NATIONAL CLINICAL GUIDELINES

ANTENATAL, INTRAPARTUM, AND POSTNATAL CARE IN LOW RISK PREGNANCY

Ministry of Public Health

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المبادئ الإرشادية السريرية لدولة قطر
NATIONAL CLINICAL GUIDELINES FOR QATAR

وزارة الصحـــــة العامـــــة
Ministry of Public Health
State of Qatar • دولـــة قطـــر

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1.0	Final	20th February 2020	Guidelines Team	Final version for publication.

Citation

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Abbreviations

The abbreviations used in this guideline are as follows:

ANC	Antenatal Care
BMI	Body Mass Index
CBC	Complete Blood Count
C-section	Caesarean section
CTG	Cardiotocography
ECV	External Cephalic Version
EDD	Estimated Day of Delivery
FHR	Foetal Heart Rate
GBS	Group B Streptococcus
GDM	Gestational Diabetes Mellitus
Hb	Haemoglobin concentration
HBsAb	Hepatitis B Surface Antibody
HBsAg	Hepatitis B Surface Antigen Test
HIV	Human Immunodeficiency Virus
IOL	Induction of Labour
MMR	Measles, Mumps, Rubella
NHS	National Health Strategy
OGTT	Oral Glucose Tolerance Test
PNC	Postnatal Care
PPH	Postpartum Haemorrhage

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RPR	Rapid Plasma Reagin
T2DM	Type 2 Diabetes Mellitus
VBAC	Vaginal Birth after Caesarean Section
VTE	Venous Thromboembolism

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1 Information About This Guideline

1.1 Objective and Purpose of the Guideline

The purpose of this guideline is to define the appropriate management and care for women with an uncomplicated pregnancy during the antenatal, intrapartum and postnatal phases of their journey. The objective is to improve management of patients presenting to healthcare organisations in Qatar. It is intended that the guideline will be used primarily by healthcare professionals in all healthcare settings.

1.2 Scope of the Guideline

The following aspects of care are included within this Guideline:

- Background information.
- Antenatal care of an uncomplicated singleton pregnancy, including management of common symptoms of pregnancy and indications for obstetric referral.
- Intrapartum care during the first, second and third stages of labour.
- Immediate postpartum care of the mother and newborn.
- Postnatal care of the mother.

The management of high-risk pregnancies and the long-term postnatal care of neonates are beyond the scope of this guideline.

1.3 Editorial Approach

This guideline document has been developed and issued by the Ministry of Public Health of Qatar (MOPH), through a process which aligns with international best practice in guideline development and localisation. The guideline will be reviewed on a regular basis and updated to incorporate comments and feedback from stakeholders across Qatar.

The editorial methodology, used to develop this guideline, has involved the following critical steps:

- Extensive literature search for well-reputed published evidence relating to the topic.
- Critical appraisal of the literature.
- Development of a draft summary guideline.
- Review of the summary guideline with a Guideline Development Group, comprised of practising healthcare professionals, subject matter experts and patient representatives, from across Qatar.
- Independent review of the guideline by the National Clinical Guidelines & Pathways Committee, appointed by the MOPH, from amongst stakeholder organisations across Qatar.

Whilst the MOPH has sponsored the development of the guideline, the MOPH has not influenced the specific recommendations made within it.

1.4 Sources of Evidence

The professional literature has been systematically queried using specially developed, customised, and tested search strings. Search strategies are developed to allow efficient yet comprehensive analysis of relevant publications for a given topic and to maximise retrieval of articles with certain desired characteristics pertinent to a guideline.

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For each guideline, all retrieved publications have been individually reviewed by a member of the Editorial Team and assessed in terms of quality, utility, and relevance. Preference is given to publications that:

1. Are designed with rigorous scientific methodology.
2. Are published in higher-quality journals.
3. Address an aspect of specific importance to the guideline in question.

Further information about the literature search and appraisal process is included in *Appendix A*.

1.5 Evidence Grading and Recommendations

Recommendations made within this guideline are supported by evidence from the medical literature and where possible the most authoritative sources have been used in the development of this guideline. In order to provide insight into the evidence basis for each recommendation, the following evidence hierarchy has been used to grade the level of authoritativeness of the evidence used, where recommendations have been made within this guideline.

Where the recommendations of international guidelines have been adopted, the evidence grading is assigned to the underlying evidence used by the international guideline. Where more than one source has been cited, the evidence grading relates to the highest level of evidence cited:

- **Level 1 (L1):**
  - Meta-analyses.
  - Randomised controlled trials with meta-analysis.
  - Randomised controlled trials.
  - Systematic reviews.

- **Level 2 (L2):**
  - Observational studies, examples include:
    - Cohort studies with statistical adjustment for potential confounders.
    - Cohort studies without adjustment.
    - Case series with historical or literature controls.
    - Uncontrolled case series.
  - Statements in published articles or textbooks.

- **Level 3 (L3):**
  - Expert opinion.
  - Unpublished data, examples include:
    - Large database analyses.
    - Written protocols or outcomes reports from large practices.

To give additional insight into the reasoning underlying certain recommendations and the strength of recommendation, the following recommendation grading has been used, where recommendations are made:

- **Recommendation Grade A (RGA):** Evidence demonstrates at least moderate certainty of a net benefit from the recommendation.
- **Recommendation Grade B (RGB):** Evidence is insufficient, conflicting, or poor and demonstrates an incomplete assessment of net benefit vs harm; additional research is recommended.
- **Recommendation Grade C (RGC):** Evidence demonstrates potential harm that outweighs benefit; additional research is recommended.
- **Recommendation of the GDG (R-GDG):** Recommended best practice based onthe clinical experience of the Guideline Development Group members.

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1.6 Guideline Development Group Members

The following table lists members of the Guideline Development Group (GDG) nominated by their respective organisations and the National Clinical Guidelines & Pathways Committee. The GDG members have reviewed and provided their feedback and approval of the guideline document. Each member has completed a declaration of conflicts of interest, which has been reviewed and retained by the MOPH.

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Dr Ameena Hassan A H AL-Shehhi	Lead Medical Officer	Qatar Petroleum
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Dr Marwa Osman Awad	Consultant Family Physician	Primary Health Care Corp
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Dr Ahmed Fayez Bakr	Consultant Paediatrician-Neonatologist	Al Ahli Hospital
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Ms Sosamma Cheriyan	General Practice Nurse	Primary Health Care Corp
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Ms Varsha Hariharan	Clinical Nurse Midwife Specialist	Hamad Medical Corporation
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[1] Dr Ahmed Babiker attended the MOPH in his capacity as a Clinical Pharmacist and advisor on the availability of medications in Qatar

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Guideline Development Group Members		
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1.7 National Clinical Guidelines & Pathways Committee Members

The following table lists members of the National Clinical Guidelines & Pathways Committee (NCGPC), appointed by the MOPH. The NCGPC members have reviewed and provided their feedback and approval of the guideline document. Each member has completed a declaration of conflicts of interest, which has been reviewed and retained by the MOPH.

National Clinical Guidelines & Pathways Committee (NCGPC) Members		
Name	**Title**	**Organisation**
Ms Huda Amer Al-Katheeri	Chair of the NCGPC, Director- Strategic Planning & Performance Department	Ministry of Public Health
Shk Dr Mohammed Hamad J. Al Thani	Co-Chair of NCGPC, Director of Public Health	Ministry of Public Health
Prof Anthony Akobeng	Chair Clinical Practice Guidelines Committee	Sidra Medicine
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Dr Basil Bashqawi	Accreditation Coordinator, Dept of Health Professions	Ministry of Public Health
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Dr Ghassan Youseph Hommos	Consultant Endocrinology	Al Emadi Hospital
Dr Chris Kenny	Executive Director Clinical and Service Development, Office of the Chief Medical Officer	Hamad Medical Corporation
Dr Egon Toft	VP and Dean of College of Medicine	College of Medicine, Qatar University

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1.8 Responsibilities of Healthcare Professionals

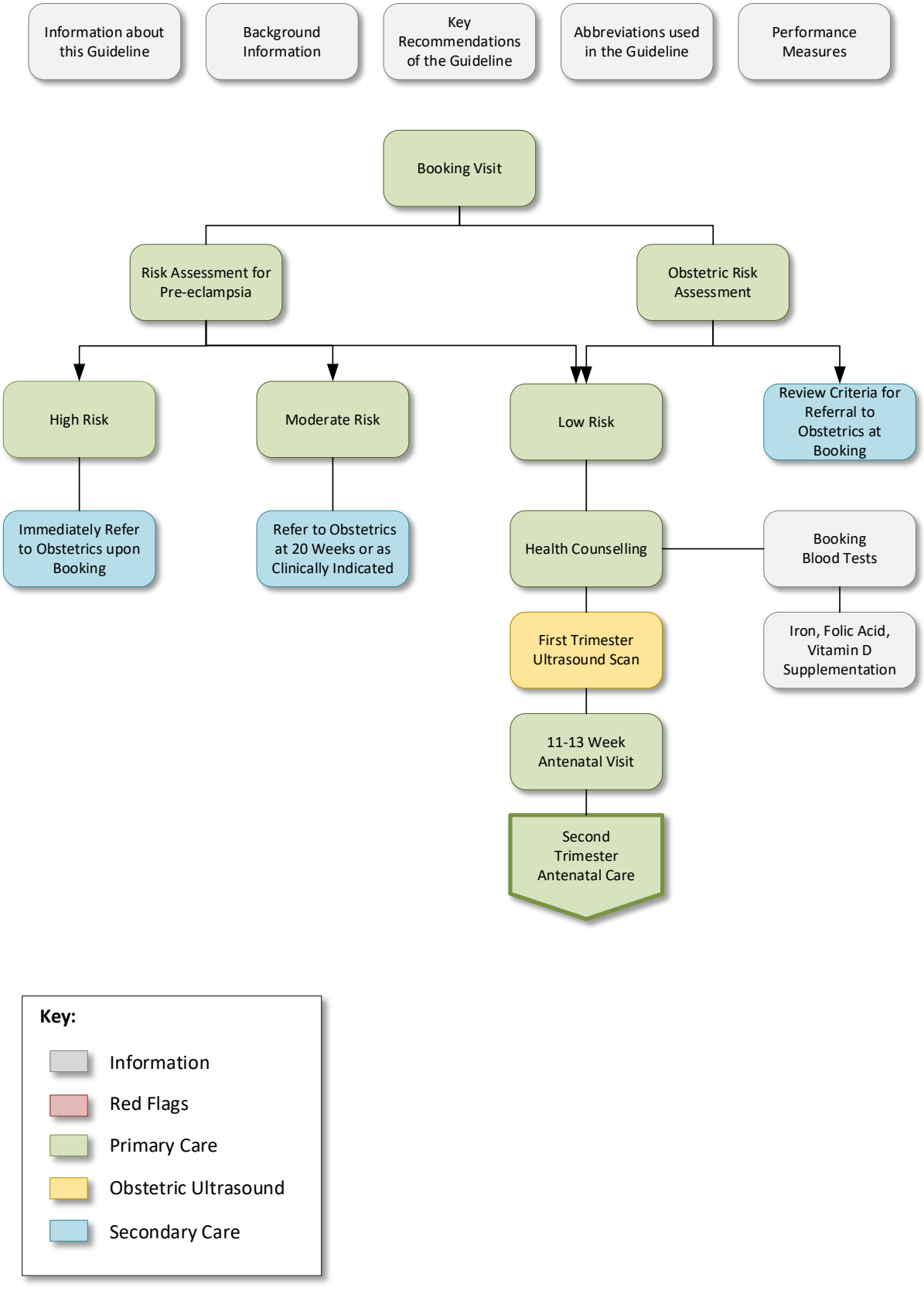
Pregnancy and delivery are normal physiological processes that in general should be seen as such by patients and carers. However, this process is riddled with possible adverse events to both mother and baby. These adverse events could be a consequence of existing medical condition, which is affected by the physiological changes and or malfunctioning of the physiological processes themselves. The duty of the carer is to anticipate and optimise the outcome for both mother and baby. This will need due vigilance and ability to reassess risk and dynamics throughout the pregnancy, delivery and post-partum period and provide intervention when necessary at the right time.

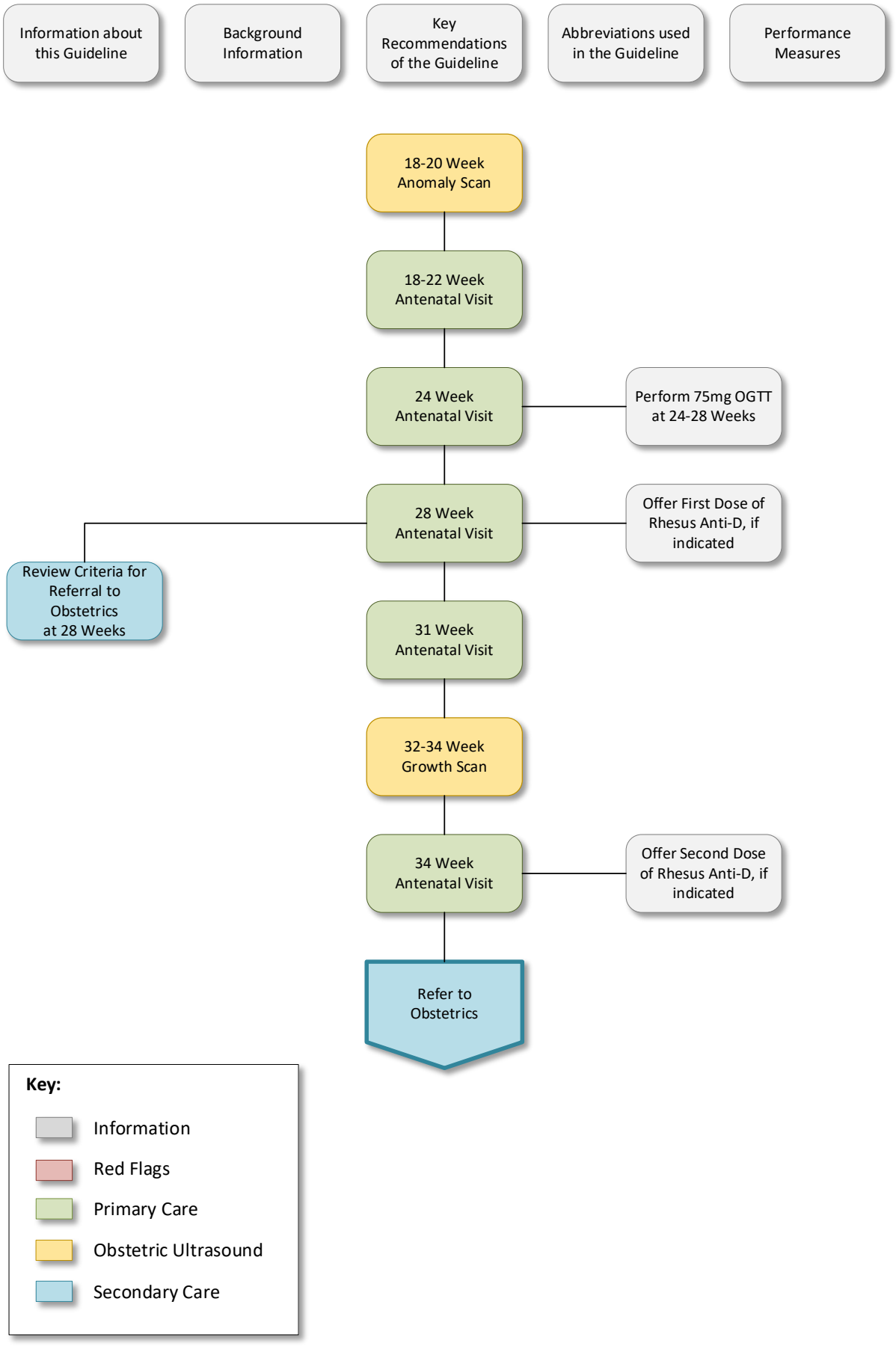
This guideline has been issued by the MOPH to define how care should be provided in Qatar. It is based upon a comprehensive assessment of the evidence as well as its applicability to the national context of Qatar. Healthcare professionals are expected to take this guidance into account when exercising their clinical judgement in the care of patients presenting to them.

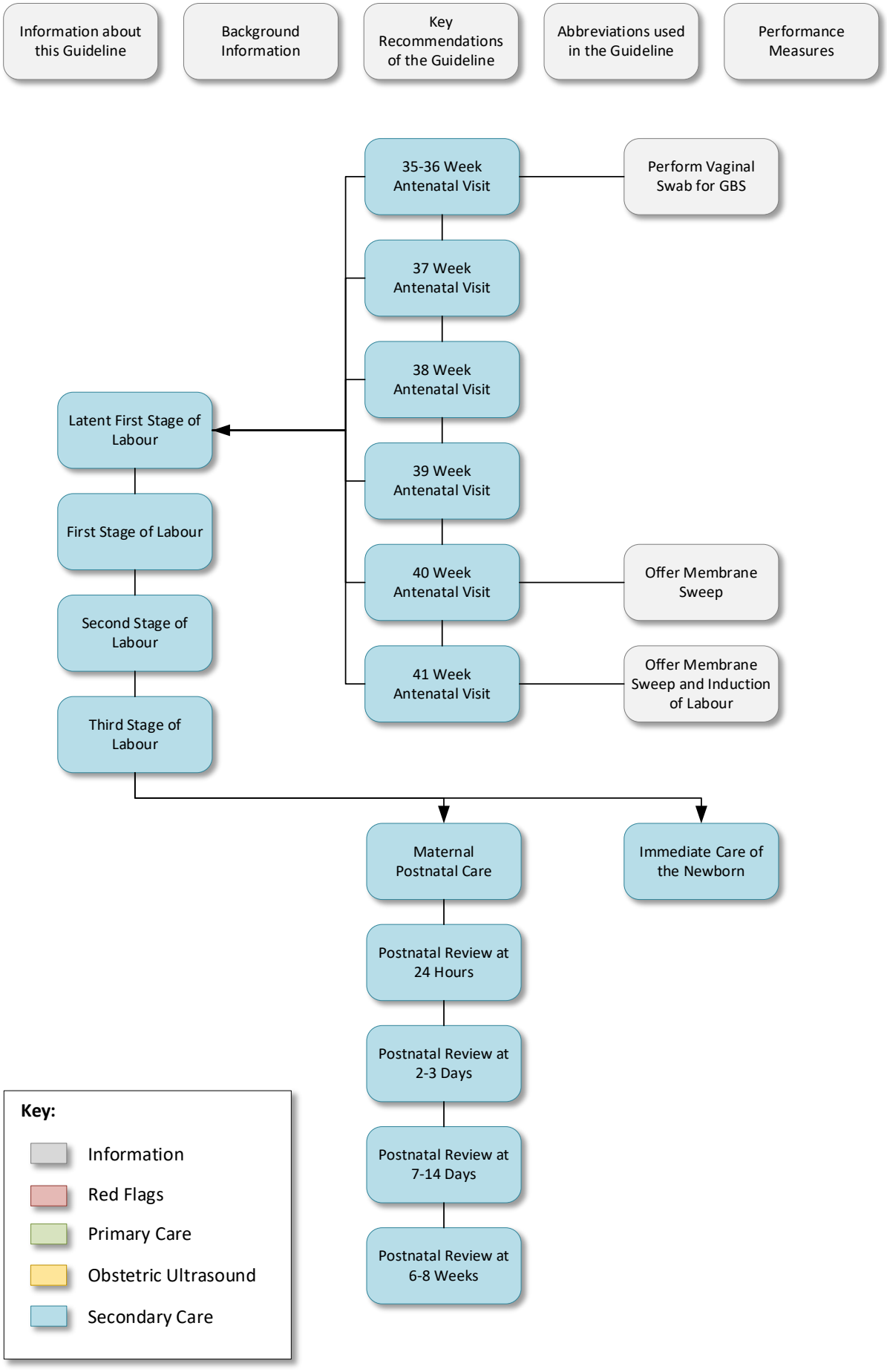
The guidance does not override individual professional responsibility to make decisions which are appropriate to the circumstances of the patient concerned. Such decisions should be made in consultation with the patient, their guardians, or carers and should consider the individual risks and benefits of any intervention that is contemplated in the patient's care.

2 Antenatal, Intrapartum and Postnatal Care Pathway

Click on a box below to see the relevant page of the Pathway.




Information about this Guideline
Background Information
Key Recommendations of the Guideline
Abbreviations used in the Guideline
Performance Measures
18-20 Week Anomaly Scan
18-22 Week Antenatal Visit
24 Week Antenatal Visit
Perform 75mg OGTT at 24-28 Weeks
28 Week Antenatal Visit
Offer First Dose of Rhesus Anti-D, if indicated
Review Criteria for Referral to Obstetrics at 28 Weeks
31 Week Antenatal Visit
32-34 Week Growth Scan
34 Week Antenatal Visit
Offer Second Dose of Rhesus Anti-D, if indicated
Refer to Obstetrics
Key:
Information
Red Flags
Primary Care
Obstetric Ultrasound
Secondary Care


Information about this Guideline
Background Information
Key Recommendations of the Guideline
Abbreviations used in the Guideline
Performance Measures
35-36 Week Antenatal Visit
Perform Vaginal Swab for GBS
37 Week Antenatal Visit
38 Week Antenatal Visit
Latent First Stage of Labour
39 Week Antenatal Visit
First Stage of Labour
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Postnatal Review at 24 Hours
Postnatal Review at 2-3 Days
Postnatal Review at 7-14 Days
Postnatal Review at 6-8 Weeks
Key:
Information
Red Flags
Primary Care
Obstetric Ultrasound
Secondary Care

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3 Key Recommendations of the Guideline

The key recommendations of this guideline are:

Background Information (*Section 4*):

- In Qatar, the current age of foetal viability on clinical grounds is considered to be ≥24^{+0} weeks gestation [**R-GDG**].

Antenatal Care (*Section 5*):

- Antenatal and intrapartum care for low-risk pregnancy can be led by an appropriately trained and certified healthcare professional, however, management of high-risk pregnancies **must** be led by an obstetrician [**R-GDG**].
- At the first antenatal care appointment, assess **all** women for the risk of developing pregnancy complications, as listed in *Section 5.1*[1].

Risk Assessment (*Section 5.1*):

- Assess **all** women for their risk of developing pre-eclampsia and refer for obstetrician led care as indicated[2–9] (see *Section 5.1.1*).

Referral Criteria for Obstetric Care (*Section 5.2*):

- Women with the conditions listed in *Section 5.*2 require additional care and must be referred for obstetrician-led care, as they are considered to have a high-risk pregnancy [1,4] [**L1, RGA**].
- All other patients with uncomplicated low risk pregnancy should be referred for obstetric care with an obstetrician at 34 weeks gestation [**R-GDG**].

Antenatal Visits (*Section 5.3*):

- During each antenatal visit, a woman should receive personalised support and guidance about pregnancy and have the opportunity to discuss her concerns and questions [10].
- In addition, the decisions and choices of a woman must be respected by the healthcare professional [10].
- A list of the antenatal visit activities for an uncomplicated low-risk pregnancy is provided in *Table 5.3.*
- Perform a 75mg OGTT at 24-28 weeks in all women to screen for gestational diabetes. Early screening is required for high risk women. For more information refer to the MOPH National Clinical Guideline on the Diagnosis and Management of Diabetes in Pregnancy [23][**R-GDG**].
- Provide two doses of Rhesus Anti-D immunoglobulin to Rhesus negative women at 28 weeks and 34 weeks gestation (See *Table 5.3*).
- Perform a vaginal swab examination to screen for GBS in all women at 35 weeks or anytime thereafter, if not performed at 35 weeks (see *Table 5.3*).
- Ensure weekly antenatal visits from 36 weeks until delivery (See *Table 5.3*).

Health Counselling (*Section 5.4*):

- Folic acid is required for all pregnant women and preferably to be started before conception and up to 12 weeks gestation to reduce the risk of neural tube defect in babies [11] [**L1, RGA**].
- Iron supplements are recommended for pregnant women to prevent maternal anaemia and low birth weight[12] [**L1, RGA**].
- Vitamin D Supplementation may be offered to all pregnant women from the second trimester as it may prevent low birthweight and diabetes [13,14] [**L1, RGA**].

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Intrapartum Care (*Section 6*):

- All deliveries should be performed in a hospital setting, under the supervision of skilled birth attendants, to reduce the risk of maternal and newborn morbidity and mortality[15].
- All healthcare professionals should ensure good beside etiquette including [**R-GDG**]:
    - Introducing themselves.
    - Communicating clearly and ensuring the patient understands the information that is communicated.
    - Explaining the examination or procedure, prior to performing it.
    - Avoiding medical jargon.
    - Ensuring privacy, dignity and confidentiality of the patient are respected and maintained.
- Where possible, the number of attending healthcare professional staff should be minimised to ensure safe care whilst minimising unnecessary disturbance of the birthing mother, especially when examining or performing bedside procedures [**R-GDG**].

Care in Established Labour (*Section 6.3*):

- Once labour is established, a woman should rarely be left alone and should be provided with one-to-one care [**R-GDG**].

Monitoring Labour (*Section 6.4):*

- Continuous CTG is recommended in all patients.
    - Intermittent auscultation of the foetal heart may also be appropriate in low risk pregnancies, provided appropriate criteria are followed and standards are adhered to [**R-GDG**].
- Organisations in Qatar should decide whether to adopt the NICHD or the NICE CTG definitions or any other standard definition and corresponding approach to management [**R-GDG**].
    - Only one method should be used according to the institution's local protocol and not a mix of both methods.
    - Whichever method is used, regular training for CTG interpretation should be employed [**R-GDG**].

First Stage of Labour (*Section 6.5*):

- The first stage of labour usually lasts up to 12 hours in nulliparous women and up to 10 hours in multiparous women [16–18].
- A delay in this stage is diagnosed if the progress of cervical dilatation is <2 cm in 4 hours in the presence of adequate uterine contractions[16–18].

Second Stage of Labour (*Section 6.6*):

- The second stage of labour may normally last up to 3 hours in nulliparous women and up to 2 hours in multiparous women[16–18].
- Nulliparous women with epidural analgesia, can be allowed an extra hour in the passive second stage[16–18].
- A delay in the active phase of the second stage of labour is characterised by insufficient progress after 2 hours in nulliparous women and 1 hour in multiparous women[16–18].
- Oxytocin is recommended for nulliparous women with inadequate contractions at the beginning of the second stage [17] [**L1, RGA**].
- An experienced obstetrician review is required when considering whether to use oxytocin in the second stage of labour [**R-GDG**].
- Applying manual fundal pressure to help with child birth is of no proven benefit or harm [16] [**L1, RGC**].

- The management and reduction of perineal trauma involves use of the 'hands on' technique (guarding the perineum and flexing the baby's head) [19,20].
- Do not carry out episiotomy routinely during a spontaneous vaginal birth. Consider episiotomy only when clinically indicated[17] [**L1, RGA**].

Third Stage of Labour (*Section 6.7*):

- Delay the umbilical cord clamping by at least 1 min and up to 3 min to improve the maternal and baby's health. However, if the baby's heart rate is <60 beats/min or if the cord's integrity is of concern, do not delay cord clamping[16–18].
- If the placenta is retained, empty the bladder but do not give oxytocic agents unless the woman is severely bleeding[16–18].
- Offer further analgesia, do a vaginal examination and consider manual removal of the placenta under adequate anaesthesia in the theatre if needed[16–18] [**R-GDG**].
- Maternal healthcare providers should always be prepared to manage PPH, even in the absence of identifiable risk factors [1].

Maternal Postnatal Care (*Section 6.9 & 7.1*):

- See *Section 6.9* for postnatal care of the mother immediately after birth.
- Women who have experienced obstetric complications e.g. pre-eclampsia, intra-uterine foetal death, 3rd or 4th degree perineal tear etc, require at least one review in the obstetric postnatal clinic with appropriate follow-up thereafter [**R-GDG**].
- All other women should have at least four contacts with either a midwife, nurse practitioner, or family medicine physician, post-delivery, at the following intervals [**R-GDG**]:
    - 24 hours.
    - 2-7 days. (best at 3 days)
    - 7-14 days. (best at 10 days)
    - 6-8 weeks.
- Women are advised to take iron and folic acid for three months post-delivery [21,22] [**L1, RGA**].
- Anti-D immunization is recommended within 72 hours of delivery for every Rhesus negative woman who gave birth to Rhesus positive baby [22].
- All women should be advised to exclusively breastfeed, if not contraindicated. The benefits and advantages of breastfeeding over formula milk should be explained [21,22].
- Women should be offered support and guidance, irrespective of their choice of feeding method [**R-GDG]**.

Immediate Care of Newborn (*Sections 6.8*):

- See *Section 6.8* for postnatal care of the newborn immediately after birth.

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4 Background Information

4.1 Definitions

Antenatal care (ANC) is defined as the care provided by skilled health-care professionals to pregnant women in order to ensure the best health conditions for both mother and baby during pregnancy. The components of ANC include [23]:

- Risk identification.
- Prevention.
- Management of pregnancy-related or concurrent diseases.
- Health education and health promotion.

The perinatal period is defined as the period from 22 completed weeks (154 days) of gestation until 7 completed days after birth [24]. In Qatar, the current age of foetal viability on clinical grounds is considered to be $\geq 24^{+0}$ weeks gestation [**R-GDG**].

Intrapartum care is defined as the care provided to the woman and the foetus from the onset of labour, until the delivery of the placenta and management of the third stage of labour[25]. For the purpose of this guideline, intrapartum care includes care of the newborn within the first hour of birth [**R-GDG**].

Postnatal care (PNC) is defined as the care provided after birth and up to 6 weeks post-delivery, to the mother and her baby [26]. This guideline will consider postnatal care of the mother and immediate care of the newborn.

Maternal mortality is defined as the death of a woman whilst pregnant or within 42 days of delivery or termination of pregnancy, from any cause related to, or aggravated by pregnancy or its management, but excluding deaths from incidental or accidental causes [27-6].

Perinatal mortality is defined as the number of stillbirths and deaths of newborn children in the first week of life [24].

Neonatal mortality is defined as the number of deaths within the first 28 days of birth.

Stillbirth is defined as a baby born with no signs of life at or after 24 weeks' gestation [**R-GDG**].

Retained placenta is defined as lack of expulsion of the placenta within 30 minutes of delivery of the infant following active management of the third stage of labour or within 60 minutes of delivery of the infant following physiological management of the third stage i.e. delivery of the placenta without the use of uterotonic agents or cord traction [44]. In the second trimester of pregnancy, the placenta is said to be retained if it is not expelled 90 – 120 minutes after delivery of the baby.

4.2 Maternal and Infant Mortality Rates

The world maternal mortality rate reached 216 deaths per 100,000 live births in 2015 due to complications during pregnancy and following delivery[28]. In Qatar, the estimated maternal mortality rate in 2018 was 3.6 deaths per 100,000 live births[29].

The neonatal mortality rate in Qatar in 2018 was estimated to be 3.8 deaths per 1,000 live births [30]

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5 Antenatal Care

To achieve a healthy pregnancy, it is essential to have regular antenatal visits, as these will help identify risk factors and offer an opportunity to manage them in order to achieve a positive outcome for both mother and child[31]. In Qatar, antenatal care for a low-risk pregnancy can be led by an appropriately trained and certified healthcare professional, however, management of high-risk pregnancies **must** be led by an obstetrician [**R-GDG**].

5.1 Risk Assessment

At the first antenatal care appointment, assess **all** women for the risk of developing pregnancy complications, including, but not limited to, assessment of [1]:

- Maternal age <18 or >35 years.
- Consanguinity.
- Current and past obstetric history, e.g.:
    - Insufficient / inadequate antenatal care.
    - Infertility treatment.
    - Multiparity (parity ≥4).
    - Previous caesarean section.
    - Instrumental delivery.
    - Isoimmunisation.
    - Antepartum haemorrhage.
    - Placenta praevia.
    - Placental abruption.
    - Pre-eclampsia (see *Section 5.1.1* below).
    - Eclampsia.
    - HELLP syndrome.
    - Foetal growth restriction.
    - Polyhydramnios.
    - Premature rupture of membranes.
    - Group B Streptococcus infection.
    - Cervical insufficiency.
    - Foetal anomalies.
- Chronic medical conditions e.g.:
    - Type 2 diabetes mellitus (T2DM) and/or Gestational DM (GDM).
    - Hypertension.
    - Obesity.
    - Thyroid disorders.
    - Mental health disorders.
    - Infections e.g. HIV, Hepatitis B, Hepatitis C.
    - Thromboembolism.
    - Thrombophilia
    - Autoimmune diseases
- Vaccination status.
- Smoking status.
- Drug or alcohol use.
- Medication use e.g.:
    - Hypoglycaemic agents.
    - Anti-epileptic drugs.
    - Opioids.
- Allergies.

See *Section 5.2* for referral criteria at booking and at later stages in the pregnancy.

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5.1.1 Risk Assessment for Pre-eclampsia

Assess **all** women for their risk of developing pre-eclampsia and refer for obstetrician led care as indicated[2–9].

The following are high-risk factors for pre-eclampsia and needs immediate referral upon booking[2–9]:

- Chronic kidney disease, or significant proteinuria at booking [6].
- Autoimmune disease such as systemic lupus erythematosus or antiphospholipid syndrome.
- Pre-existing type 1 or type 2 diabetes.
- Pre-existing chronic hypertension.

The following are moderate risk factors for pre-eclampsia and needs referral at 20 weeks or as clinically indicated[2–9]:

- First pregnancy.
- Age 40 years or older.
- Pregnancy interval of more than 10 years.
- Body mass index (BMI) of ≥35 kg/m^2 at the first antenatal visit.
- Family history of pre-eclampsia in a mother or sister [5].
- Multiple pregnancy in the current pregnancy.

5.2 Indications for Obstetric Referral

Women with the following conditions require additional care and must be referred for obstetrician-led care, as they are considered to have a high-risk pregnancy [1,4] [**L1, RGA**].

Refer the following women at the **Booking Visit** [**R-GDG**]**:**

- Known chronic conditions, including but not limited to:
  - Cardiac conditions, including hypertension.
  - Endocrine disorders, including diabetes and hyperthyroidism.
  - Renal disorders.
  - Lung disease.
  - Psychiatric disorders.
  - Epilepsy.
  - Haematological disease.
  - Autoimmune disease.
  - Cancer.
  - HIV or HBV infection.
- Women at high risk of pre-eclampsia (see *Section 5.1*)
- Family history of genetic disorders.
- Morbid obesity (BMI ≥ 40 kg/m^2) or underweight (BMI < 18 kg/m^2) [**R-GDG**].
- Aged ≥ 40 years or < 18 years.
- Multiple pregnancy.
- Women who have experienced any of the following in previous pregnancies [**R-GDG**]:
  - Recurrent miscarriage (≥2 consecutive pregnancy losses or one mid-trimester loss).
  - Baby birthweight at term of < 2.5kg.
  - Early preterm birth; stillbirth or neonatal death.
  - Baby with a congenital abnormality (structural or chromosomal).
  - Early-onset pre-eclampsia or eclampsia/HELLP Syndrome.
  - Rhesus isoimmunisation or other major blood group antibodies.

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Other indications for referral to obstetrics [**R-GDG**]:

- Multiple previous caesarean sections: **Refer to Obstetrics at 28 weeks.**

Refer the following patients at diagnosis of the underlying condition [**R-GDG**]:

- Unclear EDD, especially in patients at 3rd trimester OR if there is concern between ultrasound report and expected gestational age.
- Abnormal anomaly scan.
- Low-lying placenta on growth scan or foetal growth abnormalities.
- Pregnancy complications requiring specialist expertise.
- Women with gestational diabetes who are ≥28 weeks gestation with 2-hour postprandial glucose levels of ≥10 mmol/L (180mg/dL) on 3 consecutive days [32]. Refer to be seen within 3 days [32].
- Women with gestational diabetes who do not meet glycaemic targets within 2 weeks with dietary management (i.e. ≥20% of readings outside the normal range) [32].

NB: All other patients with uncomplicated low risk pregnancy should be referred for obstetric care with an obstetrician at 34 weeks gestation [**R-GDG**].

5.3 Antenatal Visits and Activities

During each antenatal visit, a woman should receive personalised support and guidance about pregnancy and have the opportunity to discuss her concerns and questions [10]. In addition, the decisions and choices of a woman must be respected by the healthcare professional [10]. This will promote commitment to attend visits and optimise care for each woman [10].

A list of the required antenatal visits for women of average-risk, together with the principal activities performed at each visit is provided in *Table 5.3* below.

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Visits	Consultation	Examination	Investigations	Intervention
Primary Care-Led Antenatal Care				
Booking Visit **6-8 weeks**	**Information & Advice:** • Benefits of antenatal screening. • Antenatal care pathway. • Prenatal testing. • Risks of smoking, alcohol and drug use (including medication and herbal therapies). • Hygiene. • Nutrition and diet. • Exercise and activity. • Mode of delivery. **History:** • Past obstetric history. • Past medical, surgical, and psychiatric history. • Family history. • Vaccination status. • Occupation.	**Check:** • Vital signs. • Determine body mass index (BMI). • Systematic physical examination. • Identify possible mental health issue such as depression and anxiety using suitable screening tool.	**Check:** • Confirm pregnancy by urine pregnancy test (if not previously confirmed). • Blood group, Rhesus status and red cell antibodies. • CBC. • HIV antibodies. • Hepatitis B Surface Antigen and Surface Antibody (HBsAg and HBsAb). • Hepatitis C antibodies. • Rubella IgG. • Syphilis serology (RPR titres). • Fasting blood sugar. • Urine dipstick. • Urine microscopy and culture.	**Risk Assessment:** • Risk factors for high-risk pregnancy. • VTE risk assessment. • Occupational risk if any. **Provide:** • Folic acid supplementation. • Pregnancy Care Notebook. • Pregnancy Education material.
First Trimester Ultrasound Scan **11-13 weeks**	**Assess:** • Gestational age and EDD. Use CRL of first trimester scan to determine EDD. [**R-GDG**] • Multiplicity and chorionicity. • Site of pregnancy. • Viability. • Nuchal translucency. • Nasal bone.			

View Pathway

Visits	Consultation	Examination	Investigations	Intervention
11-13 weeks (after Ultrasound)	**Review:** • Risk assessment (see *Section 5.1*). • Symptoms of pregnancy. • Test results from booking visit. • First Trimester Ultrasound Scan results. • Concordance with supplements and medication.	**Check:** • Vital signs. • Weight.	**Check:** • Urine dipstick.	**Provide:** • Iron supplementation. • Vitamin D supplementation.
Anomaly Scan **18-22 weeks**	**Assess**[33]**:** • Foetal Biometry: ○ Bi-Parietal Diameter, Head Circumference, Abdominal Circumference/Diameter, Femur-Diaphysis Length, Estimated Foetal Weight). • Amniotic Fluid Assessment. • Anatomical Survey.			
18-22 weeks (after Ultrasound)	**Review:** • Symptoms of pregnancy. • Review Anomaly Scan results.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Auscultate foetal heart.	**Check:** • Urine dipstick.	
24 weeks	**Review:** • Symptoms of pregnancy. • Educate about monitoring foetal movements. • Educate about when to visit emergency department (e.g. signs of bleeding, unusual pain, signs of preterm labour, fever, offensive discharge).	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Auscultate foetal heart.	**Check:** • Urine dipstick. • 75mg OGTT (at 24-28 weeks).	

Visits	Consultation	Examination	Investigations	Intervention
28 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • OGTT results.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Auscultate foetal heart. • Identify possible depression using *Edinburgh Post Natal Depression Scale*.	**Check:** • Urine dipstick. • CBC. • Atypical red cell alloantibodies. • Rhesus antibodies.	**Provide:** • First dose of Anti-RhD Immunoglobulin, if mother is Rhesus negative. • Reassess VTE risk.
31 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Auscultate foetal heart.	**Check:** • Urine dipstick.	
Growth Scan ^{32}-34 weeks	**Assess:** • Foetal biometry. • Amniotic fluid volume. • Placenta position. • Foetal presentation.			
34 weeks (after Ultrasound)	**Review:** • Symptoms of pregnancy. • Foetal movements. • Review Growth Scan results. • Discuss mode and timing of delivery. • Birth plan.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Auscultate foetal heart.	**Check:** • Urine dipstick.	**Provide:** • Second dose of Anti-RhD Immunoglobulin, if mother is Rhesus negative. **Refer to Obstetrician for further Antenatal Care.**

View Pathway

Visits	Consultation	Examination	Investigations	Intervention
Obstetrician-Led Antenatal Care				
35-36 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • Discuss mode and timing of delivery. • Birth Plan and options for birth. • Breastfeeding. • Care of the newborn. • Vitamin K prophylaxis. • Newborn screening tests. • Postnatal care. • Postnatal depression.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Foetal presentation and lie. • Auscultate foetal heart.	**Check:** • Urine dipstick. • Vaginal swab for Group B Streptococcus culture (can be done at any time after 35 weeks until delivery).	
37 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • Results of Group B Streptococcus screening. • Birth Plan. • Options for birth.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Foetal presentation and lie. • Auscultate foetal heart.	**Check:** • Urine dipstick.	**Perform:** • Consider ECV, if indicated.
38 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • Birth Plan. • Options for birth.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Foetal presentation and lie. • Auscultate foetal heart.	**Check:** • Urine dipstick.	

View Pathway

Visits	Consultation	Examination	Investigations	Intervention
39 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • Birth Plan. • Options for birth.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Foetal presentation and lie. • Auscultate foetal heart.	**Check:** • Urine dipstick.	
40 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • Birth Plan. • Options for birth. • Counsel for options for Induction of Labour. • Book Induction between 40^{+7} weeks and 40^{+10} weeks.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Foetal presentation and lie. • Auscultate foetal heart.	**Check:** • Urine dipstick.	**Offer:** • Membrane sweep.
41 weeks	**Review:** • Symptoms of pregnancy. • Foetal movements. • Discuss CTG and ultrasound monitoring in women who refuse Induction of Labour.	**Check:** • Vital signs. • Weight. • Lower limb oedema. • Symphyseal-Fundal Height. • Foetal presentation and lie. • Auscultate foetal heart.	**Check:** • Urine dipstick.	**Offer:** • Membrane sweep. • Induction of Labour, if membrane sweep fails to trigger labour. • CTG and ultrasound monitoring in women who refuse Induction of Labour.

Table 5.3: Antenatal Visit and Ultrasound Schedule in a Low Risk Pregnancy [1,34,35] .

Green boxes indicate Primary Care based activities.
Grey boxes indicate ultrasound scans.
Blue boxes indicate Secondary Care activities.

5.4 Health Counselling

Pregnancy requires making some adjustments to the lifestyle and daily habits, to ensure safer and healthier conditions for the mother and foetus.

5.4.1 Work

In general, it is safe for a pregnant woman to continue working, providing she does not have any complication that prevents her from doing so[36]. Moreover, the type of occupation and the activities performed at work should be discussed with the healthcare provider, to identify possible occupational hazard [36] [**L2, RGA**].

5.4.2 Weight Gain During Pregnancy

Excess weight gain or little weight gain during pregnancy can affect the well-being of the woman and the child. The recommended weight gain among underweight, normal weight, overweight, and obese women is represented in *Table 5.4.2*[37] [**L3, RGA**]. It is based on the prenatal BMI and is independent of age, race, parity or ethnic background[37].

These values differ for pregnant women with gestational diabetes. For more information refer to the MOPH National Clinical Guideline on the *Diagnosis and Management of Diabetes in Pregnancy* [32].

Weight Category	Prenatal BMI	Total Recommended Weight Gain (kg)	Recommended Weight Gain per week in 2nd and 3rd Trimester (kg)
Underweight	< 18.5	12.7 – 18.1	0.5
Normal	18.5 – 24.9	11.3 – 15.9	0.5
Overweight	25 – 29.9	6.8 – 11.3	0.3
Obese	≥ 30	5 – 9.1	0.2

Table 5.4.2: Acceptable weight gain in pregnancy[32].

5.4.3 Supplements and Nutrition

Pregnant women are advised to take various supplements depending on their needs. These include:

- **Folic acid:**
  - Required for all pregnant women and preferably to be started before conception and up to 12 weeks gestation to reduce the risk of neural tube defect in babies [11] [**L1, RGA**].
  - Recommended dose is [23]:
    - 400µg to 1mg per day in low-risk pregnancy.
    - 5mg per day in high-risk pregnancy (e.g. diabetes, morbidly obese, history of epilepsy or on anti-epileptic medication, history of neural tube defect in previous pregnancy).
- **Iron:**
  - Iron is recommended for pregnant women to prevent maternal anaemia and low birth weight[12] [**L1, RGA**].
  - Recommended minimum dose [23]:
    - 30mg per day after 12 weeks gestation.

  - Higher doses may be prescribed for those with iron deficiency anaemia however, undesirable maternal side effects should be taken into consideration[12].
- **Vitamin D**:
  - Supplementation may be offered to all pregnant women from the second trimester as it may prevent low birthweight and has been associated with lower blood glucose levels[13,14] [**L1, RGA**].
  - Recommended dose of ergocalciferol is 1,000 IU once per day[34].

In addition to supplements, women are advised to:

- Maintain a balanced healthy diet during pregnancy.
- Avoid high caffeine intake, >300mg/day (2-3 cups of coffee), as this can increase the risk of miscarriage and low birthweight [23] [**L1, RGA**].
- Drink 6-8 cups of water per day to maintain adequate hydration during pregnancy [**R-GDG**].

5.4.4 Hygiene

Women should take special precautions to decrease the risk of infections such as listeriosis, salmonella infection, cytomegalovirus and toxoplasmosis, including [4]:

- Washing hands before handling food and before eating [**L1, RGA**].
- Thoroughly washing all fruits and vegetables before eating [**L1, RGA**].
- Wear gloves to do gardening work and handling soil and washing hands afterwards [**L1, RGA**].
- Avoid uncooked or undercooked meat [**L1, RGC**].
- Avoid raw or undercooked eggs or raw egg-containing products [**L1, RGC**].
- Avoid eating pâté [**L1, RGC**].
- Avoid soft cheese or any unpasteurized cheese [**L1, RGC**].
- Consume pasteurized or UHT milk only [**L1, RGA**].
- Avoid handling cat litter [4].
- Avoid sharing utensils with babies [**R-GDG**].

5.4.5 Prescribed Medication

The use of prescribed medicines, over-the-counter medicines and complimentary therapies should be avoided and only used after consultation with a healthcare professional when the benefits outweigh the risk[4] [**L1, RGC**].

5.4.6 Exercise

Moderate prenatal exercise e.g. a minimum of 30 minutes walking per day, does not increase the risk of miscarriage and is in fact recommended during pregnancy as it decreases the risk of pre-term birth. However, contact or high-impact sports are not recommended[38,39] [**L1, RGA**].

5.4.7 Air Travel and Car Travel

Prior to any air travel, a woman should discuss the risk of travel with her care provider and receive appropriate travel vaccinations, if needed. Pregnant women are encouraged to drink plenty of water and move regularly during the flight [**R-GDG**]. Women are also advised to wear compression stockings to reduce the risk of thrombosis during long distance air travel [4] [**L1, RGA**].

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Women with uncomplicated singleton pregnancies are generally able to fly safely until 36 weeks gestation [4]. A letter from a doctor confirming good health, normal pregnancy and the expected date of delivery should be carried after 28 weeks of pregnancy when travelling [4]. Some airlines may require medical clearance for women expected to deliver <4 weeks after the flight departure date or if any complications may be expected [4].

As different airlines have different policies and restrictions with respect to air travel in pregnancy and therefore the pregnant woman should be advised to contact the airline well in advance of travel to determine what restrictions apply or information required [4].

During car travel, a woman should be advised to wear the car seatbelt correctly i.e. above and below the pregnant abdomen, but not over it [4] [**L1, RGA**].

5.4.8 Vaccinations

Vaccination history should ideally be checked during the pre-pregnancy period as part of pre-conceptual counselling of those women planning to become pregnant [**R-GDG**]. If a pregnant woman is found to be inadequately vaccinated or unvaccinated, the following vaccines can be given safely during pregnancy [40]:

- Tetanus, diphtheria and pertussis (Tdap)
- Annual influenza vaccine (influenza IIV):
    - Administered in the winter season each year (March to October).
- Other vaccines that can be considered on a case by case basis or based on the doctor's advice, include:
    - Hepatitis A vaccine.
    - Hepatitis B vaccine.
    - Meningitis C vaccine.
    - Travel vaccines.

NB:

- Healthcare professionals should check the individual safety of any particular vaccine for administration during pregnancy and offer the pregnant woman an informed choice on whether to have the vaccine [**R-GDG**].
- Any outstanding vaccinations that cannot be administered during pregnancy, should be provided to the mother in the postnatal period [**R-GDG**].

5.4.9 Nausea and Vomiting

Nausea and vomiting usually subside by 16-20 weeks of pregnancy, however if a woman is uncomfortable with these symptoms, she can be offered either non-pharmacological agents such as ginger and chamomile[6] or pharmacological treatments such as antiemetics or vitamin B6[41] [**L1, RGA**].

5.4.10 Heartburn

Heartburn in pregnancy could be avoided by altering diet and lifestyle. If this fails, antacids approved for use in pregnancy can be prescribed to relieve the symptoms[42] [**L1, RGA**].

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5.4.11 Constipation

To treat constipation, women are encouraged to introduce light physical activity to enhance bowel movement and to modify their diet by increasing fluid intake and consuming wheat bran and other dietary fibres[43] [**L1, RGA**].

5.4.12 Haemorrhoids

The main advice given to pregnant women who have haemorrhoids is to modify their lifestyle and diet with increased dietary fibre and drink plenty of water. If this fails, haemorrhoid creams can be offered to relieve symptoms [4] [**L1, RGA**].

5.4.13 Varicose Veins and Oedema

The management of varicose veins and oedema mainly involves non-pharmacological options such as wearing compression stockings and leg elevation[44] [**L1, RGA**]. Women should also be advised to avoid excessive weight gain and standing stationary for long periods of time [34].

5.4.14 Vaginal Discharge

Increased vaginal discharge is a common symptom in pregnancy, however if the discharge is associated with pain on passing urine, a foul smell, or itching sensation[4] then an infection should be excluded by further investigation. Advise wearing loose-fitting, cotton underwear to avoid vulvovaginal candidiasis [34].

5.4.15 Backache

Advise avoidance of lifting heavy objects and maintenance of upright posture [34]. Different forms of exercise such as exercising in water, massage, physiotherapy and yoga can also be offered for persistent low back pain[45] [**L1, RGA**].

5.4.16 Leg Cramps

Pregnant women experiencing leg cramps can be advised to use leg stretching exercises, massage and rest [**R-GDG**].

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6 Intrapartum Care

The main goal of intrapartum care is to ensure that birth is not only safe but a positive experience for women and their families and reduce unnecessary interventions during labour and childbirth, resulting in the best physical, emotional and psychological outcomes for mother and baby [**R-GDG**].

6.1 General Care During Labour

All deliveries should be performed in a hospital setting, under the supervision of skilled birth attendants, to reduce the risk of maternal and newborn morbidity and mortality[15].

Care providers are advised to establish a caring and respectful relationship with a woman in labour, by asking her about her needs and expectations and involving her in deciding the course of her care [16,17].

All healthcare professionals should ensure good beside etiquette including [**R-GDG**]:

- Introducing themselves.
- Communicating clearly and ensuring the patient understands the information that is conveyed.
- Explaining the examination or procedure, prior to performing it.
- Avoiding medical jargon.
- Ensuring privacy, dignity and confidentiality of the patient are respected and maintained.

Where possible, the number of attending healthcare professional staff should be minimised to ensure safe care whilst minimising unnecessary disturbance of the birthing mother, especially when examining or performing bedside procedures [**R-GDG**].

A woman in the first stages of labour is advised to move freely, if it is safe to do so [**R-GDG**] and she feels comfortable[17,18][**L1, RGA**].

Good hygiene measures should be maintained throughout labour and childbirth to avoid cross-contamination, by [**R-GDG**]:

- Staff hand hygiene.
- Cleaning the perineum before vaginal examination.
- Single use of sterile gloves in both hands.
- Use of personal protective equipment based on the risk of transmission.

6.2 Latent First Stage of Labour

The latent first stage of labour is defined as the period when a woman experiences painful irregular uterine contractions and cervical dilatation up to 6cm[46]. The duration of this stage is not well defined and may differ from one woman to another[47].

The initial assessment involves observations of the woman and her unborn baby. Every woman in this phase should be asked about the intensity and frequency of the contractions and offered pain management options [16–18]. In addition, the healthcare provider should perform [**R-GDG**]:

- Vital signs.
- Urinalysis.
- Note any vaginal loss.
- Offer a vaginal examination, if indicated.
- Discuss the movement of the baby in the last 24 hours.
- Assess fundal height, presentation, position, lie and engagement.

- Perform a 20-30-minute CTG on admission.
- Discharge home or offer admission if there is a significant risk of giving birth outside the hospital setting.

6.3 Care in Established Labour

Labour is established when there is regular painful uterine contractions with cervical changes after 5cm cervical dilation (WHO). It is sometimes considered established at a range of 4–6cm cervical dilatation with regular painful uterine contractions Once labour is established, a woman should rarely be left alone and should be provided with one-to-one care [**R-GDG**].

A woman during this phase is advised to have fluids and a light diet, providing she has not received opioids or has a complication that might require general anaesthesia at a later stage [16–18] [**L1, RGA**].

6.3.1 Pain Relief

A wide range of pain management options are available for a woman in labour, including [16–18] [**L1, RGA**]:

- Breathing and relaxation techniques.
- Massage techniques performed by the companion.
- Birthing ball, if available.
- Hydrotherapy, if available.
- Inhalation analgesia (Entonox).
- Intramuscular opioids.
- Epidural analgesia.

6.3.1.1 Epidural Analgesia

Epidural is a more effective analgesic than all the options mentioned in *Section 6.3.1*[16–18] [**L1, RGA**].

The woman should be informed that epidural analgesia [16–18]:

- Does not cause long-term backache.
- Does not prolong the first stage of labour.
- Does not affect the risk of having a C-section.
- May prolong the second stage of labour.
- Increases the risk of vaginal instrumental birth.
- Reduces mobility during labour.
- Requires appropriate monitoring and intravenous access.
- Requires written informed consent.

Epidural analgesia can be maintained until the end of the third stage of labour and throughout perineal repair [17].

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6.4 Monitoring Labour

Continuous Cardiotocograph (CTG) monitoring is recommended in all patients. Intermittent auscultation of the foetal heart may also be appropriate in low risk pregnancies, provided appropriate criteria are followed and standards are adhered to [**R-GDG**].

If intermittent auscultation is to be performed in the in the first stage of labour [17]:

- Perform auscultation before, during and 1 minute after a contraction, **at least every 15 minutes,** and record it as a single rate.
- Palpate the maternal pulse **hourly** (or more often if there are any concerns).
- Record accelerations and decelerations if heard.

If intermittent auscultation is to be performed in the second stage of labour [17]:

- Perform auscultation before, during and 1 minute immediately after a contraction, **at least every 5 minutes,** and record it as a single rate.
- Palpate the maternal pulse **every 15 minutes.**
- Record accelerations and decelerations if heard.

Organisations in Qatar should decide whether to adopt the NICHD or the NICE CTG definitions and corresponding approach to management [**R-GDG**]. Only one method should be used according to the institution's local protocol and not a mix of both methods. Whichever method is used, regular training for CTG interpretation should be employed [**R-GDG**].

6.4.1 US NICHD FHR Definitions and Management

The *US National Institute of Child Health & Human Development* (NICHD) recommends the following approach to definitions, interpretation and management of CTG monitoring, as described below [48]:

Pattern	Definition

Baseline	• The mean FHR rounded to increments of 5 bpm during a 10-minute segment, excluding:
	  ○ Periodic or episodic changes.
	  ○ Periods of marked FHR variability.
	  ○ Segments of baseline that differ by more than 25 bpm.
	• The baseline must be for a minimum of 2 minutes in any 10-minute segment, or the baseline for that time frame
	• is indeterminate. In this case, one may refer to the prior 10-minute window for determination of baseline.
	• Normal FHR baseline: 110–160 bpm.
	• Tachycardia: FHR baseline is greater than 160 bpm.
	• Bradycardia: FHR baseline is less than 110 bpm.

Baseline Variability	• Fluctuations in the baseline FHR that are irregular in amplitude and frequency.
	• Variability is visually quantitated as the amplitude of peak-to-trough in bpm.
	  ○ Absent: Amplitude range undetectable
	  ○ Minimal: Amplitude range detectable but ≤5 bpm
	  ○ Moderate (normal): Amplitude range 6–25 bpm
	  ○ Marked Amplitude range greater than 25 bpm

Acceleration	• A visually apparent abrupt increase (onset to peak in less than 30 seconds) in the FHR. • At 32 weeks of gestation and beyond, an acceleration has a peak of ≥15 bpm above baseline, • with a duration of ≥15 seconds but less than <2 minutes from onset to return. • Before 32 weeks of gestation, an acceleration has a peak of ≥10 bpm above baseline, with a • duration of ≥10 seconds but less than <2 minutes from onset. • Prolonged acceleration lasts ≥2 minutes but <10 minutes in duration. • If an acceleration lasts ≥10 minutes, it is a baseline change.

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Pattern	Definition
Early Deceleration	• Visually apparent usually symmetrical gradual decrease and return of the FHR associated with a uterine contraction. • A gradual FHR decrease is defined as from the onset to the FHR nadir of ≥30 seconds. • The decrease in FHR is calculated from the onset to the nadir of the deceleration. • The nadir of the deceleration occurs at the same time as the peak of the contraction. • In most cases, the onset, nadir, and recovery of the deceleration are coincident with the beginning, peak, and ending of the contraction, respectively.
Late Deceleration	• Visually apparent, usually symmetrical, gradual decrease and return of the FHR associated with a uterine contraction. • A gradual FHR decrease is defined as from the onset to the FHR nadir of ≥30 seconds. • The decrease in FHR is calculated from the onset to the nadir of the deceleration. • The deceleration is delayed in timing, with the nadir of the deceleration occurring after the peak of the contraction. • In most cases, the onset, nadir, and recovery of the deceleration occur after the beginning, peak, and ending of the contraction, respectively.
Variable Deceleration	• Visually apparent abrupt decrease in FHR. • An abrupt FHR decrease is defined as from the onset of the deceleration to the beginning of the FHR nadir of < 30 seconds. • The decrease in FHR is calculated from the onset to the nadir of the deceleration. • The decrease in FHR is ≥15 bpm, lasting ≥15 seconds, and <2 minutes in duration. • When variable decelerations are associated with uterine contractions, their onset, depth, and duration commonly vary with successive uterine contractions.
Prolonged Deceleration	• Visually apparent decrease in the FHR below the baseline. • Decrease in FHR from the baseline that is ≥15 beats per minute, lasting ≥2 minutes, but <10 minutes in duration. • If a deceleration lasts ≥10 minutes, it is a baseline change.
Sinusoidal Pattern	• Visually apparent, smooth, sine wave-like undulating pattern in FHR baseline with a cycle frequency of 3–5 per minute which persists for ≥20 minutes.

Table 6.4.1(1): NICHD Definitions for CTG Interpretation [48].

The following table outlines the NICHD's three-tiered approach to categorisation of CTG findings and corresponding management [48].

Category	CTG Findings	Management
Category I	All of the following: • Baseline rate: 110–160 bpm • Baseline FHR variability: Moderate • Late/Variable decelerations: Absent • Early decelerations: Present or Absent • Accelerations: Present or Absent	• Routine Management.
Category II	• FHR tracings includes all FHR tracings not categorized as Category I or Category III.	• Continued Monitoring and Surveillance. • Intrauterine resuscitative measures. • Manage as per Category III, if trace deteriorates.

Category III	Either:
	• Sinusoidal Pattern, or:
	• Absent baseline FHR variability with either:
	  ○ Recurrent late decelerations; or:
	  ○ Recurrent variable decelerations, or:
	  ○ Bradycardia.
		• Prepare for delivery and perform intrauterine resuscitative measures.
		• If no improvement, promptly deliver baby.
		• Timing and mode of delivery based on feasibility and materno-foetal status.

Table 6.4.1(2): Three-tiered FHR Interpretation System [48].

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6.4.2 UK NICE Definitions and Management

The *UK National Institute of Health and Clinical Excellence* (NICE) recommends using the following approach to CTG definition, interpretation and management, as described in the following tables[16–18].

Foetal Baseline Heart Rate	Baseline Variability	Decelerations	Categorisation
110–160 bpm	5–25 bpm	• None or early variable decelerations with no concerning characteristics for <90 min.	**Reassuring**
100–109 bpm Or: 161-180 bpm	<5bpm For 30–50 min Or: >25 bpm For 15-25 min	Any of the following: • Variable decelerations of non-concerning nature for > 90 min. • Variable decelerations with concerning characteristics in up to 50% of uterine contractions for ≥30 min. • Variable decelerations with concerning characteristics in more than 50% of uterine contractions for <30 min. • Late decelerations in more than 50% of uterine contractions for < 30 minutes with no foetal or maternal risk factors.	**Non-Reassuring**
<100 bpm Or: >180 bpm	<5 bpm For >50 min Or: >25 bpm For >25 min Or: Sinusoidal	Any of the following: • Variable decelerations with concerning characteristics in more than 50% of uterine contractions for 30 min or less if any foetal or maternal risk factors are present. • Late decelerations for 30 min or less if any foetal or maternal risk factors are present. • Acute bradycardia, or 1 prolonged deceleration lasting for ≥3 min.	**Abnormal**

Table 6.4.2(1): Interpretation of the CTG results.

The following table outlines NICE's approach to management of CTG traces categorised in *Table 6.4.2(1)* above.

CTG Trace	Interpretation	Management
Reassuring Features	Normal	• Continue CTG and regular care
1 Non-Reassuring and 2 Reassuring Features	Suspicious	• Manage the cause such as hypotension or uterine hyperstimulation. • Start full maternal observations. • Review the CTG results in accordance with the clinical findings. • Initiate at least one intrauterine resuscitative measure.
1 Abnormal or 2 Non-Reassuring Features	Pathological	• Rule out cord prolapse, placental abruption or uterine rupture. • Manage the cause such as hypotension or uterine hyperstimulation. • Initiate at least one intrauterine resuscitative measure. • If no improvement, offer digital foetal scalp stimulation. • If no improvement, perform foetal blood sampling and consider accelerating the birth.
Acute Bradycardia or 1 Prolonged Deceleration For ≥3 min	Requires Urgent Intervention	• Manage the cause such as hypotension or uterine hyperstimulation. • Initiate at least one conservative measure. • Expedite the birth in case of cord prolapse, placental abruption or uterine rupture. • Prepare for urgent birth. • If bradycardia lasts for ≥9 min, accelerate the birth. • Reconsider the decision if the FHR recovers before 9 min.

Table 6.4.2(2). Interpretation and Management by CTG trace.

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6.4.3 Intra-Uterine Resuscitative Measures

Intra-uterine resuscitative measures include [48]:

- Lateral positioning (left or right side).
- Intravenous fluid bolus.
- Discontinuation of oxytocin or cervical ripening agents.
- Administration of tocolytic agents.

Facial oxygen can be used where it is administered for maternal indications e.g. hypoxia, or as part of preoxygenation before a potential anaesthesia [17].

6.4.4 Foetal Blood Sampling

Foetal blood sampling should not be performed in the following cases [17] [**L1, RGC**]:

- Presence of an acute event such as cord prolapse or suspected placental abruption or uterine rupture.
- Risk of maternal-to-foetal transmission of infection.
- Risk of foetal bleeding disorders.
- The birth is expedited based on the clinical presentation.
- During or immediately after a prolonged deceleration.
- Preterm delivery of <34 weeks [49]

Results of blood sampling must be interpreted with additional care for women with sepsis or significant meconium [17]. Consider a foetal heart acceleration during the procedure as a positive indicator even if blood cannot be collected [17]. However, management of the patient should consider the patient's entire clinical context [**R-GDG**].

Description	pH	Lactate (mmol/L)	Management
Normal	≥7.25	≤4.1	If no heart rate acceleration following scalp stimulation, and the CTG trace has not improved, take a second sample within 1 hour of the first.
Borderline	7.21 – 7.24	4.2 – 4.8	If no heart rate acceleration following scalp stimulation, and the CTG trace has not improved, take a second sample within 30 min of the first.
Abnormal	≤7.20	≥4.9	Expedite the birth.

Table 6.4.4: Foetal blood sample results and related management [44, 50].

NB: A base excess more than or equal to 12 is associated with cerebral palsy

6.4.5 Rupture of Membranes

A speculum examination should be offered to determine prelabour membrane rupture, if a woman is uncertain of such occurrence[17]. Once prelabour rupture of membranes is confirmed, digital examination should be avoided unless immediate induction is planned [**R-GDG**]. Speculum examination may give an idea of cervical dilatation in such cases [**R-GDG**].

Most women with a prelabour rupture of membranes at term will go into active labour within 24 hours. If labour does not start after that time, an induction of labour is recommended [16–18] [**L1, RGA**]. In cases of GBS-positive screening, offer immediate induction of labour as soon as reasonably possible [16–18].

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During the phase between membrane rupture and induction of labour, a woman should not have lower vaginal swabs except where GBS screening have not been previously performed. Body temperature and maternal pulse should be measured every 4 hours, during waking hours, and any changes in the colour or smell of vaginal discharge should be reported [17] [**L1, RGA**].

6.5 First Stage of Labour

The first stage of labour is defined as the period associated with regular painful contractions and cervical dilatation progression from 4cm until full dilatation [16–18]. It usually lasts up to 12 hours for nulliparous women and up to 10 hours among multiparous women [16–18].

Routine examination during the first stage of labour involves [16–18] [**L1, RGA**]:

- Assess the frequency of uterine contractions every 30 min.
- Examine maternal pulse every 1 hour.
- Blood pressure and temperature no more than 4 hours between measurements.
- Assessment of urine frequency, preferably every 2-3 hours [**R-GDG**].
- Vaginal examination every 4 hours and when clinically indicated.
- Amniotomy is not routinely recommended when labour progresses at a normal rate.
- Early amniotomy and oxytocin are not routinely recommended.

A delay in this stage is diagnosed if the progress of cervical dilatation is <2 cm in 4 hours in the presence of adequate uterine contractions[16–18]. Management of this requires:

- Amniotomy for women with unruptured membranes.
- Use of Oxytocin as per the institutional protocol.

The use of oxytocin will shorten the labour time, while increasing the intensity of the contractions. Thus, pain management options should be encouraged at this stage[17]. Continuous foetal monitoring is recommended [17].

In multiparous women with confirmed delay in the established first stage of labour, an obstetrician should perform a full assessment, before a decision is made about using oxytocin [17].

6.6 Second Stage of Labour

The second stage of labour is divided into passive and active stages [17]:

- The passive stage involves:
  - Full dilation of the cervix without involuntary expulsive contractions.
- The active stage involves:
  - Full dilation of the cervix with expulsive contractions; or
  - Visibility of the baby; or
  - Maternal effort following confirmation of full dilatation of the cervix, in the absence of expulsive contractions.

The second stage of labour may normally last up to 3 hours in nulliparous women and up to 2 hours in multiparous women[16–18]. Nulliparous women with epidural analgesia, can be allowed an extra hour in the passive second stage[16–18].

Routine examination during the second stage of labour involves [16–18] [**L1, RGA**]:

- Assess the frequency of contractions every 30 min.
- Measure blood pressure every 1 hour.

- Consider and offer a vaginal examination every 1 hour during the active second stage.
- Assess the effectiveness of pushing.
- Assess the foetal position, station and wellbeing.
- Evaluate the foetal heart rate during and after a contraction for 1 min at least every 5 min.
- Palpate the woman's pulse every 15 min.
- Wait for 2-3 hr for multipara and 4 hr for primipara if there is no urge to push and in the presence of optimum maternal and foetal condition.

A delay in the active phase of the second stage of labour is characterised by insufficient progress after 2 hours in nulliparous women and 1 hour in multiparous women[16–18]. For management in this case, amniotomy should be offered, if the membranes are intact[17].

Oxytocin is recommended for nulliparous women with inadequate contractions at the beginning of the second stage [17] [**L1, RGA**]. An experienced obstetrician review is required when considering whether to use oxytocin in the second stage of labour regardless of parity. [**R-GDG**].

Encourage and help the woman to move and adopt whatever position she feels comfortable throughout labour. [17] [**L1, RGA**]. Moreover, the woman should follow her urge to push at this phase [17].

Applying manual fundal pressure to help with child birth is of no proven benefit or harm[16] [**L1, RGC**].

The management and reduction of perineal trauma involves [17] [**L1, RGA**]:

- Use of the 'hands on' technique (guarding the perineum and flexing the baby's head) [19,20].
- Not doing perineal massage.
- Not using lidocaine spray.
- Application of a warm compress [51].
- Do not carry out episiotomy routinely during a spontaneous vaginal birth. Consider episiotomy only when clinically indicated.
    - An episiotomy may be performed if instrumental birth is required [16–18] [**L1, RGA**].
    - In this case, effective anaesthesia is required and the episiotomy should ideally be performed mediolaterally, from the vaginal fourchette and directed to the right[17].
    - An angle of 60^{o} from the midline is recommended [52].
    - Do not offer episiotomy routinely after previous third- or fourth-degree trauma [**R-GDG**].

When an expedited birth is planned, consider the following [16–18]:

- Findings of abdominal and vaginal examinations.
- Degree of urgency.
- Appropriate mode of birth.
- In case of instrumental birth[53]:
    - The choice of tool - forceps or Ventouse depending on the clinical presentation and the expertise of the practitioner.
    - The possibility of success.
- The woman's choice.
- Additional pain management options.

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6.7 Third Stage of Labour

The third stage of labour is defined as the time between child birth and the expulsion of the placenta and control of bleeding [16–18]. The active management of this stage involves [16–18] [**L1, RGA**]:

- Use of uterotonic drugs (e.g. IM oxytocin), ideally on delivery of the anterior shoulder, to prevent postpartum haemorrhage (PPH).
- Delay the umbilical cord clamping by at least 1 min and up to 3 min to improve the maternal and baby's health, if maternal and baby' conditions are not of concern.
- Perform controlled cord traction after signs of separation of the placenta, to reduce blood loss and the length of the third phase.
- Evaluate the wellbeing of the woman and the vaginal blood loss.

If the placenta is retained, empty the bladder but do not give oxytocic agents unless the woman is severely bleeding. Offer further analgesia, perform a vaginal examination and consider manual removal of the placenta under adequate anaesthesia in the theatre if needed[16–18] [**R-GDG**].

NB: See *Section 4.1* for definition of retained placenta.

6.7.1 Postpartum Haemorrhage

The following women are at higher risk of post-partum haemorrhage (PPH) [17,54,55]:

- Low maternal haemoglobin at labour (Hb <9 g/dL).
- Multiparity (parity ≥4) [**R-GDG**].
- Maternal age ≥35 years.
- BMI >35 kg/m^2.
- Previous retained placenta or PPH.
- Antepartum haemorrhage.
- Low lying or abnormal placenta.
- History of uterine abnormalities.
- Prolonged stages of labour.
- Induction of labour.
- Oxytocin augmentation.
- Instrumental birth or C-section.
- Overdistension of the uterus (polyhydramnios, macrosomia, multiple pregnancy).
- Precipitate labour.
- Maternal bleeding diathesis.

Maternal healthcare providers should always be prepared to manage PPH, even in the absence of identifiable risk factors [1].

In case of PPH, initiate resuscitative measures and follow local protocols. If pharmacological measures fail to control the haemorrhage, surgical interventions should be initiated sooner rather than later [54].

6.8 Immediate Care of the Newborn

After delivery, encourage skin-to-skin contact between the mother and baby immediately while drying and covering the baby with a warm towel or blanket [16–18]. Avoid any unnecessary separation during the first hour of birth and advise the woman to breastfeed the baby [16–18]. In the care of the new born the following should be performed [16–18]:

- Apgar score at 1 min and 5 min.
- Record the time from birth until normal breathing.
- Measure weight, head circumference and length.
- Measure temperature.
- Examine any physical abnormality.

If the baby has abnormal breathing, heart rate or tone, perform neonatal resuscitation, collect cord blood samples to measure blood gas and continue to monitor until the baby's condition returns to normal [16–18].

In case of meconium, aspiration from the nasopharynx or oropharynx is only recommended after the delivery of the shoulders and trunk, and when the baby's respiration, heart rate and tone are abnormal[16–18]. If the degree of meconium was not significant, monitor the baby at 1 hour and 2 hours of birth. If the degree of meconium was significant, perform early laryngoscopy and suction under direct vision. Monitor at 1 hour, 2 hours and every 2 hours thereafter until 12 hours post-birth[16–18].

The following findings are concerning and a full assessment by a neonatologist is required [16–18]:

- Temperature ≥38°C on one occasion, or ≥37.5°C on at least two occasions, 30 minutes apart.
- Heart rate <100 beats/min or >160 beats/min.
- Oxygen saturation <95%.
- Respiratory rate >60 per min.
- Grunting.
- Capillary refill time >3 seconds.
- Central cyanosis confirmed by pulse oximetry.

Babies of woman with prelabour rupture of membranes (24 hours before the onset of established labour) should be monitored at 1 hour, 2 hours, 6 hours and 12 hours of birth for the following [16–18]:

- Temperature.
- Heart rate.
- Respiration rate.
- Capillary refill rate.
- Evidence of nasal flare.
- Evidence of cyanosis.
- Evidence of grunting.
- Wellbeing and feeding.
- Evidence of subcostal recession.

If any of the abnormal signs are noted, an assessment by a neonatologist is required [**R-GDG**].

6.9 Maternal Care After-Birth

The follow up of a woman after birth consists of the following [16–18] [**L1, RGA**]:

- Measure temperature, blood pressure and heart rate.
- Assess uterine involution and lochia.
- Evaluate the placenta and membranes (assess the condition, structure and completeness).
- Assess the successful voiding of the urinary bladder.
- Evaluate psychological and emotional wellbeing.
- Ensure adequate analgesia and care of the epidural site.
- Assess the risk of thromboembolism.

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6.9.1 Perineal Care

Perineal trauma results from natural tearing or episiotomy and is classified into four degrees depending on the tissue involvement as per *Table 6.9.1* [16–18].

Classification	Description
1st Degree	Skin injury only.
2nd Degree	Perineal muscle injury without anal sphincter involvement.
3rd Degree (3a)	Perineal muscle injury with a tear to <50% of external anal sphincter.
3rd Degree (3b)	Perineal muscle injury with a tear to >50% of external anal sphincter.
3rd Degree (3c)	Perineal muscle injury with a tear to the internal anal sphincter.
4th Degree	Perineal muscle injury with a tear to the internal anal sphincter, external anal sphincter and anal epithelium.

Table 6.9.1: Classification of perineal trauma.

After birth, ensure adequate analgesia and examine the woman under good lighting, to evaluate the degree of perineal trauma and initiate repair[16–18] [**L1, RGA**]. If genital trauma is identified after birth, offer further systematic assessment, including a rectal examination [17].

In 1st degree trauma: If the skin edges are not well opposed, the wounds should be sutured. Ideally, use a rapidly absorbable synthetic material.[16–18].

In 2nd degree trauma or episiotomy: The muscle should be sutured. Ideally use a rapidly absorbable synthetic material. If the skin is opposed after suturing of the muscle, there is no need to suture it [16–18].

Good anatomical alignment should be achieved to yield a positive physiological and cosmetic result [16–18]. In addition, rectal examination is required to confirm that the rectal mucosa has not been affected by the suture [16–18]. Finally, rectal non-steroidal anti-inflammatory drugs should be administered, if not contraindicated[16–18]. [**L1, RGA**]. The woman must be briefed about the procedure and the required post-repair care (including diet, hygiene, pain relief and pelvic floor exercises)[16–18].

In 3rd and 4th degree tears: Ensure senior assessment and refer to local institutional guidelines.

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7 Postnatal Care

Postnatal care offers the chance to evaluate the wellbeing of the woman and her baby up to 8 weeks after delivery. In case of a normal delivery resulting in a healthy baby, the mother and baby can be discharged 24 hours post-delivery [21,22].

Women should have at least four contacts with either a midwife, nurse practitioner, or family medicine physician, post-delivery, at the following intervals [**R-GDG**]:

- 24 hours.
- 2-7 days.
- 7-14 days.
- 6-8 weeks.

See *Section 7.1.2* for a list of the activities to be conducted at each review.

7.1 Postnatal Care of the Mother

7.1.1 Maternal Postnatal Care

At the first postnatal care visit, a woman should also be informed about the signs of significant conditions that may occur after birth, such as [21,22]:

- **PPH:** Sudden and severe blood loss or continuous and prolonged blood loss, associated with dizziness, fainting or tachycardia.
- **Infection:** Fever, shivering, abdominal pain and offensive vaginal discharge.
- **Pre-eclampsia or eclampsia:** Headaches within 72 hours of birth with vomiting, nausea or visual disturbances.
- **Thromboembolism:** Unilateral calf pain with redness or swelling, and chest pain or shortness of breath.
- **Mastitis:** Unilateral redness and/or swelling of a breast.

Women are advised to take iron and folic acid for three months post-delivery [21,22] [**L1, RGA**]. Anti-D immunization is recommended within 72 hours of delivery for every Rhesus negative woman who gave birth to Rhesus positive baby [22].

Review the vaccination status of the woman in the postnatal period and vaccinate appropriately. A single dose of the MMR vaccine is recommended for rubella seronegative women, with appropriate advise on continued breastfeeding and avoidance of pregnancy for at least 4 weeks thereafter[21,22] [**L1, RGA**]. Appropriate hepatitis B vaccination should be offered to all non-immune women [**R-GDG**].

All women should be advised to exclusively breastfeed, if not contraindicated, and should be fully informed about the benefits and advantages of breastfeeding over formula [21,22]. However, women should be offered support and guidance, irrespective of their choice of feeding method [**R-GDG]**.

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7.1.2 Postnatal Review Schedule

The postnatal review schedule for mother is provided in the table below [56].

Postnatal Review	Maternal Review and Advice
24 hours	Counselling and advice: • Postnatal check-up schedule. • Early mobilisation. • Breastfeeding progress. • Child health notebook. • Pelvic floor exercises. Review: • Vital signs and pain score. • Emotional wellbeing. • Vaginal bleeding. • Caesarean or episiotomy wound. • Fundal height. • Uterine involution. • Check CBC. • Rhesus, Rubella, Hepatitis B status.
2-3 days	Counselling and advice: • Perineal hygiene. • Family planning. • Pelvic floor exercises. Review: • Vital signs and pain score. • Emotional wellbeing and attachment. • Breastfeeding progress. • Diet, nutrition and exercise. • Urinary continence and bowel function. • Caesarean or perineal wound. • Breast pain. • Uterine tenderness and lochia. • Vaccination status. • Headache. • Back pain. • Fatigue.
7 – 14 days	Counselling and advice: • Perineal hygiene. • Family planning. • Pelvic floor exercises. Review: • Vital signs and pain score. • Emotional wellbeing and attachment. • Resolution of post-partum 'baby blues'. • Breastfeeding progress. • Diet, nutrition and exercise. • Urinary continence and bowel function. • Caesarean or perineal wound. • Breast pain. • Uterine tenderness and lochia. • Vaccination status. • Headache. • Back pain. • Fatigue. • Signs of domestic abuse.

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Postnatal Review	Maternal Review and Advice
6-8 weeks	Counselling and advice: • Perineal hygiene. • Family planning. • Pelvic floor exercises. • Advice on timing of cervical screening. • Resumption of sexual intercourse. Review: • Vital signs and pain score. • Emotional wellbeing and attachment, • Depression screening using EPDS. • Breastfeeding progress. • Diet, nutrition and exercise. • Urinary continence and bowel function. • Caesarean or perineal wound. • Breast pain. • Uterine tenderness and lochia. • Vaccination status. • Headache. • Back pain. • Fatigue. • Dyspareunia. • Signs of domestic abuse. Offer: • Screening tests for specific conditions identified in the antenatal period.

Table 7.1.2: Postnatal Review Schedule [56].

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8 Key Considerations for Patient Preferences

Patient preferences refer to patient perspectives, beliefs, expectations, and goals for health and life, and to the steps employed by individuals in assessing the potential benefits, harms, costs, and limitations of the management options in relation to one another. Patients may have preferences when it comes to defining their problems, identifying the range of management options and selecting or ranking the outcomes used to compare these options.

It is important for healthcare professionals to develop an understanding of the patient as an individual and the unique way in which each person experiences a condition and its impact on their life.

The following recommendations are therefore made for physicians and other healthcare professionals regarding general principles of patient care in Qatar:

- **Respect Patients:** Treat patients with respect, kindness, dignity, courtesy and honesty. Ensure that the environment is conducive to discussion and that the patient's privacy is respected, particularly when discussing sensitive, personal issues. Ask the patient how they wish to be addressed and ensure that their choice is respected and used.

- **Maintain Confidentiality:** Respect the patient's right to confidentiality and avoid disclosing or sharing patients' information without their informed consent. In this context, students and anyone not directly involved in the delivery of care should first be introduced to the patient before starting consultations or meetings, and let the patient decide if they want them to stay.

- **Clarify Third-Party Involvement:** Clarify with the patient at the first point of contact whether and how they like their partner, family members or carers to be involved in key decisions about their care or management and review this regularly. If the patient agrees, share information with their partner, family members or carers.

- **Obtain Informed Consent:** Obtain and document informed consent from patients, in accordance with MOPH policy and guidance.

- **Encourage Shared Decision Making:** Ensure that patients are involved in decision making about their own care, or their dependent's care, and that factors that could impact the patient's participation in their own consultation and care including physical or learning disabilities, sight, speech or hearing impairments and problems with understanding, reading or speaking English are addressed.

- **Disclose Medical Errors:** Disclose errors when they occur and show empathy to patients.

- **Ensure Effective Communication:** Explore ways to improve communication including using pictures, symbols or involving an interpreter or family members. Avoid using medical jargon. Use words the patient will understand and confirm understanding by asking questions.

- **Ensure Continuity of Care:** Provide clear and timely sharing of patient information between healthcare professionals especially at the point of any transitions in care.

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9 Performance Measures

Below is a list of potential performance measures that are proposed for the evaluation of provider concordance with guidelines recommendations and improvement of patient health outcome:

Number	Measures Description	Numerator	Denominator
C01	**Perinatal Mortality.**	Number of foetal death (stillbirths) or early neonatal deaths.	Total number of births of babies weighing at least 1000g or of 28 weeks' gestation (stillbirths + live births).
C02	**Maternity Mortality.**	Number of women who died whilst pregnant or within 42 days of delivery, or pregnancy termination from any pregnancy-related cause, but excluding deaths from incidental or accidental causes.	Total number of live births during a 12-month period
C03	**First Trimester Ultrasound Scan.**	Number of women who had gestational age of the foetus estimated by ultrasound at 11-13 weeks.	Number of women, who delivered during a 12-month period and seen at least once for prenatal care.
C04A	**Screening for Gestational DM.**	Number of women offered GTT between 24- 28 weeks gestation.	Total number of women who delivered during a 12-month period and seen at least once for prenatal care
C04B	**Antenatal Screening for Asymptomatic Bacteriuria.**	Number of women who received screening for asymptomatic bacteriuria before or at 16 weeks gestation.	Total number of women who delivered during a 12-month period and seen at least once for prenatal care
C04C	**Antenatal Screening for HBV & HIV infections.**	Number of women who received HBsAg & HIV screening at first visit (patients with documented immunity to Hepatitis B or active Hepatitis B should be excluded)	Total number of women who delivered during a 12-month period and seen at least once for prenatal care.
C04D	**Recognition of Anaemia**	Number of women with Hb level less than 10g/dL during delivery and seen at antenatal care clinic.	Total number of women who delivered during a 12-month period and seen at least once for prenatal care
C04E	**Antenatal Screening for GBS.**	Number of women who received GBS screening at 35 to 37 weeks (patients with previously diagnosed GBS OR a prior baby that was infected should be excluded)	Total number of women who delivered during a 12-month period and seen at least once for prenatal care
C04F	**Foetal Anomaly Scan.**	Number of women who had foetal anomalies scan before weeks 18-22 weeks gestation.	Total number of women who delivered during a 12-month period and seen at least once for prenatal care
C05	**BMI Measurement**	Number of women who had a BMI value measured during pregnancy at first prenatal care visit.	Total number of women who delivered during a 12-month period and seen at least once for prenatal care.
C06	**Elective Delivery or Early Induction in Absence of any Indication at < 39 Weeks Gestation.**	Number of women who had elective deliveries or early inductions.	Number of women, who delivered during a 12-month period a live singleton at ≥37 and < 39 weeks of gestation completed with no medical indication for induction.
C07	**Episiotomy Rate**	Number of women who had an episiotomy repair.	Number of women, who delivered vaginally (in absence of shoulder dystocia), during a 12-month period
C08	**Spontaneous Labour and Birth Outcome.**	Number of women with spontaneous labour without induction and no forceps or vacuum assistance and who had normal delivery.	Number of women, who started labour spontaneously irrespective of the mode of delivery.
C09	**Post-Partum Follow-Up Care Coordination**	Number of women who started breast feeding, had post-partum glucose screening for GDM and family/contraceptive planning.	Number of women who delivered during a 12-month period and seen for post-partum care visit.

Table 9: Performance Measures.

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NB:

- Measures C04 (A – F) assess perinatal care screenings where there is a gap in quality of care. However, not all prenatal screening tests are included in this measure. To completely satisfy the perinatal care quality requirements – ALL components must be performed.

10 References

1. Hamad Medical Corporation (HMC). *HMC Guidelines for Antenatal Care in Outpatient Setting*. (2019).
2. National Collaborating Centre for Women's and Children's Health (UK). *Hypertension in Pregnancy: The Management of Hypertensive Disorders During Pregnancy*. (RCOG Press, 2010).
3. American College of Obstetricians and Gynecologists & Task Force on Hypertension in Pregnancy. Hypertension in pregnancy. Report of the American College of Obstetricians and Gynecologists' Task Force on Hypertension in Pregnancy. *Obstet. Gynecol.* **122**, 1122–1131 (2013).
4. National Institute for Health and Care Excellence (NICE). Antenatal Care for Uncomplicated Pregnancies. [CG 62]. (2019).
5. ACOG Committee Opinion No. 743: Low-Dose Aspirin Use During Pregnancy. *Obstet. Gynecol.* **132**, e44–e52 (2018).
6. Magee, L. A. *et al.* Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy: executive summary. *J. Obstet. Gynaecol. Can. JOGC J. Obstet. Gynecol. Can. JOGC* **36**, 416–441 (2014).
7. World Health Organization. *WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia.* (2011).
8. Australian Government Department of Health. Clinical Practice Guidelines: Pregnancy Care. (2019).
9. Denison, F. C. *et al.* Care of Women with Obesity in Pregnancy. *BJOG Int. J. Obstet. Gynaecol.* (2019) doi:10.1111/1471-0528.15386.
10. Erchafo, B. *et al.* Are we too far from being client centered? *PloS One* **13**, e0205681 (2018).
11. Moussa, H. N., Hosseini Nasab, S., Haidar, Z. A., Blackwell, S. C. & Sibai, B. M. Folic acid supplementation: what is new? Fetal, obstetric, long-term benefits and risks. *Future Sci. OA* **2**, fsoa-2015-0015 (2016).
12. Peña-Rosas, J. P., De-Regil, L. M., Garcia-Casal, M. N. & Dowswell, T. Daily oral iron supplementation during pregnancy. *Cochrane Database Syst. Rev.* CD004736 (2015) doi:10.1002/14651858.CD004736.pub5.
13. Maugeri, A., Barchitta, M., Blanco, I. & Agodi, A. Effects of Vitamin D Supplementation During Pregnancy on Birth Size: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Nutrients* **11**, (2019).
14. Walsh, M., Bärebring, L. & Augustin, H. Avoiding maternal vitamin D deficiency may lower blood glucose in pregnancy. *J. Steroid Biochem. Mol. Biol.* **186**, 117–121 (2019).
15. Simelela, P. N. A "good birth" goes beyond having a healthy baby. *World Health Organization (WHO)* (2018).
16. World Health Organization. *WHO recommendations: intrapartum care for a positive childbirth experience*. (2018).
17. National Institute for Health and Care Excellence (NICE). Intrapartum Care for Healthy Women and Babies. [CG 190]. (2017).
18. Agence de santé publique du Canada. *Chapter 4: care during labour and birth.* (2018).
19. Hals, E. *et al.* A multicenter interventional program to reduce the incidence of anal sphincter tears. *Obstet. Gynecol.* **116**, 901–908 (2010).
20. Laine, K., Skjeldestad, F. E., Sandvik, L. & Staff, A. C. Incidence of obstetric anal sphincter injuries after training to protect the perineum: cohort study. *BMJ Open* **2**, (2012).
21. World Health Organization & Department of Maternal, N., Child and Adolescent Health. *WHO recommendations on postnatal care of the mother and newborn*. (2013).
22. National Institute for Health and Care Excellence (NICE). Postnatal care up to 8 weeks after birth. [CG37]. (2015).
23. World Health Organization. *WHO recommendations on antenatal care for a positive pregnancy experience*. (2016).
24. WHO | Maternal and perinatal health. *WHO* https://www.who.int/maternal_child_adolescent/topics/maternal/maternal_perinatal/en/.
25. Lazzaretto, E. *et al.* Intrapartum care quality indicators: a literature review. *Minerva Ginecol.* **70**, 346–356 (2018).

26. Lavender, D. T. Improving quality of care during labour and childbirth and in the immediate postnatal period. *Best Pract. Res. Clin. Obstet. Gynaecol.* **36**, 57–67 (2016).
27. *ICD-10: International statistical classification of diseases and related health problems.* (World Health Organization, 2011).
28. Alkema, L. *et al.* Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet Lond. Engl.* **387**, 462–474 (2016).
29. Ministry of Public Health (MOPH). Personal communication with MOPH Statistics Department on Maternal Mortality in Qatar. (2018).
30. Levels and Trends in Child Mortality Report 2018 | United Nations Population Division | Department of Economic and Social Affairs. https://www.un.org/en/development/desa/population/publications/mortality/child-mortality-report-2018.asp.
31. Linard, M. *et al.* Association between inadequate antenatal care utilisation and severe perinatal and maternal morbidity: an analysis in the PreCARE cohort. *BJOG Int. J. Obstet. Gynaecol.* **125**, 587–595 (2018).
32. MOPH National Guideline: The Diagnosis and Management of Diabetes in Pregnancy. (2017).
33. Salomon, L. J. *et al.* Practice guidelines for performance of the routine mid-trimester fetal ultrasound scan. *Ultrasound Obstet. Gynecol.* **37**, 116–126 (2011).
34. Primary Health Care Corporation. PHCC Clinical Practice Guideline for Antenatal Care. (2016).
35. Primary Health Care Corporation. PHCC Clinical Practice Guideline for the Initial Management and Referral Criteria for Specific Risk Condition During Pregnancy. (2016).
36. Servan-Schreiber, E., Lafon, D., Puech, F. & Deruelle, P. Knowing the main occupational risks for pregnant women. *Rev. Prat.* **64**, 247–256 (2014).
37. American College of Obstetricians and Gynecologists. Committee Opinion No. 548. Weight gain during pregnancy. *Obstet Gynecol* **121**, 210–2 (2013).
38. Davenport, M. H. *et al.* Prenatal exercise is not associated with fetal mortality: a systematic review and meta-analysis. *Br. J. Sports Med.* **53**, 108–115 (2019).
39. Huang, L. *et al.* Maternal exercise during pregnancy reduces the risk of preterm birth through the mediating role of placenta. *J. Matern.-Fetal Neonatal Med. Off. J. Eur. Assoc. Perinat. Med. Fed. Asia Ocean. Perinat. Soc. Int. Soc. Perinat. Obstet.* **32**, 109–116 (2019).
40. Pregnancy and Vaccination | Vaccines for Pregnant Women | CDC. https://www.cdc.gov/vaccines/pregnancy/pregnant-women/index.html (2019).
41. Bustos, M., Venkataramanan, R. & Caritis, S. Nausea and vomiting of pregnancy - What's new? *Auton. Neurosci. Basic Clin.* **202**, 62–72 (2017).
42. Macedo, M. S. Interventions for Treating Heartburn in Pregnancy. *Am. J. Nurs.* **116**, 21 (2016).
43. Body, C. & Christie, J. A. Gastrointestinal Diseases in Pregnancy: Nausea, Vomiting, Hyperemesis Gravidarum, Gastroesophageal Reflux Disease, Constipation, and Diarrhea. *Gastroenterol. Clin. North Am.* **45**, 267–283 (2016).
44. Smyth, R. M. D., Aflaifel, N. & Bamigboye, A. A. Interventions for varicose veins and leg oedema in pregnancy. *Cochrane Database Syst. Rev.* CD001066 (2015) doi:10.1002/14651858.CD001066.pub3.
45. Shiri, R., Coggon, D. & Falah-Hassani, K. Exercise for the prevention of low back and pelvic girdle pain in pregnancy: A meta-analysis of randomized controlled trials. *Eur. J. Pain Lond. Engl.* **22**, 19–27 (2018).
46. American College of Obstetricians and Gynecologists. Committee Opinion No. 766: Approaches to Limit Intervention During Labor and Birth. (2019).
47. Rhoades, J. S. & Cahill, A. G. Defining and Managing Normal and Abnormal First Stage of Labor. *Obstet. Gynecol. Clin. North Am.* **44**, 535–545 (2017).
48. College of Obstetricians and Gynecologists, A. Practice Bulletin No. 116: Management of Intrapartum Fetal Heart Rate Tracings. *Obstet. Gynecol.* **116**, 1232–1240 (2010).
49. American College of Obstetricians and Gynecologists. Preterm Labour and Birth. (2019).
50. Carbonne, B., Pons, K. & Maisonneuve, E. Foetal scalp blood sampling during labour for pH and lactate measurements. *Best Pract. Res. Clin. Obstet. Gynaecol.* **30**, 62–67 (2016).

51. Aasheim, V., Nilsen, A. B. V., Lukasse, M. & Reinar, L. M. Perineal techniques during the second stage of labour for reducing perineal trauma. *Cochrane Database Syst. Rev.* CD006672 (2011) doi:10.1002/14651858.CD006672.pub2.
52. Kalis, V. *et al.* Evaluation of the incision angle of mediolateral episiotomy at 60 degrees. *Int. J. Gynaecol. Obstet. Off. Organ Int. Fed. Gynaecol. Obstet.* **112**, 220–224 (2011).
53. The Royal Australian & new Zealand College of Obstetricians & Gynecologists. Instrumental Vaginal Birth (C-Obs-16). (2016).
54. Prevention and Management of Postpartum Haemorrhage: Green-top Guideline No. 52. *BJOG Int. J. Obstet. Gynaecol.* **124**, e106–e149 (2017).
55. The Royal Australian & new Zealand College of Obstetricians & Gynecologists. Management of Postpartum Haemorrhage (C-Obs-43). (2017).
56. Primary Health Care Corporation. PHCC Clinical Practice Guideline for Postnatal Care for Mothers at 6 Weeks. (2017).

Appendix: Detailed Description of the Literature Search

A systematic search for existing literature on antenatal, intrapartum and postnatal care was performed in the period June 2nd – June 30th, 2019.

The search for clinical practice guidelines on antenatal, intrapartum and postnatal care was performed in the *PubMed* database and websites of relevant organisations and societies including *American College of Obstetricians and Gynaecologists* and *The Royal Australian & New Zealand College of Obstetricians & Gynaecologists*. The present guideline is primarily based on UK NICE, Canadian Agency of public Health, World Health Organization, MOPH PHCC and HMC guidelines and is supplemented with other relevant studies.

Peer-reviewed scientific publications were found in PubMed and via *Google Scholar* Internet search engine. Non-peer reviewed studies were identified in *bioRxiv*. Books were checked on *Amazon* and via *Google* and *Google Scholar* search engines.

The included publications were identified using the terms "*antenatal*", "*intrapartum*" and "*postnatal*" and specified with the following terms in combinations:

Pregnancy, fertility, mortality, foetus, ultrasound, scan, anomaly, examination, investigation, laboratory, screening, supplements, vitamin D, iron, folic acid, vitamin A, nutrition, hygiene, occupation, weight, medication, smoking, alcohol, exercise, travel, nausea, heartburn, constipation, haemorrhoids, varicose, backache, pain, follow-up, referral, infection, thromboembolism, eclampsia, management, labour, heart rate, blood pressure, cardiotocography, oxytocin, induction, postpartum haemorrhage, umbilical cord, perineal, vaccine, breastfeeding, psychological wellbeing.

Figure A.1 on the next page demonstrates graphically the results of the search and application of exclusion criteria.

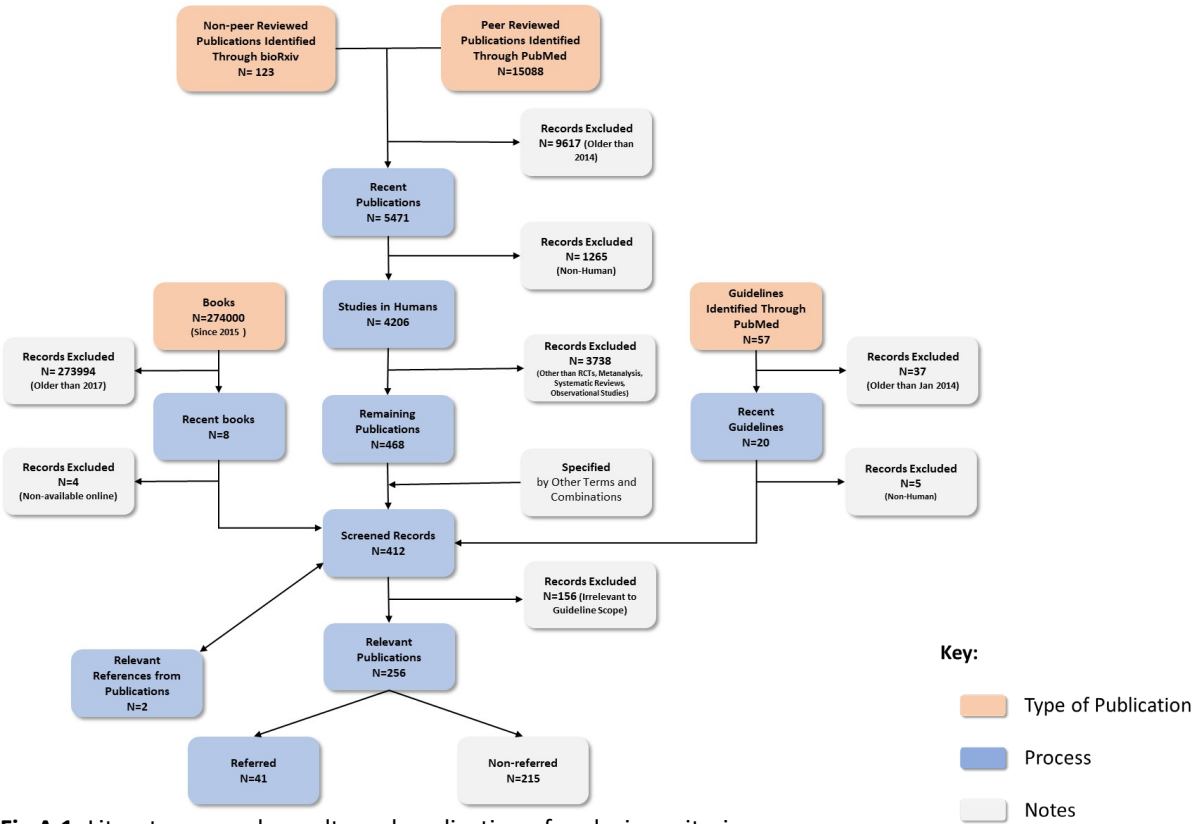

Fig A.1: Literature search results and application of exclusion criteria.

View Pathway

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