

Queensland Clinical Guidelines

Translating evidence into best clinical practice

Maternity and Neonatal **Clinical Guideline**

Normal birth

Document title:	Normal birth
Publication date:	November 2017
Document number:	MN17.25-V3-R22
Document supplement:	The document supplement is integral to and should be read in conjunction with this guideline
Amendments:	Full version history is supplied in the document supplement
Amendment date:	June 2018
Replaces document:	MN17.25-V2-R22
Author:	Queensland Clinical Guidelines
Audience:	Health professionals in Queensland public and private maternity and neonatal services
Review date:	November 2022
Endorsed by:	Queensland Clinical Guidelines Steering Committee Statewide Maternity and Neonatal Clinical Network (Queensland)
Contact:	Email: Guidelines@health.qld.gov.au URL: www.health.qld.gov.au/qcg

Disclaimer

This guideline is intended as a guide and provided for information purposes only. The information has been prepared using a multidisciplinary approach with reference to the best information and evidence available at the time of preparation. No assurance is given that the information is entirely complete, current, or accurate in every respect.

The guideline is not a substitute for clinical judgement, knowledge and expertise, or medical advice. Variation from the guideline, taking into account individual circumstances, may be appropriate.

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

Queensland Health disclaims, to the maximum extent permitted by law, all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs incurred for any reason associated with the use of this guideline, including the materials within or referred to throughout this document being in any way inaccurate, out of context, incomplete or unavailable.

© State of Queensland (Queensland Health) 2018

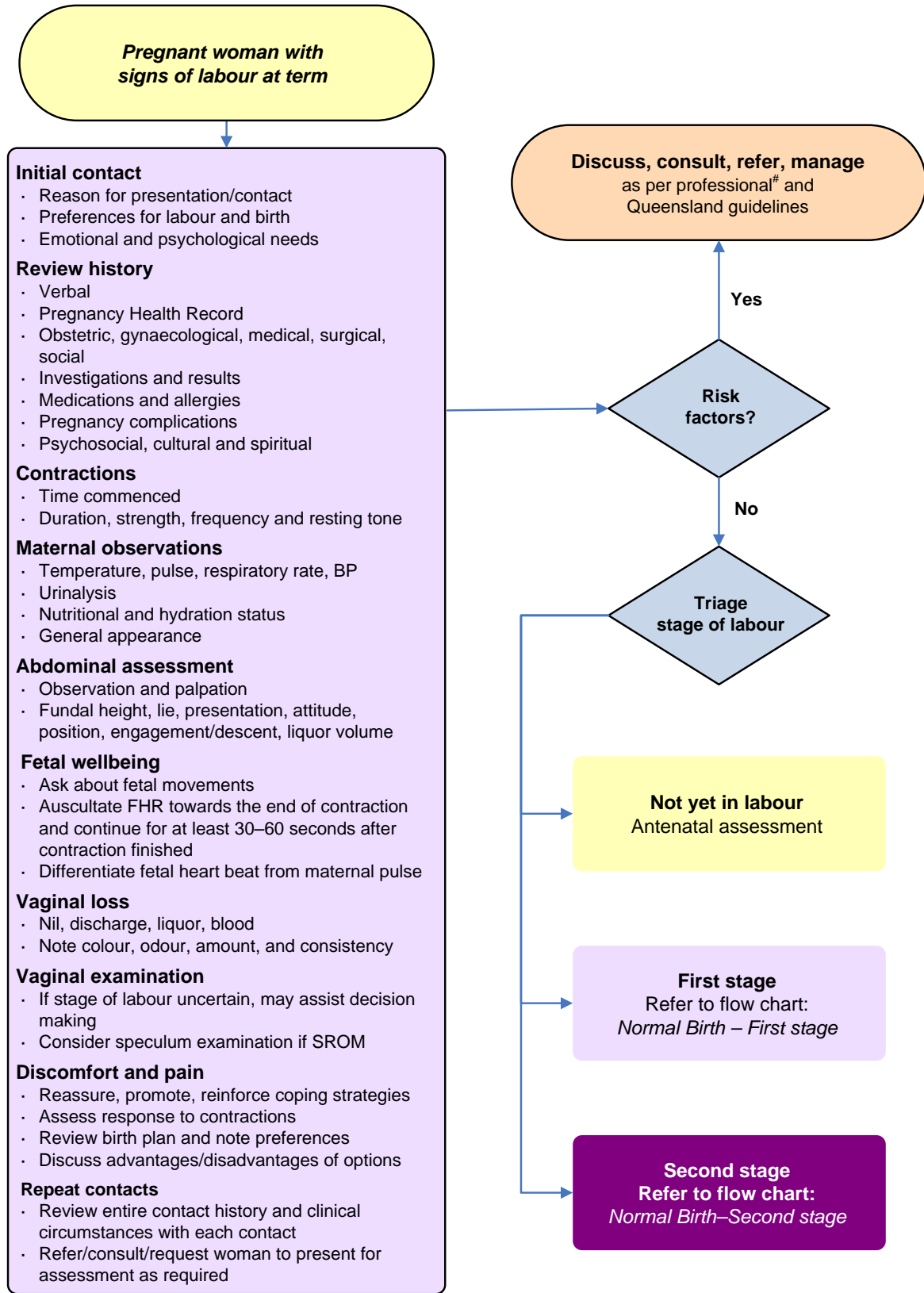


This work is licensed under Creative Commons Attribution-NonCommercial-NoDerivatives 3.0 Australia. In essence, you are free to copy and communicate the work in its current form for non-commercial purposes, as long as you attribute Queensland Clinical Guidelines, Queensland Health and abide by the licence terms. You may not alter or adapt the work in any way. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/3.0/au/deed.en>

For further information, contact Queensland Clinical Guidelines, RBWH Post Office, Herston Qld 4029, email Guidelines@health.qld.gov.au, phone (07) 3131 6777. For permissions beyond the scope of this licence, contact: Intellectual Property Officer, Queensland Health, GPO Box 48, Brisbane Qld 4001, email ip_officer@health.qld.gov.au, phone (07) 3234 1479.

Flow Chart: Initial assessment

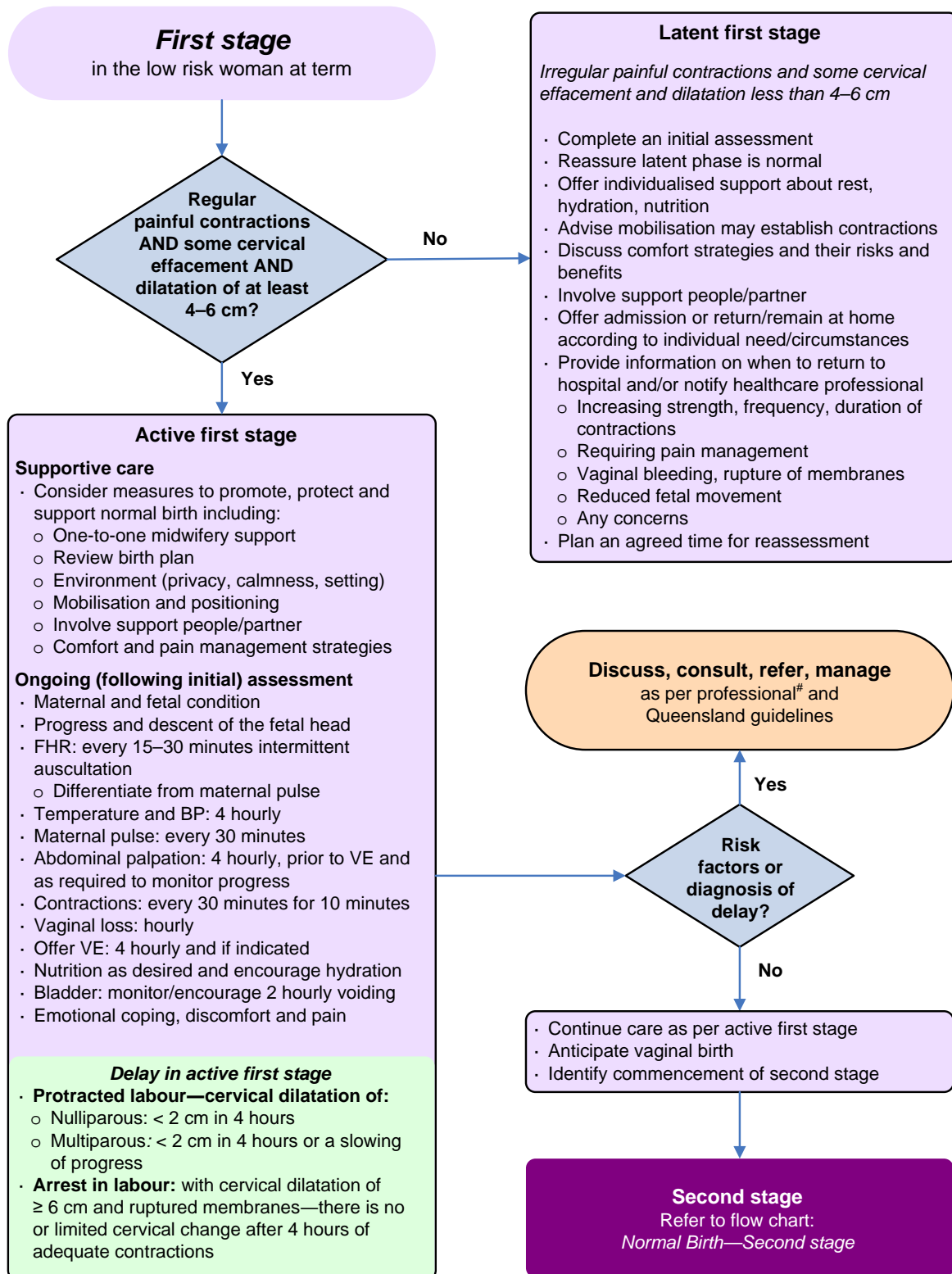
Care is woman centred and includes informed choice, consent, privacy and respectful communication. Contemporaneous documentation is essential.



BP: blood pressure, **FHR:** fetal heart rate, **VE:** vaginal examination, **SROM:** spontaneous rupture of membranes, [#]Australian College of Midwives: National Midwifery Guidelines for Consultation and Referral. 3rd Edition, Issue 2. 2015

Flow Chart: First stage

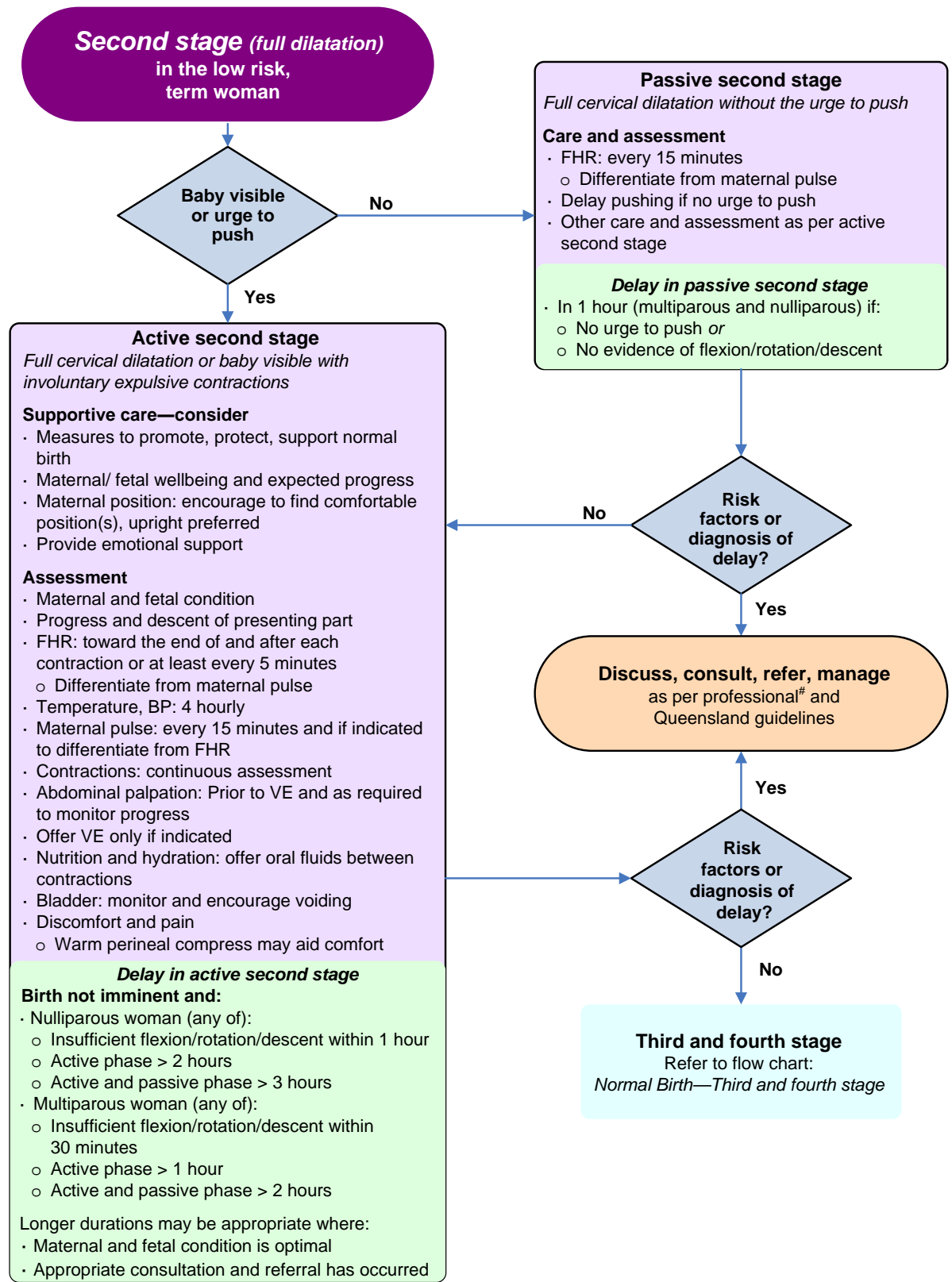
Care is woman centred and includes informed choice, consent, privacy and respectful communication. Contemporaneous documentation is essential.



BP: blood pressure, **FHR:** fetal heart rate, **VE:** vaginal examination, **>:** greater than, **≥:** greater than or equal to, **<:** less than
 #Australian College of Midwives: National Midwifery Guidelines for Consultation and Referral. 3rd Edition, Issue 2. 2015

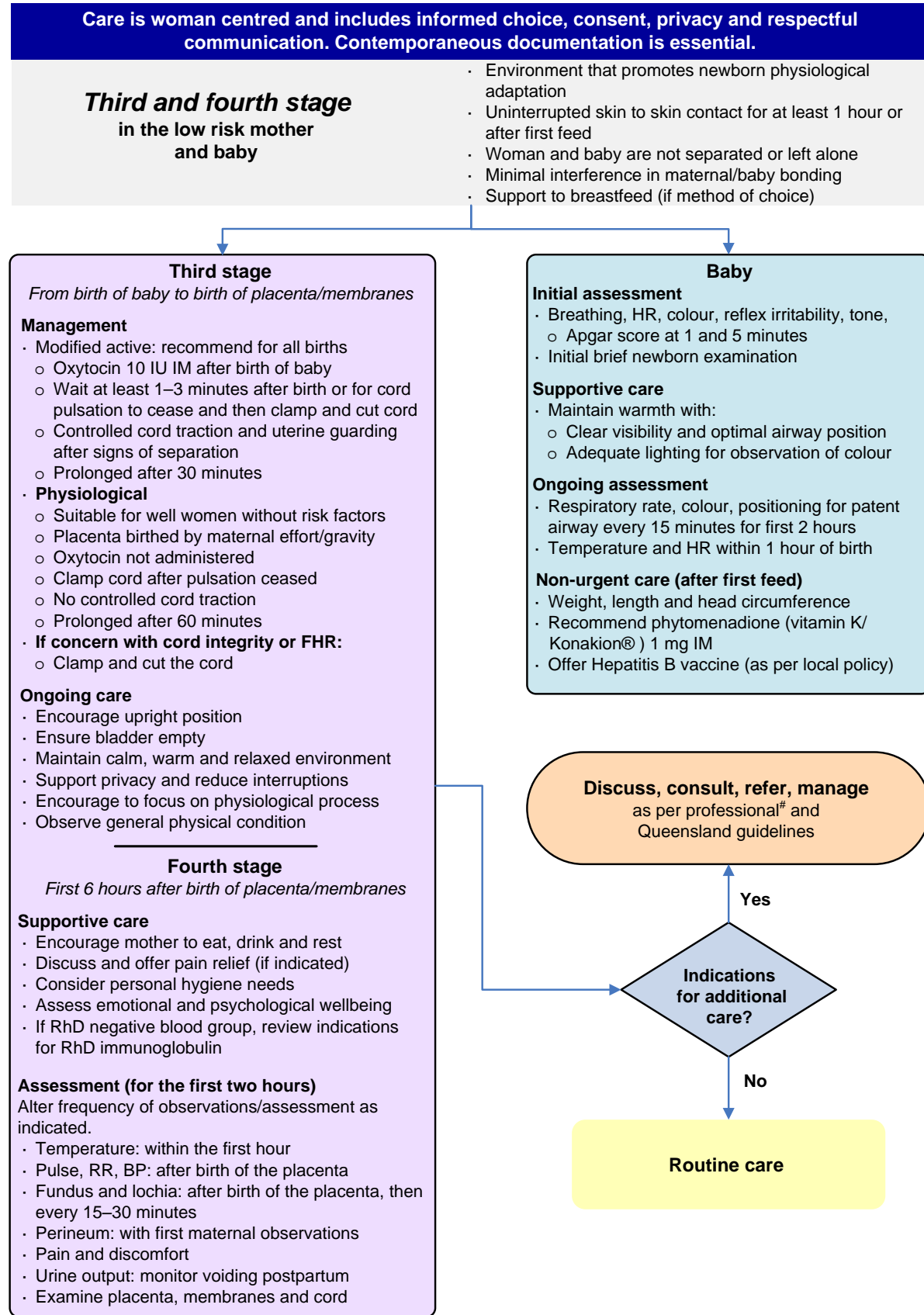
Flow Chart: Second stage

Care is woman centred and includes informed choice, consent, privacy and respectful communication. Contemporaneous documentation is essential.



BP: blood pressure, FHR: fetal heart rate, VE: vaginal examination, >: greater than
 #Australian College of Midwives: National Midwifery Guidelines for Consultation and Referral. 3rd Edition, Issue 2. 2015

Flow Chart: Third and fourth stage



Fourth stage

First 6 hours after birth of placenta/membranes

Supportive care

- Encourage mother to eat, drink and rest
- Discuss and offer pain relief (if indicated)
- Consider personal hygiene needs
- Assess emotional and psychological wellbeing
- If RhD negative blood group, review indications for RhD immunoglobulin

Assessment (for the first two hours)

Alter frequency of observations/assessment as indicated.

- Temperature: within the first hour
- Pulse, RR, BP: after birth of the placenta
- Fundus and lochia: after birth of the placenta, then every 15–30 minutes
- Perineum: with first maternal observations
- Pain and discomfort
- Urine output: monitor voiding postpartum
- Examine placenta, membranes and cord

BP: blood pressure, **FHR:** fetal heart rate, **HR:** heart rate, **IM:** intramuscular, **IU:** international units, **RR:** respiratory rate, **VE:** vaginal examination
[#]Australian College of Midwives: National Midwifery Guidelines for Consultation and Referral. 3rd Edition, Issue 2. 2015

Abbreviations

ACOG	American College of Obstetricians and Gynaecologists
BP	Blood pressure
CCT	Controlled cord traction
CS	Caesarean section
FHR	Fetal heart rate
IU	International units
PHR	Pregnancy health record
PPH	Postpartum haemorrhage
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
TENS	Transcutaneous electrical nerve stimulation
VE	Vaginal examination

Definition of terms

Augmentation	Intervention after the onset of labour to assist the progress of labour ¹
Collaboration	All members of the healthcare team working in partnership with consumers and each other to provide the highest standards of, and access to, healthcare. ²
Consultation	The seeking of professional advice from a qualified, competent source and making decisions about shared responsibilities for care provision. ²
Continuity of care	The practice of ensuring a woman knows her care provider(s) and receives care from the same provider or small group of providers, throughout pregnancy, labour, birth and the postnatal period. ³
Continuity of carer	Care provided by the same named carer over the full length of the episode of care. Relational continuity is provided by the same named caregiver even when other caregivers are required. ⁴
Low risk pregnancy	The absence of risk factors during pregnancy, labour and birth. ⁵
Informed choice	The right to make decisions regarding one's healthcare, based on available information and options. ³
Obstetrician	Local facilities may, as required, differentiate the roles and responsibilities assigned in this document to an "obstetrician" according to their specific practitioner group requirements; for example to general practitioner obstetricians, specialist obstetricians, consultants, senior registrars, obstetric fellows or other members of the team as required.
Referral	The process whereby a health professional introduces a woman to the services of another health professional. ³

Table of Contents

1	Introduction.....	9
1.1	Defining normal birth.....	9
1.2	Criteria for normal birth in Queensland.....	10
1.3	Indications for consultation or referral.....	10
1.4	Clinical standards.....	10
2	Supporting normal birth.....	11
2.1	Hormonal physiology.....	11
2.2	Woman centred care.....	11
2.3	Communication culture.....	12
2.4	Continuity of care.....	12
2.5	Birth preparation.....	13
2.6	Birth environment.....	14
2.7	Support during labour and birth.....	14
3	Comfort and coping strategies.....	15
3.1	Non-pharmacological support.....	15
3.1.1	Water immersion.....	16
3.2	Pharmacological support.....	17
3.2.1	Nitrous oxide and oxygen in labour.....	17
4	Initial maternal assessment.....	18
4.1	Remote triage.....	18
4.2	Assessment.....	18
4.3	Vaginal examination.....	19
5	First stage.....	20
5.1	Latent first stage.....	20
5.2	Active first stage.....	21
5.3	Ongoing care during first stage.....	22
5.4	Delay in active first stage.....	23
6	Second stage.....	23
6.1	Supporting progress toward normal birth.....	24
6.2	Observations in first and second stage.....	25
6.3	Birth of baby.....	26
6.3.1	Water birth.....	27
7	Third stage.....	28
7.1	Ongoing care in third stage.....	29
7.1.1	Indications for additional care.....	30
7.2	Placenta and membrane examination.....	30
7.3	Requests concerning care of the placenta.....	31
7.4	Perineal examination.....	31
8	Fourth stage.....	32
8.1	Observations.....	32
8.2	Newborn care and assessment.....	32
8.3	Maternal care and assessment.....	33
	References.....	34
	Appendix A: Comparisons of labour definitions.....	38
	Appendix B: Summary position statements on length of labour.....	39
	Appendix C: Third stage evidence.....	40
	Appendix D: Position statements on third stage management.....	41
	Acknowledgements.....	42

List of Tables

Table 1.	Normal birth criteria.....	10
Table 2.	Communication culture.....	12
Table 3.	Comparison of continuity of midwifery care with other models of care for low risk women.....	12
Table 4.	Birth preparation.....	13
Table 5.	'Home like' birth rooms within hospital compared with usual labour ward setting.....	14
Table 6.	Labour and birth support.....	14
Table 7.	Birth outcomes associated with continuous support during labour.....	14
Table 8.	Non-pharmacological.....	15
Table 9.	Water immersion: principles and safety.....	16
Table 10.	Pharmacological support.....	17
Table 11.	Nitrous oxide and oxygen.....	17
Table 12.	Clinical assessment.....	18
Table 13.	Vaginal examination.....	19
Table 14.	Latent first stage.....	20
Table 15.	Active first stage.....	21
Table 16.	Ongoing care during first stage.....	22
Table 17.	Delay in active first stage.....	23
Table 18.	Progress of second stage.....	23
Table 19.	Supporting progress in second stage.....	24
Table 20.	Labour observations.....	25
Table 21.	Birth of the baby.....	26
Table 22.	Water birth.....	27
Table 23.	Third stage options.....	28
Table 24.	Ongoing care in third stage.....	29
Table 25.	Indications for additional care.....	30
Table 26.	Examination of placenta and membranes.....	30
Table 27.	Requests concerning care of the placenta.....	31
Table 28.	Perineal care.....	31
Table 29.	Newborn care and assessment.....	32
Table 30.	Maternal care and assessment.....	33

1 Introduction

The purpose of this guideline is to protect, support and promote normal birth through woman centred, collaborative care. This is congruent with international efforts aimed at supporting physiological birth.⁶⁻¹² Normal birth is associated with⁸:

- Improved outcomes for mothers and babies
- Reduced healthcare costs
- Less iatrogenic events related to overuse of medical interventions
- Improved maternal psychological¹³ and physical wellbeing

Although most women in Australia birth vaginally, there is a trend away from normal birth^{1,14} and a rising caesarean section (CS) rate.^{3,15} Supporting normal birth for nulliparous women is a particularly important strategy to improve overall perinatal outcomes.^{3,12,14}

1.1 Defining normal birth

The terms 'physiological birth', 'normal birth' and 'natural birth' are often used interchangeably but usually refer to birth which has not been managed by medical intervention.¹⁶⁻¹⁸ Normal birth includes the opportunity for uninterrupted skin to skin and breastfeeding in the first hour after birth.¹¹ The World Health Organization defines normal birth as¹⁹:

- Spontaneous onset
- Low risk at the start of labour
- Remains low risk throughout labour and birth
- The baby is born:
 - Spontaneously
 - In the vertex position
 - Between 37 and 42 completed weeks gestation (term)
- The woman and her baby are in good condition after the birth

Other professional organisations have included broader criteria than generally recognised as physiological or normal.^{10,11} In defining normal birth, two factors are taken into consideration¹⁹:

- The risk status of the pregnancy and
- The course of labour and birth

1.2 Criteria for normal birth in Queensland

Use the following criteria to support the principles of protecting, promoting and supporting normal birth for all women, recognising that aspects may be more or less applicable to women across the broad spectrum of birth experiences and choices.

Table 1. Normal birth criteria

Aspect	Consideration
Includes	<ul style="list-style-type: none"> • Occurs between 37+0 and 42+0 weeks gestational age • Spontaneous onset • Normal labour progress • Vertex • Spontaneous vaginal birth • Intermittent fetal auscultation • Nitrous oxide and oxygen • Third stage management: <ul style="list-style-type: none"> ○ Physiological third stage ○ Modified active third stage (delayed cord clamping) • No maternal or fetal complications or risk factors
Excludes	<ul style="list-style-type: none"> • Induction of labour • Augmentation: <ul style="list-style-type: none"> ○ ARM ○ Oxytocin infusion • Continuous fetal monitoring • Pharmacological pain relief that includes: <ul style="list-style-type: none"> ○ Opioids ○ Epidural or spinal ○ General anaesthetic • Instrumental birth (forceps or vacuum) • CS • Episiotomy • Early cord clamping • Complications: <ul style="list-style-type: none"> ○ Risk factors at commencement of labour ○ Intrapartum ○ Immediate postnatal (within two hours of birth)

1.3 Indications for consultation or referral

During the normal birth process, deviations from normal or concerns with the labour or birthing process may arise. When indicated:

- Increase the frequency of recommended observations as required
- Modify care as relevant to individual circumstances while maintaining a focus on supporting the principles of normal birth
- Discuss, consult, refer and manage as indicated according to professional^{2,20-23} and Queensland guidelines

1.4 Clinical standards

Implicit throughout this guideline are the principles of:

- Professional scope of practice²⁴⁻²⁶
- Contemporaneous record keeping using standardised tools (e.g. pregnancy health record (PHR)²⁷, early labour record²⁸, intrapartum record and the health record²⁹)
- Care is provided in accordance with:
 - The clinical service capability framework²³
 - The Australian Commission on Safety and Quality in Health Care³⁰
- Maternal consent³¹ and informed choice is a fundamental component of care^{2,32}

2 Supporting normal birth

This guideline recognises pregnancy and birth as a normal physiological process² occurring within a wellness paradigm³ which is supported by:

- A shared positive birth philosophy of care^{12,33,34}
- A clear understanding of the hormonal physiology during labour and birth³⁵
- Clear communication³⁶ and professional collaboration^{2,21,24,36,37} [refer to Section 2.3 Communication culture]
- Continuity of care^{3,38} and carer³⁹ [refer to Section 2.4 Continuity of care]
- One-to-one midwifery care^{20,40-43}
- Optimising the birth environment⁴⁴⁻⁴⁶ [refer to Section 2.6 Birth environment]
- Ongoing birth preparation during pregnancy^{40,47,48} [refer to Section 2.4 Continuity of care]
- Maintaining the minimum level of birth intervention^{6,7} compatible with safety
- Food and fluid intake⁴⁹
- Freedom of movement⁴³ and position
- Keeping mothers and babies together after birth with support for breastfeeding⁵⁰
- Asking two key questions:
 - Is the care woman centred?
 - Is the care safe?

2.1 Hormonal physiology

The benefits of normal labour and birth for the woman and her baby include³⁵:

- Enhances labour effectiveness
- Promotes fetal readiness for birth
- Protects the baby from reduced oxygen during labour
- Improves physiological response to labour stress and pain
- Promotes maternal and newborn transitions
- Helps to minimise maternal bleeding after birth
- Optimises breastfeeding
- Promotes optimal mother-infant attachment

The perinatal period represents a highly sensitive time for the woman and her baby in relation to hormonal and other biological processes.³⁵ Supportive care is aimed at minimising maternal stress and anxiety due to the negative impact of stress hormones on the labour and birth process.^{35,51}

2.2 Woman centred care

Woman centred care includes respect and dignity, by supporting the woman to be central and active in her own care through^{24,52}:

- Holistic care taking account of the woman's physical, psychosocial, cultural, emotional and spiritual needs^{2,24}
- Focusing on the woman's expectations, aspirations and needs, rather than the institutional or professional needs⁵²
- Recognising the woman's right to self-determination through choice, control and continuity of care from a known or known caregivers
- Acknowledging a woman's right to privacy and to make her own informed, autonomous health care decisions^{53,54}
- Recognising the needs of the baby, the woman's family and significant others⁵⁵ while acknowledging that the woman remains the decision maker in her care

2.3 Communication culture

A positive philosophy of care towards normal birth, demonstrated by a professional culture with clear communication is essential to the delivery of high quality care, which avoids unnecessary perinatal morbidity and mortality, and improves normal birth rates.^{12,33}

Table 2. Communication culture

Aspect	Assumption
Woman centred	<ul style="list-style-type: none"> • Present information in a manner that promotes physiological birth • Share and discuss information with the woman to enable informed choice³¹ and consent²⁴ <ul style="list-style-type: none"> ○ Respect the woman's right to decline recommended care^{2,31,40} ○ Provide a pathway for women declining recommended care • Provide emotional and physical support to the woman <ul style="list-style-type: none"> ○ Use supportive language to build confidence in the woman • Respect and implement birth plan^{40,56} [refer to Table 4. Birth preparation] • Involve the woman in clinical handover⁵⁷
Professional culture	<ul style="list-style-type: none"> • A culture which includes⁵⁸: <ul style="list-style-type: none"> ○ Mutual trust ○ Clear and respected boundaries ○ Acceptance of shared responsibilities ○ Open and honest communication • Positive leadership and organisational support⁵⁹ • A commitment to evidence-based practice encompassing reflection, audit and feedback^{43,60-62}
Collaborative culture	<ul style="list-style-type: none"> • Collaboration and interdisciplinary professional relationships are the cornerstone of excellence in maternity care^{2,36} • Promotes active participation of different health disciplines to provide tailored care to meet the needs of each woman³⁷ • Supports service integration and seamless access to additional care^{36,40} • Provides timely support for junior maternity care professionals³⁶ • Provides ongoing shared learning opportunities between disciplines⁶³⁻⁶⁵

2.4 Continuity of care

Offer all women continuity of care that is informed by collaborative relationships and practices.

Table 3. Comparison of continuity of midwifery care with other models of care for low risk women

Outcome associated with midwife care ³⁹	No trials	Sample size	Relative Risk	95% CI	Interpretation
Regional analgesia (epidural)	14	17,674	0.85	0.78 to 0.92	Less likely
Episiotomy	14	17,674	0.84	0.77 to 0.92	Less likely
Instrumental birth	13	17,501	0.90	0.83 to 0.97	Less likely
ARM	4	3,253	0.80	0.66 to 0.98	Less likely
Preterm birth	8	13,238	0.76	0.64 to 0.91	Less likely
Fetal loss before 24 weeks	11	15,645	0.81	0.67 to 0.98	Less likely
Fetal loss before and after 24 weeks plus neonatal death	13	17,561	0.84	0.71 to 0.99	Less likely
Spontaneous vaginal birth	12	16,687	1.05	1.03 to 1.07	Possibly more likely*
No intrapartum analgesia	7	10,499	1.21	1.06 to 1.37	More likely
Attendance by known midwife	7	6,917	7.04	4.48 to 11.08	More likely
Longer mean length of labour (0.5 hours)	3	3,328	0.50	0.27 to 0.74	More likely
Caesarean section	13	17,674	0.92	0.84 to 1.00	No difference
Induction of labour	13	17,501	0.93	0.86 to 1.01	No difference
Intact perineum	10	13,186	1.04	0.95 to 1.13	No difference

*Clinical significance uncertain

2.5 Birth preparation

Planning for birth is a continuous process and is associated with improved outcomes for the woman and her baby.⁴⁰ Birth preparation aims to empower the woman to be an active participant in decision-making, supporting her to remain in control of her birth experience.

Table 4. Birth preparation

Aspect	Considerations
About normal birth	<ul style="list-style-type: none"> • Provide pregnancy care as per the Queensland PHR²⁷ • Inform the woman that giving birth is a normal physiological event⁴⁰ • Offer information and discussion about: <ul style="list-style-type: none"> ○ Benefits of physiological birth ○ Signs of labour <ul style="list-style-type: none"> § What to expect in the latent stage of labour § How to differentiate between Braxton Hicks and active labour contractions ○ Normal vaginal loss <ul style="list-style-type: none"> § How to recognise amniotic fluid ○ Pain and support strategies [refer to Section 3 Comfort and coping strategies] ○ Informed consent including for vaginal examination
Psychoeducation	<ul style="list-style-type: none"> • Provide an opportunity to discuss previous birth experience¹³ • Reduces fear of birth in women who report high childbirth fear⁶⁶ • Associated with⁶⁷: <ul style="list-style-type: none"> ○ Increased spontaneous vaginal birth ○ Reduced caesarean section ○ Increased positive birth experience
Options for model of care	<ul style="list-style-type: none"> • Respect and support a woman's choice of model of care and caregiver³ • Aim to provide continuity of carer close to the woman's home • Offer information about model of care options and their risks and benefits to facilitate informed decision making^{20,31,54} including about: <ul style="list-style-type: none"> ○ Place of birth ○ Pharmacological and non-pharmacological pain management ○ Duration of second stage ○ Third stage management • Offer information about ongoing care options if deviations from normal
Birth plan and preferences	<ul style="list-style-type: none"> • Provide opportunities to develop a birth plan and discuss birth preferences including: <ul style="list-style-type: none"> ○ Cultural requirements for birth ○ Support person(s) • Supports⁴⁰: <ul style="list-style-type: none"> ○ Involvement of women in their care ○ Information sharing ○ Effective communication ○ The woman be central to decision-making • The values and beliefs of caregivers can influence the success of a plan⁴⁷ • Avoid unidirectional/checklist birth plans⁵⁶

2.6 Birth environment

Aim to create an environment in which the woman feels private, safe and undisturbed^{35,44,68} and that supports her to maintain a sense of control of her experience. Considerations include respecting the woman's choice of birth environment and maintaining⁶⁹:

- A sense of calm
- Protection of the woman's privacy
- Provision of support and comfort
- A home-like setting⁴⁶ that may include:
 - Adjustable lighting and temperature to achieve a calming ambience⁵¹
 - Discrete positioning of medical equipment
 - Family friendly furnishings and décor
 - Furniture to support upright positions⁵¹
 - Access to shower and water immersion⁵¹

Table 5. 'Home like' birth rooms within hospital compared with usual labour ward setting

Outcome associated with 'home like' birth settings ⁴⁶	No trials	Sample size	Relative Risk	95% CI	Interpretation
No intrapartum analgesia	6	8,953	1.18	1.05 to 1.33	Possibly more likely*
Spontaneous vaginal birth	8	11,202	1.03	1.01 to 1.05	Possibly more likely*
Breastfeeding at 6–8 weeks	1	1,147	1.04	1.02 to 1.06	Possibly more likely*
Positive views of care	2	1,207	1.96	1.78 to 2.15	More likely
Epidural	8	10,931	0.80	0.74 to 0.87	Less likely
Labour augmentation	8	11,131	0.77	0.67 to 0.88	Less likely
Instrumental birth	8	11,202	0.89	0.79 to 0.99	Less likely
Episiotomy	8	11,055	0.83	0.77 to 0.90	Less likely

*Clinical significance uncertain

2.7 Support during labour and birth

Table 6. Labour and birth support

Aspect	Consideration
Continuity of carer	<ul style="list-style-type: none"> · Facilitates the forming of a therapeutic relationship between the woman and her provider⁷⁰
Continuous support³⁸	<ul style="list-style-type: none"> · An important strategy in the promotion of normal birth · Facilitates emotional support, coping techniques, comfort measures and advocacy⁷¹ · Continuous one-to-one labour and birth support is associated with improved health outcomes^{38,72} [refer to Table 7 Birth outcomes associated with continuous support during labour]

Table 7. Birth outcomes associated with continuous support during labour

Outcome associated with continuous support ³⁸	No. trials	Sample size	Relative Risk	95% CI	Interpretation
Spontaneous vaginal birth	19	14,119	1.08	1.04 to 1.12	*Possibly more likely
Caesarean section	22	15,175	0.78	0.67 to 0.91	Less likely
Instrumental birth	19	14,118	0.90	0.85 to 0.96	Less likely
Intrapartum analgesia	14	12,283	0.90	0.84 to 0.96	Less likely
Epidural	9	11,444	0.93	0.88 to 0.99	Less likely
Birth experience dissatisfaction	11	11,133	0.69	0.59 to 0.79	Less likely
Low 5 minute Apgar score	13	12,515	0.69	0.50 to 0.95	Less likely
Shorter mean length of labour (-0.58 hours)	12	5,366	–	-0.85 to -0.31	–

*Clinical significance uncertain

3 Comfort and coping strategies

Recognise and respond to changes in the woman's ability to manage discomfort and pain. Communication, including positive language and encouragement, and a flexible approach support the woman to feel in control.

- Consider the woman's coping ability, mobility, weight, and stage of labour and support her choices
- Utilise the woman's birth plan if provided

3.1 Non-pharmacological support

Most non-pharmacological methods of support appear to be safe for both the woman and her baby but efficacy is unclear due to limited high quality evidence.⁷³ Discuss available options including known benefits and risks and support the woman in her choice.

Table 8. Non-pharmacological

Therapy	Consideration
Heat	<ul style="list-style-type: none"> · Can improve tension and backache during labour <ul style="list-style-type: none"> ○ Superficial heat can be obtained from hot packs, hot moist towels, heated silica packs, warm towels, baths and showers ○ Perineal warm compresses⁷⁴ [refer to Table 21. Birth of the baby] ○ Sacrum–perineum heat therapy during active labour may be associated with reduced pain and increased satisfaction⁷⁵
Hydrotherapy	<ul style="list-style-type: none"> · Warm showers may relieve labour pain and encourage mobilisation⁷⁶ <ul style="list-style-type: none"> ○ Refer to Section 3.1.1 Water immersion
Acupressure and acupuncture	<ul style="list-style-type: none"> · May reduce pain in labour^{73,77}, increase maternal satisfaction with pain management and reduce pharmacological pain relief options⁷⁷ · Acupressure may reduce the duration of first stage of labour⁷⁸
Hypnosis	<ul style="list-style-type: none"> · May be associated with a reduction in overall use of analgesia (except epidural⁷⁹) during labour
Relaxation	<ul style="list-style-type: none"> · May reduce labour pain intensity, increase satisfaction with pain relief and reduce the rate of assisted birth⁸⁰
Massage	<ul style="list-style-type: none"> · May be associated with reduced severity of pain in labour⁸¹ and decreased duration of labour⁸²
Yoga	<ul style="list-style-type: none"> · May reduce pain, increase satisfaction with pain relief, increase satisfaction with birth experience and reduce length of labour⁸⁰
TENS	<ul style="list-style-type: none"> · Transcutaneous electrical nerve stimulation (TENS) may be associated with decrease in labour pain⁸³
Aromatherapy and biofeedback	<ul style="list-style-type: none"> · Biofeedback may be associated with reduced pain perception⁸⁴ · Aromatherapy may be associated with: <ul style="list-style-type: none"> ○ Reduced pain⁸⁵ ○ Reduced duration of labour⁸⁴
Sterile water injections	<ul style="list-style-type: none"> · May be associated with reduced labour pain^{86,87} · Administration may cause transient heightened discomfort · May benefit women experiencing lower back pain^{88,89} <ul style="list-style-type: none"> ○ Repeat injections may be necessary⁸⁷ ○ The four injection technique provides greater relief than the single technique⁸⁷ · Offer a single injection to women who wish to avoid the increased discomfort of four injections <ul style="list-style-type: none"> ○ Inform women that the quality and duration of relief may be reduced compared to the four injection technique⁸⁷
Birth ball	<ul style="list-style-type: none"> · Less pain reported in the first stage of labour with use of birth ball⁹⁰ <ul style="list-style-type: none"> ○ May also promote comfort and relaxation and build confidence to cope with pain⁹⁰
Insufficient evidence	<ul style="list-style-type: none"> · There is insufficient evidence regarding the effectiveness as a pain management and/or comfort strategy in labour of: <ul style="list-style-type: none"> ○ Reflexology⁹¹ ○ Traditional Chinese medicines ○ Homeopathy—efficacy and safety not established ○ Music and audio⁸⁰

3.1.1 Water immersion

Warm water immersion is an effective method of non-pharmacological analgesia during labour^{92,93} and one which facilitates and promotes normal birth.⁹⁴

Table 9. Water immersion: principles and safety

Aspect	Consideration
Risk/benefits	<ul style="list-style-type: none"> • Relieves pain intensity associated with labour⁹⁵ • Increases maternal satisfaction with birth experience^{95,96} • Increases sense of weightlessness and buoyancy⁹⁷, control and relaxation^{94,95,97} • May slow progress⁹⁸ • Potential for unintended water birth⁹⁹ • Conflicting evidence about effect on perineal trauma <ul style="list-style-type: none"> ○ Refer to Queensland Clinical Guideline: <i>Perineal care</i>¹⁰⁰
Health outcomes in first stage	<ul style="list-style-type: none"> • Does not increase risk for the healthy woman or her healthy baby¹⁰¹ when evidence-based clinical guidelines are followed⁹⁴ • Associated with: <ul style="list-style-type: none"> ○ Reduced regional analgesia use (RR 0.91, 95% CI 0.83 to 0.99)¹⁰¹ ○ No difference in mode of birth ○ Insufficient evidence to determine impact on, , neonatal infection, admission to neonatal units¹⁰¹ ○ Less need for augmentation¹⁰²
Suggested criteria for water immersion	<ul style="list-style-type: none"> • Perform an individual assessment including: <ul style="list-style-type: none"> ○ Ability to enter and exit water with minimal assistance ○ Resources (human and equipment) available to assist the woman exit the water if this becomes necessary ○ Low risk pregnancy and labour, at term, singleton, cephalic^{99,103} ○ Narcotic analgesia not administered within previous four hours ○ Active labour prior to entering water • Not excluded (if recommended antibiotics commenced): <ul style="list-style-type: none"> ○ Group B <i>Streptococcus</i> positive^{93,104} <ul style="list-style-type: none"> § Refer to Queensland Clinical Guideline: <i>Early onset Group B Streptococcal disease</i>¹⁰⁵ ○ Prolonged rupture of membranes (more than 18 hours) • Refer to local protocols for specific additional criteria
Water management	<ul style="list-style-type: none"> • Fill water to level of maternal breast when sitting • Maintain water temperature 36–37.5 °C^{40,103} • Monitor woman's temperature in: <ul style="list-style-type: none"> ○ First stage—hourly^{97,103} ○ Second stage—every 30 minutes • Monitor water quality continuously and change water if debris present • Encourage regular fluid intake to maintain hydration⁹⁷
Care during water immersion	<ul style="list-style-type: none"> • Requires continuous support from caregivers skilled in water immersion^{99,103} <ul style="list-style-type: none"> ○ Follow local facility requirements for caregiver competency • Establish baseline maternal and fetal condition prior to entering water • Prepare for unintended water birth: <ul style="list-style-type: none"> ○ Ensure a second caregiver is immediately available [refer to Table 22 Water birth] • Ongoing maternal and fetal observations [refer to Table 20. Labour observations] <ul style="list-style-type: none"> ○ Vaginal examination (VE) may be carried out while in the water⁹⁷ but is not recommended as a routine practice • Narcotic analgesia not recommended during water immersion¹⁰³
Discontinue⁹⁷	<ul style="list-style-type: none"> • In the presence of: <ul style="list-style-type: none"> ○ Slow progress ○ Fetal heart rate (FHR) abnormalities on auscultation ○ Meconium or blood stained liquor ○ Maternal temperature elevated one degree above baseline ○ Intrapartum risk factor(s)
Water birth	<ul style="list-style-type: none"> • Refer to Section 6.3.1 Water birth

3.2 Pharmacological support

Table 10. Pharmacological support

Aspect	Consideration
Attitudes to pain and pain relief	<ul style="list-style-type: none"> Health professionals' attitude to coping with pain in labour and the administration of pharmacological analgesia is informed by personal values and beliefs, organisational influences and the approach of professional organisations¹⁰⁶ Ensure care provision (both physical and psychological) is directed towards supporting women in their choices
Support choice	<ul style="list-style-type: none"> Offer information about the risks, benefits and implications of pharmacological pain management options including impact (if any) on: <ul style="list-style-type: none"> The progress of labour Recommended monitoring/observations Transfer of care requirements Effectiveness of pain management Incidence of side effects
Options	<ul style="list-style-type: none"> Refer to Queensland Clinical Guidelines: <i>shortGuide</i>: <ul style="list-style-type: none"> <i>Opioids in labour</i>¹⁰⁷ <i>Epidural analgesia in labour</i>¹⁰⁸ <i>Remifentanyl via PCA in labour</i>¹⁰⁹
Prescribing considerations	<ul style="list-style-type: none"> Prior to prescribing and administering analgesia, complete a comprehensive clinical assessment Consider individual circumstances relevant to safe administration Consult a pharmacopeia for complete product information

3.2.1 Nitrous oxide and oxygen in labour

Table 11. Nitrous oxide and oxygen

Aspect	Consideration
Administration	<ul style="list-style-type: none"> Requires adequate air ventilation¹¹⁰ Inhaled¹¹¹ via mask or mouthpiece <ul style="list-style-type: none"> Self-administered (only woman to hold mouthpiece or mask) Takes effect within 20–30 seconds Peak clinical effects occur within 3–5 minutes¹¹² Titrate using incremental doses^{112,113} according to effect and sensitivity <ul style="list-style-type: none"> Aim for conscious, relaxed, comfortable and co-operative state¹¹³ Maximum dose of 70% nitrous oxide is associated with obstetric anaesthesia rather than analgesia¹¹¹
Care provision	<ul style="list-style-type: none"> Support and encourage the woman for effective administration <ul style="list-style-type: none"> Commence with onset of contraction (or 30 seconds prior to contraction when possible) Breathe deeply at normal rate Cease when contractions ease Observe for signs of overdose (decreased respiratory effort) <ul style="list-style-type: none"> Give supplementary oxygen in the event of overdose
Benefits	<ul style="list-style-type: none"> Provides mild analgesia and sedation¹¹² Minimal toxicity Fast acting with rapid elimination^{112,114} No effect on uterine contractility No known fetal or neonatal effects^{114,115} Effective for labour pain^{73,116} Can assist relaxation (breathing techniques)
Risk	<ul style="list-style-type: none"> Overdose causes respiratory depression <ul style="list-style-type: none"> Risk increased when used with opioid Associated with: <ul style="list-style-type: none"> Vomiting, nausea, headache and dizziness^{73,110,114,116} Disorientation and claustrophobia⁷³ Can be minimised by careful titration¹¹²

4 Initial maternal assessment

A comprehensive triage and assessment supports planning for ongoing care and normal birth.⁴³ The aim of the initial assessment is to:

- Accurately assess the need for consultation and referral
- Identify the stage of labour
- Provide practical support

4.1 Remote triage

Initial contact may occur with the woman in person or via remote communication modalities (e.g. telephone, video connection).

- Accurate and consistent triage and information sharing supports and empowers women to remain at home during the latent phase of labour
- An assessment of early labour by maternity care providers specifically trained in remote triage^{117,118} can be offered to all women⁴⁰
- Incorporate appropriate elements of the initial maternal assessment when triaging by remote modalities [refer to Table 12. Clinical assessment]

4.2 Assessment

Table 12. Clinical assessment

Aspect	Maternal assessment
Initial contact	<ul style="list-style-type: none"> • Ascertain reason for presentation or contact • Assess emotional and psychological needs • Discuss preferences for labour and birth • Review history, pregnancy notes and screening results⁴⁰ including: <ul style="list-style-type: none"> ○ Gestational age ○ Past history (medical, obstetric, gynaecological, surgical, social) ○ Medications, allergies ○ Pregnancy complications ○ Investigation results⁴³ (including placental location)
Contractions⁴⁰	<ul style="list-style-type: none"> • Record time of maternal account of regular, painful contractions • Assess strength, frequency, duration and resting tone for 10 minutes
Maternal observations	<ul style="list-style-type: none"> • Temperature, pulse, respiratory rate, blood pressure (BP), and urinalysis⁴⁰ • Assess nutrition and hydration status and general appearance
Abdominal	<ul style="list-style-type: none"> • Observation, and palpation⁴⁰ including fundal height, fetal lie, attitude, presentation, position, engagement/descent and liquor volume
Fetal wellbeing	<ul style="list-style-type: none"> • Ask about fetal movements in the last 24 hours⁴⁰ • Assess FHR <ul style="list-style-type: none"> ○ Use either a Pinard stethoscope or Doppler ultrasound^{40,119} ○ Auscultate toward the end of a contraction and continue for at least 30–60 seconds after the contraction has finished¹¹⁹ ○ Differentiate between the heart beats of the woman and baby^{40,119} • Routine use of CTG for low risk women is not recommended⁴⁰ <ul style="list-style-type: none"> ○ Refer to Queensland Clinical Guideline: <i>Intrapartum fetal surveillance</i>¹¹⁹
Vaginal loss	<ul style="list-style-type: none"> • Assess and record vaginal loss⁴⁰ <ul style="list-style-type: none"> ○ No loss ○ Discharge—note colour, odour, consistency ○ Blood—note colour, volume ○ Liquor—note colour, volume, odour, consistency
VE⁴⁰	<ul style="list-style-type: none"> • If stage of labour uncertain a VE may assist decision making • If active labour is suspected offer a VE [refer to Table 13. Vaginal examination] • If spontaneous rupture of membranes (SROM) suspected consider a speculum examination
Pain and discomfort	<ul style="list-style-type: none"> • Assess pain and discomfort [refer to Section 3 Comfort and coping strategies]
Repeat contacts	<ul style="list-style-type: none"> • Review contact history and clinical circumstances with each contact • Take into account the interval since initial contact • Refer and consult and/or request that the woman present for assessment as indicated

4.3 Vaginal examination

Where membranes are intact, there is no evidence to support or reject the use of routine VEs in labour to improve outcomes for women and babies.¹²⁰

Table 13. Vaginal examination

Aspect	consideration
Indication	<ul style="list-style-type: none"> · Aim to keep the number of VE to a minimum¹⁹ · To assist in decision making, recommend VE: <ul style="list-style-type: none"> ○ Within four hours of presentation ○ Offer every four hours in active labour⁴⁰ ○ If clinical concerns identified
Contraindication	<ul style="list-style-type: none"> · Maternal consent not obtained · Antepartum haemorrhage · Ruptured membranes and not in labour · Placenta praevia · Placental position unknown · Suspected preterm labour
Prior to VE⁹⁷	<ul style="list-style-type: none"> · Consider⁴⁰: <ul style="list-style-type: none"> ○ Is a VE necessary? ○ Will a VE aid clinical decision making? · Review history and most recent ultrasound scan result · Explain procedure and gain consent · Acknowledge VE can be distressing to some women · Ensure the woman's bladder is empty · Perform abdominal examination and FHR auscultation
During VE⁹⁷	<ul style="list-style-type: none"> · Maintain privacy, dignity and respect · Consider the woman's comfort · Perform VE between contractions · Assessment: <ul style="list-style-type: none"> ○ Observe general appearance of perineal and vulval area ○ Position of cervix—posterior, mid, anterior ○ Dilatation ○ Effacement ○ Consistency—soft, medium, firm ○ Application of presenting part ○ Membranes intact/no membranes felt ○ Liquor—note colour, volume, odour ○ Level of presenting part in relation to ischial spines (-3 to +3) ○ Presence of caput and moulding ○ Fetal position and attitude
Following VE^{40,97}	<ul style="list-style-type: none"> · Explain findings and any potential impact on the birth plan · Auscultate FHR · Document findings

5 First stage

There are two identified phases of the first stage of labour^{40,121}:

- Latent phase
- Active phase—otherwise known as established labour

Progress during first stage relates to cervical dilatation and head descent. The onset, progress, and duration of the two phases of the first stage of labour are variable. The applied definitions may not be relevant to all women. First stage of labour is completed at full dilatation of the cervix.⁴⁰

5.1 Latent first stage

During the latent phase of labour, the woman may present to her intended birthing place or make contact with the midwifery service or her care provider requesting support and advice. Refer to Section 4. Initial maternal assessment.

Table 14. Latent first stage

Aspect	Consideration
Onset	<ul style="list-style-type: none"> · A period of time, possibly intermittent periods, associated with: <ul style="list-style-type: none"> ○ Irregular painful contractions⁴⁰ and ○ Some cervical effacement and dilatation less than 4 cm⁴⁰ to 6 cm^{122,123}
Duration	<ul style="list-style-type: none"> · The duration of latent phase is difficult to measure^{9,43} · From 4–6 cm the rate of cervical dilatation is the same for both nulliparous and multiparous women¹² <ul style="list-style-type: none"> ○ May take six hours to progress from 4–5 cm¹²² ○ May take three hours to progress from 5–6 cm¹²²
Prolonged latent phase	<ul style="list-style-type: none"> · Limited high quality evidence to provide a contemporary definition¹² · Suggested to be: <ul style="list-style-type: none"> ○ More than 20 hours in nulliparous women¹²⁴ ○ More than 14 hours in multiparous women¹²⁴
Assessment	<ul style="list-style-type: none"> · Complete an initial assessment [refer to Table 12. Clinical assessment] · Offer individualised support: <ul style="list-style-type: none"> ○ Offer simple analgesia as required <ul style="list-style-type: none"> § Low level evidence suggests associations between paracetamol in pregnancy and later asthma in childhood and hyperkinetic disorders; but relevance when use is limited to an acute situation is unclear¹²⁵ ○ Information and resources ○ Encourage ongoing resilience and positive self-belief ○ Rest, hydration, nutrition, mobilisation, support ○ Reassurance and coping strategies [refer to Section 3 Comfort and coping strategies]
Ongoing support	<ul style="list-style-type: none"> · Offer choices for ongoing care, consider: <ul style="list-style-type: none"> ○ Individual clinical circumstances ○ Distance and travel time to facility · Latent first stage: <ul style="list-style-type: none"> ○ If not requiring one to one care, recommend return home¹²⁶ ○ If one-to-one support needed, recommend hospital admission <ul style="list-style-type: none"> § Nulliparous women admitted prior to active labour are more likely to experience oxytocin augmentation and CS¹²⁷ · Active first stage: admit for one-to-one labour and birth support <ul style="list-style-type: none"> ○ Requesting the woman to return home may contribute to a negative experience¹²⁸ · Reiterate the actions of hormones that support physiological birth
Return/remain at home	<ul style="list-style-type: none"> · If the woman decides to return or remain at home, provide information on: <ul style="list-style-type: none"> ○ Coping strategies ○ When to return/make contact, including if: <ul style="list-style-type: none"> § Any concerns § Increased frequency, strength and duration of contractions § Increased pain or discomfort requiring additional support or analgesia § Vaginal bleeding § Membrane rupture § Reduced or concern about fetal movements, · Plan an agreed time for reassessment at each contact

5.2 Active first stage

The onset of active labour is defined as the point at which the rate of cervical change significantly increases¹²⁷, associated with regular painful contractions.⁴⁰ Active first stage is completed at full cervical dilation.⁴⁰

Table 15. Active first stage

Aspect	Consideration
Context	<ul style="list-style-type: none"> • Traditionally defined as commencing between 4 cm^{40,129} and 5 cm¹³⁰ of cervical dilatation, although increasing evidence that some women may not be in active labour before 6 cm dilatation^{12,122} • Nulliparous women have longer active labours and slower dilatation than traditionally defined¹³⁰ <ul style="list-style-type: none"> ○ May be related to increasing maternal age and maternal and fetal body sizes ○ Refer to Appendix A: Comparisons of labour definitions • Women may self-report active labour commenced when uterine activity becomes stronger and more regular • A substantial number of women may not have a consistent or linear pattern of active phase of labour¹²²
Onset	<ul style="list-style-type: none"> • Defined in this guideline as when there is: <ul style="list-style-type: none"> ○ Regular painful contractions⁴⁰ and ○ Progressive cervical dilatation of at least 4 cm⁴⁰ to 6 cm^{12,122} • If cervical dilatation unknown, use maternal account of regular and painful contractions¹²¹
Progress	<ul style="list-style-type: none"> • In active labour, cervical dilatation of two cm in four hours is considered normal⁴⁰ <ul style="list-style-type: none"> ○ Dilatation of 0.5 cm per hour is generally accepted¹²⁶ • At the transitional phase of 8–10 cm cervical dilatation, supportive needs increase—may exhibit shakiness, irritability, nausea and vomiting • Consider all aspects of progress including: <ul style="list-style-type: none"> ○ Maternal and fetal condition ○ Cervical dilatation and rate of change ○ Descent and rotation of the fetal head ○ Strength, duration and frequency of contractions ○ Parity ○ Previous labour history ○ Slowing of progress in the multiparous woman

5.3 Ongoing care during first stage

Table 16. Ongoing care during first stage

Aspect	Consideration
Partogram	<ul style="list-style-type: none"> • Commence when active labour is confirmed¹³¹ • Although quality of evidence for clinical benefit is low^{131,132} <ul style="list-style-type: none"> ○ Provides a pictorial overview of progress ○ Facilitates timely transfer of care ○ May assist in the detection of prolonged labour • If alert lines are used, a four hour action line is recommended¹³²
Assessment and support	<ul style="list-style-type: none"> • Continuous one-to-one support required [refer to Section 2.4 Continuity of care] • Routine use of CTG for low risk women is not recommended⁴⁰ <ul style="list-style-type: none"> ○ Refer to Queensland Clinical Guideline: <i>Intrapartum fetal surveillance</i>¹¹⁹ • Provide ongoing support for coping strategies • Refer to Section 3 Comfort and coping strategies Facilitate involvement of support persons as per woman's wishes
Position and mobilisation	<ul style="list-style-type: none"> • There is little evidence that any one position is optimal in labour¹³³ • Avoid supine position as it is associated with adverse effects including¹³⁴: <ul style="list-style-type: none"> ○ Supine hypotension ○ Abnormal FHR • Promote and support adoption of upright (kneeling, squatting or standing) and mobile positions <ul style="list-style-type: none"> ○ Compared to recumbent, lateral or supine positions during first stage of labour, upright positions are associated with a reduction in duration of first stage¹³⁴ • Birth ball may be an effective tool to reduce labour pain^{90,135} and optimise fetal position
Nutrition and hydration	<ul style="list-style-type: none"> • For low risk women, restricting oral intake has shown no improvement on maternal or fetal birth outcomes⁴⁹ and may be distressing for some women <ul style="list-style-type: none"> ○ Support woman to eat and drink as desired ○ Offer frequent sips of water • Intrapartum isotonic and carbohydrate drinks are no any more beneficial than drinking water • Oral carbohydrate supplements do not alter labour outcomes¹³⁶

5.4 Delay in active first stage

Table 17. Delay in active first stage

Aspect	Consideration
Diagnosis of delay	<ul style="list-style-type: none"> • Categorised as either: <ul style="list-style-type: none"> ○ Protracted labour (slower progress than is usual)¹² <ul style="list-style-type: none"> § Nulliparous— cervical dilatation of less than 2 cm in 4 hours⁴⁰ § Multiparous— cervical dilatation of less than 2 cm in 4 hours or a slowing in the progress of labour⁴⁰ ○ Arrest in labour (complete cessation of progress)¹² <ul style="list-style-type: none"> § Diagnosed at cervical dilatation of 6 cm or more with ruptured membranes and no or limited cervical change for four hours of adequate contractions^{9,12,122}
Consultation and referral	<ul style="list-style-type: none"> • Consultation and/or referral with midwifery team leader/obstetrician² • Consider if clinical intervention is required • Assess: <ul style="list-style-type: none"> ○ All aspects of progress ○ Maternal and fetal condition ○ Refer to Queensland Clinical Guideline: <i>Intrapartum fetal surveillance</i>¹¹⁹
Supporting progress toward normal birth	<ul style="list-style-type: none"> • Refer to: <ul style="list-style-type: none"> ○ Section 2 Supporting normal birth and ○ Section 3 Comfort and coping strategies • For multiparous women, review previous labour patterns • There is no robust evidence to support or reject ARM for women in prolonged labour¹³⁷

6 Second stage

Defined as from full cervical dilatation until the birth of the baby.⁴⁰ There are two identified phases of the second stage—passive and active. Progress of labour in the second stage includes flexion, rotation and descent of the fetal head. Refer to Appendix B: Summary position statements.

Table 18. Progress of second stage

Passive second stage	
Onset	<ul style="list-style-type: none"> • Full cervical dilatation before or in the absence of involuntary expulsive contractions⁴⁰
Progress/delay	<ul style="list-style-type: none"> • Delay pushing (in the absence of clinical concern) if there is no urge to push¹²⁶ • There is no consensus for a defined duration for passive second stage • Reassess⁴⁰ and consult with obstetrician if in one hour (multiparous or nulliparous) there is: <ul style="list-style-type: none"> ○ No urge to push or ○ No evidence of progress
Active second stage	
Onset⁴⁰	<ul style="list-style-type: none"> • The baby is visible or • Full cervical dilatation and expulsive contractions
Progress	<ul style="list-style-type: none"> • Consult and refer with obstetrician if progress is slow in: <ul style="list-style-type: none"> ○ Nulliparous woman after one hour of active second stage⁴⁰ ○ Multiparous woman after 30 minutes of active second stage⁴⁰ • There is no robust evidence to support or reject ARM for women in prolonged second stage¹³⁷
Diagnose delay	<ul style="list-style-type: none"> • If birth is not imminent in: <ul style="list-style-type: none"> ○ Nulliparous woman after two hours of active second stage⁴⁰ ○ Multiparous woman after one hour of active second stage⁴⁰ • Refer to Queensland Clinical Guideline: <i>Intrapartum fetal surveillance</i>¹¹⁹

6.1 Supporting progress toward normal birth

Table 19. Supporting progress in second stage

Aspect	Consideration
Supportive care	<ul style="list-style-type: none"> • Continue ongoing assessments • Refer to: <ul style="list-style-type: none"> ○ Section 2 Supporting normal birth and ○ Section 3 Comfort and coping strategies
Duration of second stage	<ul style="list-style-type: none"> • A specific absolute maximum length of second stage (passive plus active) has not been identified¹² • Rather than rigid time limits, base decision-making on continuing assessment of: <ul style="list-style-type: none"> ○ Maternal physical and emotional condition ○ Fetal condition ○ Progress of labour ○ Maternal preferences • Offer information about risks and benefits of longer and shorter duration relevant to individual circumstances • Longer durations may be appropriate in individual women^{12,126} where: <ul style="list-style-type: none"> ○ Maternal and fetal condition is optimal ○ Appropriate consultation and referral has occurred • Refer to: <ul style="list-style-type: none"> ○ Appendix A: Comparisons of labour definitions ○ Appendix B: Summary position statements on length of labour
Duration and uro-gynaecological outcomes for nulliparous women	<ul style="list-style-type: none"> • There is a paucity of robust evidence regarding uro-gynaecological outcomes associated with prolonged second stage • Increased length of second stage is associated with increased risk of primary postpartum haemorrhage (PPH)¹³⁸ • If spontaneous vaginal birth: <ul style="list-style-type: none"> ○ Duration of second stage is not associated with obstetric anal sphincter injury¹³⁹ ○ Prolonged second stage is not associated with persistent urinary incontinence¹⁴⁰

6.2 Observations in first and second stage

Increase frequency of observations if clinically indicated.

Table 20. Labour observations

Aspect	Latent first stage (if admitted)	Active first stage ⁴⁰	Second stage ⁴⁰
FHR (Differentiate from maternal pulse) ^{40,141}	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> Intermittent auscultation 15–30 minutely¹⁴¹ 	<ul style="list-style-type: none"> Passive: 15 minutely Active¹⁴¹: Auscultate FHR immediately after a contraction for at least one minute at least every five minutes
Maternal temperature	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> Four hourly
If water immersion	Not applicable	<ul style="list-style-type: none"> Hourly 	<ul style="list-style-type: none"> 30 minutely
Pulse, respiratory rate	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> 30 minutely 	<ul style="list-style-type: none"> Differentiate from FHR Passive: 30 minutely Active: 15 minutely More frequently if indicated
Blood pressure	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> Four hourly
Abdominal palpation	<ul style="list-style-type: none"> If indicated Prior to VE 	<ul style="list-style-type: none"> As required to monitor progress Prior to VE 	<ul style="list-style-type: none"> As required to monitor progress Prior to VE
Contractions	<ul style="list-style-type: none"> Four hourly 	<ul style="list-style-type: none"> Every 30 minutes for 10 minutes Expect three–five in 10 minutes¹⁴¹, lasting 60 seconds, with 60 seconds resting tone 	<ul style="list-style-type: none"> Continuous assessment
VE	<ul style="list-style-type: none"> Offer if clinical concerns and no contraindications 	<ul style="list-style-type: none"> Offer four hourly⁴³ and if clinically indicated¹³² 	<ul style="list-style-type: none"> As clinically indicated to aid decision making
Vaginal loss	<ul style="list-style-type: none"> Hourly 	<ul style="list-style-type: none"> Hourly 	<ul style="list-style-type: none"> Observe continuously
Urinary	<ul style="list-style-type: none"> Encourage voiding two hourly 	<ul style="list-style-type: none"> Encourage and monitor Two hourly voiding 	<ul style="list-style-type: none"> Monitor frequency and encourage voiding

6.3 Birth of baby

Table 21. Birth of the baby

Aspect	Consideration
Maternal position	<ul style="list-style-type: none"> • Kneeling and all fours position are associated with increased incidence of intact perineum¹⁴² • Sitting, squatting and birth stool are associated with increased incidence of perineal trauma¹⁴² • Upright position in second stage is associated with (quality of evidence generally low)¹⁴³: <ul style="list-style-type: none"> ○ A significant reduction in assisted birth ○ A reduced incidence of episiotomy ○ An increased incidence of second degree tears ○ An increased incidence of blood loss 500 mL or more • Upright position in second stage may reduce the duration of second stage for nulliparous women¹⁴³
Pushing	<ul style="list-style-type: none"> • Encourage the woman to push to her own bodily instincts which will usually support pushing with an open glottis¹⁴⁴ • Avoid coaching women to push in a prolonged closed glottis effort (Valsalva manoeuvre)^{144,145} • Do not check for nuchal cord
Perineal care	<ul style="list-style-type: none"> • Refer to Queensland Clinical Guideline: <i>Perineal care</i>¹⁰⁰ • Perineal warm compresses (heat therapy) during second stage may be associated with⁷⁴: <ul style="list-style-type: none"> ○ Decreased incidence of third and fourth degree tears¹⁴⁶ ○ Reduced pain scores ○ Increased satisfaction and comfort • Insufficient evidence to support guidance or flexion of the head to reduce perineal trauma^{74,146} • Insufficient evidence to preferentially recommend either ‘hands on’ or ‘hands poised’ techniques to avoid perineal trauma—either can be used to facilitate spontaneous birth^{40,146}

6.3.1 Water birth

Table 22. Water birth

Aspect	Consideration
Context	<ul style="list-style-type: none"> • Insufficient appropriately powered quality evidence to support or refute the safety of water birth for the woman or her baby^{92,101,103,147} • There is a lack of professional consensus about water birth <ul style="list-style-type: none"> ○ The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) recommend respecting the woman's wishes within the framework of safety and clinical guidelines⁹⁹ ○ Australian College of Midwives supports the choice of women to have the opportunity to access water immersion for labour and/or birth⁹⁵ ○ American College of Obstetricians and Gynaecologists (ACOG) and American Academy of Pediatrics recommend birth on land not in water¹⁴⁸
Hypothesised neonatal mechanisms during water birth	<ul style="list-style-type: none"> • The mechanism controlling the switch from fetal to extra-uterine breathing is uncertain¹⁴⁹ • Hypothesised triggers to breathing following birth on land include: <ul style="list-style-type: none"> ○ Physical stimulation, pain, hypercapnia, hypoxia, chronic endocrine changes, elastic recoil of thoracic tissue and diaphragmatic contraction¹⁴⁹ • Healthy babies born into warm water do not receive all these stimuli and therefore inhibition of breathing in water birth suggested to be a balance of inhibitory and stimulatory triggers¹⁴⁷
Benefit	<ul style="list-style-type: none"> • Benefits as per water immersion [refer to Section 3.1.1 Water immersion] • No difference in cord pH between babies born after water birth or land birth¹⁵⁰
Potential risk	<ul style="list-style-type: none"> • Main areas of concern (largely from case reports)¹⁵⁰: <ul style="list-style-type: none"> ○ Neonatal and maternal infection ○ Neonatal water aspiration ○ Neonatal and maternal thermo-regulation <ul style="list-style-type: none"> § Fetal temperature 0.5 °C higher than maternal temperature⁹⁷ ○ Management in the event of obstetric or neonatal emergency
Facility level systems	<ul style="list-style-type: none"> • Where water birth is offered establish local protocols for: <ul style="list-style-type: none"> ○ Ensuring second health care professional is present ○ Cleaning and maintenance of tubs and pools ○ Infection control procedures ○ Monitoring of woman and fetus while immersed ○ Emergency movement of the woman out of the water if complications develop
Informed choice	<ul style="list-style-type: none"> • Support women who choose water birth • Inform women that there is little evidence about the benefits and risks of water birth
Care during second stage	<ul style="list-style-type: none"> • Second health professional in attendance at the time of birth • FHR and maternal observations [refer to Table 20. Labour observations] • Avoid directed pushing • 'Hands off' birth to avoid stimulation • Do not check for nuchal cord⁹⁷ • Bring baby immediately to the surface without undue stimulation⁹⁴
Care during third stage	<ul style="list-style-type: none"> • If concerns or difficulty in assessment, assist the woman to exit the water • No evidence to contraindicate birthing the placenta in water during physiological third stage⁹³ • Avoid cord tension and inspect cord integrity immediately⁹⁴ <ul style="list-style-type: none"> ○ Cord avulsion (reported to occur in approximately 2.4⁹⁶–3.1¹⁵¹ per 1000 water births) • Maintain baby's warmth and continually observe • Refer to Section 7 Third stage

7 Third stage

Commences with the birth of the baby to the birth of the placenta and membranes.⁴⁰ Management of third stage is commonly classified in relation to whether specific elements of care are routinely included as a package of care.

- Physiological management (also referred to as expectant management)
- Active management is further classified according to the timing of cord clamping:
 - Delayed cord clamping—also referred to as modified active management (recommended)
 - Early cord clamping—often referred to as ‘active management (not recommended)

Offer the woman information on all options and support her decision. Refer to Appendix C: Third stage evidence

Table 23. Third stage options

Aspect	Consideration
Modified active (delayed cord clamping)	<ul style="list-style-type: none"> · Recommended for all births while initiating essential neonatal care^{43,152,153}: <ul style="list-style-type: none"> ○ Administer uterotonic immediately after the birth of the baby and before the cord is clamped and cut¹⁵⁴ ○ Wait at least one to three minutes after birth of baby¹⁵³ or for cord pulsation to cease¹⁵² and then clamp and cut the cord ○ Use controlled cord traction (CCT) after signs of separation · Prolonged when not completed within 30 minutes of the birth of the baby⁴⁰
Physiological	<ul style="list-style-type: none"> · Suitable for women who^{40,45}: <ul style="list-style-type: none"> ○ Have a healthy pregnancy ○ Have had a normal first and second stage of labour ○ Have no risk factors for excessive bleeding ○ Make an informed decision after discussion of the risks and benefits · Routinely includes: <ul style="list-style-type: none"> ○ No uterotonic⁴⁰ ○ No clamping of the cord until pulsation has ceased or following birth of the placenta⁴⁰ ○ Leave cord unclamped (or if cut, leave the maternal end unclamped)^{97,155} ○ Placenta births spontaneously by maternal effort⁴⁰ ○ Healthcare provider⁹⁷ unobtrusively waits and observes for signs of separation and remains ‘hands off’ · Prolonged when not completed within 60 minutes of the birth of the baby⁴⁰ · Recommend intervention with oxytocin if bleeding needs to be controlled⁴⁵
Active (early cord clamping)	<ul style="list-style-type: none"> · Early cord clamping (within 60 seconds of the birth of the baby) is no longer recommended for routine management of the third stage^{40,152,153,156} · Routinely includes: <ul style="list-style-type: none"> ○ Uterotonic administered with the birth of the anterior shoulder or immediately after birth of baby ○ CCT after signs of separation
Lotus birth	<ul style="list-style-type: none"> · Not recommended due to limited research¹⁵⁷ · Routinely includes¹⁵⁸: <ul style="list-style-type: none"> ○ Baby remains attached to the placenta until cord separates naturally ○ Placenta is dried, salted and wrapped in breathable material · May increase infection risk to the baby^{157,159} · If a woman chooses lotus birth: <ul style="list-style-type: none"> ○ Support the woman’s request ○ Ensure the woman has provided appropriate materials prior to birth ○ Provide information to parents regarding signs of infection ○ Advise of ongoing care requirements (change bag as required, avoid strain on the umbilical cord) ○ Refer to Section 7.3 Requests concerning care of the placenta

7.1 Ongoing care in third stage

Table 24. Ongoing care in third stage

Aspect	Considerations
Uterotonic	<ul style="list-style-type: none"> • Recommend oxytocin 10 international units (IU) IM¹⁵³ shortly after birth <ul style="list-style-type: none"> ○ Associated with fewer side effects compared to oxytocin plus ergometrine combinations¹⁶⁰ • Timing of administration: <ul style="list-style-type: none"> ○ Can be administered before or after the cord is clamped and cut¹⁵⁶ ○ Administration before cord clamping is unlikely to impact on placental transfusion to baby¹⁵⁶ ○ No significant difference in incidence of PPH when given before or after birth of placenta¹⁶¹
Cord clamping	<ul style="list-style-type: none"> • Between one and three minutes after birth of baby is commonly suggested^{152,156} <ul style="list-style-type: none"> ○ Optimal time to clamp the cord is unclear¹⁵⁶ ○ Timing does not impact blood loss at birth¹⁶² • If there are any concerns regarding cord integrity or the heart rate of the baby is below 60 beats per minute, clamp and cut the cord⁴⁰ • Clamp the cord within 5 minutes if CCT anticipated⁴⁰ • Document time the cord is clamped⁴⁰ rather than type of management¹⁵⁶
Placental separation⁹⁷	<ul style="list-style-type: none"> • Observe blood loss and signs of placental separation¹⁶³ <ul style="list-style-type: none"> ○ The uterus rises in the abdomen ○ The uterus becomes firmer and globular (ballotable) ○ Trickle or gush of blood is observed from the vagina ○ Lengthening of the umbilical cord is observed ○ Cord does not retract with suprapubic pressure ○ Woman may feel the urge to bear down ○ Placenta may become visible at the vagina ○ Avoid repeated palpation of uterus which is painful, causes poor contractility and may increase PPH risk⁹⁷
Controlled cord traction	<ul style="list-style-type: none"> • Ensure the uterus is well contracted and the placenta separated before controlled cord traction is applied⁴³ • Perform after cutting the cord⁴⁰ • Guard the uterus—gently pull downwards on the cord while maintaining counter-traction above the pubic bone • Cord traction follows the curve of Carus¹⁶⁴ • As placenta delivers, hold in both hands and gently turn to twist the membranes • Slowly tease out membranes to complete birth • Immediately following birth of placenta assess uterine tone
Maternal care	<ul style="list-style-type: none"> • Close observations of general physical condition including: <ul style="list-style-type: none"> ○ Colour, respirations, vaginal blood loss ○ Woman's self-report • Frequency of observations as clinically indicated • Maintain a private, calming and relaxing environment • Keep mother and baby warm • Support breastfeeding <ul style="list-style-type: none"> ○ Refer to Queensland Clinical Guideline: <i>Establishing breastfeeding</i>¹⁶⁵ • Upright position
RhD negative maternal blood group	<ul style="list-style-type: none"> • Recommend: <ul style="list-style-type: none"> ○ Cord blood test for group and direct antiglobulin test (Coombs) ○ Maternal Kleihauer
Physiological care	<ul style="list-style-type: none"> • Aimed at achieving optimal hormonal balance by^{35,45}: <ul style="list-style-type: none"> ○ Sustaining skin to skin contact and avoid unnecessary separation of woman and baby ○ Encouraging the woman to focus on physiological process and avoid distractions ○ Encouraging support people to remain focused on mother and baby and avoid distracting

7.1.1 Indications for additional care

Table 25. Indications for additional care

Aspect	Consideration
Indications for oxytocin (if physiological management)	<ul style="list-style-type: none"> · If physiological management, recommend oxytocin where: <ul style="list-style-type: none"> ○ Placenta not birthed within 60 minutes of the birth of the baby⁴⁰ ○ The woman wishes to shorten the length of third stage⁴⁰ ○ Increasing blood loss
Indications for consultation or referral	<ul style="list-style-type: none"> · Concerns regarding heavy bleeding <ul style="list-style-type: none"> ○ Refer to Queensland Clinical Guideline: <i>Primary postpartum haemorrhage</i>¹⁶⁶ · Maternal pyrexia · Retained placenta · Maternal collapse · Uterine inversion

7.2 Placenta and membrane examination

Perform a thorough examination of the placenta and membranes.

Table 26. Examination of placenta and membranes

Aspect	Consideration
Placenta	<ul style="list-style-type: none"> · General shape and appearance · Calcification or infarctions · Evidence of abruption · Absence of cotyledons · Succenturiate lobe
Membranes	<ul style="list-style-type: none"> · 1 amnion and 1 chorion · Complete or ragged · Presence of vessels
Cord	<ul style="list-style-type: none"> · Cord insertion site · 2 arteries and 1 vein · Velamentous insertion <ul style="list-style-type: none"> ○ Vessels noted in membranes
Indications for consultation or referral	<ul style="list-style-type: none"> · Placenta suspected or diagnosed as incomplete⁴⁰ · Offensive odour—collect culture swab from maternal and fetal surface · If abnormality detected consider request for histopathology · Advise women: <ul style="list-style-type: none"> ○ About normal vaginal blood loss ○ To seek assistance if passing clots, increase in loss, offensive loss, or pain

7.3 Requests concerning care of the placenta

A woman may request to take the placenta home. In some cultures the manner in which the placenta is handled is thought to impact on the wellbeing of the woman and her baby. A woman may believe that eating the placenta may aid maternal health and wellbeing.

Table 27. Requests concerning care of the placenta

Aspect	Consideration
Context	<ul style="list-style-type: none"> • Respect cultural and personal perspectives • The woman has the right to take her placenta home • Provide information relevant to the circumstances
Transport, storage and disposal	<ul style="list-style-type: none"> • Recommend transport in cooled, sealed, leak-proof container <ul style="list-style-type: none"> ○ Short term storage in fridge ○ Longer term storage in freezer • Follow local protocols regarding storage and transport • Refer woman to local council guidance regarding burial or disposal of the placenta on private or public property
Ingestion	<ul style="list-style-type: none"> • Ingestion of the placenta is not recommended¹⁶⁷ due to limited research, particularly: <ul style="list-style-type: none"> ○ If it is not their own placenta (due to the risk of blood borne infections) ○ If the placenta has not been stored in a fridge or freezer ○ If the placenta has been sent for pathology examination (likely to have been immersed in formaldehyde solution)

7.4 Perineal examination

Aim is to identify presence of and degree of perineal or genital trauma. Refer to Queensland Clinical Guideline: *Perineal care*¹⁰⁰ for detailed consideration of perineal examination.

Table 28. Perineal care

Aspect	Consideration
Environment	<ul style="list-style-type: none"> • Maintain intimate environment for woman and preferred support person • Ensure does not interfere with mother baby bonding/skin to skin care⁴⁰ • Recommend no food or drink until after assessment and decision regarding anaesthetic requirement • Discuss and offer adequate pain relief prior to assessment⁴⁰ • Facilitate comfortable position in which the genital structures can be clearly observed⁴⁰ • Ensure adequate lighting⁴⁰ • Ensure woman is comfortable and warm • If water birth, delay suturing for one hour after leaving the water to enable perineal tissue to revitalise
Assessment	<ul style="list-style-type: none"> • Perform a systematic perineal assessment • Following assessment, explain: <ul style="list-style-type: none"> ○ Findings ○ Recommended plan for repair (if required) ○ Ongoing self-care
Indications for consultation or referral	<ul style="list-style-type: none"> • Repair outside of the clinician's level of competency and credentialling² • Inadequate pain relief reported • Adequate visualisation and assessment is not possible

8 Fourth stage

This guideline defines fourth stage as the first six hours immediately following the birth. Fourth stage considerations include supporting physiological adaptation and mother-baby bonding.³⁵ Facilitate:

- An optimal environment [refer to Section 2.6 Birth environment]
- Uninterrupted skin to skin contact¹⁶⁸ [refer to Table 29. Newborn care and assessment]
- Avoidance of unnecessary mother-baby separation or interruption⁵⁰
- Continuous ongoing support and observation for the first two hours (i.e. do not leave the woman and her baby alone in the first two hours post birth)

8.1 Observations

As per the National Consensus Statement (2010, p8)¹⁶⁹ after admission or initial assessment:

For every patient, a clear monitoring plan should then be developed that specifies the physiological observations to be recorded and the frequency of observations, taking into account the patient's diagnosis and proposed treatment.

Recommended maternal and newborn observations following normal labour and birth are outlined in Table 29. Newborn care and assessment and Table 30. Maternal care and assessment.

8.2 Newborn care and assessment

Table 29. Newborn care and assessment

Element	Consideration	
Initial care and assessment	<ul style="list-style-type: none"> • Place the baby skin to skin with mother immediately following birth⁵⁰ • Maintain warmth by drying baby and with pre-warmed towels or blankets • Assess and record Apgar score at 1 and 5 minutes <ul style="list-style-type: none"> ◦ Assess tone, breathing, heart rate, colour and reflex irritability⁴⁰ • Refer to Queensland Clinical Guidelines: <ul style="list-style-type: none"> ◦ <i>Routine newborn assessment</i>¹⁷⁰ ◦ <i>Neonatal resuscitation</i>¹⁷¹ 	
Skin to skin contact and breastfeeding ^{50,165}	<ul style="list-style-type: none"> • Encourage and support uninterrupted skin to skin contact⁵⁰: <ul style="list-style-type: none"> ◦ For a minimum of one hour⁴⁰ or ◦ Until after the first breastfeed (if feeding choice)^{40,168} • Explain the importance of positioning the baby to maintain a patent airway <ul style="list-style-type: none"> ◦ Support baby's head and neck in a neutral position ◦ Cover baby's back with a warm towel or blanket ◦ Continued vigilant baby observations • Observe initial breastfeed and offer help if needed • Refer to Queensland Clinical Guideline: <i>Establishing breastfeeding</i>¹⁶⁵ 	
Observations	<ul style="list-style-type: none"> • Ensure adequate lighting for observation of colour • Perform and record unobtrusive regular newborn observations • Provide close continuous care • Record the time from birth to the onset of regular respirations⁴⁰ 	
	Observations	Frequency for first two hours
	• Position, patency of airway	• 15 minutely
	• Respiratory rate and effort	• 15 minutely
	• Colour	• 15 minutely
	• Heart rate	• Within one hour of birth
• Temperature	• Within one hour of birth	
Non-urgent care	<ul style="list-style-type: none"> • Avoid separation within the first hour of birth^{40,50} including for: <ul style="list-style-type: none"> ◦ Weight, length and head circumference ◦ Bathing ◦ Administration of phytomenadione (vitamin K) or newborn immunisations 	
Consider consultation/referral	<ul style="list-style-type: none"> • Neonatal resuscitation required • Any deviations from normal • Identification of a physical abnormality 	

8.3 Maternal care and assessment

Recommended observations following normal labour and birth are outlined below.

Table 30. Maternal care and assessment

Aspect	Consideration																
Observations in the first two hours after birth	<ul style="list-style-type: none"> Alter frequency of observations as clinically indicated 																
	<table border="1"> <thead> <tr> <th>Observation</th> <th>Frequency for first two hours</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Temperature </td> <td> <ul style="list-style-type: none"> Within the first hour </td> </tr> <tr> <td> <ul style="list-style-type: none"> Pulse, respiratory rate, BP </td> <td> <ul style="list-style-type: none"> Once after birth of the placenta </td> </tr> <tr> <td> <ul style="list-style-type: none"> Uterus (firm and central) </td> <td> <ul style="list-style-type: none"> After birth of the placenta 15–30 minutely </td> </tr> <tr> <td> <ul style="list-style-type: none"> Blood loss (lochia) </td> <td> <ul style="list-style-type: none"> After birth of the placenta 15–30 minutely </td> </tr> <tr> <td> <ul style="list-style-type: none"> Perineum </td> <td> <ul style="list-style-type: none"> After first maternal observations Reassess if indicated </td> </tr> <tr> <td> <ul style="list-style-type: none"> Pain </td> <td> <ul style="list-style-type: none"> Initial assessment Review if indicated </td> </tr> <tr> <td> <ul style="list-style-type: none"> Urine output </td> <td> <ul style="list-style-type: none"> Within the first two hours </td> </tr> </tbody> </table>	Observation	Frequency for first two hours	<ul style="list-style-type: none"> Temperature 	<ul style="list-style-type: none"> Within the first hour 	<ul style="list-style-type: none"> Pulse, respiratory rate, BP 	<ul style="list-style-type: none"> Once after birth of the placenta 	<ul style="list-style-type: none"> Uterus (firm and central) 	<ul style="list-style-type: none"> After birth of the placenta 15–30 minutely 	<ul style="list-style-type: none"> Blood loss (lochia) 	<ul style="list-style-type: none"> After birth of the placenta 15–30 minutely 	<ul style="list-style-type: none"> Perineum 	<ul style="list-style-type: none"> After first maternal observations Reassess if indicated 	<ul style="list-style-type: none"> Pain 	<ul style="list-style-type: none"> Initial assessment Review if indicated 	<ul style="list-style-type: none"> Urine output 	<ul style="list-style-type: none"> Within the first two hours
	Observation	Frequency for first two hours															
	<ul style="list-style-type: none"> Temperature 	<ul style="list-style-type: none"> Within the first hour 															
	<ul style="list-style-type: none"> Pulse, respiratory rate, BP 	<ul style="list-style-type: none"> Once after birth of the placenta 															
	<ul style="list-style-type: none"> Uterus (firm and central) 	<ul style="list-style-type: none"> After birth of the placenta 15–30 minutely 															
	<ul style="list-style-type: none"> Blood loss (lochia) 	<ul style="list-style-type: none"> After birth of the placenta 15–30 minutely 															
	<ul style="list-style-type: none"> Perineum 	<ul style="list-style-type: none"> After first maternal observations Reassess if indicated 															
	<ul style="list-style-type: none"> Pain 	<ul style="list-style-type: none"> Initial assessment Review if indicated 															
<ul style="list-style-type: none"> Urine output 	<ul style="list-style-type: none"> Within the first two hours 																
Observations after two hours of birth	<ul style="list-style-type: none"> Observations as above at least once per eight hours when inpatient and prior to discharge <ul style="list-style-type: none"> Follow local protocol recommendations Modify according to changes in clinical circumstances¹⁶⁹ 																
Physiological care	<ul style="list-style-type: none"> Provide an environment that promotes physiological adaptation Respond to requests for pain management Nutrition and hydration—offer food and drink Consider personal hygiene needs Observe emotional and psychological response to labour and birth Observe response towards her baby Assess the mother-infant interaction¹³ Vigilant unobtrusive observations of the baby [refer to Table 29. Newborn care and assessment] Venous thromboembolism (VTE) risk assessment <ul style="list-style-type: none"> Refer to Queensland Clinical Guideline: <i>Venous thromboembolism (VTE) prophylaxis in pregnancy and the puerperium</i> 																
RhD negative blood group¹⁷²	<ul style="list-style-type: none"> Review cord blood result If indicated: <ul style="list-style-type: none"> Obtain maternal Kleihauer or flow cytometry Recommend RhD immunoglobulin <ul style="list-style-type: none"> § Quantification of the presence of positive fetal cells will guide dose 																

References

1. Hilder L, Zhichao Z, Parker M, Jahan S, Chambers G. Australia's mothers and babies 2012. Perinatal statistics series no. 30. Cat. no. PER 69. [Internet]. 2014 [cited 2017 May 30]. Available from: www.aihw.gov.au.
2. Australian College of Midwives. National midwifery guidelines for consultation and referral. 3rd Edition, Issue 2. [Internet]. 2015 [cited 2017 March 10]. Available from: <https://www.midwives.org.au>.
3. Australian Health Ministers' Conference. National maternity services plan. [Internet]. 2011 [cited 2017 March 10]. Available from: <https://www.health.gov.au>.
4. Australian Institute of Health and Welfare. Maternity care classification system: Maternity model of care data set specification national pilot report November 2014. Cat. No PER 74. Canberra: AIHW; 2016.
5. Dowswell T, Carroli G, Duley L, Gates S, Gülmezoglu AM, Khan-Neelofur D, et al. Alternative versus standard packages of antenatal care for low-risk pregnancy. Cochrane Database of Systematic Reviews. [Internet]. 2015 [cited 2017 March 10]; Issue 7. Art. No.: CD000934. DOI:10.1002/14651858.CD000934.pub3.
6. American College of Obstetricians and Gynecologists. Committee opinion. Approaches to limit intervention during labor and birth. No. 687. *Obstet Gynecol* 2017;129:e20-8.
7. Dias MAB, Domingues RMSM, Schilithz AOC, Nakamura-Pereira M, do Carmo Leal M. Factors associated with cesarean delivery during labor in primiparous women assisted in the Brazilian public health system: data from a national survey. *Reproductive Health* 2016;13(S3):175-85.
8. Smith H, Peterson N, Lagrew D, Main E. Toolkit to support vaginal birth and reduce primary cesareans: a quality improvement toolkit. [Internet]. 2016 [cited 2017 April 27]. Available from: <https://www.cmacc.org/>.
9. Spong CY, Berghella V, Wenstrom KD, Mercer BM, Saade GR. Preventing the first cesarean delivery: summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine and American College of Obstetricians and Gynecologists Workshop. *Obstetrics and Gynecology* 2012;120(5):1181.
10. Maternity Care Working Party. Making normal birth a reality. Consensus statement from the Maternity Care Working Party. [Internet]. 2007 [cited 2017 February 10].
11. Society of Obstetricians and Gynaecologists of Canada (SOGC). Joint policy statement on normal childbirth. *J Obstet Gynaecol Can* 2008;30(12):1163-5.
12. American College of Obstetricians and Gynecologists, Society for Maternal Fetal Medicine, Caughey AB, Cahill AG, Guise J-M, Rouse DJ. Safe prevention of the primary cesarean delivery. *American Journal of Obstetrics and Gynecology* 2014;210(3):179-93.
13. beyondblue. Clinical practice guidelines for depression and related disorders – anxiety, bipolar disorder and periperal psychosis – in the perinatal period. A guideline for primary care health professionals. Melbourne: beyondblue; 2011.
14. Australian Institute of Health and Welfare. National core maternity indicators—stage 3 and 4: results from 2010–2013. Cat no. PER 84. [Internet]. 2016 [cited 2017 April 27]. Available from: www.aihw.gov.
15. Australian Institute of Health and Welfare. Australia's mothers and babies 2014—in brief. Perinatal statistics series no. 32. Cat no. PER 87. [Internet]. 2016 [cited 2017 April 26]. Available from: www.aihw.gov.
16. International Childbirth Education Association. Physiological birth. ICEA Position paper. [Internet]. 2015 [cited 2017 February 10]. Available from: <http://icea.org>.
17. American College of Nurse-Midwives, Midwives Alliance of North America, National Association of Certified Professional Midwives. Supporting healthy and normal physiologic childbirth: a consensus statement. *The Journal of Perinatal Education* 2013;22(1):14.
18. Downe S, Finlayson K. Interventions in normal labour and birth. Survey report March 2016. [Internet]. 2016 [cited 2017 May 24]. Available from: <https://www.rcm.org.uk>.
19. World Health Organization. Care in normal birth: a practical guide. [Internet]. 1996 [cited 2017 February 10]. Available from: <http://www.who.int>.
20. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Standards of maternity care in Australia and New Zealand. [Internet]. 2016 [cited 2017 February 10]. Available from: <https://www.ranzcog.edu.au>.
21. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Maternal suitability for models of care, and indications for referral within and between models of care. [Internet]. 2015 [cited 2017 February 12]. Available from: <https://www.ranzcog.edu.au>.
22. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Maternity services in remote and rural communities in Australia. [Internet]. 2013 [cited 2017 February 12]. Available from: <https://www.ranzcog.edu.au>.
23. Queensland Health. Clinical services capability framework for public and licensed private health facilities (CSCF) v3.2. [Internet]. 2016 [cited 2017 March 28]. Available from: <https://www.health.qld.gov.au>.
24. Nursing and Midwifery Board of Australia. National competency standards for the midwife. [Internet]. 2010 [cited 2017 March 29]. Available from: www.nursingmidwiferyboard.gov.au.
25. Australian Council for Safety and Quality in Health Care. Standard for credentialing and defining the scope of clinical practice. [Internet]. 2004 [cited 2017 March 28]. Available from: <https://www.safetyandquality.gov.au>.
26. Australian Health Ministers' Advisory Council. National maternity services capability framework. [Internet]. 2012 [cited 2017 March 10]. Available from: www.health.gov.au.
27. Queensland Health. Pregnancy health record (PHR) v5.00 - 03/2017. [Internet][cited 2017 March 28]. Available from: <https://www.health.qld.gov.au>.
28. Queensland Health. Early labour record v1.00 12/2011. [cited 2017 March 28]. Available from: <https://www.health.qld.gov.au>.
29. Queensland Health. Intrapartum record v3.00 - 12/2011. [cited 2017 March 28]. Available from: <https://www.health.qld.gov.au>.
30. Australian Commission on Safety and Quality in Health Care. National safety and quality health service standards. [Internet]. 2012 [cited 2017 March 28]. Available from: <http://www.safetyandquality.gov.au>.
31. Kotaska A. Informed consent and refusal in obstetrics: A practical ethical guide. *Birth*. 2017; 00:1-5.
32. Catchlove A. Informed choice, consent and the law: the legalities of "yes I can" and "no I won't". *Birth Matters* 2010;14(2):5.
33. Healy S, Humphreys E, Kennedy C. Midwives' and obstetricians' perceptions of risk and its impact on clinical practice and decision-making in labour: An integrative review. *Women and Birth* 2016;29(2):107-16.
34. Stenglin M, Foureur M. Designing out the fear cascade to increase the likelihood of normal birth. *Midwifery* 2013;29(8):819-25.
35. Buckley SJ. Hormonal physiology of childbearing: evidence and implications for women, babies, and maternity care. Washington, DC: Childbirth Connection Programs, National Partnership for Women and Families; 2015.
36. National Health and Medical Research Council. National guidance on collaborative maternity care. [Internet]. 2010 [cited 2017 March 17]. Available from: <https://www.nhmrc.gov.au>.
37. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Collaborative maternity care. [Internet]. 2016 [cited 2017 March 27]. Available from: <https://www.ranzcog.edu.au>.
38. Hodnett ED, Gates S, Hofmeyr GJ, Sakala C. Continuous support for women during childbirth. Cochrane Database of Systematic Reviews. [Internet]. 2013 [cited 2017 March 27]; Issue 7. Art No.: CD003766.pub5 DOI:10.1002/14651858.CD003766.pub5.
39. Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. Cochrane Database of Systematic Reviews. [Internet]. 2016 [cited 2017 March 27]; Issue 4. Art No.: CD004667.pub5(4) DOI:10.1002/14651858.CD004667.pub5.
40. National Institute for Health and Care Excellence (NICE). Intrapartum care for healthy women and babies. Clinical Guideline 190. [Internet]. 2017 [cited 2017 March 10]. Available from: <https://www.nice.org.uk>.
41. The Royal College of Midwives. Position statement: Continuity of midwife-led care. [Internet]. May 2016 [cited 2017 March 10]. Available from: www.rcm.org.uk.
42. Homer CSE. Models of maternity care: evidence for midwifery continuity of care. *The Medical Journal of Australia* 2016;205(8):370-4.
43. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Provision of routine intrapartum care in the absence of pregnancy complications. [Internet]. 2014 [cited 2017 March 18]. Available from: <https://www.ranzcog.edu.au>.
44. Stark MA, Remyse M, Zwelling E. Importance of the birth environment to support physiologic birth. *Journal of Obstetric, Gynecologic and Neonatal Nursing* 2016;45(2):285-94.
45. Hastie C, Fahy KM. Optimising psychophysiology in third stage of labour: Theory applied to practice. *Women and Birth* 2009;22(3):89-96.
46. Hodnett ED, Downe S, Walsh D. Alternative versus conventional institutional settings for birth. Cochrane Database of Systematic Reviews. [Internet]. 2012 [cited 2017 April 27]; Issue 8. Art. No.:CD000012. DOI:10.1002/14651858.CD000012.pub4.
47. Divall B, Spiby H, Roberts J, Walsh D. Birth plans: a narrative review of the literature. *International Journal of Childbirth* 2016;6(3):157-72.
48. Burke N, Donnelly JC, Burke G, Breathnach F, McAuliffe F, Morrison J, et al. Do birth plans improve obstetric outcome for first time mothers: results from the multi-center Genesis Study. *American Journal of Obstetrics and Gynecology* 2016;214(1):S276.

49. Singata M, Tranmer J, Gyte GML. Restricting oral fluid and food intake during labour. Cochrane Database of Systematic Reviews. [Internet]. 2013 [cited 2017 March 27]; Issue 8. Art No.: CD003930.pub3(8) DOI:10.1002/14651858.CD003930.pub3.
50. Australian College of Midwives. BFHI handbook for maternity facilities. [Internet]. 2016 [cited 2017 March 10]. Available from: <https://www.midwives.org.au>.
51. Jenkinson B, Josey N, Kruske S. BirthSpace: An evidence-based guide to birth environment design (Updated February 2014). Queensland Centre for Mothers & Babies, The University of Queensland; 2013.
52. Australian College of Midwives. Midwifery philosophy. [Internet] 2017 [updated no date; cited 2017 April 18]; Available from: <https://www.midwives.org.au>
53. Australian Medical Association. Maternal decision-making: position statement. 2013 [cited 2017 July 4th]. Available from: <https://ama.com.au>.
54. Queensland Health. Guide to informed decision-making in healthcare (2nd edition). [Internet]. 2017 [cited 2017 July 10]. Available from: <https://www.health.qld.gov.au>.
55. Fahy K. What is woman-centred care and why does it matter? *Women and Birth* 2012;25(4):149-51.
56. DeBaets AM. From birth plan to birth partnership: enhancing communication in childbirth. *American Journal of Obstetrics and Gynecology* 2017;216(1):31e4.
57. Australian Commission on Safety and Quality in Health Care. Standard 6 clinical handover: safety and quality improvement guide. [Internet]. 2012 [cited 2017 March 10]. Available from: <https://www.safetyandquality.gov.au>.
58. Downe S, Finlayson K, Fleming A. Creating a collaborative culture in maternity care. *Journal of Midwifery and Women's Health* 2010;55(3):250-4.
59. Satia J, Kumar A, Liow M. *Visionary Leadership in Health: Delivering Superior Value*. India: Sage Publications; 2014.
60. Moore JE. Women's voices in maternity care: the triad of shared decision making, informed consent, and evidence-based practices. *The Journal of Perinatal & Neonatal Nursing* 2016;30(3):218-23.
61. Kongnyuy EJ, Uthman OA. Use of criterion-based clinical audit to improve the quality of obstetric care: A systematic review. *Acta Obstetrica et Gynecologica Scandinavica* 2009;88(8):873-81.
62. Hartmann KE. *Strategies to Reduce Cesarean Birth in Low-Risk Women*. Rockville: Agency for Healthcare Research and Quality; 2012.
63. Bendaly L, Bendaly N. *Improving Healthcare Team Performance: The 7 Requirements for Excellence in Patient Care*. Mississauga, Ont: Jossey-Bass; 2013.
64. Cornthwaite K, Alvarez M, Siassakos D. Team training for safer birth. *Best Practice & Research: Clinical Obstetrics & Gynaecology* 2015;29(8):1044-57.
65. Cornthwaite K, Edwards S, Siassakos D. Reducing risk in maternity by optimising teamwork and leadership: an evidence-based approach to save mothers and babies. *Best Practice & Research: Clinical Obstetrics & Gynaecology* 2013;27(4):571.
66. Toohill J, Fenwick J, Gamble J, Creedy DK, Buist A, Turkstra E, et al. A randomized controlled trial of a psycho-education intervention by midwives in reducing childbirth fear in pregnant women. *Birth* 2014;41(4):384-94.
67. Fenwick J, Toohill J, Gamble J, Creedy DK, Buist A, Turkstra E, et al. Effects of a midwife psycho-education intervention to reduce childbirth fear on women's birth outcomes and postpartum psychological wellbeing. *BMC pregnancy and childbirth* 2015;15(283):284.
68. Safe Motherhood for All Inc. Women's experiences of birth care in Australia: the birth dignity survey 2017. [Internet]. 2017 [cited 2017 August 15]. Available from: <http://www.safemotherhoodforall.org.au>.
69. Adams ED. Birth environments: A woman's choice in the 21st century. *The Journal of Perinatal & Neonatal Nursing* 2016;30(3):224-7.
70. Chilvers R. Continuity of carer for better births. *Midwives* 2015;18(2):74-5.
71. Sosa G, Crozier K, Robinson J. What is meant by one-to-one support in labour: analysing the concept. *Midwifery* 2012;28(4):391.
72. Bohren MA, Hofmeyr GJ, Sakala C, Fukuzawa RK, A C. Continuous support for women during childbirth (Review). *Cochrane Database of Systematic Reviews*. 2017; Issue 7. Art No.: CD003766 DOI:10.1002/14651858.CD003766.pub6.
73. Jones L, Othman M, Dowswell T, Alfirevic Z, Gates S, Newburn M, et al. Pain management for women in labour: an overview of systematic reviews. *Cochrane Database of Systematic Reviews*. 2012; Issue 3. Art No.: CD009234.pub2(3) DOI:10.1002/14651858.CD009234.pub2.
74. Aasheim V, Nilsen ABV, Lukasse M, Reinart LM. Perineal techniques during the second stage of labour for reducing perineal trauma. *Cochrane Database of Systematic Reviews*. [Internet]. 2011 [cited 2017 March]; Issue 12. Art No.: CD006672(12):CD006672 DOI:10.1002/14651858.CD006672.pub2.
75. Taavoni S, Abdollahian S, Haghani H. Effect of sacrum-perineum heat therapy on active phase labor pain and client satisfaction: A randomized, controlled trial study. *Pain Medicine*. 2013; 14(9):1301-6 DOI:10.1111/pme.12161.
76. Lee SL, Liu CY, Lu YY, Gau ML. Efficacy of warm showers on labor pain and birth experiences during the first labor stage. *Journal of Obstetric, Gynecologic, & Neonatal Nursing* 2013;42(1):19-28.
77. Smith CA, Collins CT, Crowther CA, Levett KM. Acupuncture or acupressure for pain management in labour. *Cochrane Database of Systematic Reviews* [Internet]. 2011 [cited 2017 March 27]; Issue 7. Art No.: CD009232 DOI:10.1002/14651858.CD009232.CD009232.
78. Mollart LJ, Adam J, Foureur M. Impact of acupressure on onset of labour and labour duration: a systematic review. *Women and Birth* 2015;28(3):199-206.
79. Madden K, Middleton P, Cyna AM, Matthewson M, Jones L. Hypnosis for pain management during labour and childbirth. *Cochrane Database of Systematic Reviews*. [Internet]. 2016 [cited 2017 March 10]; Issue 5. Art No.: CD009356.pub3 DOI:10.1002/14651858.CD009356.pub3.
80. Smith CA, Levett KM, Collins CT, Crowther CA. Relaxation techniques for pain management in labour. *Cochrane Database of Systematic Reviews*. [Internet]. 2011 [cited 2017 March 10]; Issue 12. Art No.: CD009514 DOI:10.1002/14651858.CD009514.
81. Silva Gallo RB, Santana LS, Jorge Ferreira CH, Marcolin AC, Polineto OB, Duarte G, et al. Massage reduced severity of pain during labour: a randomised trial. *Journal of physiotherapy* 2013;59(2):109-16.
82. Bolbol-Haghighi N, Masoumi SZ, Kazemi F. Effect of massage therapy on duration of labour: a randomized controlled trial. *Journal of Clinical and Diagnostic Research* 2016;10(4):QC12-QC5.
83. Santana LS, Gallo RBS, Ferreira CHJ, Duarte G, Quintana SM, Marcolin AC. Transcutaneous electrical nerve stimulation (TENS) reduces pain and postpones the need for pharmacological analgesia during labour: a randomised trial. *Journal of Physiotherapy* 2016;62(1):29-34.
84. Janula R, Mahipal S. Effectiveness of aromatherapy and biofeedback in promotion of labour outcome during childbirth among primigravidas. *Health Science Journal* 2015;9(1):1.
85. Yazdkhasti M, Pirak A. The effect of aromatherapy with lavender essence on severity of labor pain and duration of labor in primiparous women. *Complementary Therapies in Clinical Practice* 2016;25:81-6.
86. Derry S, Straube S, Moore RA, Hancock H, Collins SL. Intracutaneous or subcutaneous sterile water injection compared with blinded controls for pain management in labour. *Cochrane Database of Systematic Reviews*. [Internet]. 2012 [cited 2017 March 10]; Issue 1. Art No.: CD009107.pub2 DOI:10.1002/14651858.CD009107.pub2.
87. Lee N, Webster J, Beckmann M, Gibbons K, Smith T, Stapleton H, et al. Comparison of a single vs. a four intradermal sterile water injection for relief of lower back pain for women in labour: a randomised controlled trial. *Midwifery* 2013;29(6):585-91.
88. Fogarty V. Intradermal sterile water injections for the relief of low back pain in labour—A systematic review of the literature. *Women and Birth* 2008;21(4):157-63.
89. Martensson L, Wallin G. Sterile water injections as treatment for low-back pain during labour: A review. *Australian and New Zealand Journal of Obstetrics and Gynaecology* 2008;48(4):369-74.
90. Makvandi S, Latifnejad Roudsari R, Sadeghi R, Karimi L. Effect of birth ball on labor pain relief: a systematic review and meta-analysis. *Journal of Obstetrics and Gynaecology Research* 2015;41(11):1679-86.
91. Smith CA, Levett KM, Collins CT, Jones L. Massage, reflexology and other manual methods for pain management in labour. *Cochrane Database of Systematic Reviews*. [Internet]. 2012 [cited 2017 March 17]; Issue 2. Art No.: CD009290.pub2 DOI:10.1002/14651858.CD009290.pub2.
92. Cluett ER, Burns E. Immersion in water in labour and birth. *Sao Paulo Medical Journal* 2013;131(5):364.
93. Swain D. Water Birth is an alternative to air birth. *Asian Journal of Nursing Education and Research* 2013;3(2):3.
94. American College of Nurse-Midwives. Hydrotherapy during labor and birth. Position Statement. [Internet]. 2014 [cited 2017 March 29]. Available from: <http://www.midwife.org>.
95. Australian College of Midwives. Position statement on the use of water immersion for labour and birth. [Internet]. May 2013 [cited 2017 March 10]. Available from: <https://www.midwives.org.au>.
96. Nutter E, Meyer S, Shaw-Battista J, Marowitz A. Waterbirth: an integrative analysis of peer-reviewed literature. *Journal of Midwifery & Women's Health* 2014;59(3):286-319.
97. Chapman V, Charles C. *The midwife's labour and birth handbook*. 3rd ed. West Sussex: Wiley-Blackwell; 2013.
98. Monash Health. Water birth: immersion in water during labour and birth clinical guideline. [Internet]. 2014 [cited 2017 April 11]. Available from: www.monashhealth.org.
99. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Water immersion during labour and birth. [Internet]. 2017 [cited 2018 May 28]. Available from: <https://www.ranzcog.edu.au>.

100. Queensland Clinical Guidelines. Perineal care. Guideline No. MN18.30-V3-R23. [Internet]. Queensland Health. 2018. [cited 2018 June]. Available from: <http://www.health.qld.gov.au>
101. Cluett ER, Burns E, Cuthbert A. Immersion in water in labour and birth. Cochrane Database of Systematic Reviews. [Internet]. 2018 [cited 2018 May 28]; Issue 5. Art. No.: CD000111 DOI:10.1002/14651858.CD000111.pub4.
102. Cluett ER, Pickering RM, Getliffe K, Nigel James St George S. Randomised controlled trial of labouring in water compared with standard of augmentation for management of dystocia in first stage of labour. *BMJ* 2004;328(7435):314-8.
103. Royal College of Midwives. Evidence based guidelines for midwifery-led care in labour. Immersion in water for labour and birth. [Internet]. 2012 [cited 2017 March 29]. Available from: <https://www.rcm.org.uk>.
104. Cohain JS. Waterbirth and GBS. *Midwifery Today* 2010;Winter(96):9-10.
105. Queensland Clinical Guidelines. Early onset Group B Streptococcal disease. Guideline No. MN16.20-V3-R21. [Internet]. Queensland Health. 2016. [cited 2017 March 29]. Available from: <http://www.health.qld.gov.au>
106. Raudenska J, Javurkova A. *The Psychological Context of Labour Pain*. Nova Science Publishers, Inc; 2016.
107. Queensland Clinical Guidelines. Short Guide: Opioids in labour. Guideline No. MN17.43-V1-R22. [Internet]. Queensland Health. 2017. [cited 2017 August 30]. Available from: <http://www.health.qld.gov.au>
108. Queensland Clinical Guidelines. Short Guide: Epidural analgesia in labour. Guideline No. MN17.41-V1-R22. [Internet]. Queensland Health. 2017. [cited 2017 August 30]. Available from: <http://www.health.qld.gov.au>
109. Queensland Clinical Guidelines. Short Guide: Remifentanyl via PCA in labour. Guideline No. MN17.42-V1-R22. [Internet]. Queensland Health. 2017. [cited 2017 August 30]. Available from: <http://www.health.qld.gov.au>
110. BOC Healthcare. Consumer medicine information: nitrous oxide medical EP grade. [Internet]. 2008 [cited 2017 April 3]. Available from: <http://www.boc-healthcare.com.au>.
111. BOC Healthcare. Product information: nitrous oxide medical EP Grade. [Internet]. 2008 [cited 2017 April 3]. Available from: <http://www.boc-healthcare.com.au>.
112. Clark MS, Brunick AL. *Handbook of nitrous oxide and oxygen sedation*. 3rd ed. St. Louis, Mo: Mosby Elsevier; 2008.
113. Clark MS, Campbell SA, Clark AM. Technique for the administration of nitrous oxide/oxygen sedation to ensure psychotropic analgesic nitrous oxide (PAN) effects. *International Journal of Neuroscience* 2006;116(7):871-7.
114. Likis FE, Andrews JC, Collins MR, Lewis RM, Seroogy JJ, Starr SA, et al. Nitrous oxide for the management of labor pain: a systematic review. *Anesthesia & Analgesia* 2014;118(1):153-67.
115. Rosen M. Nitrous oxide for relief of labor pain: a systematic review. *American Journal of Obstetrics and Gynecology* 2002;186(5):S110-S26.
116. Klomp T, van Poppel M, Jones L, Lazet J, Di Nisio M, Lagro-Janssen ALM. Inhaled analgesia for pain management in labour. Cochrane Database of Systematic Reviews. 2012; Issue 9. Art No.: CD009351.pub2 DOI:10.1002/14651858.CD009351.pub2.
117. Spiby H, Walsh D, Green J, Crompton A, Bugg G. Midwives' beliefs and concerns about telephone conversations with women in early labour. *Midwifery* 2014;30(9):1036.
118. Weavers A, Nash K. Setting up a triage telephone line for women in early labour. *British Journal of Midwifery* 2012;20(5):333-8.
119. Queensland Clinical Guidelines. Intrapartum fetal surveillance. Guideline No. MN15.15-V4-R20. [Internet]. Queensland Health. 2015. [cited 2017 March 27]. Available from: <http://www.health.qld.gov.au>
120. Downe S, Gyte GML, Dahlen HG, Singata M. Routine vaginal examinations for assessing progress of labour to improve outcomes for women and babies at term. Cochrane Database of Systematic Reviews. [Internet]. 2013 [cited 2017 April 10]; Issue 7. Art No.: CD010088.pub2 DOI:10.1002/14651858.CD010088.pub2.
121. Friedman E. An objective approach to the diagnosis and management of abnormal labor. *Bulletin of the New York Academy of Medicine* 1972;48(6):842.
122. Zhang J, Landy HJ, Ware Branch D, Burkman R, Haberman S, Gregory KD, et al. Contemporary patterns of spontaneous labor with normal neonatal outcomes. *Obstetrics & Gynecology* 2010;116(6):1281-7.
123. Zhang J, Troendle J, Mikolajczyk R, Sundaram R, Beaver J, Fraser W. The natural history of the normal first stage of labor. *Obstetrics & Gynecology* 2010;115(4):705-10.
124. Friedman E, Sachtleben M. Amniotomy and the course of labor. *Obstet Gynecol* 1963;22:755-70.
125. Schug SA, Palmer GM, Scott DA, Halliwell R, J; T, APM:SE Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. Acute pain management: scientific evidence. [Internet]. 2015 [cited 2017 July 18]. Available from: www.fpm.anzca.edu.au
126. Lee L, Dy J, Azzam H. Management of spontaneous labour at term in healthy women. *Journal of Obstetrics and Gynaecology Canada* 2016;38(9):843-65.
127. Neal JL, Lowe NK, Philippi JC, Ryan SL, Knupp AM, Dietrich MS, et al. Likelihood of cesarean delivery after applying leading active labor diagnostic guidelines. *Birth* 2017;44(2):128-36.
128. Scotland GS, McNamee P, Cheyne H, Hundley V, Barnett C. Women's preferences for aspects of labor management: results from a discrete choice experiment. *Birth* 2011;38(1):36.
129. Friedman E. The graphic analysis of labor. *Am J Obstet Gynecol* 1954;68:1568-75.
130. Neal JL, Lowe NK, Ahjevych KL, Patrick TE, Cabbage LA, Corwin EJ. "Active labor" duration and dilation rates among low-risk, nulliparous women with spontaneous labor onset: a systematic review. *Journal of Midwifery and Women's Health* 2010;55(4):308-18.
131. Lavender T, Hart A, Smyth RMD. Effect of partogram use on outcomes for women in spontaneous labour at term. Cochrane Database of Systematic Reviews [Internet]. 2013 [cited 2017 April 10]; Issue 7. Art No.: CD005461 DOI:10.1002/14651858.CD005461.pub4.
132. World Health Organization. WHO recommendations for augmentation of labour. [Internet]. 2014 [cited 2017 April 10]. Available from: www.who.int.
133. Gupta J, Sood A, Hofmeyr G, Vogel J. Position in the second stage of labour for women without epidural anaesthesia. Cochrane Database of Systematic Reviews 2017, Issue 5. Art. No.: CD002006. DOI: 10.1002/14651858.CD002006.pub4. 2017.
134. Lawrence A, Lewis L, Hofmeyr GJ, Styles C. Maternal positions and mobility during first stage labour. Cochrane Database of Systematic Reviews [Internet]. 2013 [cited 2017 April 10]; Issue 10. Art No.: CD003934 DOI:10.1002/14651858.CD003934.pub4.
135. Taavoni S, Sheikhan F, Abdolahian S, Ghavi F. Birth ball or heat therapy? A randomized controlled trial to compare the effectiveness of birth ball usage with sacrum-perineal heat therapy in labor pain management. *Complementary Therapies in Clinical Practice* 2016;24:99-102.
136. Malin GL, Bugg GJ, Thornton J, Taylor MA, Grauwen N, Devlieger R, et al. Does oral carbohydrate supplementation improve labour outcome? A systematic review and individual patient data meta-analysis. *BJOG: An International Journal of Obstetrics & Gynaecology* 2016;123(4):510-7.
137. Smyth R, Markham C, Dowsell T. Amniotomy for shortening spontaneous labour. Cochrane Database of Systematic Reviews 2013, Issue 6. Art. No.: CD006167. DOI: 10.1002/14651858.CD006167.pub4. 2013.
138. Looft E, Simic M, Ahlberg M, Snowdon JM, Cheng YW, Stephansson O. Duration of second stage of labour at term and pushing time: Risk factors for postpartum haemorrhage. *Paediatric and Perinatal Epidemiology* 2017;31(2):126-33.
139. Aiken CE, Aiken AR, Prentice A. Influence of the duration of the second stage of labor on the likelihood of obstetric anal sphincter injury. *Birth* 2015;42(1):86-93.
140. Gartland D, Donath S, MacArthur C, Brown SJ. The onset, recurrence and associated obstetric risk factors for urinary incontinence in the first 18 months after a first birth: an Australian nulliparous cohort study. *British Journal of Obstetrics and Gynaecology: An International Journal of Obstetrics & Gynaecology* 2012;119(11):1361-9.
141. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Intrapartum fetal surveillance, Clinical Guideline – Third edition 2014. [Internet]. 2014 [cited 2017 July 10]. Available from: <https://www.ranzcog.edu.au>.
142. Lodge F, Haith-Cooper M. The effect of maternal position at birth on perineal trauma: a systematic review. *British Journal of Midwifery* 2016;24(3):172-80.
143. Gupta JK, Hofmeyr GJ, Shehmar M. Position in the second stage of labour for women without epidural anaesthesia. Cochrane Database of Systematic Reviews [Internet]. 2012 [cited 2017 April 10]; Issue 5. Art No.: CD002006 DOI: 10.1002/14651858.CD002006.pub3.
144. Lemos A, Amorim MMR, Dornelas de Andrade A, de Souza AI, Cabral Filho JE, Correia JB. Pushing/bearing down methods for the second stage of labour. Cochrane Database of Systematic Reviews. 2015; Issue 10. Art No.: CD009124.pub2(10) DOI:10.1002/14651858.CD009124.pub2.
145. Prins M, Boxem J, Lucas C, Hutton E. Effect of spontaneous pushing versus Valsalva pushing in the second stage of labour on mother and fetus: a systematic review of randomised trials. *British Journal of Obstetrics and Gynaecology: An International Journal of Obstetrics & Gynaecology* 2011;118(6):662-70.
146. Aasheim V, Nilsen A, Reinart L, Lukasse M. Perineal techniques during the second stage of labour for reducing perineal trauma. Cochrane Database of Systematic Reviews 2017, Issue 6. Art. No.: CD006672. DOI: 10.1002/14651858.CD006672.pub3. 2017.
147. Taylor H, Kleine I, Bewley S, Loucaides E, Sutcliffe A. Neonatal outcomes of waterbirth: a systematic review and meta-analysis. *Archives of Disease in Childhood. Fetal and Neonatal Edition* 2016;101(4):F357-F65.

148. American College of Obstetricians and Gynecologists. Immersion in water during labor and delivery: Committee opinion No. 679. *Obstetrics & Gynecology* 2016;128(5):e231-6.
149. van Vonderen JJ, Roest AA, Siew ML, Walther FJ, Hooper SB, te Pas AB. Measuring physiological changes during the transition to life after birth. *Neonatology* 2014;105(3):230-42.
150. Davies R, Davis D, Pearce M, Wong N. The effect of waterbirth on neonatal mortality and morbidity: a systematic review and meta-analysis. *JBI Database of Systematic Reviews & Implementation Reports*;13(10):180-231.
151. Schafer R. Umbilical cord avulsion in waterbirth. *Journal of Midwifery & Women's Health* 2014;59(1):91-4.
152. World Health Organization. Delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes. [Internet]. 2014 [cited 2017 March 29]. Available from: <https://www.who.int>.
153. World Health Organization. WHO recommendations for the prevention and treatment of postpartum haemorrhage. [Internet]. 2012 [cited 2017 April 10]. Available from: <https://www.who.int>.
154. Pan American Health Organization. Beyond survival: integrated delivery care practices for long-term maternal and infant nutrition, health and development. 2nd ed. [Internet]. Washington, DC: PAHO; 2013 [cited 2017 April 10]. Available from: <http://www.who.int>.
155. Soltani H, Poulouse T, Hutchon D. Placental cord drainage after vaginal delivery as part of the management of the third stage of labour. *Cochrane Database of Systematic Reviews* 2011; Issue 9. Art. No.: CD004665.
156. Royal College of Obstetricians and Gynaecologists. Clamping of the umbilical cord and placental transfusion. Scientific Impact Paper No. 14. [Internet]. 2015 [cited 2017 April 17]. Available from: <https://www.rcog.org.uk>.
157. Royal College of Obstetricians and Gynaecologists. Statement on umbilical non-severance or "lotus" birth. [Internet]. 2008 [cited 2017 June 30]. Available from: <http://www.rcog.org.uk/>
158. Burns E. More than clinical waste? Placenta rituals among Australian home-birthing women. *The Journal of Perinatal Education* 2014;23(1):41-9.
159. Tricarico A, Bianco V, Di Biase AR, Iughetti L, Ferrari F, Berardi A. Lotus birth associated with idiopathic neonatal hepatitis. *Pediatr Neonatol* 2017;58(3):281-2.
160. Westhoff G, Cotter AM, Tolosa JE. Prophylactic oxytocin for the third stage of labour to prevent postpartum haemorrhage. *Cochrane Database of Systematic Reviews*. [Internet]. 2013 [cited 2017 April 10]; Issue 10. Art No.: CD001808 DOI:10.1002/14651858.CD001808.pub2.
161. Soltani H, Hutchon D, Poulouse T. Timing of prophylactic uterotonics for the third stage of labour after vaginal birth. *Cochrane Database of Systematic Reviews*. 2010; Issue 8. Art. No.: CD006173. DOI:10.1002/14651858.CD006173.pub2.
162. McDonald SJ, Middleton P, Dowswell T, Morris PS. Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes. *Cochrane Database of Systematic Reviews* [Internet]. 2013 [cited 2017 March 10]; Issue 7. Art No.: CD004074 DOI: 10.1002/14651858.CD004074.pub2.
163. MacDonald S, Johnson G. *Mayer's Midwifery*. 15th ed. London: Elsevier; 2017.
164. Tiran D. *Baillière's Midwives' Dictionary*. 13th ed: Elsevier-Health Sciences Division; 2017.
165. Queensland Clinical Guidelines. Establishing breastfeeding. Guideline No. MN16.19-V3-R21. [Internet]. Queensland Health. 2016. [cited 2017 April 10]. Available from: <http://www.health.qld.gov.au>
166. Queensland Clinical Guidelines. Primary postpartum haemorrhage. Guideline No. MN12.1-V5-R17. [Internet]. Queensland Health. 2017. [cited 2017 April 10]. Available from: <http://www.health.qld.gov.au>
167. Buser GL, Mató S, Zhang AY, Metcalf BJ, Beall B, Thomas AR. Late-onset infant Group B Streptococcus infection associated with maternal consumption of capsules containing dehydrated placenta — Oregon, 2016. In: *Morbidity and Mortality Weekly Report: US Department of Health and Human Services/Centers for Disease Control and Prevention*; 2017. vol 66, No 25 p. 677-8.
168. Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*. 2016; Issue 11. Art No.: CD003519.pub4 DOI:10.1002/14651858.CD003519.pub4.
169. Australian Commission on Safety and Quality in Health Care. National consensus statement: essential elements for recognising and responding to clinical deterioration. [Internet]. 2010 [cited 2017 July 17]. Available from: <http://www.safetyandquality.gov.au>.
170. Queensland Clinical Guidelines. Routine newborn assessment. Guideline No. MN14.4.V4.R19. [Internet]. Queensland Health. 2015. [cited 2017 March 10]. Available from: <http://www.health.qld.gov.au>
171. Queensland Clinical Guidelines. Neonatal resuscitation. Guideline No. MN16.5-V4-R21. [Internet]. Queensland Health. 2016. [cited 2017 March 27]. Available from: <http://www.health.qld.gov.au>
172. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Guidelines for the use of Rh(D) Immunoglobulin (Anti-D) in obstetrics in Australia. C-Obs 6. [Internet]. 2015 [cited 2017 April 12]. Available from: <https://www.ranzcoq.edu.au>.

Appendix A: Comparisons of labour definitions

Publication	Friedman ⁽¹⁾	Zhang ⁽²⁾	NICE ⁽³⁾				
Year/country	1955: USA/500 women	2010: USA/62,415 women	2017:UK				
Latent phase	<ul style="list-style-type: none"> Nulliparous ≤ 20 hours Multiparous ≤ 14 hours 	<ul style="list-style-type: none"> Nulliparous and multiparous <ul style="list-style-type: none"> 4–5 cm ≥ 6 hours 5–6 cm ≥ 3 hours 	<ul style="list-style-type: none"> Not always continuous period of time Painful contractions, cervical change and effacement to 4 cm Duration not defined 				
Prolonged latent phase	<ul style="list-style-type: none"> Nulliparous > 20 hours Multiparous > 14 hours 	<table border="0"> <tr> <td>Nulliparous</td> <td>Multiparous</td> </tr> <tr> <td> <ul style="list-style-type: none"> 3–4 cm > 8.1 hours 4–5 cm > 6.4 hours 5–6 cm > 3.2 hour </td> <td> <ul style="list-style-type: none"> 4-5 cm > 7.3 hours 5–6 cm > 3.4 hours </td> </tr> </table>	Nulliparous	Multiparous	<ul style="list-style-type: none"> 3–4 cm > 8.1 hours 4–5 cm > 6.4 hours 5–6 cm > 3.2 hour 	<ul style="list-style-type: none"> 4-5 cm > 7.3 hours 5–6 cm > 3.4 hours 	<ul style="list-style-type: none"> Not defined
Nulliparous	Multiparous						
<ul style="list-style-type: none"> 3–4 cm > 8.1 hours 4–5 cm > 6.4 hours 5–6 cm > 3.2 hour 	<ul style="list-style-type: none"> 4-5 cm > 7.3 hours 5–6 cm > 3.4 hours 						
Active first stage							
Onset	<ul style="list-style-type: none"> Cervix 4 cm dilated 	<ul style="list-style-type: none"> Cervix 6 cm dilated 	<ul style="list-style-type: none"> Regular painful contractions Progressive cervical dilatation from 4cm 				
Duration	<ul style="list-style-type: none"> Not defined 	<ul style="list-style-type: none"> 2 hours or less 	<ul style="list-style-type: none"> Nulliparous 8–18 hours Multiparous 5–12 hours 				
Normal progress	<ul style="list-style-type: none"> Nulliparous ≥ 1.2 cm/hour Multiparous ≥ 1.5 cm/hour 	<ul style="list-style-type: none"> Nulliparous 0.5–0.7 cm/hour Multiparous 0.5–1.3 cm/hour 	<ul style="list-style-type: none"> 2 cm in 4 hours 				
Slow progress	<ul style="list-style-type: none"> Based on curved progress Nulliparous < 1.2 cm/hour Multiparous < 1.5 cm/hour 	<ul style="list-style-type: none"> Based on stepped progress <table border="0"> <tr> <td>Nulliparous</td> <td>Multiparous</td> </tr> <tr> <td> <ul style="list-style-type: none"> 6–7 cm > 2.2 hours 7–8 cm > 1.6 hours 8–9 cm > 1.4 hours 9–10 cm > 1.8 hours </td> <td> <ul style="list-style-type: none"> 6–7 cm > 1.8 hours 7–8 cm > 1.2 hours 8–9 cm > 0.9 hours 9–10 cm > 0.8 hours </td> </tr> </table>	Nulliparous	Multiparous	<ul style="list-style-type: none"> 6–7 cm > 2.2 hours 7–8 cm > 1.6 hours 8–9 cm > 1.4 hours 9–10 cm > 1.8 hours 	<ul style="list-style-type: none"> 6–7 cm > 1.8 hours 7–8 cm > 1.2 hours 8–9 cm > 0.9 hours 9–10 cm > 0.8 hours 	<ul style="list-style-type: none"> Nulliparous < 2 cm in 4 hours Multiparous < 2 cm in 4 hours or slowing in progress
Nulliparous	Multiparous						
<ul style="list-style-type: none"> 6–7 cm > 2.2 hours 7–8 cm > 1.6 hours 8–9 cm > 1.4 hours 9–10 cm > 1.8 hours 	<ul style="list-style-type: none"> 6–7 cm > 1.8 hours 7–8 cm > 1.2 hours 8–9 cm > 0.9 hours 9–10 cm > 0.8 hours 						
Labour arrest	<ul style="list-style-type: none"> No cervical change for ≥ 2 hours with adequate contractions ≥ 4 cm 	<ul style="list-style-type: none"> Not defined 	<ul style="list-style-type: none"> Not defined 				
Second stage							
Normal duration	<ul style="list-style-type: none"> Not defined 	<ul style="list-style-type: none"> Nulliparous 2.8 hours Multiparous ≤ 1.3 hours 	<ul style="list-style-type: none"> Not defined 				
Passive duration	<ul style="list-style-type: none"> Not defined 	<ul style="list-style-type: none"> Not defined 	<ul style="list-style-type: none"> Not defined 				
Active duration	<ul style="list-style-type: none"> Nulliparous 3 hours of pushing Multiparous 2 hours of pushing 	<ul style="list-style-type: none"> Not defined 	<ul style="list-style-type: none"> Nulliparous within 3 hours of active second stage Multiparous within 2 hours of active second stage 				
Abnormal progress	<ul style="list-style-type: none"> Maximum duration not defined Nulliparous: not until at least 3 hours of pushing Multiparous not until at least 2 hours of pushing 	<ul style="list-style-type: none"> Nulliparous > 2.8 hours Multiparous > 1.3 hours 	<ul style="list-style-type: none"> 2 hours of active second stage Suspect delay: <ul style="list-style-type: none"> Nulliparous: 1 hour of active second stage Multiparous: if inadequate progress after 30 minutes of active second stage 				

Abbreviations: < Less than, ≤ Less than or equal to, > Greater than, ≥ Greater than or equal to

(1) Friedman E. Primigravid labor: a graphicostatistical analysis. *Obstet Gynecol* 1955; 6(6): 567-589. **(2)** Zhang J, Landy HJ, Ware Branch D, Burkman R, Haberman S, Gregory KD, et al. Contemporary patterns of spontaneous labor with normal neonatal outcomes. *Obstetrics & Gynecology* 2010;116(6):1281-7. **(3)** National Institute for Health and Care Excellence (NICE). Intrapartum care for healthy women and babies. Clinical Guideline 190. 2017.

Appendix B: Summary position statements on length of labour

Source	Summary of position
ACOG and The Society for Maternal-Fetal Medicine Consensus Statement ⁽¹⁾	<p>First stage</p> <ul style="list-style-type: none"> • A prolonged latent phase (more than 20 hours in nulliparous women and more than 14 hours in multiparous women) is not an indication for caesarean birth (1B Strong recommendation, moderate quality evidence) • Slow but progressive labour in the first stage is not an indication for caesarean birth (1B Strong recommendation, moderate quality evidence) • Cervical dilatation of 6 cm is considered the threshold for active phase for most women in labour. Before 6 cm, standards of active-phase progress are not applied (1B Strong recommendation, moderate quality evidence) <p>Second stage</p> <ul style="list-style-type: none"> • A specific absolute maximum length of time spent in second stage of labour beyond which all women will undergo operative birth has not been identified (1C Strong recommendation, low quality evidence) • Before diagnosing arrest of labour in second stage, if maternal and fetal conditions permit: <ul style="list-style-type: none"> ○ Support at least two hours of pushing in multiparous women (1B Strong recommendation, moderate quality evidence) ○ Support at least three hours of pushing in nulliparous women (1B Strong recommendation, moderate quality evidence) ○ Longer durations may be appropriate on an individualised basis as long as progress is being documented (1B Strong recommendation, moderate quality evidence)
RANZCOG ⁽²⁾	<p>First stage: failure to progress</p> <ul style="list-style-type: none"> • Latent phase: no upper limit to the length of the latent phase of labour • Active phase: <ul style="list-style-type: none"> ○ Primiparous: progress less than one cm in one to two hours ○ Multiparous: progress less than 1.2 cm per hour <p>Second stage: failure to progress</p> <ul style="list-style-type: none"> • Passive and active second stage not defined <ul style="list-style-type: none"> ○ Primiparous: two hours of second stage ○ Multiparous: one hour of second stage
SOGC ⁽³⁾	<p>First stage</p> <ul style="list-style-type: none"> • Dystocia should not be diagnosed prior to the onset of the active phase of the first stage of labour or before the cervix is at least four cm dilated (II-2D) • Definition of dystocia in active first stage: <ul style="list-style-type: none"> ○ Greater than 4 hours of less than 0.5 cm per hour or no dilatation for two hours <p>Second stage</p> <ul style="list-style-type: none"> • Delayed pushing is preferred when the woman has no urge to push, particularly if the presenting part is above station +2 and/or in a non-occiput anterior position, assuming the fetus does not display abnormal monitoring and the pregnant woman's status is satisfactory (I-A) • Duration of passive stage: nulliparous two hours, multiparous one hour • Total duration of second stage: nulliparous three hours, multiparous two hours • Definition of dystocia in active second stage: <ul style="list-style-type: none"> ○ Greater than one hour of active pushing without descent of the presenting part • Operative delivery less than two hours after commencing pushing is not recommended, provided maternal status and fetal surveillance are normal (III-D)
NICE ⁽⁴⁾	<p>First stage</p> <ul style="list-style-type: none"> • Inform women that, while the length of established first stage of labour varies between women: <ul style="list-style-type: none"> ○ First labours last on average eight hours and are unlikely to last over 18 hours ○ Second and subsequent labours last on average five hours and are unlikely to last over 12 hours • If delay in the established first stage is suspected, assess all aspects of progress in labour when diagnosing delay, including: <ul style="list-style-type: none"> ○ Cervical dilatation of less than two cm in four hours for first labours ○ Cervical dilatation of less than two cm in four hours or a slowing in the progress of labour for second or subsequent labours ○ Descent and rotation of the baby's head ○ Changes in the strength, duration and frequency of uterine contractions <p>Second stage</p> <ul style="list-style-type: none"> • For a nulliparous woman, birth would be expected to take place within three hours of the start of the active second stage in most women <ul style="list-style-type: none"> ○ Diagnose delay in the active second stage when it has lasted two hours and refer the woman to a healthcare professional credentialed to undertake an operative vaginal birth if birth not imminent • For a multiparous woman, birth would be expected to take place within two hours of the start of the active second stage in most women <ul style="list-style-type: none"> ○ Diagnose delay in the active second stage when it has lasted one hour and refer the woman to a healthcare professional credentialed to undertake an operative vaginal birth if birth is not imminent

(1) American College of Obstetricians and Gynecologists, Society for Maternal Fetal Medicine, Caughey AB, Cahill AG, Guise J-M, Rouse DJ. Safe prevention of the primary cesarean delivery. American Journal of Obstetrics and Gynecology 2014;210(3):179-193. (2) The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Provision of routine intrapartum care in the absence of pregnancy complications. (3) Lee, L Dy, J Azzam, H. Management of spontaneous labour in healthy women. Journal of Obstetrics and Gynaecology Canada 2016;(9):843-865. (4) National Institute for Health and Care Excellence. Intrapartum care for healthy women and babies (CG190). 2014.

Appendix C: Third stage evidence

Aspect	Consideration
Context	<ul style="list-style-type: none"> It is unclear which component of third stage management (oxytocin, timing of cord clamping, or CCT) has the greatest effect on reducing PPH⁽¹⁾ There is no evidence comparing active management with modified active management or modified active management with physiological management for maternal or neonatal outcomes⁽¹⁾
Modified active management	<ul style="list-style-type: none"> The only difference between active and modified active management as defined in this guideline, is in the timing of clamping of the cord (i.e. recommendation to delay cord clamping for one–three minutes after birth in modified active) Delayed cord clamping allows a physiological transfer of placental blood to the baby⁽¹⁾ No clear evidence for the most effective timing⁽²⁾ For early versus late cord clamping no difference in⁽²⁾: <ul style="list-style-type: none"> Neonatal mortality Apgar score less than seven at five minutes Admission to special care baby unit Longer term neurodevelopment (Ages and Stages questionnaire scores) For babies who received late cord clamping, an increase in⁽²⁾: <ul style="list-style-type: none"> Birth weight Haemoglobin at 24 to 48 hours (but not subsequently) Improvement in iron stores at three to six months Improved maternal and infant health and nutrition outcomes⁽³⁾ Jaundice requiring phototherapy⁽²⁾
Active management	<ul style="list-style-type: none"> Active management compared to expectant management (all women) is associated with significant decrease in⁽¹⁾: <ul style="list-style-type: none"> PPH greater than 500 mL Maternal blood transfusion Use of therapeutic uterotonics during third stage or in the first 24 hours Baby's birthweight (due to lower blood volume from interference with placental transfusion) Active management compared to expectant management (all women) is associated with increased: <ul style="list-style-type: none"> Maternal discomfort⁽⁴⁾ Vomiting after birth⁽¹⁾ After pains⁽¹⁾ Maternal diastolic blood pressure⁽¹⁾ Use of analgesia from birth to discharge⁽¹⁾
Physiological	<ul style="list-style-type: none"> Compared to active management, physiological third stage following physiological labour (low risk women), is associated with no significant difference for: <ul style="list-style-type: none"> Severe PPH (greater than 2500 mL⁽¹⁾) Manual removal of the placenta⁽²⁾ Maternal haemoglobin⁽⁵⁾ less than nine g/dL at 24 to 72 hours⁽¹⁾
Controlled cord traction (CCT)	<ul style="list-style-type: none"> CCT is associated with reduced incidence of: <ul style="list-style-type: none"> PPH⁽⁶⁾ Manual removal of placenta⁽⁴⁾ Shortened duration of the third stage⁽⁶⁾ There are limited benefits of CCT in terms of: <ul style="list-style-type: none"> Severe PPH^{(4),(6)} Need for additional uterotonics⁽⁶⁾ Blood transfusion⁽⁶⁾ Rare but serious complication of CCT is uterine inversion⁽⁶⁾ Omitting CCT at the woman's request is not associated with increased risk of severe PPH but may increase the incidence of manual removal of placenta⁽⁴⁾
Nipple stimulation	<ul style="list-style-type: none"> There is insufficient evidence to evaluate the effectiveness of nipple stimulation for reducing bleeding during the third stage of labour⁽⁷⁾

(1) Begley CM, Gyte GML, Devane D, McGuire W, Weeks A. Active versus expectant management for women in the third stage of labour. Cochrane Database of Systematic Reviews. 2015; Issue 3. Art No.: CD007412.pub4(3). (2) McDonald SJ, Middleton P, Dowswell T, Morris PS. Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes. Cochrane Database of Systematic Reviews. (3) World Health Organization. Delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes. 2014. (4) Hofmeyr GJ, Mshweshwe NT, Gülmezoglu AM. Controlled cord traction for the third stage of labour. Cochrane Database of Systematic Reviews. 2015; Issue 1. Art No.: CD008020.pub2. (5) Dixon L, Fullerton JT, Begley C, Kennedy HP, Guilliland K. Systematic Review: the clinical effectiveness of physiological (expectant) management of the third stage of labor following a physiological labor and birth. International Journal of Childbirth 2011;1(3):179-95. (6) Du Y, Ye M, Zheng F. Active management of the third stage of labor with and without controlled cord traction: a systematic review and meta-analysis of randomized controlled trials. Acta Obstetrica et Gynecologica Scandinavica 2014;93(7):626-33. (7) Abedi P, Jahanfar S, Namvar F, Lee J. Breastfeeding or nipple stimulation for reducing postpartum haemorrhage in the third stage of labour. Cochrane Database of Systematic Reviews. 2016; Issue 1. Art No.: CD010845. (8) World Health Organization. Care in normal birth: a practical guide. [Internet]. 1996 [cited 2017 February 10]. Available from: <http://www.who.int>.

Appendix D: Position statements on third stage management

Offer women information about the risk and benefits of all third stage management options.

Source	Definition of terms used	Timing of cord clamping	Timing of oxytocic
RANZCOG (1a)(1b)	<ul style="list-style-type: none"> Active management of the third stage includes oxytocic administration followed by assisted delivery of the placenta and is recommended for all women^(1a) Does not differentiate between early and delayed cord clamping 	<ul style="list-style-type: none"> No clear evidence to guide practitioners regarding delayed cord clamping in term infants, but infants most likely to benefit are those where maternal iron stores are low, or in infants who will be exclusively breast fed without iron supplementation^(1a) Active management of the third stage of labour (use of prophylactic oxytocics, early cord clamping and controlled cord traction) should be recommended to all pregnant women as this reduces the risk of PPH and the need for blood transfusion^(1b) 	<ul style="list-style-type: none"> No comment about timing of oxytocic
RCOG ⁽²⁾	<ul style="list-style-type: none"> Immediate cord clamping within 30 seconds Deferred cord clamping after two minutes 	<ul style="list-style-type: none"> Optimal timing is unclear The cord should not be clamped earlier than is necessary based on clinical assessment of the situation. 	<ul style="list-style-type: none"> The timing of IM uterotonic drugs before cord clamping is unlikely to have substantive effect on placental transfusion
WHO ^{(3a)(3b)(3c)}	<ul style="list-style-type: none"> Active management: <ul style="list-style-type: none"> The administration of uterotonic No differentiation between early or delayed cord clamping^(3a). Early cord clamping is generally carried out in the first 60 seconds after birth (most commonly in the first 15–30 seconds)^(3b) Delayed (also referred to as “late”) cord clamping is generally carried out more than one minute after the birth or when the umbilical cord pulsation has ceased.^(3b) 	<ul style="list-style-type: none"> Late cord clamping, performed after 1-3 minutes after birth, is recommended for all births while initiating simultaneous newborn care^(3b) Early cord clamping less than 1 minute after birth is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation^(3a) Delayed umbilical cord clamping (not earlier than 1 min after birth) is recommended for improved maternal and infant health and nutrition outcomes^(3b) 	<ul style="list-style-type: none"> May be given prophylactically at various moments during the third stage^(3c) Most often administered IM immediately with the delivery of the anterior shoulder, or after delivery of the infant (1996)
NICE ⁽⁴⁾	<ul style="list-style-type: none"> Active management of the third stage involves a package of care that includes: <ul style="list-style-type: none"> Routine use of uterotonic drugs Deferred clamping and cutting of cord Controlled cord traction after signs of separation of the placenta. 	<ul style="list-style-type: none"> After administering oxytocin, clamp and cut the cord. Do not clamp the cord earlier than one minute from the birth of the baby unless there is concern about the integrity of the cord or the baby has a heart rate below 60 beats/minute that is not getting faster Clamp the cord before five minutes in order to perform controlled cord traction as part of active management. If the woman requests that the cord is clamped and cut later than five minutes, support her in her choice 	<ul style="list-style-type: none"> For active management, administer oxytocin 10 IU of IM with the birth of the anterior shoulder or immediately after the birth of the baby and before the cord is clamped and cut
McDonald ⁽⁵⁾	<ul style="list-style-type: none"> Early defined as immediate or within 15 seconds Delayed defined 2–5 minutes, cessation of pulsation, placenta in vagina 	<ul style="list-style-type: none"> A more liberal approach to delaying clamping of the umbilical cord in healthy term infants appears to be warranted, particularly in light of growing evidence that delayed cord clamping increases early haemoglobin concentrations and iron stores in infants. Delayed cord clamping is likely to be beneficial as long as access to treatment for jaundice requiring phototherapy is available 	
Soltani ⁽⁶⁾			<ul style="list-style-type: none"> Oxytocin administered before and after the expulsion of placenta had no significant influence on PPH, rate of placental retention and the length of the third stage of labour

(1) The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. (1a) Provision of routine intrapartum care in the absence of pregnancy complications. 2014. (1b) Management of postpartum haemorrhage (2016). (2) Royal College of Obstetricians and Gynaecologists. Clamping of the umbilical cord and placental transfusion. Scientific Impact Paper No. 14 (2015). (3) World Health Organization (3a) Prevention and treatment of postpartum haemorrhage (2012). (3b) Delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes (2014) (3c) Care in normal birth: a practical guide (1996). (4) National Institute for Health and Care Excellence (NICE) Intrapartum care for healthy women and babies (2017). (5) McDonald, S Middleton, P Dowswell, T Morris, P Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes Cochrane Database of Systematic Reviews Issue 7. Art No.: CD004074. (2013). (6) Soltani, H Hutchon, D Poulouse Timing of prophylactic uterotonics for the third stage of labour after vaginal birth Cochrane Database of Systematic Reviews Issue 8. Art No.: CD006173. (2010)

Acknowledgements

Queensland Clinical Guidelines gratefully acknowledge the contribution of Queensland clinicians and other stakeholders who participated throughout the guideline development process particularly:

Working Party Clinical Lead

Dr Jocelyn Toohill, Director of Midwifery, Office of the Chief Nursing and Midwifery Officer. Department of Health and Adjunct Associate Professor, School of Nursing and Midwifery, Griffith University
Dr Lee Minuzzo, Obstetrician, Royal Brisbane and Women's Hospital and Queensland

QCG Program Officer

Valerie Slavin, Clinical Midwife Consultant
Jacinta Lee, Manager

Working Party Members

Ms Rukhsana Aziz, Clinical Midwifery Consultant, Ipswich Hospital
Dr Kathleen Baird, Director of Education & Senior Midwifery Lecturer, Gold Coast University Hospital
Dr Karen Baker, Staff Specialist Obstetrics and Gynaecology, Royal Brisbane and Women's Hospital
Dr Elize Bolton, Clinical Director, Bundaberg Hospital
Mrs Anne Bousfield, Clinical Midwifery Consultant, South West Hospital Health Service
Ms Georgina Caldwell, Registered Midwife, Redcliffe Hospital
Mrs Katie Cameron, Consumer representative, Maternity Consumer Network
Ms Tanya Capper, Acting Head of Program (Midwifery), Central Queensland University
Ms Jacqueline Chaplin, Midwifery Educator, Ipswich Hospital
Dr Lindsay Cochrane, Staff Specialist, Caboolture Hospital
Dr Paul Conaghan, Senior Staff Specialist, Mater Mothers Hospital
Mrs Allison Davis, Clinical Midwife/Registered Nurse, Mackay Base Hospital
Mrs Ruth Davison, Clinical Midwife Consultant, Mackay Base Hospital
Mrs Paula Dillon, Registered Midwife/Childbirth & Perinatal Loss Educator, Greenslopes Private Hospital
Associate Professor Greg Duncombe, MFM Subspecialist, Royal Brisbane and Women's Hospital
Dr Kylie Edwards, Staff Specialist, Bundaberg Hospital
Dr Hasthika Ellepola, Senior Staff Specialist, Obstetrics and Gynaecology Logan Hospital
Mrs Laura Gabriel, MGP Midwife, Sunshine Coast University Hospital
Dr Sarah Gleeson, GP Obstetrician, Goondiwindi Hospital
Mr John Graham, Registered Midwife, Caboolture Hospital
Ms Jacqueline Griffiths, Acting Regional Maternity Services Coordinator, Cairns Hospital
Miss Simone Groves, Clinical Midwife, Gold Coast University Hospital
Mrs Annie Hampson, Clinical Midwife, Redland Hospital
Mrs Sue Hampton, A/Clinical Midwifery Consultant, Royal Brisbane and Women's Hospital
Ms Leah Hardiman, Consumer representative, Maternity Choices Australia
Ms Jacinta Hay, Registered Midwife, Logan Hospital, Metro South
Mrs Louise Holmes, Clinical Midwife, Gold Coast University Hospital
Ms Pauline Inverarity, Clinical Caseload Midwife, Gold Coast University Hospital
Associate Professor Rebecca Kimble, Staff Specialist, Obstetrics and Gynaecology, Royal Brisbane and Women's Hospital
Ms Meredith Lovegrove, Clinical Midwife, Rockhampton Hospital
Ms Cara Masterson, Physiotherapist, Royal Brisbane and Women's Hospital
Dr Vanitha Math, Staff Specialist, Obstetrics and Gynaecology, Gold Coast University Hospital
Ms Fiona McDermott, Registered Nurse/Midwife, Roma Hospital
Mrs Karen McDonald Smith, Registered Midwife, Toowoomba Hospital/My Midwives Toowoomba
Mrs Michelle McElroy, Midwifery Educator, Mount Isa Hospital
Mrs Kelly Padrao West, Registered Midwife, Gold Coast University Hospital
Mrs Catherine Pardoe, Registered Midwife, The Townsville Hospital
Dr Gino Pecoraro, Obstetrician and Gynaecologist, Mater Mothers' Hospital Brisbane
Mrs Anne Rashleigh, Clinical Facilitator - Midwifery, Redland Hospital
Dr Jane Reeves, FRANZCOG, Sunshine Coast University Hospital
Mrs Tracy Roper, Clinical Midwife, Gold Coast University Hospital
Dr Thangeswaran Rudra, Senior Staff Specialist, Obstetrics and Gynaecology, Royal Brisbane and Women's Hospital
Ms Pamela Sepulveda, Clinical Midwifery Consultant, Logan Hospital
Ms Beth Shorter, Caseload Clinical Midwife, Cairns Hospital
Mrs Patricia Smith, Acting Nursing and Midwifery Director, Royal Brisbane and Women's Hospital
Ms Alecia Staines, Consumer representative, Maternity Consumer Network
Dr Gary Swift, Obstetrician, Pindara Private, and Gold Coast University Hospitals
Mrs Rhonda Taylor, Clinical Midwifery Consultant, The Townsville Hospital
Dr Robyn Thompson, Researcher, Mater Mothers
Mrs Bethan Townsend, Clinical Midwifery Consultant, Midwifery Navigator, Gold Coast University Hospital
Ms Cassandra Turner, Acting Clinical Coach, Rockhampton Hospital
Ms Nicole Utley, Clinical Midwife, Royal Brisbane and Women's Hospital
Ms Rebecca Waqanikalou, Consumer representative, Mothers & Babies Australia Inc.

Queensland Clinical Guidelines Team

Associate Professor Rebecca Kimble, Director
Ms Stephanie Sutherns, Clinical Nurse Consultant
Dr Brent Knack, Program Officer
Ms Cara Cox, Clinical Nurse Consultant
Steering Committee

Funding

This clinical guideline was funded by Healthcare Improvement Unit, Queensland Health