitoring & supplementation

First Trimester [4]	Every Trimester + every 3 months if breastfeeding[1,4]
LEVEL 4 EVIDENCE: Serum vitamin E Serum zinc & copper Selenium	LEVEL 2- EVIDENCE: FBC + Iron studies Serum Folate Serum Vitamin B12 Serum Vitamin A (include CRP) LEVEL 4 EVIDENCE: Serum Vitamin D + Calcium Phosphate Magnesium *+ prothrombin time, PTH, INR, vitamin K1*

BARIATRIC SURGERY/PREGNANCY

WILEY obesityreviews

Pregnancy after bariatric surgery: Consensus recommendations for periconception, antenatal and postnatal care

Jill Shawe[3] | Dries Ceulemans[2,3] | Zainab Akhter[4] | Karl Neff[5] | Kathryn Hart[6] | Nicola Heslehurst[4] | Iztok Stotl[7] | Sanjay Agrawal[8] | Regine Steegers-Theunissen[9] | Shahrad Taheri[10] | Beth Greenslade[11] | Judith Rankin[4] | Bobby Huda[12] | Icy Douek[11] | Sander Galjaard[9] | Orit Blumenfeld[13] | Ann Robinson[14] | Martin Whyte[15] | Elaine Mathews[16] | Roland Devlieger[2,3,17]

TABLE 4 Daily dose recommendations for (pre)pregnancy supplementation

Daily Dose Recommendations for (Pre)pregnancy Supplementation (Level 4)
Thiamine >12 mg
Folic acid 0.4 mg daily, during preconception and first trimester, 4-5 mg if obese or diabetic
Calcium 1200-1500 mg in divided doses (includes dietary intake)
Vitamin D >40 mcg (1000 IU)
Iron 45-60 mg elemental iron (AGB >18 mg)
Copper 2 mg (AGB >1 mg)
Zinc 8-15 mg per 1 mg copper
Vitamin K 90-120 μg
Vitamin E 15 mg
Vitamin A 5000 IU, should be in B carotene form in pregnancy
Selenium 50 μg daily

Abbreviations: IU, international units; AGB, adjustable gastric banding.

1-2 adult multivitamins[5-7]

Folic acid

Calcium & Vitamin D

References – Bariatric surgery

1 Mechanick, J. I., et al. (2019). "Clinical Practice Guidelines for the Perioperative Nutrition, Metabolic, and Nonsurgical Support of Patients Undergoing Bariatric Procedures - 2019 Update: Cosponsored by American Association of Clinical Endocrinologists/American College of Endocrinology, the Obesity Society, American Society for Metabolic & Bariatric Surgery, Obesity Medicine Association, and American Society of Anesthesiologists - Executive Summary." Endocr Pract **25**(12): 1346-1359.

2 Kwong, W., et al. (2018). "Maternal and neonatal outcomes after bariatric surgery; a systematic review and meta-analysis: do the benefits outweigh the risks?" American Journal of Obstetrics and Gynecology **218**(6): 573-580

3 Rottenstreich, A., et al. (2017). "Maternal nutritional status and related pregnancy outcomes following bariatric surgery: A systematic review." Surgery for obesity and related diseases.

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7 Dolk, H. M., et al. (1999). "Dietary vitamin A and teratogenic risk: European teratology society discussion paper." European Journal of Obestetrics and Gynaecology **83**: 31-36.

References – PCOS, diabetes, obesity

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Gestational Diabetes Mellitus – Queensland Clinical Guidelines (February 2021) https://www.health.qld.gov.au/__data/assets/pdf_file/0022/950503/g-gdm.pdf

Obesity and pregnancy (including post bariatric surgery) - Queensland Clinical Guidelines (August 2021) https://www.health.qld.gov.au/__data/assets/pdf_file/0019/142309/g-obesity.pdf

AM2 Case Discussion – Orange Group

- Kasie, aged 35 years, has attended to plan her next pregnancy.
- She had severe PET with her son born 11 years ago and was told at that time that she needed to be seek advice before or early in any subsequent pregnancy.
- Unfortunately, her weight remains suboptimal (BMI > 36) – but she has been working on her lifestyle measures in the last few weeks as she feels time is running out for her to have another baby.
- She has a new partner – he has not had children before taking on the role of step-dad to Oliver. Kasie knows little of his family history but is aware there was a sibling of his that lived only until early childhood with a genetic disorder ? nature.

Identifying this woman's issues

- Age –
- Ethnicity/Indigenous Status –
- BMI –
- BP –
- Obstetric History –
- PHX – Medical and Surgical HX –
- Medications, including OTC/supplements –
- Allergies –
- FHX –
- Social History – including supports/DV
- Occupation –
- Smoking/Alcohol/ Other Substances –
- Healthy diet and exercise –
- Vaccinations (+ Travel) -

- Clinical Assessment –
- Investigations –
- Management Plan –

Hypertension in Pregnancy Guideline 2023 - SOMANZ

1	Women with hypertension in pregnancy (Systolic BP ≥140 and/or diastolic BP ≥90mmHg) should be assessed for a diagnosis of a hypertensive disorder of pregnancy (HDP) – preeclampsia, gestational hypertension, chronic hypertension, super-imposed preeclampsia, white coat hypertension or masked hypertension[1]. (Part 1)*
2	All women should be assessed in the first trimester for their risk of developing preeclampsia, at a minimum, with clinical parameters (history and blood pressure assessment). Where available, combined first trimester screening, including uterine artery Doppler together with biomarkers, may enhance the risk assessment[2]. (Part 2)*
3	Initiate preventative strategies if a woman is identified to be at high-risk of preeclampsia. Preventative measures proven to be beneficial include: commencing aspirin 150mg daily (taken at night/bedtime) prior to 16 weeks of gestation, supplemental calcium (where assessed dietary calcium intake is <1g/day) and undertaking aerobic exercise as recommended as part of routine pregnancy well-being[3]. (Part 3)*
4	Proteinuria in pregnancy should ideally be assessed with a spot (random) urinary assessment rather than dipstick assessment alone. If dipstick assessment is the initial means of assessment, proteinuria should be confirmed with laboratory quantification. A urinary protein:creatinine ratio with a cut off of ≥30mg/mmol or where this is unavailable, a spot albumin:creatinine ratio with a cut off of ≥8mg/mmol can be used to diagnose proteinuria in pregnancy[4]. (Part 4)*
5	An angiogenic biomarker (sFlt-1/PlGF ratio) result of ≤38, used after 20 weeks gestation in conjunction with clinical assessment, can be used to rule out preeclampsia within 1-4 weeks of testing in symptomatic women where there is a clinical suspicion of preeclampsia. The sFlt-1/PlGF ratio should not replace clinical assessment. The use of the sFlt-1/PlGF ratio for diagnosis of preeclampsia, predictingdelivery or fetal outcomes and routine testing in asymptomatic women is not recommended until more data is available[5]. (Part 4)*
6	Women with gestational hypertension or chronic hypertension should have blood pressure controlled to a target of ≤135/85mmHg. This has been shown to be maternally beneficial without adverse effects to the fetus[6]. (Part 5)*
7	Home blood pressure monitoring or ambulatory blood pressure assessment [when assessed with validated machines] can be used to diagnose white coat or masked hypertension. Home blood pressure monitoring can be safely utilised in women with chronic or gestational hypertension with appropriate counselling but should not replace the minimum frequency of antenatal review based on the clinical scenario[7]. (Part 5)*
8	Where clinically possible, women with preeclampsia should have delivery initiated at ≥37 weeks gestation. At less than 37 weeks, delivery should be planned based on the clinical scenario with consideration for corticosteroids and magnesium sulphate in women at risk of early preterm delivery[8]. (Part 6)*
9	Non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided in the immediate post-partum period. In the absence of an alternative analgesic agent, the use of NSAIDs should be limited to short-term inpatient usage[9].(Part 7)*
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Appendix 2: Top 10 Points for Clinicians from the SOMANZ Hypertension in Pregnancy Guidelines 2023

10	Women should be informed of the longer-term risks associated with HDP (e.g. hypertension, cardiovascular disease, stroke, kidney disease). Strategies to optimise their future cardiometabolic profile and prevent preeclampsia/gestational hypertension in subsequent pregnancies should start prior to discharge and be ongoing. Women with a HDP postpartum should have an assessment of abnormalities identified in pregnancy (eg proteinuria, hypertension). Persisting clinical and biochemical abnormalities should be further evaluated and managed as appropriate[10]. (Part 8)*

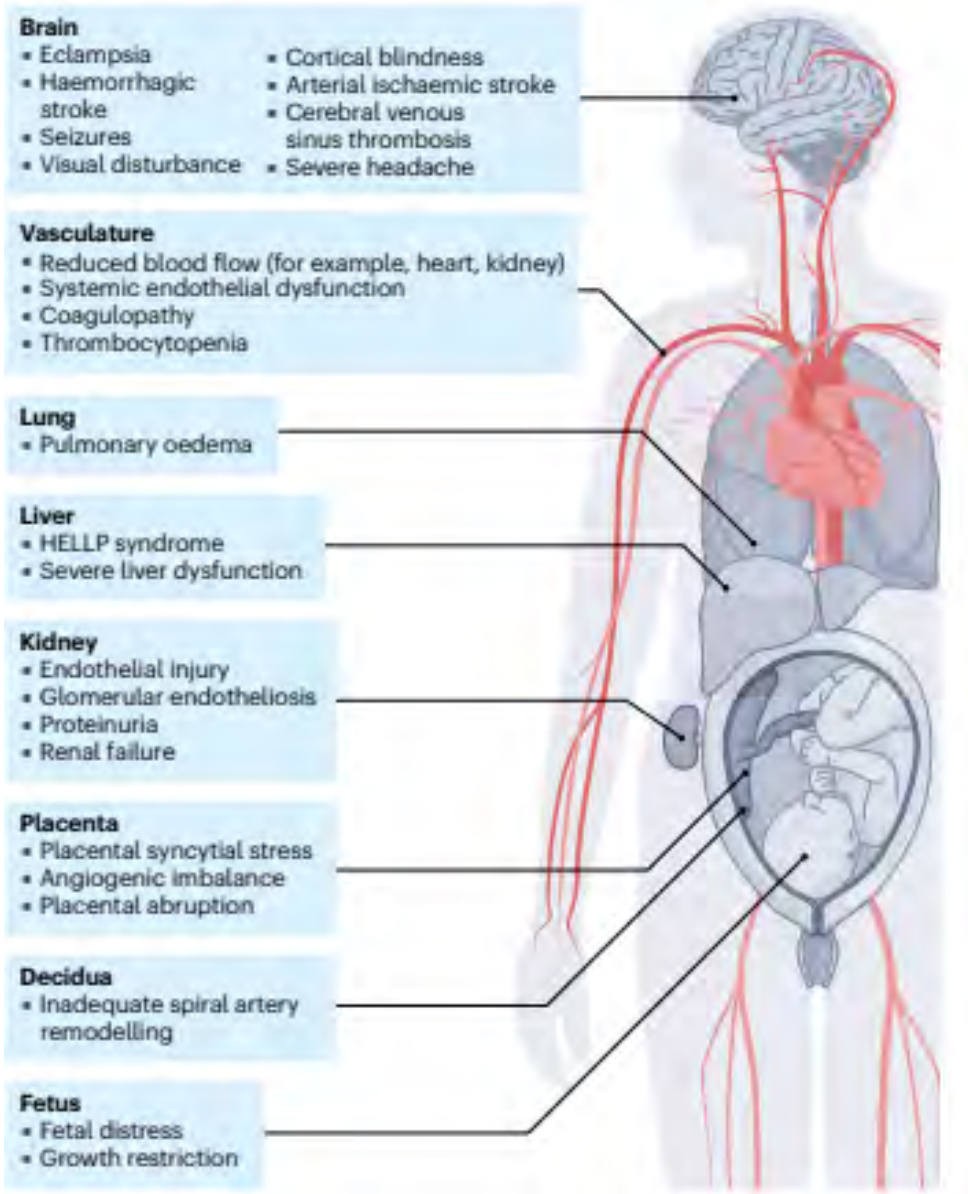
PRE-ECLAMPSIA

Complex multisystem disease, diagnosed by sudden-onset hypertension (>20 weeks') + at least one other associated complication, including:
* proteinuria
* maternal organ dysfunction
* uteroplacental dysfunction

Only found when placenta is or was recently present - classified as preterm <37/40, term (≥37/40) & postpartum

Maternal syndrome of pre-eclampsia is driven by a dysfunctional placenta, which releases factors into maternal blood causing systemic inflammation & widespread maternal endothelial dysfunction

Hypertensive disorders of pregnancy (including pre-eclampsia) are the second most common cause (behind haemorrhage) of maternal deaths worldwide (14%).



https://www.nature.com/articles/s41572-023-00417-6.pdf - https://doi.org/10.1038/s41572-023-00417-6

Queensland Clinical Guidelines

Hypertension in Pregnancy Guidelines – February 2021

Risk factors for pre-eclampsia

- Previous history of pre-eclampsia
- Family history of pre-eclampsia
- Inter-pregnancy interval ≥ 10 years
- Nulliparity and/or multiple pregnancy
- Pre-existing medical conditions
  - Congenital heart defects
  - Pre-existing diabetes
  - Renal disease
  - Chronic hypertension
  - Chronic autoimmune disease
- Age ≥ 40 years
- BMI ≥ 30 kg/m^2
- Maternal depression or anxiety
- Assisted reproductive technology
- Gestational trophoblastic disease
- Fetal triploidy

The presence of multiple risk factors may have additive or synergistic effects, but the combinations with the greatest risk are uncertain.

Table 7. Clinical risk factors for pre-eclampsia

Risk factor	Relative risk [95% CI]
Previous history of pre-eclampsia[20]	8.40 [7.10 to 9.90]
*Adolescent pregnancy (10–19 years)[21]	6.70 [5.80 to 7.60]
Systemic lupus erythematosus[22]	5.50 [4.50 to 6.80]
Chronic hypertension[20]	5.10 [4.00 to 6.50]
Assisted reproductive technology (donor oocytes)[20]	4.34 [3.10 to 6.06]
Pre-existing diabetes[20]	3.70 [3.10 to 4.30]
Family history of pre-eclampsia[23]	2.90 [1.70 to 4.93]
Twin pregnancy (increased risk with multiples)[24]	2.93 [2.04 to 4.21]
Body mass index (BMI) before pregnancy (> 30 kg/m^2)[20]	2.80 [2.60 to 3.60]
Antiphospholipid syndrome[20]	2.80 [1.80 to 4.30]
Nulliparity[20]	2.10 [1.90 to 2.40]
Pre-existing kidney disease[20]	1.80 [1.50 to 2.10]
Assisted reproductive technology (donor sperm)[20]	1.63 [1.36 to 1.95]
Maternal congenital heart defects[25]	1.50 [1.30 to 1.70]
Maternal anxiety or depression[26]	1.27 [1.07 to 1.50]
Inter-pregnancy interval greater than 10 years[20]	1.10 [1.02 to 1.19]
Gestational trophoblastic disease[27]	Unavailable
Fetal triploidy[28]	Unavailable
Fetal aneuploidy[2]	Unavailable

*Limited data (primarily from low resourced countries) may suggest higher incidence in adolescent pregnancies

Other Pre-eclampsia Risk Factors:

Risk factors associated with pre-eclampsia, however, individually, none of these has strong power to predict pre-eclampsia risk and, even in combination, their predictive power is weak

- **Primiparity** x 3 likelihood of PET- ? mechanism - immune maladaptation/maternal alloimmune reaction triggered by rejection of paternal antigens on the fetal allograft (greatest in the first pregnancy), whereas multiparity is protective/reduces PET risk.
- Protective effect lost when subsequent pregnancy involves **new paternally inherited antigens**.
- **Increased risk in adolescents & women ≥35 years** (reported that PET risk increases for every additional year > 32 years)
- **Pre-pregnancy BMI >30 kg/m2** – 2-4 x increased risk of pre-eclampsia with higher prevalence of late-onset pre-eclampsia among obese and overweight women.
- **Untreated overt hypothyroidism and hyperthyroidism** have a higher risk, which may be reduced by treatment with thyroxine replacement or antithyroid drugs, respectively. No increase in risk with subclinical hypo/hyperthyroidism.
- **Previous pregnancies complicated by FGR, placental abruption and stillbirth** increase the risk of pre-eclampsia, especially when associated with early-onset pre-eclampsia or evidence of placental malperfusion.
- Pre-eclampsia is more likely to be associated with **severe COVID-19**, although whether one is causal of the other has not been definitively proven.

Prophylactic Aspirin (LDA) use in pregnancy to reduce Preterm PE and FGR

High Risk Factors - Women with any of the following:	**Moderate Risk Factors -** Women with more than one of the following:
o Hypertension - Chronic o Renal disease o Auto-immune diseases such as SLE, anti-phospholipid syndrome, scleroderma o Diabetes (Type 1 or Type 2) o Past history of pre-eclampsia (20%+ recurrence rate) or HELLP Syndrome o Multiple pregnancy o Age > 40yrs (and consider in adolescent pregnancy)	o Primiparous o BMI > 35 o Family history of pre-eclampsia (mother or sister) o More than 10 years since last pregnancy o Previous low birth weight infant or adverse pregnancy outcome o Low socioeconomic status

150 mg aspirin nocte

BEFORE 16 weeks' gestation

Ideally from 12 weeks until birth

What about calcium? Calcium has been shown to reduce BP, relax smooth muscle, lower resistance in uterine and umbilical arteries. ***If a woman has deficient intake (< 600mg/day), 1.5 g/day is recommended*** *(low-dose calcium supplementation halves the risk of pre-eclampsia (both for early and late onset) in women at high risk of PET, with low dietary calcium intake)*

How does LDA work to prevent PET?

Pathophysiology of pre-eclampsia is not fully understood.

? May be attributed to suboptimal trophoblast invasion during placental formation, which leads to an imbalance of angiogenic and antiangiogenic factors causing endothelial damage and widespread inflammation.

Aspirin primarily acts by inhibiting cyclooxygenase isoenzymes (COX-1 and COX-2) at different dosages. At lower dosages it irreversibly inhibits COX-1, diminishing platelet thromboxane synthesis while maintaining vascular wall prostacyclin synthesis.

Pre-eclampsia prevention may also be partly related to modulation of inflammation, which is exaggerated in patients with preeclampsia.

1. RACGP AJGP Vol 51(10), Oct 2022 - Indications for commencing aspirin for prevention of pregnancy-induced hypertension and pre-eclampsia spectrum disorders
2. Aspirin: The Mechanism of Action Revisited in the Context of Pregnancy Complications: Cadavid A.P.; Front Immunol. 2017 Mar 15;8:261. doi: 10.3389/fimmu.2017.00261

ASPIRIN IN PREGNANCY

Preeclampsia is a common pregnancy related condition that can be dangerous to the mother's and baby's wellbeing.
You may be at risk of preeclampsia if you have any of the following risk factors :


High blood pressure

Diabetes


Kidney Disease


Autoimmune disorder


Previous preeclampsia

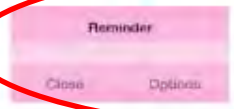

High risk on first trimester screening

However, your risk of preeclampsia can be reduced by 60-70% with the optimal use of aspirin

Start aspirin **before 16 weeks** of pregnancy

Take **150mg** daily (Either ½ of 300mg or 1 & ½ of non-coated 100mg aspirin)

Take aspirin everyday at **bedtime** until your doctor advises you to stop aspirin



Don't forget to take aspirin as it doesn't work if you miss even 10% of doses. **Use a reminder** to help you

Treatment with aspirin should not replace your antenatal care with your health care provider. Please discuss any concerns you may have with your health care provider.

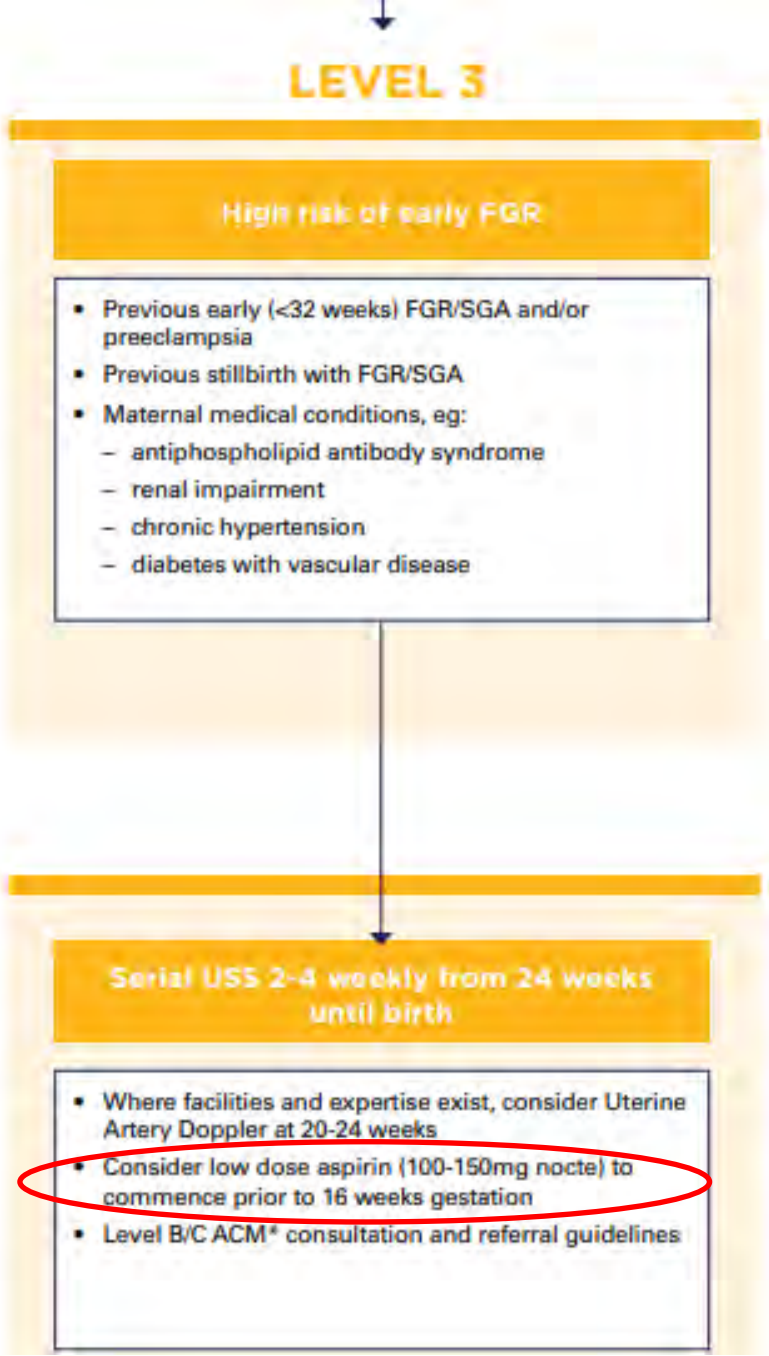
SOMANZ

High Risk of early Fetal Growth Restriction

- Previous early < 32/40 fetal growth restriction/SGA +/- pre-eclampsia
- Previous stillbirth with FGR/SGA
- Maternal medical conditions e.g.
  - Antiphospholipid syndrome / SLE
  - Renal impairment
  - Chronic hypertension
  - Diabetes with vascular disease
  - Multiple pregnancy

COMMENCE ASPIRIN 100-150mg nocte PRIOR to 16/40

Early referral to hospital ANC



Fetal Growth Restriction (FGR) Care Pathway
for singleton pregnancies

LOW DOSE ASPIRIN in Pre-eclampsia and FGR prevention

In individuals, aspirin provides a statistically significant but clinically modest 10% reduction in pre-eclampsia risk with commencement before 16/40, and ideally before 12/40.
Number needed to treat (NNT) to prevent one diagnosis of preeclampsia is 61 [95% CI 45 – 92]

Further meta-analysis

- suggested aspirin is hi**eclampsia** when given to high-risk women from befor

Practice Point:

Low dose aspirin reduces early onset PET (<K32) by up to 62%, and PET by K37 by 30%

- Good compliance = 76% reduction

Aspirin for Evidence-Ba**ion trial:** a multicentre, randomized, double-blinc at high risk identified by means of combined screening w incing evidence that:

Aspirin (150 mg daily) from 11–14/40 until 36/40 (singletons) reduced incidence preterm PE by:

- 62% reduction in the incidence of preterm pre-eclampsia (before 37/40) - (95% CI 20–80%),
- 82% reduction in the incidence of early onset pre-eclampsia (before 34/40)
- No significant reduction in the incidence of pre-eclampsia at term (> 37/40) (detected 44%)

https://doi.org/10.1002/uog.18816 Rolnik DL, Wright D, Poon LC, et al. ASPRE trial: Performance of screening for preterm pre-eclampsia. Ultrasound Obstet Gynecol 2017;50(4):492–95

ASPRE trial

Using 1st TM combined screening:

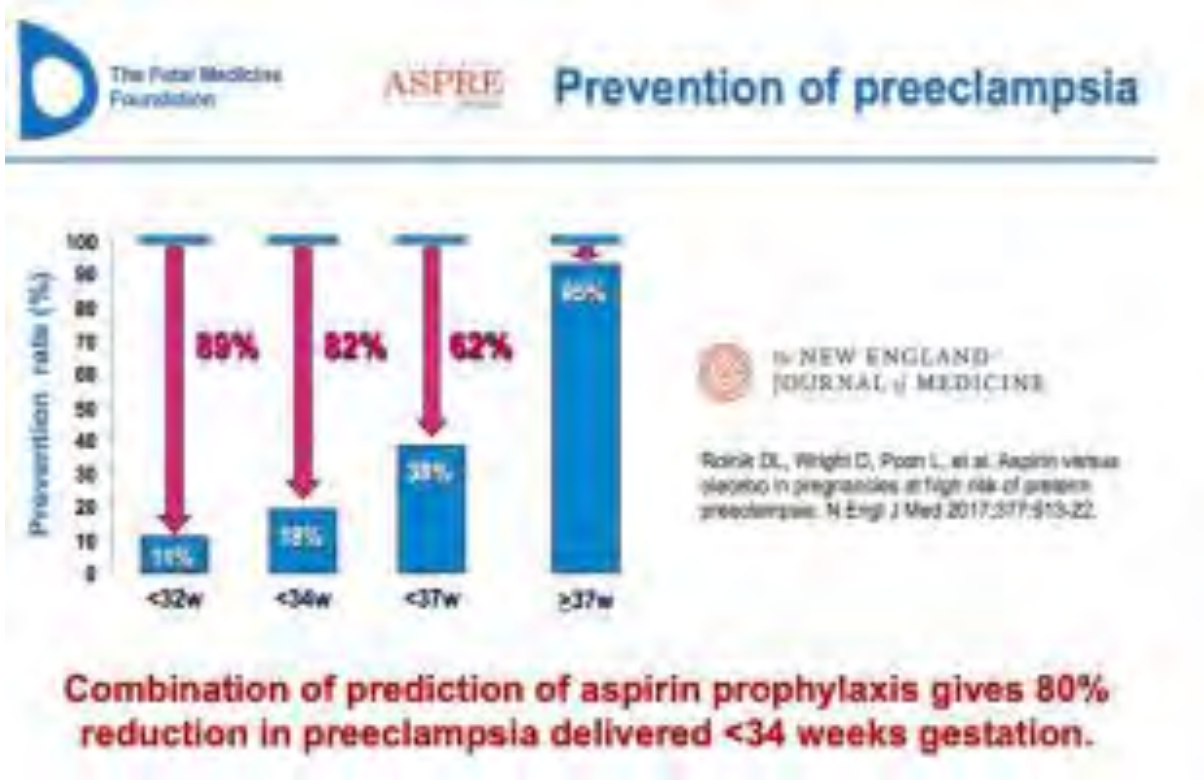
- maternal clinical factors,
- uterine artery pulsatility index (doppler USS)
- mean arterial pressure, and
- placental growth factor (PlGF)# at 11–13/40)

to determine **high risk** for **preterm PE**:

Aspirin use (150 mg daily) from 11-14/40 until 34-36/40 (singletons) reduced preterm PE incidence by:

- 62% reduction in the incidence of preterm pre-eclampsia (before 37/40)
- 82% reduction in the incidence of early onset pre-eclampsia (before 34/40)

PIGF – not Medicare funded



ASPRE trial: performance of screening for preterm pre-eclampsia - Rolnik - 2017 - Ultrasound in Obstetrics & Gynecology - Wiley Online Library - https://doi.org/10.1002/uog.18816
Volume 50 Issue 6Ultrasound in Obstetrics & Gynecology pages: 807-807 First Published online: Dec 4, 2017)

Further information at:
The Fetal Medicine Foundation

Pre-eclampsia Screening

Fetal Medicine Foundation (FMF) in the UK assessed an algorithm at 11-13/40 combining:

- maternal history (age, ethnicity, weight & height, medical and obstetric history)
- with mean arterial pressure
- sonographic (uterine artery pulsatility index) and
- biochemical markers (PIGF)

May contribute to early risk reduction interventions to reduce PET, and associated FGR/Preterm birth/Stillbirths by including low dose aspirin use in high-risk women and increased monitoring.

Two approaches to screening were assessed in the UK NHS “Screening Programme for Pre-eclampsia” (SPREE) study involving 16,747 participants.[1]

Detection rate of preterm PET was 41.55% with risk scoring system recommended by NICE (*maternal clinical risk factors alone*) compared to 82% when screening was based on the FMF competing-risks model.

FMF screening is particularly effective for **preterm pre-eclampsia** detecting

- ~90% of women who will develop <34 weeks of gestation
- ~80% of women who will develop pre-eclampsia at <37 weeks of gestation
- only 44% of women who will develop pre-eclampsia at ≥37 weeks of gestation

1. Tan, M. Y. et al. Comparison of diagnostic accuracy of early screening for pre-eclampsia by NICE guidelines and a method combining maternal factors and biomarkers: results of SPREE. Ultrasound Obstet. Gynecol. 51, 743–750 (2018) - https://fetalmedicine.org/var/pdf/publications/1115.pdf

Pre-eclampsia Screening – on the horizon in Australia ……

The new SOMANZ_Hypertension_in_Pregnancy_Guideline_2023 **noted the value of the combined first trimester screen*. This screen would use a combination of maternal history, blood pressure, biochemistry (Papp-A or PLGF#) and uterine artery doppler to improve the detection rate for early preeclampsia.

Executive Summary of Recommendations

Chapter 2: Screening for women at risk of preeclampsia

Clinical question	Type of Recommendation	Recommendation	Rating of Recommendation
2. Screening for women at risk of developing preeclampsia			
2.1	Evidence based recommendation	The use of maternal risk factors (maternal characteristics, medical and obstetric history) to screen all pregnancies for risk of preeclampsia is strongly recommended (Table 2.1)	1A
2.2	Evidence based recommendation	The use of a combined first trimester screen (combined maternal features, biomarkers and sonography) to identify women at risk of developing preeclampsia is conditionally recommended based on local availability and access to the required resources.	2B

Early risk reduction interventions (LDA and closer monitoring) can then be targeted to those at greatest risk. Each additional screening test increases overall accuracy of prediction of preeclampsia.

Tests available across Queensland, however **routine use in all women is not currently recommended**.

Pilot study commenced at GCUH 2023
Professor Fabricio da Silva Costa –
(A/Director MFM, GCUH & Prof O & G, Griffith University)
adapting UK online clinical decision support tool (app) to Australian guidelines - UK developed & validated (Tommy's National Centre for Maternity Improvement).

* Society of Obstetric Medicine of Australia and New Zealand;
# PIGF – not Medicare funded (is UK - NHS funded)

Hypertension in Pregnancy Guideline 2023 - SOMANZ

1	Women with hypertension in pregnancy (Systolic BP ≥140 and/or diastolic BP ≥90mmHg) should be assessed for a diagnosis of a hypertensive disorder of pregnancy (HDP) – preeclampsia, gestational hypertension, chronic hypertension, super-imposed preeclampsia, white coat hypertension or masked hypertension[1]. (Part 1)*
2	All women should be assessed in the first trimester for their risk of developing preeclampsia, at a minimum, with clinical parameters (history and blood pressure assessment). Where available, combined first trimester screening, including uterine artery Doppler together with biomarkers, may enhance the risk assessment[2]. (Part 2)*
3	Initiate preventative strategies if a woman is identified to be at high-risk of preeclampsia. Preventative measures proven to be beneficial include: commencing aspirin 150mg daily (taken at night/bedtime) prior to 16 weeks of gestation, supplemental calcium (where assessed dietary calcium intake is <1g/day) and undertaking aerobic exercise as recommended as part of routine pregnancy well-being[3]. (Part 3)*
4	Proteinuria in pregnancy should ideally be assessed with a spot (random) urinary assessment rather than dipstick assessment alone. If dipstick assessment is the initial means of assessment, proteinuria should be confirmed with laboratory quantification. A urinary protein:creatinine ratio with a cut off of ≥30mg/mmol or where this is unavailable, a spot albumin:creatinine ratio with a cut off of ≥8mg/mmol can be used to diagnose proteinuria in pregnancy[4]. (Part 4)*
5	An angiogenic biomarker (sFlt-1/PlGF ratio) result of ≤38, used after 20 weeks gestation in conjunction with clinical assessment, can be used to rule out preeclampsia within 1-4 weeks of testing in symptomatic women where there is a clinical suspicion of preeclampsia. The sFlt-1/PlGF ratio should not replace clinical assessment. The use of the sFlt-1/PlGF ratio for diagnosis of preeclampsia, predictingdelivery or fetal outcomes and routine testing in asymptomatic women is not recommended until more data is available[5]. (Part 4)*
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Appendix 2: Top 10 Points for Clinicians from the SOMANZ Hypertension in Pregnancy Guidelines 2023

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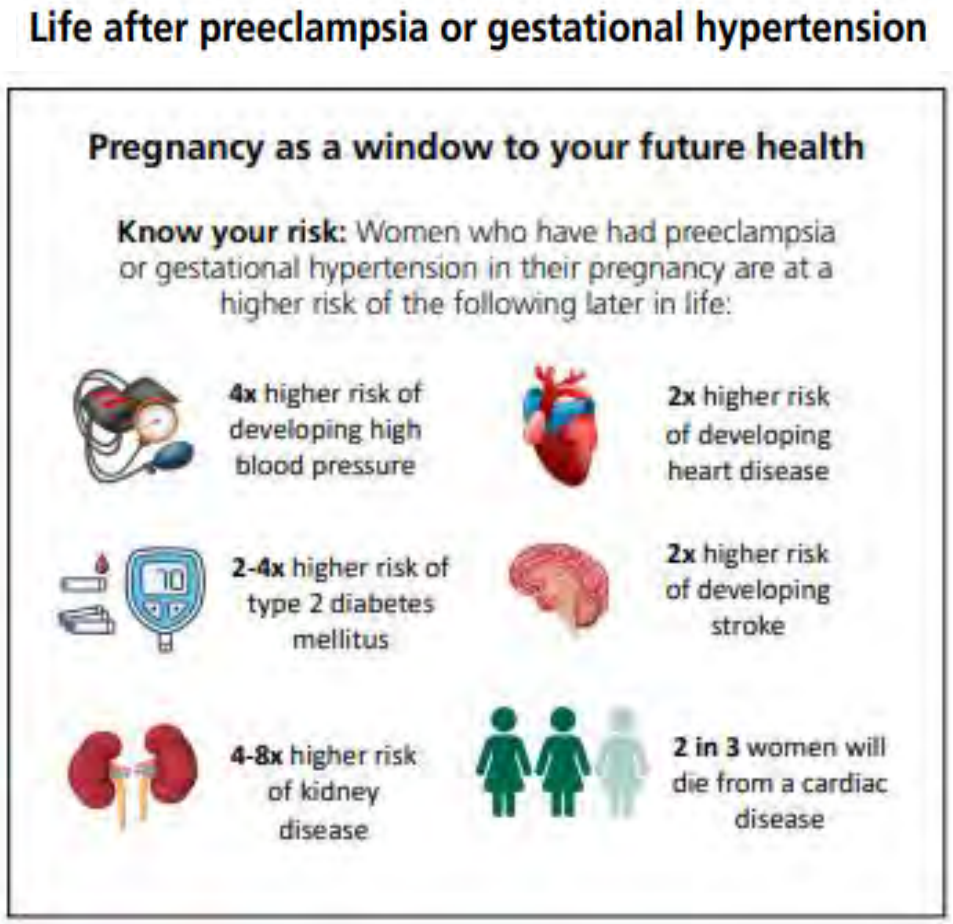
Long Term Consequences – GPs need to follow up because…..



- Health data analysis from almost 90,000 women (Nurses' Health Study II) 1989 - 2017 suggests effects are long-lasting.
- One in seven women developed gestational hypertension /preeclampsia in one or more of subsequent pregnancies.
- In three-decade follow up, those who developed gestational hypertension/preeclampsia during pregnancy had **42% greater risk of dying before age 70 than those who didn't.**
- These women were more than **2 X as likely to die of cardiovascular disease** than those without hypertensive disorder during pregnancy.
- Links remained, even if women did not report persistent hypertension after birth.
- History of adverse pregnancy outcomes was linked to higher rates of hypertension, diabetes, renal disease, hyperlipidaemia, coronary artery disease, heart failure, stroke and vascular dementia
- Develop at younger age than those with uncomplicated pregnancies.
- Breastfeeding helped mitigate this risk.
- Also tied to higher IHD and stroke risk in offspring
- Increased depression/anxiety in those with PHx Preeclampsia

References:

- Hypertensive Disorders of Pregnancy and Subsequent Risk of Premature Mortality, Journal of the American College of Cardiology – March 2021 https://doi.org/10.1016/j.jacc.2021.01.018
- Society of Obstetric Medicine of Australia and New Zealand (SOMANZ) – Hypertension in Pregnancy Guideline – 2023 https://www.somanz.org/content/uploads/2024/01/SOMANZ_Hypertension_in_Pregnancy_Guideline_2023.pdf

Long Term Post Partum Care

Recommendations

8.1 Women should be informed of the long-term risks associated with preeclampsia, gestational hypertension and chronic hypertension and the importance of postpartum follow up prior to discharge from hospital (Information sheet 8.1). (PP)

8.2 Women should be reviewed by a health care provider within 1 week of discharge from hospital to ensure stable blood pressure post discharge and titrate medications accordingly. (PP)

8.3 At 3-6 months postpartum, a follow up review of blood pressure (consider a 24-hour blood pressure monitor if not previously done), urine protein assessment (uACR and/or uPCR), BMI and metabolic profile (fasting blood glucose and fasting cholesterol assessment) should be considered. Interventions for any abnormalities (i.e. further investigations, specialist referral, weight management, lifestyle changes, smoking cessation) should be discussed (Clinician summary sheet 8.1). (PP)

8.4 A yearly follow up of blood pressure, urine protein assessment, BMI and metabolic profile should be considered in identifying early abnormalities in the first 5-10 years postpartum (Clinician summary sheet 8.1). (PP)

8.5 At every review, women should be opportunistically screened for postpartum depression and anxiety. The Edinburgh Postnatal Depression Scale (EPDS) can be used as an initial screening tool (Clinician summary sheet 8.1)). (PP)

8.6 At every review, women should be counselled on the risk of preeclampsia and gestational hypertension in subsequent pregnancies and the importance of pre-conception medical optimisation, contraception (where indicated) and risk minimisation strategies (i.e.: prophylactic aspirin) (Clinician summary sheet 8.1). (PP)

- Counsel women on long-term risk at time of discharge with good communication/timely hospital discharge summary to the woman's GP (uploaded automatically to my Health Record)
- Risk BP escalation within first 1-4 weeks post-birth, so ensure GP review within 1 week of hospital discharge.
- Comprehensive review of BP (with 24-hour monitor if possible), urine protein assessment, renal function and LFT/platelet count at 3-6-month mark to ensure normalisation.
- Yearly follow up - BP, urine protein assessment, smoking cessation, BMI & metabolic profile should be considered in either following up on identified abnormalities or identifying early abnormalities in first 5-10 years postpartum.
- Preeclampsia is associated with increased risk of postpartum depression, so at every review, opportunistically screen for postpartum depression and anxiety.
- At every review, women should be counselled on risk of preeclampsia and gestational hypertension in subsequent pregnancies and importance of pre-conception medical optimisation, contraception (where indicated) and risk minimisation strategies (i.e.: prophylactic aspirin, regular exercise +/- supplemental calcium)

Hypertension in Pregnancy Guideline 2023 - SOMANZ

Other preventative strategies ?

- **? Statins** - Trial in 173 women at high risk of developing pre-eclampsia reported that daily pravastatin from the second trimester (14–20/40) until delivery significantly reduced the rate of preterm pre-eclampsia (13.8% versus 26.7% in the control group) and preterm birth. Pravastatin may not be effective at preventing term pre-eclampsia.
- **? Metformin** - in women with BMI >35 kg/m2 given metformin daily from 12–18 /40 until delivery, a significant reduction in pre-eclampsia (OR 0.25, 95% CI 0.1–0.61) & significant reduction in gestational weight gain were reported.
- **? Vitamin D** - daily vitamin D supplementation significantly reduced pre-eclampsia risk (RR 0.29) – meta-analysis 3 RCTs (313 women)

Genetic, Chromosomal or Structural Conditions in the patient/partners history

- Cystic Fibrosis/Spinal Muscular Atrophy /Fragile X Syndrome
- Duchenne muscular dystrophy
- Spina Bifida/Neural Tube Defect
- Thalassaemia/Sickle cell anaemia
- Intellectual impairment/"special schooling" – significant intellectual disability
- Family member who has died as an infant/young child or recurrent fetal losses/stillbirths
- Other Birth Defect e.g., Cleft lip or palate, Skeletal dysplasia
- Metabolic disorder; cardiac or renal congenital condition; haematological disorder e.g., haemophilia; chromosomal disorder incl Tay-Sachs (used to be most common in people of Ashkenazi Jewish descent but many cases now occur in people from other ethnic backgrounds), Inherited immunodeficiency disorders

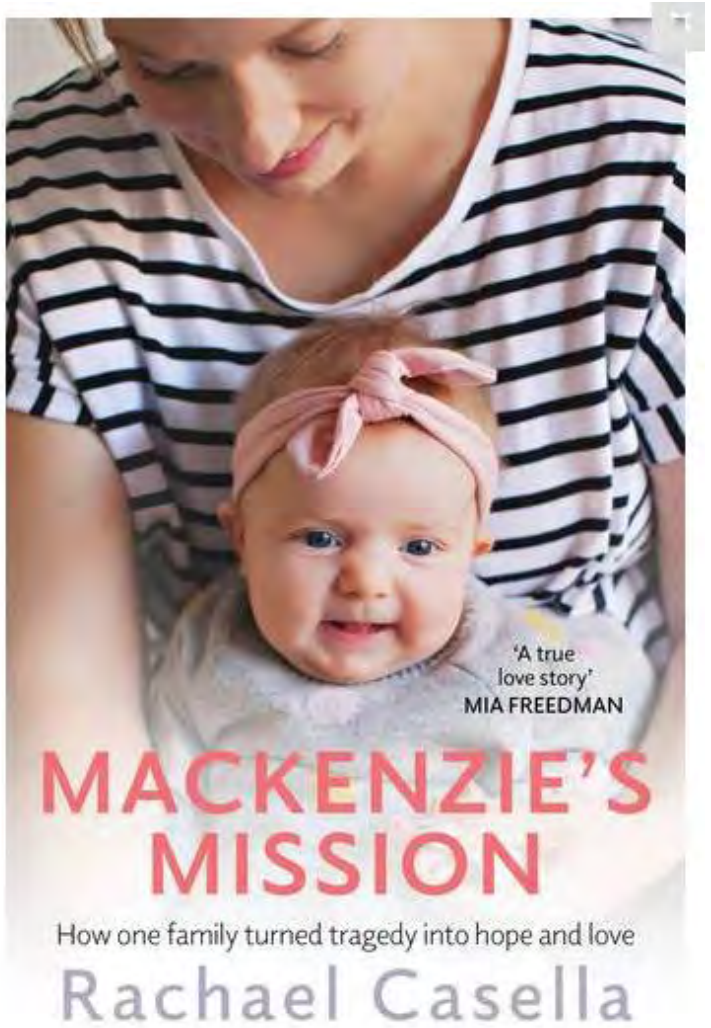
"Mackenzie's Mission" - Australian Reproductive Genetic Carrier Screening Project

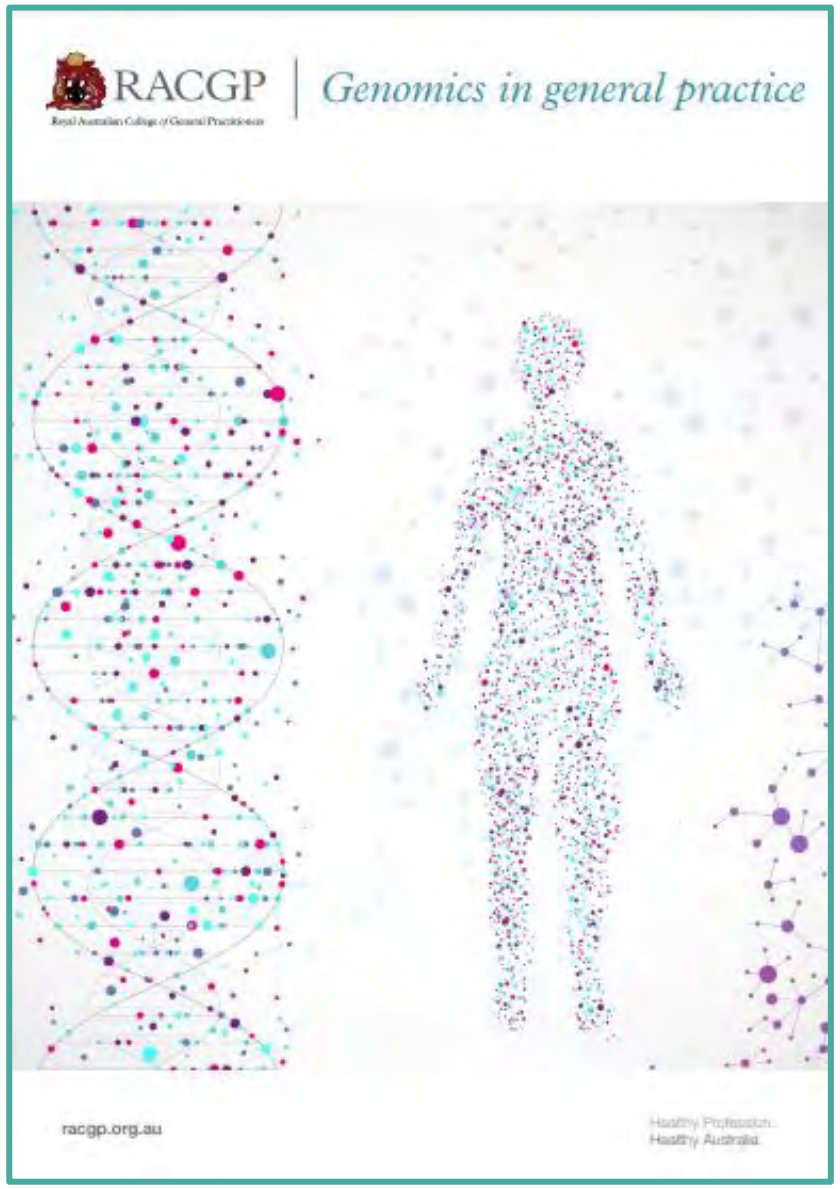
https://www.mackenziesmission.org.au/

- Mackenzie diagnosed with SMA at 10 weeks' & died aged 7 months
- Reproductive genetic carrier screening to 10,000 Australian couples (demographically & geographically widespread) planning or in early pregnancy (up to 10/40) - approx. 750 genes tested.
- Included essential genetic counselling and full support for those couples found to have a high-risk result.

Ceased recruitment.

Genetic Carrier Screening has been federally funded since November 2023





- All women or couples planning a pregnancy, or who are already pregnant, should have a comprehensive family history recorded.
- Women or couples who are **known carriers** of a genetic condition or have a relevant family history should be made aware of the availability of carrier screening and offered referral to specialist services (i.e., genetics or obstetrics).
- **Carrier screening for common recessive (e.g., cystic fibrosis) or X-linked genetic conditions** may be offered to low-risk women or couples (i.e., regardless of family history and ethnicity).
- The decision to undertake carrier screening is a personal choice to be made by the individual or couple. Women or couples should be informed of the benefits, limitations and cost of screening. Ideally, this information is provided pre-pregnancy.

https://www.racgp.org.au/FSDEDEV/media/documents/Clinical%20Resources/Guidelines/Genomics-in-general-practice.pdf

Practice Point:

Most carriers of a genetic condition will not have a known family history

1:20 Australians carrier, 1:240 couples both carriers

Both RANZCOG + RACGP recommend '**information about carrier screening should be offered to all women/couples planning a pregnancy'**

Reproductive Genetic Carrier Screening

Current screening for genetic conditions:

- Newborn 'heelprick'
  - Voluntary, government funded.
  - 26 conditions: PKU, CAH, CF, hypothyroidism, galactosemia, SMA, SCID (newly added)
- Note: Carriers of haemoglobinopathies may be initially identified through a routine full blood examination (FBE) and haemoglobin electrophoresis

- **Prenatal carrier screening**
  - From November 2023 – Federally funded
  - 3 condition test (CF, SMA, Fragile X)
  - Ideally pre-conception (can be in early pregnancy)

How Common Are These Conditions?

These three conditions combined are amongst the most commonly carried mutations in European populations.

	CARRIER FREQUENCY	NUMBER OF LIVE BIRTHS
Cystic Fibrosis	1 in 25	1 in 2,500
Fragile X	1 in 150	1 in 4,000 males (1 in 8,000 females)
Spinal Muscular Atrophy	1 in 40	1 in 6,000 – 10,000

Mode of Inheritance

	MODE OF INHERITANCE
Cystic Fibrosis	Autosomal recessive
Fragile X	X-linked
Spinal Muscular Atrophy	Autosomal recessive

Reproductive carrier screening

- Identifies carriers of genetic conditions with an autosomal recessive (or X-linked) inheritance pattern.
- Can be offered to all women or couples during pre-conception and early in pregnancy (i.e.,1st TM) Identifies carrier couples before pregnancy provides greater reproductive options e.g.,
    - in-vitro fertilisation (IVF) with pre-implantation genetic diagnosis
    - use of donor gametes
    - prenatal diagnostic (genetic) testing.
- Traditionally, carrier screening for inherited recessive conditions was offered on basis of ethnicity.
- However, given the multicultural nature of society and marriage between people of different ethnic backgrounds, ethnicity is less strongly predictive of carrier frequency in Australia. Therefore, carrier screening panels increasingly test for multiple conditions, irrespective of ethnicity.
- Examples of autosomal recessive conditions - cystic fibrosis (CF), spinal muscular atrophy (SMA) and Tay-Sachs disease (TSD). Examples of X-linked conditions - fragile X syndrome (FXS), haemophilia A and B, and Duchenne muscular dystrophy.
- Approximately 1–2% of non-consanguineous couples have a one in four chance of having a child with an autosomal recessive or X-linked recessive condition. The risk is considerably higher for consanguineous couples.

Genetic Carrier Screening

Medicare funding for Carrier Status testing in Australia since Nov 2023

- Spinal Muscular Atrophy
- Cystic Fibrosis
- Fragile X Syndrome

Medicare Criteria:

1. Female planning pregnancy
2. Female who is already pregnant (best done ASAP)
3. Male reproductive partner of a female carrier

The rebate only applies ONCE per lifetime

Genetic Carrier Screening Informed Reproductive Decision Making FOR MEDICAL PROFESSIONALS - e48af711-4931-4663-bb08-16efb821c1a7.pdf (healius.com.au)

88% of carriers have no family history[1]

1 in 20 is the combined carrier frequency for these three conditions[1]

What does carrier screening entail?

- Maternal and paternal serum samples
- Federal funding for existing carrier screening providers

  S+N, QML, VCGS
  3-4 week wait for results

‘Extended’ carrier screening (limited rebate)

- ~400 conditions
- requires detailed pre-screening counselling.
- $600

AUSTRALIAN CLINICAL LABS

- Gene Access Carrier Screen
- Comprehensive Carrier Screening

EUGENE

- Expanded Carrier Screening

GENOMIC DIAGNOSTICS

- Core Genetic Carrier Screen
- Myriad (Counsyl) Foresight Expanded Carrier Screen

GENOMICS FOR LIFE

- Extended Carrier Screening

SONIC GENETICS

- 3-Gene Carrier Screen
- Beacon Expanded Carrier Screen

VICTORIAN CLINICAL GENETICS SERVICES

- Prepair Genetic Carrier Screening
- Expanded Carrier Screening

VIRTUS DIAGNOSTICS

- Genetic Carrier Screen – 3 Gene Panel
- Expanded Carrier Screen

Medicare Criteria

As of November 1 2023, genetic carrier screening will be listed on the Medicare Benefits Schedule.

Medicare Item 73451 – screening for a female who is pregnant or planning pregnancy

Testing of a patient who is pregnant, or planning pregnancy, to identify carrier status for pathogenic or likely pathogenic variants in the following genes, for the purpose of determining reproductive risk of cystic fibrosis, spinal muscular atrophy or fragile X syndrome:

(a) CFTR
(b) SMN1
(c) FMR1

One test per lifetime.

Medicare Item – 73452 – screening for a reproductive partner of a carrier

Testing of the reproductive partner of a patient who has been found to be a carrier of a pathogenic or likely pathogenic variant in the CFTR or SMN1 gene identified by testing under item 73451, for the purpose of determining the couple's reproductive risk of cystic fibrosis or spinal muscular atrophy.
One test per condition per lifetime.

Explanatory note: The intent of MBS item 73451 is to test an asymptomatic patient of female chromosomal sex who is either planning a pregnancy or is already pregnant. The intent of MBS item 73452 is to test an asymptomatic patient of male chromosomal sex who is the reproductive partner of the female patient tested under item 73451.

Arranging Genetic Carrier Screening

Step 1: Patient consultation

- Discuss carrier screening with your patient as recommended by clinical guidelines
- Order Genetic Carrier Screening on a standard request form, noting any family history or pregnancy , and if the reproductive partner is a known carrier

Step 2: Sample collection

- Patient attends collection centre with their signed request form
- Blood is collected
- Genetic Carrier Screening is performed

Step 3: Result discussion

- Results are delivered to you by your preferred method
- Genetic counselling is provided for couples who are identified as carriers

Genetic Carrier Screening
Informed Reproductive Decision Making

FOR MEDICAL PROFESSIONALS

Genomic Diagnostics
LEADING THE WAY TO IMPROVE HEALTH

For more information, contact us at info@genomicdiagnostics.com.au

1800 822 999 genomicdiagnostics.com.au PO Box 250, Heidelberg West, VIC 3081

Healius companies

abbott pathology | dorevitch pathology | laverty pathology | qml pathology | tml pathology | western diagnostic pathology

e48af711-4931-4663-bb08-16efb821c1a7.pdf (healius.com.au)

Genetic Carrier Screening – Carrier parents

- **If parents identified to both be carriers:**
  - Counselling regarding inheritance chances and pregnancy options
  - Uncertainty as to funding of post-test counselling. ?GHQ/private geneticist

- **Pregnancy options:**
  - Early diagnostic testing (CVS) (referral to MFM)
  - IVF + PGT ($$)
  - Donor egg / sperm / embryo, adoption

https://www.racgp.org.au/getmedia/4b19d774-d020-4cda-80e1-7b75a8d7dfc7/A-quick-guide-to-carrier-screening-for-hereditary-diseases.pdf.aspx

Who should be offered carrier screening?

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists guidelines recommend that clinicians:

- offer basic thalassaemia screening to **all pregnant women** (FBC)
- offer information on carrier screening (both three-condition & expanded panel) to **all women** planning a pregnancy or in the first TM of pregnancy, regardless of family history or genetic origin.
- offer **additional screening** to individuals of Eastern European (Ashkenazi) Jewish descent, due to a higher incidence of conditions such as Tay–Sachs disease in this population
- offer a more detailed discussion about carrier screening with an informed clinician
- obtain **informed consent** for screening – this should include any out-of-pocket expenses that are required for the chosen test
- refer all carrier couples, and women who are carriers of an X-linked recessive disorder, for genetic counselling.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Excellence in Women's Health

Reproductive Carrier Screening

Genetic screening options for healthy couples who are planning a pregnancy, or who are in the early stages of pregnancy, are becoming more available.

Inherited genetic conditions
There are hundreds of inherited genetic conditions that can affect human health, and most are very rare. However, when all of these inherited conditions are considered together, they affect up to 1 in 400 people. Most couples who have an affected child have no family history of the condition and were not aware they had an increased chance of having a child with the condition. This occurs because a healthy couple can pass on genetic changes to their child without knowing they are carriers of that condition. Therefore, carrier screening is relevant to everyone regardless of whether or not they have a family history of a genetic condition.

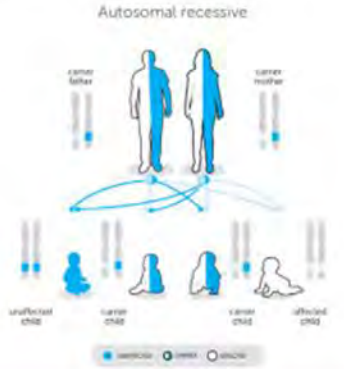
What screening is currently available for genetic conditions?
The newborn screening programs in Australia and New Zealand offer screening of all newborns for a range of genetic conditions using the "heelprick test". This is a voluntary, government-funded test that does not require any payment. The majority of parents choose to have this screening for their baby.

Screening can also be performed on adults to see if they are at increased chance of having a child with a genetic condition. When a healthy couple or individual have screening to see if there is a chance of passing a genetic condition to their children, this is called "reproductive carrier screening". This is usually not government funded unless there is a family history of the condition.

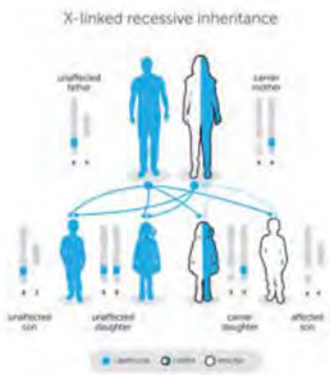
How does a baby inherit a genetic condition from healthy parents?

There are two major types of inheritance that can lead to a healthy couple having a child with a serious genetic condition. These are referred to as autosomal recessive and X-linked recessive inheritance.

Autosomal recessive conditions
For autosomal recessive conditions, a person only develops the disease if they inherit the same faulty gene from each parent. In this case, each parent has one faulty gene and one healthy or functioning gene, they do not have the condition; but are healthy "carriers" of the condition. If both members of a couple are carriers of the same faulty gene there is a 1 in 4 chance of having a child affected by that condition. The most common autosomal recessive conditions in our community are thalassemia and cystic fibrosis.



X-linked conditions



X-linked conditions occur when the faulty gene is on the X chromosome. Males have an X and a Y chromosome while females have two X chromosomes. Since males have only one X chromosome, if there is a faulty gene on their X chromosome they are more severely affected by the condition since they do not have a second normal X chromosome to compensate.

If a woman is a carrier for an X-linked condition, there is a 1 in 2 chance of having an affected son and 1 in 2 chance of the daughter being a carrier.

The most common X-linked condition is fragile X syndrome. For fragile X, female carriers have up to a 50% chance of having a child with fragile X syndrome. Both males and females can have fragile X syndrome.

What should we do if we have a family member with a genetic condition?

If you or your partner have a relative with a genetic condition, you may have an increased chance of having a child with that genetic condition. Examples of inherited genetic conditions include thalassemia, cystic fibrosis, fragile X syndrome, spinal muscular atrophy, and haemophilia. Some genetic conditions occur more frequently in certain ethnic groups. If you have a relative with a genetic condition, you should discuss this with your family doctor (general practitioner (GP)). Your GP can refer you to a genetic counsellor or medical geneticist for further advice and testing if needed.

We don't have a genetic family condition. Is there a risk?

Carrier screening is relevant to all people planning a pregnancy or in early pregnancy. Most people who are a carriers of a genetic condition/s do not have a family history of a genetic condition/s. This is because carriers are generally healthy and because usually both members of the couple need to carry the same condition in order to have an increased chance of having a child with that condition. This means these conditions can be passed down through families for many generations before a person is affected by the condition.

How often do these genetic conditions occur?

The chance of a child being born with a genetic condition varies depending on the ethnicity of the population. The numbers of carriers and affected individuals for the more common conditions in a Caucasian population are listed below. As technology improves and people are having screening for a large number of conditions, it is becoming clear that most people are carriers for one or more inherited conditions.

	Number of people who are carriers	Number of people with the conditions
Cystic fibrosis	1 in 25	1 in 2,500
Fragile X syndrome	1 in 250	1 in 4,000
Spinal muscular atrophy	1 in 40	1 in 6,000 - 1 in 10,000

When should I have screening?

Carrier screening can be performed at any time, but it is preferable to screen before pregnancy so that prospective parents have time to consider their reproductive options.

What are the costs?

The cost of testing for three of the most common genetic conditions - cystic fibrosis, spinal muscular atrophy, and fragile X syndrome - is currently out of pocket. At the moment there is no rebate for these tests.

How do I access screening?

A range of carrier screening options are available. These generally fall into two groups:

- Screening for a small number of common inherited conditions (such as cystic fibrosis, fragile X syndrome and spinal muscular atrophy)
- Screening the common inherited conditions as well as a large number of rare conditions

If you are considering carrier screening, speak to your GP, obstetrician or midwife. They can discuss your options with you and may refer you to a genetic counsellor. Some genetic testing laboratories and clinical genetics services offer genetic counselling for people considering carrier screening.

What can we do if we have an increased chance of having a child with a genetic condition?

If you and your partner are carriers of the same genetic condition or the female partner is a carrier of an X-linked condition, then you should seek genetic counselling prior to getting pregnant. This will give you time to consider all the options available to you, including:

- Getting pregnant naturally and having the baby tested after birth
- Getting pregnant naturally and having diagnostic testing during pregnancy, with the option of considering an abortion if the baby will be affected
- Having in vitro fertilization (IVF) and preimplantation genetic testing (PGT) in order to selected unaffected embryos to get pregnant
- Using IVF and sperm, eggs or embryos from donors who are not carriers of the condition
- Adoption
- Not to have children at all

If you are already pregnant, it is recommended that you speak to a genetic counsellor. They can discuss options for testing in early pregnancy to determine whether the developing baby is likely to be affected.

RANZCOG © 07|2019

RANZCOG Patient Leaflet - Reproductive Carrier Screening

When should I refer?

Couples identified as carriers of a genetic condition should be offered referral to specialist services (i.e., genetics or obstetrics).

Other considerations

Carrier screening needs to occur in a timely manner to provide women or couples with reproductive options.

The testing of biological male partners of pregnant female carriers is of particular importance.

As preconception carrier screening covers the chance of a couple having a child with a serious genetic condition, testing need only be done once, unless either member changes partners, and wishes to have children in a new relationship. The tests would need to be repeated with a new partner.

Genetic Carrier Screening – Carrier parents

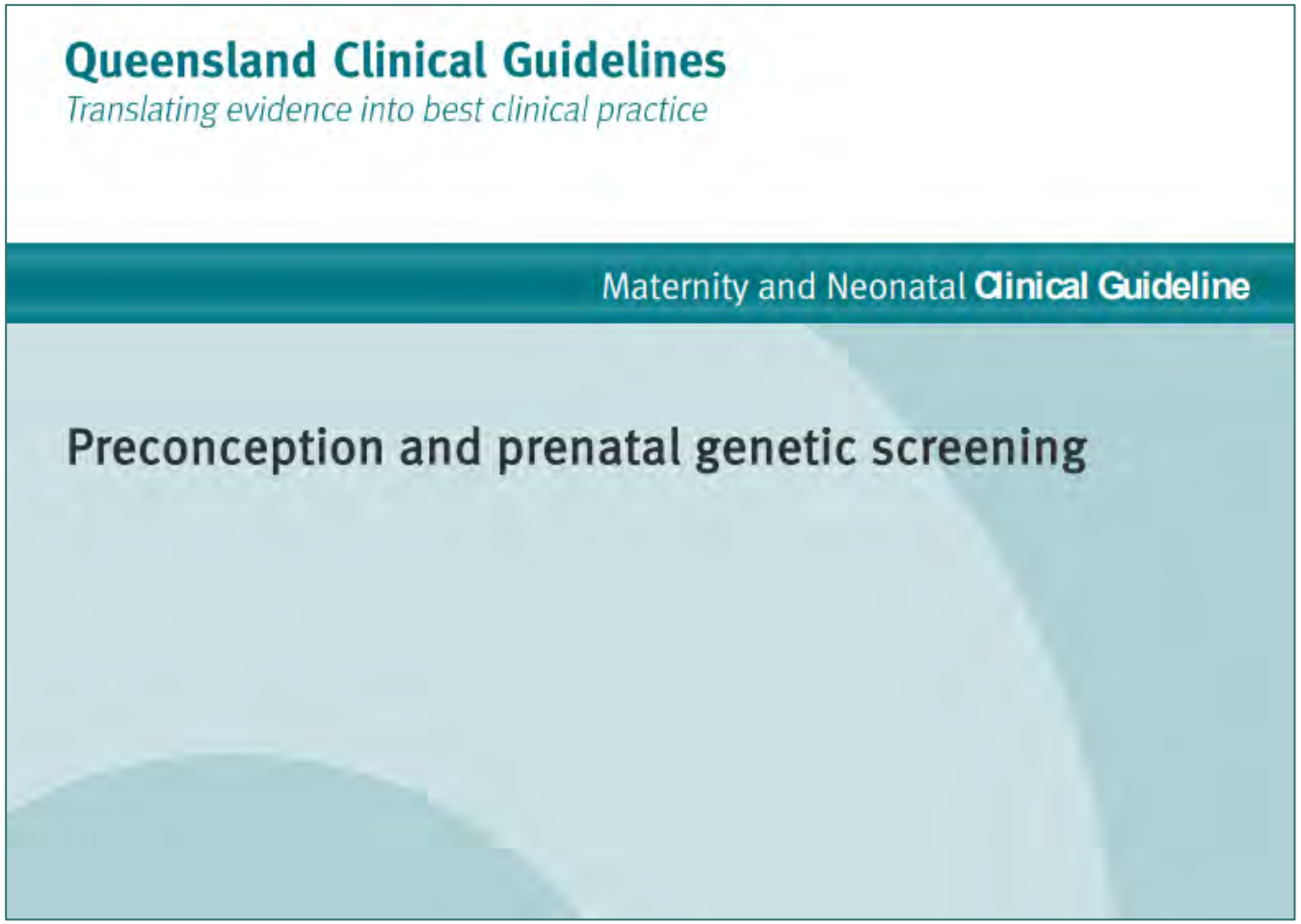
- If parents identified to both be carriers:
  - Counselling regarding inheritance chances and pregnancy options
  - Uncertainty as to funding of post-test counselling. ?GHQ/private geneticist

- Pregnancy options:
  - Not have children
  - Early diagnostic testing (CVS) (referral to MFM)
  - IVF + PGT

    (Free rebates for PGT ended with Mackenzie's Mission)
  - Donor egg / sperm / embryo, adoption

https://metronorth.health.qld.gov.au/rbwh/genetic-health-queensland

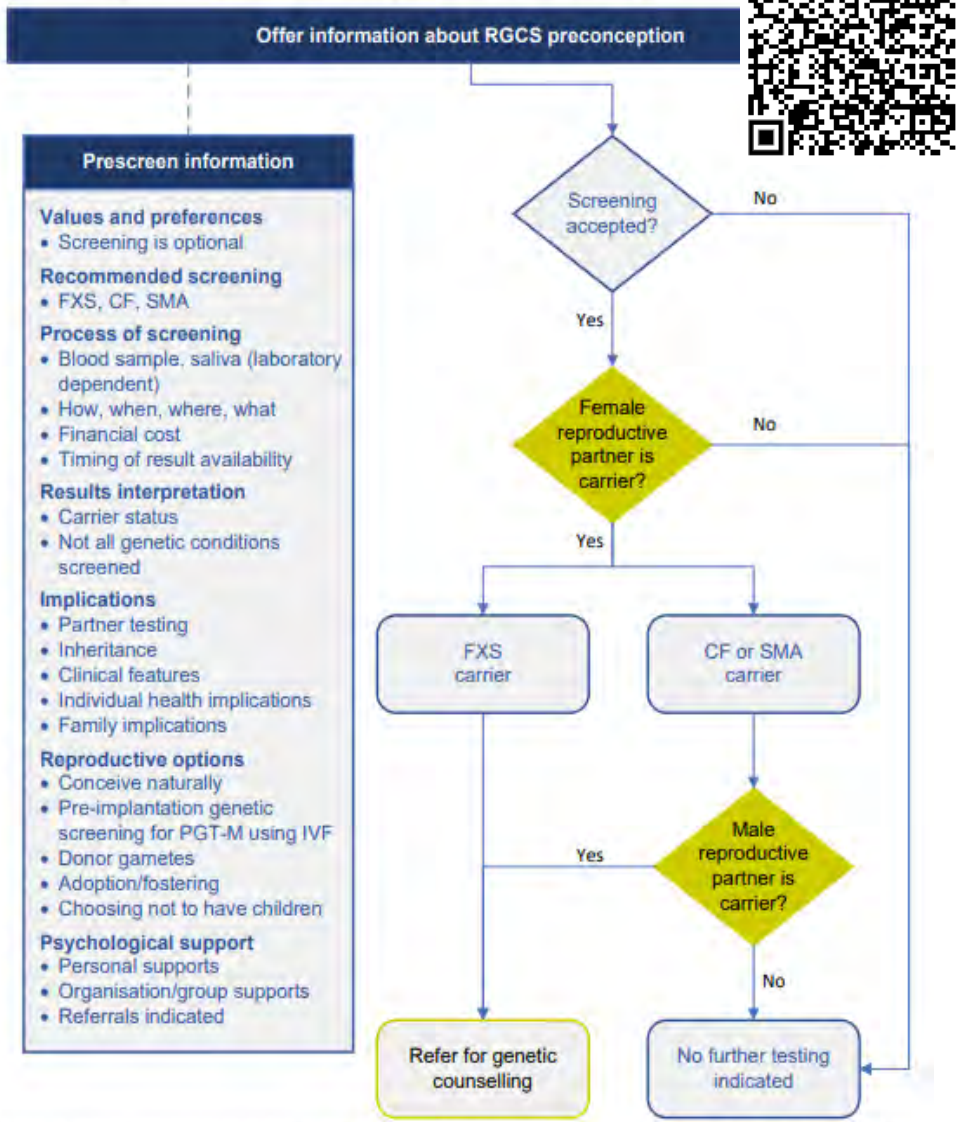
Queensland Clinical Guidelines - NEW



Preconception and prenatal genetic screening
https://www.health.qld.gov.au/__data/assets/pdf_file/0018/1324602/g-prenatal-screen.pdf

Publication date: April 2024

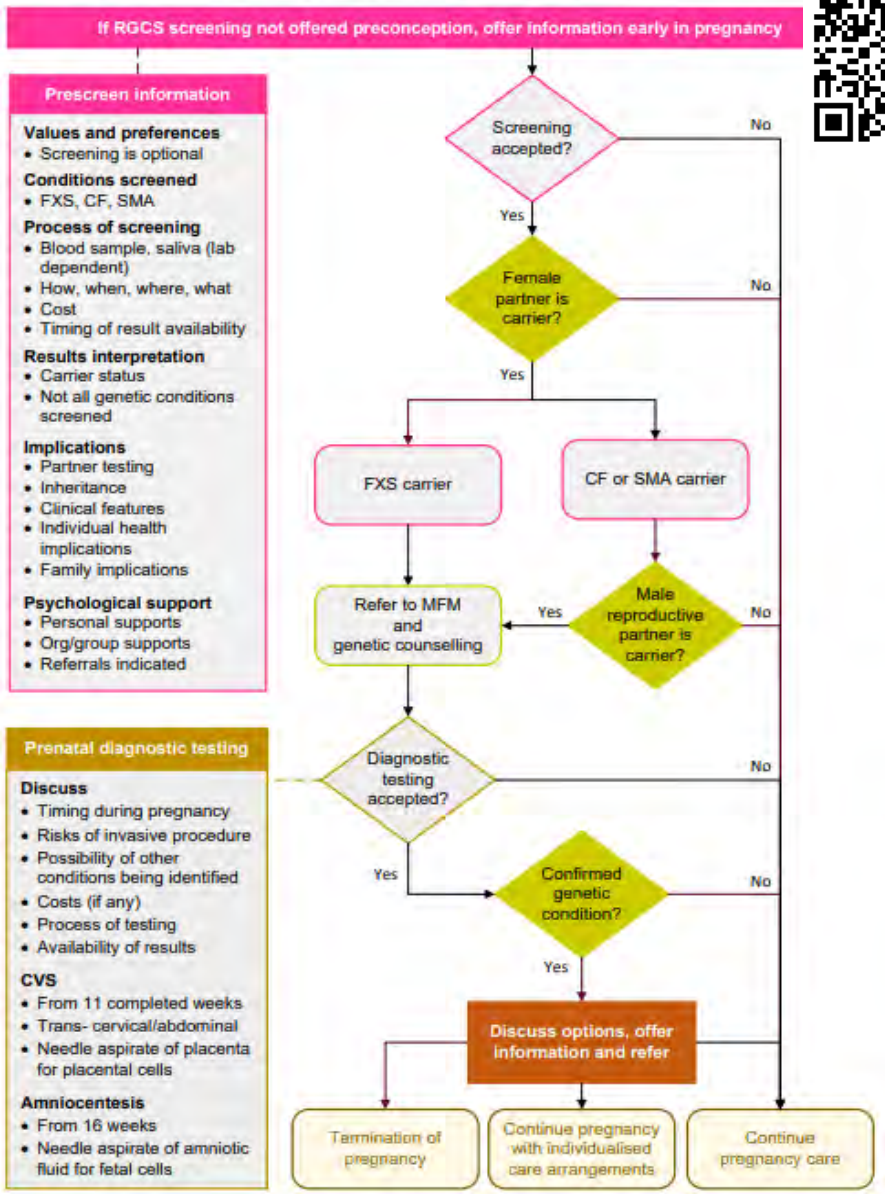
Flowchart: Preconception reproductive genetic carrier screening



CF: cystic fibrosis, **FXS:** fragile X syndrome, **IVF:** invitro fertilisation, **MFM:** maternal fetal medicine, **NPV:** negative predictive value, **Org:** organisation, **PGT-M:**:Pre-implantation genetic screening for monogenic conditions, **PPV:** positive predictive value, **RGCS:** reproductive genetic carrier screen, **SMA:** spinal muscular atrophy

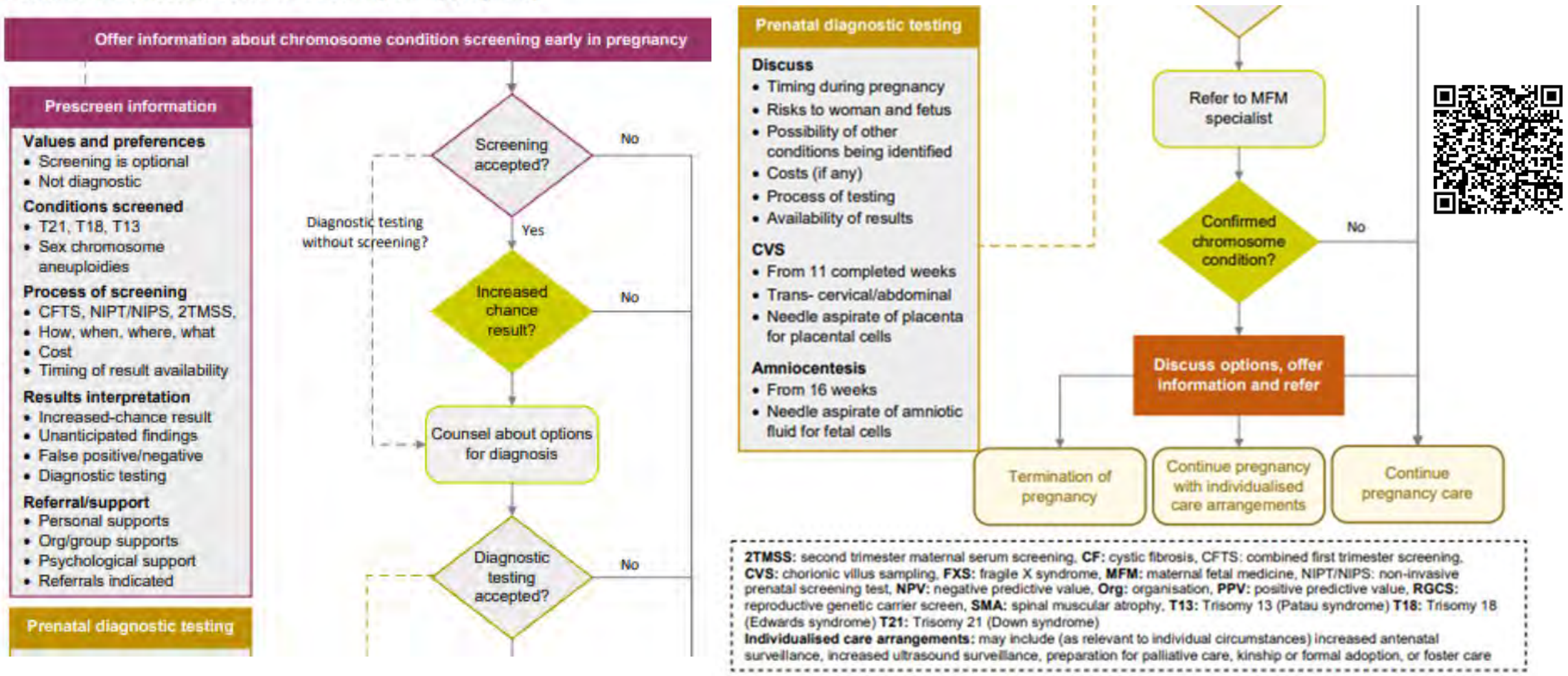
Queensland Clinical Guideline: Preconception and prenatal genetic screening

Flowchart: Reproductive genetic carrier screening during pregnancy



CF: cystic fibrosis, **FXS:** fragile X syndrome, **MFM:** maternal fetal medicine, **NPV:** negative predictive value, **Org:** organisation, **PPV:** positive predictive value, **RGCS:** reproductive genetic carrier screen, **SMA:** spinal muscular atrophy
Individualised care arrangements: may include (as relevant to individual circumstances) increased antenatal surveillance, increased ultrasound surveillance, preparation for palliative care, or kinship or formal adoption, or foster care arrangements

Flowchart: Chromosome condition screening during pregnancy



2TMSS: second trimester maternal serum screening, **CF:** cystic fibrosis, CFTS: combined first trimester screening, **CVS:** chorionic villus sampling, **FXS:** fragile X syndrome, **MFM:** maternal fetal medicine, NIPT/NIPS: non-invasive prenatal screening test, **NPV:** negative predictive value, **Org:** organisation, **PPV:** positive predictive value, **RGCS:** reproductive genetic carrier screen, **SMA:** spinal muscular atrophy, **T13:** Trisomy 13 (Patau syndrome) **T18:** Trisomy 18 (Edwards syndrome) **T21:** Trisomy 21 (Down syndrome)
Individualised care arrangements: may include (as relevant to individual circumstances) increased antenatal surveillance, increased ultrasound surveillance, preparation for palliative care, kinship or formal adoption, or foster care

Maternal Fetal Medicine

- Who are we (and where are we..)?
- What is our scope?
- When to refer to MFM

Referral to MFM Pathway

Metro South Maternal Fetal Medicine (located at Logan Hospital) – offer:

- Tertiary USS and consultation (for patients meeting criteria for referral)
- Diagnostic and (limited) therapeutic procedures (amnio, CVS)
- Telehealth consultations

- Limited capacity – notify patient that they may be on-referred depending on capacity
- Refer via **Smart Referrals** to Metro South Maternal Fetal Medicine

- If needing further advice: can now call **direct to Metro South MFM**
  - Available Tuesday-Friday
  - MFM Administration Officer: 3089 6340; MFM Midwife : 3089 6340
- **OR Phone "On Call" Obstetrician** and forward a referral as consultant advises.
  - Logan Hospital – Obstetrician on Call - Telephone: 3089 6963 or via Switchboard
  - Beaudesert Hospital - GP Obstetrician/Rural Generalist on Call – Telephone: 5541 9174 or via Switchboard
  - Redland Hospital - Obstetrician on Call - Telephone: 3411 3111 or via Switchboard

Referral to MFM Pathway

[Maternal Fetal Medicine | Referrals to Antenatal and Maternity | Metro South Health]

Essential referral information for Maternal Fetal Medicine referrals (Referral will be returned without this)

- Indication for Tertiary Maternal Fetal Medicine ultrasound or consultation
- Prior screening results – NIPT / CFTS / no screening
- EDD
- Copy of prior ultrasound reports

Home > Refer your patient > Antenatal and Maternity

Maternal Fetal Medicine

Useful management information

The Metro South Maternal Fetal Medicine Service is under establishment at Logan Hospital, and able to provide limited tertiary services to patients within the catchment who meet criteria for Maternal Fetal Medicine Review.

Patients who meet criteria do not need to be booked for antenatal care at Logan Hospital prior to referral to Maternal Fetal Medicine, providing that criteria for referral are met.

Maternal Fetal Medicine offers consultation, tertiary ultrasound and diagnostic and therapeutic procedures in high risk pregnancies. This includes:

- Known genetic condition requesting diagnostic testing in a pregnancy (CVS / amniocentesis)
- High risk screening test (NIPT, CFTS) requesting consultation +/- diagnostic procedure (CVS, amniocentesis)
- Suspicion of fetal structural anomaly on ultrasound
- High risk of fetal growth restriction:
  - History of early onset fetal growth restriction (<K32) or early onset pre-eclampsia (<K32) in a prior pregnancy
  - Significant maternal medical condition which carries a high risk of growth restriction (e.g. essential hypertension, pre-existing diabetes, autoimmune condition)

See full Metro South Maternal Fetal Medicine Referral Guidelines for detailed explanation, or flowcharts below. Referral Guidelines Flowchart (PDF, 643.51 KB)

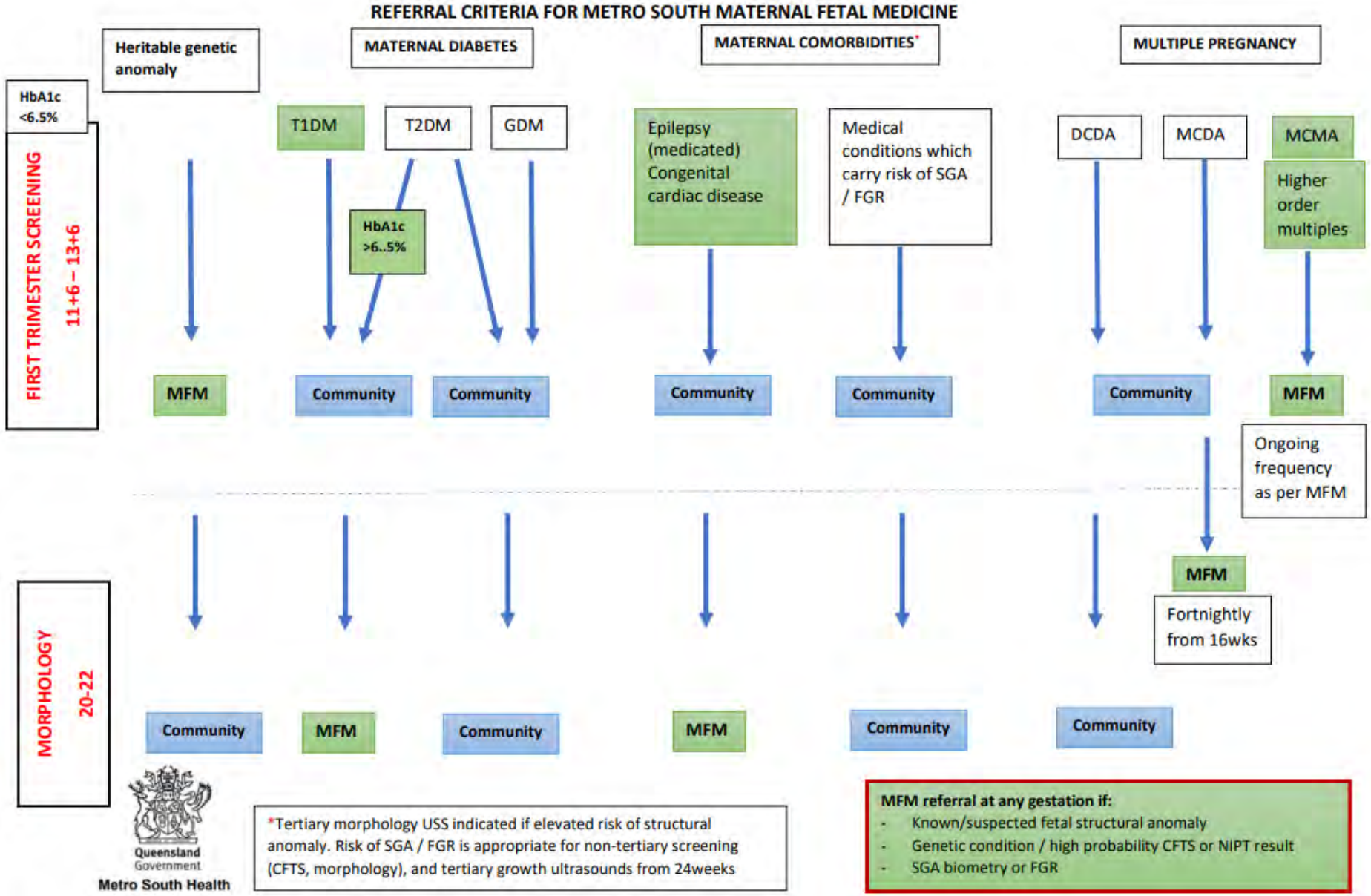
If the patient does not meet the criteria for referral but the referring practitioner believes the patient requires sub-specialist review, a clinical override may be requested:

- Please explain the indication for referral outside of Maternal Fetal Medicine Referral Criteria
- Consider calling Logan Hospital On Call consultant for advice

Metro South Maternal Fetal Medicine does not have capacity to provide routine screening ultrasounds outside of the referral criteria. Referrals for low risk patients, or routine screening, will be declined.

Please note that your referral may not be accepted or may be redirected to another service based upon capacity and acuity

Metro South Maternal Fetal Medicine Referral Guidelines flowcharts [Referral Guidelines Flowchart (PDF, 643.51 KB)]



REFERRAL CRITERIA FOR METRO SOUTH MATERNAL FETAL MEDICINE

MATERNAL DIABETES

FURTHER ULTRASOUND ASSESSMENT

T1DM

T2DM

All GDM

HbA1c >6..5%

HbA1c <6.5%

No HbA1c

MFM

Morphology

24wk growth + cardiac views

Growth USS frequency as per MFM

MFM

24wk growth + cardiac views

Medical Imaging

28 + 34-36wks

MATERNAL COMORBIDITIES

High risk of placental insufficiency:

Significant maternal medical conditions e.g.:

- Essential hypertension (medicated)
- Epilepsy (medicated)
- Autoimmune (RA, SLE, APLS)
- IBD (Crohns / UC)
- Renal impairment
- Congenital cardiac disease
- Graves Disease
- Gastric bypass

Previous early FGR or PET (≤32wks)

Previous stillbirth with FGR/SGA

Other PMHx with significant risk of SGA / FGR

MFM

24wk – growth + UtA Dopplers

Ongoing USS frequency as per MFM

Risk factor for placental insufficiency*:

High BMI (>35)

AMA (>40yo)

Smoker

IVF

Substance use

Prior late ≥32wks SGA/FGR

PappA <0.4MoM

Medical Imaging

26-28wks + 34-36wks

CLINICAL INDICATION

Clinically SGA / LGA

APH

TPTL

Cervical length monitoring

Low lying placenta

Medical Imaging

Refer to MFM at any gestation if USS diagnosis of:

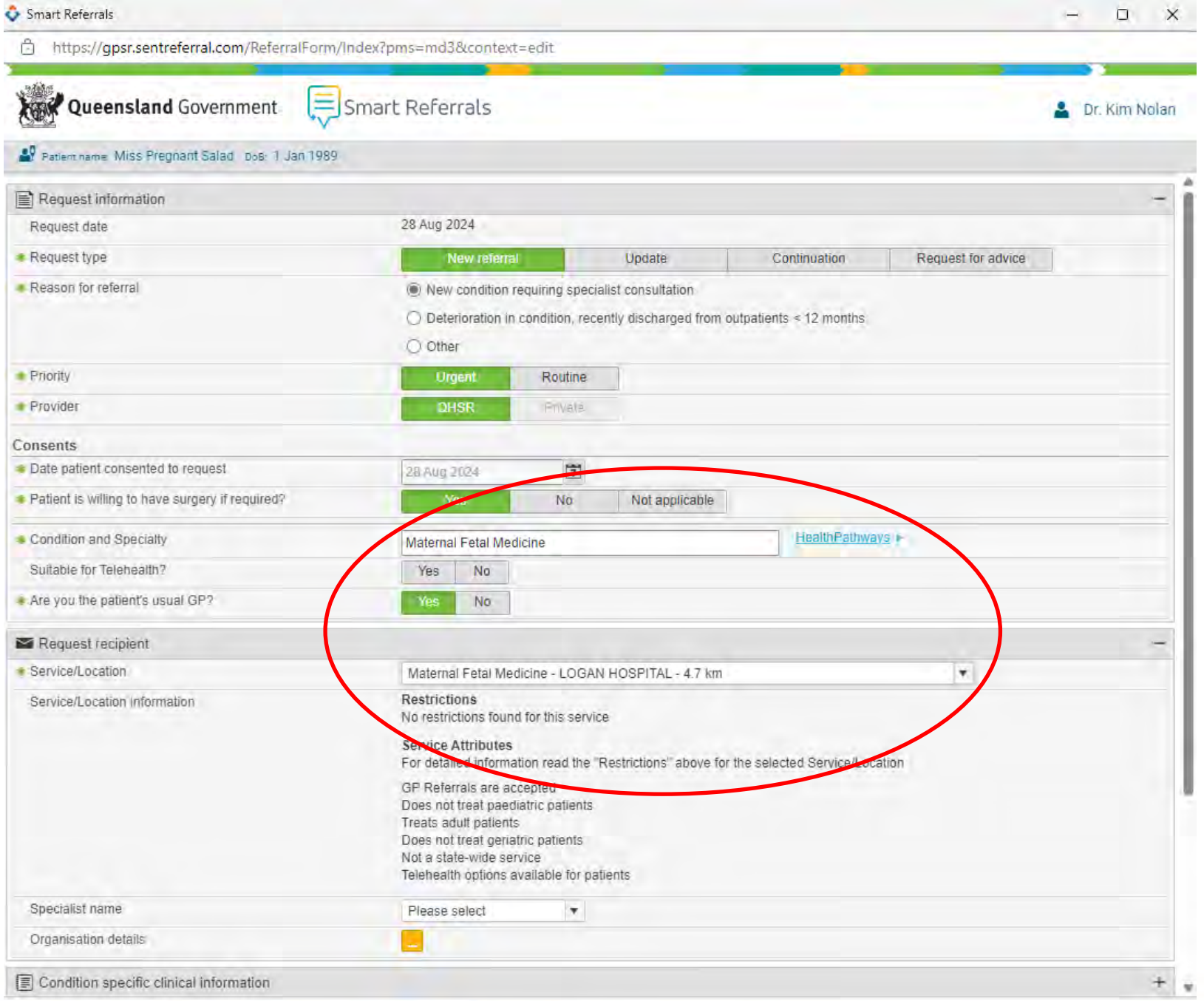
- SGA EFW or AC <10th centile
- USS suspicion of placenta accreta spectrum
- Structural abnormality
- Cervical length <15mm at <24wks
- Polyhydramnios (DVP>10cm)
- Abnormal dopplers

Otherwise complex, please call MFM for advice

Queensland Government

Metro South Health

* Safer Baby Bundle, V2. May 2022.


Smart Referrals
https://gpsr.sentreferral.com/ReferralForm/Index?pms=md3&context=edit
Queensland Government
Smart Referrals
Dr. Kim Nolan
Patient name: Miss Pregnant Salad DoB: 1 Jan 1989
Request information
Request date
28 Aug 2024
Request type
New referral
Update
Continuation
Request for advice
Reason for referral
New condition requiring specialist consultation
Deterioration in condition, recently discharged from outpatients < 12 months
Other
Priority
Urgent
Routine
Provider
DHSR
Private
Consents
Date patient consented to request
28 Aug 2024
Patient is willing to have surgery if required?
Yes
No
Not applicable
Condition and Specialty
Maternal Fetal Medicine
HealthPathways
Suitable for Telehealth?
Yes
No
Are you the patient's usual GP?
Yes
No
Request recipient
Service/Location
Maternal Fetal Medicine - LOGAN HOSPITAL - 4.7 km
Service/Location information
Restrictions
No restrictions found for this service
Service Attributes
For detailed information read the "Restrictions" above for the selected Service/Location
GP Referrals are accepted
Does not treat paediatric patients
Treats adult patients
Does not treat geriatric patients
Not a state-wide service
Telehealth options available for patients
Specialist name
Please select
Organisation details
Condition specific clinical information

Brisbane South (Spot...

Search HealthPathways

https://brisbanesouth.communityhealthpathways.org/67948.htm

HealthPathways

Brisbane South (SpotOnHealth)

Maternal Fetal Medicine Assessment

Public

Mater Health

When requesting maternal fetal medicine assessment, it is strongly recommended to notify or seek advice from the mother's preferred maternity care team at the booking facility, and to ensure continued correspondence of results with the team.

1. For clinical criteria and required information, see Mater Online.

Metro South Hospital and Health Maternal Fetal Medicine

1. For clinical criteria and required information, see Refer Your Patient.
2. Contact the service:
   - via Smart Referrals (recommended if available in your practice).
   - via Refer Your Patient for more options.
3. Inform the patient:
   - Ensure they are aware of the referral and the reason for being referred.
   - Advise that their first appointment may not always be with a specialist.
   - Instruct them to take all relevant radiology films and reports (including the imaging report) to appointments.
   - Ask them to advise of any change in condition or circumstance (e.g., getting worse or becoming pregnant) as this may affect the referral.
4. For administration enquiries, phone the Central Referral Hub **1300-364-155**.

Diagnostic Procedures

- Risk of procedure related miscarriage 1:500-1000[1]
  - Trans-cervical CVS 1:100-200

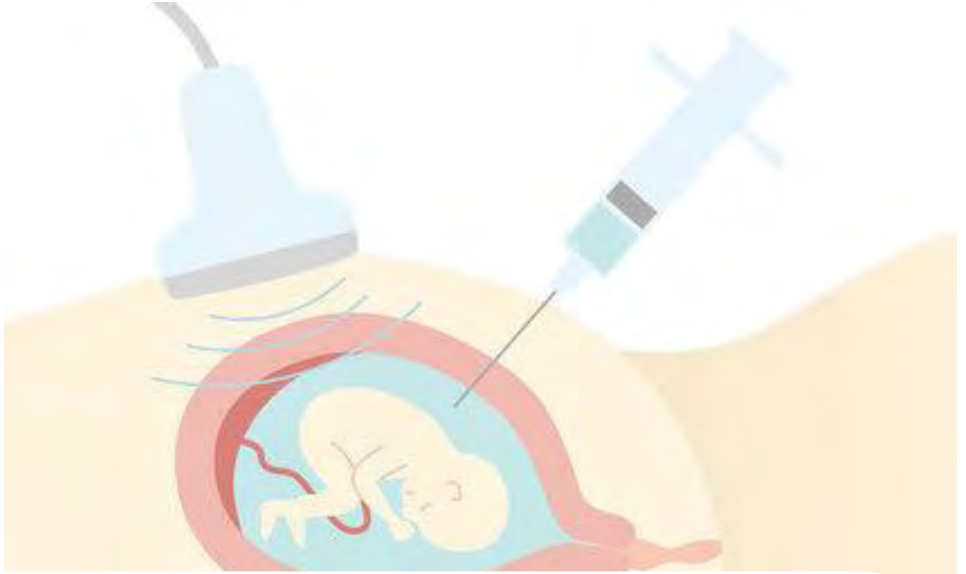
- CVS: 11-14 weeks
- Amnio: from 16 weeks

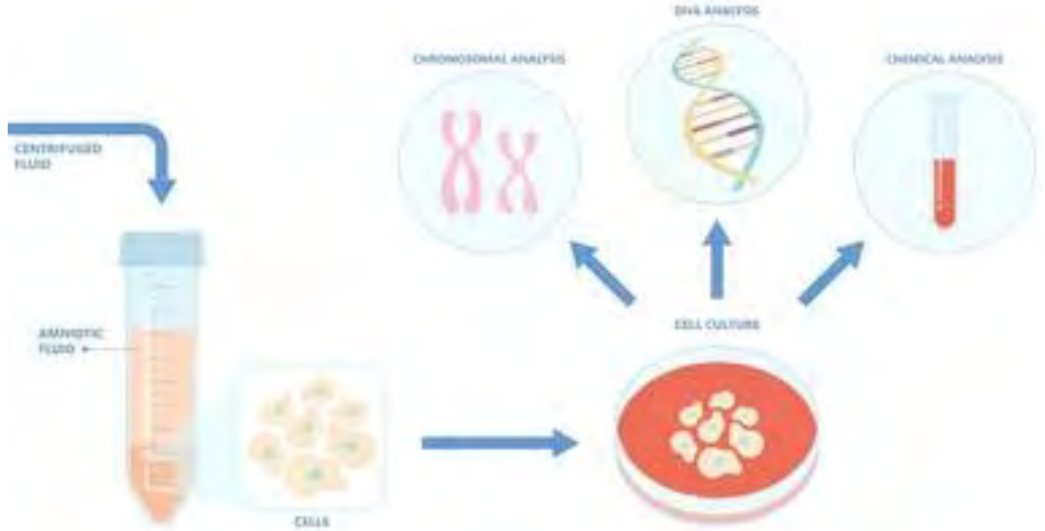
Performed in MFM.

No local anaesthetic.

2 days off work, other usual activities.

Results: FISH (1-3days) CMA (2 weeks)





1. Salomon, L.J., Sotiriadis, A., Wulff, C.B., Odibo, A. and Akolekar, R. (2019), Risk of miscarriage following amniocentesis or chorionic villus sampling: systematic review of literature and updated meta-analysis. Ultrasound Obstet Gynecol, 54: 442-451

Confirmed Trisomy 21:

MDT Antenatal Care:

- GP
- MFM
  - +/- paedi
  - +/- paedi
- Neonatology
- Social work

Practice Point:

Trisomy 21 pregnancy warrants hospital-based care:

- Increased risk FGR, IUFD
- Congenital cardiac anomaly
- GI anomaly (+ polyhydramnios / PTB)

Impacts timing of delivery +/- site of delivery

Down Syndrome Queensland

Down Syndrome Queensland support service is also available for any prospective parent, health care professional, community service, carer or family member supporting someone who has received unexpected news about their pregnancy.
Contact (07) 3356 6655 and ask for the Early Years Officer.

https://www.downsyndrome.org.au/qld/

or email prenatal@downsyndromeqld.org.au

or via an online referral at https://prenatalscreening.org.au/support/

And consider

- There is variable understanding within the community of congenital abnormalities and their risks in pregnancy
- Much less known about trisomy's 18 (Edward syndrome) and 13 (Patau syndrome) – both life limiting conditions
- Cultural and language barriers are evident and should be considered in your approach to communication
- Provide verbal and written information… in the right languages
- **INFORMED CONSENT =**
  - **Document the giving of information ***
  - **Document offer of test/s ***
  - **Document response ***

* Use Q Health referral templates to facilitate this

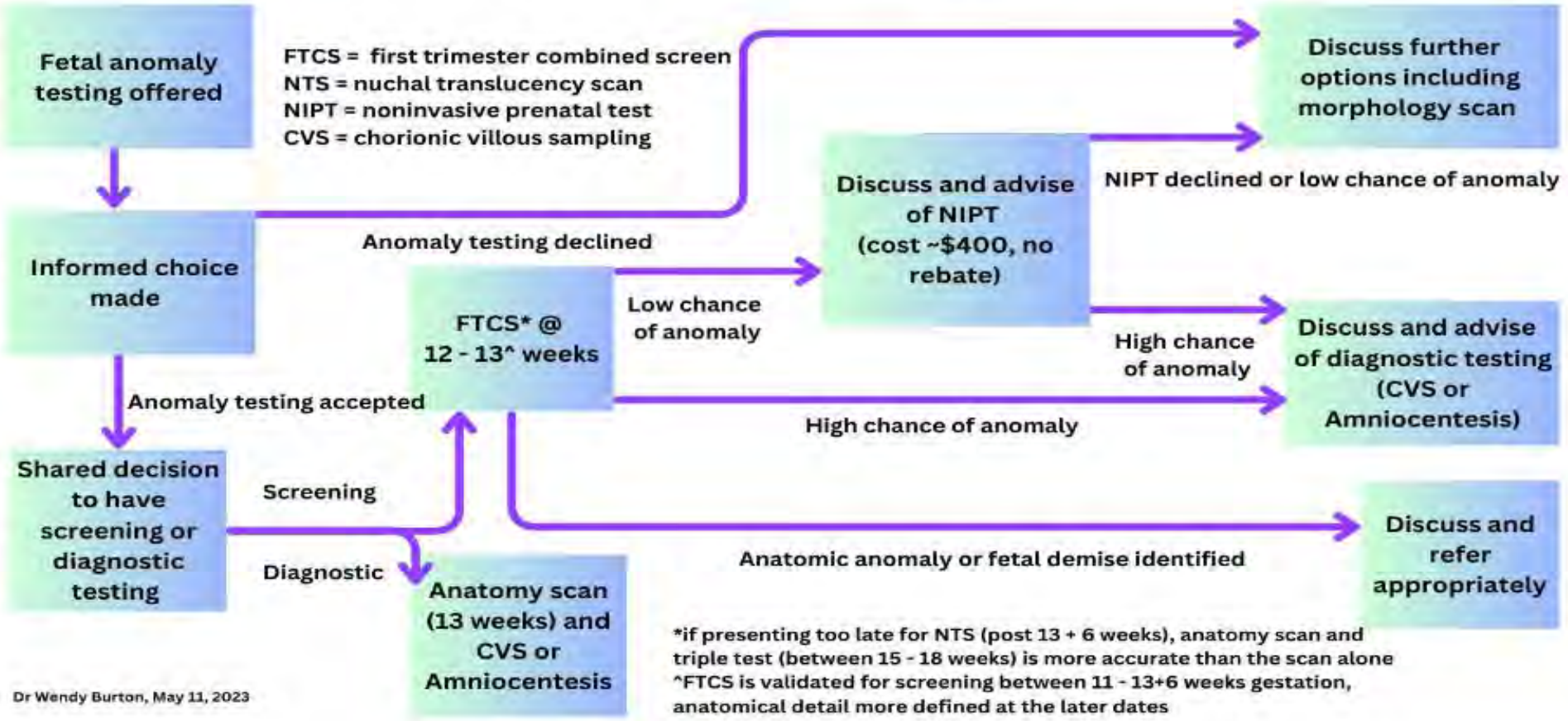
Also, opportunity for other early risk screening

- Screening for history which identifies high risk pregnancies:
  - Prior pregnancy outcomes (GDM, PET, IUFD, early onset FGR)
  - Maternal medical conditions:
    - Risk of FGR (T2DM, essential HT, autoimmune conditions)
  - Family /known history of genetic disorders
  - Risk factors for preterm birth

Practice Point:

- **Early hospital referral** for any high chance pregnancy
- Low dose aspirin (100-150mg nocte) PRIOR to 16weeks (Hx PET or FGR, or risk factors)
- Cervical length screening if Hx PTB
- HbA1c <K12 if high risk GDM OR preexisting diabetes

Suggested referral pathways 2023, fetal anatomy/anomaly screening and testing



Morning Tea

Session 2

Time	Session name	Presenter	Delivery
11:00 am	Preconception Consult 4 – Reducing risks in teenagers – STI's, Substance Use, Dietary issues	Group Spokesperson Dr Kim Nolan	Facilitated groups Power Point Presentation & Forum Discussion
11:40 am	Preconception Consult 5 – Subfertility, Cervical Screening Anomalies, HSV, Previous Preterm Birth	Group Spokesperson Dr Sanja Savic	Facilitated groups Power Point Presentation & Forum Discussion
12:20 pm	Preconception Consult 6 - Recurrent miscarriage	Group Spokesperson Dr Kim Nolan	Facilitated groups Power Point Presentation & Forum Discussion
1:00 pm	Lunch	ALL	ALL

AM2 Case Discussion – Pink Group

- Naomi, a young Aboriginal woman, presents thinking she may have contracted chlamydia again.
- You have seen her about a year ago at age 16 years with her first episode, and at that time you arranged treatment and encouraged her to return to discuss contraception, but she has not followed up with any anyone.
- She admits to high alcohol intake at weekends, and sometimes can't recall her sexual partners as she is so intoxicated.
- She is carrying a vaping device and admits to using other substances when socializing.
- Naomi eats mainly a vegetarian diet and has a BMI of 17.2

She has a 15 min appointment - Outline your approach to best management at this appointment and in maintaining her sexual and reproductive health in the longer term.

Identifying this woman's issues

- Age –
- Ethnicity/Indigenous Status –
- BMI –
- BP –
- Obstetric History –
- PHX – Medical and Surgical HX –
- Medications, including OTC/supplements –
- Allergies –
- FHX –
- Social History – including supports/DV
- Occupation –
- Smoking/Alcohol/ Other Substances –
- Healthy diet and exercise –
- Vaccinations (+ Travel) -

- Clinical Assessment –
- Investigations –
- Management Plan –

Preconception care for the very young and disadvantaged patient

- Preconception care - especially important opportunistically in adolescents and young women in vulnerable populations. Some issues inherent but many are modifiable.
- Adolescent parenthood
  - more common in low socioeconomic groups and Aboriginal and Torres Strait Islander communities
  - associated poor birth outcomes/adverse health effects, including mental health issues and substance misuse
- Aboriginal and Torres Strait Islander infants are more likely to be premature or with low birth weight.
- Decreased folate supplementation is associated with
  - being a woman from a lower socioeconomic group,
  - being an Aboriginal and Torres Strait Islander person,
  - being younger or from a rural area.

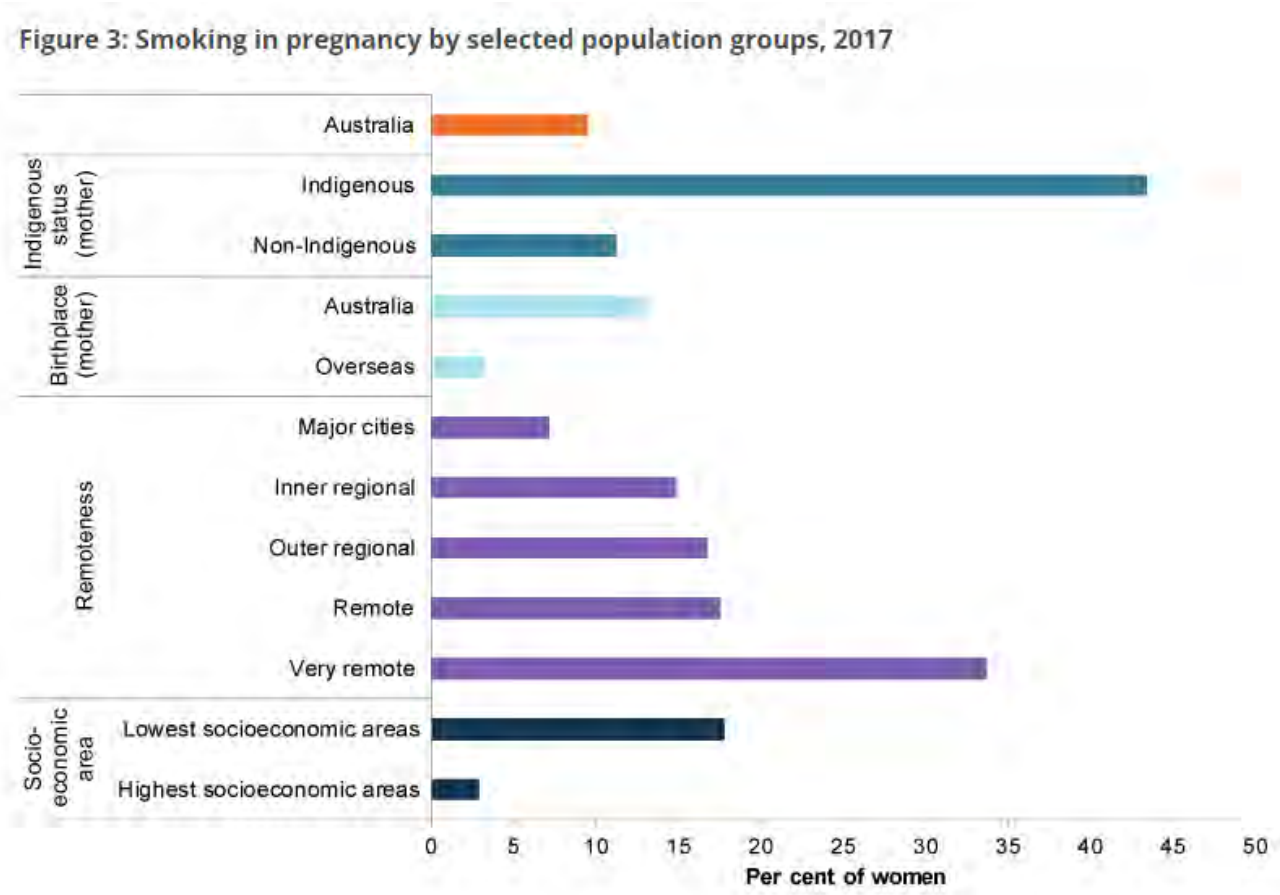
Awareness of folic acid related to income, educational level & younger age. Other dietary supplements may follow similar gradients.

Guidelines-for-preventive-activities-in-general-practice (RACGP) https://www.racgp.org.au/getattachment/1ad1a26f-9c8b-4e3c-b45b-3237272b3a04/Guidelines-for-preventive-activities-in-general-practice.aspxentive activities prior to pregnancy)

Preconception care for the very young and disadvantaged patient

- Smoking and alcohol use in pregnancy show socioeconomic gradients. More likely to smoke during pregnancy if:
  - young,
  - on low income and of low socioeconomic status,
  - Aboriginal and Torres Strait Islander,
  - single mothers
  - women experiencing addiction, violence and mental health issues.

  Teenage mothers - the most likely to smoke during first 20/40 (approx. 1 in 3) with rate generally decreasing with increasing age
- Women from CALD backgrounds also more likely to experience poorer perinatal outcomes.



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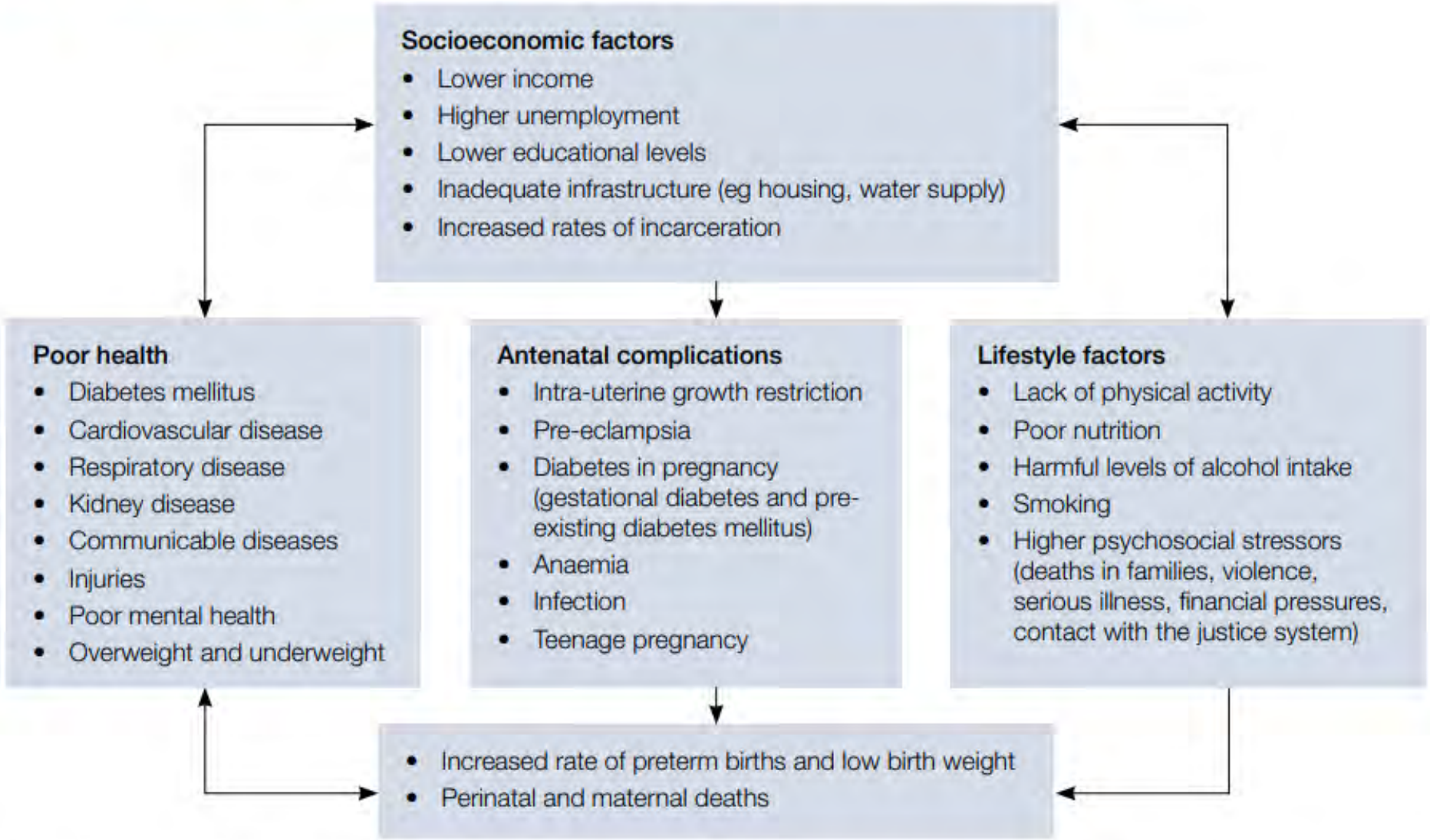
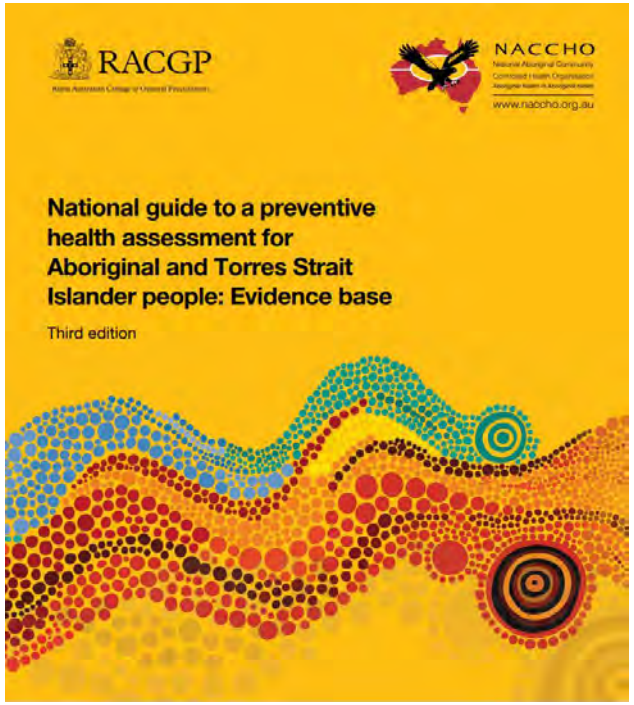
2. https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/smoking-drinking-pregnancy (last updated Feb 2022)

Figure 1. Factors that influence pregnancy outcomes in Aboriginal and Torres Strait Islander women[5]



Reproduced from Clarke M, Boyle J. Antenatal care for Aboriginal and Torres Strait Islander women. Aus Fam Physician 2014;43(1/2):20–24.

What can GPs do?



Evidence-base-to-a-preventive-health-assessment-3rd-edition.pdf (racgp.org.au) CHAPTER 4 – Health of Young People

- Provide youth-friendly care to adolescent parents through non-judgemental, competent, considerate and respectful advice and services
- Offer women culturally appropriate resources, including in the mother's own language, about health issues and the health system, and consider the use of interpreters
- Link women into English language and perinatal education courses, and offer cultural brokerage through maternity liaison officers or bilingual health workers wherever possible
- Refer to the general principles of providing patient education and supporting health literacy in disadvantaged groups

Guidelines-for-preventive-activities-in-general-practice (RACGP) https://www.racgp.org.au/getattachment/1ad1a26f-9c8b-4e3c-b45b-3237272b3a04/Guidelines-for-preventive-activities-in-general-practice.aspxentive activities prior to pregnancy)

	Logan area demographics	Beaudesert demographics	Redland LGA demographics
Born Overseas	34%	18.9%	26.5%
Household Main Language Other than English	21.1%	-	9.8%
Identify as Aboriginal &Torres strait Islander	4.2% (median age 20y)	6.4% (median age 21y)	2.9% (median age 23y)
Young People & ATSI - aged 15-24 years	19.8%	17.4%	17.7%
Notes	Brisbane South - area of highest refugee settlement in Qld		Bay Island residents ranked in most disadvantaged Quintiles, but overall Redland City LGA population in higher Quintiles

Australian Bureau of Statistics – Census Data 2021 - Search Census data | Australian Bureau of Statistics (abs.gov.au)

Chlamydia

- Urethra First Pass Urine - NAAT (Nucleic acid amplification test) - Less sensitive than self-collected vaginal swab
- Clinician collected endocervical swab – still best test
- Anorectal swab – in patients with anorectal symptoms

Not only the most common bacterial STI in Queensland – it's the most common in the world.
Nearly 80% of people who are diagnosed aged 15-29 & most asymptomatic.
Likelihood of transmission per act of condomless intercourse < 5%, but with longer term partner – 66% -75%

Chlamydia management advice has changed

- Doxycycline (in non-pregnant) is the recommended treatment for *trachomatis* in all anatomical sites.
- To improve antibiotic stewardship, immediate treatment is not recommended for all sexual contacts of chlamydia – instead, offer testing of exposed anatomical sites and await results.
- If a patient has an IUD, leave it in place and treat as recommended. Seek specialist advice as needed.
- Advise no sexual contact for 7 days after treatment is administered.
- Advise no sex with partners from the last 6 months until the partners have been tested and treated if necessary. All partners should be traced back for 6 months and the diagnosing doctor is responsible for initiating and documenting a discussion about contact tracing.
- Consider presumptive treatment if there has been sexual contact within the past 2 weeks or when the person's individual circumstances mean later treatment may not occur.
- Test of cure - Not routinely recommended, except for Pregnant women and anorectal infection

Chlamydia - STI Guidelines Australia: https://sti.guidelines.org.au/sexually-transmissible-infections/chlamydia/

Reducing the burden of chlamydia in Australia

What are the gaps?

- *Improve chlamydia retesting* - reinfection rates are high with about 20% young women reinfected after treatment. Retesting is recommended at 3 months after treatment to identify possible reinfection
  ? Should it be done earlier
- *Improve PID diagnosis* - 20-30% of PID in community due to chlamydia. Untreated, around 17% of will progress to PID, with the risk of PID increasing by 20% with each repeat chlamydia infection
- *Move away from asymptomatic screening* - *?* possible harms from asymptomatic screening, including increased potential for antimicrobial resistance (inappropriate antibiotic use and overuse), psychological distress associated with false positive diagnoses, and adverse impacts on microbiota
- *Enhance partner notification and management* - Notifying, testing and treating sexual partners from previous 6/12 helping to interrupt ongoing transmission & reduce risk of reinfection and complications. Patient-delivered partner therapy can be an effective way to both treat the partners and reduce reinfection in the index case*. Australian study – 75 % long term sexual partners also test positive*
- *Embrace new testing approaches* – increased telehealth, increasing home sampling kits for posting back to lab, e-prescriptions, and trials of online sexual health hubs might help to overcome identified barriers to accessing traditional sexual health service delivery, including concerns about privacy, confidentiality, and perceived stigma

Med J Aust 2022; 217 (10): 499-501; doi: 10.5694/mja2.51749 - https://www.mja.com.au/journal/2022/217/10/chlamydia-prevention-and-management-australia-reducing-burden-disease (November 2022)

Preventing PID

- RACGP Guidelines for Preventative Activities in General Practice recommend opportunistic screening for *C. trachomatis* in sexually active persons 15–19 years due to prevalence and risk of complications in this cohort.
- Chlamydia trachomatis and Neisseria gonorrhoea are commonly isolated during the diagnostic evaluation of approximately one-third to one-half of women presenting with PID
- In approximately 20–30% of cases of clinically evident PID, no causative organism will be isolated; therefore, initiation of empirical therapy is warranted on clinical grounds alone, after clinical assessment and swab collection. Clinicians should have low threshold for diagnosing PID in sexually active young women with pelvic or lower abdominal pain. Early and effective antibiotic treatment reduces the long-term morbidity of PID.
- If an IUD is in place, it can be left in situ unless no improvement seen in 48-72 hours and if removed, an IUD can be replaced after treatment completed. (Risk PID post IUD high for 20/7 post insertion only, then back to baseline)
- Despite good clinical response to antibiotics, approximately 18% of women will report infertility, 0.6–2.0% go on to have ectopic pregnancy and 30% chronic pelvic pain at three years after treatment
- Recurrent infections associated with a marked increase in the risk of infertility - risk of tubal infertility increases with recurrent PID and, after 3 episodes, > 50% of women will have tubal dysfunction.

1. Pelvic inflammatory disease and infertility, AJGP Vol 52(4), April 2023 – Sarah Hunt and Beverley Vollenhoven, Monash University & Monash IVF
2. New best practice guidance for GPs to reduce chlamydia associated reproductive complications in women, AGJP Vol 50(1), Jan-Feb 2021

Full STD screen – including SYPHILIS + HIV Serology

Notifications of bloodborne viruses and sexually transmissible infections (BBVSTIs) in Queensland: 1 January–30 September 2023
compared with the previous 5-year YTD average

- Gonorrhoea and chlamydia notifications increased by 30 and 12 per cent respectively
- Infectious syphilis notifications increased by 30 per cent with 35% increase in infectious syphilis notifications in women of reproductive age.
  Of female cases, 87% in women of reproductive age, 32 of which were pregnant. .
- Rate of syphilis notifications reported among First Nations Queenslanders was stable (20% of Qld cases), with 34% increase in non-indigenous Queenslanders
- Infectious syphilis cases were largely notified evenly across all age groups
- Hepatitis B notifications increased by 11% whereas Hepatitis C notifications remained stable
- New HIV diagnoses increased by 18 per cent - 84% males(New 64% increase in MSHHS)

https://www.health.qld.gov.au/__data/assets/pdf_file/0033/1236759/bbv-sti-quarterly-surveillance-2023.pdf

“Let Them Know”

Helpful websites for anonymous notification:

- letthemknow.org.au (for people diagnosed with an STI)
- thedramadownunder.info (for men who have sex with men)
- bettertoknow.org.au (for Aboriginal and Torres Strait Islander people)

OR with GP help: “Let Them Know” - https://letthemknow.org.au/DocInfo.html

Contact Tracing

This is the clinicians' responsibility as part of STI management

How far back to trace

Pathogen	Trace partners
Chlamydia	6 months
Gonorrhoea	2 months
Syphilis	**Primary** – 3 months + duration of symptoms or last negative test **Secondary** – 6 months + duration of symptoms or last negative test **Early latent** – 12 months or most recent negative test **Late latent/tertiary** – Test current partner(s)

Australasian Contact Tracing Guidelines

"Don't fool around with syphilis" - Australian Govt campaign

Campaign webpage - includes downloadable resources (Fact Sheets for priority populations and health professionals, & posters) - https://www.health.gov.au/campaigns/dont-fool-around-with-syphilis

Syphilis during pregnancy

Untreated syphilis during pregnancy can lead to the mother passing the infection to their baby before birth.

This can cause miscarriage, stillbirth, premature births, low birth weight and death of the baby shortly after birth.

A baby with congenital syphilis can experience serious health issues that affect their growth and development, such as permanent organ and brain damage.

Some babies affected by congenital syphilis won't show symptoms until they grow older, which can lead to a delay in diagnosis.

Get regular syphilis tests

Regular testing for syphilis is important, even if you don't have symptoms. If detected, it can be treated early and prevent serious health complications.

Pregnant women should also be tested at their first antenatal visit to prevent congenital syphilis.

Pregnant women with a high risk of infection or reinfection should get tested regularly at:

- the first antenatal visit
- 28 and 36 weeks
- the time of birth
- 6 weeks after the birth.

See your local doctor to assess your risk of contracting syphilis and get tested.

Syphilis screening – WHY?

- Steady increase of notifications throughout Qld, including in SEQ, including cases of congenital syphilis, affecting both **indigenous** and **non-indigenous** women.
  - Recent change in demographic of pregnant women infected with syphilis.
  - Of those with congenital syphilis, at least 8 acquired syphilis after 12/40 bloods, of which 5 had further antenatal care, ***SO congenital syphilis may have been prevented*** with inclusion of further routine syphilis screening.
  - ***NOW ROUTINELY RECOMMENDED -***
    28/40 AND 36/40 SYPHILIS SCREEN IN ALL PREGNANT WOMEN
  - MSHHS - 2 cases Congenital Syphilis in 2021, one in 2022, and another in 2023
  - 2024 so far – 3 Qld cases Congenital Syphilis – MNHHS, GCUH & Darling Downs HHS

- Women considered to be of HIGH Risk may be screened even more often as per the Syphilis in pregnancy: Antenatal care (Flowchart)

- Testing and treating during first two TMs of pregnancy results in 2.2 x more chance of healthy baby than those receiving 3rd TM syphilis treatment Vertical transmission can occur as early as
- QSSS Phone: 1800 032 238 / Email: South Queensland - QLD-Syphilis-Surveillance-Service@health.qld.gov.au

Queensland Clinical Guidelines – Syphilis https://www.health.qld.gov.au/__data/assets/pdf_file/0035/736883/g-sip.pdf

Syphilis in pregnancy – Clinical Guidelines

Risk assess all women

Universal risk
- All pregnant women

High risk
- Sexual contact with infectious syphilis case
- Woman or partner identify as Aboriginal and/or Torres Strait Islander AND reside in an outbreak declared area
- Substance use – particularly methamphetamine ('ice')
- Woman's partner is MSM
- Late, limited or no antenatal care
- Engages in high risk sexual activity

Antenatal screening

All pregnant women
- Serology at first antenatal visit (preferably < 10 weeks gestation)
- Repeat serology at:
  - 26–28 weeks gestation
  - 36 weeks gestation
- Dry swab (PCR) if lesions/chancre present
- Repeat if change in risk status

If high risk
- Serology at first antenatal visit (preferably < 10 weeks gestation)
- Around 20 weeks gestation (opportunistically between 16–24 weeks)
- 26–28 weeks gestation
- 34–36 weeks gestation

Test at birth if (any of the following)
- **All** women not having 36 week screen
- Syphilis treated during pregnancy
- Woman is *high risk*
- If no serology after 26–28 weeks AND
  - Woman or her partner identify as Aboriginal and/or Torres Strait Islander
  - Adolescent pregnancy
  - STI in current pregnancy/last 12 months
  - Ongoing sexual links in high prevalence countries (woman or partner)
  - Preterm birth with most recent serology > 4 weeks before birth
- Indicated following risk assessment

https://www.health.qld.gov.au/__data/assets/pdf_file/0035/736883/g-sip.pdf - Queensland Clinical Guidelines – Syphilis

https://www.health.gov.au/resources/pregnancy-care-guidelines/part-f-routine-maternal-health-tests/syphilis – Australian Guidelines

The long term effects of STIs are no laughing matter.

Long-term side effects of STIs

- Pelvic Inflammatory Disease
- Chronic Pelvic Pain
- Higher risk Ectopic Pregnancy, Preterm Birth, Low Birth Weight
- Infertility
- Neonatal infection – Chlamydial or Gonorrhoeal Conjunctivitis, Pneumonia, Congenital Syphilis
- Cervical Cancer (HPV)
- Secondary Syphilis – rash/flulike illness/fatigue/joint pain
- Tertiary Syphilis - heart disease, mental illness, blindness, deafness, dementia & neurological problems, death

[The long-term effects of STIs: why you should get checked now | Stop the rise (initiatives.qld.gov.au)]

Three types of Emergency Contraception

- **Levonorgestrel emergency contraceptive pill**
  - available without a prescription (many brand names)
  - taken within 72 hours after unprotected sex - might still have some effect up to 96 hours
  - overall efficacy 85% (? Less effective if BMI > 26 or weight > 70kg, ? Use double dose)
  - can be used more than once in a cycle, but not used in same cycle as Ulipristal
- **Ulipristal acetate emergency contraceptive pill** (selective progesterone receptor modulator)
  - available without a prescription (EllaOne) 30mg
  - taken within 120 hours (5 days) after unprotected sex, and can repeat dose in the cycle
  - superior efficacy to levonorgestrel EC at 24, 72, and 120 hours as can prevent pregnancy if even when LH surge has begun, but not if ovulation has occurred
  - may be more effective than levonorgestrel in patients > 70 kg (threshold for failure ≈ 88kg)

If vomiting within 2 hours of taking the levonorgestrel emergency contraceptive pill or 3 hours of the ulipristal acetate pill it might not work, so taking another one is recommended.

- **Copper intrauterine device (IUD)** - inserted within 5 days of unprotected sex by a trained doctor or nurse (>99% efficacy and offers excellent ongoing long-term contraception)

Emergency Contraception - Community HealthPathways Brisbane South (SpotOnHealth)

Emergency Contraception

- Most common side effects of both oral ECP - nausea, headache & dysmenorrhoea, may be intermenstrual bleeding and next period may be earlier or later than expected.

- Ulipristal acetate is more effective than levonorgestrel, but efficacy of both depends on how soon used, and when in cycle (less effective if ovulation has already occurred).

- Ulipristal acetate twice as effective as LNG if used within 72-96/24 of unprotected sex. When taken within the first 24/24, reduces unplanned pregnancies by 2/3 compared with levonorgestrel.

- Ongoing contraception essential:
  - After Levonorgestrel – "Quick-start" by recommencing OCP immediately or insert contraceptive implant ASAP
  - After Ulipristal (selective progesterone receptor modulator, so are concerns that:
    - its effect in delaying ovulation might be reduced by quick-starting progestogen-containing contraceptive
    - the effectiveness of progestogen-containing contraceptive might be compromised because of competition at the progesterone receptor site)
  - use barrier method/abstain until effective contraceptive cover in place,
  - and if wants to restart OCP, do not start for 5/7, & start with active hormone tablet no matter if spotting or not
  - OR make an appointment in 5/7 for contraceptive implant insertion

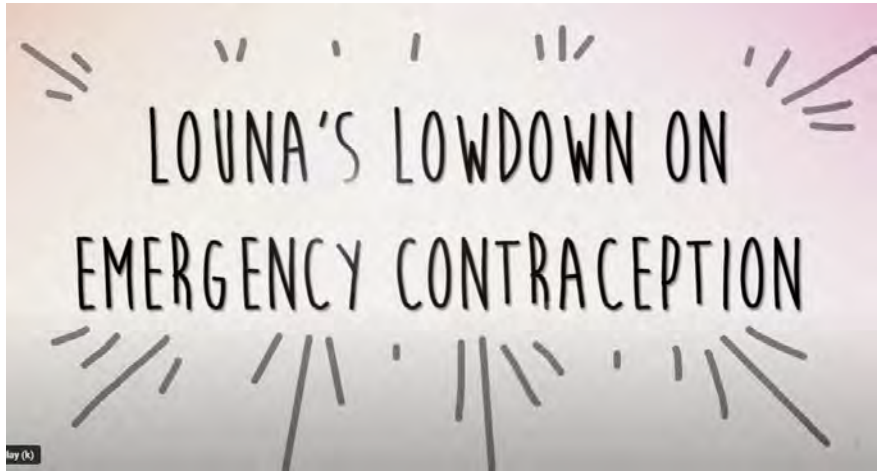
Double-blind trial compared ulipristal and levonorgestrel in women presenting within 72 hours of unprotected intercourse in 775 women
https://www.nps.org.au/australian-prescriber/articles/ulipristal-acetate-for-emergency-contraception

Table - Efficacy of ulipristal and levonorgestrel for emergency contraception

Time after unprotected sex	Pregnancies per patient population	
	Ulipristal	Levonorgestrel
0–24 hours	5/584 (0.9%)	15/600 (2.5%)
0–72 hours	22/1617 (1.4%)	35/1625 (2.2%)
0–120 hours	22/1714 (1.3%)	38/1731 (2.2%)

Emergency contraception wheel - quick guide

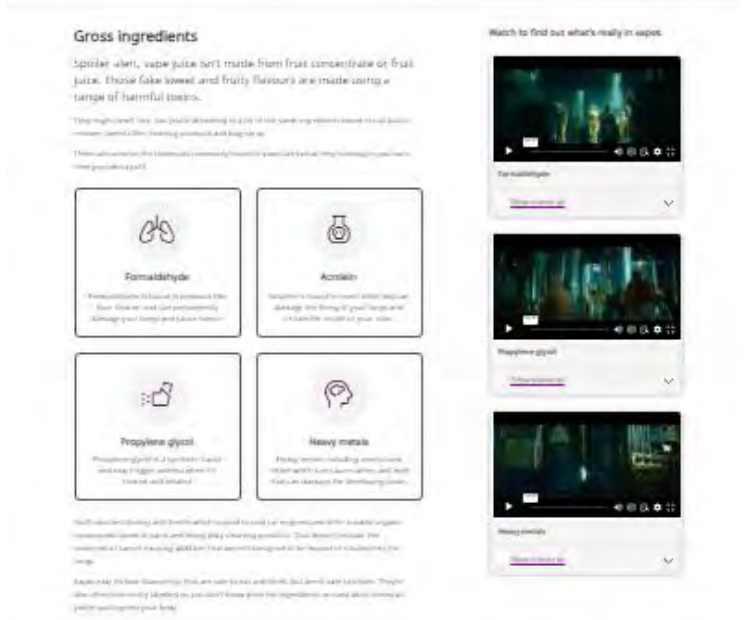
[Emergency contraception methods (ec-ec.org)]



This short video explains everything you need to know about emergency contraception, like the morning after pill, that is available over the counter from a pharmacist.
The video was made by the Royal Women's Hospital with Louna Maroun to inform teenagers about this safe, effective form of contraception to prevent an unplanned pregnancy

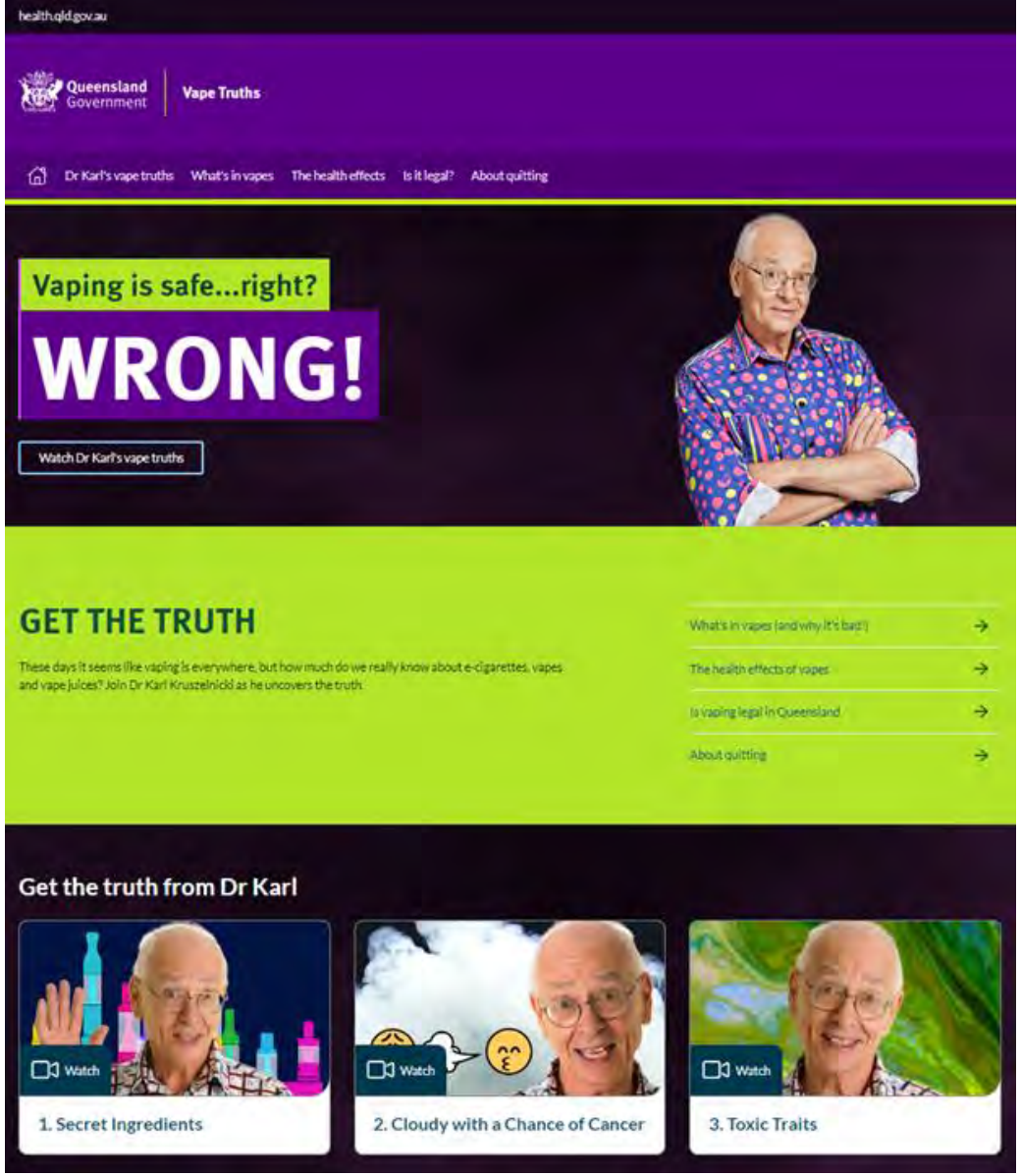
The Royal Women's Hospital: Louna's Lowdown on Emergency Contraception

https://www.youtube.com/watch?v=N5yNDIrq1Rk



What's really in a vape? | Queensland Health

- Some vapes can contain nicotine (illegal, unless on prescription)
- Vapes purchased from overseas online often contain nicotine even when labelled “nicotine free”
- Most vape juices contain common food additives and water – harmless if eaten but effects as aerosol unknown.
- May also contain unspecified and uncontrolled amounts of other substances, some known to be really harmful, particularly when inhaled, such as:
  - diacetyl – gives popcorn flavourings a buttery taste, can cause ‘popcorn lung’ (bronchiolitis obliterans) if inhaled in large concentrations
  - diethylene glycol – a toxic chemical used in antifreeze , linked to lung disease
  - lead, tin, nickel - heavy metals
  - cadmium - toxic metal causing breathing problems
  - acetaldehyde and formaldehyde - cancer-causing chemicals
  - acrolein - weed killer - can cause irreversible lung damage and cancer
  - benzene – volatile organic compound found in car exhausts - cancer causing and causes harm to bone marrow, reducing red blood cell numbers
  - some chemicals in e-cigarette aerosols can also cause DNA damage
  - ultra-small particles that can be inhaled deep into the lungs



Vape Truths - Queensland Govt Education Online

"Insufficient evidence as to how e-cigarette use relates to pregnancy & foetal outcomes, such as low birth weight, preterm birth, Apgar score and SFGA birth, among exclusive e-cigarette users and dual users.

No available evidence as to how use e-cigarettes use affects other reproductive outcomes"
Electronic cigarettes and health outcomes: systematic review of global evidence _ Report for Australian Dept Of Health (April 2022)

HEALTHY PREGNANCY HEALTHY BABY
Healthy pregnancy weight gain training

Healthy pregnancy weight gain is an important part of any healthy pregnancy to optimise pregnancy and future health outcomes for mothers and their offspring. Monitoring weight during pregnancy, coupled with a conversation between a woman and her health professional about progress, healthy eating and physical activity is a recommended part of routine care for all women.
This Healthy Pregnancy Healthy Baby, pregnancy weight gain training is designed to prepare health professionals to engage in respectful conversations about weight and lifestyle and equip them to deliver best practice care consistent with current evidence.

The content has been developed in consultation with a reference group of Queensland health professionals. The suite of online professional development resources is broken down into **7 short modules** with a total completion time of **90 minutes**. Each module will take around 10-15 minutes to complete including a knowledge check. The training is flexible, allowing learners to do one module and come back later to complete others. A certificate is available on completion of the post–training questionnaire.

This training package is suitable for any member of the multidisciplinary team caring for pregnant women including, midwives, obstetricians, physicians, general practitioners, practice nurses, dietitians, physiotherapists, and other allied health practitioners.

https://metronorth.health.qld.gov.au/health-professionals/healthy-pregnancy-healthy-baby

Dietary needs and special considerations

Module 7

Special considerations

Duration: approximately 16 minutes

By the completion of this module you should be able to:

- Describe an approach to discussing weight monitoring with women who have had, or currently have an eating disorder
- Describe the risks associated with weight loss and inadequate weight gain in women with a pre-pregnancy BMI > 30 kg/m^2
- Understand the weight gain recommendations for pregnant women who have had weight loss surgery.

Webinar 1: Women with a history of an eating disorder.

Watch the video >

Video: Stephanie Heard – approaching the topic of weight monitoring

Watch the video >

Webinar 2: Weight gain below recommendations in women with a pre-pregnancy BMI of 30 kg/m^2 or above and women who have had weight loss surgery.

Watch the video >

Take the Knowledge Check >

Additional Resources:

- National Eating Disorders Collaboration
- Butterfly Foundation
- Claydon et al, 2018. Waking up every day in a body that is not yours: a qualitative research inquiry into the intersection between eating disorders and pregnancy. BMC Pregnancy and Childbirth
- Kimmel et al, 2015. Obstetric and gynaecologic problems associated with eating disorders. International Journal of Eating Disorders
- Watson et al, 2017. Maternal eating disorders and perinatal outcomes: A three- generation study in the Norwegian Mother and Child Cohort Study (PDF)
- Mantel et al, 2019. Associations of maternal eating disorders with pregnancy and neonatal outcomes. JAMA Psychiatry
- Xu et al, 2017. Inadequate weight gain in obese women and the risk for small for gestational age (SGA): a systematic review and meta-

AM2 Case Discussion – Red Group

- Zuri is aged 38 years, and she and her current partner have been trying to fall pregnant for the last 3 years.
- PHX genital HSV but no recurrences for 18 months.
- Her history also includes CIN 3 when in her mid 20's – she had surgery at that time and attended for follow up for a few years, but then lapsed in going back to the hospital in Sydney.
- Her partner has 2 children from an earlier relationship, but Zuri says she has never been a mother.
- Zuri moved to Australia from Kenya at age 14 years.

She has a 15 min appointment - Outline your approach

Identifying this woman's issues

- Age –
- Ethnicity/Indigenous Status –
- BMI –
- BP –
- Obstetric History –
- PHX – Medical and Surgical HX –
- Medications, including OTC/supplements –
- Allergies –
- FHX –
- Social History – including supports/DV
- Occupation –
- Smoking/Alcohol/ Other Substances –
- Healthy diet and exercise –
- Vaccinations (+ Travel) -

- Clinical Assessment –
- Investigations –
- Management Plan –

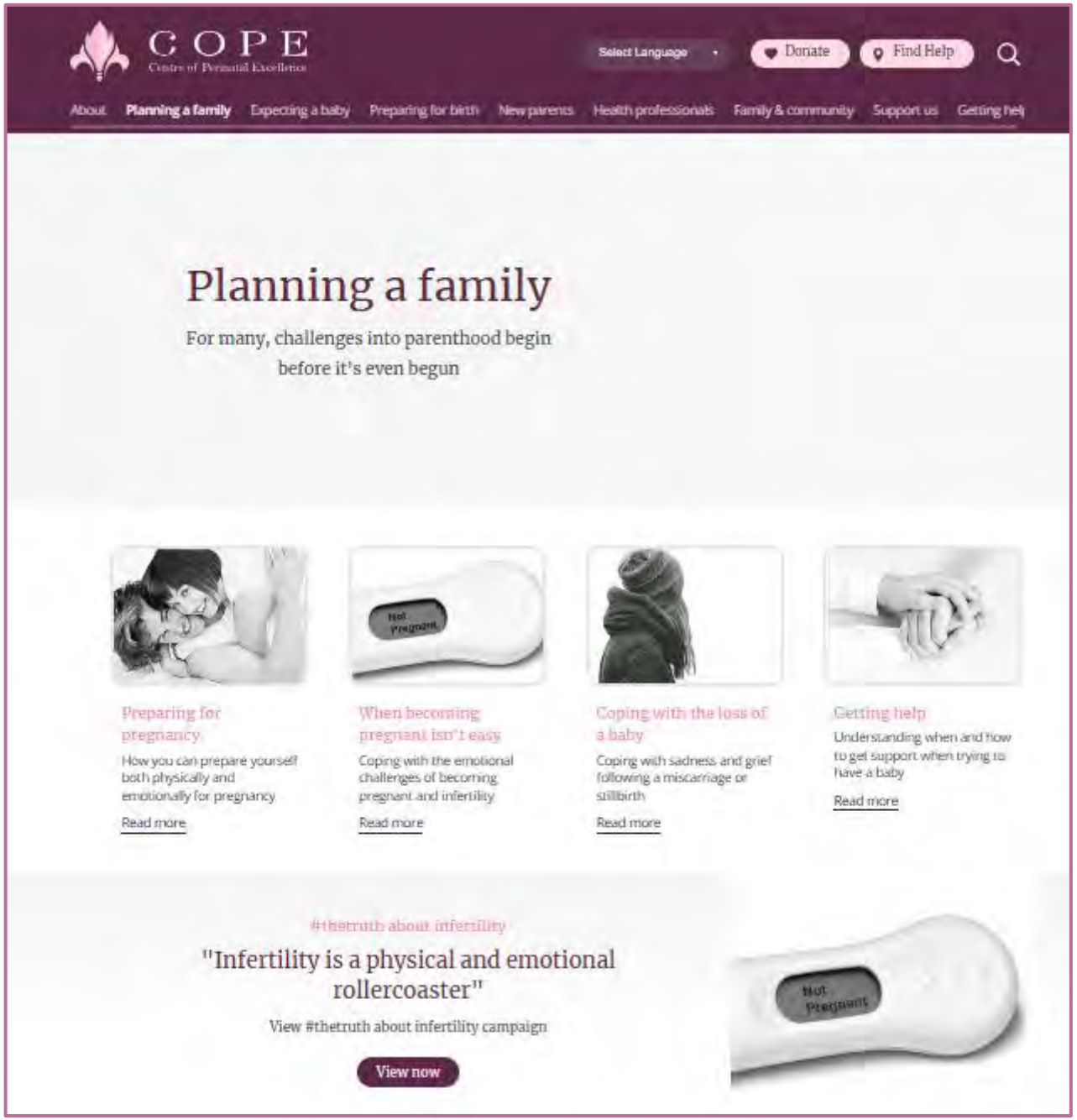
Topic overview

Subfertility/Infertility

HPV and Cervical Screening Tests

Herpes Simplex Virus

Previous Premature Birth



https://www.cope.org.au/planning-a-family/

Infertility
#thetruth is infertility is an emotional and physical rollercoaster ~ Melinda

1 in 6 people live with infertility. Many are unable to ever have children

Living with infertility Childlessness

The Truth about Infertility - NEW Campaign - COPE

Ask EVERY Woman about EVERY pregnancy

- Always ask the woman in private about previous pregnancies – may not volunteer previous TOPs, ectopics, stillbirths or SUIDs etc in presence of partner/family member.
- FGM needs to be asked about (Female genital mutilation/cutting/circumcision (FGM/C) for Health Professionals - Cultural awareness Fact Sheet from “True – relationships and reproductive health)
- Women from culturally and linguistically diverse (CALD) backgrounds are more likely to experience poorer perinatal outcomes (even in high income countries).

Female Genital Mutilation/Cutting/Circumcision

Percentage of women and girls aged 15 to 49 years who have undergone FGM/C

90-99%	80-89%	70-79%	60%-69%	40-49%
Somalia, Guinea, Djibouti	Mali, Egypt, Sudan, Sierra Leone, Eritrea	Burkina Faso, Gambia	Mauritania, Ethiopia	Indonesia, Guinea-Bissau, Liberia

30-39%	20-29%	10-19%	1-9%
Chad, Côte d'Ivoire	Senegal, Central African Republic, Kenya	Yemen, Nigeria, Maldives, United Republic of Tanzania	Benin, Iraq, Ghana, Togo, Niger, Cameroon [2]

Short term

- Severe pain
- Excessive bleeding
- Shock
- Psychological trauma
- Infection - recurrent infections can impact on a woman's ability to enjoy life and fully participate in her family and community
- Urinary retention
- Death

Long term

- Reproductive tract infection
- Complication during pregnancy and childbirth - fistulas can result from a prolonged labour when a (Type III) circumcised woman cannot deliver the baby.
- Infertility
- Painful periods
- Psychological issues e.g. depression/PTSD
- Fear and avoidance of cervical screening
- Difficulty in undergoing cervical screening
- Scarring
- Sexual complications

How to ask about FGC/M

All women who may be affected by FGC/M should be asked about it. Here are some sample questions:

1. **Which country were you born in?**
   Cross check the woman's country of origin with the prevalence of practice in that country.
2. **I understand that traditional genital cutting is a common practice in your country. Would you mind if I asked you if you have been circumcised or have had traditional cutting? It is important for me to know before I examine you.**
   Some women don't know if they have been circumcised and when it may have occurred.
3. **Have you had a Cervical Screening Test before?**
   Some women may know of this as a Pap smear or Pap test.
4. **Have you ever had an uncomfortable cervical screening experience in the past? If so, it may be helpful to let me know why this was difficult for you?**
   Negative past experience is a known barrier to cervical screening.
5. **To help inform your decision about how best to complete a Cervical Screening Test, I may need to look at you first.**
   You will need to assess the level of difficulty performing the test; if you are in doubt please do not continue and refer the woman to a specialist hospital.

Female genital mutilation/cutting (FGM/C) and cervical screening: A guide for healthcare providers

Infertility - Female History

[Assessment of Female Fertility in General Practice Setting – AJGP June 2020 Vol 49(6)]

Box 1. Systematic approach to female reproductive history

Duration of infertility

- Frequency and timing of intercourse
- Sexual dysfunction

Gynaecological and obstetric past history

- Cervical screening results, previous treatments
- Previous pregnancies: time to conceive, management of early pregnancy loss and termination, mode and timing of delivery and antenatal, intrapartum or post-partum complications
- Pelvic infection
- Menstrual history: cycle interval, duration of bleeding and associated abnormal uterine bleeding and dysmenorrhoea
- Dyspareunia

Previous medical history

- Medical comorbidities: management and stability
- Previous surgery

Medications, including any allergies

- Past and present medication use
- Previous contraceptive use
- Vaccination history: rubella, varicella, hepatitis B, influenza
- Folic acid and iodine supplementation

Family history

- Heritable conditions
- Premature ovarian insufficiency

Social history

- Smoking, alcohol and recreational drug use

Essential Referral Information

- History: of previous pregnancies, STIs and PID, surgery, endometriosis, other medical conditions
- Include the following partner information - age and health, reproductive history, testicular conditions, semen analysis, BMI
- Weight/ BMI
- STI screen result – endocervical swab or first catch urine for chlamydia +/- gonorrhoea NAA
- FBC group and antibodies rubella IgG varicella IgG, syphilis serology, HBV/HCV/HIV serology results
- FSH, LH (Day 2-5), Oestradiol, Prolactin, TSH if cycle prolonged and/or irregular (not if on contraception)
- Coeliac Serology (rates of about 4% in women with otherwise unexplained infertility)
- Day 21 serum progesterone level (7 days before the next expected period)
- Pelvic USS (TVS preferable) – for pelvic anatomy, antral follicle count, and features of deep infiltrating endometriosis
- If PCOS is suspected include the following:
  - Free androgen index (FAI) or Free Testosterone, Consider DHEAS/androstenedione if free testosterone normal, 17 OH progesterone, sHBG
  - Fasting blood glucose result
  - Lipids, TSH results
- Consider Genetic carrier screening if desired: thalassaemia, triple screen (fragile X syndrome, cystic fibrosis, spinal muscular atrophy), extended carrier screen
- Consider Anti-Mullerian hormone (AMH) ?

Further Subfertility/Infertility Assessment

Infertility Definition – failure to achieve pregnancy within 12 months of regular unprotected intercourse in a woman aged <35 years or within six months in a woman aged >35 years.

- Treatment is as a couple and requires a partner referral
- IVF/ART and treatment of male partner not available in public hospitals
- To assess tubal patency, consider Hysterosalpingography (HSG) or saline infusion USS (sonohysterography) if history suggestive of blocked fallopian tubes
- Seminal analysis of partner (≥4 days of abstinence). Repeat in 4-6 weeks if abnormal
- Lifestyle modification (increased activity, dietary, weight, smoking, alcohol)
- Simple moderate physical activity including structured exercise (at least 30 minutes/day) and optimising incidental exercise assists with weight loss and weight maintenance.
- Achieve optimal weight BMI 20 – 30
- Referral to dietitian
- Infertility: Folic acid 0.5mg/day

https://www1.racgp.org.au/ajgp/2020/june/female-fertility-in-general-practice-setting

? “Egg timer” blood test - anti-Mullerian hormone (AMH)

- AMH - not Medicare funded ($80-100)
- Online companies are also selling the home test directly to consumers, promoting the test as a way for women to decide when to have a baby.
- Can’t reliably predict the likelihood of pregnancy or how long it would take to get pregnant.
- AMH level indicates the number of eggs in the ovaries, or ovarian reserve. Often used in IVF treatment (suggests how many eggs woman may get with ovarian stimulation with fertility drugs)
- Can’t tell you anything about egg quality - women with low AMH levels have the same chance of conceiving as women with normal AMH levels
- Woman’s age is greatest predictor of chance of pregnancy

Male factor infertility is on the rise over time

- Men > 40 years have reduced chance of fathering a child (with & without ART) & miscarriage is more common if male partner is >45yrs
- Overweight men are 11% more likely than normal-weight peers to have low sperm numbers & 39% more likely to be azospermic. Obese men are 42% more likely to have low sperm count and 81% more likely to produce no sperm. Weight optimisation is proven to improve sperm counts.
- Reduced sperm quality (count, volume and movement) exacerbated by smoking, and less convincingly by alcohol use. Heavy drinking impacts sex drive and performance. Smoking at the time of conception can increase the risk of leukaemia for the child.
- Gene expression is sensitive to environment/workplace/social factors and thus parent health affects epigenetics. Avoid exposure to harmful chemicals including pesticides, herbicides, heavy metals, and household chemicals e.g., lead, paint strippers and other solvents.
- Anabolic steroids use lowers fertility, with long term effects on sperm count/quality, & generally takes about 2 years for sperm count to normalise after cessation Recreational drugs known to adversely affect fertility (drugs like cannabis, cocaine and heroin - reduce testosterone levels/libido 7 cannabis may affect sperm count/motility and volume)
- Prescribed medicines can also lower fertility and sexual function – opiates, depression and anxiety medicines, chemotherapy and radiotherapy.

Post

Queensland Health
@qldhealth

Did you know it takes around 3 months to make new sperm? 🥵

This means if you're planning parenthood, you need to consider the health of your swimmers a few months before trying to conceive.

Having healthy sperm will increase your chances of conceiving and having a healthy baby. 👶

Sperm count (amount), motility (movement) and shape can be affected by:
👉 age (sperm quality decreases with age)
👉 smoking
👉 weight
👉 heavy alcohol intake
👉 illegal drugs and some medicines
👉 toxic substances (such as pesticides, chemicals, radiation and heavy metals)
👉 heat (especially around the testicles).

Patient Resource – Sperm Health - https://www.healthymale.org.au/mens-health/sperm-health
Preconception health checklist for men https://www.healthymale.org.au/news/preconception-health-checklist-men
https://www1.racgp.org.au/ajgp/2018/july/preconception-care - Preconception Care AJGP Vol 47 (7) – July 2018

Male factor infertility is on the rise over time

#QldHealth

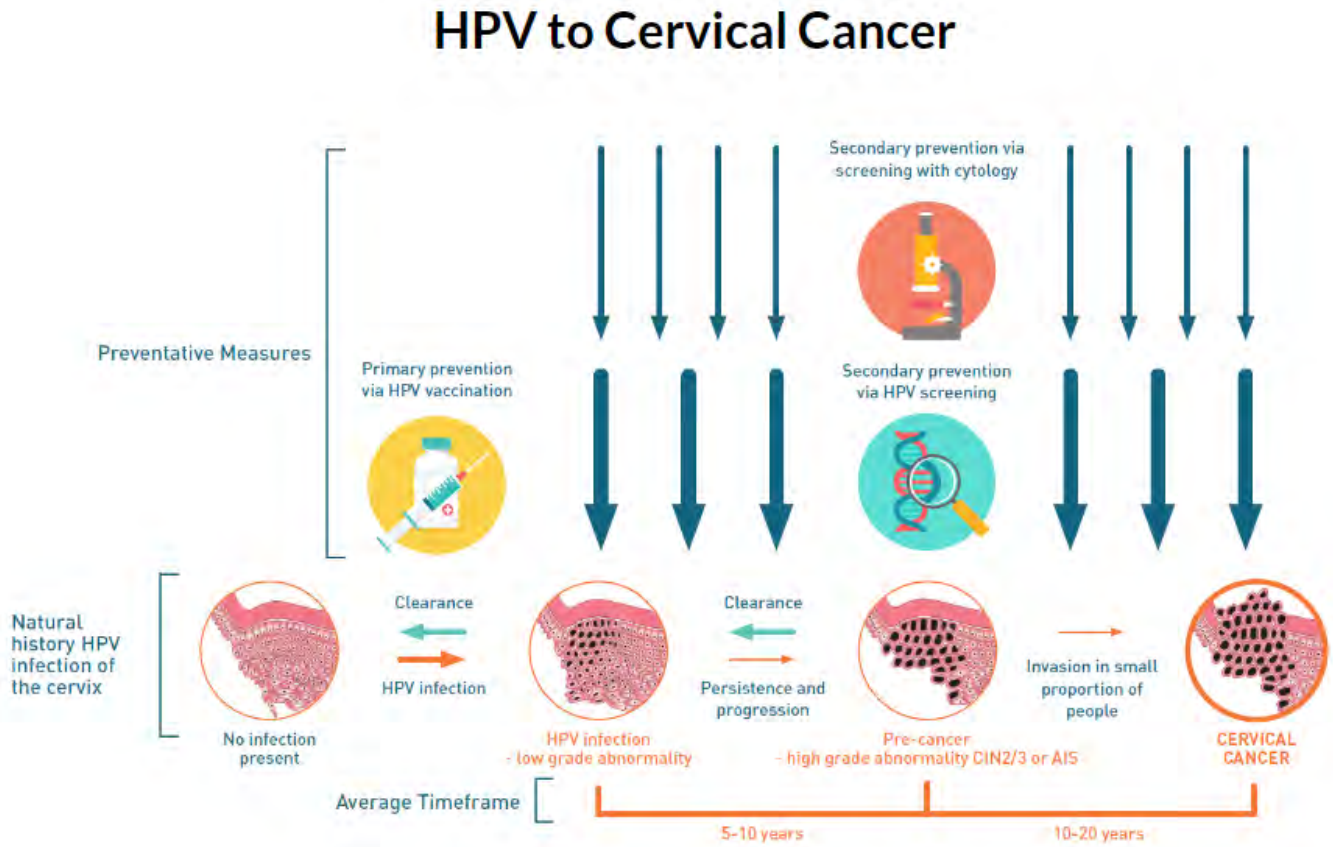
- Assess for STIs – untreated chlamydia or gonorrhoea can damage the reproductive organs and cause infertility, and can be asymptomatic
- Ask re PHX Scrotal or testicular surgery or injury, Retroperitoneal/abdominal/prostate or bladder surgery, Past mumps infection/other causes of orchitis,
- In some cultures, Schistosomiasis-induced male infertility, can be due to hormonal imbalance, testicular tissue damage and genital ductal system obstruction
- Supplements for men – best to identify dietary nutrient gaps and take targeted supplementation if needed. Still poor evidence for benefits of male fertility supplements (no large well-designed trials), but possible benefit, and likely no harm from omega 3 fatty acids, antioxidants, zinc, selenium, arginine, and folic acid.
- Psychosocial supports for potential fathers also, and appropriately manage depression and anxiety. Keep DFV and coercive control in mind when discussing pregnancy with couples.

Patient Resource – Sperm Health - https://www.healthymale.org.au/mens-health/sperm-health
Preconception health checklist for men https://www.healthymale.org.au/news/preconception-health-checklist-men
References/Further Reading:
https://www1.racgp.org.au/ajgp/2018/july/preconception-care - Preconception Care AJGP Vol 47 (7) – July 2018
https://www.racgp.org.au/afp/2017/september/male-infertility - Male infertility – The other side of the equation AFP Vol 46 (9) – Sept 2017

Human Papilloma Virus

- > 40 anogenital HPV types, 15 of which are classified as ‘high risk’ or oncogenic.
- Most HPV infections are cleared within 12-24/12; up to 10% persist
- 98% of people infected with genital HPV will clear the virus naturally within 5 years
- Persistent infection with oncogenic HPV types is generally subclinical but can result long term in the development of a range of anogenital tumours including cancers of the cervix, anus, penis, vulva and vagina.
- HPV infection is also associated with squamous cell carcinomas of the head and neck, particularly oropharyngeal cancers

https://www.cancer.org.au/clinical-guidelines/cervical-cancer/cervical-cancer-screening/the-rationale-for-primary-hpv-screening



VCS Pathology, National Cervical Screening Program Guidelines, HPV and Cervical Screening. Available from: https://acpcc.org.au/wp-content/uploads/2024/05/24016_VCS.HPV-AND-CERVICAL-SCREENING.CD04.pdf

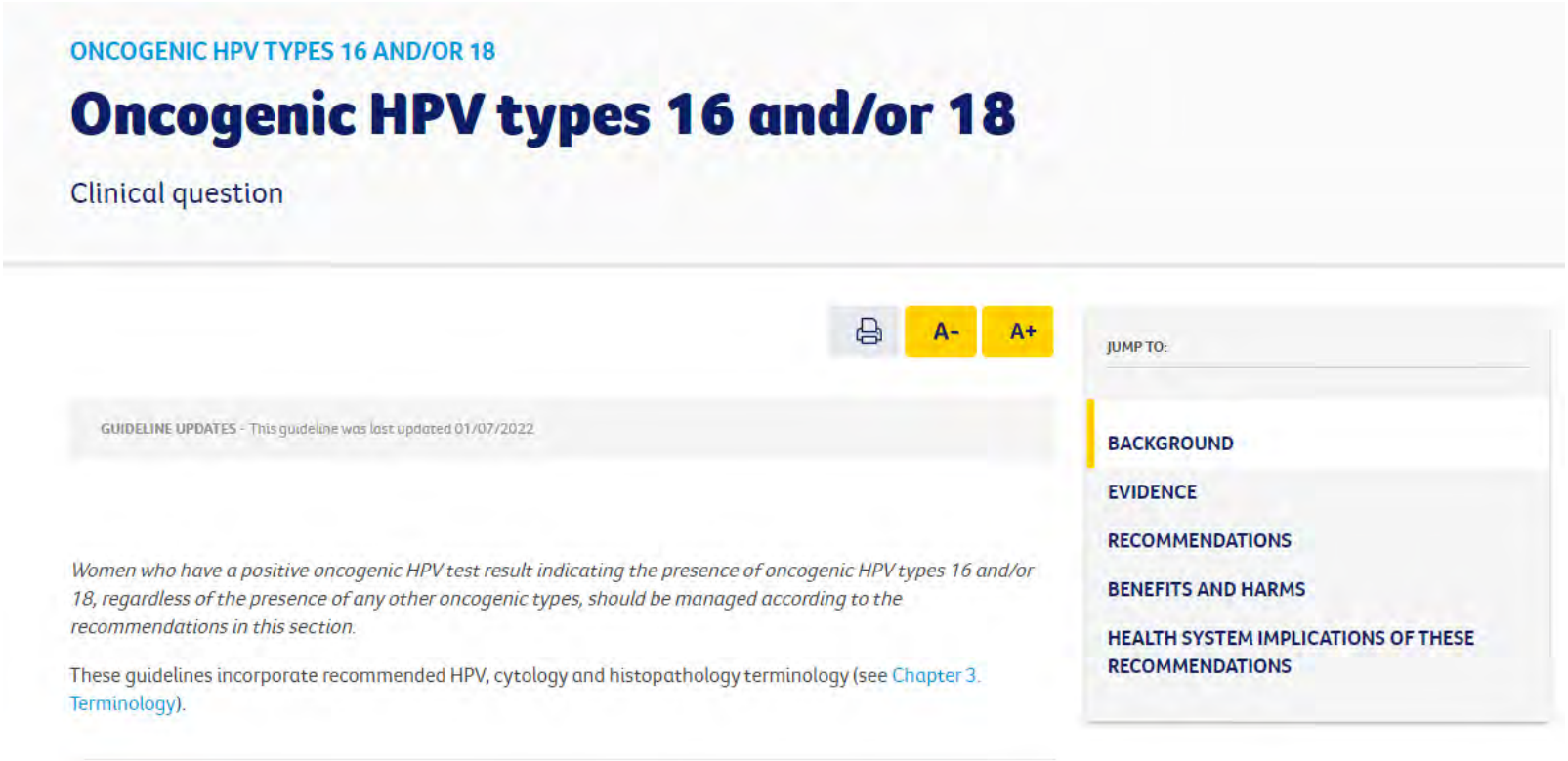
National Strategy for the Elimination of Cervical Cancer (Strategy)

- Outlines Australia's commitment to achieve equitable elimination of cervical cancer by 2035 & the objectives/actions needed to achieve this goal.
- Aligned with WHO's goal - agreed elimination threshold is < 4 cases/100,000 women in **all** countries worldwide within the next century (2018 in Australia – 6.5 new cases /100, 000 women)
- To put countries on path to elimination, WHO set 3 targets that each country should achieve by 2030 and then maintain and improve upon in the coming decades, the so-called **90:70:90** targets.
- Targets set for all countries worldwide, regardless of current income, HPV vaccination & cervical screening status.
- WHO targets*
  - 90% of girls (& boys) to be fully HPV vaccinated by 15 years of age
  - 70% of women to be screened by 35 & again by 45 years of age using a high precision test i.e., an HPV polymerase chain reaction (PCR) test (extending the 70% screening target to 5-yearly participation for all eligible 25- to 74-year-olds, rather than twice in a lifetime)
  - 90% (95%) of women identified with cervical disease receive treatment for pre-cancerous lesions or management of invasive cancer
  - * Extended AUSTRALIAN Targets by 2030

https://www.health.gov.au/sites/default/files/2023-11/national-strategy-for-the-elimination-of-cervical-cancer-in-australia.pdf

AUSTRALIA IS ON TRACK TO BE THE FIRST COUNTRY IN THE WORLD TO ELIMINATE CERVICAL CANCER AS A PUBLIC HEALTH PROBLEM POTENTIALLY AS EARLY AS 2028

CLINICAL GUIDELINES SITEMAP



- Worldwide, oncogenic HPV types 16/18 are detected in approximately 70% of cervical cancers.
- HPV 16 is the most carcinogenic, accounting for about 55–60% of cervical cancers
- HPV 18 accounts for a further 10–15% of cervical cancers (same frequency as HPV 16 in cervical adenocarcinomas)
- Preliminary results from a recent Australian consecutive case series found that HPV types 16 and 18 were detected in 52.3% and 19.4% of cervical cancers, respectively.

https://www.cancer.org.au/clinical-guidelines/cervical-cancer/cervical-cancer-screening/management-of-oncogenic-hpv-test-results/oncogenic-hpv-types-16-and-or-18

CST/HPV self-collections

Eligible patients

- All people with a cervix aged 25-74 years, who have ever been sexually active, including those who are pregnant
- Asymptomatic patients who are starting or attending their 5 yearly screening (or 3 yearly if immunocompromised)
- Self-collection can also be offered at other points where only an HPV test is required including:
  - At the 12-month follow-up after an intermediate risk result
  - At the 12-month follow-up after normal or CIN1 colposcopy

Ineligible patients

- Patients who have recorded negative HPV test results within the past five years.
- Patients who require a co-test for one of the following five reasons, including patients:
  - with symptoms suggestive of cervical cancer e.g., unexplained bleeding, unexplained persistent discharge
  - who are undergoing “test of cure” after treatment for high-grade squamous intraepithelial lesion (HSIL)
  - who have been treated for a glandular abnormality, including adenocarcinoma in situ (AIS)
  - who have been exposed to diethylstilboestrol (DES) in utero
  - who have had a total hysterectomy with a history of HSIL.

Importance of self-collection as option for participants providing level of control and choice by removing significant barrier to screening participation, particularly in groups that are less likely to screen:

- Aboriginal and/or Torres Strait Islander women;
- culturally and linguistically diverse communities;
- people who identify as LGBTIQ+;
- people with disabilities;
- people who have experienced sexual violence;
- post-menopausal women;
- and people who have had previous negative cervical screening experiences.

CST/HPV self-collections vs Clinician collected

Accuracy of a self-collected sample for the detection of HPV

- Sensitivity and specificity of HPV testing to detect CIN2+ in self-collected samples **equivalent** to those for clinician-collected samples (using validated PCR-based HPV assays)
- When deciding whether to choose self-collection or clinician-collection, patients must be given clear information by their healthcare provider about likelihood that HPV may be detected and, if so, what follow-up will be required.
- Among women undergoing routine screening, approximately 2% have HPV 16/18 detected and approximately 6% have HPV (not 16/18) detected, although the latter varies by age. Over 90% test negative - can safely return to screen in five years' time.
- Approximately **10% of self-collected samples HPV positive** - these women will need to return for clinician collected specimen for LBC cytology triage.
  - If positive for HPV 16/18 referral can be made for Colposcopy with LBC at that appointment (but added information given by subsequent clinician collected LBC may assist in hospital triage process)
  - If HPV (not 16/18) detected, and normal or LSIL on LBC, repeat by clinician for co-test in 12 months

Information for Health Care Professionals about Cervical Self-Screening - Cancer Council

More resources and education: https://acpcc.org.au/practitioners/resource-hub/

Why should I offer self-collection?

- Self-collection = **overcoming barriers** to screening and **highly acceptable**, particularly among under-screened and never screened.
- Under-screening is **main risk factor** for developing cervical cancer, with >70% Australians diagnosed from under-screened or never screened cohort.
- Women diagnosed through cervical screening had an 87% lower risk of dying from cervical cancer than women who had never had a cervical screening test
- Aboriginal and Torres Strait Islander people, people from culturally and linguistically diverse communities, people with disability, LGBTQIA+ people, and people from rural and remote areas are amongst those less likely to participate in screening, placing them at higher risk
- 1-2% samples reported invalid result, due to inadequate cellular material or the presence of interfering substances.

.

- **Healthcare providers play key role in elimination of cervical cancer in Australia. Do your part by offering the option of self-collection & support your patients to make an informed choice about how they screen!**

Likelihood of an HPV (not 16/18) result, requiring a second appointment, is ~6% for routine CSTs. However, this is **highly age dependent.**

25-29 years	17%	50-54 years	4%
30-34 years	10%	55-59 years	3%
35-39 years	6%	60-64 years	3%
40-44 years	5%	65-69 years	3%
45-49 years	4%		

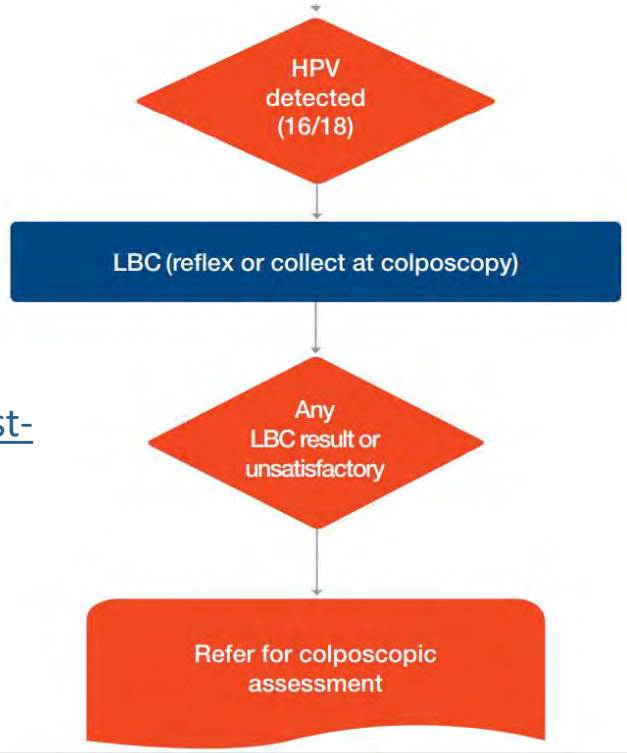
- Pilot studies show that most will return for follow up after an HPV-positive self-collected sample
- Sample does not need to be taken from the cervix.
- No evidence to support routine pelvic examination for asymptomatic patients.
- Decision to perform PVE/visual inspection of genital tract should be patient centred, clearly clinically indicated & made collaboratively
- Use any time saved to check for symptoms and remind patients what to look out for.

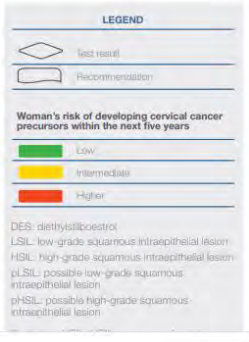
https://acpcc.org.au/wp-content/uploads/2024/05/24079_KI_ACPCC_10FAQs_V2.pdf

Links to Management of oncogenic HPV test results flowcharts:

- Flowchart 6.1 Cervical screening pathway for primary oncogenic HPV screening (HPV tests on clinician-collected or self-collected samples)
- Flowchart 6.2 Cervical screening pathway for primary oncogenic HPV testing (HPV not detected)
- Flowchart 6.3. Cervical screening pathway for primary oncogenic HPV screening (HPV tests on clinician-collected or self-collected samples): HPV16/18 detected
- Flowchart 6.4 Cervical screening pathway for primary oncogenic HPV screening (HPV tests on clinician-collected or self-collected samples): HPV (not 16/18) detected

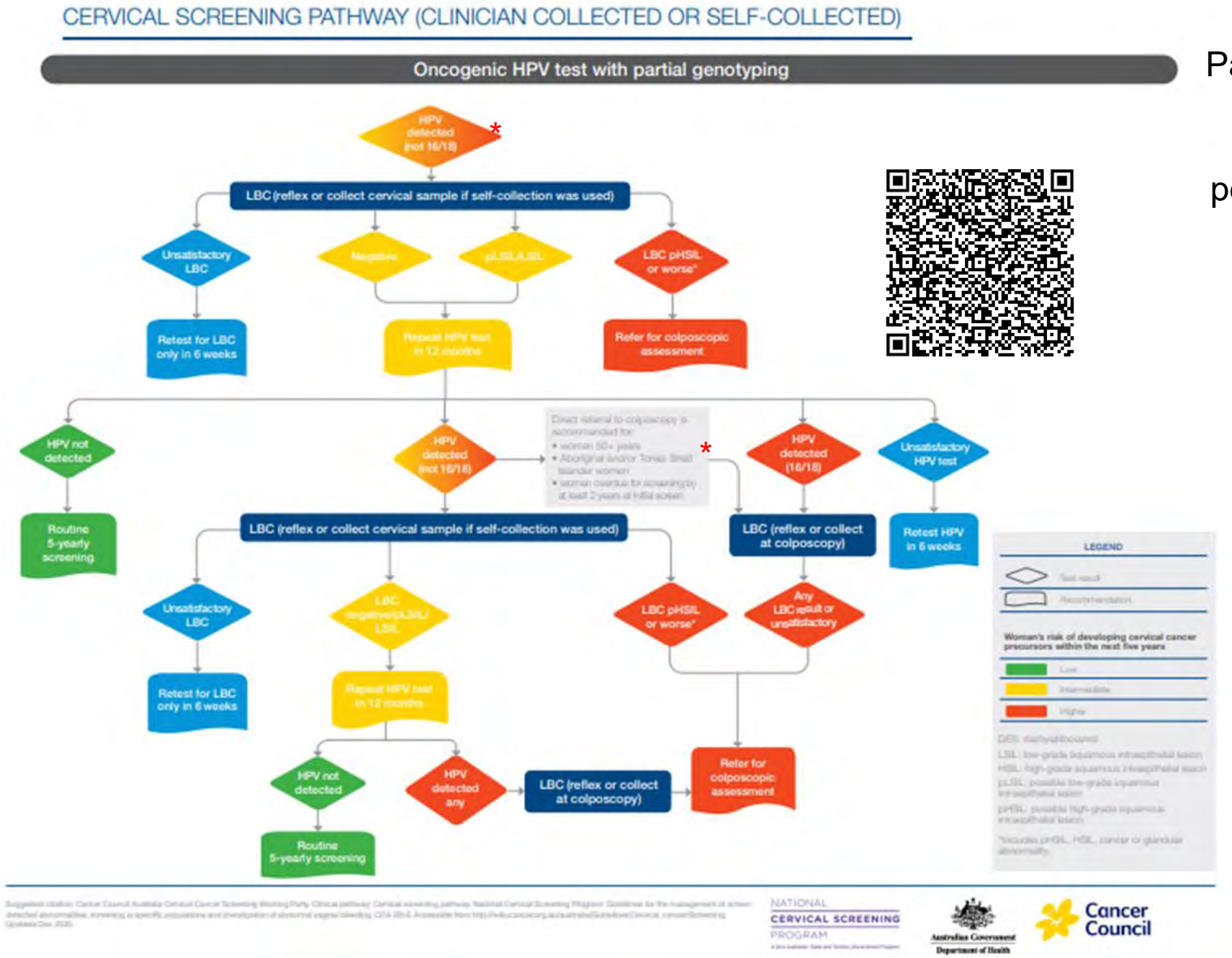
https://www.cancer.org.au/clinical-guidelines/cervical-cancer/cervical-cancer-screening/management-of-oncogenic-hpv-test-results/flowcharts





CLINICAL GUIDELINES SITEMAP

Cancer Council Australia



Patients with positive non-16/18 but normal or LSIL on LBC
DO NOT need referral unless persistent on 2 further repeat CSTs (at 12 & 24 months) *

https://cancer.org.au/assets/pdf/flowchart-6-4-cervical-screening-pathway-for-primary-oncogenic-hpv-screening-hpv-tests-on-clinician-collected-or-self-collected-samples-hpv-not-16-18-detected

* EXCEPTIONS:

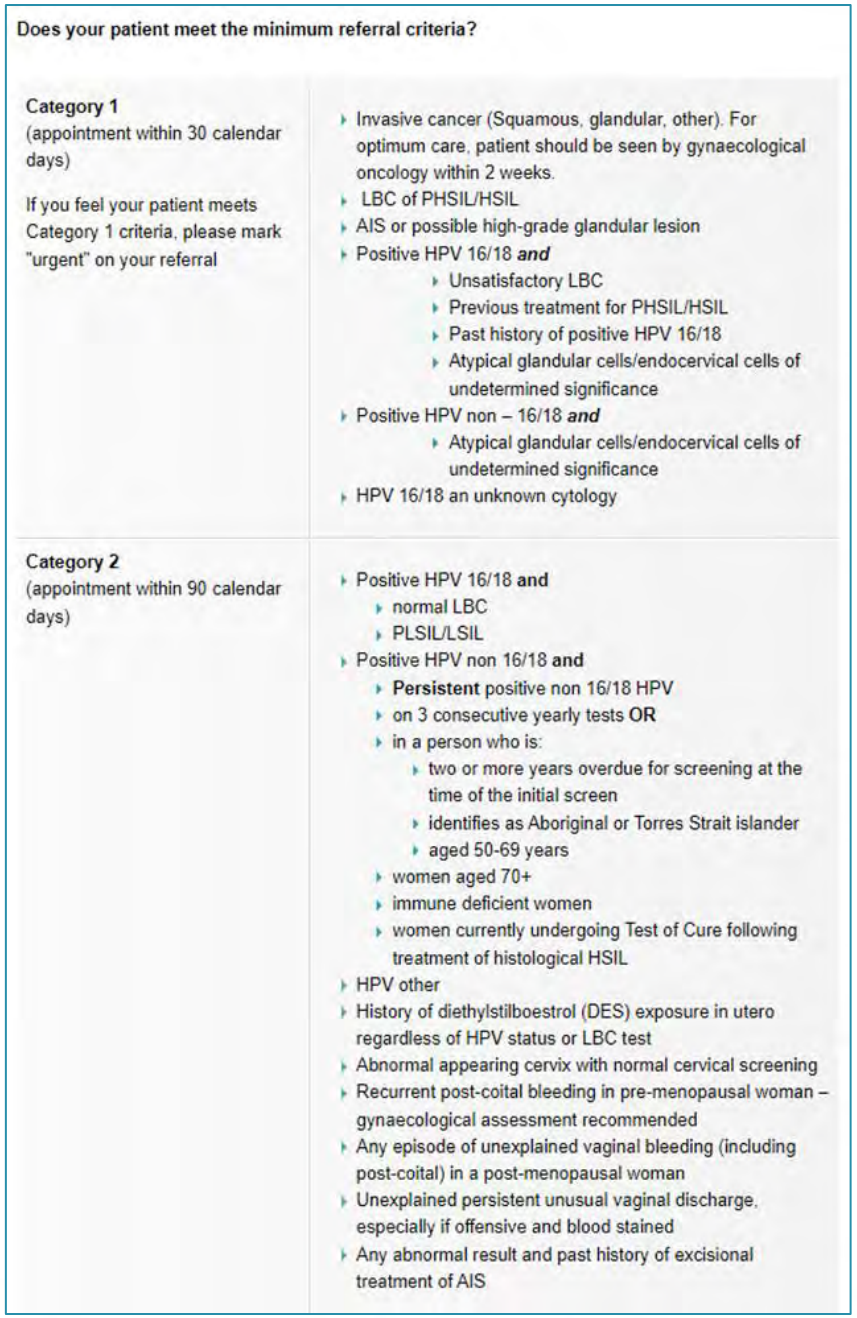
- non 16/18 in patient 70-74yrs – for immediate colposcopy
- after 2 non16/18 HPV positive tests refer for colposcopy if –
  - Aged 50yrs+
  - Aboriginal and/or Torres Strait Islander
  - Overdue by at least 2 years on initial screen

Indications for Colposcopy after abnormal CST

- Consider single CST between 20 - 24 years who experienced their first sexual activity at a young age (e.g., <14 years) or if not received HPV vaccine before sexual activity commenced.
- Adolescent patients with abnormal HPV should follow the same pathway as adult patients. Patients < 30 years old should also have screening for STI as they are high-risk group.
- Consider using oestrogen cream +/- liquid cytology in post-menopausal patients (continue until age 70-74 years with "exit" test)
- Patients with positive non-16/18 but normal or LSIL on LBC **DO NOT** need referral and only a repeat CST in 12 months. If remains positive non-16/18 but normal or LSIL on LBC, **REPEAT** again in 12 months (only refer if HPV non-16/18 positive on 3 consecutive tests (or clinical concerns)
- Recall women in 6-12 weeks if they have an unsatisfactory screening report
- Specific efforts should be made to provide screening for Aboriginal and Torres Strait Islander women.
- Women who have been treated for HSIL (CIN2/3) do not need a post-treatment colposcopy. They should have a clinician collected co-test (HPV and LBC test performed at 12/12 after treatment, and annually thereafter, until have a negative co-test on two consecutive occasions, when can return to routine 5 yearly screening. This is called 'test of cure'.
- If, at any time post treatment, have an oncogenic HPV (16/18) result, refer for colposcopic assessment (regardless of the reflex LBC result).
- If, at any time during Test of Cure, the woman has an LBC prediction of pHSIL/HSIL or any glandular abnormality, irrespective of HPV status, she should be referred for colposcopic assessment.

From RYP - https://metrosouth.health.qld.gov.au/referrals/gynaecology/abnormal-pap-smear

Clinical Resources: National Cervical Screening Program: Guidelines for the management of screen-detected abnormalities, screening in specific populations and investigation of abnormal vaginal bleeding.
https://www.cancer.org.au/clinical-guidelines/cervical-cancer/cervical-cancer-screening/management-of-oncogenic-hpv-test-results/oncogenic-hpv-types-16-and-or-18



Does your patient meet the minimum referral criteria?

Category 1
(appointment within 30 calendar days)

If you feel your patient meets Category 1 criteria, please mark "urgent" on your referral

- Invasive cancer (Squamous, glandular, other). For optimum care, patient should be seen by gynaecological oncology within 2 weeks.
- LBC of PHSIL/HSIL
- AIS or possible high-grade glandular lesion
- Positive HPV 16/18 ***and***
  - Unsatisfactory LBC
  - Previous treatment for PHSIL/HSIL
  - Past history of positive HPV 16/18
  - Atypical glandular cells/endocervical cells of undetermined significance
- Positive HPV non – 16/18 ***and***
  - Atypical glandular cells/endocervical cells of undetermined significance
- HPV 16/18 an unknown cytology

Category 2
(appointment within 90 calendar days)

- Positive HPV 16/18 **and**
  - normal LBC
  - PLSIL/LSIL
- Positive HPV non 16/18 **and**
  - **Persistent** positive non 16/18 HPV
  - on 3 consecutive yearly tests **OR**
  - in a person who is:
    - two or more years overdue for screening at the time of the initial screen
    - identifies as Aboriginal or Torres Strait islander
    - aged 50-69 years
  - women aged 70+
  - immune deficient women
  - women currently undergoing Test of Cure following treatment of histological HSIL
- HPV other
- History of diethylstilboestrol (DES) exposure in utero regardless of HPV status or LBC test
- Abnormal appearing cervix with normal cervical screening
- Recurrent post-coital bleeding in pre-menopausal woman – gynaecological assessment recommended
- Any episode of unexplained vaginal bleeding (including post-coital) in a post-menopausal woman
- Unexplained persistent unusual vaginal discharge, especially if offensive and blood stained
- Any abnormal result and past history of excisional treatment of AIS

REFER YOUR PATIENT – METRO SOUTH HHS

Abnormal cervical screening / cervical dysplasia / abnormal cervix

If your patient does not meet the minimum referral criteria

- Assessment and management information can be found on a range of conditions at Brisbane South Community HealthPathways
- If the patient does not meet the criteria for referral but the referring practitioner believes the patient requires specialist review, a clinical override may be requested.
- Please explain why (e.g., warning signs or symptoms, clinical modifiers, uncertain about diagnosis, etc.)
- Please note that your referral may not be accepted or may be redirected to another service.

Cervical Cancer Screening - Community HealthPathways
SpotOnHealth (Brisbane South)

Essential referral information for Abnormal cervical screening / cervical dysplasia / abnormal cervix referrals (Referral will be returned without this)

- **History of**
  - Any abnormal bleeding (i.e., post-coital and intermenstrual)
  - Unexplained persistent deep dyspareunia or unexplained persistent unusual vaginal discharge
  - Previous abnormal cervical screening results and any treatment (results to be included in referral)
  - Immunosuppressive therapy
- Medical management to date
- Most recent and current cervical screening results (**LBC should be performed on any sample with positive oncogenic HPV)**

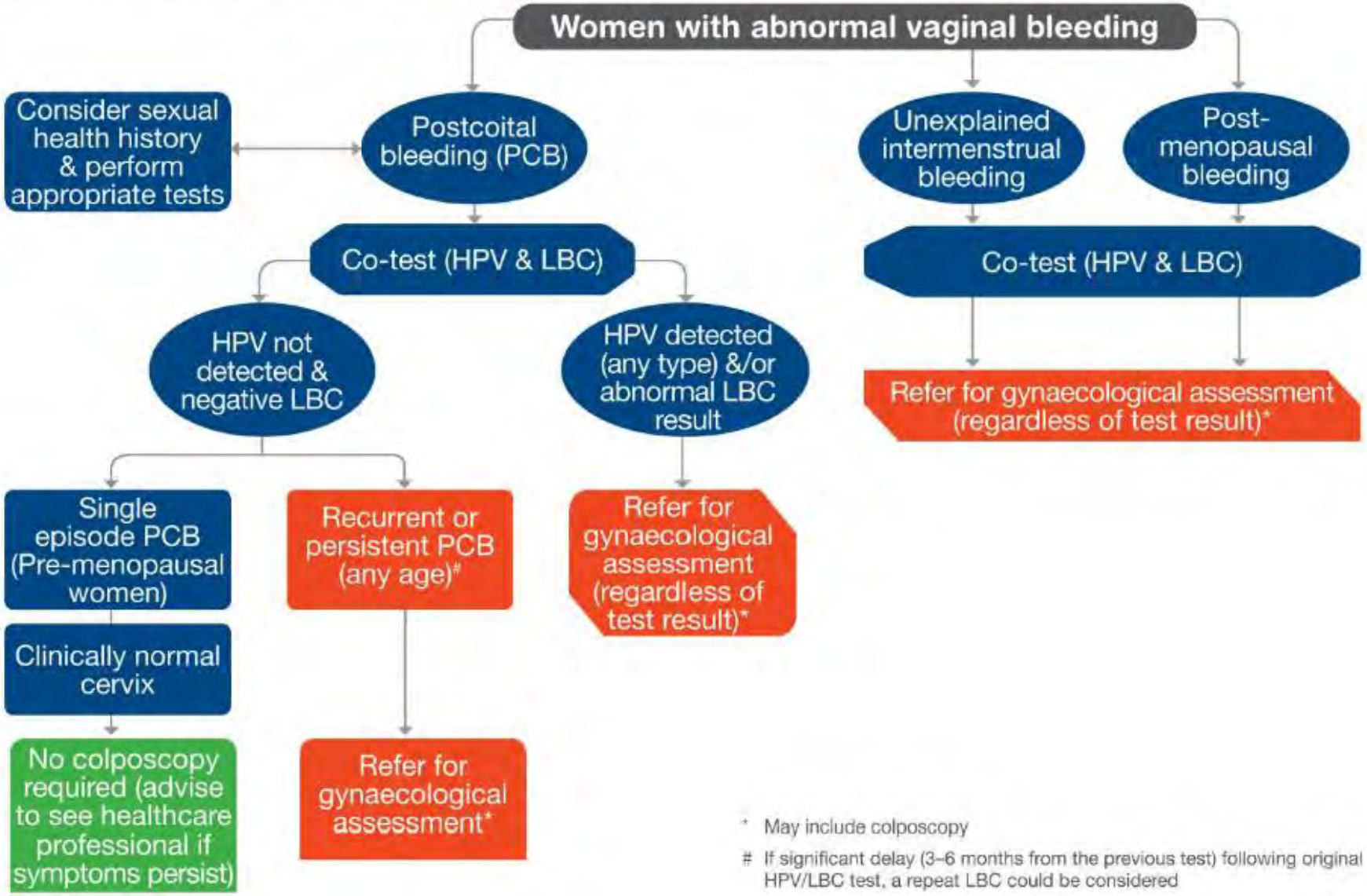
If a specific test result is unable to be obtained due to access, financial, religious, cultural or consent reasons a Clinical Override may be requested. This reason must be clearly articulated in the body of the referral.

Additional referral information for Abnormal cervical screening / cervical dysplasia / abnormal cervix referrals

- BMI
- HPV Vaccination history
- STI screen result, endocervical swab or first catch urine for chlamydia +/- gonorrhoea NAA
- History of smoking

Abnormal cervical screening / cervical dysplasia / abnormal cervix | Referrals to Gynaecology | Metro South Health

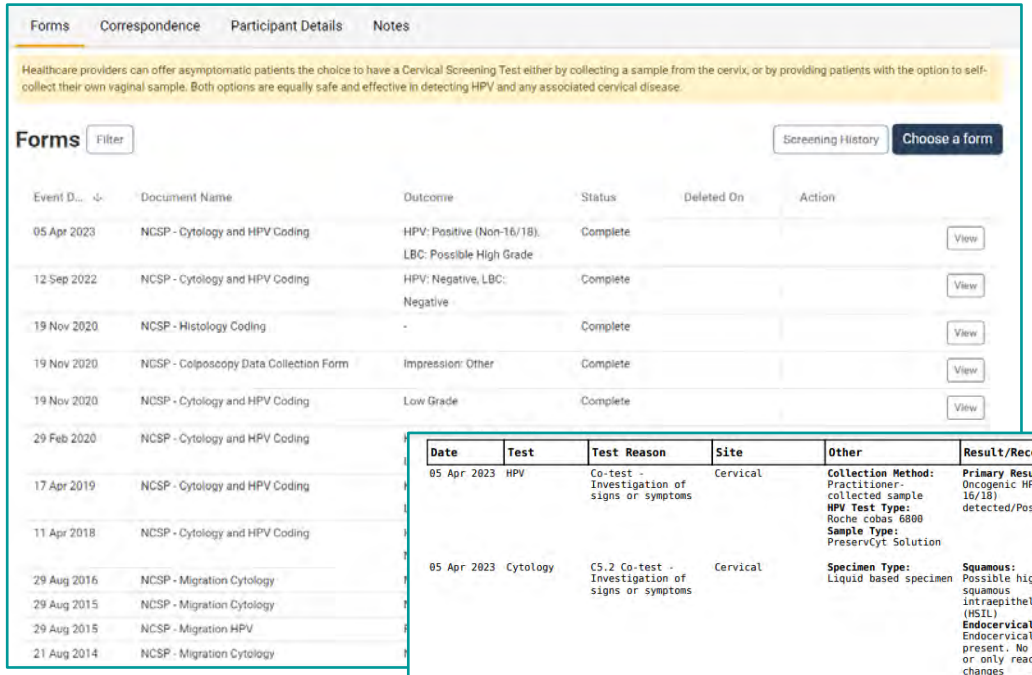
INVESTIGATION OF WOMEN WITH ABNORMAL VAGINAL BLEEDING



* May include colposcopy

\# If significant delay (3–6 months from the previous test) following original HPV/LBC test, a repeat LBC could be considered

Checking prior CST/PAP smear results on PRODA

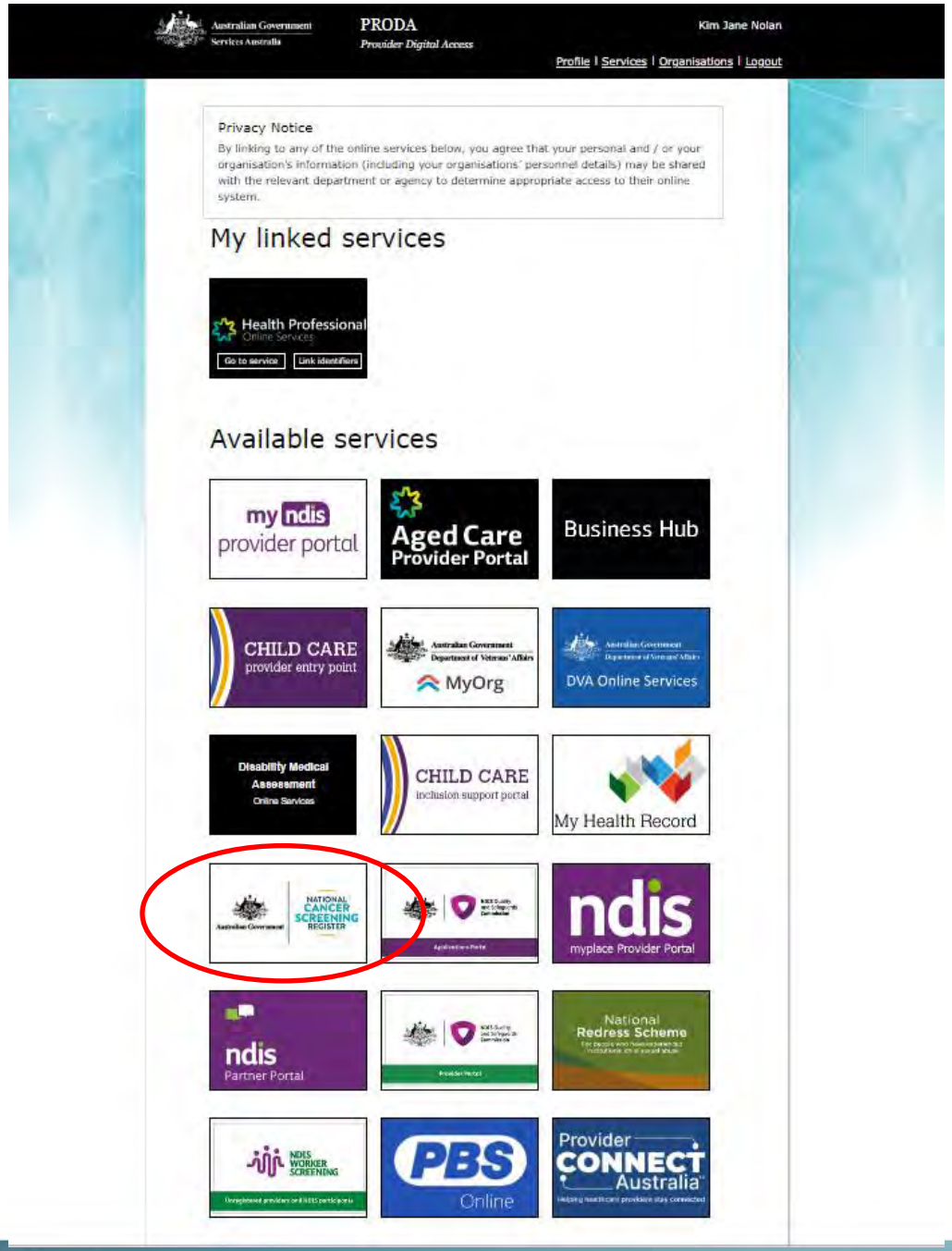


Date	Test	Test Reason	Site	Other	Result/Recommendation
05 Apr 2023	HPV	Co-test - Investigation of signs or symptoms	Cervical	**Collection Method:** Practitioner-collected sample **HPV Test Type:** Roche cobas 6800 **Sample Type:** PreservCyt Solution	**Primary Result:** Oncogenic HPV (not 16/18) detected/Positive NOS
05 Apr 2023	Cytology	C5.2 Co-test - Investigation of signs or symptoms	Cervical	**Specimen Type:** Liquid based specimen	**Squamous:** Possible high-grade squamous intraepithelial lesion (HSIL) **Endocervical:** Endocervical component present. No abnormality or only reactive changes **Other/non-cervical:** No other abnormal cells **Recommendation:** Refer for colposcopic assessment
12 Sep 2022	HPV	Co-test - Test Of Cure	Cervical	**Collection Method:** Practitioner-collected sample **HPV Test Type:** Roche cobas 6800 **Sample Type:** PreservCyt Solution	**Primary Result:** Oncogenic HPV not detected
12 Sep 2022	Cytology	C5.1 Co-test - Test of cure	Cervical	**Specimen Type:** Liquid based specimen	**Squamous:** Cell numbers and preservation satisfactory. No abnormality or only reactive changes **Endocervical:** Endocervical component present. No abnormality

(a) AIHW codes are used for cytology & HPV results.
(b) SNOMED CT codes are used for histology results for the renewed cervical program.
(c) Colposcopy data dated before 1/12/2017 may not indicate glandular abnormality separately, and has been mapped to High Grade or Cancer.
(d) NCSR alerts are flags set in NCSR to indicate clinical circumstances that require special management and alternative pathways may apply. Refer to the *National Cervical Screening Program: Guidelines for the management of screen-detected abnormalities, screening in specific populations and investigation of abnormal vaginal bleeding* for further information about pathways and the NCSR Healthcare Provider Portal User Guide or Clinical Information System Integration guides for further information about alerts.
(e) Dual stain results are included in screening histories where this information is available for participants who were on the Compass Trial. Dual stain results were used by the Compass Trial but are not yet part of the NCSP, and are not used in NCSR cervical pathways.

Page 1 of 6

Sender: NCSR 1800 627 701



Cervical Screening, HPV and Self Collection: Clinical Education Course

- developed by VCS Pathology, a division of the Australian Centre for the Prevention of Cervical Cancer (ACPCC), to provide Australian Primary Healthcare Practitioners with the knowledge and skills to be able to offer the option of HPV self-collection to eligible patients and increase cervical screening participation rates. (RACGP Activity ID: 564285)

12 CPD Hours

Educational Activities	4 CPD Hours
Reviewing Performance	3 CPD Hours
Measuring Outcomes	5 CPD Hours

Thu 14th Sep 2023 - Tue 31st Dec 2024

VIC

e-Learning

Australian Centre for the Prevention of Cervical Cancer

This program has been developed by VCS Pathology, a division of the Australian Centre for the Prevention of Cervical Cancer (ACPCC), to provide primary Healthcare Practitioners across Australia with the knowledge and skills to be able to offer the option of HPV self-collection to eligible patients and increase cervical screening participation rates.

VCS Pathology

Australian Centre for the Prevention of Cervical Cancer

CLICK HERE to get started, or click on one of the sections below.

How and when will my CPD hours be allocated?

If you have completed the entire program, CPD hours and a Certificate of Completion will be provided by ACPCC **within 3-4 weeks**. If you complete the program before the end of December, your CPD hours will be attributed to that calendar year.

Introduction

Module 1
HPV Self-Collection Introduction

Module 2
Science of Cervical Screening and the Evidence for Self-Collection

Module 3
National Cervical Screening Program Self-Collection Policy

Module 4
HPV Self-Collection in Clinical Practice

Module 5
Underscreened Groups and Using Your Practice Systems to Reach Them

Reflection

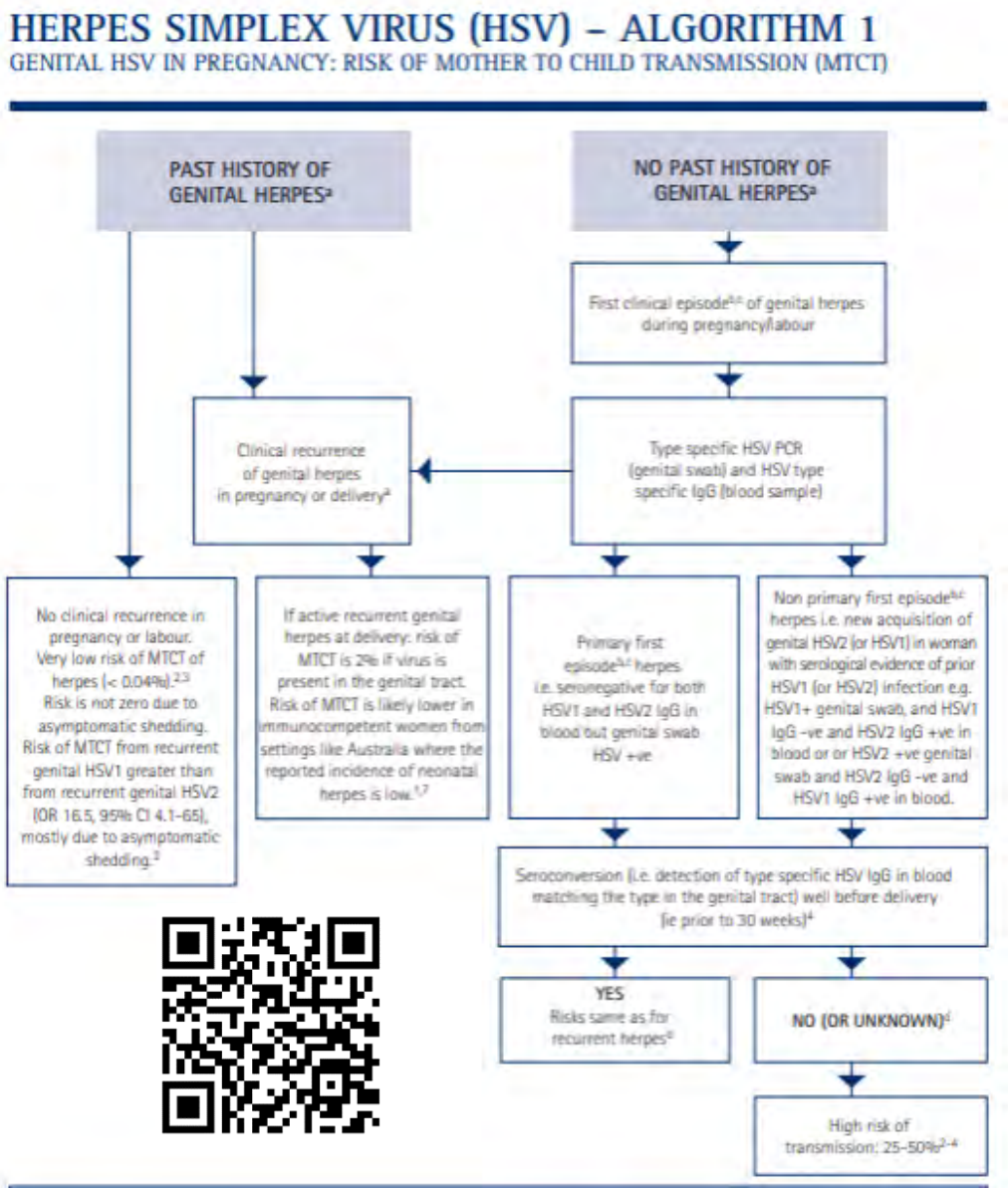
Evaluation

Pregnant Woman with HSV- Risk of Mother to Child Transmission (MTCT)

- If primary first episode and seroconverts with matching type specific IgG before 30 weeks – risk is same as with recurrent HSV
- If non-primary first episode (new acquisition of genital HSV2 (or 1) in woman with serological evidence of prior HSV1 (2) infection e.g.
  - HSV1+ swab, but HSV1 IgG -ve and HSV2 IgG +ve OR
  - HSV2 +ve swab & HSV2 IgG -ve and HSV1 IgG +ve

  and seroconverts with matching type specific IgG before 30/40 risk is same as with recurrent HSV

- If no clinical recurrence in pregnancy or labour - very low risk of MTCT (< 0.04%). Risk not zero due to asymptomatic shedding.
- Risk of MTCT from recurrent genital HSV1 greater than recurrent genital HSV2 (OR 16.5, 95% CI 4.1-65), mostly due to asymptomatic shedding.
- If active recurrent HSV at delivery: risk of MTCT is 2% if virus is present in the genital tract.
- Risk likely lower in immunocompetent women from settings like Australia where the reported incidence of neonatal herpes is low (approx. 3 per 100,000 live births).
- Postnatal infection in approx. 10% of cases from infected care giver.
- Breast milk transmission has not been reported, but neonatal disease after contact with maternal breast herpes lesions has been reported



Updated "Management of Perinatal infections" 2022 – Australasian Society for Infectious Diseases https://asid.net.au/publications

Herpes in Pregnancy (health.wa.gov.au) - King Edward Memorial Hospital Obstetrics & Gynaecology - Herpes simplex in pregnancy – Clinical Practice Guideline

Recurrent Herpes simplex in pregnancy

Low risk women with history of recurrent HSV infections should be referred to obstetric team at approximately 34/40 to discuss the option of prophylactic acyclovir, and birth management.

- Recurrences of HSV can be treated with episodic therapy which should be started concurrently with onset of prodromal symptoms or with lesion onset
  - Acyclovir 400mg orally, 8 hourly for 5 days
  - Or valaciclovir 500mg orally 12 hourly for 3 days

- Prophylactic suppressive acyclovir 400 mg tds or valaciclovir 500mg bd should be considered in all women from 36/40 in women with multiple recurrent overt lesions or prior to 36/40 if frequent symptomatic recurrences until delivery. Higher suppressive dose is recommended due to the greater volume of distribution and the altered metabolism of the drug in pregnancy.

- Suppressive oral acyclovir or valaciclovir reduces clinical recurrences, asymptomatic shedding, rate of caesarean section and virus in genital tract. Use must be balanced with risks of medication to newborn. Clinical trials underpowered to evaluate efficacy of preventing transmission to the newborn and neonatal disease has been reported after maternal suppression.

- Most women are unaware of genital herpes (recurrent or acute). RANZCOG recommend careful examination for genital herpes for all women when admitted in labour

REFERENCES:

- Updated “Management of Perinatal infections” 2022 – Australasian Society for Infectious Diseases https://asid.net.au/publications
- Herpes in Pregnancy (health.wa.gov.au) - King Edward Memorial Hospital O & G - Herpes simplex in pregnancy – Clinical Practice Guideline
- Management of Genital Herpes (joint guideline with the British Association for Sexual Health and HIV (BASHH) - updates existing RCOG guidance

Previous Premature Delivery

- If later Zuri disclosed had a premature baby when living in rural NSW when aged 27 years
- Infant died on day of birth at 23 weeks – 480grams
- Has not disclosed that pregnancy to partner or family – was in an abusive relationship that is trying to forget

Is there anything further you would advise pre-conception or in an early pregnancy in the future?

Definitions - Prematurity

Preterm is commonly defined as gestational age less than 37+0 completed weeks with subcategories of PTB based on weeks of gestational age:

- Late preterm (34+0–36+6 weeks)
- Moderately preterm (32+0 to 33+6 weeks)
- Very preterm (28+0 to 31+6 weeks)
- Extremely preterm (less than 27+6 weeks)

Most important historical risk factor is prior spontaneous PTB.

Guideline: Preterm labour and birth (health.qld.gov.au) - https://www.health.qld.gov.au/__data/assets/pdf_file/0019/140149/g-ptl.pdf

Risk Factors for PTB

https://www.health.qld.gov.au/__data/assets/pdf_file/0019/140149/g-ptl.pdf – Preterm Birth and Labour QCG

- Age < 20 years or > 40 years
- Smoking
- Residing in rural and remote areas
- Ethnic variations – increased in East African women, African American women, ATSI identifying women
- Multiple pregnancy (66% of twins)
- Short cervical length
- Previous cervical surgery and previous surgical ToP (or surgical miscarriage management)
- Previous PTB – risk relates to gestational age of prior PTB, overall recurrence rate 30% (singletons)
- Genital Tract Infection – Bacterial vaginosis, Chlamydia
- UTI
- Premature Preterm ROM
- Vaginal bleeding
- Assisted Reproduction – doubles risk PTB
- Uterine anomalies
- Polyhydramnios/Oligohydramnios
- Chronic medical conditions and acute medical conditions e.g., Preeclampsia, APH, Pre-existing or Gestational diabetes, Obesity, Hepatitis C and HPV
- Alcohol consumption and tobacco smoking (including passive smoking)

Risk Reduction – PTB

Smoking cessation interventions reduce PTB rate by 18% (RR 0.86, 95% CI 0.74–0.98)

Optimisation of control of underlying chronic diseases reduces risk

Lifestyle (e.g., balanced diet, activity limitations, stress management)

Perform a psychosocial assessment and refer as appropriate for support (e.g., social work or mental health services, health worker, peer support)

Bacterial vaginosis (BV) has been associated with increased risk of PTB - doubled

- Women with previous PTB may benefit from routine screening and treatment of BV but routine screening and treatment for asymptomatic BV, in women with low-risk pregnancies, is of minimal benefit
- In women with abnormal vaginal flora, treatment with antibiotics may reduce the risk of PTB

Asymptomatic bacteriuria has been associated with risk of PTB

- Urinary tract infection is associated with threatened preterm labour
- Screen and recommend treatment for urinary tract infections (asymptomatic bacteriuria, cystitis, pyelonephritis) with antibiotics

Cervical Length Measurement

Did you know?

- Testing for bacterial vaginosis as part of a preconception screen is encouraged for all women who have sex with women.
- Prevalence of bacterial vaginosis estimates are significantly higher for women who have sex with women (20-50%) than exclusively heterosexual women.

Women who have sex with women - STI Guidelines Australia - https://sti.guidelines.org.au/populations-and-situations/women-who-have-sex-with-women/

Avoidance of premature labour: role of the GP

Sad but true: Interventions to stop delivery once preterm labour starts are largely ineffective

Best approach is prevention by reducing risks before conception

- Optimise maternal weight: underweight and overweight
- Promote healthy nutrition: folate, iron
- Smoking/ drug cessation
- Birth spacing
- Managing medical disorders: diabetes, anaemia, hypertension

Preventing premature labour:

Prophylactic vaginal progesterone is recommended for women who have

- a history of spontaneous premature birth (34 weeks or less) or mid-trimester loss (16 weeks onwards)
- cervical length of <25mm on TVS at16–24 weeks gestation

Continue up to > 34 weeks

Usually, Utrogestan 200mg pessary nocte

Consumer Leaflet – NPS

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

4. Table of recommendations

Recommendation 1	Grade
Vaginal progesterone therapy is recommended for asymptomatic women with a short cervix (<25 mm) on transvaginal cervical length assessment in the midtrimester.	Consensus-based recommendation
Recommendation 2	**Grade**
Progesterone therapy should be considered for women with a singleton pregnancy with a history of previous spontaneous preterm singleton birth.	Consensus-based recommendation

RANZCOG 2017, RCOG 2022, NICE 2019, SMFM 2022

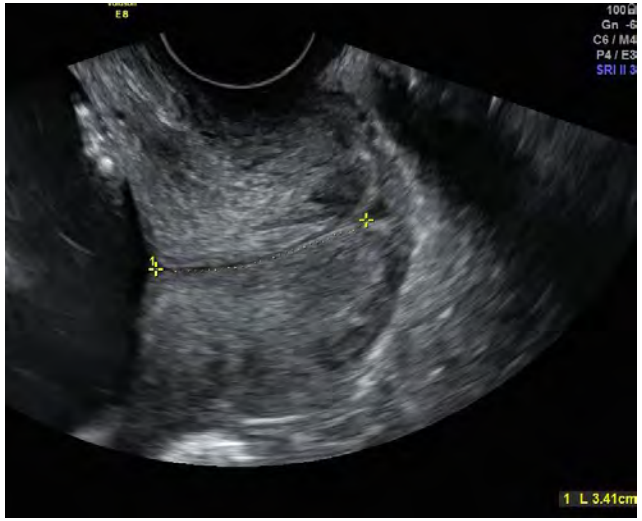
Mid-Pregnancy Cervical Length

- Measurement of cervix length to be included in all mid-pregnancy scans, conducted routinely at 18-20 weeks' gestation, as well as for any other scan between 16 and 24 weeks.
  - Closed length from internal to external os
  - TA: >35mm is considered adequate
  - TV: <25mm is considered short
- TA-USS the cervix is stretched by the full bladder, therefore a ***true length*** of the cervix is performed with an empty bladder via TV-USS.
- Universal screening is cost-effective
  - Easy to perform
  - Prescribing progesterone cheaper than cost of PTB

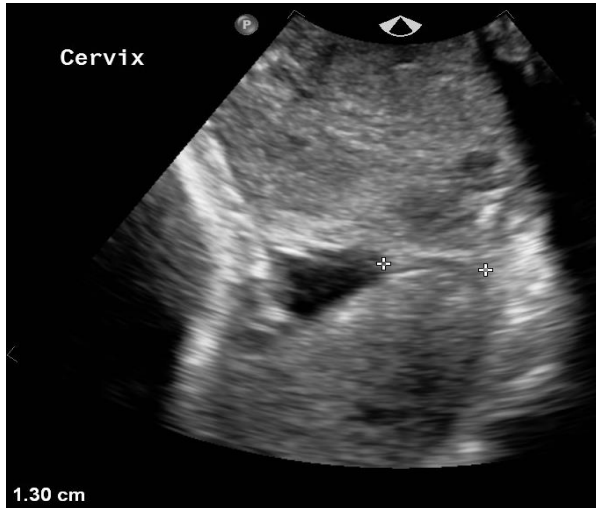
Measurement of the length of the cervix at all mid-pregnancy scans.

Recommendation: With morphology scan request, include on same form “progression to TV-USS if cervical length is < 35 mm” (usually provided at no extra cost to patient on same day)
If TV-USS < 25mm - urgent referral and commence natural vaginal Progesterone pessaries (200 mg nocte) the same day

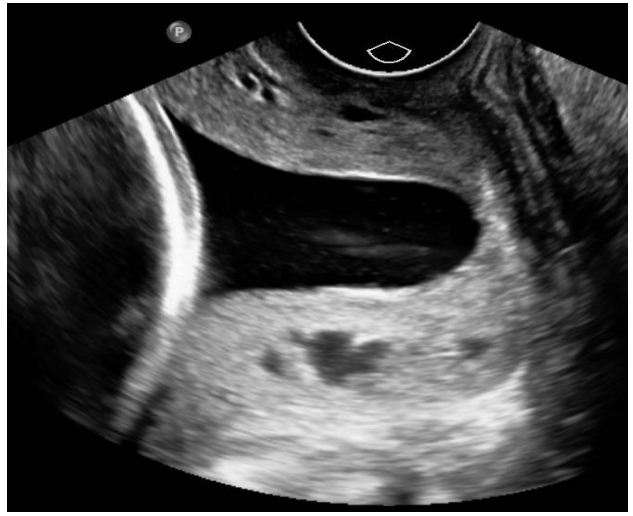
The short cervix on trans-vaginal scan 16 – 24 weeks



Normal
(34 mm)



Short with open cervix
(13 mm)

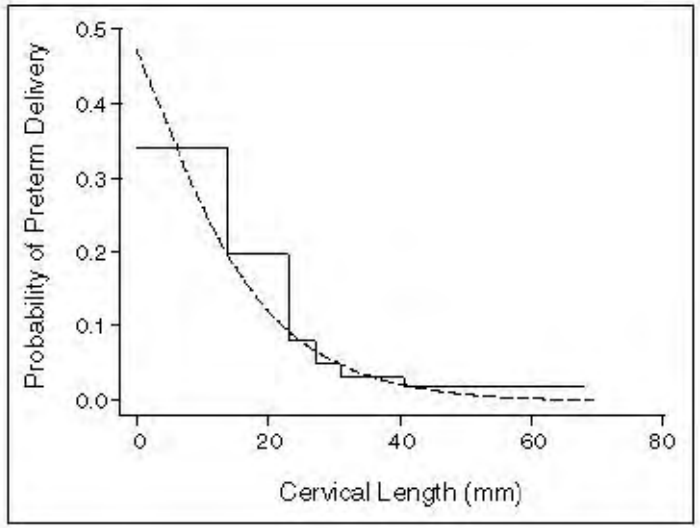


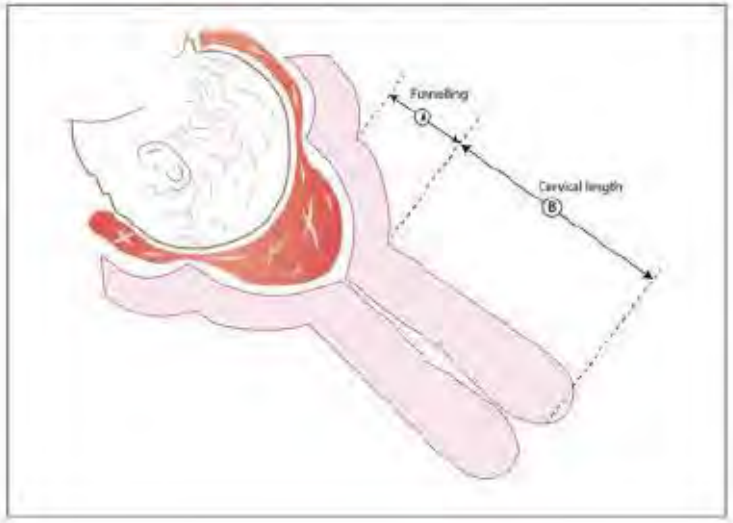
Open cervix

Natural vaginal progesterone pessaries will halve the risk of preterm birth in women with a short cervix in mid-pregnancy

Management of threatened premature labour

Cervical shortening is predictive of risk of premature delivery





THE LENGTH OF THE CERVIX AND THE RISK OF SPONTANEOUS PREMATURE DELIVERY

Iams JD, Goldenberg RL, Meis PJ, et al. The length of the cervix and the risk of spontaneous premature delivery. N Engl J Med 1996;334:567-572 DOI: 10.1056/NEJM199602293340904

Australian Preterm Birth Alliance

Point 5: Consider prophylactic progesterone therapy from 16–24 weeks gestation in women with singleton pregnancy & prior spontaneous PTB (RR 0.66 - from 27.5% to 18.1%)

- If indicated, recommend vaginal progesterone suppository 200 mg daily until at least 34/40 or rupture of membranes or birth, whichever occurs first

Point 3: Recommend immediate progesterone therapy for asymptomatic women with an incidentally diagnosed short cervix on TVCL assessment in the second trimester, and contact booking hospital obstetrician

What's the evidence?

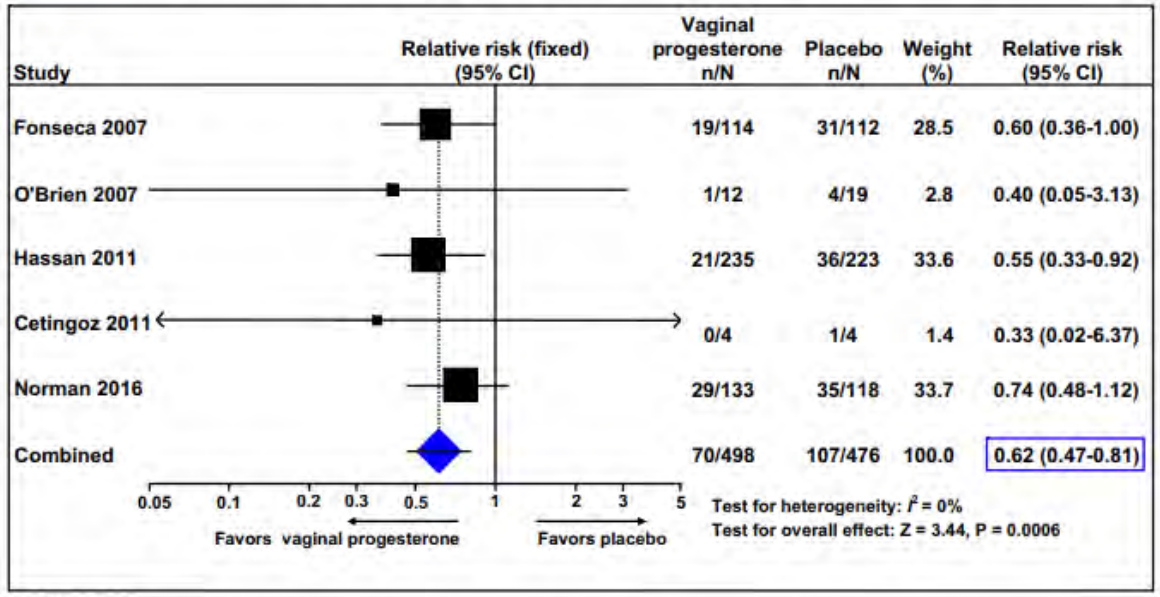
- 974 women across 5 quality trials (RCTs) with cervical length ≤25mm
- Significant reduction in the risk of preterm birth < 33/40 (relative risk, 0.62; 95% confidence interval, 0.47-0.81; P = .0006).
- Significantly decreased the risk of spontaneous preterm birth <34/40, as well as respiratory distress syndrome, composite neonatal morbidity and mortality, birthweight < 1500g and < 2500gms and admission to NICU (relative risks from 0.47-0.82; high-quality evidence for all)
- Maternal adverse events, congenital anomalies, and adverse neurodevelopmental and health outcomes at 2 years of age did not differ between groups

Reports of Major Impact ajog.org

Vaginal progesterone for preventing preterm birth and adverse perinatal outcomes in singleton gestations with a short cervix: a meta-analysis of individual patient data

Roberto Romero, MD, DMedSci; Agustin Conde-Agudelo, MD, MPH, PhD; Eduardo Da Fonseca, MD; John M. O'Brien, MD; Elcin Cetingoz, MD; George W. Creasy, MD; Sonia S. Hassan, MD; Kypros H. Nicolaides, MD

FIGURE 3
Effect of vaginal progesterone on preterm birth <33 weeks of gestation



CI, confidence interval.

Romero et al. Vaginal progesterone to prevent preterm birth in singleton gestations with a short cervix. Am J Obstet Gynecol 2018

What's the cost of not managing PTB risk?

Preterm births: leading cause of death in children < 5yrs, with one in 11 babies born prematurely in Australia.
Earlier baby is born, more likely to experience neonatal death or complicated medical problems/ extended NICU admission, and increased risk of ongoing lung disease, disability (blindness/deafness/cerebral palsy) and ongoing intellectual and developmental delay.

However: evidence still inconclusive:

- Efficacy for those at risk of preterm birth?
- Impact on preterm birth rates?
- Long-term effects on child development?

Primary outcome	Placebo	Progesterone	aOR (95% CI)	Adjusted *P* value
Fetal death or delivery <34 wk	108/597 (18.1)	96/600 (16.0)	0.86 (0.61–1.22)	0.67
Neonatal morbidity or death	60/587 (10.2)	39/589 (6.6)	0.62 (0.38–1.03)	0.07
Cognitive composite score at 2 y	97.7 ± 17.5	97.3 ± 17.9	–0.48 (–2.77 to 1.81)	0.68

Norman et al, Lancet 2016, Norman 2020
Outcomes from the OPPTIMUM study:
(200mg daily vaginal progesterone)

In practice…..who should **not** use progesterone

- Women with history of miscarriage but no symptoms in current pregnancy
- Women with one or two previous miscarriages
- Women with cervical length > 25mm

But it is not always up to us…..
Powerful pressure from patients (and partners) on clinicians to do something
Social media knows that vaginal progesterone is a good thing

AM2 Case Discussion – Purple Group

- Sarah is a healthy 38-year-old previous athlete - already has 3 children, with her youngest aged 3.5years.
- All pregnancies were uneventful - her two older children are teenagers (previous partner), and she wishes to have another baby with the father of her toddler.
- You cared for her in a shared care capacity with the last pregnancy, but since then she has been seeing another GP, and comes back to see you after 3 first trimester miscarriages in the last year. The last of these was likely an anembryonic pregnancy on the reports you have, with a miscarriage at 8.5 weeks. Viability and a fetal heartbeat had been identified in the other pregnancies, before they "failed" (her words).
- She did have a TOP 20 years ago followed by severe depression, requiring psychologist support and antidepressants for around 2 years. Her mood is generally “chilled”, but she is becoming increasingly worried and anxious with each subsequent pregnancy loss.

Identifying this woman's issues

- Age –
- Ethnicity/Indigenous Status –
- BMI –
- BP –
- Obstetric History –
- PHX – Medical and Surgical HX –
- Medications, including OTC/supplements –
- Allergies –
- FHX –
- Social History – including supports/DV
- Occupation –
- Smoking/Alcohol/ Other Substances –
- Healthy diet and exercise –
- Vaccinations (+ Travel) -

- Clinical Assessment –
- Investigations –
- Management Plan –

Recurrent Pregnancy Loss

- Queensland Health Definition of Miscarriage - Pregnancy loss occurring before 20 completed weeks of gestation or at less than 400 g birth weight.
- Recurrent Pregnancy Loss: Definition ≥ Three (3) CONSECUTIVE miscarriages (excluding chemical miscarriages) as documented by ultrasonography or histopathologic examination.
- Second trimester miscarriages are considered more significant. Two (2) would be an indication for further investigation.
- Recommend specialist gynaecological consultation after three consecutive miscarriages. After two consecutive miscarriages, consider the woman's age in relation to opportunity to achieve a live birth.
- Individualise the investigation of recurrent RPL based on a comprehensive history of both partners and the clinical circumstances

Queensland Clinical Guidelines – Early Pregnancy Loss
https://www.health.qld.gov.au/__data/assets/pdf_file/0033/139947/g-epl.pdf

Risk Factors for recurrent miscarriage

- Very young or older female age
- Older male age
- Very low (BMI < 18.5) or very high body mass index (both partners)
- Black ethnicity
- Previous miscarriages
- Smoking, alcohol, illicit drug use, excess caffeine (> 3 cups/day) – both partners
- Stress levels, night shift working, air pollution and exposure to pesticides
- UNEXPLAINED in ≥ 50% of cases

https://spotonhealth.communityhealthpathways.org/24155.htm
- Recurrent Miscarriage

Consequences of Miscarriage, and especially recurrent miscarriage

- Sentinel risk marker for obstetric complications, including preterm birth, fetal growth restriction, placental abruption and stillbirth in future pregnancies
- Predictor of longer-term health problems, such as cardiovascular disease (1.5-1.9 x risk) and venous thromboembolism (6.1 x risk), CVA
- These women should receive care in pre-conception clinics and ante-natal clinics for high-risk women

Psychological consequences include increases risk of anxiety, depression, PTSD and suicide

- Miscarriages poorly understood by general population + often leave women (and sometimes their partners) feeling at fault and not seeking treatment and support.
- Couples complain of unsympathetic ‘routine’ clinical care by healthcare providers & diverse opinions by health professionals
- Women and partners who suffer miscarriage generally want to understand why the miscarriage occurred, what they can do to prevent miscarriage from happening again, what the chance is of a subsequent pregnancy resulting in a healthy baby and how to deal with their grief surrounding their loss. Management of these couples in an organised multidisciplinary team setting is recommended.

Costs of miscarriage affect individuals, healthcare systems and society at large

1. Quenby S et al.; Miscarriage matters: the epidemiological, physical, psychological, and economic costs of early pregnancy loss. Lancet. 2021 May 1;397(10285):1658-1667 https://doi.org/10.1016/S0140-6736(21)00682-6
2. https://www.tommys.org - Miscarriage Matters

THE Pink elephants SUPPORT NETWORK

NEWS CONTACT

MISCARRIAGE FIND SUPPORT SUPPORT US ABOUT US

Within an elephant community if a mother elephant loses her baby, the other elephants use their trunks to form a physical #circleofsupport around her. Despite 1 in 4 pregnancies ending in loss before 12 weeks, in 2015, there was no support specific to early pregnancy loss or miscarriage available in Australia.

Recurrent Pregnancy Loss

The term recurrent pregnancy loss is used when a woman experiences the consecutive loss of two or more clinical pregnancies. It affects approximately 1 in 200 couples and the emotional toll can be huge.

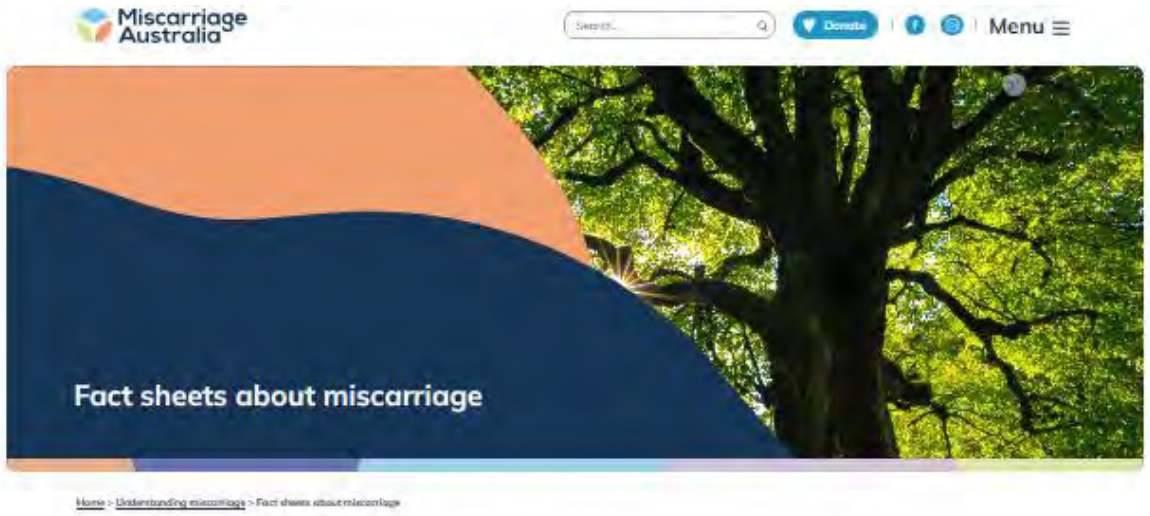
There are many proposed causes, however what can often be most difficult for women emotionally, is that in a number of cases, the cause will remain unknown. Generally, after having experienced several losses in a row, a couple will be referred to a fertility specialist for investigative testing. Some GPs will be able to provide a referral for these tests, but it's more likely that you will see a specialist.

Below is a list of what is generally tested during investigations for recurrent pregnancy loss:

Miscarriage

- WHAT IS MISCARRIAGE?
- RECURRENT PREGNANCY LOSS
- TYPES OF MISCARRIAGE
- CAUSES OF MISCARRIAGE
- MISCARRIAGE TREATMENT & PROCEDURES
- TERMINATION FOR MEDICAL REASONS
- TRYING AGAIN - HEALTH & WELLBEING
- ASSISTED CONCEPTION
- MOVING BEYOND MISCARRIAGE

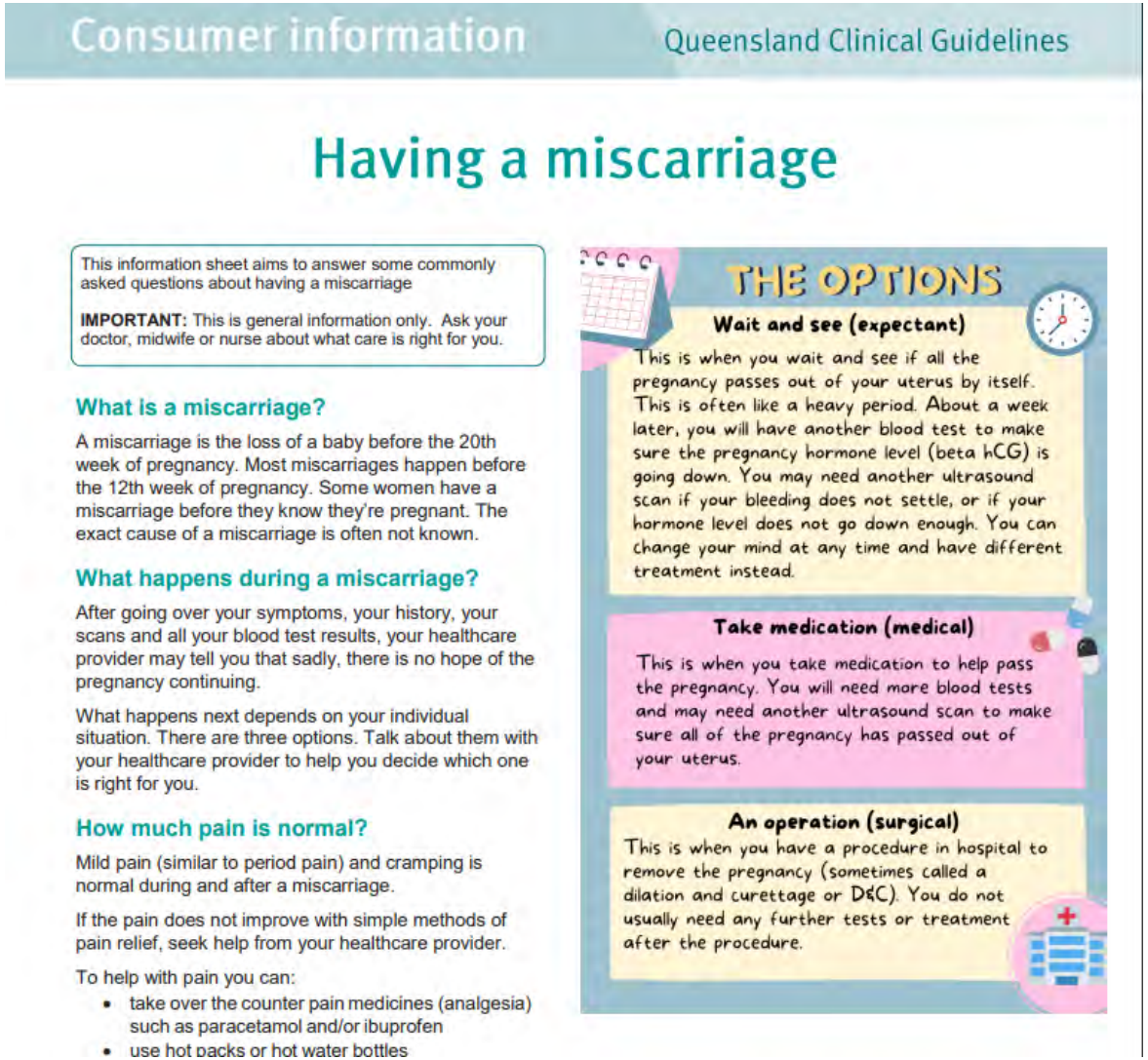
https://www.pinkelephants.org.au/page/123/recurrent-pregnancy-loss



[Fact sheets about miscarriage - Miscarriage Australia]

Miscarriage - Patient Resources

Hard to Bear - personal stories + in-depth investigative journalism helping us understand how to help our patients through miscarriage.



Consumer information — Queensland Clinical Guidelines

Having a miscarriage

This information sheet aims to answer some commonly asked questions about having a miscarriage

IMPORTANT: This is general information only. Ask your doctor, midwife or nurse about what care is right for you.

What is a miscarriage?

A miscarriage is the loss of a baby before the 20th week of pregnancy. Most miscarriages happen before the 12th week of pregnancy. Some women have a miscarriage before they know they're pregnant. The exact cause of a miscarriage is often not known.

What happens during a miscarriage?

After going over your symptoms, your history, your scans and all your blood test results, your healthcare provider may tell you that sadly, there is no hope of the pregnancy continuing.

What happens next depends on your individual situation. There are three options. Talk about them with your healthcare provider to help you decide which one is right for you.

How much pain is normal?

Mild pain (similar to period pain) and cramping is normal during and after a miscarriage.

If the pain does not improve with simple methods of pain relief, seek help from your healthcare provider.

To help with pain you can:

- take over the counter pain medicines (analgesia) such as paracetamol and/or ibuprofen
- use hot packs or hot water bottles

THE OPTIONS

Wait and see (expectant)

This is when you wait and see if all the pregnancy passes out of your uterus by itself. This is often like a heavy period. About a week later, you will have another blood test to make sure the pregnancy hormone level (beta hCG) is going down. You may need another ultrasound scan if your bleeding does not settle, or if your hormone level does not go down enough. You can change your mind at any time and have different treatment instead.

Take medication (medical)

This is when you take medication to help pass the pregnancy. You will need more blood tests and may need another ultrasound scan to make sure all of the pregnancy has passed out of your uterus.

An operation (surgical)

This is when you have a procedure in hospital to remove the pregnancy (sometimes called a dilation and curettage or D&C). You do not usually need any further tests or treatment after the procedure.

[Qld Clinical Guidelines: Consumer Information – Having a Miscarriage]

Recurrent Miscarriage Investigations

- Consider the individual circumstances of each woman (e.g., age, medical history of both partners, family circumstances etc) when determining when further investigation is warranted after recurrent EPL. [1,2]
- About 70% of women who have experienced 2 recurrent losses will conceive a subsequent pregnancy, with a 70% success rate [1,2]
- Risk of further miscarriage increases after each successive pregnancy loss, reaching about 40% after 3 consecutive pregnancy losses[2]
- Risk of miscarriage was increased if the previous pregnancy ended in a preterm delivery, caesarean section, or if the woman had gestational diabetes [7]
- Women who themselves were born small for gestational age had an increased risk of miscarriages [7]
- A previous live birth does not prevent a woman experiencing recurrent miscarriage, and the prognosis worsens with increasing maternal age [2]
- Remains **unexplained in up to 50–75%**, with investigation outcomes often disappointing and unanswered questions regarding aetiology, further evaluation and future management. [1]

- Evidence that care in a specialised clinic that provides a supportive environment does decrease the chance of miscarriage and increases live birth.

Age related risk of miscarriage

Role of maternal age and pregnancy history in risk of miscarriage: prospective register-based study BMJ 2019; 364 (20 March 2019) https://doi.org/10.1136/bmj.l869

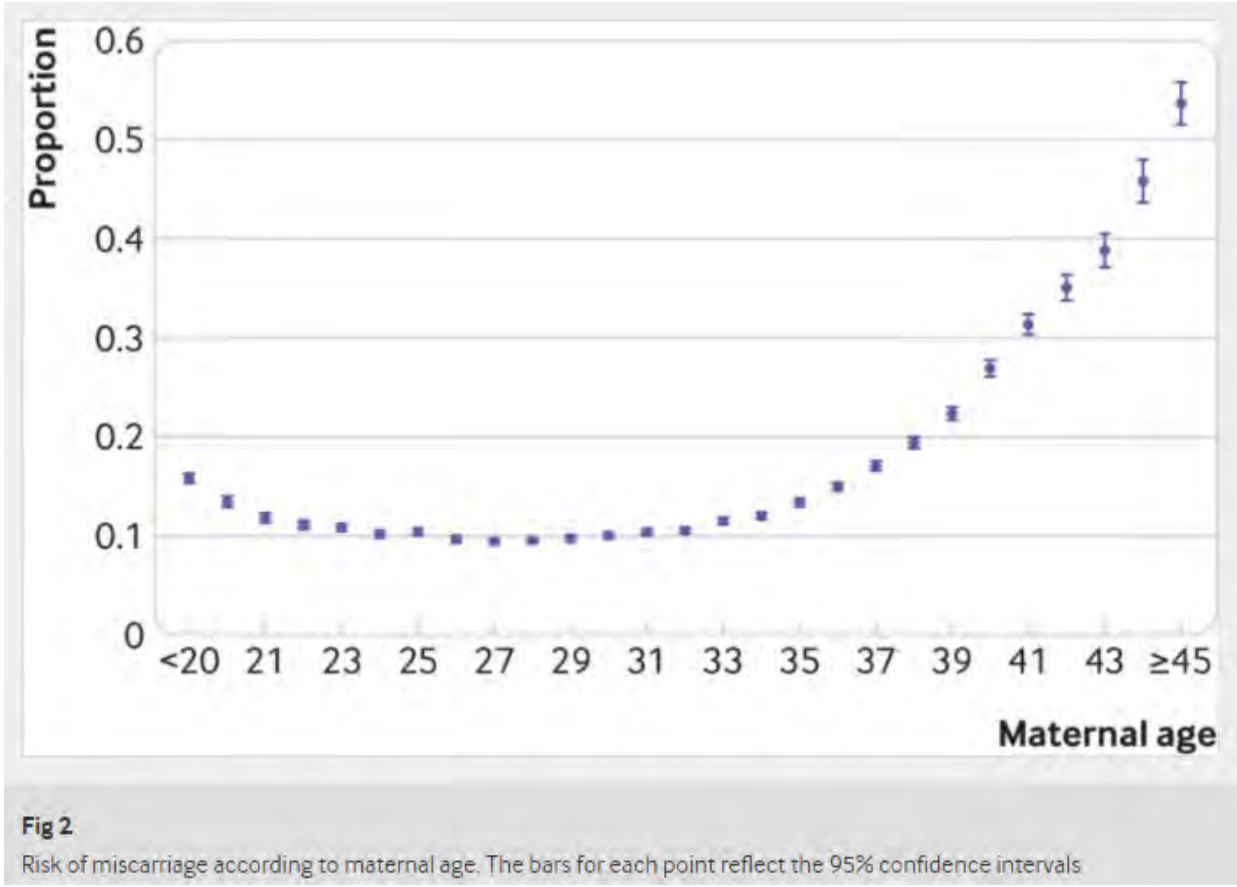


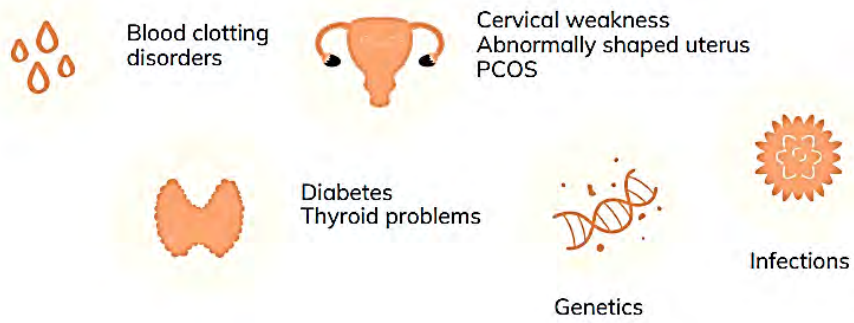
Fig 2
Risk of miscarriage according to maternal age. The bars for each point reflect the 95% confidence intervals

Risk of miscarriage is highest among couples where the woman **is over 35 years of age,** and the man is over 40.

Lowest risk among women aged 25-29 (9.8%), with the absolute lowest risk at age 27 (9.5%), and the highest risk at age 45 and over (53.6%). The youngest mothers (<20 years) had a risk of 15.8%.

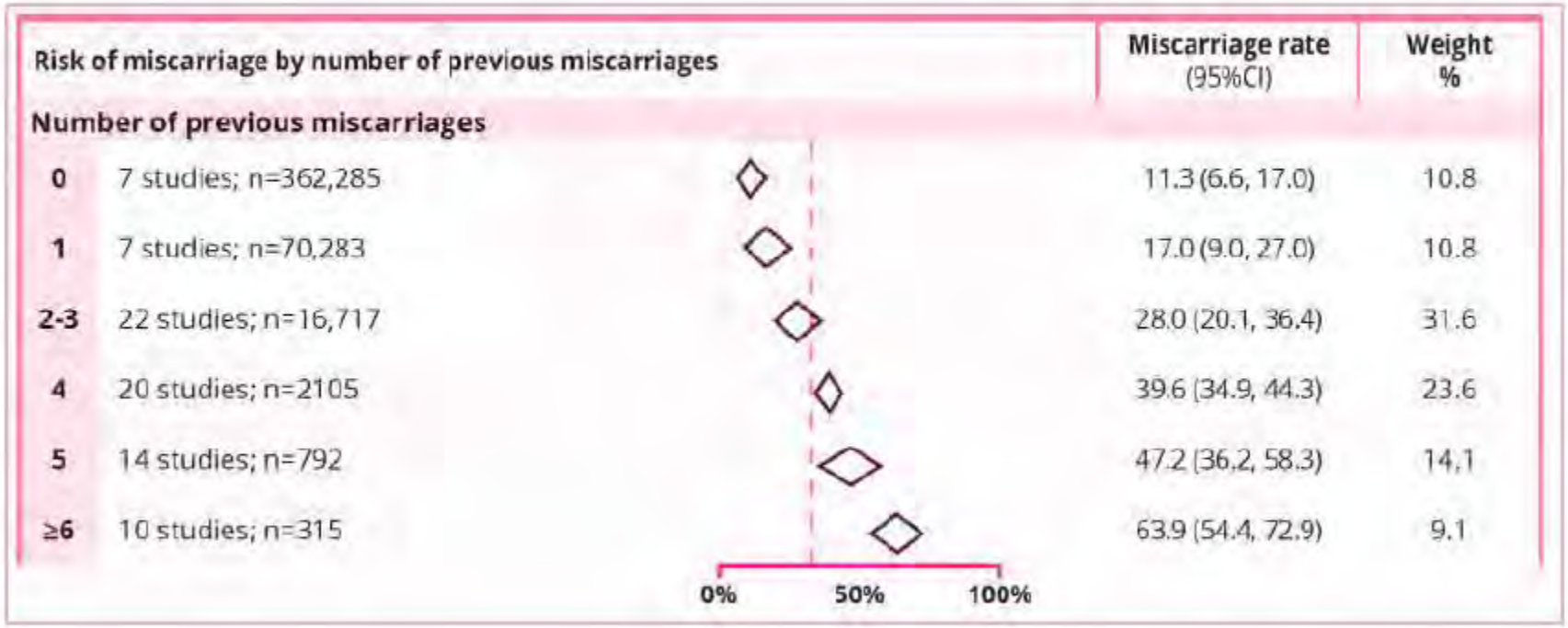
Causes of Recurrent Miscarriage

- Uterine anomalies (inclusive of common acquired anomalies, such as fibroids, uterine synechiae and uncommon anatomical defects, such as uterine septae, Müllerian duct anomalies) - none of these cause first TM Miscarriage
- Endocrine disorders (such as thyroid dysfunction, uncontrolled diabetes)
- Autoimmune diseases (such as lupus)



- Acquired (antiphospholipid syndrome) – ask re history of DVT/Pulmonary embolism
- Genetic causes, in particular balanced translocations (one partner affected in 2-5% couples)
- Infections
  - Bacterial – e.g., bacterial vaginosis (in 2nd TM), brucellosis, syphilis, chlamydia
  - Viral – e.g., herpes viruses, rubella, CMV, HIV, dengue
  - Protozoal – e.g., malaria, toxoplasmosis
- Uncontrolled medical illness e.g., chronic hypertension, untreated coeliac disease
- High BMI/PCOS – have possibly increased risk recurrent miscarriage
- Despite normal semen analysis, up to 8% men have high levels of sperm DNA fragmentation, (both reduces the chance of producing a pregnancy & increases chance of miscarriage). Causes of sperm DNA damage include drugs, chemotherapy/radiation therapy, smoking, age, hormonal factors, infrequent ejaculation and testicular hyperthermia.

Risk of miscarriage increases with an increasing number of previous miscarriages



Coomarasamy 2020

Examination:

- BMI
- BP
- Endocrinopathy – e.g., hirsutism, goitre, galactorrhoea
- Abdominal examination
- Consider Speculum examination - ? Uterine or cervical anomalies

Investigations

Standard investigations – 6/52 after last miscarriage or when β-HCG negative

- Routine bloods (e.g., FBC, ELFT, fasting blood glucose level (BGL))
- Acquired thrombophilia (APS – test anticardiolipin IgG and IgM, lupus anticoagulant Ab + anti-beta 2 glycoprotein 1 (anti-β_2GP1).) If positive, repeat after 12 weeks for confirmation.

  Testing for congenital thrombophilia is not recommended.
- Thyroid stimulating hormone (TSH) with FT3/4 and antibodies if TSH abnormal
- Coeliac disease testing
- Karyotyping of POC (cytogenetic analysis should be performed on products of conception (POC) in patients with RPL)
- Dedicated pelvic ultrasound scan to exclude structural abnormalities - Two-dimensional/three-dimensional ultrasonography with sonohysterography OR Combination laparoscopy and hysteroscopy.

Guideline: Early pregnancy loss (health.qld.gov.au)

Investigations

Possible Investigations To Consider

- ? Karyotyping of parents (independent of karyotyping of POC) - balanced chromosomal translocation, seen in 1/400 - ? COST to Patient if POC Karyotype OK
- ? Vaginal swab & Endocervical STI screen - Chlamydia + Gonorrhoea PCR if indicated
- ? ANA/Prolactin
- ? Endometrial biopsy and culture
- ? Semen analysis for abnormality – DNA Fragmentation (sperm chromatin integrity test (SCIT))
- ? Anti-Mullerian hormone (AMH)

Note: Karyotyping of parents is not routinely recommended because ongoing viable pregnancies (over 20/40) with unbalanced translocations in carrier parents are very rare (<1%).

Furthermore, the long-term cumulative live birth rates in carriers of chromosomal abnormalities are good (71% in two years). Additionally, once identified, 15% of carrier couples opt to not try again. Therefore, it is possible that identification of a carrier may have a negative impact on future pregnancy rates, unless pre-implantation genetic diagnosis is more readily available. [4]

Recurrent Pregnancy Loss – RYP Information for Referrals (MSHHS)

First trimester RPL – <u>additional</u> Essential Referral Information

- Thrombophilia screen, antiphospholipid syndrome (APS)
- Autoimmune screen
  - Coeliac serology – serum deamidated gliadin peptide (DGP), tTG Ab
  - Antinuclear antibodies (ANA) only if personal or family history indicates higher risk of autoimmune disease
- Karyotype for both parents

Second trimester RPL – <u>additional</u> Essential Referral Information

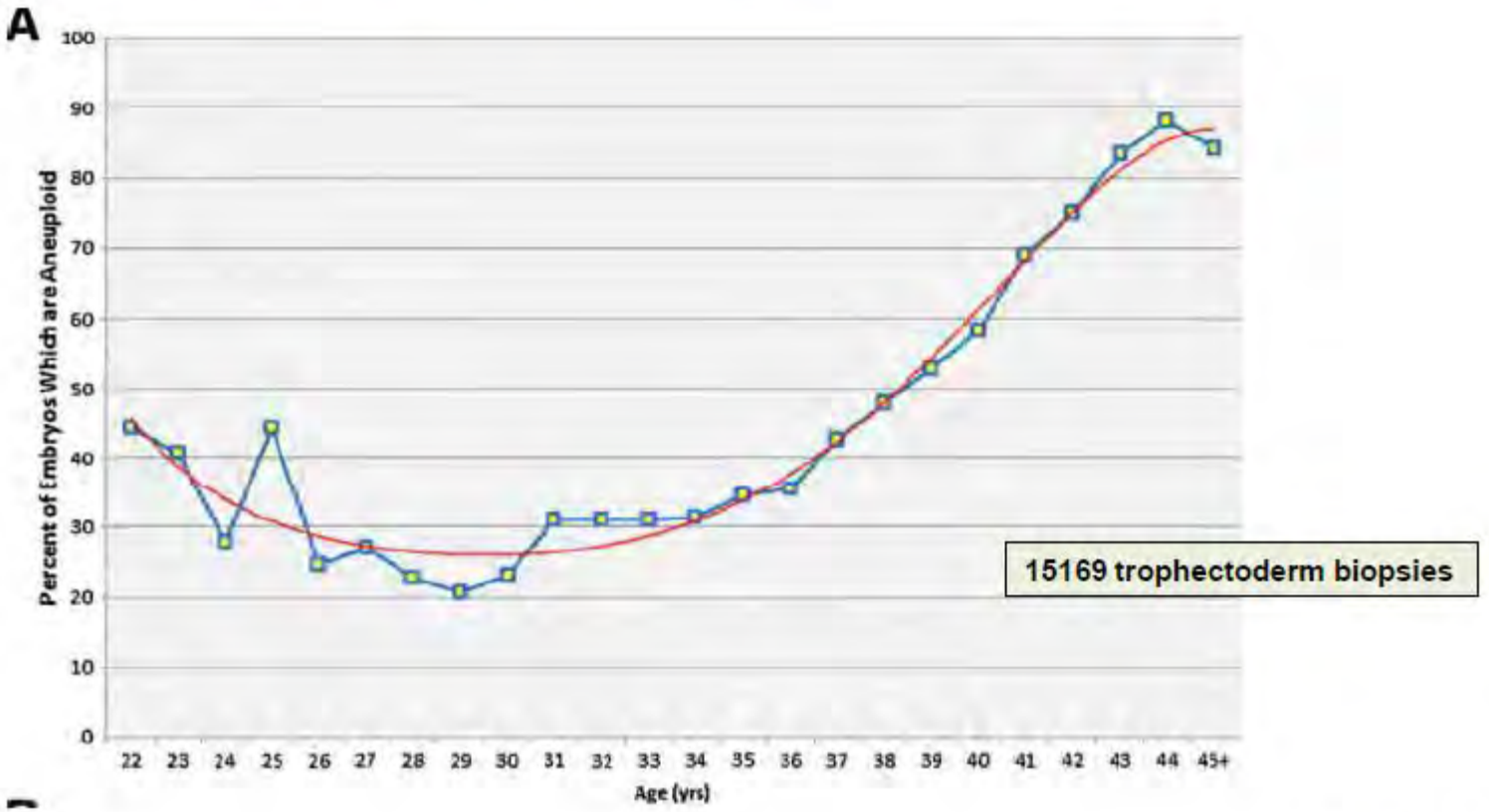
- Hysterosalpingogram (HSG) or hystero-sonogram
- US with cervical length

https://metrosouth.health.qld.gov.au/referrals/gynaecology/infertility

Potential Treatments

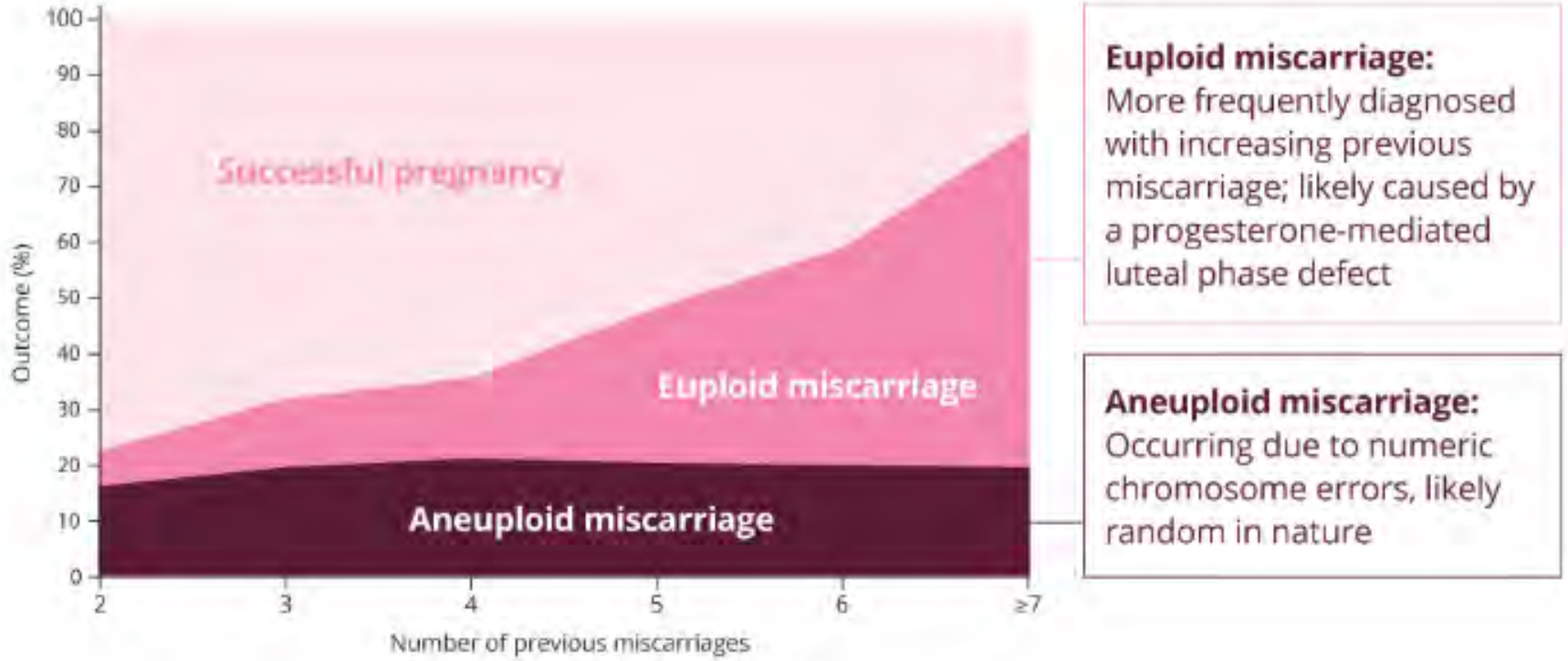
- For women with unexplained recurrent miscarriages, supplementation with progestogen therapy may reduce the rate of miscarriage in subsequent pregnancy (no RCTs, not included in guidelines, but progesterone supplementation likely causes no harm)[1]
- May improve live birth outcome in women with one or more previous miscarriages and early pregnancy bleeding (Absolute Risk Reduction: 5.72%; 95% CI 1.65 to 9.8) [1]
- There is limited evidence to support an increase in live birth rate (when compared to placebo) of low dose aspirin, enoxaparin or intravenous immunoglobulin. [1]
- Recommend aspirin (75-100mg) and prophylactic unfractionated heparin in the context of antiphospholipid syndrome (APS) and refer to an obstetric physician [1,4] Aspirin alone is ineffective
- Current guidelines suggest treat all women with overt hypothyroidism, and consider treatment of subclinical hypothyroidism (but not treating euthyroid patients with RPL who test positive for thyroid antibodies) [4]
- Male Factors: Lifestyle modification, maintain normal BMI, anti-oxidants, ? IMSI (intracytoplasmic morphologically selected sperm injection) or PICSI (physiological intracytoplasmic sperm injection) [4]

Embryonic aneuploidy increases with maternal age: we cant ‘fix’ this problem



Franasiak 2014

Progesterone-mediated euploid miscarriage is more likely with an increasing number of previous miscarriages



Adapted from Coomarasamy A *et al.* 2020 and Ogsawara M *et al.* 2000.[5,6]

1.Coomarasamy A *et al. Am J Obstet Gynaecol* 2020;223(2):167–76.
2.Ogasawara M *et al. Fertil Steril* 2000;73:300–304.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

Progesterone support of the luteal phase and in the first trimester

Recommendation 1	Grade and reference
First trimester progestogen supplementation in an unselected population of women does not reduce the incidence of miscarriage and should not be used.	Consensus-based recommendation [1, 2]
Recommendation 2	**Grade and reference**
Progestogen supplementation until the second trimester in women presenting with a clinical diagnosis of threatened miscarriage may reduce the rate of spontaneous miscarriage and may be considered.	Consensus-based recommendation [3, 4]
Recommendation 3	**Grade and reference**
The routine use of progestogens for patients presenting with recurrent spontaneous miscarriage does not improve pregnancy outcomes and is not recommended.	Consensus-based recommendation [5, 6]

Progesterone support of the luteal phase and in the first trimester (ranzcog.edu.au)

Randomised placebo-controlled trial - PRISM

Multicentre – 48 UK hospitals
4,153 women with early pregnancy bleeding
400mg of Utrogestan (2x200mg) twice daily
Primary outcome was birth of liveborn baby after at least 34/40 gestation.

Pre-specified subgroup analysis
- Women with 1 or 2 previous miscarriages gained some benefit
- Women with ≥3 previous miscarriages gained significant benefit

In women with threatened miscarriage and a history of 1 or more miscarriage(s)
NNT for one additional live birth: 20
In women with a history of 3 or more miscarriages
NNT for one additional live birth: 8
No evidence of harm to mother of baby from progesterone use

PRISM
Coomarasamy Am J Obstet Gynecol 2020 doi: 10.1016/j.ajog.2019.12.006

TGA approval for utrogestan
- In women with a history of ≥3 miscarriages; and
- In women with a history of one or two previous miscarriages and a reduced chance of future pregnancy e.g., advanced maternal age, undergoing IVF with limited egg/embryo viability

Not covered by PBS: approx. $8.50 per day

A word of caution

Human Reproduction, Vol.38, No.4, pp. 560–568, 2023
Advance Access Publication on February 20, 2023 https://doi.org/10.1093/humrep/dead029

human reproduction ORIGINAL ARTICLE *Early pregnancy*

Progesterone for women with threatened miscarriage (STOP trial): a placebo-controlled randomized clinical trial

Lucas A. McLindon [1,2,*], Gabriel James [1,2], Michael M. Beckmann [1,2], Julia Bertolone [1], Kassam Mahomed [2,3], Monica Vane [1], Teresa Baker [1], Monique Gleed [1], Sandra Grey [1], Linda Tettamanzi [1], Ben Willem J. Mol [4,5], and Wentao Li [4,*]

[1]Department of Obstetrics and Gynaecology, Mater Mothers' Hospitals, Mater Health, Brisbane, Queensland, Australia [2]Department of Obstetrics and Gynaecology, University of Queensland, Brisbane, Queensland, Australia [3]Department of Obstetrics and Gynaecology, Ipswich Hospital, Ipswich, Queensland, Australia [4]Department of Obstetrics and Gynaecology, Monash University, Monash Medical Centre, Clayton, Victoria, Australia [5]Aberdeen Centre for Women's Health Research, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen, Aberdeen, UK

*Correspondence address. E-mail: mclindonluke@gmail.com (L.A.M.) https://orcid.org/0000-0003-2044-8681; wentao.li@monash.edu (W.L.) https://orcid.org/0000-0001-8980-0909

Submitted on July 17, 2022; resubmitted on January 15, 2023; editorial decision on February 1, 2023

Small (278 women) RCT of Oripro vs placebo in threatened miscarriage (Mater Mothers' Hospital Brisbane)

- No benefit of progestogen if one or two previous miscarriages
- Not powered to assess impact if three or more
- Does not disagree with findings of PRISM study

https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/36806843/

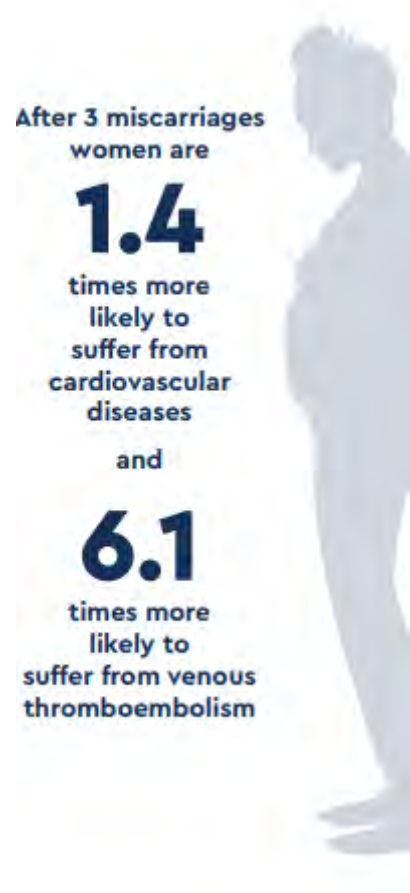
Threatened miscarriage: role of the GP

- Can be an easily accessible, supportive and well informed first point of contact
- Can organize serum βhCG for pregnancy confirmation and prognosis
- Can refer for early pregnancy transvaginal ultrasound, and arrange serial USS as needed (+/- serial serum βhCG)

- Can initiate vaginal progesterone 400mg twice daily from positive pregnancy test if symptoms of threatened miscarriage and >2 previous miscarriages. Continue to 16 weeks' gestation
- Can refer to EPAU if required for persistent bleeding or pain, or if progressed to incomplete miscarriage

Recurrent miscarriage matters! - ongoing role of the GP

- Infertility and pregnancy loss, especially recurrent miscarriage (at least three) and recurrent stillbirth (at least two), increased women's later risk of non-fatal and fatal stroke
- Compared with women who had never miscarried, women with history of three or more miscarriages had 35% higher risk of non-fatal stroke and 82% higher risk of fatal stroke.
- History of recurrent pregnancy loss could be considered female specific risk factor for stroke
- Associations for ischaemic heart disease - 1.4-1.9-fold for current use of combined oral contraceptives, recurrent miscarriage, premature ovarian insufficiency, and early menopause
- Women with a history of recurrent miscarriages (or stillbirths) were at a 36% (or 67%) higher risk of COPD, respectively, even after accounting for a history of asthma.
- **Identifying reproductive risk factors at an early stage in woman's life might facilitate initiation of strategies to modify potential long term health risks**.



BMJ 2022; 377 doi: https://doi.org/10.1136/bmj-2022-070603 (Published 22 June 2022)
BMJ 2020; 371 doi: https://doi.org/10.1136/bmj.m3502 (Published 07 October 2020)

Resources and References

1. https://www.health.qld.gov.au/__data/assets/pdf_file/0033/139947/g-epl.pdf QCG – Early Pregnancy Loss - Section 8: Recurrent early pregnancy loss
2. Hennessy M, Dennehy R, Meaney S, Linehan L, Devane D, Rice R, et al. Clinical practice guidelines for recurrent miscarriage in high-income countries: a systematic review. Reproductive Biomedicine Online 2021;42(6):1146-71. https://www.rbmojournal.com/article/S1472-6483(21)00100-0/fulltext
3. Quenby S, Gallos ID, Dhillon-Smith RK, Podesek M, Stephenson MD, Fisher J, et al. Miscarriage matters: the epidemiological, physical, psychological, and economic costs of early pregnancy loss. The Lancet 2021;397(10285):1658-67 https://ora.ox.ac.uk/objects/uuid:13d1b9ff-56d8-4002-9fd8-4d07685b2427/files/rw0892b27r
4. Hong Li Y, Marren A. Recurrent pregnancy loss: A summary of international evidence-based guidelines and practice. Australian Journal for General Practitioners 2018;47:432-6. https://www1.racgp.org.au/ajgp/2018/july/recurrent-pregnancy-loss
5. Royal College of Obstetricians and Gynaecologists. The Investigation and Treatment of Couples with Recurrent First Trimester and Second Trimester Miscarriage. London: RCOG, 2022. https://ranzcog.edu.au/wp-content/uploads/2022/05/The-Investigation-and-Treatment-of-Couples-with-Recurrent-First-trimester-and-Second-trimester-Miscarriage.pdf
6. https://brisbanesouth.communityhealthpathways.org/24155.htm
7. Magnus M et al. Role of maternal age and pregnancy history in risk of miscarriage: prospective register-based study *BMJ* 2019; 364 https://doi.org/10.1136/bmj.l869 (Published 20 March 2019)

Spot On Health Pages used

- https://brisbanesouth.communityhealthpathways.org/20461_1.htm – Cervical Screening
- https://brisbanesouth.communityhealthpathways.org/24155.htm – Recurrent Miscarriage
- https://brisbanesouth.communityhealthpathways.org/15994.htm – Polycystic Ovarian Syndrome (PCOS)
- https://brisbanesouth.communityhealthpathways.org/16204.htm- Subfertility
- https://brisbanesouth.communityhealthpathways.org/85339.htm - Herpes Simplex Virus

Session 3

Time	Session name	Presenter	Delivery
1:45 pm	Task 2 Breakout groups – Case Discussion	Breakout	Facilitated groups
2:00 pm	Postnatal Consult 1 – Case Discussion Heavy or Prolonged Bleeding	Group Spokesperson Dr Kim Nolan Dr Sanja Savic	Facilitated groups Power Point Presentation & Forum Discussion
2:15 pm	Postnatal Consult 2 – Case Discussion Breastfeeding Issues Child Health Presentation	Bernadette Duffy, Child Health Nurse & Lactation Consultant	Facilitated groups Power Point Presentation & Forum Discussion
2.55 pm	Neonatal Examination		Video – Dr David Cartwright
3:05 pm	Postnatal Consult 3 –Case Discussion Common Neonatal Concerns	Dr Ryan Mills	Facilitated groups Power Point Presentation & Forum Discussion

Postnatal care

AM2 Postnatal Case Discussion – Blue Group

Reintroducing Tiffany…..

- Tiffany has gone on to have a healthy pregnancy with her partner, with their baby born by Caesarean section at 39 weeks because of a persistent breech presentation.
- Presented today 8 days postpartum for her post-natal check. Her baby is being bottle-fed and has the next appointment.
- What do you do for Tiffany today?

She has a 15 min appointment - Outline your approach

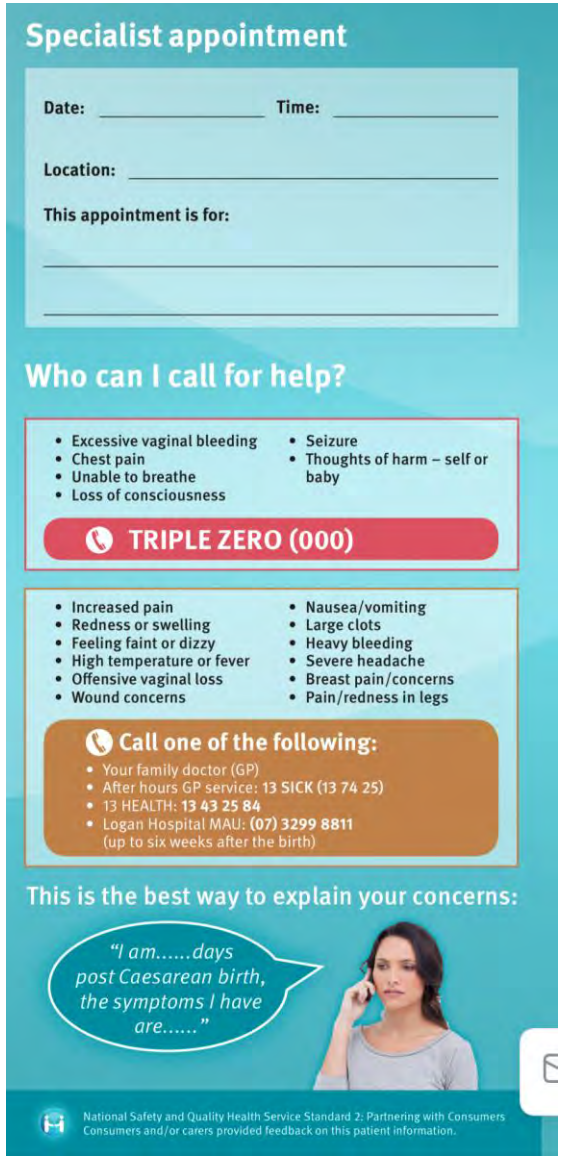
AM2 Postnatal Case Discussion – Green Group

Reintroducing Kelsey…..

- Kelsey has gone on to have a healthy pregnancy and baby born by spontaneous vertex delivery. Placenta and membranes delivered complete with second degree tear repaired according to the discharge summary. She is breast feeding her baby.
- Presented today with sudden increased heavy PV bleeding, clots and low cramping pain. She is apyrexial but reports waking in the night sweating. Her BP is 105/67 and pulse 102. She looks pale and in pain
- What is your assessment and plan for Kelsey?

She has a 15 min appointment - Outline your approach

Postnatal Information Brochure provided to all women at Logan at hospital discharge



Postnatal care by GP- Why is the GP so important?

- A most vulnerable time for women and their families
- The ability to provide education, regular review and collaborative care with specialist services
- Review at 5-10 days
- Opportunity for woman and her baby to reconnect with the GP if maternity care has been provided elsewhere
- NOTE: Women may not be aware of symptoms of secondary postpartum haemorrhage and may mistake them as being part of the expected postpartum experience – please educate!
- Commence ongoing care for medical issues such as hypertension, diabetes and anaemia.

5–7-day check mum and baby check by GP

- Think ahead..... women need to be advised to make a double appointment and register the baby with the Medicare too! They may be shocked to find that as baby has no Medicare yet, they may be privately billed.
- Remind to bring any records and the Child Health (red) book
- When they leave, ask them to book the 6-week check
- See your patients in response to individual need
- Refer to/or provide information about Child Health Services
- MMR required?– if non-immune and missed in hospital
- Check that RSV (Nirsevimab - Beyfortus®) given if missed in hospital
- Pertussis booster required for family members ? - if missed during pregnancy

Postnatal care by the GP

- Breastfeeding support and referral to lactation services
- Immunisations
- Well baby checks and 6-week check
- Long term education and care to maximise achievement of long-term health goals
- Contraception and pregnancy spacing
- Pre pregnancy counselling and referral
- Re-engaging those in low socio-economic regions

https://www.racgp.org.au/afp/2012/may/the-6-week-check/

The 6-week postnatal check- not just physicality

- Part of the lifelong journey of health
- Promoting and enhancing the family to GP partnership in health
- Looking at parental strengths to establish any emerging health deficits in the childhood years
- Identifying parental issues that may be of detriment to childhood development
- Understanding the social determinants within the family and the context of their family lives

https://www.racgp.org.au/download/documents/AFP/2012/May/201205fasher.pdf

Systems based approach to Post-Partum Care

Post-Partum check at 6/52

History:

Adacel/Boostrix

Bladder, bowels, breasts

Calves, contraception

Delivery debrief prn

EPDS

Feeding

Gestational Diabetes follow up prn

Hypertension follow up prn

Examination:

Abdomen

Breasts, BP

Consider Cervical Screening Test, inspect perineum if tear/episiotomy

Secondary PPH = excessive bleeding occurring 24/24 postpartum and up to 8/52 postnatal

- More than 500mls (sudden or heavy - > one pad/hour)
- Bleeding not stopping, but increasing
- Deterioration in clinical presentation
- Regression to bright red lochia, heavy, clots +/- placental tissue or membranes
- Increase in pain to low abdomen or pelvic region
- May have rigors or pyrexia
- Fever, dizziness, fatigue
- Malodorous discharge

GOOD PRACTICE STATEMENT - Discuss secondary postpartum haemorrhage at each postnatal contact between 24 hours and 8 weeks after birth

https://app.magicapp.org/#/guideline/jW0ZbL/section/jMMYxW - Secondary Postpartum Haemorrhage – Australian Clinical Guidelines

In the GP surgery…..a presentation with abnormal bleeding postnatally

- Observations esp. temp, PR, BP (?postural drop)
- Clinical assessment of blood loss, check fundal height ? tenderness
- ? Other discharge ? Malodour, – consider PVE/swabs
- Review birth history
- Consider sepsis ……

Call QAS immediately for clinically instability and/or deteriorating clinical condition.

Postpartum lochia

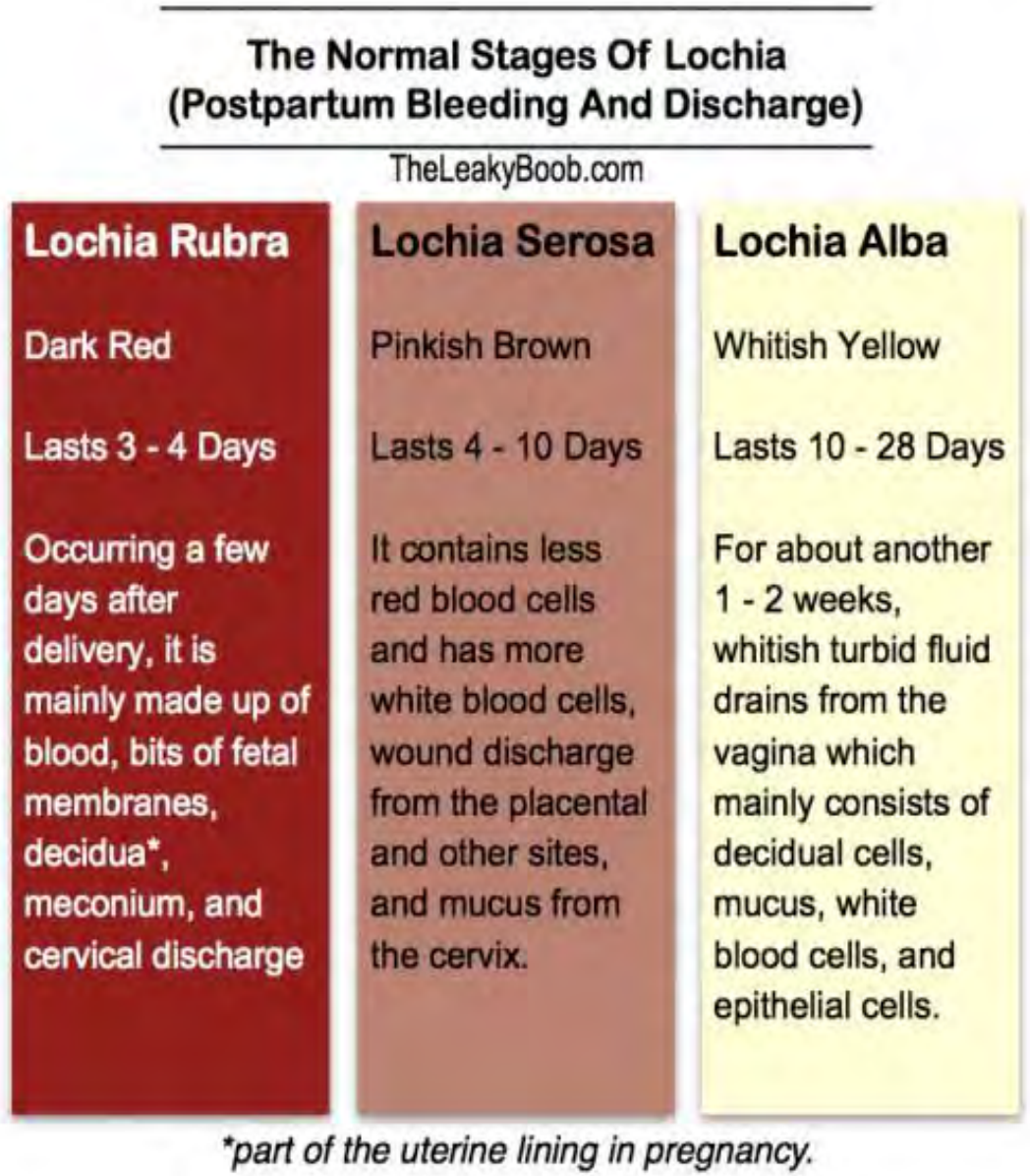
Consensus recommendation

Within 24 hours of birth, discuss with all women what vaginal bleeding to expect after the birth (lochia), with a definition of lochia and expected timeframe.

Duration of lochia - highly variable and up to 1/3 of women may experience lochia lasting > 6/52

Approved by LEAPP Steering Committee 19 June 2024. This is a draft recommendation that has not yet been approved by NHMRC.

Australian Living Evidence Collaboration. (2024). Australian Postnatal Care Guidelines https://livingevidence.org.au/living-guidelines/leapp/#postnatal-guidelines



Conditions that mimic sepsis in pregnancy (and postpartum)

TABLE 4 Non-infectious conditions that can mimic sepsis in pregnancy

Condition	Common maternal clinical features
Acute pulmonary embolism	Hypotension, tachypnoea, tachycardia, low-grade fever
Amniotic fluid embolism	Hypotension, tachycardia, haemorrhage
Acute pancreatitis	Fever, nausea, vomiting, abdominal pain
Acute fatty liver of pregnancy	Fatigue, nausea, vomiting, abdominal pain, jaundice, impaired level of consciousness
Adverse drug reactions, drug fever	Hypotension, relative bradycardia, fever, rash, angio-oedema
Acute liver failure-drug related, viral	Jaundice, nausea, vomiting, abdominal pain impaired level of consciousness
Acute adrenal insufficiency	Weakness, fatigue, nausea, anorexia, weight loss, hypotension, fever
Acute pituitary insufficiency	Failure to lactate, hypotension, relative bradycardia, polyuria, polydipsia
Autoimmune conditions	Low-grade fever, rash (eg malar rash), arthritis, dry eyes or mouth, mouth ulcers, diagnostic serology
Concealed haemorrhage including ectopic pregnancy	Hypotension, tachycardia, low-grade fever
Disseminated malignancy	Low-grade fever, weight loss
Pelvic thrombosis	Pelvic pain, fever
Transfusion reactions	High fever, rigors, dysrhythmia, tachypnoea, hypotension, rash, bleeding, haematuria

SOMANZ guidelines for the investigation and management sepsis in pregnancy 2017 (currently undergoing review)
SOMANZ (Society of Obstetric Medicine Australia and New Zealand)

AM2 Postnatal Case Discussion – Pink Group

- Sally is postnatal day 3 today following a normal vaginal delivery, 1st degree tear not sutured. EBL 150, and Sally was discharged from the hospital after 6 hours.
- Sally had a little boy weighing 3500g, whom she is breastfeeding.
- Sally comes to see you today worried she has mastitis; her breasts are engorged and painful.
- Sally says her sister had mastitis as well and thinks she needs antibiotics.

Outline your assessment – you have 15 mins

AM2 Postnatal Case Discussion – Red Group

Reintroducing Zuri …..

- Zuri has gone on to have an IVF pregnancy, and now has a baby girl, born by Caesarean Section at 36 weeks for suspected FGR.
- Baby Mila, is now aged almost 3 weeks, and today weighs 2800gms. She is breastfed.
- Her mother-in-law is helping now that her partner is back at work and has suggested giving some top up formula feeds so Zuri can get some more rest.
- Zuri is uncertain and has come for your advice - she really wants to successfully breastfeed but is worried her baby not getting enough milk.
- What is your assessment and plan for Zuri?

She has a 15 min appointment - Outline your approach

Metro South Health

Breastfeeding Essentials + Child Health Service Presentation

Bernadette Duffy

Clinical Nurse Consultant + Lactation Consultant

Child Health Cluster 5 Browns Plains / Inala Children's Health Queensland

We care about you

Queensland Government

Benefits of Breastfeeding

WHO Collaborative Group found a substantial increase in mortality in the first few years of life in infants who were not breastfed.

Increasing evidence that early development has a long term impact on health (The first 1000 days of life). Research is showing that breastfeeding has a role to play in this.

The major long-term benefits of breastfeeding listed by WHO

- Higher performance on intelligence tests and cognitive development
- Significantly reduces risk of obesity in childhood & later in adults
- Reduction in risk of type 2 diabetes & type 1 in adolescents & young adults
- Reduces risk of SIDS
- Small protective effects found against elevated systolic BP
- Decreased prevalence of lower respiratory tract infections under 6 months old
- Reduced incidence of NEC with premature infants (exclusive breast milk)
- 19% reduction in incidence of leukemia
- Prevention of helicobacter pylori – gastritis, gastric carcinoma, dental caries and chronic gut inflammation
- Reduction in malocclusion in baby teeth

Benefits for mothers

- Reduced rates of ovarian cancer & premenopausal breast cancer
- Reduced rates of obesity – quicker return to pre-pregnancy weight
- Reduced risk of developing Type 2 diabetes
- GDM – less likely to have Type 2 diabetes 2 years postpartum
- Reduced rates cardiovascular disease, hypertension & hyperlipidaemia
- Reduction in postnatal depression in breastfeeding mothers
- Financial gain $2500-$5000 per annum (cost of infant formula)

Just 1 bottle

- Changes gut biome – can impact Ph levels for a month
- Increases risk of reflux
- Increased risk of developing cow's milk protein intolerance
- Negates the benefits of exclusive breastfeeding
- Significantly less likely to be breastfeeding at 3 months
- Undermines women's confidence in their ability to breastfeed

Breastfeeding In Australia

- Most children (95.9%) ages 0-3 years received breast milk

- At 2 months, 74% were exclusively breastfed, 88% still receiving breast milk
- At 4 months, 66% were exclusively breastfed, 79% still receiving breast milk
- At 6 months, 35% were exclusively breastfed, 73% still receiving breast milk

(Australian Bureau of Statistics 2020-2021)

Normal Feeding Patterns

- First 24 hours baby has instinctual desire to feed up to 3-4 times. If no risk factors this is ok
- Onwards from Day 1 Feeding 8-12 times/24hrs, instead of clock watching (3 hourly)
- Length of feed can vary depending on rate of milk flow & baby's suck patterns (eg: 10-40 minutes)
- Offer both breasts every feed for first 6 weeks to help establish supply
- Observe baby for signals that he/she is getting enough milk

Is the baby getting enough from BF?

Observe breastfeeding

- Is baby attached well
- Rhythmic sucking patterns and swallowing
- Baby is settled after most breastfeeds, although may have periods each day when they will not settle and continue to cue for feeding and comfort

1

Monitor output

- Day 1 – 1 wet nappy. 1-2 black stools
- Day 2 – 2 wet nappies. 1-2 greenish black stools
- Day 3 – 3 wet nappies. 3 greenish stools
- Day 4 – 4 wet nappies. 4 large stools, becoming more yellow
- Day 5 onwards – 5 + wet nappies. 4 large or 10 small yellow seedy stools
- Number of bowel motions of breastfed babies tends to decrease between 6 weeks and 3 months of age

2

Adequate weight gain

- Initial loss of up to 8-10% normal in first few days
- Baby should be back to birth weight by 14 days old
- Average weekly weight gain of 150-200gms to 3 months of age
- Babies usually double their weight by 6 months of age, and triple their birth weight by 12 months of age

3

What is a good breastfeed?

- Deep symmetrical latch with chin and cheeks firmly touching the breast
- Look for nutritive sucking rather than non-nutritive sucking
- Rhythmic sucking pattern, long suck bursts with short breaks at the start of the feed and as baby fills shorter suck bursts with long breaks
- Sucking pattern can be “suck, suck, swallow, breath” initially then towards end more 3-4 sucks before swallow.
- Observe swallowing – may be audible as soft ‘cluck’ or seen by jaw drop.

Nutritive Sucking during Breastfeeding | Active drinking & milk transfer - YouTube

5 DIFFERENT

Breastfeeding Positions

CRADLE USING A NURSING PILLOW FOR SUPPORT

CRADLE POSITION

LAIDBACK POSITION

SIDE-LAYING POSITION

FOOTBALL/CLUTCH POSITION

Stages of Lactation

- Lactogenesis 1 – pregnancy (secretory differentiation)
  - Starts around 16 weeks gestation
  - Breasts changes
  - Produces colostrum
- Lactogenesis II – endocrine stage (secretory activation)
  - Triggered by birth of placenta & decline of lactogen, estrogen and progesterone
  - Main hormones involved prolactin, oxytocin, insulin
  - Onset usually 30-72 hours post birth
  - Development of milk supply
- Lactogenesis III – autocrine stage "supply & demand"
  - Empty breast it refills

Establishing Breastfeeding – Queensland Clinical Guidelines

https://www.health.qld.gov.au/__data/assets/pdf_file/0033/139965/g-bf.pdf

QLD Clinical Guideline: KNOWLEDGE ASSESSMENT - Breastfeeding knowledge assessment (cvent.com)
2 hours online CPD

Breastfeeding

About this knowledge assessment:

This self-directed learning tool is designed to familiarise you with guideline content and recommendations. Not all information required for application in the clinical setting is included. For further information about the use of guidelines please read our disclaimer.

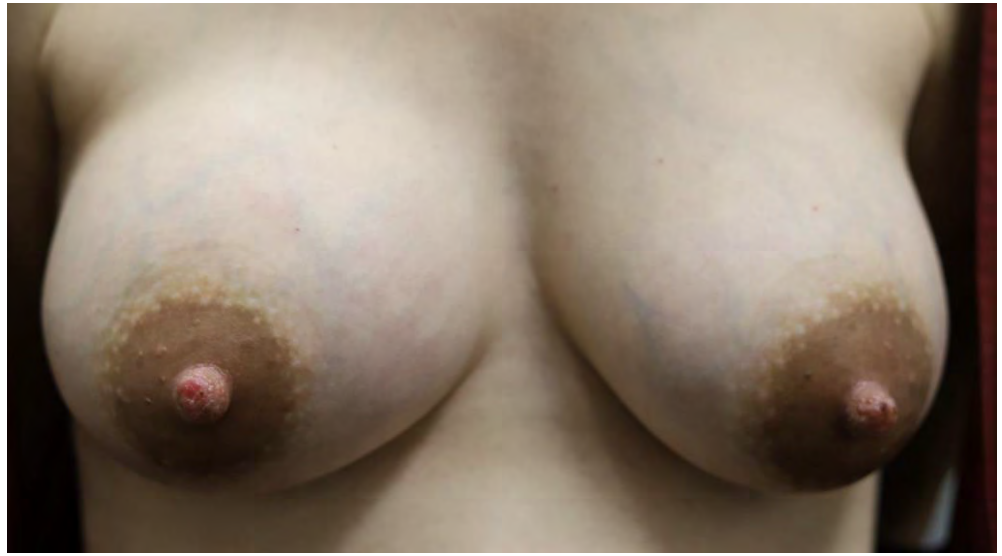
The tool provides access to:

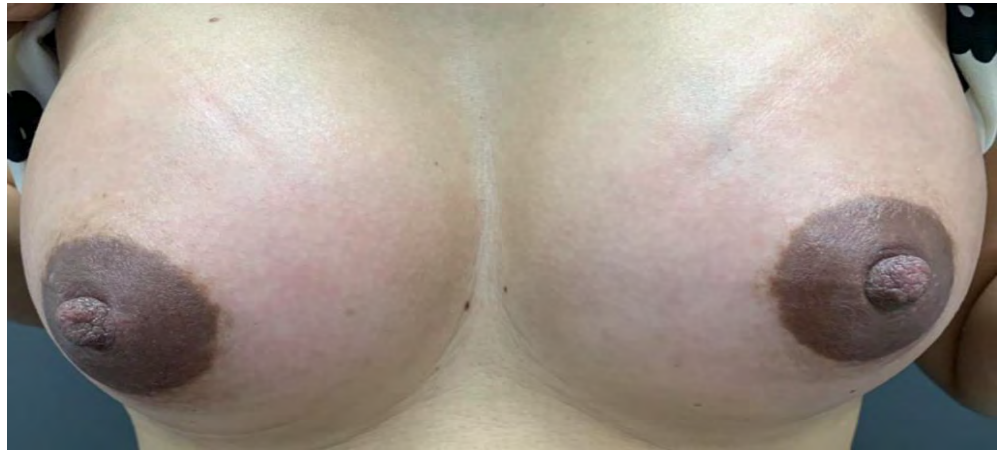
- The clinical guideline
- 10 multiple choice questions (answers provided at the end)
- A certificate of completion

Common Breastfeeding Challenges

Problems & Solutions

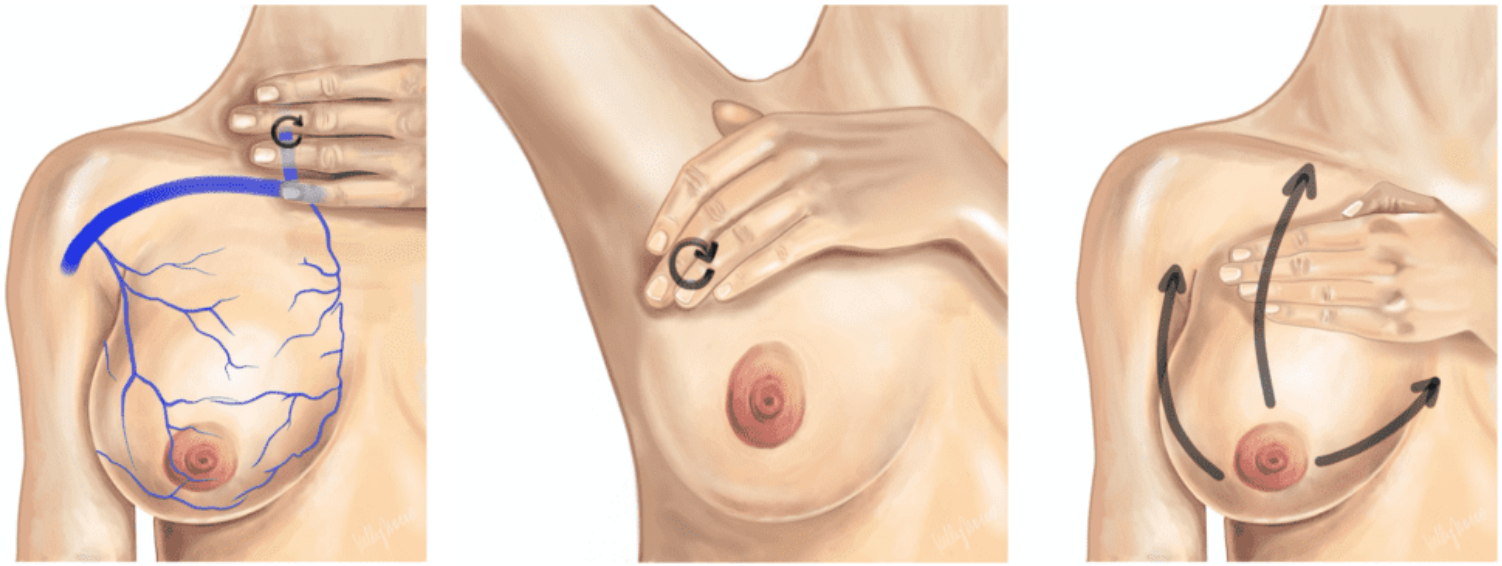
Engorgement





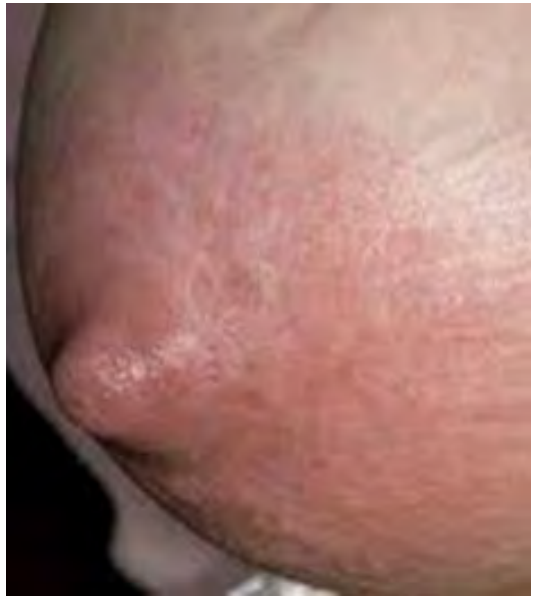
- Normal physiological process
- Focus on physiological nursing
- Educate about positioning and attachment
- Comfortable, supportive bra
- Apply ice
- Paracetamol & Ibuprofen
- Reverse pressure softening
- Lymphatic drainage

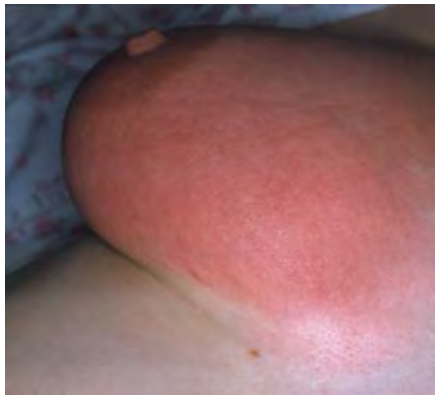
Lymphatic Drainage

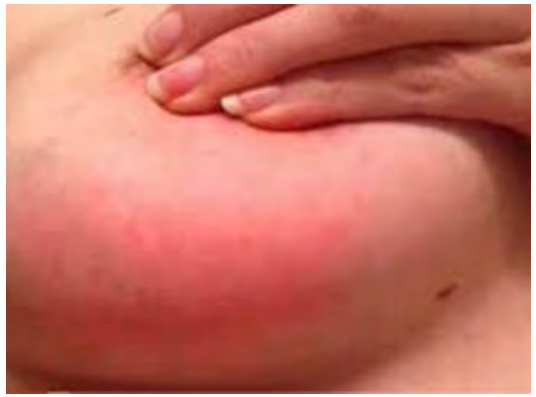


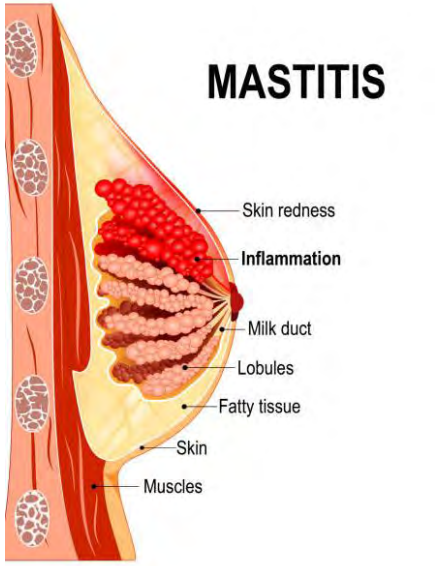
- Reduces swelling by assisting movement of lymph fluid, decreasing edema
- Technique
  - "Very gentle touch/traction of skin - "like petting a cat"
    - The purpose is to lift skin to allow flow of lymphatic drainage and vascular decongestion
  - Ten small circles at junction of internal jugular and subclavian veins
  - Ten small circles in axilla
  - Continue with light touch massage from nipple towards clavicle, axilla
- Start during pregnancy if experiencing painful rapid breast growth, and use as needed postpartum for engorgement

Mastitis









- Inflammatory of breast tissue, milk glands or ducts
- Non-infective or infective inflammation
- Non-infective mastitis can be caused by poor milk drainage, hyperlactation, mammary dysbiosis
- Infection can be bacterial – usually *staphylococcus aureus* but can be other bacteria. Causes same as non-infective mastitis but also may be result of cracked nipples or trauma
- Symptoms can include
    - Erythema – redness of skin
    - Tender or painful breasts
    - Lumps
    - Febrile
    - Headache, body aches & malaise
    - Decreased milk supply

What we previously recommended

- Considered **‘milk stasis’** (accumulation of milk) in the breast as the primary issue
- Encouraged “draining the breast”
- PUMP, PUMP, PUMP
- Hot compresses
- Firm massage towards the nipple
- Focus on “getting the clog out”

Mastitis Treatment

Safe to breastfeed or give baby express breast milk

- Gentle is the key!
- Treat it like a sprained ankle: rest, ice, analgesia
- Physiological nursing
- Gentle lymphatic massage
- Supportive bra
- Sunflower lecithin
- ?Probiotics
- If systemic symptoms last > 24 hours, for medical review

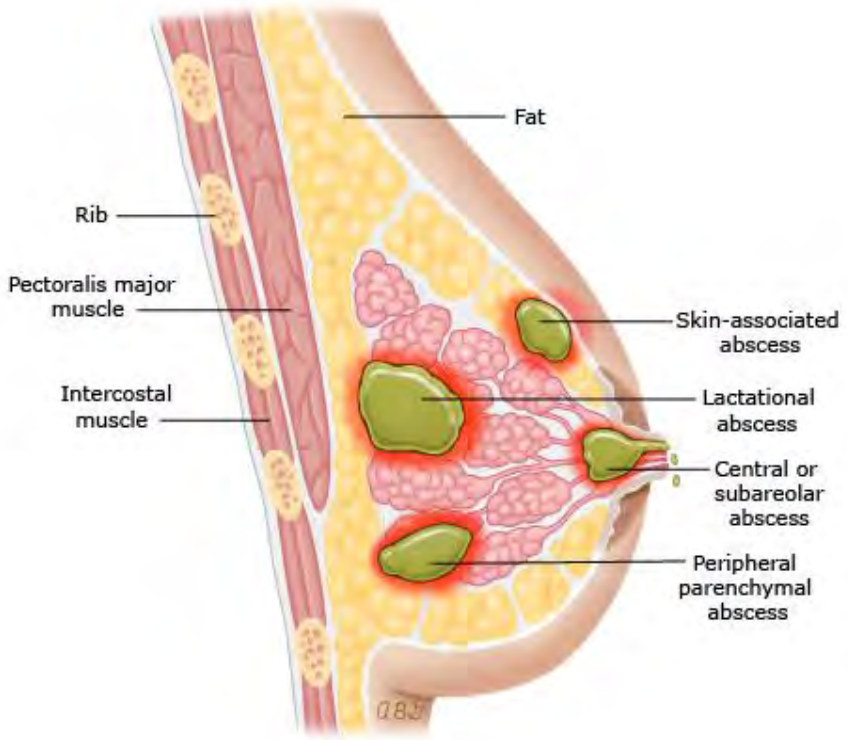
- ***Academy Breastfeeding Medicine Protocol***
- *The Mastitis Spectrum, Revised 2022*
- bfmed.org/assets/ABM Protocol %2336.pdf

Recommended Antibiotics

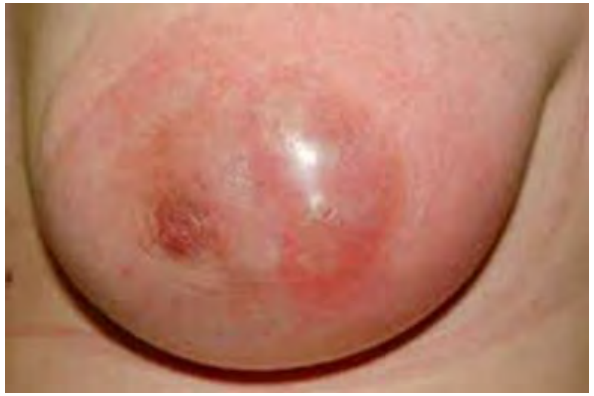
- First line:
- Dicloxacillin or flucloxacillin 500mg QID for 10-14 days
- In penicillin allergy- Cephalexin 500mg QID for 10-14 days

- Second line:
- Clindamycin 300mg four times daily for 14 days
- Trimethoprim-sulfamethoxazole DS BD for 10-14 days

Breast Abscess



- Usually bacterial infection - mastitis
- Treat same as mastitis
- Consider swab for MC&S (may be MRSA if not responding to antibiotics)
- May require drainage
  - Needle aspiration guided by USS
  - Incision & drainage in worst case



Nipple Trauma or Pain

- Cracks and grazes
  - Usually due to poor attachment & nipple compression
  - Multi-mam compresses (alginate dressing) can promote moist healing
  - Refer for BF support
- Thrush
  - Itchy, white spots and redness
  - Treat mother's nipples and baby's mouth and bottom with antifungal creams, gels or drops
- Raynaud's of the nipple & vasospasm
  - Usually result of nipple damage &/or nipple compression
  - Sharp stabbing pain which often radiates towards shoulder blades
  - Vasospasm often triggered by changes in temperature or nipple compression
  - Treatment includes keeping nipples warm & covered, magnesium & fish oil supplements and in worse cases scenario nifedipine may be helpful

Causes of Low Supply

Inadequate drainage of breast – missing feeds, baby not BF well

Hormonal issues

PCOS, diabetes, Thyroid issues

Blood Loss & Birth Trauma

Insufficient breast tissue & Breast surgery

Stress

Mastitis

Sometimes women perceive they have low supply because baby restless & unsettled. Common around times when baby having growth spurt

Increasing breast milk supply natural methods

- Regular complete emptying of both breasts
  - Breastfeeding
  - Expressing for 5-10 minutes after breastfeeding can help increase supply
- Breast massage – Marmet Technique
- Good nutrition and hydration
- Sleep & relaxation
- Natural supplements
  - Fenugreek capsules 6000-9000mg a day (split into 3 doses)
  - Moringa (drumstick plant) – available as tea, powder or capsules
  - Boobie Biscuits – No research that they work – anecdotal- word of mouth between women

GET MORE MILK

Massage Stroke Shake

THE MARMET TECHNIQUE

Massage Breast

Start in armpits and work down. Use two fingers in circular motion working around the breast down toward the nipple

Stroke Breast

With tickle like touch, stroke breast from chest wall toward nipple to aid in milk ejection reflex

Shake Breast

Gently shake breast while leaning forward to encourage drainage.

Lacticups®

Medical Interventions -Domperidone

- Increases the hormone prolactin which is involved in the production of milk making cells (galactagogue)
- Usually takes 5-7 days to notice any difference but 2-4 weeks to get maximum effect
- Most effective during Lactogenesis II (endocrine stage) in building supply
- Can be used to restore supply during Lactogenesis III
- Dosage:
  - 10-20mg TDS for 1-2 weeks
  - then 10-20mg BD for 1 week
  - Last week 10mg in the morning

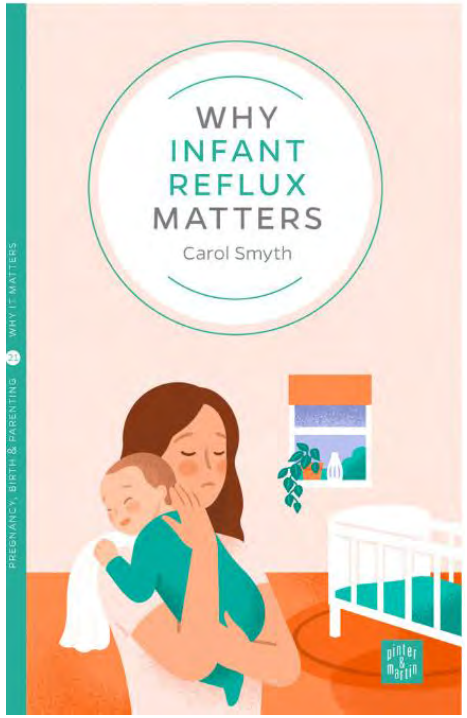
Side effects include;

- Headaches
- Abdominal pain
- Dry mouth
- Rash
- Sleep problems & mood changes
- ECG changes (prolongs QT interval) - probably insignificant (except if on or commence other medications that also prolong QT)

Reflux

Parents will present to GP:

- Excessive crying
- Crying when put down
- Not sleeping well
- Wanting to be held all the time
- Hiccuping
- Back arching when feeding/refusing feeds/constant feeding
- Low weight gain/high weight gain
- Spitting up



- Provide education. Most crying, irritability, and spilling in otherwise healthy infants is **not** caused by GOR
  - Explain mechanism of reflux / spilling / posseting and natural history with more than 50% of babies spilling regularly in the first months of life.
  - Normalise this by using the term "spilling" rather than reflux.
  - Begins usually before 8 weeks, peaks at 4 months and usually stop by 12 months, improving as diet becomes more solid, the baby becomes more upright, and gut function matures

Possible causes of reflux symptoms

Milk Intake:

- Baby with low weight gain. Is it GORD or hunger?
- High weight gain. Is it maternal oversupply and the behaviour is from an over full stomach?

Baby stress:

- Stress in baby impairs the digestive process and loosens lower oesophageal sphincter. Crying increases abdominal pressure and increases vomiting
- Baby wearing and settling techniques

Feeding frequency, volume and rate:

- The greater the interval between feeds, the larger the feed
- Offer smaller, more frequent feeds

Crying during or after feeds:

- Is the baby attached well? Maternal let down and supply? Too low, too fast? Is the feed not finished?

Allergy:

- Normal oesophageal tissue is quite resistant to acid but if tissue is damaged then reflux can enter intercellular space
- Up to 40% babies presenting with symptoms of GORD will have non IgE mediated cow milk protein allergy (CMPA) Symptoms include: mucous/blood, constipation/diarrhoea, rash/eczema, hives, respiratory symptoms

Alternatives to medication:

Assessment of feeds:

- Observation and assessment of feeds by a Lactation Consultant or Maternal Child Health Nurse or GP (if time permits) can be helpful
- Identify overfeeding in formula fed infants. Reducing feed volumes can reduce regurgitation but only consider if excessive for infant's weight. Consider trial of smaller, more frequent feeds in these infants if practical

Discuss position changes in infants

- Upright position after feeding for 20-30 minutes & avoid second-hand smoke.
- Reassure parents that babies have not been shown to aspirate if they spill when lying on their back

Thickened feeds:

- may reduce volume of regurgitation but does not significantly reduce frequency or symptoms of reflux or spilling
- Can use feed thickener in expressed breast milk or in formula or alternatively, it can be mixed and given as a gel during breastfeeding

Resources

Fact Sheet for Parents – CHQ - https://www.childrens.health.qld.gov.au/chq/information-for-families/fact-sheets/

Gastrooesophageal reflux disease in infants - https://www.rch.org.au/clinicalguide/guideline_index/Gastrooesophageal_reflux_disease_in_infants/

Dr Pamela Douglas. Possums' programs. Masterclasses in Neuroprotective Developmental Care. Dr Pam | NDC Masterclasses

Why Reflux Matters. Pinter & Martin (2021)

Medications & Breastfeeding

- Lactation Risk Categories
  - L1 – Compatible
  - L2 – Probably Compatible
  - L3 – Probably Compatible (limited data)
  - L4 – Possibly Hazardous
  - L5 - Hazardous

- Relative Infant Dose (RID)
  - RID is a way to calculate how much of the drug transfers across into the breast milk
  - The RID is calculated by dividing the infant's dose via the milk in mg/kg/day by the maternal dose in mg/kg/day
  - Most research suggests anything less than 10% of the maternal dose is probably safe
- Resources
  - Dr Hales *Medications & Mothers Milk (book or https://www.halesmeds.com)*
  - *Lactmed – app & website*
  - *Pregnancy and Breastfeeding Medicines Guide*

  Medicines | PBMG (thewomenspbmg.org.au)

Recreational drugs and breastfeeding

Queensland Clinical Guidelines: Perinatal substance use: neonatal

See also:
Appendix H: Breastfeeding recommendations by substance

- Opiates
- Benzodiazepines
- Amphetamines
- Cocaine
- Alcohol
- Codeine
- Cannabis
- SSRI/SRNI
- Tobacco

NAS – Neonatal Abstinence Syndrome

4.1.2 Breastfeeding

Table 13. Breastfeeding

Aspect	Consideration

Importance	• Well-known and substantial benefits from breastfeeding/human milk[32,33]
	  ○ Reduces the incidence of NAS and duration of pharmacotherapy[31]
	  ○ Analgesic for babies[66]
	  ○ Beneficial for soothing agitated baby[67]
	  ○ Decreased stress response and increased vagal tone in lactating women[33]
	• Offer information to mothers about the specific benefits of breastfeeding babies at risk of NAS
	• Refer to Queensland Clinical Guideline: *Establishing breastfeeding*[65]

Substances in breast milk	• Most substances can be found in breast milk with varying degrees of bioavailability[32] • Robust pharmacokinetic data on individual substance use and the effect on the baby from breast milk is lacking[32] • There is limited data to establish a 'safe' interval after substance use when breastfeeding can be re-established[32]

Risk minimisation strategies	• Individualise advice according to circumstances
	  ○ Seek expert advice from the multidisciplinary team as required
	  ○ Refer to Appendix H: Breastfeeding recommendations by substance
	• Strategies may include (according to substance and use frequency/dose)
	  ○ Limit/decrease substance use
	  ○ Express breastmilk prior to substance use and store for later feed
	  ○ Express and discard breastmilk after substance use (duration dependent on substance)
	  ○ Offer formula feeds during substance use
	  ○ Smoke substance outside away from baby

Recommendation	• Encourage and support breastfeeding unless the risks clearly outweigh the benefits
	  ○ Consider risks associated with maternal functioning and toxicities associated with the substance(s) used
	  ○ Refer to Appendix H: Breastfeeding recommendations by substance
	• Advise gradual weaning[33] as abrupt cessation of breastfeeding may precipitate NAS[31]

Support for mothers

- Australian Breastfeeding Association –website and phone: *1300MUM2MUM*
- Raising Children's Network website
- Child Health Service
- Lactation Consultants (private & hospital based)
- Mater Mothers Parenting Support Centre

raisingchildren.net.au
the australian parenting website

Australian Breastfeeding Association

Breastfeeding is one of the most effective ways to ensure child health and survival. However, nearly 2 out of 3 infants are not exclusively breastfed for the recommended 6 months—a rate that has not improved in 2 decades.

Breastmilk is the ideal food for infants. It is safe, clean and contains antibodies which help protect against many common childhood illnesses. Breastmilk provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one third during the second year of life.

Breastfed children perform better on intelligence tests, are less likely to be overweight or obese and less prone to diabetes later in life. Women who breastfeed also have a reduced risk of breast and ovarian cancers.

Inappropriate marketing of breast-milk substitutes continues to undermine efforts to improve breastfeeding rates and duration worldwide.

Child Health Service

Bernadette Duffy 7.9.2024

Queensland Government

Children's Health Queensland pays respect to the Traditional Custodians of the lands on which we walk, work, talk and live.

We also acknowledge and pay our respect to Aboriginal and Torres Strait Islander Elders past, present and future.

Artwork: concept watercolours of *The Glad Tomorrow 2014-2018* a sculptural installation.
Artist: Tony Albert, Girramay, East Cape region, Kuku Yalanji, East Cape region

Child Health Service

A community-based service
(Children's Health Queensland)

Who is the Service for?

Parents/carers of children birth to 8 years

Free service for all families

Do not need to be Medicare Eligible

Free interpreter service available for all families.

Multidisciplinary team

- Child Health Nurses
- Early Intervention Clinicians (EIC)
- Advanced Health Workers
- Nursing Director
- Administration Officers and Operational Staff (Support for health care team)

Access to Child Health Service

Child Health - Client chooses to attend, it is **not** compulsory.

Free universal service for all families and children.

CHS referrals can be completed by a health Professional.

Families' self refer by either calling CHS or by attending a drop-in clinic.

Consent completed with the legal guardian (parent/carer).

Services Provided

Virtual Care, Drop-in clinic, Clinic appointments or Home Visits

Offering

- Feeding support
- Parenting support
- Sleep and settling
- Growth and development health checks
- Support for behavioral concerns
- Health promotion and prevention
- Immunisation services (some areas)
- Clinician Case management for some clients
- Collaboration with other services (gov/non government)

Secure Web Transfer

Secure Web Transfer is preferred method to communicate with Primary Health Care Provider. For example.

- concerns identified by health check such as poor growth.

- results of Primary Screening Tool (PEDS R or ASQ TRAK) that require follow up by GP

- Results of Secondary Screening Tool (ASQ 3) that require follow up

- Feeding Assessment and / or results of Lingual Frenulum Protocol

- Parent concerns

Infant feeding concerns
Slow weight gains
Unsettled baby

Has a history of depression and anxiety

Child safety involvement

History of ICE use

Antenatal homelessness

Estranged from family.

Physical domestic violence with

FOB (now ex-partner)

Review

Comprehensive infant health check

Feeding assessment

Comprehensive psychosocial health assessment

In partnership with mother – plan formulated to address feeding issues/other concerns.

Case managed – ongoing home visits with Child Health Nurse

Letter to GP informing of follow up plans

Review

Referral to Early Intervention Clinician to support with parenting adjustment issues.

Consider attendance 4 week Parent Group

If either parent identifies as Aboriginal or Torres Strait Islander people, Advanced Health worker support is offered.

Collaboration with Child Safety and other relevant agencies

REFERRALS

- Child health Service: 1300 366 039 (self referral)
- Services | Children's Health Queensland

Queensland Government

Children's Health Queensland Hospital and Health Service

Child Health Service Referral

(Affix patient identification label here)

Has this referral been discussed with the child's Legal Guardian? ☐ Yes ☐ No

CHILD DETAILS

Family name:	Given name:	Date of birth:	Gender:
			Select

Preferred name:

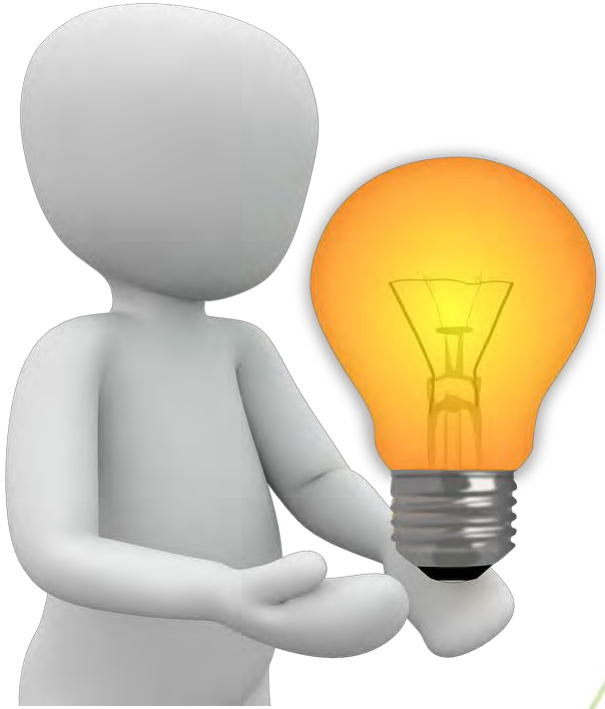
Address: Country of birth:

Indigenous status: ☐ Aboriginal ☐ Torres Strait Islander ☐ Not stated/unknown
☐ Aboriginal AND Torres Strait Islander ☐ NOT Aboriginal or Torres Strait Islander

Is the child of South Sea Islander descent? ☐ Yes ☐ No

Alerts / allergies:

Questions or ideas



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- Neuroprotective Developmental Care or the Possums programs. Dr Pam | NDC Masterclasses
- Why infant reflux matters. Carol Smythe. (2021). Home | Carol Smyth IBCLC & CBT
- Children's Health Queensland Hospital and Health Service. Children's health fact sheets | Children's Health Queensland
- Pregnancy and Breastfeeding Medicines Guide. Medicines | PBMG (thewomenspbmg.org.au)

- Video – David Cartwright newborn examination
- baby check & primitive reflexes - David Cartwright.wmv

AM2 Postnatal Case Discussion – Purple Group

- Lily has presented on day four after the birth of her first child at term by a forceps delivery for failure to progress
- He weighed 4.8 kg at birth and was mildly jaundiced at discharge on day two, but this seems to be progressing.
- Lily is breastfeeding every 2-3 hours and settles in between feeds.
- What is your assessment and plan for baby Sam?

She has a 15 min appointment - Outline your approach

AM2 Postnatal Case Discussion – Orange Group

Reintroducing Kasie …..

- Kasie has gone on to have an uncomplicated pregnancy, with her blood pressure remaining stable until she was in labour, at which time a vacuum extraction was performed.
- She has presented today at day 12 because baby Chloe continues to appear very jaundiced. Chloe is breastfeeding every 4-5 hours and appears more lethargic in the last few days.
- What is your assessment and plan for baby Chloe?

She has a 15 min appointment - Outline your approach

Newborn examination – what's new?

Ryan Mills

Deputy Director, Children's and Neonatal Services, Logan Hospital

Associate Professor, Griffith University

Routine newborn baby assessment

Preparation

Family centred care
- Consider cultural needs
- Discuss with parents: purpose, process, timing and limitations of assessments
- Ask about parental concerns
- Encourage participation

Timing
- Initial exam immediately after birth and any resuscitation
- Full and detailed assessment within 48 hours and always prior to discharge
- Follow-up 5–7 days and 6 weeks
- If unwell/premature–stage as clinically indicated

Review history
- Maternal medical/obstetric/social and family
- Current pregnancy
- Labour and birth
- Sex, gestational age, Apgar scores and resuscitation
- Since birth–medications, observations, feeding

Environment–consider:
- Warmth, lighting
- Correct identification
- Infection control precautions
- Privacy

Assessment

General appearance
- Skin colour, integrity, perfusion
- State of alertness
- Activity, range of spontaneous movement
- Posture, muscle tone

Growth status
- Chart head circumference, length, weight on centile charts

Head, face, neck
- Head shape, size
- Scalp, fontanelles, sutures
- Eye size, position structure
- Nose, position, structure
- Ear position, structure
- Mouth, palate, teeth, gums tongue, frenulum
- Jaw size

Shoulders, arms, hands
- Length, proportions, symmetry
- Structure, number of digits

Chest
- Size, shape, symmetry, movement
- Breast tissue, nipples
- Heart sounds, rate, pulses
- Breath sounds, resp rate
- Pulse oximetry

re not exhaustive. Use clinical judgement

Further investigation ☑ Urgent

Growth and appearance
- Dysmorphic features
- Excessive weight loss
- ☑ Jaundice < 24 hours of age
- ☑ Central cyanosis
- Petechiae new/unrelated to birth
- Pallor, haemangioma

Head and neck
- ☑ Enlarged/bulging/sunken fontanelle
- Macro/microcephaly
- ☑ Subgaleal haemorrhage
- Caput, cephalhaematoma
- Fused sutures
- Facial palsy/asymmetry on crying
- Hazy, dull cornea; congenital cataract
- Absent red eye reflex
- Pupils unequal/dilated/constricted
- Purulent conjunctivitis/yellow sclera
- ☑ Nasal obstruction
- Dacryocyst; cleft lip/palate
- Unresponsive to noise
- Absent ear canal or microtia
- Ear drainage
- Small receding chin/micrognathia
- Neck masses, swelling, webbing
- Swelling over or fractured clavicle

Upper limbs
- Limb hypotonia, contractures, palsy
- Palmar crease pattern

Chest
- ☑ Respiratory distress

Equipment–prepare:

- Overhead warmer if required
- Stethoscope
- Ophthalmoscope
- Tongue depressor & glove
- Pencil torch
- Tape measure, infant scales, growth charts
- Pulse oximeter
- Documentation
  - Infant Personal Health Record
  - Medical record
  - Neonatal clinical pathway

Discharge

Review discharge criteria

- Observations, feeding, output
- Vitamin K
- Hepatitis B vaccination

Discuss

- If < 24 hours of age, when to seek urgent medical assistance
- Routine screening (e.g. hearing, NBST, pulse oximetry)
- Childhood immunisation program
- Support agencies
- Newborn care
- Health promotion
- Medications as indicated

Abdomen

- Size, shape, symmetry
- Palpate liver, spleen, kidneys
- Umbilicus

Genitourinary

- Male–penis, foreskin, testes
- Female–clitoris, labia, hymen
- Anal position, patency
- Passage of urine and stool

Hips, legs, feet

- Ortolani and Barlow's manoeuvres
- Leg length, proportions, symmetry and digits

Back

- Spinal column, skin
- Symmetry of scapulae, buttocks

Neurological

- Behaviour, posture
- Muscle tone, spontaneous movements
- Cry
- Reflexes–Moro, suck, grasp

Indications for further investigation and/or urgent follow-up

- ☑ **Apnoeic episodes**
- Abnormal HR, rhythm, regularity
- Heart murmurs
- ☑ **Weak or absent pulses**
- ☑ **Positive pulse oximetry**

Abdomen

- ☑ **Organomegaly**
- ☑ **Gastrochisis/exomphalos**
- ☑ **Bilateral undescended testes**
- ☑ **Bilious vomiting**
- Inguinal hernia
- Signs of umbilical infection

Genitourinary

- ☑ **No urine/meconium in 24 hours**
- ☑ **Ambiguous genitalia**
- ☑ **Testicular torsion**
- Hypospadias, penile chordee micropenis, hydrocele

Hips, legs and feet

- Risk factors for hip dysplasia
- Positive/abnormal Barlow's and/or Ortolani manoeuvres
- Contractures/hypotonia
- Talipes
- Developmental hip dysplasia

Back

- Curvature of spine
- Non-intact spine
- Tufts of hair/dimple along intact spine

Neurological

- Weak/irritable/absent cry

- Medications as indicated
- Personal Health Record (red book)
- Referral and follow-up
  - Routine 5–7 days & 6 weeks

grasp

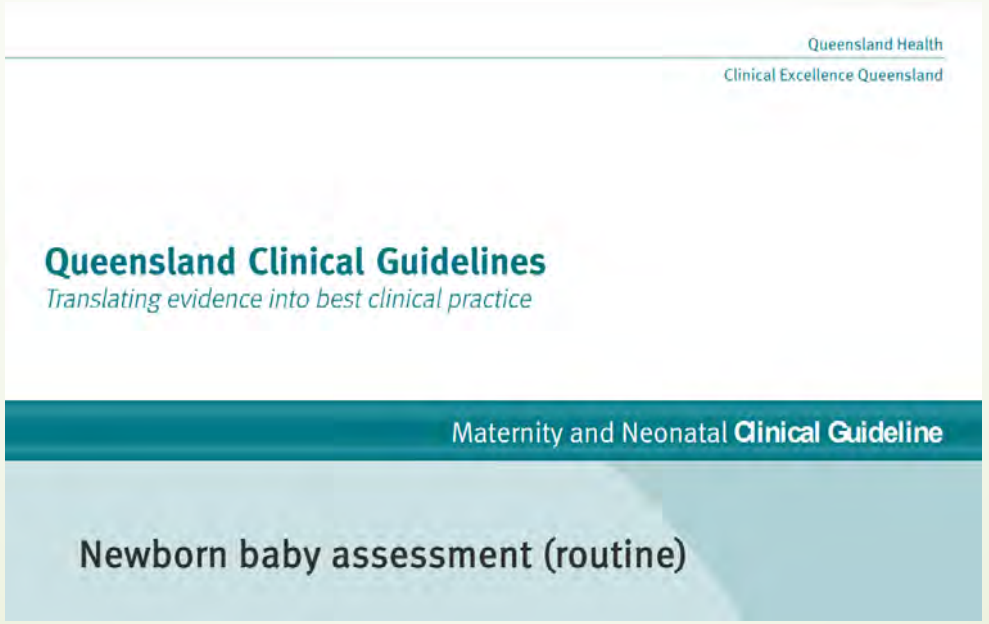
Discuss Document Refer

- Discuss findings with parents
- Document in health record(s)
- Refer as indicated

- Weak/irritable/absent cry
- Absent/exaggerated reflexes
- No response to consoling

☑ Seizures
☑ Altered state of consciousness

☑ Urgent follow-up; **GP:** general practitioner; **HR**: heart rate, **NBST**: newborn screening test, **SUDI**: sudden unexpected death in infancy, **<**: less than



Neonatal heel prick screening

- 48-72 hours of age (relies on adequate enteral intake – may need repeating if NBM/prem)
- New conditions added in May:
  - SCID (severe combined immune deficiency)
    - Usually X-linked, severe/lethal infections in early life
    - Needs bone marrow transplant
    - Heel prick blood screened for T cell receptor excision circles (low in SCID). If abnormal, needs confirmatory testing (FBC – lymphopaenia)
  - Spinal Muscular Atrophy (AR, 1/50 carrier rate)
    - Types 1 (most severe) to 4.
    - PCR-based genetic screen
    - Benefit of early treatment (Nusinersin – intrathecal)

Classic heel prick tests

- Cystic fibrosis (AR, carrier rate approx. 1/30)
  - Immunoreactive trypsinogen
  - Carriers often test positive
  - Initial genetic testing (85% of most common genes) on heel prick
  - Sweat test for confirmation
- Phenylketonuria (AR, carrier rate 1/50)
  - Early treatment important (low phenylalanine diet)
  - Newer therapies
- Galactosaemia (AR, carrier rate 1/100)
  - Symptoms: lethargy, FTT, jaundice (liver failure), sepsis
  - Early treatment (lactose restriction)
- Hypothyroidism (multifactorial)
  - Tests for elevated TSH (i.e., pituitary hypothyroidism not detected)
  - Classically detects aplastic or hypoplastic (e.g., ectopic/lingual) thyroid.

Heel prick testing (cont)

- Congenital adrenal hyperplasia (AR, carrier rate 1/60)
  - Tests for 17OHP, i.e.. specifically, 21 hydroxylase deficiency (classical CAH, often salt wasting).
- Extended screening for inborn errors of metabolism
  - E.g., organic acidurias
  - Spectroscopy for metabolite peaks
  - Generally autosomal recessive conditions

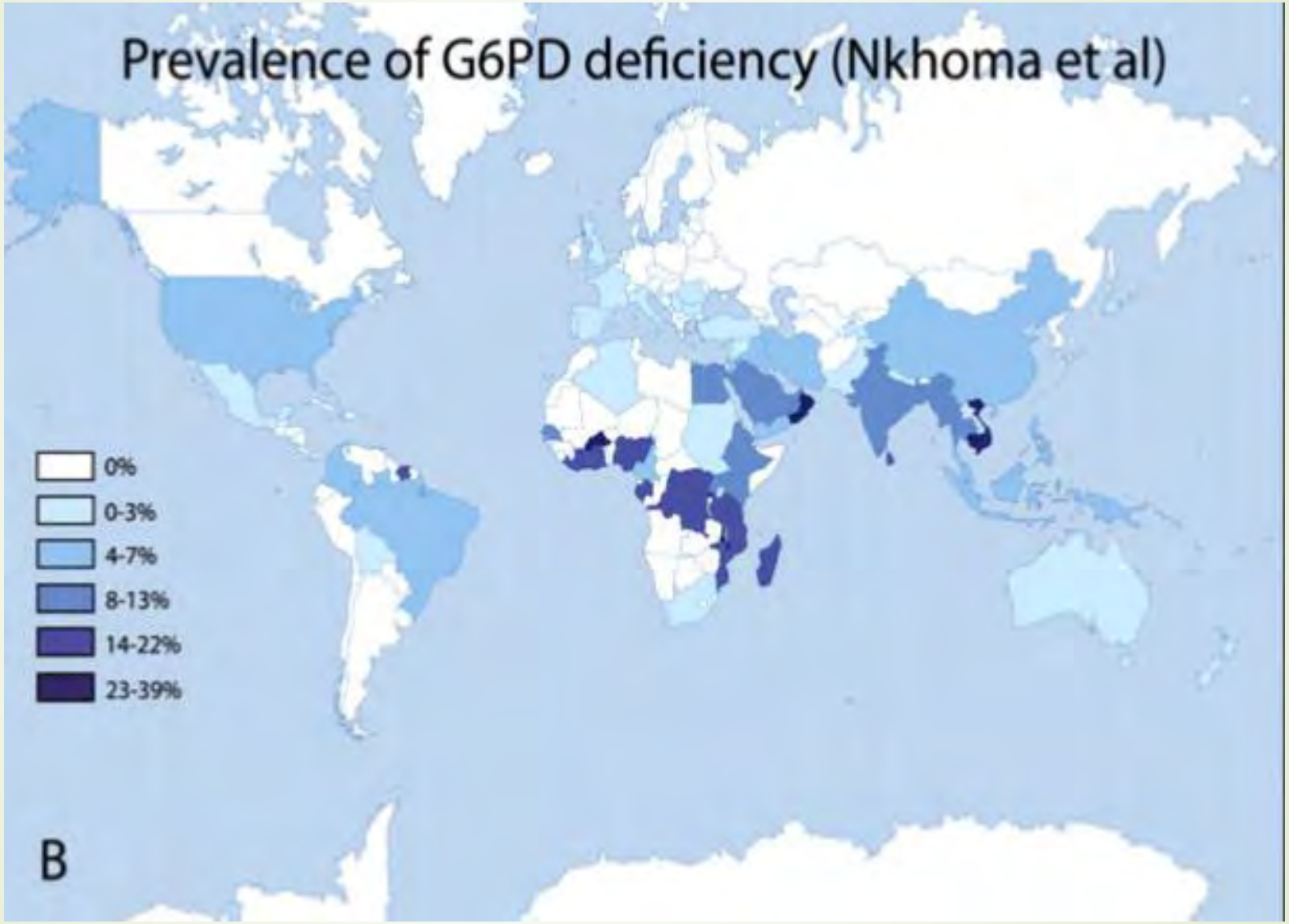
Neonatal screening messages for GPs

- Some babies might need recollection (e.g., if inadequate intake at 48-72h)
- "No news is good news"
- BUT
  - Worth calling the lab if clinically concerned (family history etc.)
  - Lab can give more detailed info (e.g., precise level of result such as TSH)
  - Stored under mother's name
  - Call RBWH switch – neonatal screening laboratory

G-6-PD deficiency

- Glucose-6-phosphate dehydrogenase
  - Protects against oxidative stress in RBC
  - If deficient, largely asymptomatic but at risk of major haemolytic event if exposed to oxidation (e.g., naphthalene, several drugs, see list)
- X-linked condition
  - i.e., mostly males affected
  - Can have homozygous females, or symptomatic carriers (Lyonization)
  - Approx 3% of world population affected, but up to 30% in high prevalence areas (e.g., 10% of African American men)
    - Africa, Asia, Middle East.

- Included in newborn screening in some jurisdictions, but not Queensland
- Therefore, low threshold to test in following situations:
  - Unexplained haemolysis/anaemia
  - Unexpectedly severe neonatal jaundice, or prolonged jaundice
  - Particularly in high risk groups
  - Test: “G6PD level”


Prevalence of G6PD deficiency (Nkhoma et al)
0%
0-3%
4-7%
8-13%
14-22%
23-39%
B

- **Antibiotics**
  - Sulphonamides (check with your doctor)
  - Co-trimoxazole (Bactrim, Septrin)
  - Dapsone
  - Chloramphenicol
  - Nitrofurantoin
  - Nalidixic acid
- **Antimalarials**
  - Chloroquine
  - Hydroxychloroquine
  - Primaquine
  - Quinine
  - Mepacrine
- **Chemicals**
  - Moth balls (naphthalene)
  - Methylene blue
- **Foods**
  - Fava beans (also called broad beans)
- **Other drugs**
  - Sulphasalazine
  - Methyldopa
  - Large doses of vitamin C
  - Hydralazine
  - Procainamide
  - Quinidine
  - Some anti-cancer drugs

G6PD Deficiency – substances to avoid (RCH Melbourne)

AM2 Postnatal Case Discussion – Purple Group

- Lily has presented on day four after the birth of her first child at term by a forceps delivery for failure to progress
- He weighed 4.8 kg at birth and was mildly jaundiced at discharge on day two, but this seems to be progressing.
- Lily is breastfeeding every 2-3 hours and settles in between feeds.
- What is your assessment and plan for baby Sam?

She has a 15 min appointment - Outline your approach

AM2 Postnatal Case Discussion – Orange Group

Reintroducing Kasie …..

- Kasie has gone on to have an uncomplicated pregnancy, with her blood pressure remaining stable until she was in labour, at which time a vacuum extraction was performed.
- She has presented today at day 12 because baby Chloe continues to appear very jaundiced. Chloe is breastfeeding every 4-5 hours and appears more lethargic in the last few days.
- What is your assessment and plan for baby Chloe?

She has a 15 min appointment - Outline your approach

Neonatal jaundice

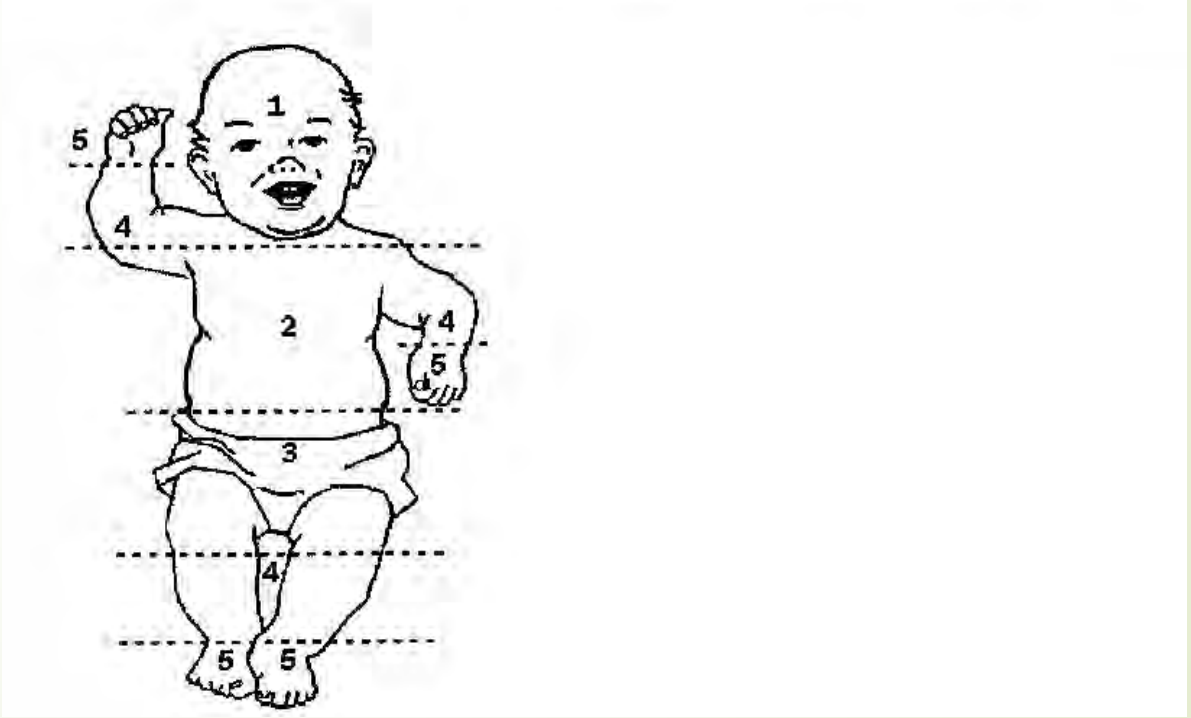
- Common (60% of term newborns)
- Risk: bilirubin encephalopathy (kernicterus)
  - "Safe" level of bilirubin not defined, but in healthy, term infants with no haemolysis, considered to be less than 425µmol/L
  - Higher risk in premature infants, or with isoimmunisation (e.g., rhesus)
- Usual features of physiological jaundice
  - Onset after first day of life (day 2-3)
  - Relatively mild (face and trunk)
  - Resolved by day 7-14

- Exacerbating conditions for physiological jaundice:
  - Dehydration (feeding difficulties) – check weight
  - Infection
  - Extensive bruising or cephalohaematoma
  - Exclusive breastfeeding

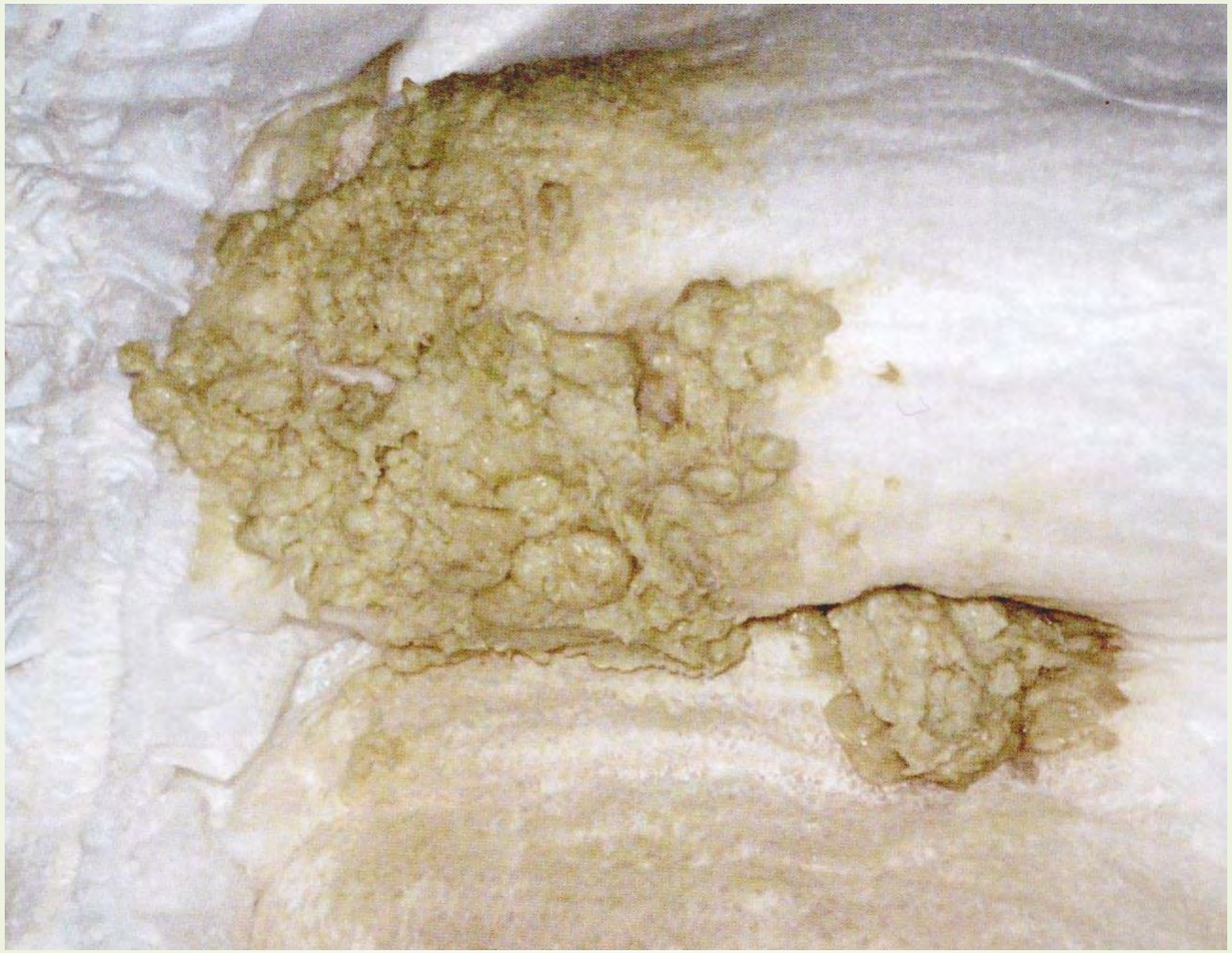
Kramer's Rule

- Perform SBR if estimated value of:
  - >150 in preterm
  - >200 in term baby

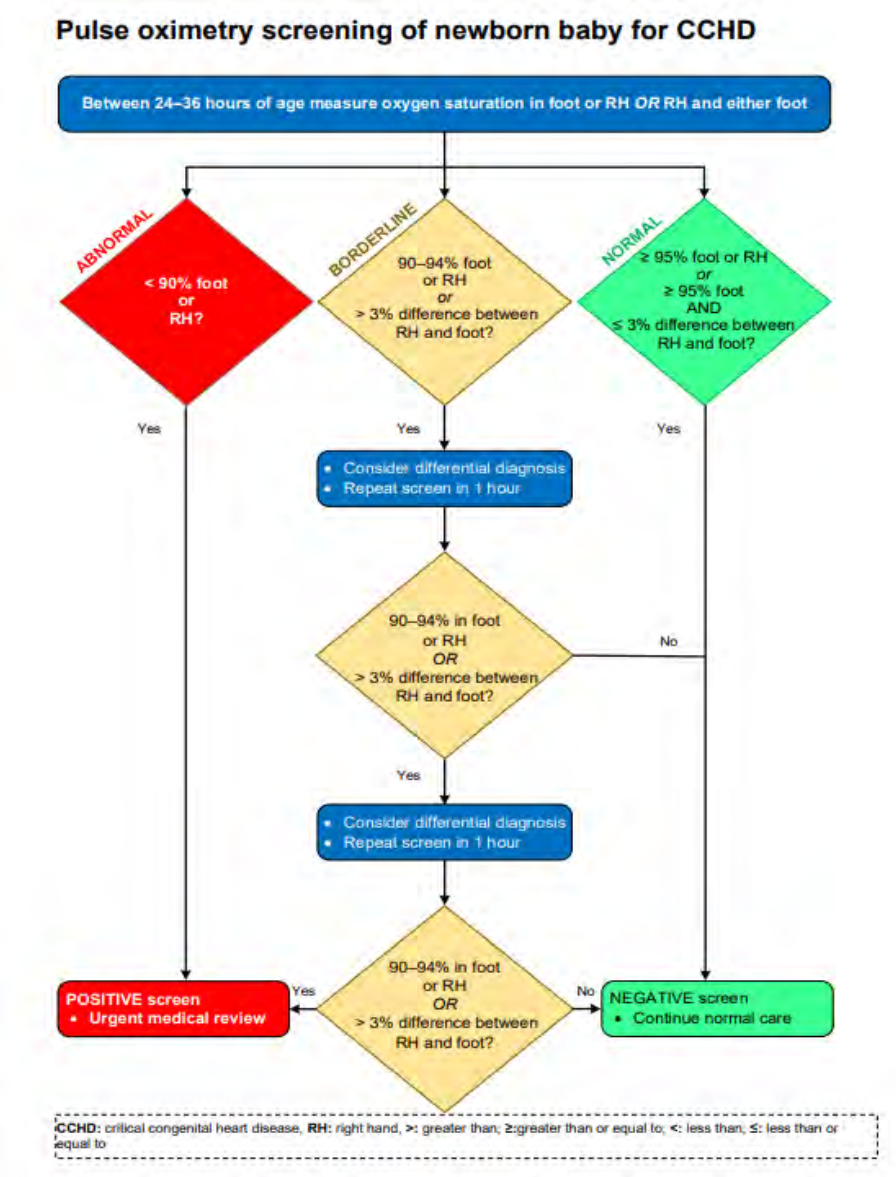
Zone	1	2	3	4	5
SBR (umol/L)	100	150	200	250	>250



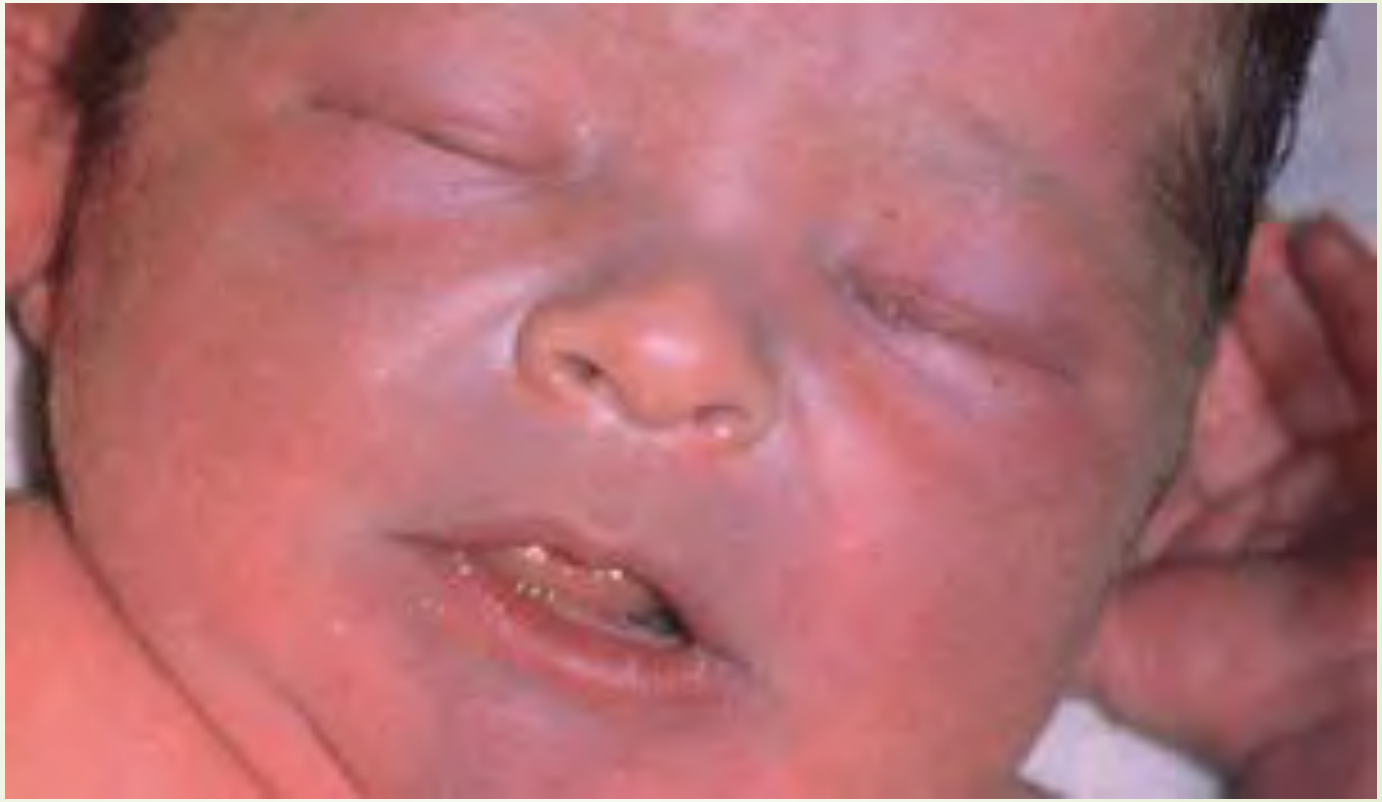
- Initial testing for jaundice:
  - Bilirubin (total and conjugated)
  - Group and direct Coombs
- Further tests if needed:
  - FBC
  - (LFT)
  - G6PD
- Prolonged jaundice:
  - FBC, G6PD, TFT
  - (Consider infection/UTI)
  - Diagnosis of exclusion – breast milk jaundice (up to 3 months)
- Red flag: Conjugated hyperbilirubinaemia
  - Total conj. Bili >20, or >20% of total
  - Check for dark urine/pale (acholic) stools
  - Workup for extra-hepatic biliary atresia (or other cause – choledochal cyst, neonatal hepatitis etc.)



Cardiac screening



Why? Central cyanosis is often not obvious

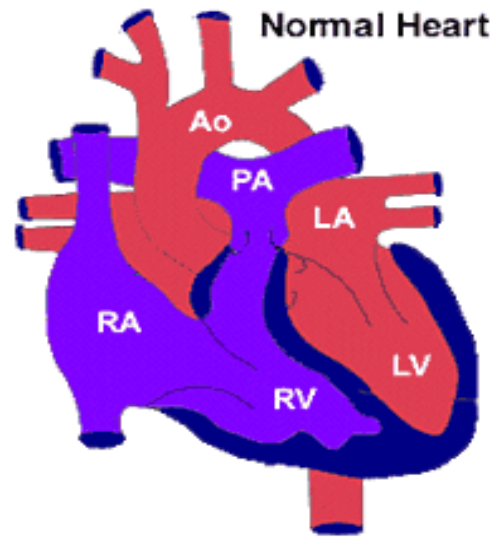


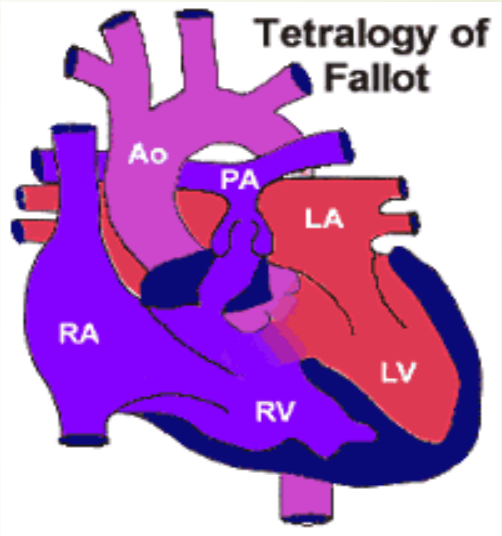
Classification – congenital heart disease

- Cyanotic vs acyanotic
- Various combinations of:
  - Obstruction (left side, right side)
  - Shunting (atrial, ventricular, ductal, collateral vessels)
  - Flow pathways (septal defects, vessels e.g., ductus arteriosus)
  - Pulmonary blood flow (increased, normal, decreased)

- Symptoms
  - Feeding difficulty
  - Breathing difficulty
  - Sweating
  - Pallor or cyanosis
- Clinical signs
  - ?Cyanotic or acyanotic
  - ?Signs of cardiac failure
    - Tachypnoea (crackles uncommon)
    - Hepatomegaly (hard to find JVP!)
    - May develop over days-weeks (decr. PVR)
    - (bronchiolitis-like, but subacute and without coryza)

Example: Tetralogy of Fallot





- VSD
- Overriding aorta (over VSD)
- Pulmonary stenosis
- Right ventricular hypertrophy

- Obstruction (yes – pulmonary)
- Shunting (yes – right to left, giving cyanosis)
- Pulmonary blood flow (decreased)

Tetralogy of Fallot (cont)

- Pathophysiology
- Most (not all) present as infants with cyanosis
  - "tet spells" of intense cyanosis
  - Murmur/s (pulmonary stenosis, VSD)
  - RVH (RV heave, ECG changes)
  - CXR: "boot shaped" heart

Cardiac messages for GPs

- Don't be reluctant to check a newborn's saturations (equipment).
- If you hear a murmur, take a good history of feeding/breathing/sweating and weight trajectory
- If concerned, refer (call if acute concerns)

Nomogram: Jaundice Management

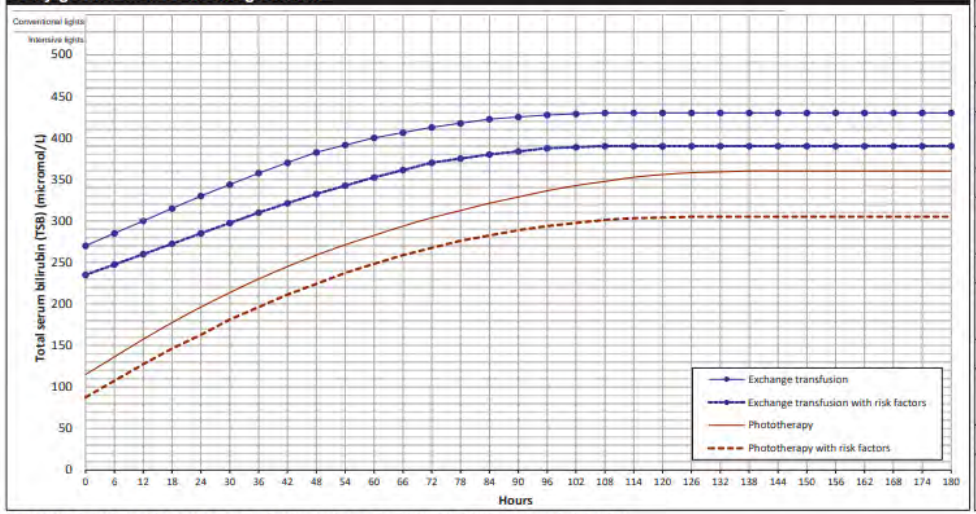
Neonatal

- Assessment - Routine Newborn
- Breastfeeding - Establishing breastfeeding
- Hypoglycaemia - newborn *(Updated June 2022)*
- Hypoxic-ischaemic encephalopathy *(Updated Nov 2022)*
- Jaundice - neonatal *(Updated Dec 2022)*

Last amended: Dec 2022 | Review date: Dec 2027 | Show history

Guideline	• Guideline: Neonatal jaundice (PDF, 786kB) • Guideline Supplement: Neonatal jaundice (PDF, 203kB)
Flowcharts	• Flowchart: Management of neonatal jaundice (PDF, 112kB)
Nomograms for jaundice, phototherapy and exchange transfusion	• All nomograms updated (V2) April 29 2022 • Nomogram: Baby greater than 38 weeks (PDF, 563kB) • Nomogram: Baby 35 to 37+6 weeks (PDF, 533kB) • Nomogram: Baby less than 35 weeks and more than 1999 grams (PDF, 500kB) • Nomogram: Baby less than 35 weeks and 1500-1999 grams (PDF, 507kB) • Nomogram: Baby less than 35 weeks and 1000-1499 grams (PDF, 496kB) • Nomogram: Baby less than 35 weeks and less than 1000 grams (PDF, 409kB)
Education	• Presentation: Neonatal jaundice (PDF, 570kB) • Knowledge assessment: Neonatal jaundice
Consumer information	• Jaundice in newborn babies (PDF, 611kB)

- Medicines - Neonatal
- Perinatal care of the extremely preterm baby
- Perinatal substance use: neonatal



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Queensland Government

Nomogram: Jaundice Management

For baby greater than 38 weeks gestation

Facility:

Comments:

Time of birth (24hr): | DCT: | Baby's blood group: | Mother's blood group:

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth: Sex: M F I

1. In the presence of risk factors (sepsis, haemolysis, acidosis or asphyxia) use the lower line.
2. If baby is greater than 12 hours old with total serum bilirubin (TSB) 1–50 micromol/L below the line, repeat the TSB within 6–24 hours.
3. Babies under phototherapy:
   a. Consider measuring the TSB 4–6 hourly until the rise of serum bilirubin is known to be controlled, then measure TSB 12–24 hourly.
   b. If the TSB is greater than 50 micromol/L below line, stop phototherapy and recheck in 12–24 hours.
4. If baby presents with TSB above threshold and the TSB is not expected to be below the threshold after 6 hours of intensive phototherapy, an exchange transfusion is indicated.
5. If there are signs of bilirubin encephalopathy an immediate exchange transfusion is recommended.

Baby greater than 38 weeks gestation

Date	TSB		Phototherapy	
	Time (24hr)	Result	Start time (24hr)	End time (24hr)
/ /	:		:	:
Comments:				
/ /	:		:	:
Comments:				
/ /	:		:	:
Comments:				
/ /	:		:	:
Comments:				
/ /	:		:	:
Comments:				
/ /	:		:	:
Comments:				
/ /	:		:	:
Comments:				

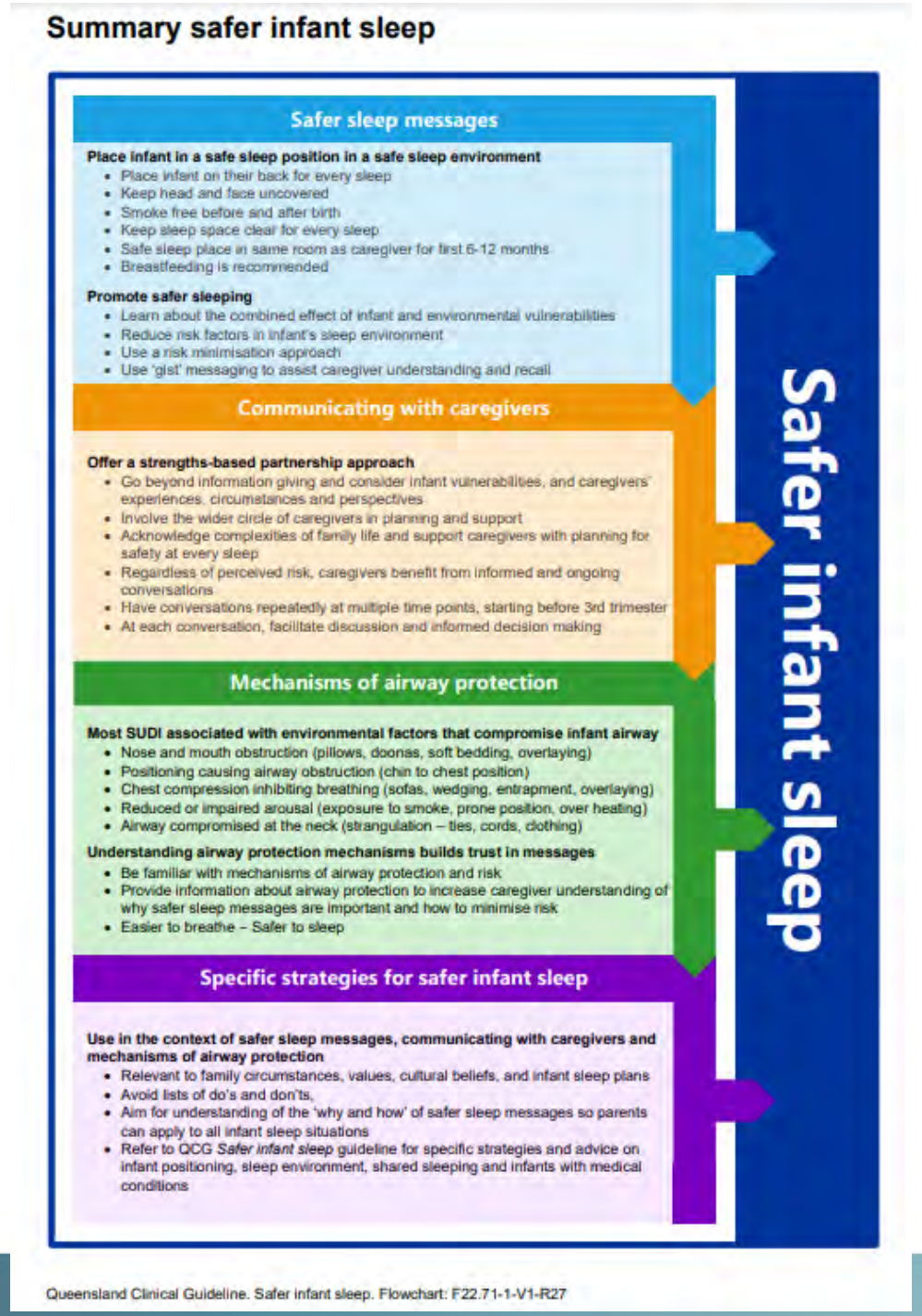
NOMOGRAM: JAUNDICE MANAGEMENT FOR BABY GREATER THAN 38 WEEKS GESTATION

https://www.health.qld.gov.au/qcg/publications

- Baby on their back
- Firm, flat, level surface
- Baby to side of one parent only
- Don't wrap or swaddle when sharing sleep
- Dress baby with arms free, head uncovered
- Keep adult bedding/pillows away from baby
- If baby sidelying to breastfeed, ensure enough clear space for baby to return to their back
- Avoid propping baby against adult
- Different sleep plans for extreme fatigue or alcohol consumed (i.e. use bassinet)

For more information see the Safer Infant Sleep Guideline

Queensland Clinical Guideline.
Safer infant sleep (July 2022)
https://www.health.qld.gov.au/__data/assets/pdf_file/0024/1166352/f-safer-sleep-sum.pdf

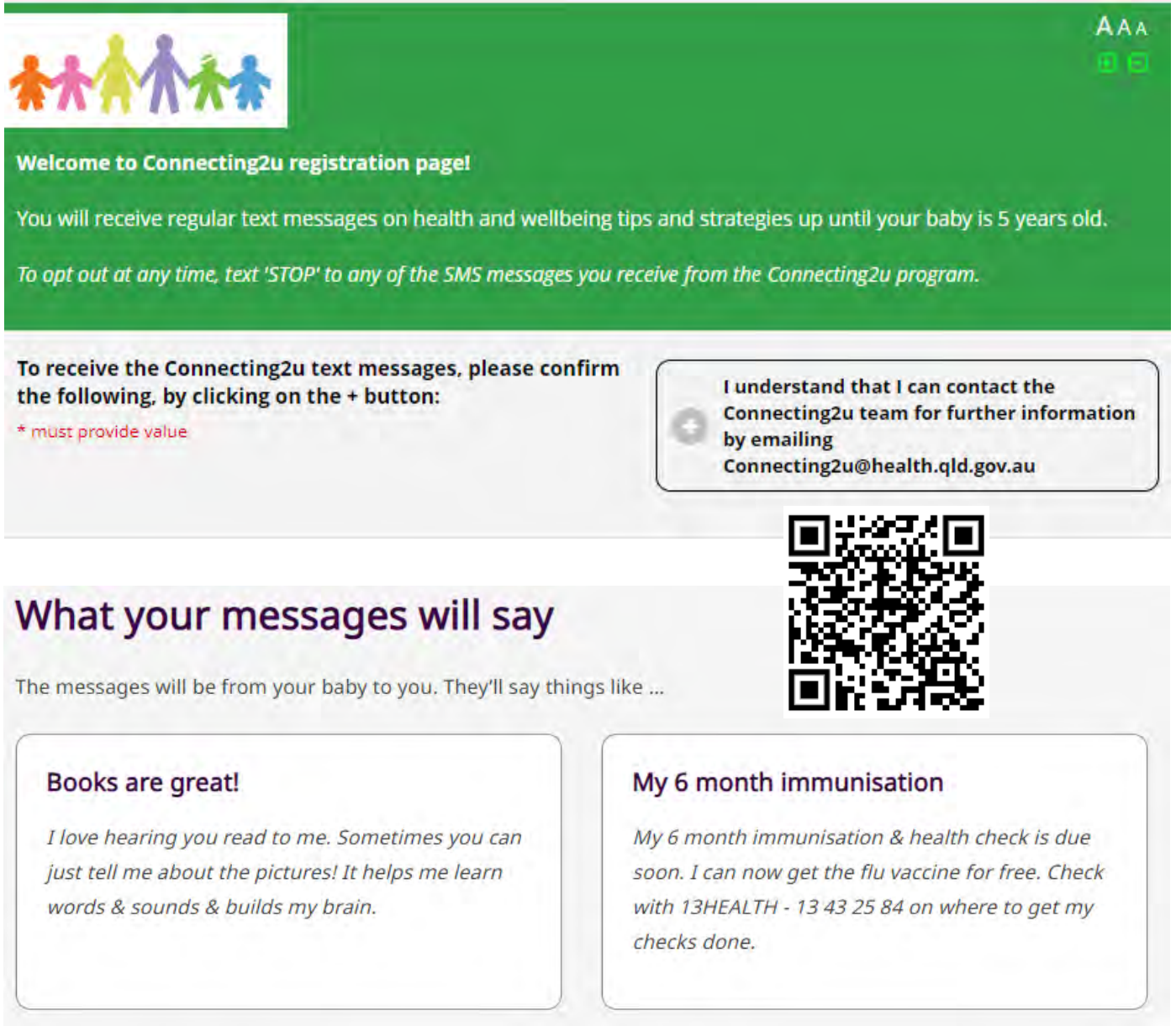


Spot On Health Pages

- https://brisbanesouth.communityhealthpathways.org/95834.htm - Poor Growth
- https://brisbanesouth.communityhealthpathways.org/33560.htm – Unsettled Infant
- https://brisbanesouth.communityhealthpathways.org/130765.htm - Jaundice in Babies
- https:// brisbanesouth.communityhealthpathways.org/72406.htm – Low Birth Weight Infants

Connecting2u

- When parents sign up to Connecting2u, they'll get weekly texts about keeping their baby safe, happy and healthy.
- Messages are a great way for parents to learn about their new baby. Anyone caring for a baby can also sign up. Sign up
- Text messages continue until child aged 5 years (more in first year, then weekly messages until 5years.
- Messages are available for Mums, Dads and carers.



General Practice Liaison Officer (GPLO) Program

Our GP liaison officers help GPs refer patients to our hospitals. We also train GPs who want to work with our maternity services in shared care.

On this page

How we help GPs

We have 2 teams to support GPs, our GP liaison officers (GPLO) and our GPLO Maternity Shared Care Team.

Our GP liaison officers can help you:

- understand our services
- refer patients to our hospitals and health centres
- use Brisbane South HealthPathways
- update your practice details in the Secure Transfer Service (STS) address book
- use the Health Provider Portal to access your patients' health records.

Contact a liaison officer

You can talk to our liaison officers in person, over the phone or by email.

- Email: GPLO_Programs2@health.qld.gov.au
- Phone: 1300 364 155 select option 2 – Monday to Friday between 8 am and 4 pm.

Maternity services support

Our GPLO Maternity Shared Care Team is based at Logan Hospital. We work with maternity services teams in our hospitals and GPs who practise in the Metro South Health area.

We help with:

- referrals
- patient handovers
- liaise with the obstetric team on your behalf.

We also run GP alignment education events each year. Search our events for future sessions.

Contact the GPLO Maternity Shared Care Team

Dr Kim Nolan
M.B.B.S; DRANZCOG; FRACGP; DCH
GPLO General Practitioner – Maternity
Obstetrics and Gynaecology Department
Logan Hospital
Phone: 07 2891 5754
Email: GPLO_Maternity_Share_Care@health.qld.gov.au

Lisa Miller
General Practice Liaison Midwife Manager
Women's & Children's Services | Logan Bayside Health Network
Logan Hospital
Phone: 0482 677 946
Email: GPLO_Maternity_Share_Care@health.qld.gov.au

GPs wishing to provide shared antenatal care at MSH region hospitals are encouraged to become aligned. There are a number of options to alignment including completion of a DRANZCOG, Certificate of Women's Health, MMH or MSH Alignment 1 seminar. See flowchart outlining the Alignment/Re-Alignment Options and further resources on the GP Maternity Share Care Education event page.

General Practice Liaison Officer (GPLO) Program Metro South Health

https://metrosouth.health.qld.gov.au/referrals/general-practice-liaison-officer-gplo-program

How to become an Aligned GP

GPs need to complete MSH GP Alignment 1 (AM1) education to be considered aligned for a 3-year period. To extend the alignment period by another 3 years GPs can participate in an AM1 event again or attend a MSH GP Alignment 2 (AM2) education event.

- AM2 can be completed as a stand-alone educational event.
- AM1 should be completed at least once every 6 years.

Completion of the MSH GP Alignment Program with us:

- ensures that GPs can work with our hospitals for a period of 3 years
- gives GPs a pathway to undertake the Mater Mothers' Hospital online bridging program.

Alignment education

Registration is now open for our next AM2 education event held on Saturday 7 September 2024.

Alternative pathways to become an Aligned GP

- Diploma of the Royal Australian College of Obstetricians and Gynaecologists (DRANZCOG)
- Certificate of Women's Health
- Mater Mothers' Hospital (MMH) alignment attendance with an online bridging course for Metro South Health - contact GPLO_Maternity_Share_Care@health.qld.gov.au for access.

If you wish to provide maternity shared care with our hospitals, please check your eligibility on the alignment and re-alignment options flow chart.

GP Maternity Shared Care Online Bridging Program

The online bridging program is for GPs who already do shared care with Mater Mothers' Hospital and want to do shared care with Metro Souh Health.
For more information about the program email GPLO_Maternity_Share_Care@health.qld.gov.au.

Resources

GP resources and our most recent AM1 PowerPoint presentations are provided below. Presentations are updated periodically to the most recent, which may be different to the slides from an Alignment education event you have previously attended.

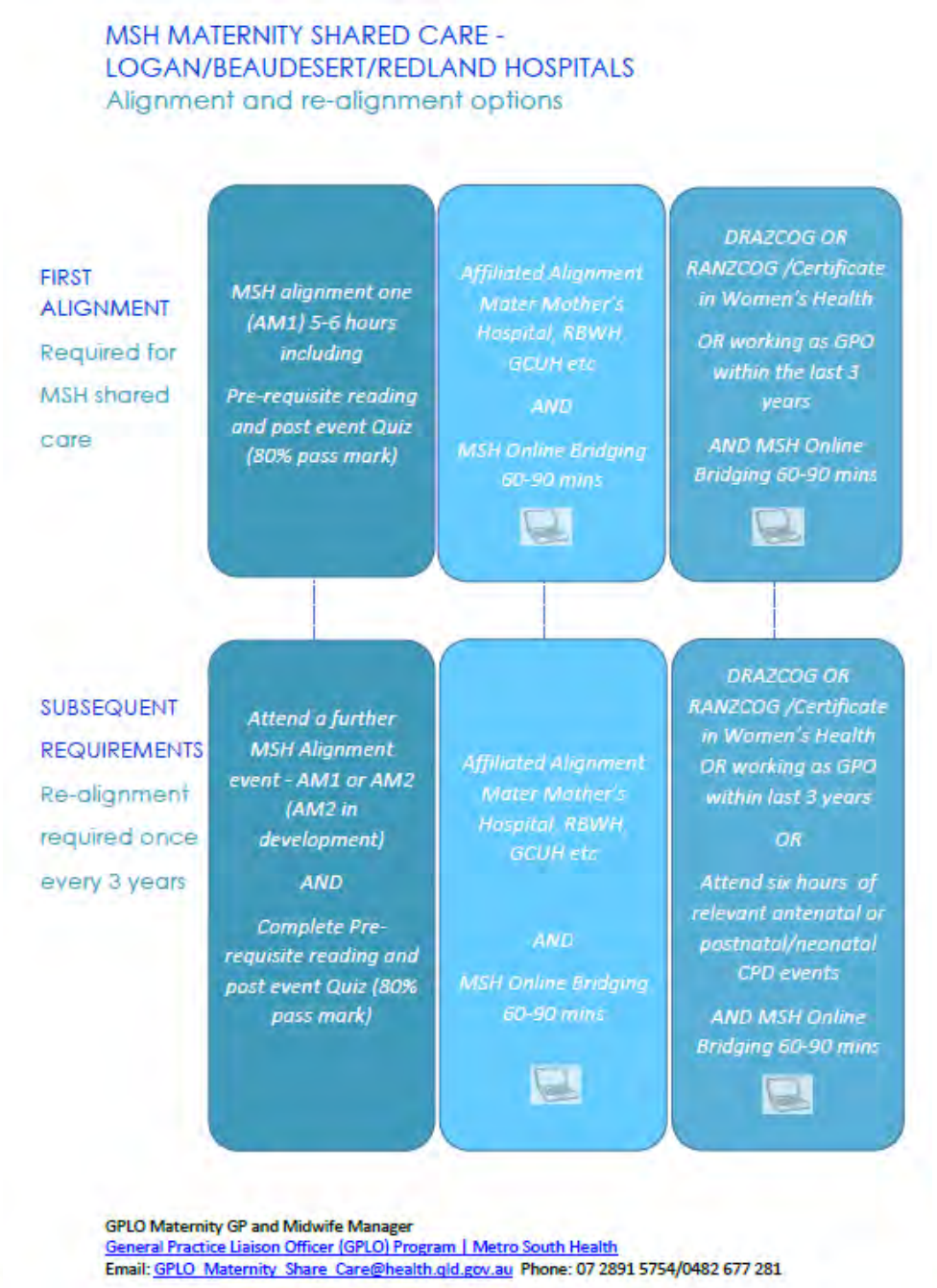
- Brisbane South Antenatal Shared Care Summary
- MSH Maternity Shared Care – Logan/Beaudesert/Redland Hospitals – Alignment and Re-alignment Options
- GP Maternity Shared Care Online Bridging Program

Past events

- MSH AM1 Seminar - May 2024
- Gynae GP Education Day - March 2024
- MSH AM2 Seminar - July 2023

Great news for MSHHS Aligned GPs!

- After extensive negotiations on your behalf, MSHHS will now host a public facing list of Aligned GPs, in keeping with MMH and Gold Coast University Hospital.
- We will ask for your permission for publication in the quiz that will be sent out in the next week.
- Please encourage any of your colleagues who have allowed their MSHHS Alignment to lapse, or have never completed Alignment to do so, with this free publicity in mind!
- Great way to build a practice, baby by baby!!



GPLO Maternity GP and Midwife Manager
General Practice Liaison Officer (GPLO) Program | Metro South Health
Email: GPLO_Maternity_Share_Care@health.qld.gov.au Phone: 07 2891 5754/0482 677 281

How to be aligned with MSHHS

- Completion of an AM1 event essential
- To maintain alignment after AM2
  - Undertake Knowledge Assessment – link sent by email in next week (80% pass mark)
  - Undertake Evaluation/Feedback – link to be forwarded – please let us know what we did well and what we could do better!
  - Please log your own CPD points – recommended as Educational Activity CPD points (5.5 hours) and Reviewing Performance Points (2.5 -3 hours)
  - Alignment will need to be undertaken (or an alternative) every 3 years.

Maintaining Alignment

To maintain your alignment after the next 3 years, you must either:

- repeat one Alignment Seminar - you can repeat a MSHHS Alignment

  OR an affiliated Alignment (MMH/RBWH/West Moreton/GCUH) + complete the MSHHS online bridge including Q&A.

OR

- attend six hours of relevant antenatal or postnatal/neonatal CPD education and complete MSHHS online bridge including Q & A. CPD events DO NOT need to be with the Metro South Health Services

OR

- Complete the RANZCOG Associate Training Program or Certificate in Women's Health + complete the MSHHS online bridge requirements.

We are hoping to roll out an Alignment 3 in next 12-18 months in MSHHS.

MSH Maternity Shared Care Online Bridging Program

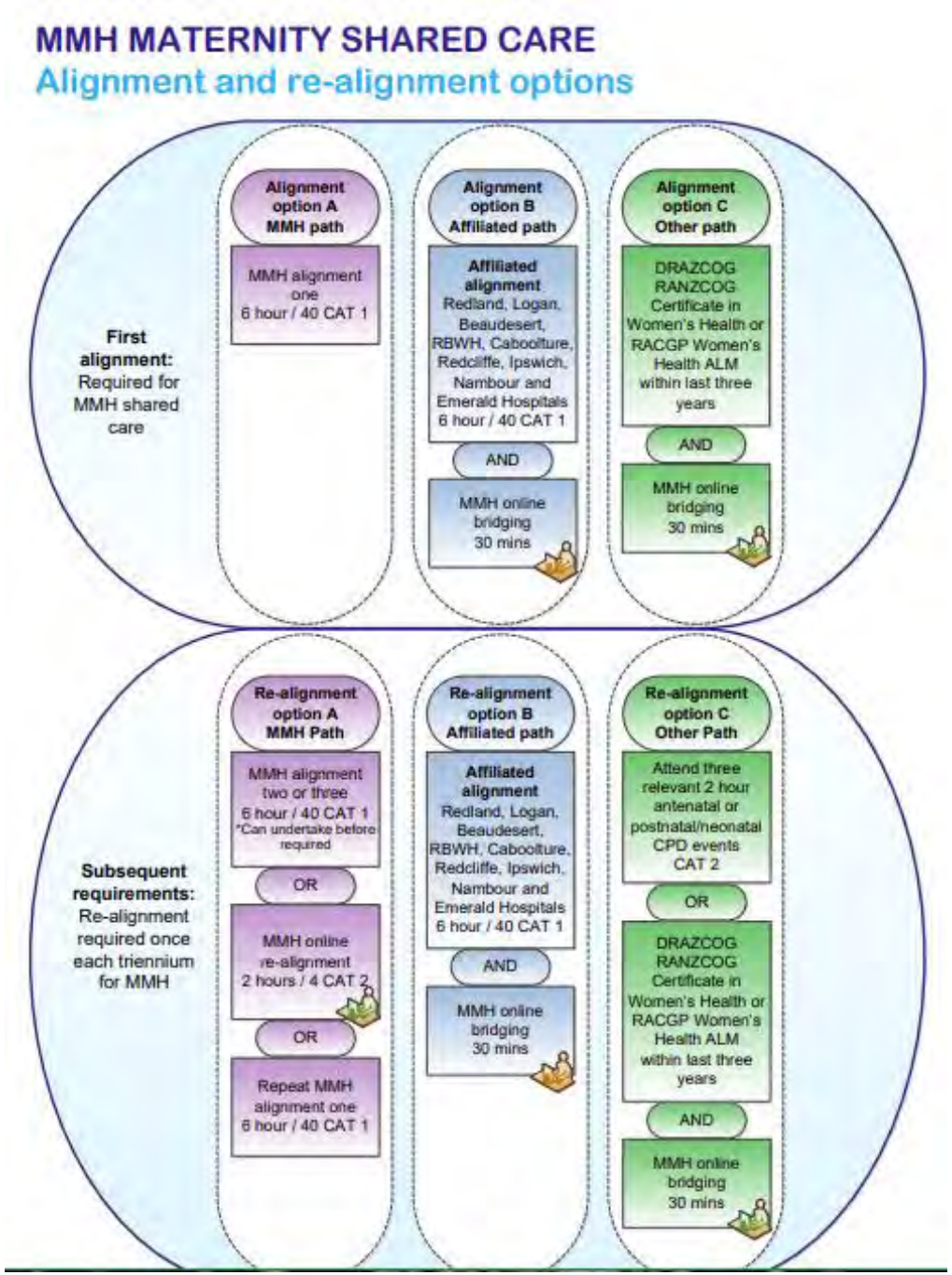
- Program is delivered via an interactive online learning module including an exam/quiz to complete.
- Available to GPs who are currently aligned to Shared Care at MMH (or an alternative SEQ Alignment) and wish to align with MSH.
- Takes approximately 1- 1 ½ hours to complete.
- Once complete, GPs will receive notice of completion which can be claimed as Continuing Professional Development (CPD), logged through the RACGP member portal or other associations.
- To access the MSH GP Maternity Shared Care Online Bridging Program, please email us on GPLO_Maternity_Share_Care@health.qld.gov.au

MMH Alignment

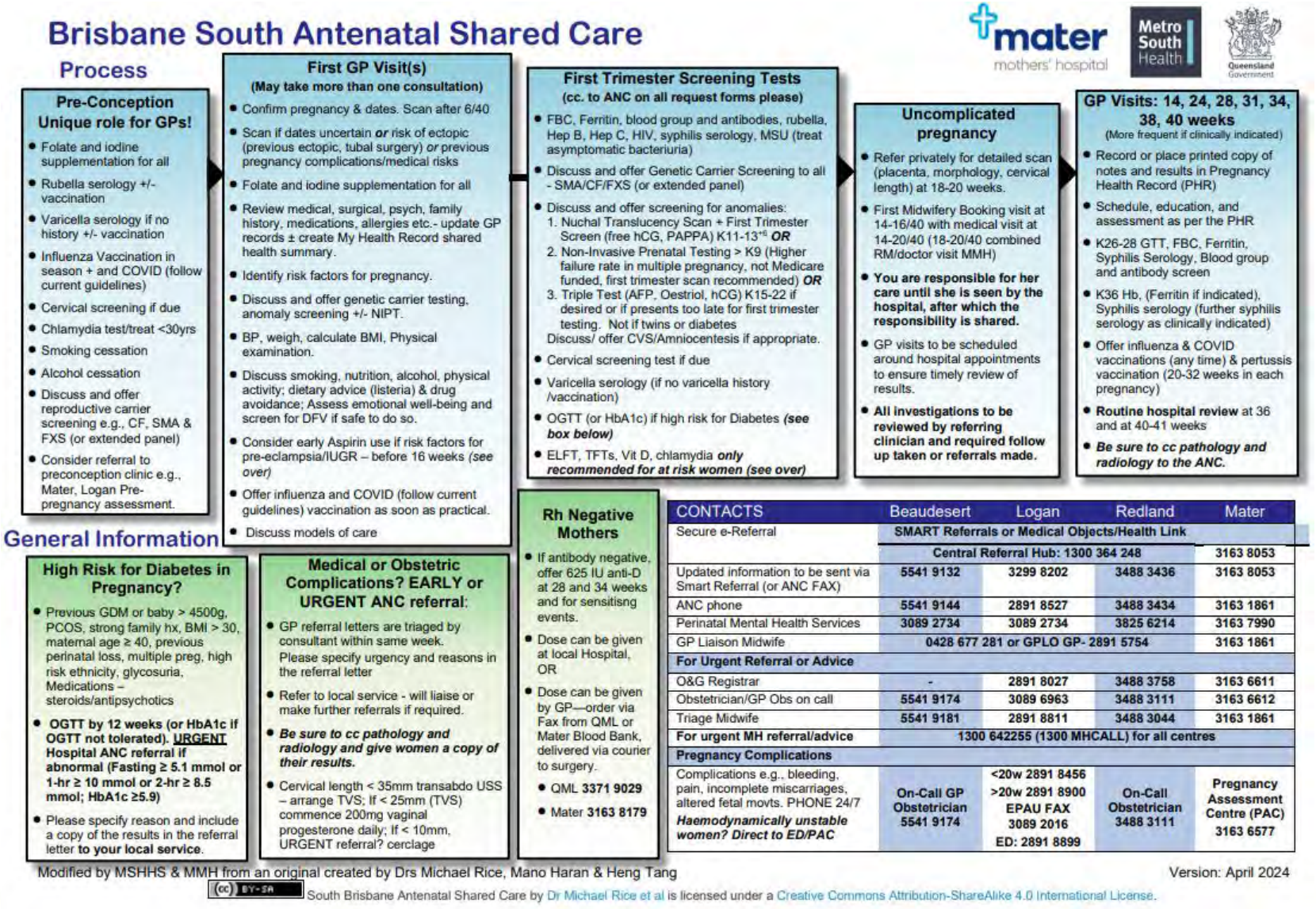
- To become aligned with MMH you can participate in an Alignment event run by MMH (AM1/AM2/AM3 and soon to be AM4)

OR

- after a MSHHS Alignment, GPs will need to complete MMH's online bridge including Q&A – accessed by contacting the MMH Alignment team and forwarding a copy of your certificate from completion of this event.
- MMH GP Liaison Midwife - Telephone 07 3163 1861, mobile 0466 205 710 or email GPL@mater.org.au



Brisbane South Antenatal Shared Care Summary – April 2024



Brisbane South Antenatal Shared Care

Process

Pre-Conception Unique role for GPs!

- Folate and iodine supplementation for all
- Rubella serology +/- vaccination
- Varicella serology if no history +/- vaccination
- Influenza Vaccination in season + and COVID (follow current guidelines)
- Cervical screening if due
- Chlamydia test/treat <30yrs
- Smoking cessation
- Alcohol cessation
- Discuss and offer reproductive carrier screening e.g., CF, SMA & FXS (or extended panel)
- Consider referral to preconception clinic e.g., Mater, Logan Pre-pregnancy assessment.

First GP Visit(s)
(May take more than one consultation)

- Confirm pregnancy & dates. Scan after 6/40
- Scan if dates uncertain *or* risk of ectopic (previous ectopic, tubal surgery) *or* previous pregnancy complications/medical risks
- Folate and iodine supplementation for all
- Review medical, surgical, psych, family history, medications, allergies etc.- update GP records ± create My Health Record shared health summary.
- Identify risk factors for pregnancy.
- Discuss and offer genetic carrier testing, anomaly screening +/- NIPT.
- BP, weigh, calculate BMI, Physical examination.
- Discuss smoking, nutrition, alcohol, physical activity; dietary advice (listeria) & drug avoidance; Assess emotional well-being and screen for DFV if safe to do so.
- Consider early Aspirin use if risk factors for pre-eclampsia/IUGR – before 16 weeks *(see over)*
- Offer influenza and COVID (follow current guidelines) vaccination as soon as practical.
- Discuss models of care

First Trimester Screening Tests
(cc. to ANC on all request forms please)

- FBC, Ferritin, blood group and antibodies, rubella, Hep B, Hep C, HIV, syphilis serology, MSU (treat asymptomatic bacteriuria)
- Discuss and offer Genetic Carrier Screening to all - SMA/CF/FXS (or extended panel)
- Discuss and offer screening for anomalies:
  1. Nuchal Translucency Scan + First Trimester Screen (free hCG, PAPPA) K11-13^{+6} ***OR***
  2. Non-Invasive Prenatal Testing > K9 (Higher failure rate in multiple pregnancy, not Medicare funded, first trimester scan recommended) ***OR***
  3. Triple Test (AFP, Oestriol, hCG) K15-22 if desired or if presents too late for first trimester testing. Not if twins or diabetes

  Discuss/ offer CVS/Amniocentesis if appropriate.
- Cervical screening test if due
- Varicella serology (if no varicella history /vaccination)
- OGTT (or HbA1c) if high risk for Diabetes ***(see box below)***
- ELFT, TFTs, Vit D, chlamydia ***only recommended for at risk women (see over)***

Uncomplicated pregnancy

- Refer privately for detailed scan (placenta, morphology, cervical length) at 18-20 weeks.
- First Midwifery Booking visit at 14-16/40 with medical visit at 14-20/40 (18-20/40 combined RM/doctor visit MMH)
- **You are responsible for her care until she is seen by the hospital, after which the responsibility is shared.**
- GP visits to be scheduled around hospital appointments to ensure timely review of results.
- **All investigations to be reviewed by referring clinician and required follow up taken or referrals made.**

GP Visits: 14, 24, 28, 31, 34, 38, 40 weeks
(More frequent if clinically indicated)

- Record or place printed copy of notes and results in Pregnancy Health Record (PHR)
- Schedule, education, and assessment as per the PHR
- K26-28 GTT, FBC, Ferritin, Syphilis Serology, Blood group and antibody screen
- K36 Hb, (Ferritin if indicated), Syphilis serology (further syphilis serology as clinically indicated)
- Offer influenza & COVID vaccinations (any time) & pertussis vaccination (20-32 weeks in each pregnancy)
- **Routine hospital review** at 36 and at 40-41 weeks
- ***Be sure to cc pathology and radiology to the ANC.***

General Information

High Risk for Diabetes in Pregnancy?

- Previous GDM or baby > 4500g, PCOS, strong family hx, BMI > 30, maternal age ≥ 40, previous perinatal loss, multiple preg, high risk ethnicity, glycosuria, Medications – steroids/antipsychotics
- **OGTT by 12 weeks (or HbA1c if OGTT not tolerated). URGENT Hospital ANC referral if abnormal (Fasting ≥ 5.1 mmol or 1-hr ≥ 10 mmol or 2-hr ≥ 8.5 mmol; HbA1c ≥5.9)**
- Please specify reason and include a copy of the results in the referral letter **to your local service**.

Medical or Obstetric Complications? EARLY or URGENT ANC referral:

- GP referral letters are triaged by consultant within same week. Please specify urgency and reasons in the referral letter
- Refer to local service - will liaise or make further referrals if required.
- ***Be sure to cc pathology and radiology and give women a copy of their results.***
- Cervical length < 35mm transabdo USS – arrange TVS; If < 25mm (TVS) commence 200mg vaginal progesterone daily; If < 10mm, URGENT referral? cerclage

Rh Negative Mothers

- If antibody negative, offer 625 IU anti-D at 28 and 34 weeks and for sensitisng events.
- Dose can be given at local Hospital, OR
- Dose can be given by GP—order via Fax from QML or Mater Blood Bank, delivered via courier to surgery.
- QML **3371 9029**
- Mater **3163 8179**

CONTACTS	Beaudesert	Logan	Redland	Mater
Secure e-Referral	SMART Referrals or Medical Objects/Health Link			
	Central Referral Hub: 1300 364 248			3163 8053
Updated information to be sent via Smart Referral (or ANC FAX)	5541 9132	3299 8202	3488 3436	3163 8053
ANC phone	5541 9144	2891 8527	3488 3434	3163 1861
Perinatal Mental Health Services	3089 2734	3089 2734	3825 6214	3163 7990
GP Liaison Midwife	0428 677 281 or GPLO GP- 2891 5754			3163 1861
For Urgent Referral or Advice				
O&G Registrar	-	2891 8027	3488 3758	3163 6611
Obstetrician/GP Obs on call	5541 9174	3089 6963	3488 3111	3163 6612
Triage Midwife	5541 9181	2891 8811	3488 3044	3163 1861
For urgent MH referral/advice	1300 642255 (1300 MHCALL) for all centres			
Pregnancy Complications				
Complications e.g., bleeding, pain, incomplete miscarriages, altered fetal movts. PHONE 24/7 ***Haemodynamically unstable women? Direct to ED/PAC***	On-Call GP Obstetrician 5541 9174	<20w 2891 8456 >20w 2891 8900 EPAU FAX 3089 2016 ED: 2891 8899	On-Call Obstetrician 3488 3111	Pregnancy Assessment Centre (PAC) 3163 6577

Modified by MSHHS & MMH from an original created by Drs Michael Rice, Mano Haran & Heng Tang

Version: April 2024

Available at [General Practice Liaison Officer (GPLO) Program | Metro South Health]

https://www.metrosouth.health.qld.gov.au/__data/assets/pdf_file/0023/291704/bsphn-whole-of-region-summary.pdf

Maternity GP Shared Care
Additional Information and Advice

Additional Tests – chlamydia, ELFT, TSH/TFTs, Vit D, TORCH serology

- Chlamydia–test women < 30 years old and other high-risk women by first-pass urine PCR.
- ELFTs recommended for obese women (BMI > 30), hypertension or known or suspected renal or liver disease.
- Routine TFTs *are not* recommended in low-risk pregnant women. TSH generally drops in first trimester with the rise in HCG. If a woman has a TSH lower than the lab reference range, check free T4/T3—if these are normal, the woman *does not* need referral, if elevated, they will need clinical review, possibly referral – liaise with your local team.
- Women with pre-existing hypothyroidism should have a TSH <2.5 in first trimester and <3.0 in the rest of the pregnancy. Lab reference ranges will reflect pregnancy recommendations if the woman is identified as being pregnant. Weekly doses usually need to go up by 30% during pregnancy, which is an extra 2 doses/week. Advise women to commence the higher dose as soon as they know they are pregnant.
- Vitamin D levels or supplementation are recommended for obese *or* dark-skinned women *or* those with little sun exposure *or* who cover themselves for religious or cultural reasons. Levels <50 may require supplements of 2000 IU/day. Levels <15 require higher doses and re-test after 3 months.
- Toxoplasma, cytomegalovirus, and herpes serology should *not* be performed routinely. If risk factors indicate a need for testing, please include risk in your referral as follow-up tests or other investigations or management may be needed.

Nutrition and Supplements

- Folate - 0.5 mg for all low risk, 5 mg if high risk (diabetic, obese, previous, or familial neural tube defect, anticonvulsants). Start one month before conception & continue to 12 weeks.
- Iodine 150mcg/day - recommended preconception, during pregnancy and while breastfeeding (folate + iodine supplement is available)
- 2-3 serves daily of calcium-rich food/drink (1g/day) OR add 500mg minimum daily supplement. RANZCOG recommend universal 400IU/day Vitamin D (e.g., 600mg Ca + 1000IU Vit D)
- Iron only needed if deficiency is identified however low dose is included in all pregnancy supplements. Avoid Vit A in pregnancy.
- Added supplements needed for women post Bariatric Surgery – seek Dietitian input.
- Avoid or limit intake of large/predatory fish due to mercury content (Orange Roughy /Sea Perch, Shark/Flake, Swordfish, Marlin etc.)

Early Low Dose Aspirin (100-150mg)

Commence before 16/40, stop at 36/40 to reduce incidence of placental disorders such as Pre-eclampsia & fetal growth restriction (FGR), preterm birth & perinatal mortality in those at increased risk. Take in the evening.

High Risk Factors - recommend if patient has one or more of:

- Hypertension
- Renal disease
- Auto-immune diseases e.g., SLE or anti-phospholipid syndrome
- Diabetes (Type 1 or Type 2)
- Previous History of pre-eclampsia

Moderate Risk Factors – consider if two or more are present:

- Primiparous
- BMI > 35
- Age > 40
- Multiple pregnancy
- Family history of pre-eclampsia (mother or sister)
- More than 10 years since last pregnancy

Preventing Infections

- Toxoplasmosis - Avoid feeding raw/undercooked meats to pets, avoid cat faeces/litter, wear gloves when gardening.
- Cytomegalovirus - Good hand hygiene; Care with urine, saliva, nappies of young children
- Influenza and COVID Vaccination at any stage antenatally and pertussis vaccinations between 20-32 weeks (but up to time of delivery if missed, requires two weeks to be fully effective)
- Listeriosis - Avoid soft cheeses, un-pasteurised milk, pate, raw eggs, hot dogs, undercooked and deli meats, reheated leftovers, precut fruit, bean sprouts.

More Online Information and Education

for GPs interested in Antenatal Care are available through:

- General Practice Liaison Officer (GPLO) Program webpage: https://metrosouth.health.qld.gov.au/referrals/general-practice-liaison-officer-gplo-program
- Mater Mothers www.materonline.org.au (Click on Shared Care Alignment for a range of resources for GPs) www.matermothers.org.au (Click on Mater Mothers' Hospital for resources for women)
- www.maternity-matters.com.au has consumer and clinician resources and links to reputable websites.

Early Pregnancy Complications (<20 weeks)

- Nausea and vomiting - decrease iron (but continue iodine and folate), try ginger, acupressure, pyridoxine 75 mg/day in divided doses, doxylamine (Cat A) Metoclopramide (Maxolon Cat A) and Phenothiazines like Prochlorperazine (Stemetil Cat C, po/pr/iv, safe in first trimester); Ondansetron may be effective but is relatively expensive. Even mild dehydration/ketonuria may benefit from IV fluids.
- Bleeding: check blood group and antibodies. Threatened miscarriage in rhesus-negative women without antibodies after 12 weeks requires anti-D, before 12 weeks anti-D is not required unless the miscarriage completes, or you are concerned the woman may not re-present.
- Bleeding and pain: consider ectopic pregnancy!
- Consider advice from, or referral to, early pregnancy assessment unit (EPAU), pregnancy assessment centre (PAC) or emergency department at booking hospital (appointments may be required)

Beaudesert 5541 9111; Logan MAC 2891 8811
Redlands 3488 3111; Mater PAC 3163 6577

Late pregnancy complications (>20 weeks)

- Bleeding – can do spec exam but avoid PVE. Exclude cervical dilatation. Re-check placental site on original morphology scan. Rhesus negative mums need anti-D
- Abdominal pain - can do spec exam but no PVE. Exclude cervical dilatation. Anti-D may be required for abruption.
- Ruptured membranes - Review at hospital preferred. Can do spec exam but no PVE.
- Fundal height > 3cm above or below expected for gestational age – arrange USS & if IUGR confirmed, refer to ANC by Fax and Phone Obstetrician/Registrar; if LGA confirmed, refer back through ANC
- Perceived change in fetal movements beyond 28 weeks or no FH detected – arrange IMMEDIATE hospital review.
- Most should be referred to booking hospital birth suites, pregnancy/maternity assessment/observation units or Emerg. Dept.

Beaudesert 5541 9111; Logan MAC 2891 8811
Redlands 3488 3111; Mater PAC 3163 6577

Modified by MSHHS & MMH from an original created by Drs Michael Rice, Mano Haran & Heng Tang. Edited & updated by Drs Kim Nolan, Michael Rice, Wendy Burton & Maggie Robin – April 2024
www.materonline.org.au | www.https://metrosouth.health.qld.gov.au/referrals/general-practice-liaison-officer-gplo-program

Thank you …. and three more things...

- Let us know if you would be happy to have your contact information available for pregnant women who don't have a regular GP.
- MSHHS will hold your contact details – Alignment stays with the doctor, not the practice, but let us know if you move practice.
- Provide an updated email address so that we will be able to contact/update you in the future and forward our newsletter "Maternity in Focus" every few months

Good afternoon and thank you!