Questions for this month's clinical challenge are based on articles in this issue. The style and scope of questions is in keeping with the MCQ of the College Fellowship exam. The quiz is endorsed by the RACGP Quality Assurance and Continuing Professional Development Program and has been allocated 4 CPD points per issue. Answers to this clinical challenge will be published next month, and are available immediately following successful completion online at: www.racgp.org.au/clinicalchallenge.

**Jenni Parsons**

## SINGLE COMPLETION ITEMS

**DIRECTIONS** Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the most appropriate statement as your answer.

### Case 1 – Betty Brookes

Betty, aged 72 years, has a part history of hypertension and ischaemic heart disease. She attends today for treatment of a wound on her left leg.

#### Question 1

**Betty tells you she knocked her lower leg on twig sticking out from a low bush when gardening a few weeks ago and that it has failed to heal. The most important next step is:**

A. to undertake a full assessment of Betty, her leg and her ulcer
B. to choose the correct dressing for Betty's ulcer
C. to apply compression bandages
D. to prescribe antibiotics
E. all of the above.

#### Question 2

**Betty's legs are inverted champagne bottle shaped, with brownish staining on the thin lower part of her leg. This appearance lends more weight to the possibility that her ulcer is related to:**

A. arterial insufficiency
B. vasculitis
C. venous hypertension
D. malignancy
E. none of the above as Betty's wound was caused by trauma.

#### Question 3

**You examine Betty's legs and note that she has normal pedal pulses in her right leg but that her dorsalis pedis is weak and anterior tibial pulse is absent in her left leg. You check her Ankle Brachial Pressure Index (ABPI). Her blood pressure in her arm is 150/75. Her dorsalis pedis pulse is just audible with a Doppler ultrasound probe when the cuff around her lower calf is inflated to 120 mmHg. Choose the correct statement:**

A. Betty's ABPI is 1.25 indicating significant ischaemia
B. Betty's ABPI is 0.8 indicating that compression is contraindicated
C. Betty's APBI is 1.6 indicating calcified artery walls
D. Betty's APBI is 0.8 indicating that compression bandaging is safe
E. Betty's ABPI is 1.25 indicating that compression bandaging is safe.

#### Question 4

**The ulcer on Betty's leg is 2 x 3 cm in diameter on the medial side of her lower leg. It is superficial with poorly defined margins and has red granulation tissue in the base and a small amount of exudate. These features are typical of:**

A. vasculitic ulcer
B. ulceration due to arterial insufficiency
C. malignant ulceration
D. ulceration due to venous disease
E. pressure ulceration.

### Case 2 – Kane Bruce

Sally Bruce brings her screaming 3 year old son Kane into your treatment room. Kane's older brother had given him a glass of cola (a banned substance in the Bruce household) and Kane ran outside so that his mother would not take it from him. He slipped and fell, cutting his hand on broken glass.

#### Question 1

**Kane is screaming and crying. Your first step is:**

A. advise Sally to take Kane to the nearest emergency department
B. ask Sally to forcibly hold Kane down so you can examine him
C. remove Kane from Sally's arms
D. talk to Kane in a calm friendly manner and explain what is happening in an age appropriate way
E. tell Sally that Kane cannot have analgesia until he has been fully assessed.

#### Question 2

**Kane gradually calms down and after appropriate analgesia and local anaesthesia and you set about treating his hand wound. He has a jagged laceration on his somewhat dirty palm. Finger movement and sensation (assessed before local anaesthetic) is normal. Choose the correct statement regarding cleaning and foreign body removal:**

A. aqueous chlorhexidine is the most appropriate cleaning fluid
B. tap water should not be used as it may cause infection
C. irrigation with saline under pressure (with needle and syringe) risks increasing trauma to the wound
D. a soft tissue X-ray is not warranted as it should be easy to see glass in the wound
E. superficial wounds may be safely cleaned with good quality tap water.

#### Question 3

**There is no foreign body and you successfully suture Kane's hand wound. You note from your records that Kane is up to date with all immunisations. Choose the correct statement:**

A. Kane requires antibiotic prophylaxis to prevent infection
B. Kane requires an additional tetanus vaccine booster
C. Kane requires tetanus immunoglobulin
D. all of the above are correct
E. none of the above are correct.

#### Question 4

**You dress Kane's wound. As he sits up you note blood on the pillow and detect a 2 cm scalp laceration that you hadn't identified earlier. The wound appears straight and clean. You are reluctant to subject Kane to further suturing and consider tissue adhesive. Choose the correct statement:**

A. tissue adhesive is contraindicated for scalp wounds
B. hair should be removed from the wound and all hair cut off for 0.5 cm around the wound before using adhesive

C. before applying adhesive the wound margins are manually brought together with everted edges
D. gloves should not be worn when applying adhesive as the glove is likely to get stuck to the wound
E. adhesive is applied into the wound itself.

### Case 3 – Jon Dinh

Jon is a final year medical student at your practice for 2 weeks. He is hoping to pursue a career in surgery and his eyes light up when you suggest he spends the morning assisting in the treatment room with a number of patients booked in for removal of skin lesions.

### Question 1

**While getting ready for the first patient you discuss with Jon some of the patient, wound and technical factors that impact on wound healing and scar formation. Choose the correct statement:**

A. patient factors and wound factors have an impact but cannot be modified
B. the patient's general health and comorbid medical conditions are not relevant in procedures not involving general anaesthesia
C. toothed forceps facilitate atraumatic tissue handling
D. a past history of hypertrophic or keloid scarring is a contraindication to removal of skin lesion under local anaesthesia
E. the location and orientation of the wound has no impact on scarring.

### Question 2

**The first patient is Marjorie, aged 63 years, with a suspected basal cell carcinoma (BCC) of 5 mm diameter on her left cheek, adjacent to the nasolabial fold but not near the nose. You elect to remove it with an elliptical incision. It:**

A. should have a long axis four times the length of the short axis
B. is likely to result in 'dog ears' if the long axis is too long
C. should be perpendicular to relaxed skin tension lines (RSTL)
D. should be perpendicular to the nasolabial fold
E. should be angled at about 45 degrees to the skin surface.

### Question 3

**You successfully remove the lesion and surrounding ellipse of skin and are now preparing to suture the wound. Choose the correct statement.**

A. deep dermal sutures with buried knots are best avoided as they increase facial scarring
B. vertical mattress sutures are ideal on the face to minimise cross hatching
C. when using simple interrupted sutures the needle should be introduced at 90 degrees to skin surface
D. continuous subcuticular sutures give a poor cosmetic result
E. superficial sutures should be left in place for about 10 days on the face.

### Question 4

**The next patient is Bruce, aged 45 years, who has a pigmented lesion on his back; you are concerned it may be a melanoma. You remove the lesion and set about wound closure. The wound is gaping considerably and you are concerned that it may be difficult to get the wound together without tension. You decide to use far-near near-far pulley sutures. You tell Jon:**

A. these close the wound under tension without causing cross hatching
B. can be used as a temporary measure to allow insertion of deep dermal and superficial interrupted sutures
C. an initial loop is inserted about 5 mm from the wound edge on both sides and then a second loop about 2 mm from the wound edge
D. this is another name for a horizontal mattress suture
E. all of the above.

### Case 4 – Sandra Martin

Later that afternoon you and Jon see Sandra Martin, aged 43 years, a fair skinned woman with significant sun damage who has two skin lesions on her nose that she has noted over the past 12 months. You ask Jon to examine Sandra and he tells you that he thinks they are small BCCs. You agree. You also note that the area between the lesions is indurated.

### Question 1

**You discuss management options. Jon is keen to remove the lesions by incision and suture. You tell him:**

A. it is the best plan and he can perform the surgery today
B. as the lesions are small they would be best treated nonsurgically with imiquimod cream
C. cryotherapy would be a better option
D. wider excision with flap repair may be required
E. small BCCs such as this can be managed by observation only.

### Question 2

**You refer Sandra to a procedural dermatologist. She tells you she plans to remove the lesion using Mohs surgery. Jon asks you what this is. Choose the correct statement. Mohs surgery:**

A. is rotation flap surgery
B. is transposition flap surgery
C. involves serial excisions and frozen section histology until tumour free margins are achieved
D. is advancement flap surgery
E. is most often used to treat melanoma.

### Question 3

**Jon is able to attend to watch Sandra's surgery. He was impressed by how meticulous the dermatologist was in labelling the specimen sent for histology and in planning the steps of the flap procedure. Choose the correct statement:**

A. accurate mapping and orientation ensures that the re-excision occurs in the correct area
B. the dermatologist is obsessive and this was not necessary
C. the flap pedicle needs to be under tension
D. the flap is made slightly smaller than the defect area to minimise redundant tissue
E. flaps are used to create a smaller scar.

### Question 4

**A year later Sandra returns. She has a good cosmetic result from the flap repair of her nasal wound. She is worried about a lesion on her back and you confidently diagnose a seborrhoeic keratosis. She is worried about potential scarring but is more concerned about recurrent skin cancer. You:**

A. reassure her it is benign
B. excise the lesion
C. perform a skin check and advise regular skin assessments
D. all of the above
E. A & C.

## ANSWERS TO JUNE CLINICAL CHALLENGE

### Case 1 – Renee Baker

**1. Answer D**
Renee should continue her usual insulin dose and monitor her sugar levels closely. She may require additional insulin (up to 20% increase) if her blood sugars or ketones are elevated.

**2. Answer B**
Renee should drink water if her sugar levels are >15 mmol/L and sweetened fluids if <15 mmol/L. If she is unable to tolerate oral fluids she will require hospital admission.

**3. Answer B**
Urinary ketone readings of small or greater, or blood ketone levels >1 mmol/L indicates the need for higher insulin doses in this setting. The additional dose needed is usually 5–20% of the usual dose depending on blood glucose levels.

**4. Answer A**
Renee is not tolerating oral fluids and therefore can't be managed at home.

### Case 2 – Courtney Mortensen

**1. Answer E**
Worsening metabolic control in adolescence is common and contributing factors may include erratic meals and exercise, risk taking behaviour, poor adherence, eating disorders and increased insulin resistance.

**2. Answer A**
Increasing insulin resistance during adolescence results in an increase of total insulin requirement from less than 1 unit/kg/day in childhood to as high as 2 units/kg/day in later adolescence. Overnight growth hormone secretion increases, often producing morning hyperglycaemia. Girls may experience hyperglycaemia premenstrually.

**3. Answer C**
Sports such as scuba diving, where momentary loss of judgment could cause dire consequences, are best avoided. Reducing insulin before a long swim may help reduce hypoglycaemia. Patients may have hypoglycaemic episodes up to 12 hours after marked exertion, as muscle glycogen stores are depleted. If patients are ketotic, they should delay exercise until the ketones have been cleared by increased insulin.

**4. Answer D**
Low dose COCP agents are not contraindicated in type 1 diabetes, but long term use may be associated with increased risk of nephropathy. An unplanned pregnancy is a greater risk for Courtney at the moment. A realistic approach is needed here to minimise harm and reduce risk of hypoglycaemic episodes, pregnancy, sexually transmitted infections and other adverse outcomes.

### Case 3 – Stan Katsoris

**1. Answer D**
Metformin has good evidence that it reduces the risk of macrovascular complications. It is an insulin sensitiser. The most common side effect is gastrointestinal disturbance. Lactic acidosis is rare, with those with renal and hepatic impairment at greatest risk.

**2. Answer E**
Diabetic patients qualify for statin therapy if their total cholesterol is >6.5 mmol/L (or >5.5 if their HDL is <1.0). However, Stan could be offered a statin on private prescription. Patients with existing coronary artery disease qualify if total cholesterol is >4 mmol/L. ACE inhibitors reduce macrovascular and microvascular risk and are antiproteinuric and protect against progression of renal failure.

**3. Answer D**
Rosiglitazone can be prescribed on PBS authority as triple therapy with metformin and a sulphonylurea if the HbA1c is >7%. Peripheral oedema and weight gain (increased subcutaneous but not visceral fat) are the major side effects and liver function tests should be performed before commencement and 2 monthly for the first year.

**4. Answer B**
A typical starting regimen would be 0.1–0.2 units/kg of intermediate acting insulin at night but many patients eventually require total doses of over 1 unit/kg/day. Insulin secretagogues are usually ceased but insulin sensitising agents such as metformin and glitazones are often continued.

### Case 4 – Indira Gupta

**1. Answer B**
Women at high risk of GD should undergo diagnostic testing with a 75 g GTT soon after the initial booking visit. If this is normal they should be retested at 24–28 weeks.

**2. Answer E**
GD is associated with increased perinatal risk and appropriate treatment of GD decreases the risk of perinatal morbidity. However, the cut off of glycaemia above which there is increased perinatal morbidity, has not been clearly established.

**3. Answer A**
Dietary modification involves spreading carbohydrate throughout the day. Carbohydrates should be low glycaemic index and compromise 40% or total caloric index. Insulin is commenced if BSL targets (<5.5 mmol/L fasting and <6.7 mmol/L 2 hour postprandial) are not met by diet alone. Although metformin shows promise it is not yet routinely used in GD.

**4. Answer D**
A nice easy question to end this month's clinical challenge! Patients with GD should have a GTT 2–4 months postpartum and are at increased risk of type 2 diabetes as they age.

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