check

Independent learning program for GPs

Unit 483 June 2012

Antenatal issues

The Royal Australian College of General Practitioners

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The five domains of general practice

Communication skills and the patient-doctor relationship

Applied professional knowledge and skills

Population health and the context of general practice

Professional and ethical role

Organisational and legal dimensions

The Royal Australian College of General Practitioners

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General practitioners are commonly required to manage antenatal issues, ranging from the initial pregnancy consultation and pre-existing medical conditions in pregnancy to specific obstetric complications. It is important that all general practitioners, regardless of whether they routinely participate in obstetric care, are adequately equipped with knowledge and skills to deal with common and significant antenatal issues.

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The learning objectives of this unit are to:

- display increased confidence in managing women with early pregnancy bleeding including excluding ectopic pregnancy, interpreting the significance of quantitative β human chorionic gonadotrophin concentrations and pelvic ultrasound findings and discussing the treatment options available where appropriate
- demonstrate increased knowledge of how to differentiate between gestational hypertension and pre-eclampsia, and when to refer and how to treat these conditions
- develop increased confidence in the diagnosis and management of antenatal depression, including discussion of the benefits and risks of antidepressants and the risks of untreated depression
- demonstrate an increased knowledge of the risks of obesity in pregnancy, advise patients with obesity regarding appropriate weight gain in pregnancy, nutritional supplementation and investigations
- confidently advise patients in their first antenatal consultation about lifestyle issues to maintain good health, models of care and nutritional supplementation and request appropriate antenatal investigations
- develop increased confidence in the diagnosis and management of pelvic girdle pain in pregnancy.

We hope that this unit of *check* will assist you in your care of pregnant women in general practice.

Kind regards

Catherine Dodgshun

Medical Editor

CASE 1

RACHEL PRESENTS WITH VAGINAL BLEEDING

Rachel, aged 28 years, presents with a 2 day history of vaginal bleeding and mild lower abdominal cramping pain. Her home urine pregnancy test was positive, and she thinks her last normal menstrual period was about 8 weeks ago. She rarely keeps track of her periods. She has never been pregnant in the past and is excited about being pregnant.

QUESTION 1

What examination would you perform and what would you look for on examination?

QUESTION 2

What serious diagnosis should not be missed?

FURTHER INFORMATION

On examination, Rachel is haemodynamically stable. Her abdomen is nontender, her cervix is closed, there is a small amount of bright blood at the cervix, and her uterus is bulky. There is also slight tenderness in the right adenexae.

QUESTION 3

What investigations would you request?

FURTHER INFORMATION

You request a quantitative β human chorionic gonadotrophin (qβhCG), blood group and antibodies and arrange a pelvic ultrasound.

The qβhCG is 15 2009 IU/L. The blood group is A POSITIVE. The ultrasound shows a sac in the uterus with a fetus with crown rump length (CRL) of 9 mm and no fetal heart (FH) beat is seen.

On review of the results, you arrange a repeat qβhCG, which is 12 200 IU/L 48 hours after the first qβhCG.

QUESTION 4

What is the diagnosis and how would you manage Rachel?

CASE 1 ANSWERS

ANSWER 1

It is important to check Rachel's vital signs, particularly her heart rate (HR) and blood pressure (BP). Her abdomen should be palpated for tenderness and to determine if her uterus is palpable abdominally in case her dates are incorrect. A speculum examination should be performed, noting the presence and amount of bleeding and status of her cervix (open or closed). On bimanual palpation, assessment should be made of the status of her cervix, the size of her uterus and the presence of any adnexal mass or tenderness.

Vital signs, particularly HR and BP, are important because they signal if the patient is in shock from blood loss (characterised by tachycardia and hypotension), or has cervical shock because there are products of conception or a blood clot in the cervix (characterised by bradycardia and hypotension).

Whether the internal os is open or closed and the size of the uterus are both indications of the type of miscarriage (see *Table 1*, which includes likely examination findings in the different types of miscarriages). The presence of an adnexal mass may indicate an ectopic pregnancy or a corpus luteum cyst. This also applies to the presence of adnexal tenderness and its severity.[1,2]

ANSWER 2

It is important to consider the diagnosis of ectopic pregnancy. An ectopic pregnancy may present with lower abdominal pain, vaginal bleeding and/or collapse. If this were suspected and the patient was haemodynamically unstable, she would need to be fluid resuscitated and immediately transferred to the emergency department. In addition if there were tenderness or a mass in the adnexal area, or an ultrasound suggested an ectopic pregnancy the patient should also be transferred to the emergency department.[3,4]

ANSWER 3

Essential investigations include: a qβhCG, blood group and antibodies and a pelvic ultrasound.

At least one qβhCG is essential as the concentration will indicate if an ultrasound would reveal pregnancy contents in the uterus. If the qβhCG is above 1000 IU/L, a sac should be seen in the uterus. If the crown rump length (CRL) is 6 mm or above, a fetal heart (FH) beat should be seen. Ideally, perform two qβhCGs 48 hours apart, which will usually show a doubling of concentration in a normally progressing pregnancy.[5–7]

A pelvic ultrasound will indicate the viability and the dating of the pregnancy. In some cases, the interpretation needs to take the qβhCG into consideration.

A blood group and antibody test is essential to indicate the need for anti-D administration for prevention of rhesus iso-immunisation.

ANSWER 4

Rachel has a missed miscarriage (retention of a fetus in the uterus for weeks after its death). Given the decrease in the qβhCG, three options exist and Rachel can choose the option she prefers:[8–18]

1. Conservative or expectant management– allowing the patient to miscarry and following the qβhCG until it becomes negative. This is only an option if the patient is haemodymanically stable. The patient must be warned that she should expect a bleed similar to a very heavy menstrual period and be advised to take analgesia in the form of anti-inflammatories. The qβhCG must be watched until it becomes negative (<5IU/L) to ensure that there are no retained products of conception. There is no need to check that the uterus is empty with a pelvic ultrasound if the qβhCG becomes negative. The qβhCG can be checked every 7–14 days.
2. Suction curette – a surgical procedure to remove the products of conception. The patient will need to be referred for this procedure. The advantage of this procedure is that the patient does not have to miscarry herself and is likely to experience less pain overall. This procedure would also be faster than miscarrying herself. However, it is surgery that carries a small risk and requires a general anaesthetic.
3. Medical management – this involves using misoprostol and is best undertaken through a hospital facility. As with conservative management it can only be an option in a haemodynamically stable woman, who ideally lives close to a medical facility in case she requires an unplanned suction curette. If the miscarriage is inevitable or incomplete, this treatment is more likely to be successful. But in a motivated patient with a missed miscarriage this is also an option. The treatment consists of 400 µg misoprostol vaginally for up to 3 doses, 3 hours apart. However, the ideal regimen has still to be formulated. The treatment

Table 1. Overview of symptoms, examination and ultrasound findings in different types of miscarriage

	Amount of bleeding	Severity of pain	Status of cervical os	Size of uterus	Sac on ultrasound	Fetal heart beat on ultrasound
Threatened	Variable	Mild	Closed	As expected	Yes	Yes
Inevitable	Worsening	Worsening	Open	As expected	Yes	Maybe
Incomplete	Heavy	At its peak	Open	Can be smaller than expected	No	No
Complete	Getting less	Getting less	Closed	Smaller than expected	No	No
Missed	Nil	Nil	Closed	Smaller than expected	Yes	No

works better with the use of RU486 (also known as mifepristone), though this is currently not available in Australia for this indication. A medical contraindication to the use of misoprostol is severe, steroid dependant asthma.

Figure 1 outlines an algorithm for management of miscarriage.

FEEDBACK

Counselling patients is an essential part of management. Studies have found that a significant percentage of women experience depressive symptoms weeks to months after a miscarriage. It is important to involve partners in psychological care.[1,19]

Women who've had a miscarriage frequently struggle with guilt about having 'caused' the miscarriage. They should be reassured that it was not due to anything they did, or failed to do, and that this should not affect their chances of a future pregnancy (unless some specific cause has been found, or this is the third consecutive miscarriage).

Couples should be encouraged to allow themselves time to grieve. Ongoing support may be necessary and the option of referral to a grief counsellor may need to be considered. It is important to reassure patients about the 'anniversary phenomenon' of grief.

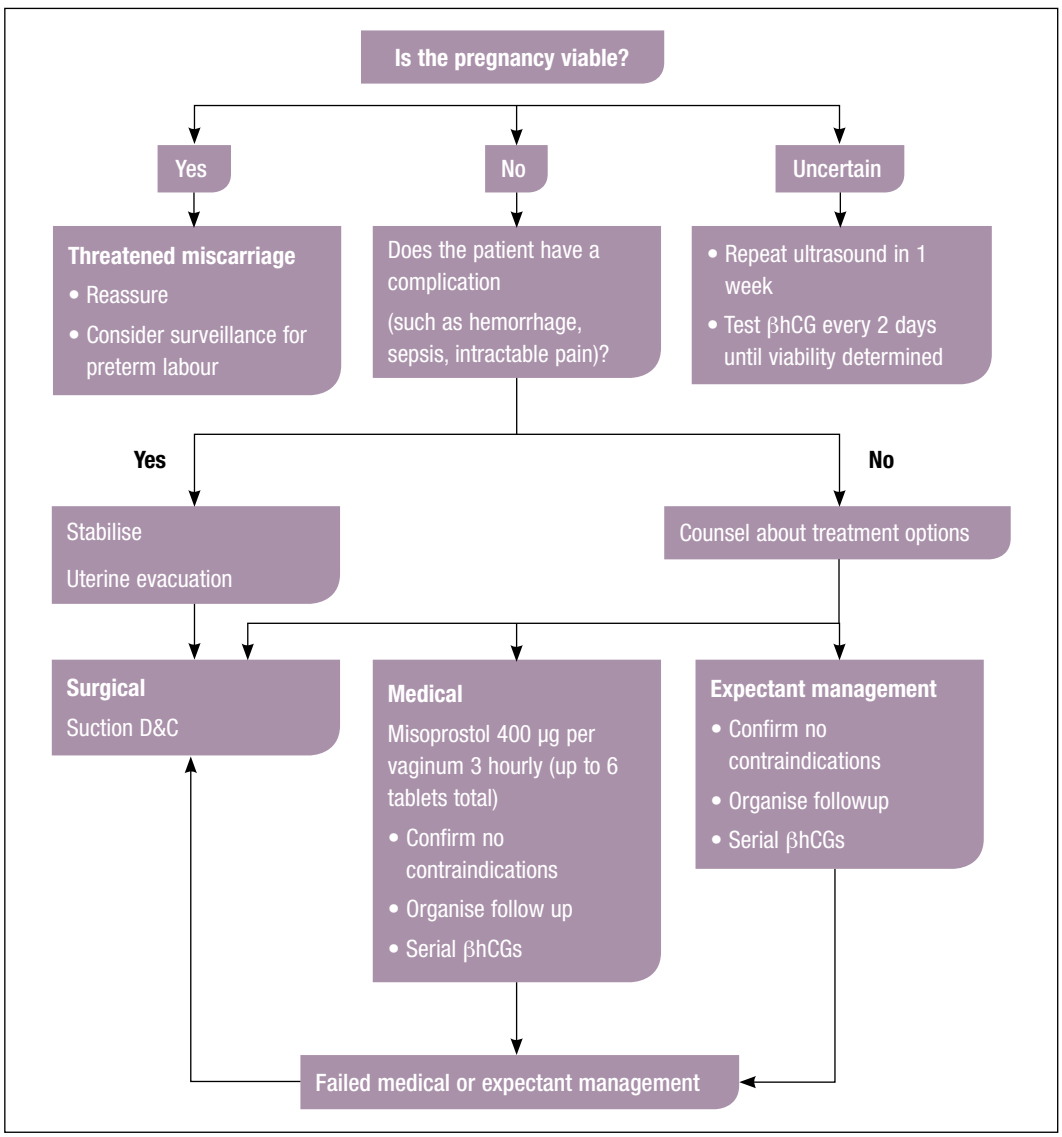

Figure 1. Algorithm for management of miscarriage

CASE 2

AMANDEEP HAS HIGH BLOOD PRESSURE

Amandeep, aged 25 years, is currently 37 weeks gestation in her first pregnancy and presents to you for her planned antenatal visit. Amandeep is undertaking shared care between you and the local secondary hospital where she is booked to deliver. Her medical problems include being overweight with a body mass index (BMI) of 28 kg/m^2, and vitamin D deficiency. She is currently taking a 'pregnancy multivitamin' and vitamin D supplements. She is not allergic to any medications. Amandeep is a nonsmoker and does not drink alcohol. She has no significant family history. Amandeep has been well in her pregnancy to date and her blood tests and 20 week ultrasound have been unremarkable.

You check Amandeep's blood pressure twice and it is 150/95 (sitting, left arm, appropriately sized cuff) on two occasions 5 minutes apart.

QUESTION 1

What symptoms would you ask Amandeep about?

FURTHER INFORMATION

Amandeep had a mild headache last night, which was relieved with 1 g of oral paracetamol. She is feeling plenty of fetal movements.

QUESTION 2

What examination would you perform?

FURTHER INFORMATION

Abdominal examination reveals that Amandeep has no epigastric or right upper quadrant tenderness. The symphyseal-fundal height is 37 cm with a longitudinal lie and cephalic presentation. The fetal heart is 140 beats/minute. Tendon reflexes are normal and there is no clonus. Urinalysis reveals no protein.

QUESTION 3

What would be your next step in management?

FURTHER INFORMATION

Amandeep's blood tests and urine collection results are normal for pregnancy. An ultrasound shows a symmetrically grown baby on the 40th centile with normal amniotic fluid index (AFI), umbilical cord function and biophysical profile. The cardiotocograph (CTG) is normal.

QUESTION 4

What is Amandeep's diagnosis and why?

FURTHER INFORMATION

Amandeep's blood pressure remains elevated at 140–150/90–100.

QUESTION 5

Would you commence antihypertensive medication?

FURTHER INFORMATION

After discussion with Amandeep and an obstetrician at the hospital where Amandeep is booked, you decide to commence antihypertensive medication.

QUESTION 6

What antihypertensive would you use?

FURTHER INFORMATION

You commence labetolol 100 mg twice daily and Amandeep's blood pressure remains around 140/90. Subsequently, Amandeep labours spontaneously on the day after admission to hospital and has a normal vaginal delivery of a healthy female infant weighing 2800 grams. Mother and baby are discharged home well 3 days after delivery. At discharge Amandeep is not taking any antihypertensive medication and her blood pressure is 130/85.

Amandeep comes to see you for her 6 week postnatal check.

QUESTION 7

Outline your management plan of Amandeep's gestational hypertension at this 6 week postnatal check.

CASE 2 ANSWERS

ANSWER 1

In women with hypertension in pregnancy it is useful to ask about symptoms that may indicate pre-eclampsia:

- headache
- visual disturbance
- epigastric and right upper quadrant pain, and
- nausea and vomiting.

It is also important to ask about fetal movements.

Oedema is not included in the diagnostic features of pre-eclampsia, occurring as commonly in normal pregnant women and those with pre-eclampsia. However, the rapid development of generalised oedema may be a marker of clinical deterioration in women with pre-eclampsia.[20]

ANSWER 2

An examination should include:

- abdominal palpation looking for epigastric and/or right upper quadrant tenderness and to determine the symphyseal-fundal height, lie and presentation
- auscultation of the fetal heart beat
- checking tendon reflexes to look for hyperreflexia
- assessing for the presence of clonus.

Urinalysis should also be performed, checking for the presence of protein.

Intrauterine growth restriction is a potential complication of hypertension in pregnancy and so detection of the small for gestational age fetus is very important.

ANSWER 3

It is advisable at this point to refer Amandeep to hospital for further investigations and observation of her blood pressure.

To differentiate gestational hypertension from pre-eclampsia and to determine the severity of pre-eclampsia the following should be performed:

- blood tests
  - full blood examination (FBE) – looking for haemolysis and thrombocytopaenia
  - urea, electrolytes and creatinine (UEC) and uric acid level – looking for impaired renal function and elevated uric acid levels
  - liver function tests (LFTs) – looking for impaired liver function
  - clotting studies (INR and APTT) are indicated if there is thrombocytopaenia or abnormal LFTs are present
- urine tests
  - proteinuria assessment – initially as a 'dipstick' urinalysis for protein and then quantification with a spot protein: creatinine ratio or collection over 12 or 24 hours.

  - mid-stream urine for microscopy and culture to exclude a urinary tract infection as a cause of proteinuria
- fetal assessment
  - ultrasound to assess fetal growth and wellbeing (AFI, umbilical cord function and biophysical profile)
  - CTG.

ANSWER 4

Hypertension in pregnancy may be essential hypertension, gestational hypertension or pre-eclampsia. Amandeep has gestational hypertension. At this stage there are no features of pre-eclampsia such as proteinuria, thrombocytopaenia, abnormal renal function, abnormal liver function or fetal compromise.

ANSWER 5

It would be wise to consult with an obstetrician or the hospital where Amandeep is booked to deliver, which might have local protocols. Currently, there is no controlled trial of the treatment of mild to moderate gestational hypertension in pregnancy. In the absence of compelling evidence, treatment of mild to moderate hypertension in the range 140–160/90–100 mm Hg should be considered optional and will reflect local practice. With a systolic blood pressure ≥170 mmHg or diastolic blood pressure ≥110 mmHg, treatment should be considered mandatory.[21]

FEEDBACK

There is controversy regarding the need to treat mild to moderate hypertension in women with pre-eclampsia. Advantages of treatment are that blood pressure may be extremely labile in pre-eclampsia and treatment at lower blood pressure levels may prevent or attenuate acute and severe rises in blood pressure. It is also possible that pharmacologic arteriolar vasodilation may improve organ perfusion. Arguments against treatment include a) little risk to the mother in having relatively mild hypertension for a short period of time, b) fetal perfusion is dependent upon adequate maternal blood pressure, and c) lowering blood pressure suppresses an important sign of the severity or progression of pre-eclampsia.[21]

ANSWER 6

A number of medications have demonstrated safety and efficacy in the management of gestational hypertension. These include methyldopa, labetalol, oxprenolol, nifedepine, hydralazine and prazosin.[21] These drugs – along with enalopril, captopril and quinapril – are considered compatible with breast feeding.[21] Angiotensin converting enzyme inhibitors and angiotensin receptor blockers are contraindicated in pregnancy as their use in the third trimester has been associated with fetal death and neonatal renal failure.[21] *Table 2* lists three commonly used antihypertensive medications for managing moderate hypertension. The management of severe hypertension requires a different approach, with the first line agents being an intravascular fluid bolus and intravenous labetalol or hydralazine.[22]

ANSWER 7

Amandeep's blood pressure should be checked. Her blood pressure at the 6 week postnatal check would most likely be normal, as it was normal without anti-hypertensive medication prior to being discharged from hospital. If this is not the case, Amandeep should be investigated for essential hypertension. Amandeep should be encouraged to modify any pre-existing risk factors for hypertension, such as being overweight, and in the future her blood pressure should be checked regularly.

FEEDBACK

If pre-eclampsia had been diagnosed it would be important to repeat the FBE, UEC, UA, LFTs and perform a 24 hour urine collection for protein excretion and creatinine clearance at the 6 week postnatal check to ensure features of pre-eclampsia had resolved.

Table 2. Treatment of moderate hypertension in pregnancy[22]

Drug	Dose/route	Action	Comments
Labetalol	**200 mg oral stat** Repeat 200 mg orally every hour until control is achieved Maximum 3 doses **Maintenance dose** 100–400 mg 6–12 hourly to a maximum of 1600 mg per day	Peripheral acting sympatholytic alpha and beta blocker – induces vascular relaxation, lowers peripheral resistance and cardiac output with exercise	**First agent of choice** **Maternal side effects:** bradycardia, postural hypotension, cold extremities, rebound hypertension, sleep or gastrointestinal disturbance. **Caution:** may exacerbate asthma and mask hypoglycaemia. **Fetal side effects:** respiratory depression and bradycardia
Nifedipine	**10 mg oral stat** Repeat 10 mg orally every 30 minutes Maximum 3 doses **Maintenance dose** 10–20 mg 3–6 hourly to a maximum of 80–120 mg per day	Lowers blood pressure by relaxing vascular muscle; blood vessels dilate with lowered peripheral resistance	**Alternative** Tablet may need to be crushed **Maternal side effects:** postural hypotension, flushing, tachycardia, nausea, headaches, sleep or gastrointestinal disturbance **Caution:** impending eclampsia *Not to be confused with a slow release formulation of nifedipine that is also available*
Methyldopa	**250 mg oral stat** **Maintenance dose** 250–500 mg three times per day	Centrally acting Onset of action very slow	**Alternative** **Maternal side effects:** drowsiness and depression, postural hypotension

Adapted with permission from Southern Health Procedure on pre-eclampsia and severe pre-eclampsia. Available at http://system.prompt.org.au/Download/Document.aspx?id=3103182&code=68832A25549E64CC8C091626275D0676

CASE 3

JANE IS PREGNANT AND FEELING DEPRESSED

Jane, aged 29 years, is living with her partner Richard. She is 20 weeks pregnant with her first child. Jane has a busy career as an accountant in a large company. She has a past history of irritable bowel syndrome and had a period of being concerned about her weight and restricted eating in early adolescence. At that time, Jane was thought to be depressed and had a course of antidepressant medication.

Jane consulted you previously when considering a pregnancy and described mixed feelings about this with concerns it may interrupt her career. She also described Richard as not being enthusiastic about becoming a father. Jane's mother has recently been diagnosed with breast cancer and is undergoing chemotherapy after a mastectomy.

Jane had morning sickness in the first trimester and a urinary tract infection that responded to treatment. She has a balanced diet, but has become concerned about environmental pollutants and food additives and their potential impact on her baby. She is concerned that her baby will be born with 'hyperactivity' and that she will have difficulties as a parent.

Jane now presents with 2 weeks of lack of energy, poor appetite and thoughts that there may be something 'wrong' with the baby. She says she lies awake at night worrying about this and it is difficult for her to go to sleep. Jane says she feels sad and cannot imagine that she will ever have a positive experience with her baby. She has not confided in Richard and is worried about his reaction.

QUESTION 1

What depressive symptoms does Jane have?

QUESTION 2

What symptoms of anxiety does Jane have?

QUESTION 3

Are there factors in Jane's history that might be risk factors for depression in pregnancy?

QUESTION 4

What further information would you seek to assess the severity of Jane's symptoms?

FURTHER INFORMATION

You establish that Jane's symptoms are interfering with her ability to cope in her job and are affecting her relationships. She has no suicidal ideation and wants to continue her pregnancy. You exclude other causes for Jane's symptoms, such as anaemia and thyroid dysfunction. A screen for intimate partner violence is negative. You diagnose depression and anxiety.

QUESTION 5

What would you discuss with Jane about the safety of antidepressant medication and its potential risks to the fetus and newborn?

QUESTION 6

What is the risk of Jane having parenting difficulties and how would you manage this?

CASE 3 ANSWERS

ANSWER 1

Jane has clear depressive symptoms with low mood, anergia and poor appetite.

ANSWER 2

Jane has anxiety about her baby's wellbeing and these thoughts keep her awake. She is aware that these are excessive, but she cannot control them. She is also worried about how she will cope as a parent.

ANSWER 3

Jane has a past history of depression, which increases her risk of perinatal depression. She has current stressors, including her feelings about her husband and her mother's medical condition. She is also worried about her career progression and expresses some ambivalence about becoming a parent.

ANSWER 4

It is important to assess if Jane has any thoughts of self harm, suicide or wishes to cease the pregnancy. It is also important to assess her level of daily functioning including her food intake, self care, energy level, sleep patterns and the effect of her symptoms on her ability to perform in her job and maintain relationships – as well as whether her symptoms persist or not.

ANSWER 5

It is important to explain the role of medication in treating depression in pregnancy to Jane. She currently has depression and if untreated it is highly likely these symptoms will continue or intensify. Jane's past history of depression may suggest a biological vulnerability to mood disorder. Non-pharmacological options such as increasing social support and stress reduction should also be discussed. Involving Jane's partner, with her consent, could also be helpful.

Jane should be informed that there are risks associated with some of the antidepressant medications, but that there is also risk to herself and the fetus if the depression and anxiety are not treated.[23]

Studies regarding the risk of congenital abnormality or malformation with use of antidepressants in pregnancy report varying results. Where an increased risk has been reported, it appears to be small and usually occurs in the first trimester.[24] The risk of pulmonary hypertension with use of selective serotonin reuptake inhibitors (SSRIs) has also been examined. According to one study, selective serotonin reuptake inhibitor use after 20 weeks gestation has been associated with an increased risk of persistent pulmonary hypertension in the newborn from 1 in 700 to 7 in 700.[24] More commonly, neonatal withdrawal symptoms occur, particularly with third trimester use of paroxetine and fluoxetine. Some antidepressants are compatible with breastfeeding and, in general, infant levels of active drugs are usually found to be low. However, studies on the longterm effects of antidepressants used in breastfeeding on child development are lacking.[24]

There is limited longitudinal data about any possible impact of antidepressant exposure on infant neurological development and this remains an open question. However, the impact of maternal stress and depression on fetal development and birth outcomes should be discussed with Jane. Maternal stress is associated with lower birth weight and preterm delivery. Stress related hormones, such as cortisol, are thought to affect the developing brain. In addition, postpartum depression is linked with impairment of the mother-infant attachment, as well as cognitive impairment, behavioural dyscontrol and psychiatric disorders in children.[24]

ANSWER 6

Jane's depression and anxiety could affect her parenting ability. She is already expressing concern about this. Prompt treatment of her depression and anxiety should be recommended. Support in the transition to parenthood, and counselling regarding the challenges of early parenting, should commence as soon as she is symptomatically improved. Plan for extra support in the first few months after delivery and arrange follow up by maternal and child health services if available. Monitor Jane's mood regularly throughout her pregnancy and refer to a perinatal mental health service at her hospital of delivery. With Jane's consent, inform her partner Richard about her condition and the support that she needs.

CASE 4

SASHA IS OVERWEIGHT AND PREGNANT

Sasha, aged 30 years, has a BMI of 35 kg/m^2. She is in her first pregnancy and thinks that she is currently about 5 weeks pregnant. Sasha has never been pregnant before. Sasha and her husband Mark present to you for advice regarding her weight management in pregnancy.

QUESTION 1

What are the risks to Sasha of obesity in pregnancy?

QUESTION 2

What are the risks of Sasha's obesity to her fetus?

QUESTION 3

List some of the nutritional supplements that you would recommend to Sasha or to a woman with an elevated BMI who is planning a pregnancy. Explain the rationale for their use.

QUESTION 4

What advice would you give Sasha about weight management in pregnancy?

QUESTION 5

List any extra investigations you could offer Sasha due to her elevated BMI. Explain the reasons why they would be useful.

QUESTION 6

What advice would you give Sasha regarding nutrition and physical activity in pregnancy?

QUESTION 7

What advice would give Sasha regarding breastfeeding?

QUESTION 8

What is Sasha at increased risk of in the postnatal period due to her elevated BMI?

QUESTION 9

In general, for women of Sasha's age, who are obese and planning a pregnancy, would you recommend delaying pregnancy to enable optimisation of weight loss? Explain your answer.

QUESTION 10

What would you tell a woman who is obese and considering bariatric surgery about a future pregnancy?

CASE 4 ANSWERS

ANSWER 1

There are multiple risks and problems associated with obesity in pregnancy (see *Table 3* overleaf, which lists the risks to the mother, fetus and neonate). Some of the risks to the mother are directly related to the normal physiological changes associated with pregnancy, which are magnified in obesity such as thromboembolic disease, gestational diabetes or cholecystits. Other risks are directly related to increased body mass – for example, difficult ultrasonography, difficult surgical access and anaesthetic complications.

All pregnant women with a BMI greater than 30 kg/m^2 should be provided with accurate and accessible information about the risks associated with pregnancy[25] and written information to support a verbal discussion could be useful.

ANSWER 2

Obese women have an increased risk of fetal abnormalities (see *Table 3*). Neural tube defects (NTD) are one of the most commonly associated fetal abnormalities. Obese women have a 1.7 to >3 fold increase in NTD, which is directly related to increasing body mass.

The pathogenesis of fetal malformations is unclear, but is possibly related to dysfunctional glucose metabolism. Animal studies have shown that maternal hyperglycemia can be teratogenic. Other proposed mechanisms are that fetal malformations are related to deficient diets or altered nutritional requirements in obesity.[26]

There are also important potential longterm adverse effects for the fetus exposed to an altered intrauterine environment, such as diabetes and hypertension in early adulthood.

ANSWER 3

The following nutritional supplements should be advised (See *Answer 5, Case 5* for a more comprehensive list of nutritional supplements recommended in pregnancy in general).

- High dose folic acid (5 mg daily) – all women with an elevated BMI should be advised to take 5 mg of folic acid daily, to start at least one month prior to conception and continue for the first trimester. Women with obesity are less likely to receive folic acid through their diet and are at higher risk of NTD so the higher dose is recommended.[25]
- Vitamin D supplements – pre-pregnancy BMI is inversely associated with low vitamin D concentrations. Neonates born to obese mothers have been shown to have lower vitamin D levels in cord blood than those non-obese mothers.[25]

  It is ideal to test vitamin D levels of obese women and supplement accordingly. However, some authorities recommend that all women with a BMI ≥30 kg/m^2 should be advised to take 1000 IU of vitamin D daily during pregnancy and while breastfeeding.[25]

ANSWER 4

Sasha should be advised to limit weight gain, rather than lose weight in pregnancy. Discussing a desired weight gain in pregnancy may be beneficial. In general, women with a BMI of 25–29.9 kg/m^2 should aim for weight gain of no more than 7–11.5 kg, and those with a BMI ≥30 kg/m^2, no more than 5–9 kg.[27]

Excessive weight gain in pregnancy is related to fetal macrosomia. Fetal macrosomia increases the risk of operative vaginal deliveries, caesarean section and admissions to neonatal intensive care unit.

ANSWER 5

Sasha could be offered the following investigations:

- oral glucose tolerance test (GTT) (rather than a glucose challenge test) – a number of obese women will have undiagnosed type 2 diabetes. An early pregnancy or pre-pregnancy oral GTT will allow for early detection of elevated blood glucose levels and their normalisation. This might improve the rate of congenital abnormalities.[27]
- dating ultrasound scan – an early ultrasound scan will provide accurate dating. Obese women often have ovulatory dysfunction, which leads to irregular cycles and difficultly establishing an accurate estimated delivery date (EDD). An accurate EDD will help to avoid inappropriate inductions of labour.[27]

ANSWER 6

General advice about a healthy diet is appropriate. Referral to a dietician may be appropriate. Restrictive diets are not recommended in pregnancy.

Physical activity needs to be encouraged. However, Sasha's overall health needs to be reviewed prior to starting an exercise program. If Sasha is otherwise well, 30 minutes of moderate exercise most days, can be recommended. Referral to a physiotherapist may assist in designing an appropriate program.[27]

ANSWER 7

Sasha should be encouraged to breastfeed for its general benefits, in addition to its specific benefit of weight loss. Obese women are at increased risk of unsuccessful lactation and delayed establishment of lactation. Help and support from a lactation consultant, or group, might be of use and could be discussed during antenatal and postnatal visits.

Table 3. Risks and problems associated with obesity in pregnancy

Maternal	Fetal/neonatal
Throughout pregnancy • Depression • Thromboembolic disease • Maternal mortality	Congenital malformations, including neural tube defects, congenital heart disease, omphalocoele, cleft lip and palate Suboptimal ultrasonography Macrosomia Suboptimal electronic fetal monitoring Shoulder dystocia Admission to neonatal intensive care units Neonatal death Stillbirth Metabolic disorders such as diabetes or hypertension in early adulthood
Antenatal • Increased infections (chest, genital tract or urinary) • Cholecystitis • Diabetes (gestational and type 2) • Gestational hypertension • Pre-eclampsia • Obstructive sleep apnoea	
Labour and birth • Preterm birth • Failed induction of labour • Obstructed labour • Operative and complicated vaginal birth • Caesarean section • Failed attempt at vaginal birth after caesarean section • Haemorrhage	
Surgical and anaesthetic • Difficult surgical access • Difficult intubation • Difficult intravenous access • Increased failure of epidural analgesia during labour • Increased risk of aspiration	
Postnatal • Reduced breastfeeding rates • Surgical site infections	

Adapted from Maternity & Newborn Clinical Network Statewide Clinical Guideline "Care of the Obese Pregnant Woman and Weight Management in Pregnancy" 2011.

ANSWER 8

Sasha is at an increased risk of wound infection – regular wound care and review will help decrease this risk. Sasha is also at increased risk of thromboembolic disease and substitutes for oestrogenic contraception should be considered to avoid increasing the risk of thromboembolic disease further.

ANSWER 9

For women of Sasha's age, it is ideal for weight optimisation to occur prior to pregnancy. This may improve fertility and will reduce the risks of obesity to the mother and fetus. However, it is often difficult to encourage delayed reproduction. Rapid weight loss is not recommended immediately prior to pregnancy.[27] Planned weight reduction with an exercise program that allows longterm maintenance of a reduced weight is best.

ANSWER 10

Women who have had bariatric surgery prior to pregnancy need to continue taking nutritional supplements during the pregnancy, including vitamin B12, folic acid and iron. Other nutritional deficiencies should also be investigated and treated prior to pregnancy.

Women with bariatric surgery are susceptible to intestinal obstruction, the symptoms of which may mimic common problems in pregnancy.

Where there is an adjustable gastric band this might be deflated during the first trimester if nausea and vomiting are significant.[27]

CASE 5

KATIE'S FIRST PREGNANCY VISIT

Katie, aged 26 years, presents following a positive home urine pregnancy test. She has never been pregnant before and is excited at the prospect of parenthood.

QUESTION 1

What information is important to elicit in Katie's history?

QUESTION 2

What examination would you perform?

QUESTION 3

What investigations would you request following discussion with Katie?

QUESTION 4

Are there any other investigations you might consider?

FURTHER INFORMATION

Katie is determined to do the right thing throughout her pregnancy, and seeks your advice about whether to take nutritional supplements.

QUESTION 5

What would you advise Katie about nutritional supplements?

QUESTION 6

What other issues would you discuss with Katie regarding her pregnancy?

CASE 5 ANSWERS

ANSWER 1

A comprehensive, directed history will help you identify the possibility of potential complications, and allow referral to an appropriate level of care at the outset. Ask Katie about the following:

- last normal menstrual period (LNMP)
- menstrual regularity
- recent contraceptive use (it may be worthwhile alerting Katie to the possibility that the EDD as predicted by her initial menstrual date may not be consistent with an ultrasound EDD)
- previous obstetric history – which encompasses dates of all pregnancies and outcomes including gestation, mode of birth, birth weight, complications, or gestation at time of miscarriage or termination and any subsequent complications
- general medical history, with particular attention to past or current history of:
  - anaemia
  - asthma
  - diabetes
  - hypertension
  - bleeding or thrombotic disorder
  - thyroid disorder
  - psychiatric or depressive illness
  - surgical history
  - anaesthetic problems
- vaccination history
- medications prior to and since conception and allergies to any medications
- smoking, alcohol and recreational drug history
- social history including social supports, current relationship and occupation
- family history especially of diabetes, pre-eclampsia, multiple births, genetic or chromosomal conditions, and family history of her partner, especially of multiple births, genetic or chromosomal conditions
- ethnic origin – this information could be useful in influencing the need for further investigations for medical conditions such as thalassaemia and could also be useful in providing culturally competent pregnancy and post-partum care.

ANSWER 2

Examination should be directed towards ascertaining if there are any clinical conditions present that may affect either Katie, or the developing fetus during the course of the pregnancy. The examination should include:

- measurement of height and weight allowing calculation of BMI
- measurement of BP
- cardiovascular and respiratory examinations
- thyroid examination
- abdominal examinations – general and fundal height
- breast check.

ANSWER 3

In a well woman with no past history of note, suggested screening tests[28–30] are:

- FBE
- blood group and antibodies
- rubella IgG
- hepatitis B surface antigen
- human immunodeficiency virus test
- syphilis serology
- haemoglobin electrophoresis (as well as ferritin to check for an underlying iron deficiency, which can make interpretation of haemoglobin electrophoresis results difficult) and deoxyribonucleic acid (DNA) analysis for thalassaemia (if indicated, particularly by low mean corpuscular volume). Guidelines vary between hospitals whether this should be universal or directed
- vitamin D level – guidelines vary between hospitals whether this should be universal or directed
- midstream urine for microscopy and culture – for asymptomatic bacteruria.

Establish an EDD by early ultrasound, ideally less than 14 weeks. This will also indicate the presence of a multiple pregnancy. EDD from early ultrasound ensures consistency of gestational age assessments, improves the performance of mid trimester screening for Down syndrome, and reduces the need for induction of labour after 41 weeks.[29]

Screening for risk of Down syndrome should be offered to every pregnant woman. Combined first trimester screening consists of analysing a sample of serum at 10 (9–13^{+6}) weeks combined with the results of an ultrasound performed between 11^{+3}–13^{+6} weeks gestation. If a patient presents later, mid trimester screen serum can be performed from 15 weeks.[31]

Depending on the model of care, it is helpful to arrange for copies of the results to be forwarded to the particular clinic or care provider.

ANSWER 4

Other investigations could be requested if there are risk factors for:

- diabetes – consider oral GTT
- hepatitis C – check hepatitis C antibody
- fetal abnormalities/genetic carrier status – consider chorionic villus sampling, amniocentesis or relevant specific tests such as those for cystic fibrosis or fragile X in conjunction with counselling from genetic services.

Also consider the following investigations:

- first pass urine for polymerase chain reaction for chlamydia on women aged under 25 years
- varicella zoster IgG – if there is no history of illness or vaccination
- thyroid stimulating hormone – universal screening is not currently recommended
- Pap test – if the Pap test will be due during the course of the pregnancy, offer to perform at the first antenatal visit. There is no evidence to suggest that performing Pap tests in pregnancy are harmful.[28] Use sampling instruments other than the cytobrush, which is contraindicated in pregnancy.

If there are comorbidities present, or history of a condition that may affect maternal or fetal health during the course of the pregnancy, it may be useful to initiate investigations relevant to the specific underlying problem. UEC, LFTs and cytomegalovirus serology are not current recommendations as part of pregnancy screening.[28]

ANSWER 5

The nutritional demands of pregnancy and lactation may mean that even in those women with a healthy, balanced diet nutritional supplementation may be advisable. It is often not clear just how healthy a patient's diet might be.

The following supplements are recommended:

- folic acid – supplements are recommended for all women for at least 1 month before and for 3 months after conception to aid the prevention of NTD (routinely 0.4–0.5 mg daily, if there is an increased risk of NTD or folate deficiency the recommended dose is 5 mg daily).
- vitamin D – supplements are recommended for women who are not vitamin D replete.[32]
- iodine – supplementation of 150 mcg daily is recommended[33] (unless there are pre-existing thyroid problems, in which case further advice should be sought) because iodine deficiency is widespread in Australia.
- calcium – supplements are recommended if an intake of 1000 mg per day is not achieved through usual dietary intake. Calcium supplementation has been shown to prevent hypertensive disorders.[34]
- iron – supplementation is recommended where there is established iron deficiency. Iron deficiency is the most common nutritional deficiency in the world. Performing haemoglobin and ferritin may be a useful guide as to the iron status of this woman. Pregnancy and lactation demands for iron are high.

A reasonable solution may be to recommend a 'pregnancy multivitamin' formulation.

ANSWER 6

It is also appropriate at this visit to offer general advice concerning the following:

- the effects of medications, smoking, alcohol and recreational drugs
- the importance of a healthy diet and exercise
- the amount of weight gain that is healthy
- prevention of infections such as listeriosis (with avoidance of pate, soft cheeses and prepackaged salads) and toxoplasmosis (with avoidance of contact with cat litter and garden soil)
- limitation of intake of fish containing mercury.

This visit should also include discussion of the models of care for pregnancy and birth available to Katie, including relevant financial implications of different models.[28] GP and midwife led models of care should be offered for women with an uncomplicated pregnancy.[29] Referral to a model of care that is clinically appropriate, and acceptable to the mother should follow.

CASE 6

HEIDI IS PREGNANT AND HAS BEEN EXPOSED TO CHICKEN POX

Heidi, aged 27 years, is 14 weeks pregnant. She has a son Daniel, aged 4 years, who attends the local kindergarten. Heidi calls you because she is concerned that a friend of Daniel's has developed chicken pox.

QUESTION 1

What important information would you like to know from Heidi?

FURTHER INFORMATION

Heidi tells you she has been well. She can't recall whether she's had chicken pox before. The child with chicken pox had played at Heidi's house for 2 hours, 2 days ago and at that stage he'd had a rash for 1 day.

QUESTION 2

What would you do now?

FURTHER INFORMATION

Heidi's blood test comes back varicella zoster IgG negative.

QUESTION 3

What is the risk to Heidi and to her fetus?

QUESTION 4

Would you offer Heidi any treatment? What specific advice would you give Heidi regarding this treatment?

CASE 6 ANSWERS

ANSWER 1

You need to ask Heidi about:

- a past history of chicken pox
- the nature of the contact (household or face-to-face)
- the timing of the contact (whether the contact was at an infectious stage or not)
- the presence of any symptoms to suggest prodrome or rash.

ANSWER 2

The first important step is to ascertain if Heidi is at risk. This is checked by varicella zoster IgG. A study in Australia in 1995 found that approximately 5% of women in the 25–59 years age group were seronegative, and therefore susceptible to chicken pox.[35] The second important step is to ascertain if significant exposure has occurred. This entails two important pieces of information: the timing

of exposure and the nature of the exposure. The infectious period for chicken pox is 48 hours before the onset of the rash, until the rash crusts over. Significant exposure as defined in the *Australian Immunisation Handbook* is 'living in the same household as a person with active chicken pox, or face-to-face contact with a person with chicken pox for at least 5 minutes'.[36]

ANSWER 3

Any infection in pregnancy should be considered as having potential health implications for the mother and the fetus. Varicella zoster infection during pregnancy may be associated with maternal complications, such as pneumonitis. Maternal deaths have been reported, usually occurring with varicella infection during the second trimester. Maternal varicella infection can lead to congenital varicella infection. The risk of this varies depending on the gestation. The risk of congenital varicella syndrome in the second trimester is approximately 2%.[37] The clinical features associated with congenital varicella include:

- hypoplastic lower limbs
- clubbed feet
- dermatomal scarring
- ocular abnormalities such as cataracts, chorioretinitis, optic atrophy, micro-ophthalmos, nystagmus
- prematurity
- low birth weight
- cortical atrophy
- intellectual disability
- early death.[38,39]

ANSWER 4

Zoster immunoglobulin (ZIG) is recommended within 96 hours of exposure to reduce the chance of clinical chicken pox in Heidi. Zoster immunoglobulin given prophylactically at the time of exposure prevents or reduces the severity of chickenpox. There is no evidence to confirm or refute whether ZIG reduces the frequency or severity of congenital varicella syndrome. Zoster immunoglobulin does not confer 100% protection, so nonimmune women with chicken pox exposure should be advised that they could still develop a clinical illness (usually mild). Women should be advised that if this occurs to contact their doctor immediately to confirm the diagnosis and to consider the use of acyclovir.

CASE 7

MONICA HAS A SORE BACK

Monica, aged 28 years, presents at 32 weeks gestation with lower backache, which radiates to her inner thighs. She says this is the first time she has experienced this pain.

QUESTION 1

What further information would you like to know about Monica's pain?

FURTHER INFORMATION

Monica gives no history of injury. The pain is aggravated by walking and rolling over in bed. It is now also present at rest and appears worse at night and is interrupting her sleep.

QUESTION 2

What examination would you perform and what would you look for on examination?

FURTHER INFORMATION

Monica's BP is 115/76 mmHg and her PR is 80 beats/minute. Her uterus is soft and nontender. There is tenderness over both sacroiliac joints (SIJs), but no flank tenderness. She has a positive Patrick FABER sign. Urinalysis is negative.

QUESTION 3

What is the likely diagnosis and how would you manage Monica?

CASE 7 ANSWERS

ANSWER 1

Differential diagnoses of Monica's low back pain include musculoskeletal causes, placental abruption, premature labour, pyelonephritis or a urinary tract infection.

First ask about fetal movements and vaginal bleeding to help exclude specific obstetric-fetal complications.

It is important to determine the following about Monica's pain:

- the temporal features, nature and location of the pain as well as its exacerbating and relieving factors
- if there has been any injury, either recently or in the past
- if there are any symptoms of neurological involvement
- if there is any constipation or are any urinary symptoms
- if she has symptoms such as a sudden onset of severe localised pain, which is consistent with rare but serious conditions such as pubic symphysis diastasis, transient osteoporosis of the hip or osteonecrosis of the hip.[40]

ANSWER 2

Check Monica's vital signs and perform an obstetric examination. Perform an abdominal examination and assess her gait, examine her back including inspection and palpation of the sacroiliac joints (SIJs), lumbosacral spine and flanks. A neurological examination of the lower limbs should also be performed.

In particular, look for the following:

- abnormal vital signs (tachycardia and hypotension) that suggest placental abruption

- a tense, tender woody uterus (a uterus that feels constantly contracted) of placental abruption. Note that a posterior placental abruption can present as constant and severe lower back pain – bleeding is not usually a presenting feature in a concealed abruption
- flank tenderness for renal causes of back pain
- a waddling gait or a limp, which women with pelvic girdle pain (PGP) may have. Women with PGP usually have tenderness over the SIJs[41] and increased pain with abduction, with a positive Trendelenburg sign or Patrick FABER sign. The Trendelenburg sign is positive if, when standing on one leg, the pelvis drops on the opposite side on which there is pathology. The Patrick FABER sign is elicited with the patient in a supine position and the mnemonic FABER describes the position of the hip during testing – flexed, abducted and externally rotated. The knee is also flexed with the external malleolus of the ankle resting on the opposite patella, then the flexed knee is depressed. The sign is positive if this leads to SIJ pain)[42]
- neurological signs in the lower limbs if neurological symptoms are elicited on history
- unusual presentations such as herpes zoster, which are likely to be missed without inspection.

Perform a urinalysis checking for evidence of urinary tract infection.

ANSWER 3

The likely diagnosis is PGP, which is also known as pelvic instability, pelvic girdle instability or symphysis pubis dysfunction. You will need to explain to Monica that this is due to a combination of hormones (principally relaxin) causing increased joint laxity, and the physical changes of exaggerated lordosis.

Of the 50% of women who experience back pain in pregnancy, two thirds will have PGP.[43] The pain of PGP can be disabling and isolating and can lead to antenatal depression if not recognised and appropriately managed.

PGP is classically worse at night, exacerbated by rolling over in bed, going up stairs and getting in and out of the car. The pain may radiate to the groin or inner thighs.

Advise Monica to avoid exacerbating activities, keep her knees together, rest and avoid heavy lifting, including toddlers. Many patients are encouraged by their care providers to do 20 minutes of exercise per day, and for most this is in the form of walking. This form of activity will worsen PGP.

Monica also needs to improve her core strength and muscle relaxation by doing exercises such as swimming with her knees together.

Use of regular doses of simple analgesia ,such as six hourly paracetamol, is recommended. Nonsteriodal anti-inflammatory drugs are contraindicated in pregnancy. Codeine may be required at night, but will worsen constipation. Specialist physiotherapy may also help. It may involve specific exercises, ergonomics or equipment such as braces, belts or crutches.

The roles of acupuncture, chiropractic treatment and osteopathy are not evidence based. It is important to exclude uncommon diagnoses, and if uncertain refer to an orthopaedic surgeon, who may request magnetic resonance imaging.

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RESOURCES FOR DOCTORS

- Evidence based information on a range of topics including antenatal care, investigations, hypertension and weight gain in pregnancy is available at www.3centres.com.au.
- The Royal Women's Hospital in Victoria provides clinical practice guidelines on a variety of medical conditions in pregnancy. It is available at www.thewomens.org.au/ClinicalPracticeGuidelines.
- The Royal Australian and New Zealand College of Obstetricians and Gynaecologists' website provides links to a range of clinical practice guidelines on antenatal care. It is available at www.ranzcog.edu.au/womens-health/resources-for-women-a-practitioners/useful-resources.html.
- The *Beyond Blue* website has a useful fact sheet on management of antenatal and postnatal depression for health professionals. It is available at www.beyondblue.org.au/index.aspx?link_id=7.102&tmp=FileDownload&fid=1279.
- Therapeutic Goods Administration provides information on prescribing medicines in pregnancy. Its website is available at www.tga.gov.au/hp/medicines-pregnancy.htm.
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RESOURCES FOR PATIENTS

- Genetic Health Services Victoria has information on planning a pregnancy, which is available at www.geneticheathvic.net.au/sections/Patients/?docid=e5ac4a89-9f9c-4313-9bc0-9a9300b93ba8.
- Information on healthy eating in pregnancy and further information or links to further information on folic acid, iodine, fish and mercury, listeria prevention and alcohol is available at www.foodstandards.gov.au/consumerinformation/pregnancyandhealthyeating/ or www.healthyactive.gov.au/internet/healthyactive/publishing.nsf/Content/pregnant-women.
- Information on healthy eating and looking after yourself in pregnancy is available at www.thewomens.org.au/Takingcareofyourselfinearlypregnancy.
- Information on weight gain in pregnancy is available at www.thewomens.org.au/Weightgaininpregnancy.
- Information on pregnancy and exercise is available on the Better Health website at www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Pregnancy_and_exercise?open.
- Information on common complaints in pregnancy is available on the Better Health website, which has a searchable database and is available at www.betterhealth.vic.gov.au.
- Information on miscarriage is available on the Better Health website at www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/miscarriage_explained.
- Information on pre-eclampsia is available is available at www.southernhealth.org.au/icms_docs/6779_Preeclampsia_information.pdf.
- Information on antenatal and postnatal depression is available at www.panda.org.au.

Antenatal issues

In order to qualify for 6 Category 2 points for the QI&CPD activity associated with this unit:

- read and complete the unit of *check* in hard copy or online at the *gplearning* website at www.gplearning.com.au, and
- log onto the *gplearning* website at www.gplearning.com.au and answer the following 10 multiple choice questions (MCQs) online, and
- complete the online evaluation.

If you are not an RACGP member, please contact the *gplearning* helpdesk on 1800 284 789 to register in the first instance. You will be provided with a username and password that will enable you access to the test.

The expected time to complete this activity is 3 hours.

Do not send answers to the MCQs into the *check* office. This activity can only be completed online at www.gplearning.com.au.

If you have any queries or technical issues accessing the test online, please contact the *gplearning* helpdesk on 1800 284 789.

QUESTION 1

Sarah, aged 28 years, is in the first trimester of pregnancy and presents to you with vaginal bleeding and lower abdominal pain. An ultrasound reveals a viable singleton intrauterine pregnancy. Which of the following is true?

A. A quantitative beta human chorionic gonadotrophin of above 100 IU/L generally corresponds with the ultrasonographer seeing a sac in the uterus on a pelvic scan.

B. A quantitative beta human chorionic gonadotrophin of above 100 IU/L usually corresponds with the ultrasonographer seeing a fetal heart beat on a pelvic scan.

C. Two quantitative beta human chorionic gonadotrophin concentrations 48 hours apart should show a doubling of the concentration if her pregnancy is normally progressing.

D. If the crown rump length is ≥4 mm on pelvic ultrasound, a fetal heart beat should be seen.

E. Pregnancy viability on ultrasound is confirmed by visualisation of a sac in the uterus.

QUESTION 2

Gajara, aged 26 years, presents in her first pregnancy at 10 weeks gestation with vaginal bleeding. An ultrasound and 2 quantitative beta human chorionic gonadotrophin concentrations are consistent with a missed miscarriage. You discuss the results with her and inform her of the management options. Which of the following is true of the management options of Gajara's missed miscarriage?

A. Conservative management generally involves a bleed similar to a very light menstrual period.

B. If conservative management is chosen, a quantitative beta human chorionic gonadotrophin <5 IU/L and an ultrasound showing an empty uterus are both required to confirm that the miscarriage is complete.

C. If Gajara has a suction curette, she is likely to experience more pain overall than if she were managed conservatively.

D. Medical management is more likely to be successful in a missed miscarriage (Gajara's case) than an inevitable or incomplete miscarriage.

E. Conservative or medical management are not suitable options if Gajara is haemodynamically unstable.

QUESTION 3

Yaminah, aged 35 years, is currently 36 weeks gestation and presents for her planned antenatal appointment. Her blood pressure is 150/90 mmHg (on two occasions 5 minutes apart). You aim to determine if she has gestational hypertension or pre-eclampsia. Which of the following is true?

A. Oedema is one of the diagnostic features of pre-eclampsia.

B. Gestational hypertension is usually associated with symptoms similar to those that occur in pre-eclampsia.

C. Proteinuria occurs more commonly in gestational hypertension than in pre-eclampsia.

D. Pre-eclampsia involves other features in addition to the presence of hypertension.

E. Pre-eclampsia and gestational hypertension both require follow up with blood tests at the 6 week postnatal check even if blood pressure has normalised.

QUESTION 4

Which of the following is true of antihypertensive treatment in gestational hypertension and pre-eclampsia?

A. Evidence from controlled trials supports the treatment of mild gestational hypertension with antihypertensive medication.

B. Patients with pre-eclampsia should be treated with antihypertensive medication irrespective of blood pressure levels.

C. Medications with demonstrated efficacy in management of gestational hypertension include labetolol and nifedipine.

D. Medications that are considered not compatible with breastfeeding include angiotensin converting enzyme inhibitors.

E. First line agents in the treatment of severe hypertension in pregnancy include oral methyldopa and oral prazosin.

QUESTION 5

Peta, aged 31 years, is pregnant and presents with lowered mood, poor appetite and sleep disturbance. Her symptoms are interfering with her job and relationships and you diagnose her

with depression. You discuss management of her depression with antidepressant medication. In general, which of the following is true regarding antidepressant use in pregnancy or breastfeeding?

A. The risk of congenital abnormality or malformation with the use of antidepressants in pregnancy appears to be high.
B. There appears to be a slightly increased risk of pulmonary hypertension in the newborn associated with the use of selective serotonin reuptake inhibitors before 20 weeks gestation.
C. Neonatal withdrawal symptoms are commonly associated with third trimester use of paroxetine and fluoxetine.
D. Infant levels of active drug of most antidepressants while being breastfed are high.
E. Longterm studies confirm that most antidepressants used in breastfeeding have no measurable effects on child development.

QUESTION 6

Zara, aged 25 years, is 6 weeks pregnant. She has a body mass index (BMI) of 32 kg/m^2. Which of the following would you advise or recommend for Zara?

A. Folic acid 5 mg daily for the duration of the first trimester
B. Vitamin A 10 000 IU daily
C. Iodine 150 mg daily
D. A random blood glucose level in early pregnancy
E. Weight loss of at least 5 kg in pregnancy.

QUESTION 7

You are giving a presentation to medical students on antenatal investigations. Which of the following is true of investigations in pregnancy?

A. Syphilis serology should be performed only on those at risk.
B. Hepatitis C antibody level should be performed on all women.
C. A glucose tolerance test should be performed on all pregnant women in early pregnancy.
D. Screening for risk of Down syndrome should be offered to all pregnant women.
E. Performing a Pap test in pregnancy is contraindicated.

QUESTION 8

Which of the following nutritional supplements are, in general, recommended for pregnant women who are generally healthy with no past medical problems and of normal weight?

A. Iron and vitamin D
B. Folic acid and iodine
C. Folic acid and iron
D. Vitamin D and iodine
E. Calcium and iron.

QUESTION 9

Shana, aged 28 years, is 24 weeks pregnant. She presents to you concerned that she has been exposed to chicken pox as her 2 year old son has just developed the infection. Which of the following is true regarding assessment of her risk of varicella infection and the risk to her fetus of, and from, possible varicella infection?

A. The infectious period for chicken pox is 96 hours before the onset of the rash until the vesicles have disappeared.
B. Significant exposure is defined as living in the same household as someone with active chicken pox or face-to-face contact with a person with chicken pox for at least 5 minutes.
C. Varicella Zoster IgG levels do not usually give an accurate indication of past infection with chicken pox.
D. The risk of congenital varicella infection from maternal varicella infection is independent of the gestation of pregnancy.
E. Congenital varicella syndrome is usually associated with minor and temporary symptoms.

QUESTION 10

Julie, aged 27 years, is 28 weeks pregnant. She presents with one week of low back pain, which is worse at night when she rolls over in bed. The pain is interfering with her activities during the day. You suspect that she has pelvic girdle pain. Which of the following treatments would you advise for Julie?

A. Exercises involving squats
B. Gym work involving weights
C. Walking for at least 30 minutes per day
D. Non-steroidal anti-inflammatory medication
E. Six hourly paracetamol.