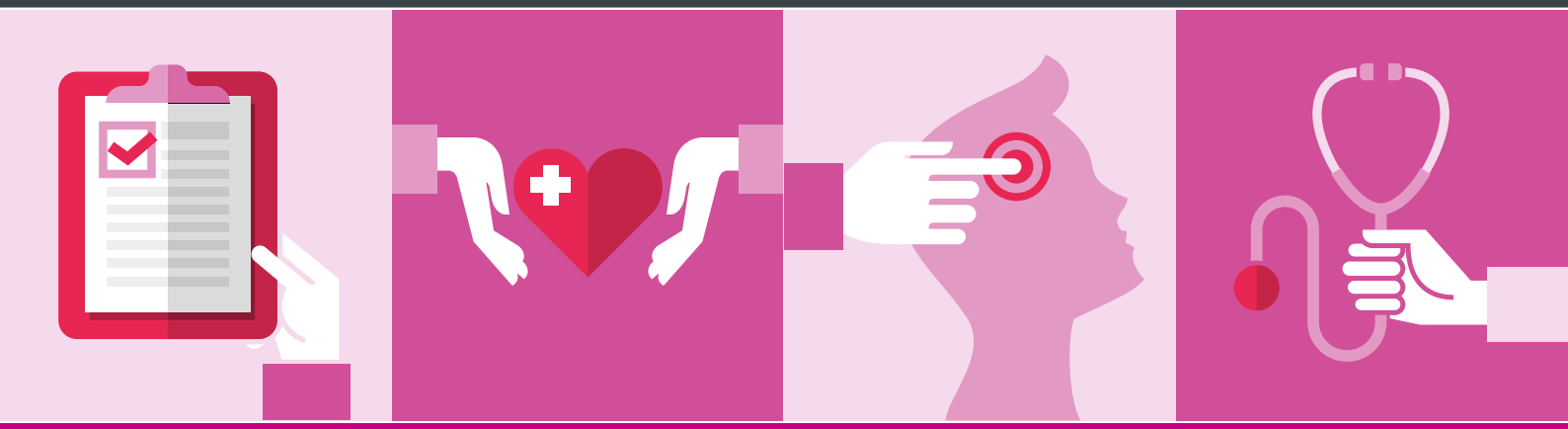
check

Independent learning program for GPs



Unit 530 August 2016

Women's health

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Published by

The Royal Australian College of General Practitioners
100 Wellington Parade
East Melbourne, Victoria 3002, Australia
Telephone 03 8699 0414
Facsimile 03 8699 0400
www.racgp.org.au

ABN 34 000 223 807
ISSN 0812-9630

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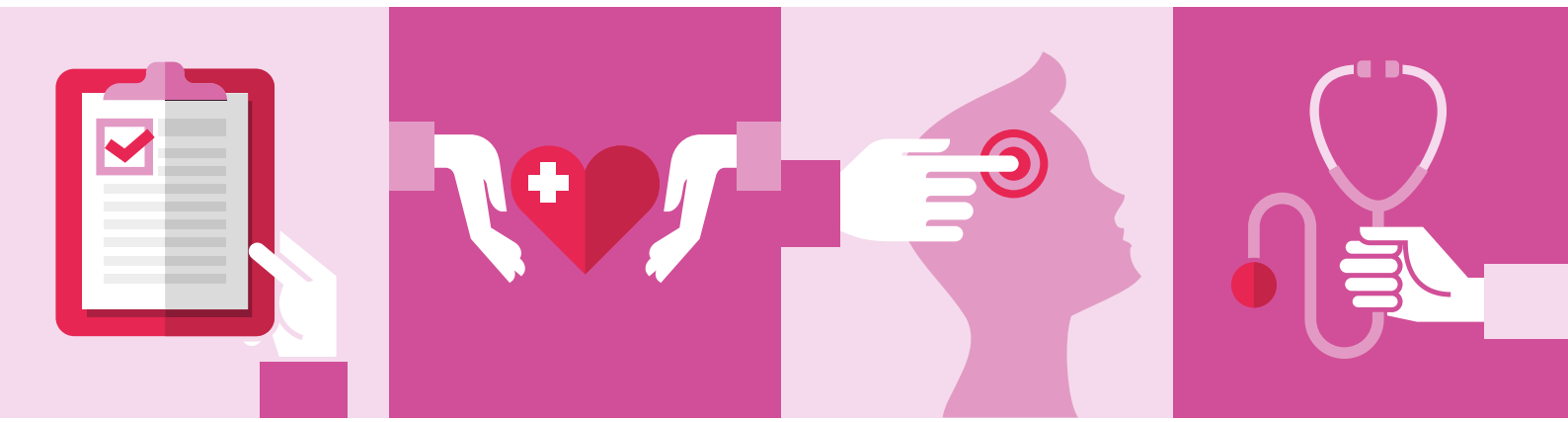

Women's Health

Unit 530 – August 2016

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

RACGP

Women's health is a broad area of primary care and general practitioners (GPs) are required to be knowledgeable in a number of gender-specific conditions.[1] Female patients account for an estimated 57% of all GP consultations,[2] and comprise a large proportion of the general practice workload.[1]

An estimated 10% of Australian women aged 15–49 years are affected by endometriosis, a chronic condition that affects the reproductive organs in women.[3] Female patients with vulvovaginitis may present with itch, discharge, dyspareunia, burning, soreness, dysuria and swelling.[4]

It is important for GPs to understand and know the advantages and disadvantages of the various options for contraception, including risk factors for venous thromboembolism.[5] As perimenopause can often last four to six years, GPs need to understand the management of a patient during this phase.[6]

In patients who are pregnant, it is important to optimise haemoglobin during the antenatal period, minimise blood loss during birth and, in the event of haemorrhage, secure haemostasis as a matter of urgency.[7]

This edition of *check* considers the management and treatment of various conditions specific to women in general practice.

LEARNING OUTCOMES

At the end of this activity, participants will be able to:

- discuss the diagnosis of, and treatment options for, endometriosis
- discuss the key considerations for patient blood management in pregnancy
- outline the management of a patient presenting with vulvovaginal irritation
- describe contraceptive options for premenopausal women, including the advantages and disadvantages of each one and risks of venous thromboembolism
- summarise the recommendations for contraception in perimenopausal women.

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ACRONYMS

AFLP	acute fatty liver of the pregnancy
BMI	body mass index
BSO	bilateral salpingo-oophorectomy
CDC	Centers for Disease Control and Prevention
COC	combined oral contraceptive
CRP	C-reactive protein
DMPA	depot medroxyprogesterone acetate
ESHRE	European Society of Human Reproduction and Embryology
ESR	erythrocyte sedimentation rate
FBE	full blood evaluation
FPAA	Family Planning Alliance Australia
FPU	first-pass urine
FSH	follicle stimulating hormone
FSRH	Faculty of Sexual and Reproductive Health
GI	gastrointestinal
GnRH	gonadotrophin releasing hormone
GP	general practitioner
Hb	haemoglobin
HBV	hepatitis B virus
HCV	hepatitis C virus
HELLP	haemolysis, elevated liver enzymes, low platelets
HDFN	haemolytic disease of the fetus and newborn
HIV	human immunodeficiency virus
HPV	human papilloma virus
ITP	immune thrombocytopenia
IUD	intrauterine device
LARC	long-acting reversible contraception
LMP	last menstrual period
MEC	medical eligibility criteria
NSAID	non-steroidal anti-inflammatory drug
PBM	patient blood management
PBS	Pharmaceutical Benefits Scheme
PCR	polymerase chain reaction
PID	pelvic inflammatory disease
POI	premature ovarian insufficiency
POP	progestogen-only pill
PPH	postpartum haemorrhage
RACGP	The Royal Australian College of General Practitioners
SOGC	Society of Obstetricians and Gynaecologists of Canada
STI	sexually transmissible infection
TSH	thyroid stimulating hormone
VTE	venous thromboembolism
WHO	World Health Organization
ßhCG	beta-human chorionic gonadotropin

CASE 1

MADDIE HAS PAINFUL PERIODS

Maddie, a Year 10 student aged 16 years, is brought to see you by her mother, who is concerned about her daughter's increasing period pain. Maddie presented to you 12 months ago with mild dysmenorrhoea early in her cycle; her period was heavy only for the first two days. No investigations were ordered at that time and Maddie was prescribed naproxen for her menstrual pain and advised to return if the period pain did not respond to treatment.

There was a significant reduction in her period pain for about four to five months with the use of naproxen. However, over the past six months, her periods have become heavier, especially on the second and third day. These are also the days when she has the most pain, despite the regular use of naproxen prior to and during her period. Her last period started four days before this consultation and she had stayed at home, missing school for the first two days. Maddie is worried about the impact of her period pain on her studies.

QUESTION 1

How would you manage this consultation? What questions would you ask to help make a diagnosis? What examination should you perform?

FURTHER INFORMATION

Maddie's mother reveals that she had difficulty conceiving. Her mother, Maddie's maternal grandmother, had a history of very heavy periods, had only one child, and had a hysterectomy and bilateral salpingo-oophorectomy (BSO) at the age of 38 years.

Maddie asks her mother to leave the room for the examination and tells you she recently had protected intercourse with her boyfriend;

it was the first time for both of them. Maddie asks if she can take the pill (combined oral contraceptive [COC]) for contraception.

You complete the examination and it reveals mild, lower abdominal tenderness. A vaginal examination is not performed as Maddie was menstruating and did not wish to be examined.

QUESTION 2

What is your diagnosis? What management approach would you recommend?

FURTHER INFORMATION

You discuss the risks and benefits of the COC with Maddie (see Case 3 for further detail). This may reduce her period pain and bleeding, which would be helpful during her final years at school. You advise Maddie to take the COC, initially trialling the hormone-free pills for three cycles to assess her response in reducing her dysmenorrhea.[1]

Maddie asks about skipping her periods on the COC. You discuss this option and give her information about the potential for breakthrough bleeding. If this happens, she should stop the active pills for three to seven days then recommence. You also advise her to continue to use protection during sex in order to reduce the risk of sexually transmissible infections (STIs).

You prescribe the COC and advise Maddie to return in six months' time to assess her response to the pill, or to return sooner if she has ongoing problems with pain and heavy bleeding.

You refer Maddie for abdominal ultrasonography, which shows no evidence of pelvic pathology.

Second visit 18 months later

Maddie is now 18 years of age and returns to see you following a recent episode of severe abdominal pain associated with nausea and vomiting. She reports associated bloating, sore breasts and constipation. Her period started a few days after this event.

QUESTION 3

What specific questions should you ask Maddie during the consultation? What examination should be conducted?

FURTHER INFORMATION

Maddie stopped taking the COC six months ago when her prescription ran out, as she had been relatively pain-free and able to attend school without taking time off. Since stopping the COC, her periods have become heavier and period pain has increased. It is present premenstrually and persists through to the fourth day of her period. Her period pain has increased in severity, continuing to be in the lower abdomen, with some dragging and radiating down her legs.

She continues to be sexually active and uses condoms for contraception and STI prevention, but has recently noticed that sex has become painful.

The abdominal examination reveals tenderness in the iliac fossae. A vaginal examination reveals tenderness in the posterior fornix but no masses are felt.

QUESTION 4

What are the differential diagnoses? What investigations are needed to exclude/confirm?

FURTHER INFORMATION

Maddie's investigation results are outlined below:

- The full blood evaluation (FBE) shows normal haemoglobin level, white cell count and platelet level, which exclude anaemia, infection or a platelet disorder. The serum iron and ferritin are within the normal range.

- The vaginal ultrasound shows no evidence of ovarian cysts or pelvic masses but Maddie experienced severe pain during the ultrasound, particularly deep in her pelvis and more so on the left side.

QUESTION 5

What is the most likely diagnosis? What features of the history, examination and investigations suggest this diagnosis?

QUESTION 6

How can the diagnosis be confirmed?

QUESTION 7

What are the management options for this condition?

CASE 1 ANSWERS

ANSWER 1

Dysmenorrhoea is a very common problem in adolescence and up to 60% of young women have symptoms.[2] It is the most common cause of activity restriction and absence from school or work in adolescent girls.[3]

A thorough medical history and examination are essential to evaluate the presentation and should include the following aspects.

Pain

It is important to determine if the pain is actually related to the menstrual cycle or has another underlying cause. Questions to ask the patient might include:

- Where is the site of the pain?
- How would you describe the pain (eg is it continuous or colicky)?
- How long has it been present?
- Is the pain associated with gastrointestinal function; do you have nausea, vomiting or diarrhoea/loose bowels?
- Does opening your bowels ease or make the pain worse?
- Do you have pain on urination?

Menstrual history

Questions in your consultation could include:

- How old were you when you first had your period?
- How often do you have periods and how long does each one last?
- Is the period heavy? If so, on which days of the period?
- What size tampon and/or pad do you use? Do you ever use both?
- How often do you change them?
- Do you ever flood through tampon/pad or at night in bed?
- Have your periods caused you to miss school/work/social activities before this period?
- What associated symptoms, including pain and discomfort, do you have?
- What pain relief have you taken and does it help?

Medical and family history

It is important to find out if the patient has a medical and/or family history of any serious illnesses, infections or operations. This includes a family history (mother, aunts and grandmothers) of painful, heavy periods, and endometriosis, adenomyosis, fibroids, infertility and/or hysterectomy. Questions could include:

- Do you have any family members (maternal and paternal side) with:
  - diagnosed endometriosis?
  - pelvic pain or pain during menstruation?
  - problems getting pregnant or involuntary childlessness?

Sexual history

Maddie's mother may not be aware of her daughter's sexual history, so the doctor would need to decide whether to ask the mother to leave the room to question her about this. An appropriate time might be before the

examination, during which you then have the opportunity to take a sexual history, which includes:

- when the first intercourse occurred
- male or female partner(s)
- route of intercourse
- use of contraception
- discussion of STIs
- vaccination history including the human papillomavirus
- pain or bleeding during sex.

Examination

- Perform an abdominal examination to rule out palpable pathology, checking for operation scars, tenderness, guarding and peritonism.
- Auscultate for bowel sounds.

Note

- In an adolescent who has never been sexually active and has a typical history of mild-to-moderate dysmenorrhea, a pelvic examination is **not** appropriate.[4]
- A pelvic examination is indicated **only** in all patients not responding to conventional therapy of dysmenorrhea or when an organic pathology is suspected.[4]
- Depending on sexual history, an STI check and Pap test may be required.

ANSWER 2

Diagnosis

It is possible that Maddie continues to have primary dysmenorrhea, but differential diagnoses should also include causes of secondary dysmenorrhoea, in particular, endometriosis and adenomyosis.

Management

The Society of Obstetricians and Gynaecologists of Canada (SOGC) *Primary dysmenorrhea consensus guideline* suggests the following management.[4]

- Women suffering from primary dysmenorrhea should be offered non-steroidal anti-inflammatory drugs (NSAIDs) as a first-line treatment for the relief of pain and to improve daily activity, unless they have a contraindication to the use of NSAIDs. If this is the case, simple analgesics or the OCP would be recommended.
- Oral contraceptives may be recommended for the treatment of primary dysmenorrhea. The added contraceptive advantage may make oral contraceptives a first-line therapy for some women.
- Consideration may be given to continuous use of the active oral contraceptive pills to suppress withdrawal bleeding and the associated dysmenorrhea.

Maddie has previously used NSAID therapy and is now requesting contraception, so in this instance it would be appropriate to offer the oral contraceptive.

Given her family history, Maddie should have an abdominal ultrasound.

ANSWER 3

Menstrual history

Because it has been 18 months since her last visit, it is important to find out what has happened in that time with her menstrual cycle and dysmenorrhea symptoms.

Questions include those asked previously:

- Is your period heavy?
- How long does it last?
- What size tampon and/or pad do you use? Do you ever use both?
- How often do you change them?
- Do you ever flood through tampon/pad or at night in bed?
- Have your periods caused you to miss school/work/social activities before this period?
- What associated symptoms, including pain and discomfort, do you have?
- What pain relief have you taken and does it help?

In addition, you should ask Maddie if she has had any of the following:[5]

- pain on defecation and/or urination. If so, where is the pain and is it associated with menstruation?
- pain during sex (if sexually active)
- history of benign ovarian cysts
- other symptoms/complaints and diseases.

Examination

A general physical examination should be performed, including a careful abdominal examination, palpating for abdominal masses, abdominal scars, bloating or tenderness

As Maddie has been sexually active, examination should include a speculum and bimanual examination, a Pap smear and swab for STI testing by polymerase chain reaction (PCR). The bimanual examination should include an assessment for pelvic tenderness, uterine size and adnexal masses and any nodularity in the uterosacral ligaments and the vagina. A pregnancy test is ordered.

ANSWER 4

Differential diagnosis could include:

- adenomyosis – a myometrial disorder where endometrial cells and stroma grow within the myometrium
- chronic constipation – this can lead to lower abdominal pain
- colitis – an inflammatory bowel disease that is an autoimmune condition with bowel symptoms of diarrhoea, rectal bleeding, severe cramping abdominal pain, weight loss, tiredness and exhaustion; it can occur in adolescents
- endometriosis – a chronic inflammatory, oestrogen-dependent, recurring disease of ectopic endometrial cells, which may lead to major impairment of quality of life, subfertility, chronic pelvic pain and potential difficulties with therapy, and may require surgical menopause[6]

- irritable bowel syndrome – this often occurs together with endometriosis[7] and causes abdominal cramping, alternating diarrhoea and constipation, nausea, bloating and pain relieving by passing wind
- pelvic inflammatory disease (PID) or STIs – these can cause symptoms that mimic those of dysmenorrhea.

Given the symptomatology, patient's history and family history, the following investigations are recommended:

- full blood evaluation (FBE), ferritin levels, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) levels
- ultrasonography of the vagina (if possible it is preferable to refer to a specialist women's ultrasound unit) to exclude any pelvic masses, ovarian cysts and evidence of endometriosis and/or adenomyosis.

ANSWER 5

Without further investigation for confirmation, the likely diagnosis is endometriosis.[5]

The following findings from Maddie's history, examination and investigations support this diagnosis:[5]

- cyclic pain
- progression of the severity of her pain
- pain is both premenstrual and menstrual, and has increased with time
- other associated symptoms, including onset of deep dyspareunia and abdominal symptoms
- severe pain during the vaginal ultrasonography
- strong family history – mother with fertility issues, and maternal grandmother may have had endometriosis, had only one child and an early hysterectomy and BSO.[5]

ANSWER 6

A definitive diagnosis of endometriosis cannot be made on the basis of the clinical examination. However, pain on vaginal examination, the presence of tender nodules in the posterior fornix and adnexal masses, and immobility of the uterus suggest this as a diagnosis.

The gold standard for diagnosis of endometriosis is the combination of laparoscopy and the histological verification of endometrial glands and/or stroma.[8]

ANSWER 7

Maddie needs to be referred to a gynaecologist, preferably one with expertise in operative laporoscopy and, in particular, the management of endometriosis.[8]

If confirmed, endometriosis management will depend on the patient's age, severity of symptoms, medical history and stage of reproductive life.

The following management recommendations below are taken from the European Society of Human Reproduction and Embryology's (ESHRE's) guideline *Management of women with endometriosis*.[8]

Analgesia

There is inconclusive evidence to determine whether NSAIDs are effective in the reduction of pain caused by endometriosis. They are effective in the treatment of dysmenorrhea so are often recommended.

Suppression of ovarian function

Suppression of ovarian function using hormonal contraceptives and continuous progestogens can reduce the pain associated with endometriosis. Second-line treatments include gonadotropin releasing hormone (GnRH) agonists, levonorgestrel-releasing intrauterine device (IUD), etonorgestrel implant and oral dienogest. Danazol and gestrinone are rarely prescribed because of major side effects.

There is no evidence to support the use of one ovarian suppression treatment over another.

Emerging evidence suggests that aromatase inhibitors and neuromodulators may be useful in the treatment of endometriosis, but there is currently insufficient data to support their use.[9]

Surgical treatment

When endometriosis is identified at laparoscopy, it should be removed by excision or ablation. This has been shown to reduce endometriosis pain.

Advanced laparoscopic skills are required, especially when endometriosis affects the bowel and other organs in a small percentage of women.[10] For this reason a woman with suspected or diagnosed deep, infiltrative endometriosis should be referred to an expert or multidisciplinary centre.

Management of infertility

An estimated 25–50% of women with infertility have endometriosis and around 30–50% of women with endometriosis have infertility.[11] Medical treatment in women with endometriosis and subfertility has not been shown to improve fertility and may delay conception.[12] Instead, treatment focuses on the removal or reduction of the endometriosis to restore normal pelvic anatomy and increase the likelihood of pregnancy.

Referral to an appropriate gynaecologist is paramount to initiate the required treatment and maximise fertility outcomes.

Prognosis

Endometriosis is a chronic condition and has a recurrence rate of 10–50% one year after surgery. This increases with time.[13]

In women who undergo surgical treatment of endometriosis, clinicians are recommended to prescribe postoperative use of a levonorgestrel-releasing IUD or a combined hormonal contraceptive for at least 18–24 months, as one of the options for the suppression of the recurrence of endometriosis or endometriosis-related pain.[6]

CONCLUSION

The role of the general practitioner after diagnosis of endometriosis is an important one and may include:

- counselling and support
- maintenance of endometrial suppressive therapy
- collaboration with the treating gynaecologist, fertility specialist or chronic pain physician.

To reduce the time to diagnosis, it is important for primary care practitioners to be aware of clinical signs and symptoms that may suggest undiagnosed endometriosis such as:

- persistent pelvic pain that is impacting on quality of life
- pelvic pain that has not responded to hormonal suppression (COC)
- dyspareunia, dysuria, and dyschezia
- subfertility or infertility.

RESOURCES FOR PATIENTS

- Jean Hailes for Women's Health, jeanhailes.org.au
  - https://jeanhailes.org.au/health-a-z/endometriosis
  - https://jeanhailes.org.au/shop/endometriosis-and-pelvic-pain
- Endometriosis Australia, www.endometriosisaustralia.org
- Pelvic Pain Foundation of Australia, www.pelvicpain.org.au
- Endometriosis New Zealand, www.nzendo.org.nz

RESOURCES FOR DOCTORS

- European Society of Human Reproduction and Embryology, guideline on the management of women with endometriosis, www.eshre.eu/guidelines-and-legal/guidelines/endometriosis-guideline.aspx
- World Endometriosis Society, http://endometriosis.ca

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CASE 2

GEMMA HAS AN ITCH

Gemma is a student, 21 years of age, who comes to see you because she has a new vaginal discharge and feels very itchy around her vulva and vagina.

QUESTION 1

What further history should you obtain?

FURTHER INFORMATION

Gemma says she noticed a thick white discharge, which is annoying but not smelly. There has been no intermenstrual or postcoital bleeding. She has had the same male partner for the past two years and he has been her only partner. Gemma recently had a Pap smear, which was normal. Her last period was three weeks ago. She is on the oral contraceptive pill (OCCP) and has not missed any pills. Her last period was one week ago. She has recently started swimming more as she is training for a triathlon.

QUESTION 2

What needs to be considered in regards to Gemma's examination?

QUESTION 3

What would you look for on examination?

FURTHER INFORMATION

On examination, Gemma's vulval skin has the appearance seen in Figure 1. Her vulva and vagina are red and swollen but there is no well-defined rash. She has a thick white discharge at the introitus. Her skin is very itchy when you examine her but she denies that it is painful. You ask if you can perform a speculum examination and Gemma agrees.

On speculum examination, her vagina is slightly red and there is thick white discharge. The cervix is normal and there is no ectropian or discharge from the os. Her pelvic floor muscles are normal. Gemma has no adnexal mass or tenderness and she has no cervical excitation.

Figure 1. Gemma's vulval skin

Reproduced with permission from The Royal Australian College of General Practitioners from Drummond C. Common vulval dermatoses. Aust Fam Physician 2011;40(7):490–96. Available at www.racgp.org.au/afp/2011/july/common-vulval-dermatoses [Accessed 12 May 2016].

QUESTION 4

What are your differential diagnoses? What is the most likely diagnosis?

QUESTION 5

What investigations should be done?

FURTHER INFORMATION

Gemma's microbiology swab results show a heavy growth of *Candida albicans*. Her swab for chlamydia is negative.

QUESTION 6

How will you manage Gemma?

FURTHER INFORMATION

You treat Gemma with fluconazole 150 mg orally and her condition improves markedly after two weeks. Her skin has also improved. Six months later, she returns and says that she has had the same symptoms two months ago and again after a one-week course of amoxycillin. Each time she used fluconazole 150 mg orally, the symptoms would disappear. However, five days ago she had itch again but this time with no discharge. Gemma has also started to have pain on intercourse and when using a tampon.

QUESTION 7

What is the explanation for Gemma's recent symptoms?

QUESTION 8

What treatment could you use for Gemma now?

CASE 2 ANSWERS

ANSWER 1

Gemma is expressing symptoms of vulvovaginitis.[1] Vulvovaginitis can present with itch, discharge, dyspareunia, burning, soreness, dysuria and swelling.[2] The causes of vulvovaginitis are varied and can be infective, inflammatory, dermatological or neurological. A detailed history, examination and microbiological assessment are needed to differentiate between the possible diagnoses.

A history of the discharge onset, type, quantity, colour, smell and duration should be elicited. Exploring the nature of the 'itch' and whether there are any other sensations, such as burning or sharp pain, can be useful. The site of the itch can also aid diagnosis. It is useful to ask if symptoms are felt outside on the vulva, inside the vagina or both.

It is important to ask if the symptoms occur when provoked (eg with the use of tampons or intercourse) or are unprovoked (eg when sitting).

Specifically asking about sport and its impact on the itch and discharge is important, as sweat, chlorine and nylon, which can be in sport and dance wear, can be triggers for dermatitis or vaginosis.

A menstrual history should be obtained, including whether there is a cyclical change of the discharge or itch. Gemma needs to be asked if she regularly wears panty liners or sanitary pads as these can cause vulval irritation.[3]

Sensitively ask about the patient's sexual history to assess the impact from and on symptoms. Information about change in partners is also important to assess the risk of sexually transmissible infections (STIs).

It is important to discuss pregnancy history in order to elicit if symptoms are triggered or changed by pregnancy. It is also important to document or exclude pregnancy as some treatments for vaginal discharge are contraindicated during pregnancy.

It is useful to ask about other skin or chronic conditions. Psoriasis, dermatitis and inflammatory skin conditions that occur in the genital area can cause itch.

Medications can have an impact on vulval conditions and asking about the use of antibiotics, hormonal contraception, menopausal hormone treatment, any new medications or new lotions is important. You should also ask about self-treatment (eg oral, topical, pessaries) as many patients will have tried over-the-counter treatments before seeing a doctor, which can lead to negative microbiology results although the discomfort can remain.

ANSWER 2

As there is a need for a genital examination, it may be suitable to offer a chaperone. Document the offer and whether a chaperone is present and who they are.[4]

It is important to carefully describe what you will do during an examination and seek permission for each step. A sheet should also be used to provide appropriate draping to minimise exposure. A significant proportion of women with vulvovagnitis have vaginal pain and can find a genital examination, especially the speculum examination, painful. If the examination is too painful or causing distress, the examination needs to be stopped. External examination and low vaginal swabs may be an initial step with further examination as diagnosis and treatment progresses.

ANSWER 3

Initially, start with a general skin examination. There may be evidence of dermatitis or psoriasis. Next, examine the vulval and perianal skin. If there is erythema, note if it is diffuse or has a well-defined border. It is also important to note location of the erythema or rash, and whether there is pallor, lichenification (thickening of the skin with increased skin markings) or pigmentation. Erosion or ulcers should be noted. Sensation or pain can be examined with a moistened cotton tip from the outer labia to the introitus. A speculum examination can be useful to examine discharge, the vagina mucosa and the cervix. Finally the pelvic floor muscles, adnexa and cervical excitation can be assessed with a bimanual examination.

ANSWER 4

Mixed pathology is common in the vulval area. The most common combination is vulval dermatititis exacerbated by bouts of candidiasis.[5] Other causes of vulvovagnitis are shown in Table 1.

In Gemma's case, the most likely diagnosis is vulvovaginitis candidiasis or irritant dermatitis. She is unlikely to have bacterial vaginosis with her current discharge. Her examination makes lichens sclerosis, genital warts, *Herpes* infection and psoriasis unlikely.

Approximately 15–20% of women have genital colonisation of yeast that is asymptomatic.[1] However, when an overgrowth of yeast occurs it can cause vulvovaginitis. Risk factors for overgrowth are pregnancy, vaginal or systemic antibiotic use and diabetes mellitus.[6] Symptomatic vulvovaginitis candidiasis occurs in 75% of women at some stage of their lives[7] and 90% of these infections are caused by *C. albicans*. Non-albicans infections are less common and account for 33% of chronic vulvovagnitis candidiasis cases.[1]

Table 1. Causes, symptoms and signs of vaginitis[1,6]

Diagnosis	Symptoms	Clinical findings
Vulvovaginal candidiasis	• Itching, irritation, burning, dyspareunia • White thick discharge • Can be linked to menstrual period	• Erythema of vulva and/or vagina • Swelling of labia minora • Normal pH • Spores on microscopy • Positive fungal culture
Bacterial vaginosis	• Chronic grey discharge • Malodorous • Mild or little irritation and itching	• Thin grey, white discharge • pH >4.5 • Epithelial cells with >20% clue cells
Herpes simplex virus	• Vulval or perianal ulcers and pain, itch • Discharge that can be watery or bloodstained purulent discharge	• Cervicitis or cervical ulcers with bloodstained or purulent discharge, possible vaginal ulcers
Irritant dermatitis	• Irritation, burning, minimal discharge	• Erythema of vulva and or vestibule • Normal pH, negative microscopy and culture
Retained tampon or other material	• Offensive purulent discharge, pelvic pain	• Offensive discharge • Retained products in vagina, normal vulva
Vulval vestibulitis	• Acquired dyspareunia, pain with other contact at the introitus (eg tampons)	• Areas of focal erythema, • Normal pH, normal microscopy and culture
Atrophic vaginitis (postmenopausal)	• Vaginal dryness, dyspareunia, rarely itch, sometimes odourless discharge	• Pallor, patchy redness, loss of vaginal rugae, vaginal wall bleeding
Lichen sclerosis	• Can be asymptomatic but also can be very itchy	• Pallor, lichenfication, atrophic changes, 'figure of 8' involving vulva and anus

Lichen planus	• Intense pain, dyspareunia, post-coital bleeding, itchy, can have a yellow or grey discharge	• Vaginal erosions • Possible oral involvement
Psoriasis	• Redness, itchy vulva but no vaginitis	• Erythema with a defined border and involvement of folds and gluteal crease. Lack of scale due to moist environment
Sexually transmissible infections	• Can be asymptomatic, but may have discharge and postcoital bleeding	• Possible mucopurulent cervicitis, pelvic tenderness if has pelvic inflammatory disease
Trichomoniasis	• Green-yellow, frothy discharge • Dyspareunia, dysuria • Minimal itch	• Vaginitis and sometimes ecto-cervicitis • pH >4.5

ANSWER 5

Swabs of the vagina and vulva should be taken for microbiology, culture and sensitivity. If available, pH can be tested at the bedside with pH strips. A first-pass urine (FPU) sample, or a swab from the vagina or endocervix should be sent for chlamydia testing by polymerase chain reaction (PCR). This would be recommended for Gemma, given the presence of a new discharge and Gemma's age. Chlamydia infections occur more often in younger people; >80% of notified chlamydia infections occur in people under 29 years of age and annual screening is recommended.[8]

ANSWER 6

General management of all vulval dermatosis involves environmental modification and skin care. Advise the patient to use water or a non-soap cleanser and wear loose cotton clothing. Exposure to vulval irritants (Box 1) should be minimised.[9,10]

Topical intravaginal treatment is effective for most women with an initial episode of *C. albicans* infection.[11] An imidazole (eg clotrimazole, miconazole) or nystatin can be used. Nystatin is less effective than an imidazole but is generally better tolerated.[11] Clotrimazole can be used as a 1% vaginal cream once daily at bedtime for six nights or 2% vaginal cream once daily at bedtime for three nights or 10% at bedtime as a one-off dose.[11] Clotrimazole pessaries can also be used as 100 mg pessaries once a day for six nights or one 500 mg pessary once.[11] Nystatin 100,000 units/5 g vaginal cream can be used once daily at bedtime for 14 nights.[11]

If a women does not tolerate topical therapy for *C. albicans* or prefers oral therapy, and is not pregnant, fluconazole 150 mg orally as a single dose is possible.[11]

Care needs to be taken to exclude pregnancy either from careful history or a urinary pregnancy test as fluconazole is Category D in pregnancy.[11]

One per cent hydrocortisone/clotrimazole can also be applied to the vulva.[11] If non-albicans candidiasis is identified, boric acid 600 mg pessaries daily for 14 days can be used, as imidazole antifungals can be less effective.[11] These may need to be sourced from a compounding chemist.

Candidiasis is not sexually transmitted. It is therefore unnecessary to recommend treatment of the male partner unless he had candidal balanitis or another form of cutaneous candidiasis in the genital area.[5]

Box 1. Vulval irritants[10]

- Soap, detergents, hygiene wipes
- Vaginal discharge, urinary and faecal incontinence
- Hair removal
- Fragrance, douches
- Lubricants, condoms
- Sanitary pads, panty liners
- G-strings, tight jeans, gym clothing
- Cycling, horse riding, gym exercise
- Swimming, saunas, spas

ANSWER 7

Gemma appears to have symptoms of chronic vulvovaginal candidiasis, which is often referred to as recurrent vulvovaginal candidiasis. The terms describe the same condition. The term 'recurrent' arises because of the observation that symptoms abate while using antifungal treatment and recur after stopping treatment.[9]

Chronic vulvovaginal candidiasis is thought be due to an innate hypersensitivity reaction to *Candida* rather than an infection.[10] Box 2 lists the symptoms suggestive of chronic vulvovaginal candidiasis.

It is worth noting that cultures are often negative within four weeks of antifungal treatment.

Chronic vulvovaginal candidiasis occurs mostly in otherwise healthy women. Although candidiasis is more likely in patients with diabetes mellitus, most of the women with chronic candidiasis do not have diabetes mellitus. Glucose tolerance testing is indicated in the more difficult cases and always in postmenopausal women with *C. albicans* infection unless they are receiving hormone replacement therapy.[5]

Box 2. Symptoms suggestive of chronic vulvovaginal candidiasis[9]

- Vulvar itch, swelling or splitting with sex
- Reduced lubrication (often there is little discharge with chronic candidiasis)
- Burning and rawness with sex
- Premenstrual flare of pain and/or itch
- Reduction in symptoms while using antifungal treatments
- Previous positive culture or detection on a Pap smear

ANSWER 8

A trial of *Candida* suppression is recommended if there are suggestive symptoms, even if cultures are negative.[9,11] Treatment needs to be prolonged as all antifungals currently available are fungistatic and yeasts proliferate when suppression is stopped.[8] Oral treatments are preferable

as they avoid potential contact dermatitis with prolonged topical treatments.[10] Fluconazole can be prescribed at either 150 mg every three days until symptoms improve, followed by maintenance therapy at 150 mg weekly for six months,[10] or 50 mg daily until symptoms improve, followed by maintenance therapy.[11,12] The suppression may need to continue for six months or longer.[9] If there is no improvement in symptoms after six weeks of suppression and there are negative cultures, candidiasis is unlikely and the diagnosis needs to be reviewed.[9]

Chronic, painful and itchy vulval conditions can lead to secondary pelvic floor spasm and a sensory neuropathy (vulvodynia).[10] If persistent and severe, vulvodynia may require a multidisciplinary approach with physiotherapy, psychology and support groups, as well as medications such as amitriptyline, gabapentin or pregabalin.[9,10]

RESOURCES FOR PATIENTS AND DOCTORS

- Melbourne Sexual Health Centre, fact sheets on genital skin care, thrush and vulvodynia, www.mshc.org.au
- Melbourne Sexual Health Centre, pictures of genital skin, www.stiatlas.org
- Fisher G, Bradford J. The vulva: A clinician's practical handbook. Sydney: Family Planning NSW. 2010.

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CASE 3

ELEANOR ASKS YOUR ADVICE ABOUT CONTRACEPTION

Eleanor, a nulliparous woman aged 20 years, presents to your surgery for advice about contraception. She has been taking a combined oral contraceptive (COC) pill for the past three years, which contains 30 µg ethinyloestradiol and 3 mg drospirenone. Today, she asks for your advice as to whether she should continue with the COC, as she heard some recent media reports concerning a possible increased risk of venous thromboembolism (VTE) with this type of pill.

QUESTION 1

What questions would you ask Eleanor regarding her general medical history? How would you assess her risk factors for VTE?

FURTHER INFORMATION

You ascertain that Eleanor does not have any contraindications to the COC or any background risk factors for VTE that would make it an unsuitable choice.

QUESTION 2

How would you respond to Eleanor's concerns regarding the increased risk of VTE with her current COC?

FURTHER INFORMATION

Eleanor asks if she should stop taking the COC for a few months to 'give her body a break from hormones', and use condoms for contraception instead.

QUESTION 3

How would you advise Eleanor about using condoms instead of the COC?

FURTHER INFORMATION

Eleanor is still concerned about the possibility of VTE and asks if it would be a good idea for her to switch to the vaginal ring.

QUESTION 4

How is a vaginal ring used for contraception? What are the advantages and disadvantages of a vaginal ring compared with the COC, including the risk of VTE?

FURTHER INFORMATION

Eleanor remains concerned about the risk of VTE and would prefer an alternative method of contraception that is effective but is not associated with an increased risk of VTE. However, she still wants a reliable method of contraception.

QUESTION 5

What other methods of contraception could Eleanor try? What are some of the advantages and disadvantages of these methods?

FURTHER INFORMATION

After discussing the different options, Eleanor decides to switch to the contraceptive implant. You insert this for her at a subsequent appointment. She returns three months later, complaining of light vaginal bleeding/spotting most days.

QUESTION 6

What can you suggest to Eleanor about the bleeding?

CASE 3 ANSWERS

ANSWER 1

It is important to always check that there are no medical contraindications to providing an ongoing prescription for the COC, even if it has previously been prescribed by other practitioners. The Medical Eligibility Criteria (MEC) for contraceptive use provides a framework for the safe prescribing of contraception and is an invaluable guideline for practitioners.[1] First developed by the World Health Organization (WHO), the MEC has been adapted by the Faculty of Reproductive and Sexual Health in the UK[2] and is included in *Contraception: An Australian clinical practice handbook*.[3] It categorises contraceptive methods according to medical conditions. Table 1 gives a summary of the MEC categories.

Contraindications to the use of COC include:[3]

- migraine with aura (MEC 3 if longer than five years ago, MEC 4 if within the past five years)
- history of VTE (MEC 4 if personal history)
- family history of VTE in a first-degree relative aged <45 years (MEC 3)
- breast cancer (MEC 4 if within past five years, MEC 3 if longer than five years disease-free)
- obesity (MEC 3 if body mass index [BMI] >35 kg/m^2)
- aged 35 years or older and a smoker (MEC 3 if <15 cigarettes per day, MEC 4 if 15 or more cigarettes per day).

The following contraindications are classified as MEC 4 and are important to consider in women of any age (the list below is not exhaustive):

- uncontrolled hypertension
- ischaemic heart disease
- stroke
- secondary Raynaud's disease with lupus anticoagulant
- systemic lupus erythematosis with positive (or unknown) antiphospholipid antibodies
- diabetes with microvascular or macrovascular complications
- severe liver disease
- multiple risk factors for cardiovascular disease.

It is important to determine whether Eleanor has any background risk factors for VTE, which could make the COC an unsuitable choice.[4] Risk factors include:

- history of VTE
- family history of VTE
- known thrombogenic mutation
- obesity
- history of malignancy
- immobility (eg bed rest longer than three days, air travel longer than eight hours)
- fracture of the hip or lower limb
- hip or knee replacement surgery; arthroscopic knee surgery
- major general surgery
- major trauma
- spinal cord injury
- currently pregnant or postpartum.

Some of these risk factors will make prescribing the COC either absolutely contraindicated (MEC 4) or inadvisable (MEC 3). Table 2 lists the MEC

categories for some of the VTE risk factors in relation to COC use and includes progestogen-only methods for comparison.

Table 1. Summary of MEC categories

MEC 1 – No restriction for use.
MEC 2 – Can generally be used, but more careful follow-up may be required.
MEC 3 – Use of the method is not usually recommended unless other methods are not available or not acceptable; may require expert clinical judgement and/or referral to a specialist contraceptive provider.
MEC 4 – Use poses an unacceptable health risk.

Table 2. Risk factors for VTE and MEC for different contraceptive methods

	Combined hormonal contraception (COC and contraceptive ring)	Progestogen-only methods (POP, hormonal IUD, contraceptive implant, DMPA injection)
Past history or current VTE	MEC 4	MEC 2
Known thrombogenic mutation	MEC 4	MEC 2
First-degree relative <45 years with history of VTE	MEC 3	MEC 2
Obesity (BMI >35 kg/m^2)	MEC 3	MEC 1
Major surgery with prolonged immobilisation	MEC 4	MEC 2
Immobility unrelated to surgery	MEC 3	MEC 2
Postpartum (breastfeeding women): 0 to <6 weeks	MEC 4	MEC 1 (MEC 2 for DMPA)
Postpartum (non-breastfeeding women):		
a) 0 to <3 weeks		
i. With other risk factors for VTE	MEC 4	MEC 1 (MEC 2 for DMPA)
ii. Without other risk factors	MEC 3	MEC 1 (MEC 2 for DMPA)
b) 3 to <6 weeks		
i. With other risk factors for VTE	MEC 3	MEC 1 (MEC 2 for DMPA)
ii. Without other risk factors	MEC 2	MEC 1

BMI, body mass index; COC, combined oral contraceptive; DMPA, depot medroxyprogesterone acetate; IUD, intrauterine device; MEC, Medical Eligibility Criteria; POP, progestogen-only pill; VTE, venous thromboembolism

ANSWER 2

All oestrogen-containing contraceptives carry a small risk of VTE of approximately twofold to threefold above baseline.[5,6] There have been some concerns in recent years as to whether particular progestogens paired with oestrogen increase that risk more than others. A recent systematic review and meta-analysis[5] has been published, which looked at clinical studies of COCs and the rate of VTE, and specifically looked at drospirenone-containing COCs. Fifteen studies were examined; there was no increased risk of VTE with drospirenone in prospective or case-control studies, but the risk of VTE was increased in retrospective cohort and nested case control studies. The authors concluded that any difference in the risk of VTE based on the choice of progestogen in COCs is very small in absolute terms, and should not be the sole factor considered when choosing the 'right' COC for each woman.

It might be helpful to use figures such as those reported in the review[5] when discussing the absolute VTE risk with Eleanor (Table 3).

You could advise Eleanor that the available evidence suggests that VTE risk with her drospirenone-containing pill appears to be similar to other COCs, and if there is an increased risk, it is very small in absolute terms. Consequently, if she is otherwise happy with this pill and has no other side effects or concerns, she can continue to use it. You can also advise her that although all COCs do increase the risk of venous blood clots, you have determined that she has no additional background risk factors for VTE that would make the COC an unsuitable choice.

Table 3. Risk of VTE in different populations

Population	Risk of VTE (per 10,000 women per year)
Women of childbearing age; non-users of oral contraception	4
Women taking COCs	7–10
Pregnant and postpartum women	20–30*

*Postpartum rates have been quoted as 40–65 per 10,000 women per year for the first 12 weeks postpartum,[7] and 300–400 per 10,000 women per year during the two days before and the day after delivery.[8]

ANSWER 3

You advise Eleanor that there is no physiological benefit to stopping the COC for a few months. In fact, with regard to her risk of VTE, this is highest in the first four months of taking the COC, or when restarting after a break of more than one month.[6] This risk gradually declines over the following year of use and then remains stable; however, VTE risk still remains at a higher level than for non-users of COCs.

It is also important to inform Eleanor about the relatively lower contraceptive effectiveness of condoms compared with the COC. The efficacy of the COC is around 99% with perfect use and 91% with typical use, whereas the efficacy of the condom is 98% with perfect use, but only 82% efficacy with typical use.[9] You explain that perfect use refers to 'research' type conditions while typical use relates to 'everyday life'. While 'typical use' COC failures might be due to missing or running out of pills, condom failures can occur due to their inconsistent use with intercourse as well as condom breakage or slippage. However, condoms are highly effective at preventing STIs, including HIV, so it is important to enquire about Eleanor's risk factors such as:

- recent partner change
- number of partners in the last 12 months
- past history of STIs.

If she is at risk of STIs, you would advise Eleanor on the dual use of condoms with her chosen method of effective contraception.

ANSWER 4

The vaginal ring is a soft plastic ring that contains the hormones ethinyloestradiol and etonogestrel. It is placed in the vagina and left in place for three weeks. It is then removed for a week, during which time a withdrawal bleed occurs. The hormones are absorbed into the circulation via the vaginal mucosa and act as a contraceptive by suppressing ovulation in the same central way that the COC works. The efficacy of the vaginal ring is the same as the COC, at around 99% with perfect use and 91% with typical use.[9]

Advantages

- Less user-dependent mode of action as it does not require a daily action on the part of the user
- Less breakthrough bleeding thought due to a steadier level of circulating hormones
- Useful for women with malabsorption conditions
- Same potential benefits as the COC with regard to cycle control and acne

Disadvantages

- Requires the woman to be comfortable about inserting a device into her vagina
- Requires the woman to remember to insert a new ring after the ring-free week (although she can set up an automatic phone reminder)
- More expensive than some COCs as it is not subsided through the Pharmaceutical Benefits Scheme (PBS)

The risk of VTE with the vaginal ring appears to be similar to the COC with a risk of VTE reported to be six to 12 women per 10,000 women per year.[6] Therefore, Eleanor's concern about VTE is not a reason to switch to using the vaginal ring, but she may wish to consider it for the other benefits listed above.

ANSWER 5

Other available methods of contraception that are effective and not associated with an increased risk of VTE are the progestogen-only pill (POP), depot medroxyprogesterone acetate (DMPA) injection, and long-acting reversible contraception (LARC), which includes the contraceptive implant and intrauterine devices (IUDs), either copper or hormonal. Putting these options into an efficacy framework can be helpful and the *Efficacy of contraceptive methods* tool from Family Planning Alliance Australia is a useful resource (refer to 'Resources for doctors'). Below is a list of the advantages and disadvantages of each method.

POP

Advantages

- An oral low-dose alternative for women who cannot or prefer not to use the COC
- Similar efficacy as COC – 99% with perfect use and 91% with typical use[9]
- Relatively few contraindications
- Relatively inexpensive
- Easily accessible

Disadvantages

- Needs to be taken at the same time every day (it can be any time of the day as long as it is consistent)
- If it was taken more than three hours late (ie >27 hours since last pill was taken), it will take another 48 hours of correct pill-taking for contraception to be re-established, which results in a more vulnerable efficacy than the COC
- Irregular bleeding pattern can occur in about 40% of women, which may be troublesome for some women
- Women may experience side effects such as breast tenderness, headache, mood changes

DMPA

Advantages[10]

- Effective method of contraception – >99% with perfect use and 94% with typical use
- Easily administered intramuscular injection
- Non-invasive and undetectable
- Amenorrhoea or reduced menstrual bleeding is common and may benefit women with menstrual problems[10]
- May reduce pain associated with endometriosis

Disadvantages[10]

- Requires attendance for an injection every 12 weeks
- Associated with weight gain
- Associated with a small loss of bone mineral density, usually recovered after discontinuation
- Possible delay in return to fertility of up to a year after ceasing DMPA
- Side effects include breast tenderness, acne, headache or mood changes – cannot be immediately reversed

Implant

Advantages

- Highly effective method of contraception – 99.95% effective[9]
- Long-acting, reversible contraception lasting up to three years
- Simple insertion and removal procedure under local anaesthetic
- Cost-effective
- No negative effect on bone density
- Immediately reversible

Disadvantages

- Change in bleeding pattern expected, which may be unacceptable to some women:
  - About 20% of women will experience amenorrhoea (due to a thin endometrium; women can be reassured this is not a safety concern)

  - About 60% of women will experience infrequent, irregular bleeding
  - About 20% of women will experience frequent or prolonged bleeding; around half of these will improve after three months[11]
- Trained practitioner required to insert and remove the device, which may reduce accessibility for some women
- Side effects include breast tenderness, headache, mood changes

Intrauterine device (IUD)

Advantages of IUDs

- Highly effective method of contraception in both perfect and typical use – >99%[9]
- Cost-effective
- Immediately reversible
- Insertion procedure is well tolerated by most women, including nulliparous and young women, although insertion under sedation may occasionally be recommended (eg if the woman is anxious, has a history of vasovagal episodes or if an insertion has been difficult in the past)

Advantages of hormonal IUD

- Long-acting contraception, lasting for five years
- Side effects with the hormonal IUD unlikely – serum levels are very low
- Hormonal IUD contains a low dose of levonorgestrel, which is effective in reducing menstrual blood loss, and as a treatment option for heavy menstrual bleeding

Advantages of copper IUD

- Long-acting contraception, lasting between five and ten years, depending on the device
- No hormonal side effects
- Suitable for women with past or current breast cancer[12]
- Can be used as a highly effective method of emergency contraception within five days of unprotected intercourse, which can be continued long term

Disadvantages of IUD

- Requires a trained practitioner to insert the device, which may be difficult to access for some women
- Risk of insertion complications such as infection, perforation or expulsion, although these are uncommon
- Initial up-front insertion cost can be quite high

Disadvantages of hormonal IUD

- Irregular bleeding/spotting with the hormonal IUD is common in the first three to six months, but it usually settles with time

Disadvantages of copper IUD

- Periods can become longer and heavier with a copper IUD[13]

Other available reversible methods of contraception are the male and female condom, the single-size contraceptive barrier device (Caya® diaphragm), and fertility awareness-based methods. However, all of these methods have relatively low efficacy (76–86% with typical use)[9] and so would not be appropriate for Eleanor, who wishes to have an effective method of contraception.

ANSWER 6

You can reassure Eleanor that the bleeding does not mean the effectiveness of the implant is reduced (unless she has started taking a new medication that induces liver enzymes, which could result in bleeding and reduced contraceptive effectiveness).[3,14] You also need to exclude other causes of the bleeding (eg pregnancy, chlamydia infection, cervical or uterine pathology). Although you can reassure Eleanor that the bleeding pattern may improve with time, evidence suggests that the bleeding pattern at three months is likely to be broadly predictive of an ongoing pattern of bleeding.[11]

If no other cause for the bleeding is found, you could provide Eleanor with three possible options for the medical management of her bleeding pattern:

- COC for three months, either cyclically or continuously
- five-day course of non-steroidal anti-inflammatory drug (NSAID), such as mefenamic acid 500 mg two to three times daily
- five-day course of tranexamic acid 500 mg twice daily.

If these medications are effective in stopping or reducing the bleeding, they can be repeated monthly (in the case of tranexamic acid and mefenamic acid), or for as long as needed in the case of the COC.[15] *Guidance for the management of troublesome vaginal bleeding with progestogen-only LARC* from Family Planning Alliance Australia is a useful clinical management tool.[15]

CONCLUSION

Eleanor is pleased to know she has options for self-management of her bleeding pattern and decides to trial an NSAID as she can easily buy it over the counter as needed.

RESOURCES FOR DOCTORS

- Family Planning Alliance Australia (FPAA), Efficacy of contraceptive methods, http://familyplanningallianceaustralia.org.au/wp-content/uploads/2014/11/FPAA_Efficacy_SCREEN.pdf
- FPAA Guidance for management of troublesome vaginal bleeding with progestogen-only long-acting reversible contraception (LARC), www.fpnsw.org.au/sites/default/files/assets/fpaa_guidance_for_bleeding_on_progestogen_only_larc.pdf
- The FPAA website includes all the state-based and territory-based family planning organisations' details for clinical services and education/training, http://familyplanningallianceaustralia.org.au/fpaa
- Contraception handbook from Family Planning NSW, Family Planning Queensland, Family Planning Victoria. Contraception: An Australian clinical practice handbook. 3rd edn. Australia: Family Planning NSW, Queensland, Victoria, 2012.
- Implanon training site, log in to www.implanonnxt.com.au/hcp/check_login.asp using the password 'implant'

RESOURCES FOR PATIENTS

- The FPAA website includes links to all family planning organisations for fact sheets and information services, http://familyplanningallianceaustralia.org.au/fpaa

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CASE 4

AMANDA HAS NOTICED A CHANGE IN HER PERIODS

Amanda is 44 years of age and has two children, aged 16 and 13 years. She has no significant medical history and takes no regular medications. Amanda comes to see you about her irregular periods. She has noticed that her menstrual cycle, which was previously regular every 28 days, has started to become more irregular over the past six months. Sometimes, she seems to 'skip' a period, and at other times, her periods are only three to four weeks apart. Recently, Amanda has had some difficulty sleeping and the occasional hot flush. She wonders if she is becoming menopausal.

QUESTION 1

What further questions on history would you ask Amanda?

FURTHER INFORMATION

On further questioning, Amanda tells you that her periods usually last for three to seven days, are not especially heavy, and she does not experience any clots or flooding. She does not report any intermenstrual or postcoital bleeding, or any significant dysmenorrhoea. Her last period was seven weeks ago. Amanda has been married for 20 years and has not had any other sexual partners in that time. She and her husband use condoms most of the time for contraception, but sometimes use withdrawal.

When asked about her possible hot flushes, Amanda says that while she has not had any symptoms in the past couple of months, she sometimes felt a bit hot in the face, but was not sure if this was just due to the weather. She has not had any night sweats, vaginal symptoms or joint symptoms. Amanda says she has not been sleeping well for about the past three months, and mainly has initial insomnia. She mentions that she is having some conflict with her older daughter at the moment.

There is no family history of early or premature menopause; she thinks her mother went through the menopause in her late 40s. Her last cervical screening test was 12 months ago and was reported as normal.

QUESTION 2

What is the likely explanation for Amanda's irregular menstrual cycle? What examination would you perform at this point?

QUESTION 3

What investigations would you perform?

FURTHER INFORMATION

Amanda's urinary ßhCG test is positive.

QUESTION 4

What are your next steps? What resources might be helpful?

FURTHER INFORMATION

Amanda is shocked by the discovery that she is pregnant. You give Amanda the resources listed in Answer 4 and arrange for a follow-up appointment in two days. Amanda attends the appointment with her husband, Steve. You discuss the results of her ultrasound, which shows an intrauterine pregnancy with a gestation of seven weeks and three days.

Amanda and Steve want to discuss their options regarding the pregnancy with you.

QUESTION 5

What do you tell them?

FURTHER INFORMATION

After discussing all the options, Amanda and Steve decide that for a multitude of reasons, another child at this stage of life would be very difficult. Amanda says she wants to proceed with an abortion. The couple wants to know about the different options of medical and surgical abortion, the advantages and disadvantages of each choice, and the time frames involved.

QUESTION 6

What information can you provide?

FURTHER INFORMATION

After considering the different options, Amanda decides to have a surgical abortion and you provide her with information about where she can access this service. You give her information about future contraceptive options and she returns to see you two weeks after the procedure for a follow-up check.

QUESTION 7

What would you include in this consultation?

FURTHER INFORMATION

Amanda tells you that she elected to have a hormonal intrauterine device (IUD) inserted at the time of her surgical abortion as she thought it would be useful to meet her contraceptive needs and because she liked the idea of lighter periods. She asks you how much longer she will need to keep using contraception.

QUESTION 8

What can you tell Amanda about duration of contraceptive use of the hormonal IUD around the time of the perimenopause?

CASE 4 ANSWERS

ANSWER 1

- When was her last menstrual period (LMP)?
- Is she currently in a sexual relationship? If so, for how long?
- How many days of bleeding does she have at each menstrual cycle? How heavy is the bleeding?
- Does she have any dysmenorrhoea?
- Has she had any intermenstrual or postcoital bleeding?
- Is she using any contraception? If so, what is her current method of contraception?
- How frequent and severe are the hot flushes?

- Does she have night sweats or other menopausal symptoms (eg vaginal dryness, dyspareunia, joint aches)? You could ask Amanda to fill out a menopause symptom score sheet – examples are available on the Australasian Menopause Society and Jean Hailes websites (refer to 'Resources for doctors').
- What is the pattern of her insomnia (eg initial insomnia, intermittent insomnia, early morning wakening)?
- Does she have a family history of premature or early menopause?
- When was her last cervical screening test?

ANSWER 2

Amanda's symptoms are suggestive of the perimenopause, which refers to the period of time leading up to the final menstrual period (or menopause). During perimenopause there is increased variability in the menstrual cycle, including changes in the length of cycle and heaviness of flow. Women may also experience symptoms such as hot flushes and night sweats. These changes may be caused by fluctuations in the levels of hormones produced by the ovaries, and the symptoms can start five to 10 years before the final menstrual period occurs.[1]

You should check Amanda's blood pressure and body weight. Given that she is up to date with cervical screening, has no pelvic pain or other symptoms suggestive of pelvic pathology, it is reasonable not to perform a speculum or bimanual examination at this stage.

ANSWER 3

The most important investigation to perform for all women of reproductive age in the context of a late or missed menstrual period is a urine pregnancy test, which measures the levels of beta-human chorionic gonadotropin (ßhCG).

There is generally no indication for testing of follicle stimulating hormone (FSH) or other hormones around the time of the perimenopause as levels fluctuate and it will not alter clinical management of the patient. The exception to this is for women with suspected premature ovarian insufficiency (POI) younger than the age of 40 years.[2]

Note that women who present with heavy menstrual bleeding at the time of the perimenopause should be investigated with a full blood evaluation (FBE), iron studies, thyroid stimulating hormone (TSH) and a transvaginal ultrasound to exclude the possibility of endometrial pathology.[3]

ANSWER 4

It is important to sensitively tell Amanda that the pregnancy test is positive, as this outcome is likely to be unexpected for her. While waiting for the test result, you could ask her how she would feel if it was positive. It is important not to make assumptions about the wantedness of a pregnancy, even if it is unintended.

You should provide a supportive, non-judgemental environment, and allow time for the news to sink in. You should give Amanda the opportunity to express her initial thoughts and feelings in response to the news and offer her the opportunity to either discuss the situation further now, or to return at a later date. You acknowledge that while this is ultimately her choice, she may want to discuss this with her husband and they could both return for further discussions with you.

The next step is to calculate the gestation of the pregnancy on the basis of her LMP date. You determine she is approximately seven weeks' pregnant but given the recent irregularity of her menstrual cycle, you should arrange a dating ultrasound scan to more accurately determine the gestational age. With Amanda's permission you write on the form that she is undecided about continuing with the pregnancy so the ultrasonographer is aware.

It is helpful to provide Amanda with some resources to take home at this point. Suggested resources include:

- *Pregnant? Working through your options* – a booklet published by Family Planning NSW, which is also available to download at www.fpnsw.org.au
- Pregnancy, Birth and Baby helpline and website, 1800 882 436, www.pregnancybirthbaby.org.au
- Children by Choice, www.childrenbychoice.org.au

ANSWER 5

This will depend on which state or territory they are in as the services and legislation differ. Termination of pregnancy is legal in all states and territories under certain circumstances. It is important that general practitioners (GPs) are aware of the services in their own state or territory. Children by Choice have information on this on their website.

It is important to be able to discuss all available options and provide information and resources to support decision-making. Non-directive decision-making counselling is a woman-centred approach that focuses on the woman exploring the outcome that will be best for her. This might include referral information and decision-making tools such as the Ottawa personal decision guide (http://decisionaid.ohri.ca/decguide.html).

If a GP is not comfortable providing information or discussing termination of pregnancy they should refer the woman to another practitioner who will make this referral in a timely manner.

The options available to women facing an unintended pregnancy are:

- continuing the pregnancy and parenting (alone or with a partner)
- terminating the pregnancy through surgical or medical abortion
- continuing the pregnancy and adopting or fostering.

You need to be prepared for the possibility of a discordant response from Amanda and Steve. As the final decision rests with Amanda, you may consider asking to talk to her on her own for some of the consultation.

When discussing the option of continuing with the pregnancy, it is also important to ensure Amanda and Steve are aware that there is an increased risk of chromosomal abnormality given Amanda's age, and that at her age, she would also be at higher risk of pregnancy complications, such as gestational diabetes, pregnancy-induced hypertension and stillbirth.[4]

ANSWER 6

Table 1, taken from the Family Planning NSW guide *Pregnant? Working through your options*, is a useful resource to give to Amanda and Steve, and to discuss with them.

Table 1. Surgical and medical options for terminating a pregnancy

	Surgical	Medical
Timing	• Usually delayed until six weeks • Becomes more expensive (and less available) after 11 weeks	• Needs to be done before nine weeks
Process	• Surgical procedure in a clinic • Light anaesthetic usually required • Procedure generally takes five to 10 minutes, with up to four hours recovery time in the clinic • Nil to light bleeding for up to two weeks • Antibiotics recommended • May only require one clinic visit	• Medications taken in patient's home • Lead to similar effects as a miscarriage with cramping and bleeding for up to 24 hours • Cramping and bleeding may be mild to severe • Bleeding usually lasts about two weeks but can continue for several weeks • Pain relief tablets are recommended • A second visit to the clinic or general practitioner (GP) three weeks later is required to make sure the abortion is complete
Supports and recovery	• Advisable to have someone to take you home from the clinic	• Advisable to have someone to support you at home for at least 24 hours
Side effects	• May feel tired or vague due to anaesthetic • May have bleeding and mild cramping, which usually lasts less than two weeks	• Fever • Chills • Nausea • Vomiting • Bleeding and cramping as explained above
Cost and availability	• In most states and territories, services are mainly provided in private clinics • Cost is variable • Limited access to Medicare-funded services	• Most services are provided in private clinics • Limited access mainly through accredited GPs, gynaecologists and Family Planning clinics in some states. Telemedicine access has recently become available • Cost is variable • Medication costs may be covered by the Pharmaceutical Benefits Scheme (PBS)
Complications	• Complications are rare but may include infection, which would require antibiotic treatment. Small (1–2%) chance of needing a repeat curettage procedure due to bleeding or retained products[5]	Complications are rare but there is a small (2–5%) chance that the abortion is unsuccessful, a surgical abortion is then required

Adapted with permission from Family Planning NSW. Pregnant? Working through your options. Ashfield, NSW: FPNSW, 2015. Available at www.fpnsw.org.au/health-information/pregnancy/pregnant-working-through-your-options [Accessed 17 May 2016].

ANSWER 7

Enquire about Amanda's bleeding pattern over the preceding two weeks. It is normal for a woman to have light bleeding for up to two weeks after a surgical abortion.[5] It is also normal for some women to have no bleeding at all.

Other questions to ask include:

- Has she had any pelvic pain?
- Has she had any fever or other symptoms of infection, such as malodourous vaginal discharge or feeling generally unwell?
- Does she have any symptoms of an ongoing pregnancy (eg nausea, breast tenderness)?
- How is she feeling emotionally?
- Would she like to discuss contraception?

ANSWER 8

Amanda can be informed that although fertility is much lower in women older than 40 years of age, it is advisable that, if sexually active, she continues contraception until after the menopause. If her final menstrual period occurs before the age of 50 years, she needs to use contraception for two more years. If her final menstrual period occurs after the age of 50 years, she should use contraception for a further 12 months.[6] The final menstrual period is a retrospective diagnosis made after 12 consecutive months of amenorrhoea. However, Amanda has a hormonal IUD, so menopause may be difficult to ascertain because of the altered bleeding patterns or amenorrhoea related to IUD use. The following advice could be given.

As Amanda was younger than 45 years of age at the time of the hormonal IUD insertion, she will be advised to remove and replace it after five years. If she had been 45 years of age or older at the time of insertion, the UK

Faculty of Sexual and Reproductive Health (FSRH) advises that it can, if wished, be used for contraception for seven years (off licence), or up to the time of menopause if she remains amenorrhoeic.[6]

Women using the hormonal IUD after the age of 50 years and who are amenorrhoeic can have their FSH levels checked on two occasions six weeks apart. If the level is ≥30 IU/L on both occasions, they can be advised that they only need to continue contraception for one more year.[6]

Amanda is also interested to learn that if her hot flushes return, or if she develops other menopausal symptoms associated with a reduction in oestrogen levels, the levonorgestrel (hormonal) IUD can be used to protect the endometrium for women electing to use an oestrogen patch, gel or tablets to manage their symptoms. In this situation, the hormonal IUD should be replaced after five years of use.[6]

Women who use the hormonal IUD solely to manage heavy menstrual bleeding, rather than for contraception or endometrial protection, can continue without the need of a replacement until menopause.[6]

CONCLUSION

You see Amanda again in four months' time for an unrelated issue. During the consultation, Amanda tells you that she now has very light bleeding for only one to two days each month, which she is very happy about. She is also glad that she now has a reliable method of contraception in place, which may also be useful in the future as part of hormone replacement therapy, if required.

RESOURCES FOR DOCTORS

- Family Planning NSW, Pregnant? Working through your options, www.fpnsw.org.au/health-information/pregnancy/pregnant-working-through-your-options
- Faculty of Sexual and Reproductive Healthcare Clinical Guidance, Contraception for women aged over 40 years, www.fsrh.org/pdfs/ContraceptionOver40July10.pdf
- Bateson D, McNamee K, Harvey C, Stewart M. Contraception for women aged over 40: An important but neglected area. Medicine Today 2012;13(8):27–36.
- Australasian Menopause Society
  - Information sheet: Contraception, www.menopause.org.au/images/stories/infosheets/docs/AMS_Contraception_2015.pdf
  - Fact sheet on premature (primary) ovarian insufficiency, http://www.menopause.org.au/images/stories/infosheets/docs/AMS_Spontaneous_Premature_Ovarian_Insufficiency04032016.pdf
  - Information sheet: What is menopause?, www.menopause.org.au/images/stories/infosheets/docs/AMS_What_is_menopause.pdf
  - Information sheet: Diagnosing menopause, www.menopause.org.au/images/stories/infosheets/docs/diagnosing_menopause.pdf
  - AMS diagnosing menopause: Symptom score sheet, www.menopause.org.au/images/stories/education/docs/AMS_Diagnosing_Menopause_Symptom_score_sheet_2015.pdf
- Jean Hailes for Women's Health, Greene climacteric scale, https://jeanhailes.org.au/contents/documents/Health_Professionals/Live_webinars/Menopause_symptom_scale_Greene_Climacteric.pdf
- MS-2 Step website, information about becoming a certified prescriber of mifepristone and misoprostol for medical abortion, https://www.ms2step.com.au
  - Medical abortion can be provided by gynaecologists or by certified GPs who have successfully completed the online training course (GPs should be aware of the legal requirements in their state or territory)
- Ottawa Hospital Research Institute: Ottawa personal decision guide, http://decisionaid.ohri.ca/decguide.html

RESOURCES FOR PATIENTS

- Family Planning NSW, Pregnant? Working through your options, a booklet published, www.fpnsw.org.au
- Pregnancy, Birth and Baby helpline and website, 1800 882 436 and www.pregnancybirthbaby.org.au
- Children by Choice, www.childrenbychoice.org.au
- Australasian Menopause Society, www.menopause.org.au/images/stories/infosheets/docs/AMS_What_is_menopause.pdf and www.menopause.org.au/images/stories/education/docs/AMS_Diagnosing_Menopause_Symptom_score_sheet_2015.pdf
- Jean Hailes for Women's Health, https://jeanhailes.org.au/contents/documents/Resources/Fact_sheets/Menopause.pdf and https://jeanhailes.org.au/contents/documents/Health_Professionals/Live_webinars/Menopause_symptom_scale_Greene_Climacteric.pdf
- Ottawa Hospital Research Institute, Ottawa personal decision guide, http://decisionaid.ohri.ca/decguide.html

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CASE 5

ZARA IS PREGNANT

Zara presents as a new patient with a positive urine pregnancy test. She has had one previous uncomplicated pregnancy, with normal delivery of a baby boy, who is now aged 14 months. He was breastfed until six months of age. Zara did not have a menstrual period for four months after ceasing breast feeding and then had two further periods at irregular intervals. She has been using a barrier method for contraception. Zara's past history includes scoliosis surgery as a teenager for which she needed a red cell transfusion.

QUESTION 1

What are the important blood management considerations in pregnancy?

QUESTION 2

What routine antenatal blood tests are important from a haematological perspective? Why?

FURTHER INFORMATION

Zara's previous pregnancy resulted in a normal delivery of a live male infant with no complications; however, she received minimal antenatal care and has no recollection of any blood tests being performed. On further history taking of her lifestyle, Zara informs you that she is a vegetarian, a non-smoker and does not take any regular medication. Her current test results are shown in Table 1.

Table 1. Zara's blood test results

	Result	Reference range
FBE		
Haemoglobin	98 g/L	115–160 g/L
Mean corpuscular volume	76 fL	80–98 fL
Mean corpuscular haemoglobin	26 pg	27–35 pg
Red cell distribution width	17%	12–15%
White cell count	Within reference range	
Platelet count	185 x 10^9/L	150–400 x 10^9/L
Blood film comment	Microcytosis and hypochromia	
Iron studies		
Serum ferritin	7 µg/L	15–290 µg/L
Serum iron	10 µmol/L	10–30 µmol/L
Total iron-binding capacity	76 µmol/L	45–70 µmol/L
Transferrin saturation	8%	16–50%
Blood group	O-positive	
Antibody screen	Anti-c antibody detected	

QUESTION 3

What is your interpretation of Zara's test results?

QUESTION 4

What are the next steps in Zara's management plan?

FURTHER INFORMATION

Serology results obtained from Zara's previous pregnancy confirmed the presence of anti-c, which was unchanged at the time of delivery.

Zara's partner had tested as negative for c-antigen.

You prescribe daily oral iron tablets, 100 mg twice daily. She does not return to see you until week 28 gestation. She has been well and her blood test results now show:

- haemoglobin – 89 g/L
- platelet count – 136 x 10^9/L
- serum ferritin – 5 µg/L
- anti-c antibody level unchanged, with no new antibodies detected.

Zara admits that she stopped taking the oral iron after a few weeks as it caused significant nausea and constipation. She refuses to try any further oral iron despite discussion of options such as reduced or alternate-day dosing.

QUESTION 5

What are the treatment options for Zara's iron deficiency anaemia now?

QUESTION 6

What is the significance of the low platelet count?

FURTHER INFORMATION

On further history, Zara is not aware of having ever been told that her platelet count was low, has no clinical or family history of bleeding, and is well. Examination reveals no significant findings: normal blood pressure, no oedema and no protein on urinalysis. On review, her booking blood tests were negative for human immunodeficiency virus (HIV), and hepatitis B and hepatitis C viruses. Blood film review, reticulocyte count and liver function were normal. Zara is advised to return for a repeat platelet count in four weeks to monitor her progress.

QUESTION 7

What further considerations are required regarding support in the event that transfusion is required?

CASE 5 ANSWERS

ANSWER 1

Important blood management considerations for pregnancy are outlined in Table 2. Patient blood management (PBM) is a term used to describe the principles of conserving and managing a patient's own blood to improve outcomes.[1]

In all obstetric patients, it is good clinical practice to optimise haemoglobin (Hb) during the antenatal period, minimise blood loss during birth and, in the event of haemorrhage, secure haemostasis as a matter of urgency.[2]

The risk of anaemia should be assessed in all obstetric patients. Women who have previously completed one or more pregnancies are at risk of iron deficiency at the start of any subsequent gestation, especially if the inter-pregnancy interval is short or their deliveries have been complicated by postpartum haemorrhage (PPH).[2] Other groups at special risk include adolescents, Aboriginal and Torres Strait Islander peoples, recent immigrants and those with low socioeconomic status.[2] Patients with restrictive diets (eg vegetarians and vegans) or with malabsorptive conditions are also at increased risk of iron deficiency.[3] Other causes of anaemia include folic acid and vitamin B12 deficiencies, helminthic infection, thalassaemia, haemolytic states (sickle cell disease, malaria and pre-eclampsia) and underlying malignancy or chronic disease.[2]

Women should be provided with information and advice in relation to managing and/or minimising anaemia including, for example, consumption of a healthy diet, optimal management of any medical comorbidities and considering spacing of future pregnancies.[2]

Inherited and acquired bleeding disorders increase the risk of PPH and the complexity of patient management.[2] Assessment of bleeding risk and potential transfusion requirements should occur early in pregnancy.[2]

Similarly, early identification of women for whom transfusion is not an option, or may present challenges (eg due to rare blood groups or complex antibodies) is vital to enable a comprehensive multidisciplinary plan to be developed and implemented.[2] Situations where transfusion may not be an option include personal choice and religious and/or cultural beliefs. Observational studies suggest an increased risk of maternal morbidity and mortality in such circumstances, with substandard care (including delayed decision making) contributing to poorer outcomes.[2] Limited stocks of blood products are held in remote geographical areas to allow for emergency use across Australia, but early and close liaison with the local transfusion provider is essential where transfusion support is planned or likely.

Early identification of Zara's attitude towards blood transfusion needs to be established. She should be encouraged to ask about the options for her blood management and informed of the benefits or risks and how these apply in her situation.

Blood group and antibody screening should occur early in pregnancy to detect the presence of potentially clinically significant antibodies that may have implications in the management for both mother and baby.[2,4,5]

Table 2. Blood management considerations in pregnancy

Clinical issue	Action
Increased risk of anaemia in pregnancy, particularly due to iron deficiency	Identify and manage anaemia
Risk of bleeding: • pregnancy-related (eg placental abnormalities) • non-pregnancy related (co-existing inherited or acquired conditions such as immune thrombocytopenia, von Willebrand disease)	Early identification of patients at risk and development of a management plan
Transfusion is not an option: • personal choice • transfusion of compatible blood is difficult due to serological issues (eg rare blood groups or complex antibodies) • timely access to suitable or sufficient blood products	Early identification and development of a management plan
Development of red cell antibodies that have potential impact on: • mother – if transfusion support is required • baby – potential for haemolytic disease of the fetus or newborn	Red cell antibody screening and identification Management of at-risk pregnant women and babies Where transfusion is required, it should be in line with best practice

ANSWER 2

A full blood evaluation (FBE) is recommended at the first antenatal visit and should be repeated at 28 weeks' gestation.[2,4,6] If anaemia is detected, further investigation and treatment are warranted.[4,6]

Zara is at increased risk of anaemia because she is vegetarian and has a baby aged 14 months. Clinical history should be sought, including previous or family history of anaemia; haemoglobin and iron status during the pregnancy; blood loss at delivery; and any treatment given. Where clinically indicated, ferritin levels should also be checked in addition to the FBE.[2]

Other factors contributing to anaemia, such as deficiencies in folic acid and vitamin B12, or hookworm infection (common in tropical northern Australia), should be screened for in selected women based on clinical history (eg poor diet or geographical location).[2]

A clinical history of any pregnancy-associated problems or bleeding risk should be sought.

All women should be offered routine blood group (ABO and Rh D type) and antibody testing during pregnancy to identify those who are Rh D negative and detect any red cell antibodies that may be of clinical significance (eg anti-D, anti-c and anti-K) in the management of mother and baby.[2,4,5] Testing should be performed as early as possible, preferably during the first trimester.[4]

Zara's history of a red cell transfusion in association with her scoliosis surgery and her previous pregnancy are both associated with an increased risk of red blood cell antibody formation.

ANSWER 3

Zara has iron deficiency anaemia. Iron deficiency is the most common cause of anaemia in pregnancy in the developed and developing world.[6]

There is no agreed normal range for Hb concentration in pregnancy in Australia. The World Health Organization (WHO) uses 110 g/L as the lower cut-off level throughout pregnancy;[7] however, maternal Hb levels reach a nadir towards the end of the second trimester. The US Centers for Disease Control and Prevention (CDC) has established that the lower limit for the normal range of Hb at this stage is 103 g/L.[2]

Zara's anti-c antibody is probably present as a result of her previous blood transfusion or pregnancy. Anti-D, anti-K and anti-c antibodies are those most often associated with moderate to severe haemolytic disease of the fetus and newborn (HDFN), although clinical HDFN may be associated with a range of other antibodies.[5]

Further assessment is required for Zara's iron deficiency anaemia and anti-c.

ANSWER 4

Iron deficiency anaemia

A careful history is required to determine the underlying cause of the iron deficiency anaemia. Zara is a vegetarian and had a recent pregnancy, both of which are potential causes. The cause of iron deficiency is often multifactorial.[3] Menstrual history, history of any other bleeding, gastrointestinal (GI) symptoms or family history of GI malignancy should also be ascertained. In premenopausal women where the underlying cause(s) is/are established, further investigation is not usually warranted. However, the response to therapy must be monitored. If response is suboptimal despite adequate therapy, further investigation will be required.

Zara requires iron therapy. Increasing dietary iron intake is insufficient to treat iron deficiency, but may be useful for secondary prevention in future.[3] In maternity patients with iron deficiency anaemia, a therapeutic dose of elemental iron (100–200 mg daily) should be prescribed, and the response to therapy monitored.[2] If the response to oral iron is inadequate, intravenous iron should be used.[2]

It is important to provide specific guidance on iron supplements, as there are many over-the-counter preparations that contain insufficient quantities of iron for therapeutic purposes. Pregnancy supplements may contain from 5 mg (20–40 tablets to achieve a therapeutic dose) to 60 mg of elemental iron. Information on appropriate iron formulations, together with advice regarding how they should be taken, potential side effects and strategies to avoid these should be provided. Some key points are highlighted in Table 3. Tools to assist with this are available.[8,9]

In maternity patients with iron deficiency without anaemia, a low dose of elemental iron (eg 20–80 mg daily) may be considered, and may be better tolerated than higher doses.[2]

Anti-c antibodies

Further information is required regarding the anti-c antibodies. It is important to determine if this is a new finding, or whether it was previously present, particularly during the prior pregnancy.

If the baby is 'c' antigen-positive, having inherited this from the father, there is the possibility of development of HDFN, which may have significant clinical implications (eg anaemia, jaundice, perinatal loss).[10]

Therefore, Zara's partner will need to be blood typed. If he is 'c' antigen-negative (and there is no doubt that he is the father of the child) the baby will not develop antibodies (anti-c) and therefore there will be no risk of HDFN.

Where an antibody has been assessed as having the potential to cause clinical HDFN, it is recommended that the titre/quantification of antibody should be determined and repeated every four weeks until 32 weeks gestation, then every two weeks until delivery.[5,10] In babies at risk of HDFN, management planning in consultation with a specialist obstetrician is required.[2,5,10]

Table 3. Oral iron dosing and considerations[8]

- The usual adult dose for iron deficiency anaemia is 100–200 mg elemental iron daily in divided doses
- Ideally give one hour before or two hours after food
  - GI upset may be reduced by taking tablets with food or at night and increasing the dose gradually
- Consider giving iron supplement with vitamin C (eg orange juice) to improve absorption
- When a rapid increase in Hb is not required, intermittent dosing (one tablet two to three times a week) or lower doses of iron (eg 30–60 mg elemental iron, increasing to twice daily or three times a day if tolerated: try Ferro-tabs or titrate liquid) may reduce GI upset
- Multivitamin-mineral supplements should not be used to treat iron deficiency anaemia as iron content is low and absorption may be reduced
- Iron overdose may be fatal – keep medication out of reach of children
- Based on limited available data, controlled-release iron formulations appear to have fewer GI side effects, but similar discontinuation rates and comparable efficacy; release of iron distal to the site of maximal intestinal absorption may theoretically limit response in some patients.

National Blood Authority. Iron product choice and dose calculation. Canberra: NBA, 2015. Available at www.blood.gov.au/iron-product-choice-and-dose-calculation-guide-adults [Accessed 11 February 2016].

ANSWER 5

The routine use of intramuscular iron is not advised where alternatives are available.[2,3] In obstetric patients requiring iron, intravenous iron should be used when oral iron is poorly tolerated (affecting compliance), or absorption is likely to be impaired. Intravenous iron is preferred when rapid restoration of Hb and iron stores is required, because it leads to a more rapid response.[2]

Intravenous iron should be avoided in the first trimester and in-hospital administration is generally advised in the second and third trimesters. This is to ensure adequate management in the unlikely event of an anaphylactic reaction, which may have potential significant implications for the baby. While newer agents such as ferric carboxymaltose have an even lower risk for anaphylaxis, where intravenous iron is being considered in primary care, consultation with the obstetrician or antenatal service should occur.

ANSWER 6

A low platelet count (<150 x 10^9/L) occurs in 6.6–11.6% of women in the third trimester.[11] Thrombocytopaenia is defined by the International Working Group as a platelet count of <100 x 10^9/L and, after anaemia, is the second most common haematological abnormality encountered during pregnancy.[11] Thrombocytopaenia occurs in 1% of pregnant women overall.[11]

Causes of low platelet count include:

- pre-existing thrombocytopaenia – most commonly immune thrombocytopaenia (ITP)
- gestational thrombocytopaenia
- severe preeclampsia
- HELLP syndrome (haemolysis, elevated liver enzymes, low platelets)
- AFLP (acute fatty liver of pregnancy).[11]

In Zara's case, the previous normal platelet count suggests that gestational thrombocytopaenia is the most likely diagnosis. However, other causes should be excluded. Full blood count, blood film review and reticulocyte count, liver function tests and viral screening (human immunodeficiency virus [HIV], hepatitis C virus [HCV], hepatitis B virus [HBV]) are recommended.[11] Platelet antibody testing is not indicated as it can produce misleading results.

Approximately 70–80% of cases of thrombocytopaenia in pregnancy are due to gestational thrombocytopaenia, which occurs most commonly in the mid-second to third trimester.[11] Thrombocytopaenia is generally mild and no intervention is necessary.[11] It is a diagnosis of exclusion, which is substantiated by a return to normal platelet levels following delivery.[11] There is no impact on the baby. In general, in patients with thrombocytopaenia due to any cause, a platelet level of >50 x 10^9/L is considered safe for both vaginal and caesarean birth.[2,11] Where epidural anaesthesia is used, a platelet count of >80 x 10^9/L is considered satisfactory.[12] However, different thresholds may be used by anaesthetists dependent upon their assessment of the woman's individual clinical circumstances.

Where unexpected thrombocytopaenia is found, consultation with the obstetrician or antenatal services is important to guide further management.

ANSWER 7

General practitioners (GPs) in rural or remote areas who have responsibility for inpatient obstetric management should be familiar with issues related to the provision of transfusion support if the need arises.

The need to perform blood group and antibody screening prior to vaginal or caesarean birth should include a risk assessment for peripartum haemorrhage and the presence of any factors that may delay access to blood, should it be required. Such factors include the presence of red cell alloantibodies, and local arrangements for provision and testing of blood products.[2]

To avoid potential delays in blood provision, women with clinically significant alloantibodies should have a blood group and antibody screen on admission, during labour or prior to vaginal or caesarean birth.[2] Where complex antibodies or rare red cell phenotypes are identified, and provision of compatible blood may be difficult, the management plan should include timely access to specialist blood product support.[2,13]

In maternity patients who are not actively bleeding, red blood cell transfusion should not be dictated by a Hb concentration alone, but should also be based on assessment of the patient's clinical status (eg the risk of further haemorrhage).[2,13] Most maternity patients are otherwise healthy and can generally tolerate moderate degrees of anaemia while medical therapies take effect.[2] Where transfusion is indicated, a single unit of red blood cells, followed by clinical reassessment to determine the need for further transfusion, is appropriate.[2] If transfusion is required, iron stores must also be replaced.[3]

In maternity patients with critical bleeding, a structured approach to patient care, which includes escalation procedures, and timely and appropriate use of red blood cells and other blood components (eg a massive transfusion protocol) may reduce the risk of morbidity and mortality.[2]

KEY MESSAGES

- GPs have an important role in the blood management of women prior to delivery.
- Anaemia and iron deficiency are common and should be assessed and managed as early as possible to improve both maternal and infant outcomes.
- Identification of patients at increased risk of bleeding is essential.
- Screening for red cell antibodies that may have clinical significance to mother or baby should occur early and, where antibodies are identified, specialist advice sought regarding management.
- The risks and benefits of transfusion, and potential options to reduce or avoid transfusion, should be discussed as early as possible with any woman for whom transfusion is a possibility.
- Early identification of women for whom transfusion is not an option, or may prove challenging, is vital to enable a comprehensive multidisciplinary plan to be developed and implemented. This includes close liaison with the local transfusion provider in remote areas where transfusion support is planned or likely.

RESOURCES FOR PATIENTS AND DOCTORS

- My Transfusion, information and resources about patient blood management, iron deficiency anaemia and blood transfusion for patients, www.mytransfusion.com.au

RESOURCES FOR DOCTORS

- The following websites provide information, education, tools and resources about patient blood management, iron deficiency anaemia and blood transfusion for clinicians:

- Risks and adverse events associated with transfusion, www.transfusion.com.au
- Patient blood management guidelines, www.blood.gov.au
- IV iron tools and resources, https://bloodsafelearning.org.au

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ACKNOWLEDGEMENT

Australian governments fund the Australian Red Cross Blood Service for the provision of blood, blood products and services to the Australian community.

ACTIVITY ID: 56214

WOMEN'S HEALTH

This unit of *check* is approved for 6 Category 2 points in the RACGP QI&CPD program. The expected time to complete this activity is three hours and consists of:

- reading and completing the questions for each case study
  - you can do this on hard copy or by logging on to the *gplearning* website, http://gplearning.racgp.org.au
- answering the following multiple choice questions (MCQs) by logging on to the *gplearning* website, http://gplearning.racgp.org.au
  - you must score ≥80% before you can mark the activity as 'Complete'
- completing the online evaluation form.

You can only qualify for QI&CPD points by completing the MCQs online; we cannot process hard copy answers.

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

If you are not an RACGP member and would like to access the *check* program, please contact the *gplearning* helpdesk on 1800 284 789 to purchase access to the program.

CASE 1 – TINA

Tina is 25 years of age and presents with severe period pain. She has had painful periods since the age of 15 years, but the pain has become worse in the past six months and persists for about four days of her periods. After further history-taking and examination, you refer Tina for investigation of a possible diagnosis of endometriosis.

QUESTION 1

Which of the following confirms a diagnosis of endometriosis?

A. Pain on vaginal examination
B. Presence of tender nodules in the posterior fornix
C. Immobility of the uterus
D. Laparoscopy and biopsy

QUESTION 2

Which of the following is the most effective first-line treatment option for pain caused by endometriosis?

A. Non-steroidal anti-inflammatory drugs (NSAIDs)
B. Hormonal contraceptives
C. Aromatase inhibitors
D. Gonadotropin releasing hormone (GnRH) agonists

CASE 2 – LORETTA

Loretta, 53 years of age, comes to see you because she has had recurrent episodes of vulvovaginal candidiasis in the past year. Initially, she used over-the-counter clotrimazole, which cleared the infection, but this has recurred four times and each time she treated the infection with clotrimazole. Her last treatment was a single dose of clotrimazole as a 500 mg pessary three weeks ago. She currently has vulval irritation but no discharge. Loretta is otherwise healthy, post-menopausal and is not on any medications.

QUESTION 3

Which of the following tests is essential for Loretta?

A. Vaginal swab to check for *Candida albicans*
B. Vaginal swab to check for a bacterial infection
C. Glucose tolerance test
D. All of the above

QUESTION 4

Given that Loretta has had more five episodes of vulvovaginal candidiasis in one year, what treatment would you prescribe?

A. Fluconazole 50 mg daily until symptoms improve
B. Clotrimazole 100 mg pessary once a day for six nights
C. Nystatin 100,000 units/5 g vaginal cream once a day for 14 nights
D. Fluconazole 150 mg once a week for six months

CASE 3 – MIRANDA

Miranda is 36 years of age and has been taking a combined oral contraceptive (COC) pill for the past year. She comes to see you for a repeat prescription, but she seems hesitant and says that she feels uncomfortable about using the COC. Miranda has not noticed any side effects, but is concerned about the long-term effects and risks of venous thromboembolism (VTE), and would like to discuss other options.

QUESTION 5

Given Miranda's concerns, which of the following is **not** a suitable alternative to the COC?

A. A vaginal ring
B. Progestogen-only pill (POP)
C. Depot medroxyprogesterone acetate (DMPA)
D. Hormonal intrauterine device (IUD)

QUESTION 6

A disadvantage of the DMPA is:

A. increased menstrual bleeding
B. possible delay in return to fertility for up to one year after ceasing use

C. increased pain associated with endometriosis

D. irreversible bone loss.

FURTHER INFORMATION

Miranda decides not to continue taking any contraceptives as she and her husband have been thinking about starting a family. She returns to see you six months later, overjoyed that she is pregnant. You do routine blood tests, including a full blood evaluation, which detects iron deficiency anaemia. Blood typing shows that Miranda is B-positive.

QUESTION 7

Iron deficiency anaemia in a maternity patient should initially be treated with:

A. 100–200 mg elemental iron daily

B. 60 mg elemental iron daily

C. increased intake of iron through dietary sources

D. multivitamin–mineral supplement.

FURTHER INFORMATION

Miranda has a healthy baby girl after an uncomplicated pregnancy. Eighteen months later she becomes pregnant again. Blood tests detect the presence of anti-c antibodies, which were not present during her first pregnancy. Her other test results are normal. Miranda's husband, Cal, is blood-typed and found to be positive for c-antigen, or as determined by the clinical situation.

QUESTION 8

According to current guidelines for preventing haemolytic disease of the fetus and newborn (HDFN), Miranda's antibody titre should be measured:

A. every two weeks until delivery

B. every four weeks until delivery

C. every two weeks until 32 weeks' gestation and then every week until delivery

D. every four weeks until 32 weeks' gestation and then every two weeks until delivery.

FURTHER INFORMATION

During the second trimester, blood testing shows that Miranda's platelet count is 95 x 10^9/L. This was previously found to be 180 x 10^9/L.

QUESTION 9

Which of the following is **not** recommended for investigating Miranda's low platelet count?

A. Full blood evaluation, including blood film review and reticulocyte count

B. Liver functions tests

C. Viral screening for human immunodeficiency virus, hepatitis B and hepatitis C viruses

D. Platelet antibody testing

FURTHER INFORMATION

Miranda has two more children and returns to see you one year after having her fourth child. She is now 47 years of age. She says, 'Cal and I have never been happier and our four children are such a joy. Four is a good number and I do not think we'll be having any more children – doubt I could even if I wanted to.' She then explains that she was thinking of using a contraceptive but her periods have become irregular and she has missed the last three periods. She did a pregnancy test, 'just to check', but it was negative. She thinks she may have reached menopause and asks if she needs to use a contraceptive.

QUESTION 10

Your advise Miranda that she is likely to be perimenopausal but still potentially fertile so, on the basis of current guidelines, contraception is advised for:

A. one year from the time of her last period if she does not have any periods for the next nine consecutive months

B. two years from the time of her last period if she does not have any periods for the next nine consecutive months

C. one year from the time of her last period if she does not have any periods for 12 consecutive months before the age of 50 years

D. two years from the time of her last period if she does not have any periods for 12 consecutive months after the age of 50 years.

check

Independent learning program for GPs