

L01: Maternity (General)

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Introduction

Pregnancy is the process of human growth and development while in utero. It is often identified a few weeks after conception and lasts on average 37 to 40 weeks, which is considered full-term. The process is divided into 3 trimesters - the first trimester ranges from week one to week 12, the second trimester ranges from week 13 to week 28, and the third trimester ranges from week 29 to week 40+. Patients may present with various complaints at any point along the course of the pregnancy.

Essentials

- Pregnancy is a natural process and should be treated as such by health care providers as long as the patient and the unborn child remain stable and have been identified as low risk.
- Labour and delivery:
 - Labour consists of 3 stages:
 - 1st stage: Dilation of cervix by regular and painful contractions. This stage may last up to 12 hours.
 - 2nd stage: Birth of the infant. This stage may last between 2 and 3 hours, but can also be much shorter in subsequent deliveries.
 - 3rd stage: Delivery of the placenta. This stage may last up to 1 hour.
 - Imminent delivery:
 - [→ L02: Normal Labour](#)
 - Trauma in pregnancy:
 - [→ L10: Pregnancy and Trauma](#)

Additional Treatment Information

- When transporting a pregnant patient, particularly during the third trimester, the mother should be positioned appropriately to avoid compression of the inferior vena cava by the uterus, which can compromise venous return and cardiac output. This can be accomplished through left-lateral positioning, the use of a hip wedge or board, or manual uterine displacement. This positioning is unnecessary during delivery, when the patient can be placed supine.
 - If the patient requires spinal motion restriction, she can be packaged and tilted to 15° degrees as an entire unit.
- Multiple clinical and non-clinical factors must be considered in deciding whether to transport or attempt delivery on scene, including high or low risk delivery, the environment for delivery, transport time to next level of care, road, and weather conditions. If in transport and delivery becomes imminent, stop the ambulance if safe to do so.

Referral Information

- All stable pregnant patients should be referred to their primary care provider and may choose to stay at home.
- Any unstable pregnant patients, or presenting with concerning signs and symptoms, such as vaginal bleeding at any point during the pregnancy, should be transported to the emergency department regardless of the gestational age of the embryo or fetus.
- Collaboration between midwives and paramedics:
 - Registered British Columbia midwives can be the primary care provider during maternity and delivery calls. Their scopes of practice with respect to neonatal resuscitation exceed those of ACP providers.
 - Responsibility for maternal resuscitation remains with paramedics. Midwives do, however, have an expanded scope of practice for medications.
 - Patients under the care of a midwife may refuse transportation to a hospital prior to or following a delivery. This is a discussion to have with all parties present with a goal of patient and family centered decision and

care, while keeping in mind the health of the mother and child.

General Information

- Definitions of note:
 - Term: 37 - 40 weeks gestation
 - Pre-term: 24 - < 37 weeks gestation
 - Show: vaginal discharge of mucus and blood
 - Spontaneous rupture of membranes: gush of normally clear or pinkish fluid. Can occur from prior to onset of labor until baby is born.
 - Meconium-stained amniotic fluid: greenish or brown stained amniotic fluid.
 - Imminent birth presentation: active pushing or grunting, rectal pressure (i.e., urge to use bowels or bladder), anal pouting or bulging perineum, strong unstoppable urge to push, presenting part (baby's head) on view or crowning, or mother's statement "I'm going to have the baby" or "it's coming now."
 - Precipitous birth: unusually rapid labor, less than four hours long, with extremely quick birth. The rapid change in pressure from intrauterine life may cause cerebral irritation.
- Women who are pregnant experience a number of physiological changes. Of relevance to paramedics:
 - Cardiovascular
 - Blood pressure experiences minimal changes, though there is an initial decrease in the first and second trimesters, with a return to baseline in the third. Systolic blood pressures above 170 mmHg, and diastolic pressures greater than 110 mmHg are considered significant.
 - Heart rates elevate by 15 to 20 beats per minute. Normal heart rates in pregnancy are between 80 and 110 beats per minute.
 - Cardiac output increases by 30-40%, to a normal volume of 6-7 L per minute during pregnancy
 - Non-specific ST segment changes are sometimes seen on ECG, along with Q waves in lead III and aVF and atrial and ventricular ectopic beats
 - Systemic vascular resistance often decreases due to blood volume and the effects of progesterone
 - Respiratory
 - Respiratory rate increases by 15% (2-3 breaths/minute)
 - Oxygen demand increases by 15-20%
 - Tidal volume and minute ventilation increase by 25-50%
 - Arterial pH rises to 7.40 - 7.45
 - PaO₂ increases by 10 mmHg
 - PaCO₂ decreases to 27 - 32 mmHg
 - Hematological
 - Blood volume increases by 30 - 50%
 - Hemoglobin falls to 100-140 g/L
 - Hematocrit falls to 32 - 42, producing physiological anemia
 - Plasma volume increases by 30 - 50%
 - Health care providers often use the acronym GTPAL to assess pregnant women:
 - G - Gravida: number of previous pregnancies
 - T - Term: number of infants born between 37 and 40 weeks gestation
 - P - Pre-term: number of infants born before 37 weeks gestation
 - A - Abortions: number of abortions (spontaneous or therapeutic)
 - L - Living: number of living children
 - A focused maternal history, in addition to routine history and examination is essential on every maternity or delivery call, and includes the following information:
 - Current pregnancy:
 - Current gestational age?
 - Multiple births expected?
 - Membranes ruptured or intact? If ruptured, color of amniotic fluid?
 - Is the patient currently having contractions? Assess duration, intensity and frequency.

- Does the patient have an urge to push?
- Has the patient felt fetal movements?
- What hospital interventions, if any, have been performed?
- Are there any anticipated problems or complications?
- Has the patient had any prenatal care?
- Any current complaints? Vaginal bleeding, high BP, pain, trauma, etc.
- Previous pregnancies:
 - Any / number of previous pregnancies?
 - Prior caesarean sections / interventions?
 - Complications / problems with previous pregnancies?
 - Length of previous labours?

Interventions

First Responder

- Place patient in position of comfort, attempting to reduce pressure on the inferior vena cava
- Communicate situation to follow-on responders

Emergency Medical Responder – All FR interventions, plus:

- Detailed assessment of the patient, which includes a detailed history of the current and all previous pregnancies.
- Transport the patient in the left lateral position whenever possible to reduce pressure on the inferior vena cava or position of comfort
- Consider asking for additional resources
- Prepare for delivery and potential neonatal resuscitation

Primary Care Paramedic – All FR and EMR interventions, plus:

- Consider analgesia
 - → [E08: Pain Management](#)

Evidence Based Practice

[Perinatal Mother Care](#)

References

1. Ambulance Victoria. Clinical Practice Guidelines: Ambulance and MICA Paramedics. 2018. [[Link](#)]
2. Mandy GT. Incidence and mortality of the preterm infant. In UpToDate. 2020. [[Link](#)]
3. Prager S, et al. Pregnancy loss (miscarriage): Risk factors, etiology, clinical manifestations, and diagnostic evaluation. In UpToDate. 2020. [[Link](#)]

