

Queensland Clinical Guidelines

Translating evidence into best clinical practice

Maternity and Neonatal **Clinical Guideline**

Maternity care for mothers and babies during the COVID-19 pandemic

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Cultural acknowledgement

We acknowledge the Traditional Custodians of the land on which we work and pay our respect to the Aboriginal and Torres Strait Islander Elders past, present and emerging.

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This guideline does not address all elements of standard practice and accepts that individual clinicians are responsible for:

- Providing care within the context of locally available resources, expertise, and scope of practice
- Supporting consumer rights and informed decision making, including the right to decline intervention or ongoing management
- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary
- Ensuring informed consent is obtained prior to delivering care
- Meeting all legislative requirements and professional standards
- Applying standard precautions, and additional precautions as necessary, when delivering care
- Documenting all care in accordance with mandatory and local requirements

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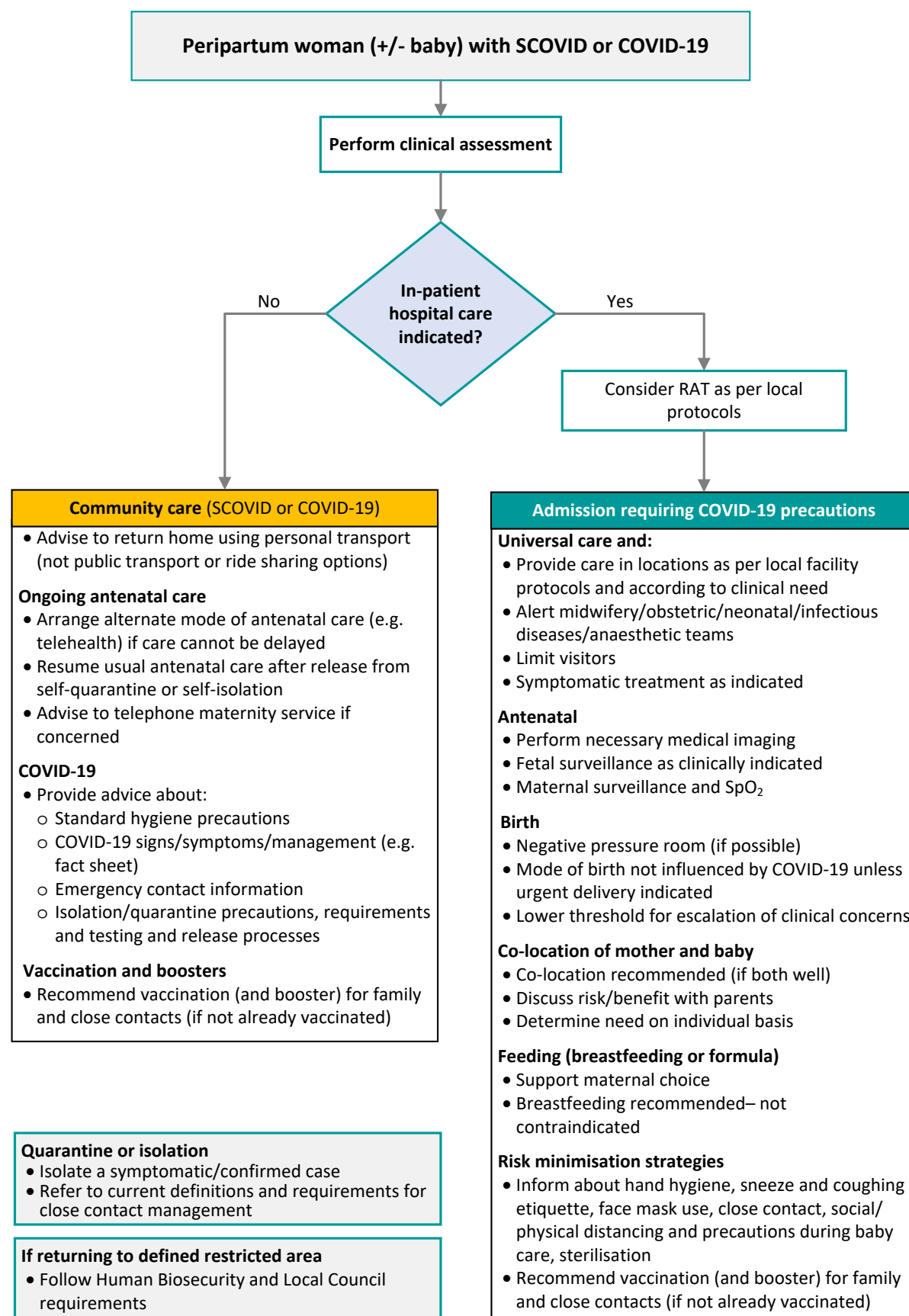
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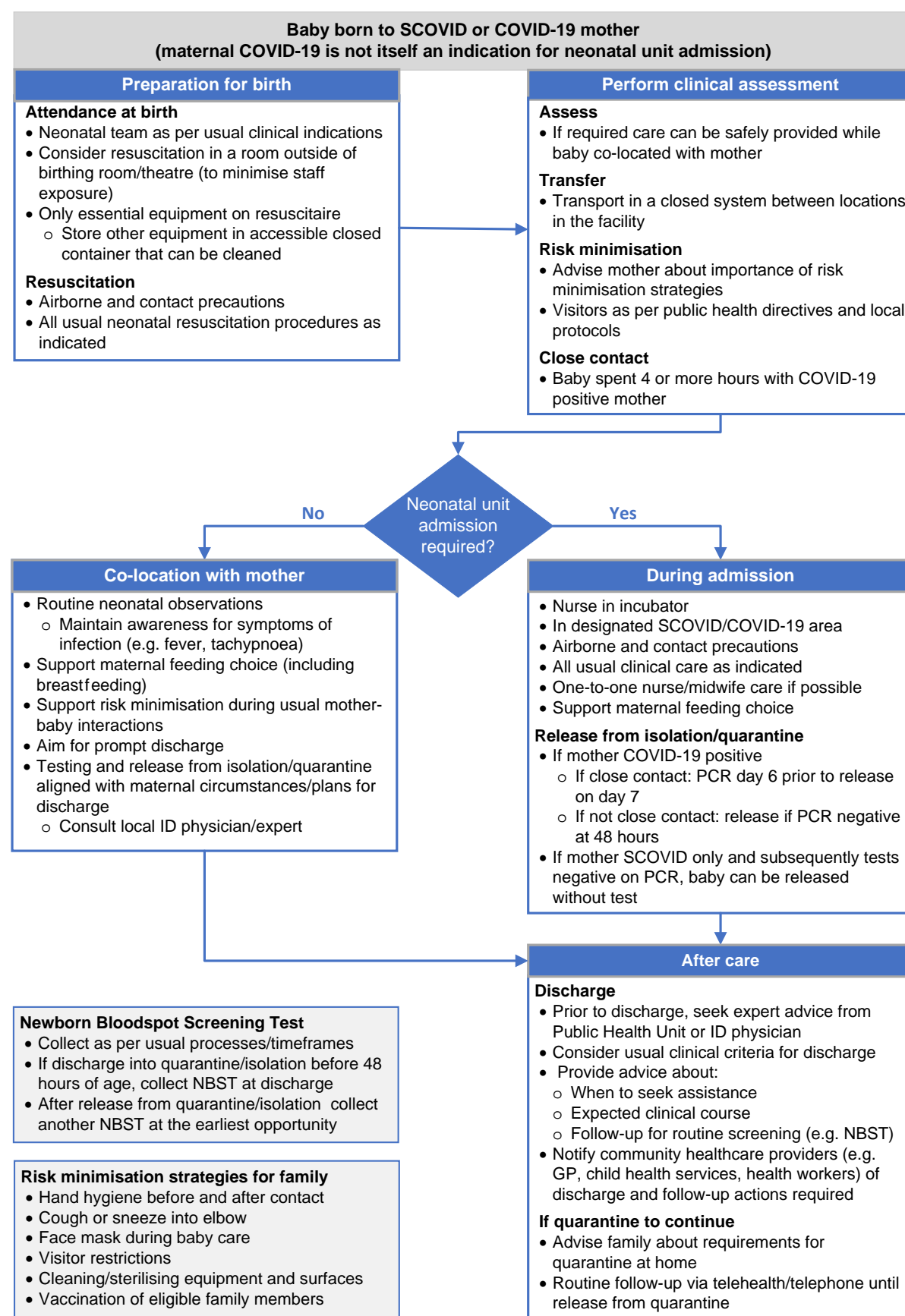
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Flowchart: Care of SCoVID or COVID-19 peripartum woman



RAT: rapid antigen test, SCoVID: suspected COVID-19 positive, SpO₂: peripheral capillary oxygen saturation

Flowchart: Neonate of SCOVID or COVID-19 mother

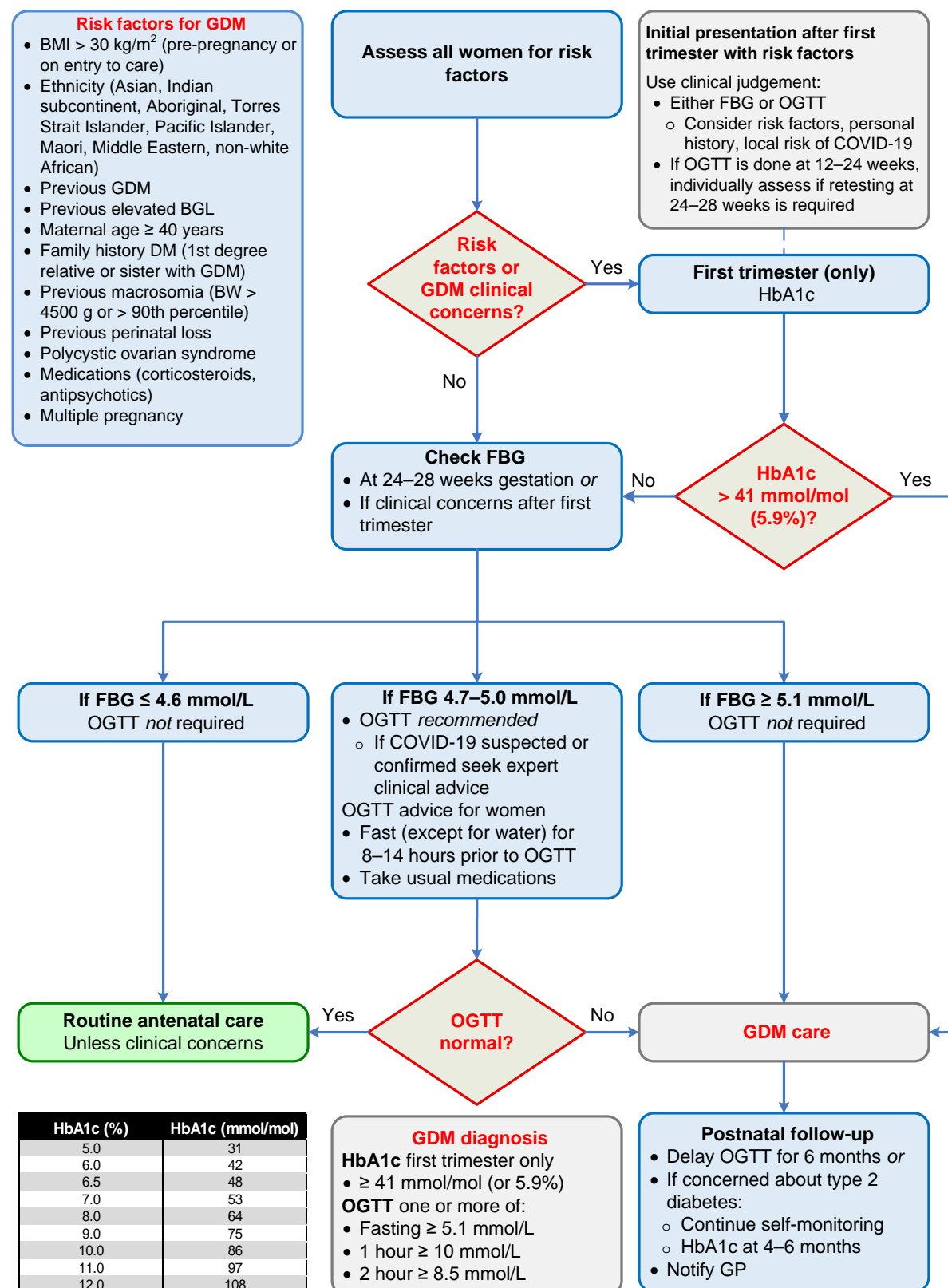


AGP: aerosol generating procedure, GP: general practitioner, ID: infectious diseases, NBST: newborn bloodspot screening test, PPE: personal protective equipment, SCOVID: suspected COVID-19 positive

Flowchart GDM screening and testing when local risk of COVID-19 is elevated

ELEVATED local risk of COVID-19

- **Applies to:** Pregnant women regardless of COVID-19 status
- **Rationale:** To support social distancing and minimise blood collection time (i.e. not based on new evidence)



BGL: blood glucose level, BMI: body mass index, DM: diabetes mellitus, FBG: fasting blood glucose GDM: gestational diabetes mellitus, GP: general practitioner, HbA1c: glycated haemoglobin, OGTT: oral glucose tolerance test, greater than or equal to, >: greater than

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Abbreviations

AGP	Aerosol generating procedure
COVID-19	Positive COVID-19 case
CPAP	Continuous positive airway pressure
DFV	Domestic and family violence
GDM	Gestational diabetes mellitus
ICU	Intensive care unit
MSG	Message
NBST	Newborn bloodspot screening test
OGTT	Oral glucose tolerance test
PCR	Polymorphase chain reaction test
PPE	Personal protective equipment
RATs	Rapid antigen test
SARS	Severe acute respiratory syndrome
SCoVID	Suspected COVID-19 positive case
SpO ₂	Peripheral capillary oxygen saturations
VOC	Variant of concern
VTE	Venous thromboembolism

Definitions

Airborne versus droplet	In this document airborne is used to mean very small particles which, rather than falling to the ground (as larger droplets do), can flow through the air, remain suspended for long periods or evaporate before hitting the floor leaving the solid particulate free to float long distances, and spread more widely. Dispersion is affected by more than just particle size (e.g. also by air movement/flow, humidity, temperature)
Close contact	Refer to definition in current <i>Communicable Diseases Network Australia (CDNA) National Guidelines for Public Health Units Coronavirus Disease 2019 (COVID-19)</i> ¹
Cohorting	Placement of patients with similar/same condition in the same physical location. ²
COVID-19	In this guideline used to mean a person confirmed as being COVID-19 positive according to national guidelines case definition ¹
Exposure location	Term used to describe a venue that a person with COVID-19 has been. In Queensland, health advice is provided only for major outbreak venues or super-spreader events ³
Hotspot	Hotspots, when declared, are places in Australian states or territories other than Queensland, or in safe travel zone countries where health officials have found a lot of people with COVID-19, or places that are at risk of a lot of COVID-19 infections.. ⁴
Neonatal unit	In this guideline, used to refer to the admitted baby unit of the facility (i.e. neonatal intensive care unit and/or special care nursery).
Isolation	Used to separate ill people from those who are healthy until they are declared recovered.
Operator of a hospital	Person who owns, controls or operates the hospital (e.g. chief executive, chief operating officer or executive director of a hospital). ⁵
Quarantine	Used to restrict the movement of a well person who may have been exposed for the period when they could become unwell
SCoVID	In this guideline used to mean a person suspected or with increased likelihood of current SARS-CoV-2 infection according to national guidelines case definition ¹
Standard precautions⁶	Follow standard precautions for infection prevention and control at all times. This is additional to other transmission precautions required during COVID-19 (e.g. contact, droplet, airborne precautions). Standard precautions consist of hand hygiene, appropriate use of personal protective equipment, safe use and disposal of sharps, routine environmental cleaning, reprocessing of re-usable medical equipment and instruments, respiratory hygiene and cough etiquette, aseptic technique, waste management, appropriate handling of linen.

1 Introduction

Information is current at the time of publication, but new information is emerging, and this may affect recommendations. This guideline applies to women who do not require critical care.

1.1 Background

Table 1. COVID-19

Aspect	Consideration
Coronavirus	<ul style="list-style-type: none"> COVID-19 is the disease caused by SARS-CoV-2 SARS-CoV-2 is the name of the virus (a type of coronavirus) first identified in late 2019 Coronavirus is the broad name for a type of virus. There are different kinds of coronaviruses (e.g. Severe Acute Respiratory Syndrome (SARS), Middle Eastern Respiratory Syndrome (MERS)) New variants of concern (VOC) of SARS-CoV-2 have emerged (e.g. alpha, beta, gamma, delta, omicron); are expected to continue to emerge, and some may disappear⁷
Delta VOC	<ul style="list-style-type: none"> Compared to previous VOC, delta VOC is <ul style="list-style-type: none"> Twice as contagious⁷ More likely to cause severe illness, hospitalisation, and death^{8,9} After two doses of vaccine <ul style="list-style-type: none"> Effectiveness against delta VOC is comparable (although slightly less) than against alpha VOC¹⁰ Breakthrough infection remains possible although compared to partially or unvaccinated people, mean viral RNA load is lower and duration of illness shorter^{8,9}
Omicron VOC	<ul style="list-style-type: none"> Spread rapidly, even in populations with widespread infection and/or vaccination¹¹ Vaccine efficacy for omicron reported to wane within 6 months of primary immunisation¹¹ Booster vaccination doses are recommended¹¹
Transmission of COVID-19	<ul style="list-style-type: none"> Human to human transmission occurs predominately through respiratory droplets and aerosols from close contact with an infected person as¹²: <ul style="list-style-type: none"> Inhalation of very fine droplets and aerosol particles Deposition of droplets and particles onto exposed mucous membranes (e.g. mouth, nose, eye) Touching mucous membranes with hands soiled by exhaled respiratory fluids containing virus or from touching inanimate surfaces contaminated with the virus
Vertical transmission	<ul style="list-style-type: none"> Evidence of vertical transmission is not well established but may be possible¹³⁻¹⁵ <ul style="list-style-type: none"> Estimates of 2.6–3.7%^{13,14,16} reported (mainly following third trimester infection) There is a paucity of data about rates of transmission in early pregnancy¹³ No evidence of congenital malformation following maternal COVID-19 infection¹⁶ Not affected by mode of birth or delayed cord clamping¹⁷
Physiology of pregnancy and COVID-19	<ul style="list-style-type: none"> Pregnant women do not appear at greater risk of contracting COVID-19 than the general population^{18,19} Physiological changes of pregnancy related to the immune system may be associated with more severe disease²⁰ Mechanisms underlying associations with adverse outcomes are unclear²⁰ <ul style="list-style-type: none"> COVID-19 may share a common pathway with pre-eclampsia or create a proinflammatory state that produces systematic endothelial dysfunction May lead to renin-angiotensin system dysfunction and vasoconstriction by binding to angiotensin-converting enzyme 2 receptors Placental fetal vascular malperfusion may contribute to fetal growth restriction, stillbirth and preterm birth

1.2 Clinical standards

Table 2. Clinical standards

Aspect	Consideration
Wellbeing and workforce	<ul style="list-style-type: none"> Recognise the emotional and physical impact on clinicians providing care during the pandemic^{19,21} Support access to employee assistance, mental health advice and cultural support services Encourage, facilitate, and model collegial communications and support Support debriefing, reflections and learning as required
Information	<ul style="list-style-type: none"> Provide evidence-informed information Support attendance at information sessions and upskilling related to COVID-19 (e.g. personal protective equipment (PPE) use, vaccination information) Communicate frequently and regularly about current/changing requirements for care delivery and reporting

1.3 Data collection

To help inform future care and understanding of the COVID-19 disease, data is needed. Specify COVID-19 related codes in the Perinatal Data Collection. Refer to [Statistical Services Branch website for details of agreed codes](#).²²

Table 3. Perinatal data collection

Aspect	Consideration
Perinatal online (PNO)	<ul style="list-style-type: none"> Codes to facilitate data collection have been added to the <i>Medical Conditions</i> and <i>Neonatal Morbidity</i> sections in the data collection form Select the most appropriate set of codes
Other electronic data collection systems	<ul style="list-style-type: none"> Facilitate modification to code sequence as per the Queensland Perinatal Data Collection COVID-19 requirements as soon as possible If system modification is delayed, manually add details to file extract where possible
Paper collection (MR63d)	<ul style="list-style-type: none"> Record maternal details at <i>Medical conditions viral infections</i> Record neonatal details at <i>Neonatal morbidities</i>

2 Peripartum risk management

Although pregnant women are not more likely to contract the infection than the general population, COVID-19 infection during pregnancy is associated with a higher risk of severe illness and other adverse pregnancy outcomes from the delta VOC.^{18,20}

Table 4. Adverse outcomes associated with COVID-19

Outcome	OR	CI (95%)	No. studies (No. women)
Pre-eclampsia²⁰			
With versus without COVID-19	1.33	1.03 to 1.73	13 (424,344)
Severe versus mild COVID-19	4.16	1.55 to 11.15	5 (521)
Preterm birth²⁰			
With versus without COVID-19	1.82	1.38 to 2.39	18 (425,357)
Symptomatic versus asymptomatic COVID-19	2.29	1.49 to 3.53	9 (4233)
Severe versus mild COVID-19	4.29	2.41 to 7.63	10 (1393)
Caesarean birth²⁰			
With versus without COVID-19	1.0	0.82 to 1.23	22 (429,366)
Symptomatic versus asymptomatic COVID-19	1.57	1.32 to 1.85	9 (4233)
Severe vs mild COVID-19	2.58	1.64 to 4.06	8 (1138)
Stillbirth²⁰			
With versus without COVID-19	2.11	1.14 to 3.9	6 (413,122)
Admission to ICU²⁰			
With versus without COVID-19	4.78	2.03 to 11.25	5 (409,737)
Severe versus mild COVID-19	15.46	5.79 to 41.23	5 (757)
Mechanical ventilation²⁰			
Symptomatic versus asymptomatic COVID-19	16.29	3.88 to 68.47	3 (1062)
Severe versus mild COVID-19	19.31	9.38 to 39.72	5 (962)
Admission to NICU²⁰			
With versus without COVID-19	3.69	1.39 to 9.82	10 (565)
Severe versus mild COVID-19	3.95	1.43 to 10.95	5 (729)
Maternal death from any cause¹⁸			
With confirmed COVID-19	339	0.02%	59 (41,664)
No significant difference in outcome between with versus without COVID-19²⁰			
Gestational diabetes Fetal distress Chorioamnionitis Low birth weight Caesarean birth Postpartum haemorrhage			

Odds ratio (OR) approximates risk ratio (RR) when the outcome is rare (less than 10%). OR increasingly overestimates RR as outcomes exceed 10%

2.1 Risk factors for severe COVID-19

Table 5. Risk factors for severe COVID-19

Risk factor for severe COVID-19 ¹⁸	OR	CI (95%)	No. studies (No. women)
Increased maternal age	1.83	1.27 to 2.63	7 (3,561)
Higher BMI	2.37	1.83 to 3.07	5 (3,367)
Any pre-existing co-morbidity	1.81	1.49 to 2.20	3 (2,634)
Chronic hypertension	2.0	1.14 to 3.48	2 (858)
Pre-existing diabetes	2.12	1.62 to 2.78	3 (3,333)
Pre-eclampsia	4.21	1.27 to 14.0	4 (274)

2.2 Signs and symptoms during pregnancy

Table 6. Frequency of reported signs and symptoms

Sign/symptom ²³	Frequency %
Cough	40.4
Fever	32.4
Asymptomatic	31.9%
Fatigue	20.6
Loss of sense of smell/taste	17.8
Muscle or joint pain	16.0
Shortness of breath	15.8
Headache	13.1
Sore throat	9.0
Nausea/vomiting	5.2
Other (sputum production, nasal congestion headache, loss of appetite, rash, nausea)	8.8

2.3 Vaccination

Advise women that vaccination reduces the risk of adverse perinatal outcomes associated with COVID-19 including against the delta and omicron VOC.¹⁰ Pregnant women are a priority group for vaccination with mRNA vaccines.²⁴

Table 7. Vaccination

Aspect	Consideration
Vaccine type	<ul style="list-style-type: none"> Recommend mRNA vaccines (e.g. Pfizer (Comirnaty) or Spikevax (Moderna)) If first dose was Astra Zeneca vaccine, either of the mRNA vaccines or the AstraZeneca vaccine can be given for the second dose²⁴
Safety	<ul style="list-style-type: none"> Good real-world evidence that vaccination is safe for women who are^{25,26}: <ul style="list-style-type: none"> Pregnant²⁶ Breastfeeding²⁶ Planning pregnancy²⁶ Undergoing IVF^{27,28} Known to have had COVID-19 in the past²⁹ No evidence that vaccination increases risk of: <ul style="list-style-type: none"> Spontaneous miscarriage³⁰ Adverse pregnancy outcomes³¹ No evidence that vaccination adversely affects fertility³² No side effects specific to pregnant women or their babies have been identified (although it is possible very rare side effects may still emerge)³³ Vaccine elicited antibodies have been found in neonatal cord blood following administration of the vaccine and in breast milk and passive immunity may be conferred^{17,34}
Contraindications	<ul style="list-style-type: none"> Anaphylaxis to a previous dose of mRNA COVID-19 vaccine or any component of the vaccine, including polyethylene glycol (PEG)³² Myocarditis and/or pericarditis attributed to a previous dose of mRNA COVID-19 vaccine³²
Timing of administration	<ul style="list-style-type: none"> Recommend at any stage of pregnancy²⁴ <ul style="list-style-type: none"> The optimal time to have the vaccine during pregnancy is not known³² Follow Australian Technical Advisory Group on Immunisation (ATAGI) recommendations for dosing intervals³² Co-administration (same day) of COVID-19 vaccine with influenza vaccine is supported³³ Recommend at least a 7 day interval between a dose of COVID-19 vaccine and other vaccines (e.g. whooping cough)³² Rh D immunoglobulin can be administered for usual indications²⁴ Seek specialist advice about the timing of vaccination for women with heart conditions (e.g. rheumatic heart disease, history of pericarditis or myocarditis)³² If history of COVID-19 infection, vaccination can be administered after recovery from symptoms or deferred for up to four months³²
Booster vaccination	<ul style="list-style-type: none"> Recommend a booster dose after completion of the primary course¹¹ Follow ATAGI recommendations for the minimum interval between primary and booster vaccinations
Recommendation	<ul style="list-style-type: none"> Routinely recommend vaccination at the earliest opportunity to women who are planning a pregnancy, are already pregnant or who are lactating

2.4 Infection control and prevention

Table 8. Risk assessment

Aspect	Consideration
Information for families	<ul style="list-style-type: none"> • Provide information about: <ul style="list-style-type: none"> ◦ Infection prevention and control practices that can prevent transmission of COVID-19¹ (e.g. hand washing, coughing/sneezing, social distancing, masks) ◦ Importance of risk minimisation strategies for postnatal baby care ◦ Importance of vaccination for household and close contacts
Designated COVID network hospital	<ul style="list-style-type: none"> • There are no active public health directions pertaining to designated hospital location for the care of positive COVID-19 cases³⁵ • Engineering and heating, ventilation, and air-conditioning (HVAC) controls can prevent spread^{35,36} • If cohorting of COVID-19 cases is required, follow Queensland Health guidance and recommendations for patient placement²
PPE	<ul style="list-style-type: none"> • Follow Australian Infection Control Expert Group Guidance on the use of personal protective equipment (PPE) for health care workers in the Context of COVID-19³⁷ • Follow PPE escalation guidance³⁸ during periods of low, moderate and high risk of community transmission of COVID-19 (as defined in the guidance)
If self-quarantine/isolation	<ul style="list-style-type: none"> • Refer to Queensland Health COVID-19 self-isolation requirements³⁸ • If healthcare cannot be delayed, individually assess need for hospital admission¹⁷ • Recommend mother and baby remain co-located in the home during self-quarantine/isolation • Advise: <ul style="list-style-type: none"> ◦ If any concerns, to contact a health professional (provide contact details 13HEALTH (13 43 25 84) and for local maternity service) ◦ To keep in touch with family and friends via non-direct contact methods (e.g. telephone, video telephony applications) to minimise feelings of isolation
Polymerase Chain Reaction (PCR) testing	<ul style="list-style-type: none"> • Follow testing criteria and requirements as per public health directives^{39,40} • Follow PPE recommendations for specimen collection³⁷ • Use a single swab to collect oropharyngeal and bilateral deep nasal swab (3 sites of collection)⁴¹ • If productive cough, collect sputum (contains highest viral loads)⁴¹ <ul style="list-style-type: none"> ◦ Rate of viral coinfection in SARS-CoV-2 has been negligible in Australia⁴¹ • Serology only at public health unit direction (rarely indicated)
Rapid Antigen Testing (RATs)	<ul style="list-style-type: none"> • Follow local protocols for use, implementation, result reporting and follow-up testing requirements

3 Maternity care during COVID-19 pandemic (for all women)

A key principle for maternity and neonatal services is to meet the needs of the woman and her family in a manner that supports public health safety requirements and minimises the risk of community transmission. Vigilant adherence to infection prevention and control recommendations is essential for maintaining low risk of transmission in the community.

3.1 Principles of maternity care

Table 9. Principles of determining care

Aspect	Considerations
Assumptions	<ul style="list-style-type: none"> Decisions about local service delivery (type, mode, or model of care) in response to COVID-19 are best made at the local level and require consideration of more than just risk of contagion Definitions of “low risk” and “elevated risk” are not universal or agreed Risk occurs on a continuum Different aspects of maternity care may carry different levels of risk, so some care may be “old normal” and some care may be a “new normal”
Risk of community transmission	<ul style="list-style-type: none"> Alter care delivery in response to changing risk of community transmission National and state directives relevant to COVID-19 Visitor restrictions for inpatient care Public gatherings and social distancing requirements Border closures and travel restrictions Human biosecurity requirements/restricted access to remote communities HHS pandemic plans and associated declared pandemic tier status The presence of local clusters or known cases The characteristics of the local maternity population that may increase or decrease risk (e.g. high levels of obesity, smoking, co-morbidities, indigenous populations) Emerging evidence that affects recommended care delivery
Individual woman’s risk	<ul style="list-style-type: none"> The COVID-19 status of the woman (e.g. SCOVID, COVID-19) Vaccination and booster status Obstetric clinical condition—women with high risk conditions may require more frequent encounters and be better suited to face-to-face encounters Language/cultural needs in relation to type, mode or model of care Woman’s tolerance/appetite for risk and individual preferences for type, mode, or model of care Digital capability (ability to engage via technology) if this is the preferred type, mode, or model of care
Community expectations	<ul style="list-style-type: none"> The need to offer certainty of care provision to women and their families <ul style="list-style-type: none"> Facilitates care planning and expectation management May assist to alleviate anxiety and fear around pregnancy and birth during the COVID-19 pandemic The emotional, cultural, and physical wellbeing, and safety of staff^{19,21} <ul style="list-style-type: none"> Fear of transmission to self and family Emotional fatigue and exhaustion from heightened awareness and sustained exposure Personal risk factors influencing desire and ability to provide care Increased exposure to occupational violence and community fear
Model of care	<ul style="list-style-type: none"> Resourced appropriately for safe care delivery (human and technological) Physical infrastructure is appropriate (e.g. supports social/physical distancing requirements) Incorporates an ongoing assessment of clinical risk to promote safety for the woman and her baby Promotes continuity of care for the woman May include <ul style="list-style-type: none"> Hybrid and mixed modes of delivery and partnerships (e.g. shared care via private-public arrangements, use of telehealth in combination with face-to-face encounters) Hospital or community-based delivery of care Has potential to be scaled up or down in response to changing circumstances

3.2 Perinatal mental health (for all women)

Table 10. Perinatal mental health

Aspect	Consideration
Context	<ul style="list-style-type: none"> Pregnant women and their families experience heightened anxiety and stress from COVID-19 which may be related to⁴²⁻⁴⁶: <ul style="list-style-type: none"> Increased social isolation and reduced support from family and friends associated with physical distancing and travel restrictions Financial impact of economic downturn (e.g. loss of income) Changes or uncertainty about expected healthcare delivery (e.g. less face-to-face encounters, visitor restrictions during hospitalisation) Evolving and changing estimates of risk for the pregnancy and baby Effect can be assumed irrespective of personal COVID-19 status (negative, SCoVID or COVID positive)
Strategies	<ul style="list-style-type: none"> Provide consistent, evidence based information (as is current and known at the time) as this may help alleviate stress⁴³ Maintain awareness of that women already at increased risk for mental health issues may require additional support during the pandemic (e.g. women who are younger, without social support, experiencing financial hardship, history of anxiety or depression)^{43,45} Adhere to usual/standard care recommendations (e.g. woman centred care, respectful communication, consent, and informed decision making) <ul style="list-style-type: none"> Refer to Queensland Clinical Guideline: <i>Standard care</i>⁴⁷
Model of care	<ul style="list-style-type: none"> Support models of care that maximise continuity (e.g. midwifery continuity of care, case management, midwife navigator, general practitioner (GP), private practice midwives) Involve cultural supports as required (e.g. Indigenous Health Worker, Aboriginal Medical Service or Aboriginal Community Controlled organisations)
Follow-up	<ul style="list-style-type: none"> Offer referral to perinatal mental health support (e.g. social work, mental health teams, peer support groups, health worker or cultural supports) Liaise with community health practitioners (e.g. general practitioner, midwives, health worker) throughout the perinatal period Refer to perinatal mental health resources (e.g. Beyond Blue⁴⁸, Centre of Perinatal Excellence (COPE)⁴⁹)

3.3 Domestic and family violence (for all women)

Table 11. Domestic and family violence

Aspect	Consideration
Context	<ul style="list-style-type: none"> Maintain awareness that domestic and family violence (DFV) may increase in association with social isolation⁵⁰ Includes psychological, emotional, and financial abuse and control as well as serious physical risk of harm and sexual abuse
Risk management	<ul style="list-style-type: none"> Refer to Domestic and family violence website⁵ Conduct conversations in a manner that maximises safety for the woman, especially when utilising telehealth modes of care—for example ask: <ul style="list-style-type: none"> Is it a good time to talk or when would be a good time to call? What mode of communication is preferred by the woman? (e.g. text, email, telephone) Provide an opportunity for women to identify any changed circumstances—for example ask: <ul style="list-style-type: none"> What has changed for you at home during COVID-19? How have the changes affected you and your family?
Screening and referral	<ul style="list-style-type: none"> Screen all pregnant women for DFV If concerns identified, refer to social work and/or specialist DFV services

3.4 Visiting in-patient mothers and babies

Table 12. Hospital visiting

Aspect	Consideration
Visitor restrictions	<ul style="list-style-type: none"> Refer to Queensland Health public health direction about hospital entry⁵ <ul style="list-style-type: none"> The Chief Health Officer (in accordance with emergency powers arising from a declared public health emergency)⁵¹ has the authority to restrict visitors to hospitals Follow local protocols for rapid antigen visitor testing Exemptions may be requested via the COVID-19 Services portal
Information for women/families	<ul style="list-style-type: none"> Advise women about the need and rationale for visitor restrictions (if they are currently required) to facilitate advance planning and manage expectations for care <ul style="list-style-type: none"> Including any restrictions to visiting if admission to a neonatal unit is required [refer to Section 5 Newborn care] Provide information to women, their partners and other visitors about additional infection prevention and control measures (e.g. mask and gown use) if these are required Refer to Section 2.4 Infection control and prevention
During labour and birth	<ul style="list-style-type: none"> Consistent with public health directions identified above, if visiting restrictions apply to the woman or her support people: <ul style="list-style-type: none"> Consider risk and benefit of individual circumstances Support the woman to identify an appropriate support person Requiring the woman to labour and birth without a support person not recommended

3.5 Home visiting during COVID-19 pandemic (for all women)

Table 13. Home visiting during COVID-19 pandemic

Aspect	Consideration
General principles	<ul style="list-style-type: none"> Use clinical judgement and consider individual circumstances when determining most appropriate model of healthcare delivery (i.e. is a home visit necessary) <ul style="list-style-type: none"> Hybrid models of care delivery (e.g. combination of telehealth, phone support and home visit) may assist in minimising contact duration Use advance planning to identify and: <ul style="list-style-type: none"> Prepare for the care likely to be required during the home visit Minimise equipment to be taken into the home Maintain infection prevention and control standards (e.g. hand hygiene, disposal of consumable, equipment cleaning)
Pre-visit assessment	<ul style="list-style-type: none"> Prior to entering the woman's home, assess the clinical status and social circumstances of the woman and other residents at the home (e.g. by phone, telehealth) Use standard home visiting risk assessment tools and additionally ask: <ul style="list-style-type: none"> Do any residents or visitors have symptoms of COVID-19? Are any residents or visitors close contacts or in self-quarantine/isolation? Are there additional safety issues for the healthcare provider and/or the woman that may arise/be exacerbated by the COVID-19 pandemic or the home visit (e.g. domestic and family violence, alcohol or substance use, high mobility of household residents)? If risk of transmission or safety concerns identified, postpone home visit <ul style="list-style-type: none"> Reschedule/make alternative arrangements as required
During visit	<ul style="list-style-type: none"> Follow PPE escalation guidance³⁸ during periods of low, moderate and high risk of community transmission of COVID-19 (as defined in the guidance) <ul style="list-style-type: none"> Maintain physical (social) distancing (1.5 metre from the woman) during the visit where possible (e.g. ask other family members to leave the room during visit) Follow standard infection prevention and control recommendations as required for usual care

3.6 Recommendations affecting routine maternity care (for all women)

Table 14. Specific considerations for maternity care

Aspect	Consideration
Antenatal education	<ul style="list-style-type: none"> If local risk assessed as low, offer online, face-to-face, or mixed mode antenatal education <ul style="list-style-type: none"> Face-to-face sessions may be preferred and more appropriate for some women Consider holding face-to-face sessions in community locations (rather than hospital settings) Maintain physical distancing/consider reduction in participant numbers during face-to-face sessions If local risk assessed as elevated, recommend online antenatal education and consider additional supports, (e.g. group/individual sessions via online platforms, static web resources, email contact, support groups, telehealth appointments or mobile phone that can receive MSG documents)
Antenatal schedule (including lactation services)	<ul style="list-style-type: none"> Assess the individual circumstances of each woman and tailor the number, type, and schedule of antenatal encounters If local risk assessed as low, follow usual recommended schedule of antenatal care If local risk assessed as elevated, reduce the number of face-to-face encounters <ul style="list-style-type: none"> Refer to Appendix A: Modified schedules for low-risk women during COVID-19 To avoid additional visitations, schedule/reschedule face-to-face encounters with multiple health care providers, to occur on the same day Consider community-based locations (rather than hospital settings) for antenatal care services
Routine ultrasound	<ul style="list-style-type: none"> If local risk assessed as low, follow usual recommended schedules according to clinical circumstances⁵² If local risk assessed as elevated <ul style="list-style-type: none"> Refer to Appendix A: Modified schedules for low-risk women during COVID-19 If clinical concerns, use clinical judgement and seek expert advice
Routine vaccinations	<ul style="list-style-type: none"> Irrespective of local risk status, recommend routine vaccinations for whooping cough and influenza to pregnant women Refer to Section 2.3 Vaccination
Gestational diabetes mellitus (GDM)	<ul style="list-style-type: none"> If local risk assessed as low, recommend oral glucose tolerance test (OGTT) as the gold standard for screening and diagnosis of GDM and for postnatal follow-up⁵³ If local risk assessed as elevated, refer to Flowchart GDM screening and testing when local risk of COVID-19 is elevated <ul style="list-style-type: none"> These recommendations are consistent with the Australian Diabetes in Pregnancy Society (ADIPS) for use when local risk assessed as elevated⁵³ Refer to the Queensland Clinical Guideline: <i>FAQ GDM screening and testing during COVID-19 pandemic</i>⁵⁴
Maternal haemoglobin	<ul style="list-style-type: none"> Optimise haemoglobin prior to birth to minimise morbidity associated with blood loss and the subsequent need for blood products (which may be in short supply during the pandemic) Refer to Lifeblood Australian Red Cross Lifeblood Maternity Blood Management⁵⁵
Vulnerable women	<ul style="list-style-type: none"> Women with co-morbidities (e.g. obesity, gestational diabetes, pre-eclampsia) are at increased risk for severe COVID-19 disease¹⁸ <ul style="list-style-type: none"> Seek expert clinical advice early in the pregnancy to plan care First Nations communities and other vulnerable groups may be more severely impacted due to social and cultural determinants of health⁵⁶ <ul style="list-style-type: none"> Seek woman's permission to involve cultural supports as required (e.g. at the first visit)
Symptomatic women	<ul style="list-style-type: none"> Follow recommendations for testing

4 In-hospital maternity care (if SCOVID or COVID-19)

Table 15. In hospital maternity care

Aspect	Consideration
Retrieval or transfer	<ul style="list-style-type: none"> If transport or retrieval required, follow usual protocols/processes/criteria
Venous thrombo-embolism (VTE)	<ul style="list-style-type: none"> For women with SCOVID or COVID-19, recommend VTE prophylaxis (antenatal and postpartum) unless there is a contraindication (e.g. risk of major bleeding)⁵⁷ Continue prophylactic anticoagulants for at least 14 days after discharge or until COVID-19 related morbidity (e.g. shortness of breath, immobility, dehydration) has resolved⁵⁷ Refer to Queensland Clinical Guideline: <i>Venous thromboembolism prophylaxis (VTE) in pregnancy and the puerperium</i>⁵⁸
Medical imaging	<ul style="list-style-type: none"> Do not delay medical imaging due to concern about fetal exposure⁵² <ul style="list-style-type: none"> Apply radiation shield over the gravid uterus Ultrasound scan for fetal wellbeing as indicated and after resolution of acute symptoms⁵⁹ If COVID-19 in the first trimester, consider a detailed morphology scan at 18–24 weeks <ul style="list-style-type: none"> No evidence of congenital malformation with COVID-19 infection¹⁶
Usual care	<ul style="list-style-type: none"> No evidence to alter usual indications/recommendations for <ul style="list-style-type: none"> Antenatal corticosteroids when given for fetal lung maturity⁵⁷ Magnesium sulfate⁵⁷ <ul style="list-style-type: none"> Consider need for conservative fluid management with COVID-19 Low dose aspirin⁶⁰ Tocolytics⁶¹ Postnatal ACE inhibitors for treatment of postpartum hypertension⁵⁷ Carboprost or tranexamic acid (TXA) in treatment of PPH⁶² <ul style="list-style-type: none"> Consider potential for increased clotting with TXA⁶²
Disease modifying treatments	<ul style="list-style-type: none"> A rapidly evolving area—refer to National COVID-19 Clinical Evidence Taskforce for latest information/recommendations⁵⁷

4.1 Clinical course in pregnancy and postpartum

Table 16. Clinical course in pregnancy

Aspect	Consideration
Clinical surveillance	<ul style="list-style-type: none"> Alert obstetric/midwifery/neonatal/anaesthetic/infectious diseases teams of admission Care directed by signs and symptoms, and severity of illness⁵² Minimise maternal hypoxia <ul style="list-style-type: none"> Oxygen therapy as indicated to maintain SpO₂ 95% or more⁵⁹ Usual maternal and fetal observations/clinical surveillance, and SpO₂ <ul style="list-style-type: none"> Increase frequency of monitoring according to severity of illness Do not delay clinically indicated investigations/procedures Support the woman's psychological and emotional needs
Escalation of care	<ul style="list-style-type: none"> Rapid clinical deterioration can occur Maintain low threshold for escalation of care⁵⁹: <ul style="list-style-type: none"> In the presence of risk factors/comorbidities If changes in vital signs (e.g. increased work of breathing, febrile, hypotension, altered mental status) Increasing oxygen supplementation to maintain target SpO₂ Worsening of signs and symptoms
Severe COVID-19	<ul style="list-style-type: none"> If severe COVID-19 disease consult with multi-disciplinary experts and individualise care.

4.2 Labour and birth (if SCOVID or COVID-19)

Table 17. Labour and birth

Aspect	Consideration
In hospital location	<ul style="list-style-type: none"> Follow local protocols for location of care provision If negative pressure room unavailable for labour/birth, use single room with air purifiers and door closed and consult with infection control team <ul style="list-style-type: none"> Transport baby in closed incubator/cot
Mode of birth	<ul style="list-style-type: none"> Decision for mode or timing of birth not influenced by positive COVID-19 result (unless urgent birth indicated)⁵⁷ Support the principles of normal birth⁶³ <ul style="list-style-type: none"> Refer to Queensland Clinical Guideline: <i>Normal birth</i> Discuss risks and benefits of care with the woman and her family Inform obstetric consultant and anaesthetic, theatre, and neonatal teams of admission to birth suite
Caesarean birth	<ul style="list-style-type: none"> No evidence that caesarean birth reduces risk of vertical transmission⁵⁷ If elective caesarean has been planned, individually assess urgency General anaesthetic (GA) for standard indications
Fetal monitoring	<ul style="list-style-type: none"> Discuss the options for fetal monitoring in labour with women <ul style="list-style-type: none"> Severity of COVID-19 disease and presence of maternal comorbidities impacts fetal outcomes⁶⁴ If symptomatic, recommend continuous electronic fetal monitoring¹⁷ If asymptomatic, recommend continuous electronic fetal monitoring for usual indications (i.e. not indicated for COVID-19 alone)^{17,65} Apply fetal scalp electrode (FSE) and perform fetal blood sampling (FBS) for usual indications⁶⁶ <ul style="list-style-type: none"> If FBS or FSE is considered, weigh the possible (small but unquantifiable) risk of fetal transmission against known benefits of improved assessment of fetal wellbeing
Neuraxial blockade	<ul style="list-style-type: none"> Discuss neuraxial blockade with women before/early in labour⁶⁷ <ul style="list-style-type: none"> No evidence that neuraxial blockade is contraindicated in the presence of COVID-19⁶⁸ Minimises need for emergency GA if urgent birth required⁶⁸ and the subsequent risk associated with GA and COVID-19 infection⁶⁹ Reduces clinician exposure to AGP associated with intubation and GA⁶⁷ Consider coagulopathy in women who are unwell with SCOVID or COVID19, prior to neuraxial anaesthesia or analgesia⁶⁸
Nitrous oxide	<ul style="list-style-type: none"> Insufficient and conflicting information about cleaning, filtering and AGP potential in the setting of COVID-19^{17,62,68} For reasons of healthcare provider protection, avoid use by women with SCOVID or COVID-19 If nitrous oxide is offered, recommend face mask rather than mouthpiece (to reduce exhalation dispersion) and use the following circuits recommended by Queensland Health Biomedical Technology Services⁷⁰: <ul style="list-style-type: none"> Where a scavenger system is available, the Equinox® Advantage Analgesia Circuit-MC/4003 Where a scavenger system is not available, the Equinox® Advantage Analgesia Circuit-MC/4001 Refer to Appendix B: Recommended nitrous oxide circuits
Second and third stage	<ul style="list-style-type: none"> Routine maternal observations with addition of SpO₂¹⁷ Aim to maintain a neutral fluid balance in labour and avoid fluid overload¹⁷ Delayed cord clamping is supported as part of standard care independent of the presence of COVID-19^{57,71} Manage placental tissue as per usual infectious human tissue protocols <ul style="list-style-type: none"> Discuss restrictions with women prior to birth to assist management of expectation for care (e.g. if the woman was intending to bury/take the placenta home)
Clinical emergencies	<ul style="list-style-type: none"> Donning of PPE takes time, therefore, to facilitate a rapid response to a clinical emergency⁶⁸ <ul style="list-style-type: none"> Consider lowering the threshold for escalation of clinical concerns Have early and ongoing communication with multidisciplinary team⁶⁸

4.2.1 Water immersion and waterbirth (if SCOVID or COVID-19)

Table 18. Water immersion and birth

Aspect	Consideration
Context	<ul style="list-style-type: none"> Although SARS-COV-2 has been detected in faeces⁷², there is no evidence of faecal-oral transmission⁷³ There is a small (but unquantifiable) risk that water contaminated with faeces could pose an infection risk to the baby and/or to staff⁷⁴ Women who are symptomatic of COVID-19 and/or have co-morbidities require close surveillance (including vital signs and SpO₂) and this may be better provided on land¹⁷ The integrity of PPE can become compromised when wet⁷⁴ Follow usual protocols for individual risk assessment, infection prevention and control, and workplace health and safety procedures
Evidence summary	<ul style="list-style-type: none"> There is insufficient evidence to make firm recommendations about water immersion/birth Professional organisations have differing recommendations^{17,74-76} <ul style="list-style-type: none"> Focus is on differing populations (e.g. all women, symptomatic versus asymptomatic women) Have varying applicability/relevance to Queensland All opinion based due to paucity of evidence
Asymptomatic women	<ul style="list-style-type: none"> Queensland consensus recommendation <ul style="list-style-type: none"> If waterbirth or water immersion is requested by a woman who is asymptomatic with SCOVID or COVID-19 <ul style="list-style-type: none"> Perform a risk assessment (for the woman and the staff) Take into account individual circumstances and the preferences of the woman and the staff providing care If water immersion/birth is offered, waterproof PPE is required
Symptomatic women	<ul style="list-style-type: none"> Queensland consensus recommendation (informed primarily by the need for close surveillance and the potential for rapid deterioration) <ul style="list-style-type: none"> For women who are symptomatic with SCOVID or COVID-19 <ul style="list-style-type: none"> Water immersion is not recommended Waterbirth is not recommended

4.3 Postnatal care (if SCOVID or COVID-19)

Table 19. Postnatal care

Aspect	Consideration
Risk minimisation	<ul style="list-style-type: none"> • Provide information and education on risk minimisation strategies to use during usual mother-baby interactions (e.g. hand hygiene, mask wearing) • No evidence to support washing of maternal or baby skin before initial contact or breastfeeding as a risk minimisation strategy • If clinical condition (mother and/or baby) permits, recommend skin to skin care
Co-location of mother and baby	<ul style="list-style-type: none"> • Co-location (rooming-in) of well mother and well baby is recommended
Breastfeeding	<ul style="list-style-type: none"> • Breastfeeding is supported and is not contraindicated <ul style="list-style-type: none"> ◦ No human milk samples have showed active, replication-competent virus (infectious virus)^{14,77,78}
Expressed breast milk (EBM)	<ul style="list-style-type: none"> • Support expression of breastmilk (if feeding preference) • Instruct and support adherence to standard infection prevention and control measures (e.g. hand hygiene, mask wearing) <ul style="list-style-type: none"> ◦ Wipe outside of EBM container with disinfectant wipe and allow to dry⁷⁹ ◦ Equipment cleaning and sterilisation (use dedicated breast pump) • Milk bank <ul style="list-style-type: none"> ◦ Pasteurisation reported to inactivate SARS-CoV-2⁸⁰
Discharge	<ul style="list-style-type: none"> • Consider usual clinical discharge criteria • Prior to discharge <ul style="list-style-type: none"> ◦ Review release from isolation/quarantine requirements (e.g. negative COVID test requirements) ◦ Consider implications for public health/community transmission prior to discharge ◦ Seek expert advice from Public Health Unit/infectious disease physician • If women, their babies and/or support people are returning to defined restricted areas under the Human Biosecurity Act: <ul style="list-style-type: none"> ◦ Refer to Chief Health Officer public health directions⁸¹ ◦ Involve local cultural supports (e.g. health worker, Aboriginal and Torres Strait Islander Medical Services) to facilitate delivery of clinical and psycho-social postpartum care during self-isolation/quarantine • Refer to Appendix A: Modified schedules for low-risk women during COVID-19

5 Newborn care

For babies born to mothers who are not SCOVID or COVID-19, provide usual recommended newborn care.

5.1 General principles (for all babies)

Table 20. General principles

Aspect	Consideration
Newborn close contact	<ul style="list-style-type: none"> Baby is a CLOSE CONTACT and requires quarantine/isolation if: <ul style="list-style-type: none"> Baby has spent 4 or more hours with their COVID-19 positive mother after birth Baby has spent 4 or more hours with a COVID-19 positive person (e.g. COVID-19 positive family member after discharge home)
Newborn NOT a close contact	<ul style="list-style-type: none"> A baby is NOT a close contact where: <ul style="list-style-type: none"> Baby has spent less than 4 hours with their COVID-19 positive mother after birth (e.g. separated due to baby or maternal illness) <ul style="list-style-type: none"> Initial skin to skin contact may occur within the 4 hours Baby is born to a mother considered a close contact, irrespective of hours spent together after birth Baby is born to mother who is not SCOVID or COVID-19
Supportive care	<ul style="list-style-type: none"> Social distancing and wearing of face masks has impacted communication and interactions involving facial recognition⁸² between staff, family and baby <ul style="list-style-type: none"> Impact on parent-infant bonding and baby's neurobehavioral and socio-emotional development is unknown⁸² Consider use of (as per local protocols) <ul style="list-style-type: none"> Clear plastic masks/face shields to improve facial interactions Smiling face of care provider self-attached to gown (may decrease parental anxiety and stress) Mask free interactions between awake baby and primary carer/s where there are no risk factors, low risk of community transmission and social distancing is possible

5.2 Visitor management

Table 21. Visitor management

Aspect	Consideration
Context	<ul style="list-style-type: none"> Neonates are recognised as a vulnerable population requiring additional protection from transmissible infections⁸³ Exclusion of unwell people from the neonatal unit environment is a well-established and accepted practice aimed at reducing risk of infection⁸⁴ Follow public health directives (refer to Schedule 1⁵) <ul style="list-style-type: none"> Refer to Table 12. Hospital visiting
If COVID-19 or close contact	<ul style="list-style-type: none"> Visitors (including parents/carers) may not enter a neonatal unit if⁸⁵: <ul style="list-style-type: none"> COVID-19 positive A close contact of a COVID-19 positive person Awaiting a COVID-19 test result Within 7 days of release from isolation or quarantine (COVID-19 positive or close contact) without an approved exemption Facilitate regular visual contact (e.g. face-time, video, photos) in addition to telephone and text with separated family members to communicate updates and information on baby's condition
Symptomatic/unwell	<ul style="list-style-type: none"> Visitors (including parents/carers) may not enter a neonatal unit if symptomatic for any illness (as per usual local visiting criteria)
Vaccination status	<ul style="list-style-type: none"> Parents/carers meeting other criteria, may visit irrespective of their COVID-19 vaccination status (up-to-date, overdue or unvaccinated) Other visitors as per public health direction for hospital entry⁵
Number of visitors	<ul style="list-style-type: none"> Maximum of two visitors at any time⁵ <ul style="list-style-type: none"> A hospital operator may give permission for more than two visitors (e.g. siblings on compassionate grounds)⁵
Exemptions	<ul style="list-style-type: none"> Requested via the COVID-19 Services Portal

5.3 Initial care (baby of SCOVID or COVID-19 mother)

Table 22. Baby of SCOVID or COVID-19 mother

Aspect	Consideration
Context	<ul style="list-style-type: none"> Babies of COVID-19 positive mothers may be affected by vertical or horizontal transmission and/or indirectly through maternal COVID-19 (e.g. preterm birth caused by maternal disease)^{86,87} Definitive diagnosis of in-utero infection requires a positive diagnostic test near the time of birth that is confirmed with a second positive specimen Definitive diagnosis of intrapartum infection requires a negative diagnostic test near the time of birth⁸⁸
Neonatal team attendance at birth	<ul style="list-style-type: none"> Attendance at birth according to usual clinical indications⁸⁹ (i.e. not required for reason of SCOVID or COVID-19 mother alone) To minimise healthcare provider exposure <ul style="list-style-type: none"> Experienced/senior clinician to attend in the first instance Don PPE in an adjacent area and wait outside birthing area until/if required Consider if neonatal stabilisation/resuscitation in a room outside of the birthing room/theatre is appropriate
Resuscitation	<ul style="list-style-type: none"> Follow standard neonatal resuscitation recommendations <ul style="list-style-type: none"> Refer to Queensland Clinical Guideline: <i>Neonatal resuscitation</i>⁹⁰ Minimise equipment on resuscitation cot to essential items <ul style="list-style-type: none"> Place extra equipment anticipated to be required in sealed plastic bags The use of additional barriers (e.g. placing baby under plastic sheet) for the purpose of COVID-19 infection control, is not supported as may inadvertently increase the risk of transmission <ul style="list-style-type: none"> Follow usual indications for the use of plastic/polyethylene bags during neonatal resuscitation
Well term baby and well mother	<ul style="list-style-type: none"> Baby (term or near-term gestation) is well (does not require admission to a neonatal unit) and mother is well <ul style="list-style-type: none"> Co-locate with mother in a single room OR Discharge home
Transport	<ul style="list-style-type: none"> Transport baby in a closed system between locations in the facility
Timing of test	<ul style="list-style-type: none"> If baby is a close contact, testing as per COVID-19 testing requirements during and for release from quarantine/isolation <ul style="list-style-type: none"> Seek advice from infectious diseases expert as required If not a close contact, PCR test at 48 hours of age prior to release from isolation Refer to Section 2.4 Infection control and prevention
Clinical care	<ul style="list-style-type: none"> Perform clinical assessment after birth as per usual assessment protocols Assess if required care can safely be provided during co-location with mother (preferred option) Limited data about the clinical course of newborn babies affected by SARS-CoV-2⁸⁶, particularly the delta and omicron VOC Maintain high index of suspicion for signs of sepsis/unwell baby Recommendations for care are essentially the same as for any unwell neonate and are guided by clinical presentation
Routine care	<ul style="list-style-type: none"> No information to alter usual indications or recommendations for⁹¹: <ul style="list-style-type: none"> Vitamin K Hepatitis B vaccination Hepatitis B immunoglobulin Consider infection prevention and control precautions when determining other routine screening and care (e.g. hearing screen)

5.4 Admission to neonatal unit (if SCOVID or COVID-19)

Table 23. Admission to neonatal unit

Aspect	Consideration
Organisation of neonatal unit	<ul style="list-style-type: none"> • SCOVID or COVID-19 mother (i.e. no other neonatal criteria), is not itself an indication for admission to a neonatal unit⁸⁹ • Designate areas for SCOVID or COVID-19 babies requiring admission separate from non-SCOVID and non-COVID-19 babies wherever possible • If SCOVID or COVID-19 babies are admitted, ongoing liaison with infectious disease expert required
Baby is close contact	<ul style="list-style-type: none"> • Quarantine/isolation in a single room with negative pressure capabilities is preferred • Cohorting of babies not recommended • Close contact, quarantine/isolation and infection prevention and control precautions required • Follow release from quarantine/isolation and testing requirements in consultation with local expert <ul style="list-style-type: none"> ◦ Quarantine/isolate for 7 days with PCR on day 6 ◦ If day 6 PCR negative, can be released on day 7
Baby not close contact but mother is COVID-19	<ul style="list-style-type: none"> • Admit to a designated SCOVID/COVID-19 isolation room/area • Babies may be cohorted • Close contact, isolation/quarantine and infection prevention and control precautions until negative PCR • If PCR negative at 48 hours, can be released from quarantine
Baby with respiratory signs	<ul style="list-style-type: none"> • If unexpected or unexplained respiratory deterioration • Admit to designated isolation room/area until diagnosis confirmed or excluded
Interhospital transfer	<ul style="list-style-type: none"> • If symptomatic, screen for COVID-19 prior to transfer • If asymptomatic for COVID-19, screening not routinely required

5.5 Neonatal respiratory support (if SCOVID or COVID-19)

Table 24. Respiratory support management

Aspect	Consideration
Aerosol generating procedures (AGP)	<ul style="list-style-type: none"> • AGP in first day of life thought to be low risk due to combination of small tidal volume and low viral load on the first day of life⁸⁹ • To maximise healthcare provider protection, this guideline currently includes the following procedures as AGP^{89,92} (but not necessarily limited to): <ul style="list-style-type: none"> ◦ Intubation, extubation and related procedures (e.g. manual ventilation) ◦ Open suctioning of respiratory tract ◦ Surfactant therapy administration (less invasive surfactant administration (LISA) or minimally invasive surfactant therapy (MIST)) ◦ Non-invasive ventilation (e.g. continuous positive airway pressure (CPAP)) ◦ Tracheotomy/tracheostomy procedures (insertion, open suctioning, or removal) ◦ High frequency oscillatory ventilation (HFOV) ◦ High flow nasal oxygen
Risk minimisation	<ul style="list-style-type: none"> • Nurse babies requiring respiratory support in an incubator in a negative pressure room <ul style="list-style-type: none"> ◦ If unavailable, single room with door closed and air purifiers in place • If used in current practice, use in-line suction with endotracheal tubes³⁶ • Avoid bubble CPAP • Avoid use of nebulised agents (salbutamol, saline)³⁶ although conflicting information about whether it is an AGP^{89,92}

5.5.1 Neonatal filters (if SCOVID or COVID-19)

Table 25. Neonatal filters

Aspect	Consideration
Filter function	<ul style="list-style-type: none"> On inspiration the filter membrane prevents microorganisms reaching the baby and causing cross infection On expiration the filter membrane prevents contamination of the external environment and equipment
Risk assessment	<ul style="list-style-type: none"> During initial resuscitation immediately after birth, the risk of COVID-19 transmission is considered very low, even if mother has COVID-19 Fisher & Paykel (F&P)⁹³ recommend against filter use with F&P Neopuff™ Familiarity with resuscitation equipment is an important component of safe and effective ventilation
Recommendation	<ul style="list-style-type: none"> Initial resuscitation after birth <ul style="list-style-type: none"> Continue to use usual/familiar devices for initial neonatal resuscitation Preference familiar devices (e.g. Neopuff™) without a filter to unfamiliar equipment or methods with a filter Resuscitation/ventilation beyond initial stabilisation <ul style="list-style-type: none"> Follow local protocols Use a viral/bacterial filter during resuscitation Place a viral/bacterial filter in the expiratory line of the breathing circuit Refer to Appendix C: Neonatal filter use

5.6 Discharge preparation (following SCOVID or COVID-19)

This section applies to the baby born to a mother with SCOVID or COVID-19, and/or to the baby who has SCOVID or COVID-19 after birth.

Table 26. Discharge

Aspect	Consideration
Newborn bloodspot screening test (NBST)	<ul style="list-style-type: none"> Collect the newborn screening test according to usual processes and within usual timeframes whenever possible If baby is discharged from hospital into quarantine or isolation before 48 hours of age, collect an NBST at the time of discharge After release from quarantine or isolation has occurred, collect another NBST at the earliest opportunity Notify GP if follow-up actions required
Criteria for discharge	<ul style="list-style-type: none"> Consider usual clinical criteria for readiness for discharge (e.g. wellness, laboratory test results) Prior to discharge <ul style="list-style-type: none"> Review release from isolation/quarantine requirements (e.g. negative COVID test requirements) Consider implications for public health/community transmission prior to discharge Seek expert advice from Public Health Unit/infectious disease physician
Post discharge	<ul style="list-style-type: none"> Provide post discharge advice about indications for readmission and possible course of disease⁹⁴ <ul style="list-style-type: none"> Most reported are respiratory symptoms requiring readmission one to three weeks after discharge If local risk assessed as low, advise routine follow-up If local risk assessed as elevated, delay routine follow-up as required (e.g. hearing screen) Advise GP of the follow-up actions required (e.g. NBST, hearing screen) Refer to Child Health Services as per usual process

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Appendix A: Modified schedules for low-risk women during COVID-19

General principles

- Facilitate continuity of care with known carer/s
- If unvaccinated for COVID-19, recommend vaccination at the earliest opportunity

Modification of peripartum care schedules

- If local risk assessed as low, follow usual face-to-face (F2F) schedule and incorporate/replace encounters with telehealth as indicated for the circumstances
 - Add more F2F in the third trimester
- If local risk assessed as elevated reduce number/duration of face-to-face contacts (F2F)
 - Conduct F2F with minimum number of people (preferably woman only)
 - Minimise time in appointment waiting areas
 - Consider hybrid models (F2F and telehealth) (e.g. for booking in visit)
 - Schedule F2F around care that requires physical interaction/care (e.g. vaccination)
- **During every F2F contact**
 - Perform usual clinical assessments (e.g. blood pressure, fundal height, fetal heart, weight, urinalysis)
 - Ask about fetal movements, mental wellbeing, domestic violence

Gestation	Contact type	COVID-19 recommendations for low risk woman
<12 weeks (or first visit)	F2F	<ul style="list-style-type: none"> • Recommend influenza vaccination • Consider dating scan (6–8 weeks) for dates, viability, location • Recommend nuchal scan (11–13 weeks) +/- NIPT (≥ 10 weeks) • Give referral for routine antenatal blood tests Elevated risk <ul style="list-style-type: none"> • Request GDM testing with HbA1c • Request ferritin with Hb assessment (assume blood stock low)
12–18 weeks	F2F or telehealth	<ul style="list-style-type: none"> • Recommend morphology scan (18–20 weeks) • Plan for hospital booking-in • Discuss antenatal classes Elevated risk <ul style="list-style-type: none"> • Hospital booking-in via telehealth • Antenatal classes online/virtual
20–22 weeks	F2F	<ul style="list-style-type: none"> • Recommend pertussis vaccination • Give referral for routine 26–28 week blood tests Elevated risk <ul style="list-style-type: none"> • Request GDM testing (at 24–28 weeks) as per screening and diagnosis during COVID-19 • Request ferritin with Hb assessment (assume blood stock low)
24–26 weeks	F2F or telehealth	<ul style="list-style-type: none"> • Routine antenatal care
28 weeks	F2F	<ul style="list-style-type: none"> • If indicated, RhD immunoglobulin (anti-D) • Give referral for routine 36 week bloods Elevated risk <ul style="list-style-type: none"> • Request ferritin with Hb assessment (assume blood stock low)
31 weeks	F2F or telehealth	<ul style="list-style-type: none"> • Routine antenatal care
34–37 weeks	At least one F2F	<ul style="list-style-type: none"> • If indicated, RhD immunoglobulin (anti-D) • Consider USS for growth and position
	Remainder telehealth	<ul style="list-style-type: none"> • Routine antenatal care
38 weeks	F2F or telehealth	<ul style="list-style-type: none"> • Routine antenatal care
41 weeks	F2F	<ul style="list-style-type: none"> • Usual considerations for fetal well-being and birth planning

Postnatal schedule		
Gestation	Contact type	COVID-19 recommendations for low risk woman
0–6 weeks postpartum	F2F or Telehealth	<ul style="list-style-type: none"> Perinatal mental health check Ask about domestic violence Routine postnatal care Elevated risk <ul style="list-style-type: none"> Delay GDM follow-up <ul style="list-style-type: none"> Refer to updated GDM postnatal follow-up recommendations
6 weeks	F2F	<ul style="list-style-type: none"> Routine maternal and newborn assessment Newborn vaccinations Check completion of routine newborn follow-ups (e.g. NBST, hearing screen) Elevated risk <ul style="list-style-type: none"> Newborn assessment: prioritise growth, eyes, hips, heart

Antenatal and postnatal schedules adapted with permission: from an original by Dr Wendy Burton April 2020

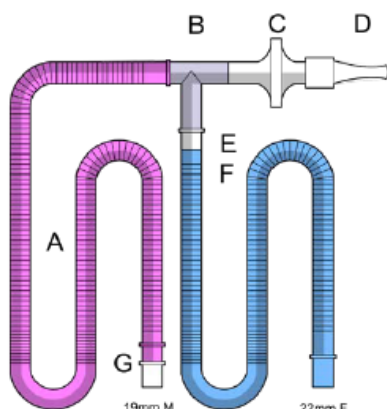
Ultrasound schedule if elevated risk		
Scan	Asymptomatic woman	Symptomatic woman
11+0–13+6 weeks*	<ul style="list-style-type: none"> Combined test Offer non-invasive prenatal testing (NIPT) 	<ul style="list-style-type: none"> Reschedule combined test in 2 weeks if still within gestational-age window Offer NIPT/serum screening and detailed scan 3–4 weeks after quarantine
18+0–23+0 weeks*	<ul style="list-style-type: none"> Anatomical scan 	<ul style="list-style-type: none"> Reschedule after quarantine in 2–3 weeks
Fetal growth scan in third trimester	<ul style="list-style-type: none"> Reduce numbers of scans as clinically appropriate <ul style="list-style-type: none"> Perform only for standard clinical indications If no clinical review in late pregnancy (no fundal height measurement; fetal heart rate auscultation), consider brief late gestation scan to confirm presentation and fetal wellbeing (biometrics and amniotic fluid volume measurement) 	

*Source: ISUOG Consensus Statement on organization of routine and specialist obstetric ultrasound services in the context of COVID-19. (2020)

F21.63-6-V3-R26

Appendix B: Recommended nitrous oxide circuits

Where a scavenger system is available, use Equinox® Advantage Analgesia Circuit–MC/4003
Where a scavenger system is not available, use Equinox® Advantage Analgesia Circuit–MC/4001

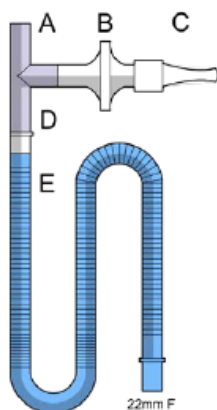


MC/4003 Equinox® Advantage with Scavenger Limb

3.0m Disposable Patient Circuit with Filter, Mouthpiece and 3.0m Pink Scavenger Tubing with 19mm M Connector

Consisting of:

- A. MP-EX22P120 22mm ID Pink Expandable Tubing PP
- B. M-HP Handpiece 22mm M/M/M with one-way valve (SY)(S)
- C. 55000104-500 In-line Filter 22mm M/F (PP)
- D. 56001 Mouthpiece 22mm F (HDPE)
- E. PH70018 One-way valve 22mm M/F (PP) (S)
- F. MP-EX22B120 22mm ID Blue Expanded Tubing (PP)
- G. PH3200(D) Adaptor 22mm M to 19 mm M(PP)

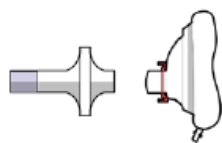


MC/4001 Equinox® Advantage Single Limb Circuit

3.0m Disposable Patient Circuit with Filter and Mouthpiece

Consisting of:

- A. MC-HP Handpiece 22mm M/M/M with one-way valve (SY) (S)
- B. 55000104-500 In-line Filter 22mm M/F (PP)
- C. 56001 Mouthpiece 22mm F (HDPE)
- D. PH70018 One-way valve 22mm M/F (PP) (S)
- E. MP-EX22B120 22mm ID Blue Expanded Tubing (PP)



Replace mouthpiece with mask

Recommended by Queensland Health, Biomedical Technology Services for use by SCOVID or COVID-19 women

F20.63-3-V2-R25

Appendix C: Neonatal filter use

Aspect	Recommendation
Filter use	<ul style="list-style-type: none"> • Viral/bacterial filter may be used with: <ul style="list-style-type: none"> ◦ Self-inflating bags and flow inflating bags/circuits ◦ T piece (F&P recommend against use with Neopuff™) ◦ Ventilation circuits
HME filter type	<ul style="list-style-type: none"> • The viral/bacterial filter may or may not contain a heat and moisture exchanger (HME) • There are a range of filters suitable for use—consider: <ul style="list-style-type: none"> ◦ Impact on tidal volume (number of mL added) ◦ Connection fit to existing equipment ◦ Need for humidification/suitability for humidification ◦ Availability of stock <p><u>ONE Example:</u> (others may be suitable)</p> <ul style="list-style-type: none"> • Viral/bacterial filter with HME—humidifier is not required <ul style="list-style-type: none"> ◦ Medtronic DAR™ PAEDIATRIC NEONATAL Electrostatic Filter HME SMALL (catalogue number 355/5427)
Filter placement	<ul style="list-style-type: none"> • Refer to Figure1 for circuit assembly
Disconnection from circuit	<ul style="list-style-type: none"> • Minimise disconnections (as far as possible) because this may increase aerosol dispersion • Refer to Figure 1 and disconnect at the recommended point to minimise transmission
Sourcing filters	<ul style="list-style-type: none"> • Order filters through usual procurement processes • Consider ordering one box (25) and sharing within Hospital and Health Service (to conserve supply) • Stocks may be out or low—check at the time of ordering
Humidification	<ul style="list-style-type: none"> • Refer to individual product information as humidification not recommended with some filters

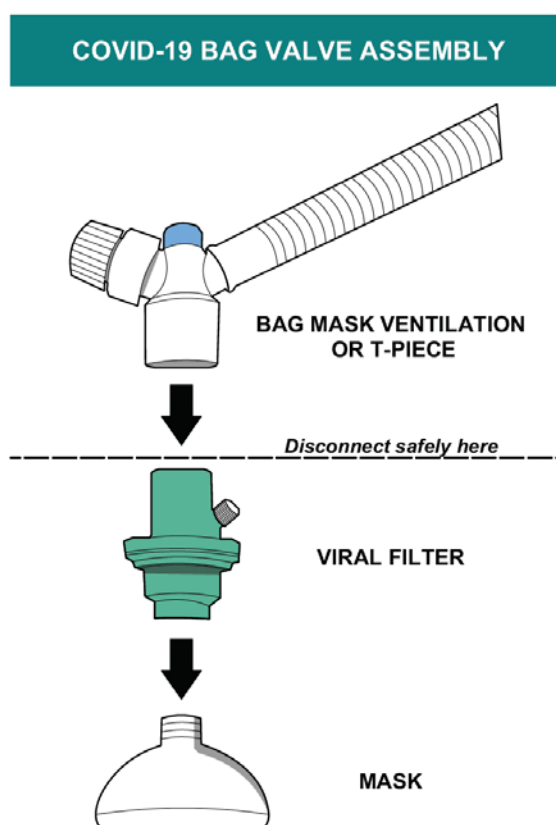


Figure 1: Set up for neonatal resuscitation using viral/bacterial filter

Source: Adapted with permission from Queensland Children's Hospital: *Queensland paediatric consensus statement: paediatric intubation guideline during the COVID-19 outbreak* available at www.childrens.health.qld.gov.au (redrawn by Annabel Lee) F20.63-4-V2-R25

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