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Independent learning program for GPs



Unit 502 January – February 2014

Dermatology

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The five domains of general practice

-  Communication skills and the patient-doctor relationship
-  Applied professional knowledge and skills
-  Population health and the context of general practice
-  Professional and ethical role
-  Organisational and legal dimensions

Skin is the largest organ in the body and it is frequently damaged. It has been reported that there are more than 3000 skin diseases.¹ A study estimating the global burden of disease attributable to skin disease across 187 countries, from 1990 to 2010, reported that fungal skin diseases, other skin and subcutaneous diseases and acne were amongst the top 10 most prevalent conditions worldwide in 2010.² Eight skin conditions fell into the top 50 most prevalent diseases globally and skin conditions were the fourth leading cause of non-fatal disease burden in all countries independently of socioeconomic status.²

Skin diseases may carry significant mortality and morbidity. When considering the burden of skin disease it is important to also consider the psychological, social and financial consequences of skin disease. For example, Australia has the highest incidence of skin cancer in the world³ and in 2009, melanoma of the skin was the fourth most commonly diagnosed cancer in Australia after prostate, bowel and breast cancer.⁴ Other chronic conditions, such as eczema and psoriasis, are associated with various morbidities affecting health status and quality of life.

Common skin conditions include rashes and rosacea, warts, moles, skin tags, acne, psoriasis eczema, skin cancers and age spots. Clinicians also have to deal with common hair problems (e.g. baldness, scalp psoriasis) and nail problems (e.g. ingrown finger or toenails, and fungal and bacterial infections).

This unit of check will consider a range of common dermatology presentations to general practice and consider new management options where relevant.

LEARNING OUTCOMES

At the completion of this unit, participants will be able to:

- outline appropriate examinations and investigations, including differential diagnosis, for a person presenting with a melanoma-like skin lesion
- predict possible complications that may arise with eczema and how these could be managed
- explain why psoriasis is more than just a skin problem
- describe management options for the treatment of fungal nail infections
- list currently available treatment approaches and potential success rates for management of warts.

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ABCDE	Assymetry, Border irregularity, variable Colour, Diameter greater than 6 mm and Evolving	CLND	complete lymph node dissection	3R	Red, raised lesion, with Recent change
AHM	amelanotic/hypomelanotic melanoma	EFG	Elevated, Firm on palpation, and Growing	SLNB	sentinel lymph node biopsy
BSL	blood sugar levels	FBC	full blood count	TGA	Therapeutic Goods Administration
C&E	creatinine and electrolytes	HPV	human papillomavirus		
		LFT	liver function tests		

CASE 1

DAVID, MARY, DON AND PATRICK'S SKIN LESION PRESENTATIONS

You work in two busy practices in the northern suburbs of a major metropolitan area and several interesting skin cases have presented recently, including:

1. David, aged 38 years, presented for a routine skin examination and mentioned his concern about a small, recent onset, inflamed papule on the distal right forearm. The lesion measured 3 x 2 mm and dermoscopy showed no reticular network but some atypical vessels were present.
2. Mary, aged 59 years, presented with a 5-mm diameter red nodule situated in an old melanoma scar on the right side of her neck. The melanoma had been excised 11 years ago and had a Breslow thickness of 0.64 mm. She also had a thin melanoma excised from her right thigh 27 years ago. The area in the neck scar had been itchy over the last 4 months and had changed significantly over a period of a few weeks, rapidly developing into the nodule. Dermoscopy showed a pale pink area in the centre of the lesion together with regular, well-focused, circumferential hairpin vessels. No peripheral network remnants were evident.
3. Don, aged 82 years, had just returned from a holiday in China where he had done a lot of walking. He had been wearing a new pair of shoes and presented with an ulcerated region over a prominent hallux valgus on his right foot. The ulcer was treated and healed slowly over a 2-month period; however, it then reappeared and was thought to be due to his shoe rubbing on the area.
4. Patrick, aged 54 years, presented because his wife had incidentally noticed a small swelling lying deep to a small, pale, innocent-looking mole on his left deltoid region. Dermoscopy revealed a featureless naevus with a small area of negative network. A small, indurated, localised area was palpable, lying directly below the naevus, presumably within the dermis.

QUESTION 1 

What are the likely differential and provisional diagnoses for the individual cases?

QUESTION 2 

What is the place of dermoscopy in the diagnosis of amelanotic or hypopigmented lesions?

QUESTION 3 

How would you establish a definitive diagnosis?

QUESTION 4 

What are these lesions?

QUESTION 5 

How would you manage these lesions?

QUESTION 6 

What are the red flags to watch out for with AHM?

CASE 1 ANSWERS

ANSWER 1

To assist with making differential and provisional diagnoses, a medical history should be taken. The history should include specific risk factors, previous episodes of skin cancer and melanoma, the degree of sun exposure (particularly during childhood and early adulthood), previous episodes of sunburn (including peeling), family history, a general medical summary, medications and allergies.

If on a comprehensive skin examination from head to toe, any suspicious lesion is detected, it is very important to determine whether it is of recent onset or longstanding, and whether it has undergone any recent change. The size, shape, colour and texture of the lesion should be noted, together with the site and dermoscopic features. Only biopsy or excision will provide a histological and definitive diagnosis. If the lesion is clinically suspicious, even without dermoscopic assessment, a biopsy should be done or the patient referred to a specialist.

Patients frequently present complaining of a new or recent onset skin lesion or of a change in an existing lesion. Any patient concern should immediately arouse suspicion. Change is a prominent feature of all skin malignancies, including melanoma, and it includes changes in size, shape, colour and surface, the onset of bleeding, itching, inflammation or soreness, as well as the development of crusted or scar-like features.

Differential and provisional diagnoses for the individual cases include:

1. **David's red to pink macule or papule:** solar keratosis, dermal naevus, hypopigmented common naevus, and amelanotic/hypomelanotic melanoma (AHM).
2. **Mary's reddish firm nodule:** haemangioma (Campbell de Morgan spot), intraepidermal carcinoma, squamous cell carcinoma, keratoacanthoma, basal cell carcinoma, Merkel cell carcinoma, classical Spitz naevus, pyogenic granuloma, dermal melanoma metastases and AHM.
3. **Don's ulcerating non-healing lesion:** venous or arterial ulcer, diabetic ulcer, granulating traumatic ulcer, ulcerating squamous cell or basal cell carcinoma and AHM.
4. **Patrick's localised dermal induration:** dermatofibroma, neurofibroma, sclerosing basal cell carcinoma, hypertrophic scar and desmoplastic melanoma.

All the above skin lesions are either non-pigmented or hypopigmented.

Other presentations within this group of lesions include:

1. erythematous patch or plaque: eczema, psoriasis, common wart, irritated seborrhoeic keratosis, superficial basal cell carcinoma and AHM
2. nail lesions: ingrowing toenail not responding to treatment, any nail-deforming lesion including onychomycosis, and ulcerating nailbed lesions including squamous cell carcinoma and AHM
3. the pink or red **non-pigmented 'ugly duckling'** lesion, which is

a lesion that is different from and stands out from the other naevi in the region.

AHM has to be considered in the differential diagnoses in each of the above presentations. AHM is difficult to diagnose as it can mimic so many different benign and malignant lesions, and the face and the foot are notorious regions for misdiagnoses.¹

ANSWER 2

The use of dermoscopy (epiluminescent microscopy of the skin) by trained individuals has been shown to significantly increase the diagnostic accuracy for melanoma when compared with the naked eye examination.² However, its main use is for assessing pigmented lesions and its accuracy is significantly reduced with amelanotic or hypopigmented lesions.³ Dermoscopy is not widely used in general practice, and medical history and skin examination are the key aspects of the clinical assessment. If a clinically suspicious lesion is detected a biopsy should be done or the patient referred to a specialist.

In the amelanotic and hypopigmented group of lesions very little or no pigmentation or reticular network is present.

Additionally:

- The ABCDE (Asymmetry, Border irregularity, variable Colour, Diameter greater than 6 mm and Evolving) criteria together with other algorithms or dermoscopic features routinely used for melanocytic lesions are rarely positive, and often they can fail to detect nodular melanoma.⁴
- The EFG (Elevated, Firm on palpation, and Growing continuously over the last month) rule was developed specifically for nodular lesions, and it covers their most relevant clinical features.⁵
- The 3R (Red, Raised lesion with Recent change) criteria have also been developed for nodular amelanotic lesions. However, we do not yet know if the use of the EFG and 3R diagnostic aids are helping to detect nodular melanoma at an earlier stage of development.⁶
- The Chaos and Clues algorithm⁷ has been developed mainly for pigmented skin lesions but it also addresses the amelanotic or hypopigmented lesions with the 'Clue present' features of white lines, eccentric white or pink structureless areas and polymorphous vessels, and the 'Clue not present' feature of changing lesions in adults.

For truly amelanotic melanoma where there are no pigmented structures, diagnosis depends critically on vascular patterns, which are visible only with dermoscopy.¹ Vascular structures may not be diagnostic of AHM, but they can indicate a high degree of suspicion, and 11% of AHM have been reported as having no visible vessels.³

We should note that the ultimate aim of dermoscopy is not to diagnose melanoma, but to determine the need for a biopsy.⁸

ANSWER 3

Excision biopsy of any suspicious amelanotic or hypopigmented lesion should be performed, as it is the only way that a definitive diagnosis can be made. Complete removal of the lesion should be carried out with a 2 mm margin.⁹ If it is impractical to excise the

whole lesion, as in Don's case, then a partial biopsy (punch, incision or shave) from the most suspicious area of the lesion would be appropriate.¹⁰ A higher percentage of shave biopsies tend to be performed for red amelanotic melanomas, leading to a significant proportion of positive deep margins and incomplete staging on histological examination.¹¹

If the biopsy is positive for melanoma, the results should be delivered to the patient face-to-face in an empathetic manner. Plenty of time should be allocated for this, and a general treatment plan should be provided. Good communication with the patient and their immediate family is essential.

The biopsy results in each of these cases confirmed the presence of AHM:

1. **David:** a Clark level 4, spitzoid melanoma, with a Breslow thickness of 1.05 mm and a single dermal mitotic figure.
2. **Mary:** a Clark level 4, superficial spreading melanoma, with a Breslow thickness of 2.5 mm and a high mitotic rate of 17/mm².
3. **Don:** a Clark level 4, acral malignant melanoma with ulceration and no report as to mitotic rate.
4. **Patrick:** a Clark level 4, desmoplastic melanoma with a Breslow thickness of 3.1 mm and a mitotic rate of 1/mm².

ANSWER 4

David, Mary, Don and Patrick's lesions are AHM, which constitutes 2–8% of all melanomas.

The great majority of AHM are clinically amelanotic but on dermoscopic examination may have some subtle peripheral pigmentation. These latter lesions, therefore, are classified as hypomelanotic melanoma. Truly amelanotic melanomas are quite rare, constituting less than 2% of all melanomas.¹²

It has been proposed that nodular melanomas, including nodular AHM, may originate from dermal stem cells, thereby displaying a vertical growth phase from the outset.¹³ They demonstrate a more rapid rate of growth,¹⁴ have a more biologically aggressive behaviour,¹⁵ an increased number of mitoses¹⁶ and a propensity to metastasise early, emphasising the importance of early recognition and excision.¹⁷

AHM are great mimickers, which represents an important diagnostic challenge for clinicians,¹⁸ and when the Breslow thickness is taken into account, they are comparable in lethality to classically pigmented melanomas.¹⁰ Note that all of the above cases were Clark level 4 lesions that had invaded down to the reticular dermis; hence their chance of producing metastases was quite high.

ANSWER 5

After the biopsy results are obtained these cases should be referred to a specialist unit for wider excision and, if appropriate, for consideration of a sentinel lymph node biopsy (SLNB) for prognosis and staging. The Australian and New Zealand guidelines⁹ for the management of melanoma recommend that SLNB should be discussed with patients who have melanomas of 1 mm in thickness. It is most important to inform the patient that SLNB will not improve

their overall chances of survival, but a positive SLNB followed by early complete lymph node dissection (CLND) can provide a better 5-year survival rate of 72.3%, versus 52.4% when CLND is performed after the regional lymph nodes have become clinically apparent.¹⁰ SLNB and lymphatic mapping should be done before wide excision.⁹

Long-term management initially involves 3-monthly follow-up examinations, with the GP visit alternating with the specialist unit. The clinician should examine the melanoma scar, the intransit region to the draining nodes, the regional and other lymph nodes, and the liver and spleen. In a meta-analysis,¹⁹ ultrasound examination of lymph nodes was consistently more accurate than palpation for the detection of lymph node metastases, and in many instances the patient will present after they have discovered a new regional lymph node swelling.

It is most important to manage the patient in an appropriate fashion. They are frequently very anxious and have many spontaneous and internet-derived questions to be answered, which is difficult in a busy specialist unit. The GP can be the main point of contact and support and should provide adequate time to answer any questions in a sincere and empathetic manner.

The public is becoming much more aware of the red flags for unusual skin lesions (e.g. pigmented naevi) but the public and many GPs are generally unfamiliar with the multiple presentations of the AHM subtype of melanoma, so public education programs and continuing medical education programs for GPs should be encouraged.

Patient education in frequent skin self-examinations and the use of self-photography in high-risk groups is critical, as nodular melanomas may arise and grow rapidly between routine physician screenings.²⁰

Prompt presentation should also be encouraged and, if patients are being referred to a specialist centre, the GP should make sure that they have urgent access and treatment.

ANSWER 6

In general, AHM presentations can be very variable and subtle, and any patient concern about a particular lesion, a history of any new lesion, of a changing lesion, or of itchiness, bleeding, inflammation or soreness, should raise a red flag and be considered to be very relevant.

Additional considerations are described below.

- Be aware that recent onset, small, subtle, erythematous macule, papule or plaque can frequently have surface scale and resemble eczema or other benign amelanotic or hypomelanotic lesions. Have a low threshold for biopsy.
- With any firm, recent onset, red nodule, one must suspect a malignant lesion and urgent biopsy is required. It could be an AHM or a Merkel cell carcinoma, as well as one of the other skin malignancies. Be aware that an early AHM can masquerade as a haemangioma (Campbell de Morgan spot) or as a pyogenic granuloma.
- For all non-healing ulcers, biopsy early, not late.
- Any recent onset dermal lump or localised induration should be biopsied.

- Any of the non-pigmented dermoscopic features should be noted, including a pink or red background, polymorphous vessels and white lines.
- For any destructive or deforming nail lesion that persists despite treatment, consider biopsy early.
- Look for any traces of pigment or other signs of melanoma before any destructive therapy, such as cryotherapy or laser treatment, and if any doubt exists send tissue for histology. This applies particularly to acral or plantar warts and to any lesion where AHM cannot be ruled out with certainty.²¹
- Do not forget the pink or red non-pigmented 'ugly duckling' lesion.

CONCLUSION

It is important to appreciate that the history of any new or rapidly changing lesion, along with a very high degree of suspicion, is extremely important for the 'very early diagnosis' of this very dangerous lesion (i.e. AHM). It can present in many different ways, mimicking many other conditions. When used by trained individuals, dermoscopy can be important in the assessment of suspicious amelanotic or hypopigmented lesions, and the EFG, the 3R and the Chaos and Clues algorithms address the various diagnostic features. It is most important that clinicians be vigilant when examining amelanotic or hypomelanotic lesions and that they have a very low threshold for performing full-thickness biopsies – no one has yet died from a biopsy, but many have died from a late diagnosis of AHM.

It is strongly recommended that GPs consider dermoscopic training; some excellent courses are available.

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CASE 2

ALICE HAS AN ITCHY FACIAL RASH

Alice is 4 months old. She was breastfed for 6 weeks and then changed to infant formula. About a month ago, she started to develop an itchy rash on her face and her mum, Donna, wonders if she is allergic to cow's milk.

QUESTION 1 

What should you do next?

QUESTION 2  

What questions should you ask Donna?

FURTHER INFORMATION

You have treated Donna for asthma in the past but no one in the family has had trouble with eczema. However, further questioning revealed significant atopy in the family. Dad has hay fever and Donna's mum had migraines and asthma. A naturopath suggested soy formula and calendula ointment, and cautioned against the use of steroid creams.

QUESTION 3 

What should your examination of Alice involve?

FURTHER INFORMATION

You have diagnosed atopic eczema. Examination revealed excoriated eczema of the cheeks with typical sparing of the peri-oral area. There were patches of eczema around the earlobes, in the cubital and popliteal fossae, and small patches on the body but not in the nappy area. The history was not suggestive of a milk allergy. Donna has tried the calendula and has just commenced a soy formula. She has also tried very small amounts of 0.5% hydrocortisone cream bought over-the-counter. Nothing much has helped and Donna is not coping well because Alice keeps waking up distressed.

QUESTION 4 

What complications of eczema do you need to be aware of?

QUESTION 5 

What treatment will you start?

FURTHER INFORMATION

Donna is not very keen on steroids. She has heard bad stories about side effects and the naturopath told her to avoid them.

QUESTION 6 

Will she use the prescription you organised?

QUESTION 7 

What follow-up will you organise?

CASE 2 ANSWERS

ANSWER 1

Options for a course of action might include changing the formula and seeing how she goes, examining her face and/or asking Donna questions about the rash.

The most important thing at this stage is to take a history. The history is important for both diagnosis and treatment, as it will help to engage Donna in a management plan, which is likely to be long term.

ANSWER 2

Questions that could be asked of Donna include the following.

- How itchy does Alice get? Is it a major feature?
- Is Alice's sleep disturbed?
- Is the family atopic? Ask about asthma, eczema and hayfever. You may already know this from previous family consultations. Urticaria (hives) is also an indication of atopy.
- What has Donna tried so far?
- Has Donna had advice from anyone (e.g. family members, pharmacist, child health nurse, naturopath)?
- What does Donna think has caused Alice's skin trouble?
- Does the rash flare up soon after a feed? Does the skin become urticarial or red if milk spills onto the face? These features are suggestive of allergy.

ANSWER 3

You should examine all of Alice's skin. Ask Donna to undress her while you are asking questions. Look at the nappy area as well; this is often not affected as the area is kept humid and protected by the nappy. Feel the skin as well; is it dry? Remember to check the scalp, ears, hands and feet. Is the skin excoriated? Are there any pustules?

ANSWER 4

Atopic eczema (also called atopic dermatitis), which is characterised by itching, is the most common chronic skin condition that affects youngsters. Typically it presents initially in the first 12 months of life.

In young children, sleep is often interrupted by itching, which is worsened by overheating in bed. This leads to overtiredness and worsening of daytime behaviour and routines, resulting in poor quality of life for the child and family.¹ Note, the words eczema and dermatitis can be used interchangeably as a distinction between the terms is not recognised medically.¹

Secondary infection is common in eczema. Infection may be bacterial, viral or fungal in nature.² There may be pustules or blisters (impetigo). Pustules in crease areas may be due to thrush. The most common cause of secondary infection is *Staphylococcus aureus*,^{1,3} and a low grade infection may not be obvious.

Treatment of secondary infection may be warranted using an antiseptic product in the bathwater or topically on the skin.¹ Oral antibiotics could also be considered to manage a bacterial secondary infection or where bacterial infection is suspected and the skin has not improved using other approaches.^{1,3} Management of other infections (viral or fungal) may also need to be considered.

Extensive erythrodermic eczema may cause significant fluid and heat loss and lead to hypothermia, dehydration and shock. Chronic severe eczema may produce growth retardation.⁴ These complications are associated with very severe disease and are not commonly seen in general practice.

ANSWER 5

A number of aspects will need to be considered in developing a treatment plan.⁵ These include the following points.

- **An explanation of atopic eczema:** many parents think that the eczema is caused by an allergy and that avoidance of the allergen will cure the eczema. Explain that Alice has been born with a genetic predisposition to sensitive skin that is prone to dryness and itch. Her skin is more prone to irritation and she will require regular treatment with moisturisers.
- **Prescribe a topical steroid:**¹ topical steroids are generally the most effective topical treatment for eczema. They usually work quickly to reduce itch and inflammation. Ointments are more effective and do not usually sting when applied to broken skin, in contrast to creams. However, they are messier and once the worst of the eczema has settled, a change may be made to a cream. Current guidelines recommend the use of hydrocortisone (1%)^{1,3} or desonide as first-line treatment for the face¹ and use of a stronger topical steroid if unresponsive.^{1,3} Once daily application of a topical steroid is recommended. Application after a bath is often the most practical time. More frequent application of corticosteroids above that recommended in guidelines does not provide additional benefits.³
- **Protect the skin:** use a moisturiser at every nappy change and all over the skin after bathing. A bath oil can be added to the bath or soap substitute used for washing.³ If the skin is broken, an ointment will be more soothing. Options include liquid paraffin mixture or emulsifying ointment.
- **Avoid skin irritants:** this includes excessive heat (especially when sleeping), coarse fabrics, wool next to the skin, soap, fabric softeners and sandpits.¹
- **Provide patient information:** provide written information on eczema and the use of topical steroids⁶ (see Resources section below). It may be worth providing contact details for the Eczema Association.

Lastly, there is a lack of high-quality evidence to support the use of probiotics and complementary therapies, such as evening primrose oil, in the management of atopic eczema.²

ANSWER 6

In atopic eczema poor compliance to therapy often leads to treatment failure.¹

It is very important to discuss the use of topical steroids otherwise they may be used too sparingly or not at all. Explain the vast difference between topical and oral steroids, and that studies have shown very little risk of skin thinning or systemic side effects when used appropriately.^{7,8,9}

Explain to Donna that the pharmacist will probably tell her to use the steroid sparingly, but that she may safely use the amounts you have indicated. Guidelines recommend noting the amount of cream to be applied on the prescription and underlining the information. This will ensure that the medication is labelled correctly at the time of dispensing and that the patient is counselled appropriately by the pharmacist.¹

ANSWER 7

Follow-up in 2–3 weeks should be arranged to monitor progress and to allow more questions and explanations about eczema.¹⁰

Ensure there are enough quantities and repeats for the topical steroid to allow continued treatment. An infant with extensive eczema will require about 5 g of topical steroid a day, which would require an authority for 8 tubes of 15 g each per month.¹¹

If there has not been a major improvement in the eczema, consider the possibilities of secondary infection or a significant allergy¹¹ or poor compliance. Check how much topical steroid has been used. It may be appropriate to do a skin swab, or organise a referral. Referral to a dermatologist is recommended if there are problems with the diagnosis, or if topical therapy does not control the eczema, or other therapies such as phototherapy or systemic agents are indicated, or in the case of recurrent secondary infections.

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RESOURCES FOR PATIENTS AND DOCTORS

- Eczema Association of Australasia www.eczema.org.au
- New Zealand Dermatological Society www.dermnetnz.org
- National Eczema Society (UK) www.eczema.org
- Patient leaflet: Topical steroids – how much do I use? Australian Medicines handbook. Last updated May 2012 (includes data for application of steroids in infants and children. Available at www.amh.net.au/downloads/fingertipunits.pdf
- Patient leaflet: Eczema. Australasian Society of Clinical Immunology and Allergy (last updated April 2010). Available at www.allergy.org.au/patients/skin-allergy/eczema
- Patient leaflet: Eczema. Asthma Australia. Available at www.asthmaaustralia.org.au/Eczema.aspx

CASE 3

DARREN IS HAVING PROBLEMS WITH A RASH ON HIS HANDS

Over the last 6 months or so, Darren has been developing red, scaly, itchy patches on the back of his hands. It seemed to start after a change in the handwash at work and his mother thought it might have been a reaction to the product.

Darren is 25 years of age and works in retail in an IT store. He is becoming embarrassed about the rash on his hands. Some customers seem to try to avoid him.

QUESTION 1 

Is this contact dermatitis?

FURTHER INFORMATION

Itch is not a major feature of his rash. He has tried his mum's cortisone cream with slight improvement. Darren has had scaly patches on his elbows and knees since he was about 17 years old. However, in the last year or so he has developed more and more patches on his body, scalp and now the back of his hands. He smokes 15 cigarettes a day and has a few drinks at the weekends.

QUESTION 2  

What questions should you ask?

QUESTION 3 

How would you examine Darren?

FURTHER INFORMATION

You have confidently diagnosed chronic plaque psoriasis; the new patches on his hands are plaques of psoriasis.

History and examination will usually facilitate a diagnosis of psoriasis for most patients. Depending on the presentation differential diagnosis includes:

- eczema: usually itchier and does not have the thick scale seen with psoriasis
- fungal infection(s): consider taking scrapings for culture if diagnosis is not clear
- skin tumours: organise biopsy and/or referral if in doubt; caution is recommend in the case of isolated plaques (psoriasis is usually symmetrical) that grow despite treatment
- seborrhoeic dermatitis: appearance may be similar to psoriasis.¹

QUESTION 4 

Why is the hand rash not contact dermatitis?

CASE 3 ANSWERS

ANSWER 1

This could be contact dermatitis; however, as hand rashes can be easily misdiagnosed it is important to take a careful history and undertake an examination before forming a diagnosis.

ANSWER 2

Appropriate questions to ask Darren include the following.

- Is the rash itchy?
- What treatments has he tried?
- Does he have any other rashes?
- Does he drink or smoke?
- Is there a family history of rashes or arthritis?
- Did the rash coincide with an illness or extra stress?
- Does he have a history of eczema/dermatitis or atopy?
- Does he take any medication(s)? Drug-induced skin reactions are adverse effects of some medications. For example, lithium, beta-blockers, antimalarials and nonsteroidal anti-inflammatory drugs may precipitate or exacerbate psoriasis.^{4,5,6}

ANSWER 3

You certainly need to examine Darren's hands carefully but it is important to check all of Darren's skin. Remember to check his nails, ears, scalp and crease areas such as the natal cleft and umbilicus.

ANSWER 4

It is sometimes very difficult to differentiate between dermatitis and psoriasis of the hands. Generally, dermatitis is itchier and may show major improvement with time away from work. The patches tend to be less well defined than psoriasis, and often involve the more delicate skin in the finger webs and around the wrists. People with contact dermatitis are also more likely to be atopic.⁷

Plaque psoriasis may appear anywhere on the body but commonly affected areas include the elbows, knees, lower back (sacrum) and scalp.^{4,5,6} Flat areas of psoriasis are referred to as plaques and these are usually well delineated and pink with a silvery scale. There may be single or numerous lesions. Individual plaques may join to form extensive areas of 30 cm or more in diameter.^{4,5,6}

ANSWER 5

An association has been noted between psoriasis and the development of joint pain. About one in three people with psoriasis may develop associated mild-to-severe arthritis (psoriatic arthritis).⁴ The symptoms of psoriatic arthritis are transitory but the condition is life-long and can eventually result in significant damage to joints. Severe disease may result in a shorter life expectancy.^{5,6} It is important therefore to ask Darren questions such as those suggested below.

- Does Darren have any problems with painful joints?
- Does he have early morning stiffness in the joints?
- Has he had swelling of individual fingers or toes (dactylitis)?
- Has he had sore Achilles or elbows, or pain in the arch of the foot when first standing up in the morning (enthesopathy)?
- Does Darren have any other symptoms or features that have been associated with psoriatic arthritis? These may include fatigue, eye inflammation (iritis), mouth ulcers and nail changes. Examination of Darren's hands may reveal thickening and subungual hyperkeratosis and/or separation of the nail from the nail bed (onycholysis) or nail pitting (psoriatic nail dystrophy).

ANSWER 6

Small areas of thin psoriasis usually respond well to topical steroid.⁸ The type and potency of the corticosteroid chosen should be guided by the severity and site of the psoriasis, as well as the age of the patient.⁹ For Darren, you could start with a reasonably potent topical steroid such as mometasone. Ointments are more efficient and more moisturising but are messier. A cream may be used once the worst of the psoriasis has settled. Intermittent use of a combined steroid/calcipotriol ointment works well for some patients.

Darren may be happy to concentrate on clearing the hand lesions, but long-term control of the rest of his psoriasis will probably entail systemic treatment. Options include ultraviolet light therapy, methotrexate or acitretin.^{4,9,10,11}

A referral to a dermatologist or another specialist (e.g. rheumatologist) may be required. Referral may be considered in the following cases:^{1,9,12}

- diagnostic uncertainty
- the psoriasis not being well controlled
- the psoriasis being severe or extensive, or progressing rapidly
- the psoriasis cannot be controlled by topical therapy
- co-existing arthropathy is significant
- there is erythrodermic or pustular psoriasis, as these forms of psoriasis can lead to severe systemic illness.

ANSWER 7

As psoriasis has been associated with a number of conditions that may impact on mortality and morbidity, such as cardiovascular disease, diabetes, renal disease and rheumatological disease,^{12,13} other comorbidities and risk factors need to be addressed. It would be appropriate to check the following, particularly if treatment with a systemic agent is being considered:

- full blood count (FBC)
- creatinine and electrolytes (C&E)
- liver function test (LFT)
- urinalysis
- fasting blood sugar levels (BSL) and lipids
- blood pressure
- weight and BMI.

As psoriasis can be aggravated by stress, discussion about stress management techniques and exercise, as well smoking cessation and reduction of alcohol intake, may be warranted.⁴

Preventive advice, including lifestyle advice, provision of behaviour change information and overall support should also be provided, depending on an individual's situation.^{12,14}

ANSWER 8

Darren should be reviewed about every 6 months, even if the psoriasis is well controlled.²

It is important to assess the psychological and social wellbeing¹⁵ of patients with psoriasis and, where feasible, to manage problems or alternatively to refer patients to appropriately qualified individuals. It is important to monitor Darren's risk factors for cardiovascular disease, diabetes and depression.

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- Psoriasis Australia. Available at www.psoriasisaustralia.org.au/
- Better Health Channel. Psoriasis. Available at www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Psoriasis_explained
- Arthritis Australia. Arthritis information sheet: psoriatic arthritis. Available at www.arthritisaustralia.com.au/images/stories/documents/info_sheets/2013/PsoriaticArthritis.pdf
- PsoriasisNet: A comprehensive online psoriasis information resources (US). Available at www.skincarephysicians.com/psoriasisnet/
- Psoriasisguide.com
- Mayo Clinic USA. Psoriasis. Available at www.mayoclinic.org/diseases-conditions/psoriasis/basics/definition/CON-20030838
- My Skin's on Fire. Available at www.youtube.com/watch?v=kQID72UXNUI
- British Association of Dermatologists. Psoriasis – an overview. Available at www.bad.org.uk/site/864/Default.aspx

QUESTION 4 

Briefly, what management options would you recommend?

QUESTION 5  

What advice would you give about topical therapy?

QUESTION 6 

Which oral medications would you consider and if so, at which doses?

QUESTION 7  

What would you tell Julie about the risk and benefits of oral therapy?

FURTHER INFORMATION

Julie would prefer a less invasive management option with a quick turnaround time. She likes what she has read about laser nail therapy and would like to try it. She asks you for your opinion.

QUESTION 8  

What would you say to her about laser nail therapy?

CASE 4 ANSWERS

ANSWER 1

This seems to be a fungal nail infection (onychomycosis). Although not life-threatening, onychomycosis may cause pain, discomfort and disfigurement, which may lead to physical limitations. Toenail infections occur more often than fingernail infections.¹ Organisms associated with onychomycosis include dermatophytes (e.g. *Trichophyton rubrum* (*T. rubrum*), *T. interdigitale* – the infection is also known as tinea unguium), yeasts (e.g. *Candida albicans*) and moulds (e.g. *Scopulariopsis brevicaulis*, *Fusarium*).²

There also appears to be onycholysis, which is the separation of a nail from the nail bed, in the right toenail. Onycholysis most often starts at the tip of the nail and progresses back. It is often caused by repetitive trauma, aggressive manicure technique or extended immersion of nails in water. Onycholysis may also be caused by infection or medications (e.g. tetracyclines, fluoroquinolone antibiotics, chlorpromazine, oral contraceptives and some anti-cancer treatments). It is infrequently associated with underlying disease (e.g. multiple myeloma, anaemia, diabetes, erythropoietic porphyria, hyperthyroidism, hypothyroidism, impaired peripheral circulation, Reiter syndrome, sarcoidosis, scleroderma, yellow nail syndrome due to chronic lung, or sinus disease).³

Differential diagnosis^{2,4} includes consideration of:

- bacterial infection, especially *Pseudomonas aeruginosa*, which turns the nail black or green
- psoriasis, eczema and/or dermatitis
- lichen planus
- viral warts
- onychogryphosis (nail thickening and scaling under the nail), common in the elderly
- melanoma.

ANSWER 2

Before commencing treatment it is important to definitively establish a diagnosis microbiologically. The reasons for this are manifold:^{1,5}

- other nail problems can mimic tinea
- antifungal treatment will not be successful if the problem(s) is due to other causes
- identification of the responsible organism is important as microscopy/culture results may influence treatment choices
- prior treatment reduces the chance of growing fungus and partially treated infection may be impossible to prove for many months as antifungal drugs can be detected even a year later
- treatment is often over a prolonged period of time and is expensive.

Current recommendations suggest taking clippings of the affected nail, including scrapings from the discoloured surface of the nail, and

debris from under the nail where feasible.^{1,5} Microscopy and culture are positive in about 80% of onychomycosis cases.¹

ANSWER 3

This question provides the clinician with an opportunity to highlight important medication safety points: 1) the importance of not sharing medications prescribed for others and the possible risks associated with such practices; and 2) the importance of taking medications prescribed specifically for the patient by a health professional, which minimises the possible harms of over or under treatment.

You explain to Julie that she must not use ketoconazole tablets for her nail infection. You explain the basic principles stated above and reaffirm the importance of obtaining laboratory confirmation of your tentative diagnosis. You also advise that her fungal infection is different from the infection that her husband was being treated for.

Lastly, on 1 December 2013, the Therapeutic Goods Administration (TGA) in consultation with the manufacturers of ketoconazole decided to deregister and discontinue the oral formulation of ketoconazole in Australia, because of concerns regarding serious liver toxicity.^{6,7} Topical preparations will continue to be available (cream and shampoo). You advise Julie not to use any remaining tablets under any circumstances and to take any remaining medication to her local pharmacy for safe disposal.

ANSWER 4

A number of management options could be considered. Combining topical and systemic treatments increases the possibility of treating the fungal infection. In some severe cases, surgical toenail removal and debridement may also be required, but almost always in combination with oral and other treatments.⁹

Three options could be considered. These include topical therapy, oral therapy and/or non-pharmacological approaches, for example laser treatment, photodynamic therapy, mechanical, chemical or surgical nail avulsion; chemical removal of the nail with a 40–50% urea compound in patients with very thick nails; or removal of the nail plate as an adjunct to oral therapy. The lesions should be treated as there is potential for further fungal infections at distant sites, or complications relating to the infections, particularly in the elderly, patients with diabetes and patients who are immunocompromised.¹⁰

ANSWER 5

Topical therapy is associated with a low success rate and high recurrence rate, despite prolonged therapy.¹¹ Topical therapy is usually combined with oral therapy, which increases success rates,¹² but adds to the cost and potential for side effects. The duration of treatment is in excess of 6 months. Topical therapy alone is only viable for superficial, distal nail infection¹ or mild infections.¹⁰ It is also important to advise patients that while nail infections can be cured, it may take considerable time for the nail(s) to grow out and resume a healthy appearance.¹³ It may take up to 9 months for substantial nail dystrophy to grow out.¹ It is also important to advise patients against the use of topical preparations available over

the internet, as the composition and efficacy of such products is uncertain.

ANSWER 6

Current guidelines recommend the use of terbinafine as first-line treatment, prescribed at 250 mg daily for 12 weeks (or longer) for toenails.^{1,13} If terbinafine is not tolerated, itraconazole or fluconazole could be considered.¹ Substantially longer treatment is required with fluconazole for toenails.¹ In renal impairment (creatinine clearance less than <50 mL/min, including dialysis) the dose of terbinafine should be reduced to 125 mg daily.¹³

Before commencing therapy, baseline liver function tests should be performed, and liver function and blood count should be monitored where planned treatment will be longer than 6 weeks.¹³ Therapy should be ceased if liver toxicity arises.

Interactions between antifungal agents and warfarin have been reported. While both increases and decreases in prothrombin time have been reported in patients using terbinafine and warfarin concomitantly,^{1,14} a causal relationship has not been demonstrated.¹⁵ Azole antifungal agents, which include fluconazole, itraconazole and ketoconazole, may reduce warfarin metabolism, increasing its anticoagulant effect and leading to bleeding.¹³ Griseofulvin has been reported to reduce the anticoagulant effects of warfarin.¹³ Management of potential interactions may require additional INR monitoring and/or warfarin dose changes.¹³

Remember that ketoconazole, the use of which was previously limited by severe liver complications,¹ has been removed from the market because of the risk of liver toxicity, as discussed earlier.

ANSWER 7

A cure rate of 70–80% has been described for terbinafine, whereas itraconazole and fluconazole have cure rates of around 60–70%. In a post-marketing survey of more than 25 000 patients, the incidence of adverse events was 10.5%, mostly gastrointestinal and skin reactions, which were typically mild in nature. There was a low risk of serious adverse events (0.04%).¹⁷

Griseofulvin is considered safe but is less effective and relapse is common. It can also cause nausea and has a cure rate of about 30% after prolonged continuous therapy (i.e. 12 months or more).¹ For these reasons many patients choose not to use griseofulvin.

ANSWER 8

Laser therapy is a relatively new therapy for the treatment of nail fungal infections, but all infectious agents can be treated with heat,¹⁸ which is the basis of laser therapy. It is well tolerated and has been shown to be very effective and to have high cure rates in a limited number of studies.^{19,20} Typically requiring two or more treatment sessions, which can be combined with podiatric debridement, the therapy may be considered minimally invasive and avoids potential side effects from drug therapy.²¹ It is also a cost-effective treatment, as prolonged treatment with oral and topical agents is expensive, particularly as there is a high failure rate and requirement for

additional therapy. Although these initial promising findings need to be confirmed in a randomised trial,⁴ the few treatments required, high patient acceptability and avoidance of systemic antifungal drugs makes it appealing as a first-line therapy for this common disease. *Figures 1 and 2* show images of a nail before and after laser therapy.



Figure 1. Nail before treatment; the left big toenail shows extensive onychomycosis



Figure 2. Nail after treatment; the toenail is shown after two treatments 1 month apart

Patients should be advised to seek qualified laser therapists and high quality equipment, as not all laser is suitable, nor are all therapists qualified or expert in this treatment. Several lasers have been approved by regulatory agencies such as the FDA. These include the YAG continuous, short or long pulsed lasers, the diode laser and the Ti:Sapphire modelocked laser.² Failure of laser therapy could be in part due to poor equipment and inadequately trained therapists.

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RESOURCES FOR DOCTORS AND PATIENTS

- Better Health Channel. Nails – fingernail and toenail problems [last reviewed September 2013]. Available at www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Nails_-_fingernail_and_toenail_problems

CASE 5

DALE'S UNCOMFORTABLE FOOT LESIONS

Dale, aged 17 years, is a keen footballer who over the last 12 months has developed uncomfortable skin lesions on the dorsum and plantar aspects of his feet, which he initially thought were calluses from his football boots. They have continued to grow and now the ones on the plantar aspect of his feet are uncomfortable. Dale is otherwise well, a non-smoker and no one else in his family has these lesions.

On examination there are extensive cauliflower-like lesions on the plantar and dorsal aspect of his feet (Figures 1, 2). Last weekend he played in a football final, which resulted in irritation to the dorsum of his foot. The rest of the skin on his feet appears normal, as do the nails.



Figure 1. Plantar wart on the heel



Figure 2. Warts on the dorsum of the foot

QUESTION 1

What is the most likely diagnosis?

QUESTION 2

Would you undertake any investigation?

FURTHER INFORMATION

Dale is told that he has warts. He recalls that many of his team members were told the same. He says that many of his friends had put duct tape on their warts and had used various home remedies such as thuja ointment.

QUESTION 3

What advice would you give Dale regarding treatment?

FURTHER INFORMATION

Dale returns after a month; he has tried the 35% salicylic acid gel, but with little improvement. The pharmacist advised 'take home' cryotherapy, but he wanted to speak to you before commencing this therapy, as he is frustrated that there has been little improvement in the condition.

QUESTION 4 🗣️ ⚖️

What would you tell Dale about cryotherapy?

FURTHER INFORMATION

Dale says that he wants the lesions gone as soon as possible because the state trials are coming up.

QUESTION 5 🗣️ ⚖️

What advice would you give about other therapies?

FURTHER INFORMATION

After extensive discussion, Dale is keen to proceed with laser therapy.

QUESTION 6 🗣️ ⚖️

What would you tell Dale about laser therapy?

QUESTION 7 🗣️ ⚖️

Dale has also been told that the warts are contagious. What is your advice?

FURTHER INFORMATION

After one month Dale returns after his first laser treatment (Figures 3, 4).



Figure 3. Treated plantar wart one month after laser therapy



Figure 4. Treated warts one month after laser therapy

QUESTION 8 📖

Dale asks about the long-term success of laser therapy, and if there is anything else he can do. How would you respond?

CASE 5 ANSWERS

ANSWER 1

The most likely diagnosis is warts. These occur relatively commonly on all skin surfaces and are caused by the human papillomavirus (HPV), of which there are many subtypes.¹

Many infections are self-limiting, but where there is a warm, moist environment, such as the foot, they can thrive. Pain on weight-bearing aspects of the feet is not uncommon.

Warts on the feet are generally considered to be caused by different viruses from those causing genital warts, which most often involve HPV 6 and 11 subtypes,² although in the clinical situation the lesions are not biopsied or cultured. Plantar warts (verruca vulgaris) involve HPV subtypes 1–4, 27, 29 and 57. While common warts (verruca vulgaris) involve HPV subtypes 1–5, 7, 27 and 29, appear most often on the hands and account for around 70% of non-genital warts.³

The differential diagnosis of any raised lesion includes solar keratosis, squamous cell carcinoma, basal cell carcinoma and embedded foreign body.^{1,4} Cancerous conditions would be uncommon in a patient of Dale’s age. In immunosuppressed patients the skin lesions may become extensive and may impair walking. Lesions may have been present for many years.

ANSWER 2

Plantar warts have a characteristic appearance and clinical examination usually identifies the wart(s). Note that in the case of benign warts, knowledge of HPV subtype will not influence choice of therapy.⁴

ANSWER 3

Guidelines suggest that indications for treatment of warts include pain, interference with function, cosmetic embarrassment and risk of malignancy. Treatments have a moderate success rate and warts may recur.⁴ Treatment of warts is based on destruction of local tissue or immune modification.⁵

You advise Dale that home-based treatments may be worth trying for a few weeks. The key factor involved for successful treatment seems to be persistence. Skin care around the lesions is also important.

Recommended first-line treatment for common warts and plantar warts includes topical keratolytics (e.g. salicylic acid) or antivirals (podophyllum resin), with or without occlusion.⁶ You mention that a commonly used over-the-counter remedy is salicylic acid; however, there is little information to enable comparison of different strengths and preparations containing salicylic acid.⁴ Apart from its keratolytic actions, which result in destruction of the virus-infected epidermis, salicylic acid has weak antifungal and antibacterial properties.⁵ It is also thought that the mild irritation resulting from treatment may stimulate an immune response in the patient.⁴ Lastly, subgroup analysis data from a 2012 Cochrane publication exploring topical treatments for cutaneous non-genital warts in immunocompetent

adults and children, suggested that salicylic acid might be more efficacious for treating warts on hands than feet.⁷

Topical remedies must be applied daily to the lesions. It is important that the skin around the lesions is protected with nail polish applied to the skin.⁶

Caution should be taken when treating the feet of people with diabetes and/or peripheral vascular disease, as there is a risk of acute inflammation or ulceration.⁵

Duct tape occlusion, which is convenient and inexpensive, could be tried for 24 hours;¹ however there is limited evidence for success with this approach.⁸

Natural remedies include thuja ointment, which is also applied on a daily basis. Local allergy to thuja may be intolerable, and may be a reason for discontinuation

ANSWER 4

Where topical therapy has failed, cryotherapy may be used to freeze warts using liquid nitrogen as the cryogen of choice.⁶

Cryotherapy has been used with varying success rates. A 2011 study of 240 participants showed that 6-month clearance rates were similar for cryotherapy and salicylic acid (31% for salicylic acid versus 34% for cryotherapy) in the treatment of plantar warts.⁹ Similarly, a 2012 meta-analysis failed to demonstrate significant differences in outcomes between cryotherapy and salicylic acid across all wart sites, further affirming that cryotherapy has similar success to salicylic acid treatment.⁷

The British Association of Dermatology recommends single or double freeze of warts for 15–20 seconds every 3–4 weeks.⁴ This may need to be repeated several times, together with debridement of the wart between treatments.

In the author's experience, cryotherapy to the plantar area may be unsuccessful because of the pain involved in treating warts deeply embedded in the thick skin, which may require a higher amount of freezing. However, it may be useful as an interim measure while other treatments are being considered or while awaiting specialist consultation. Patients should be warned that cryotherapy produces pain and blistering⁴ and, even if local anaesthetic were used for the freezing, walking may be difficult in subsequent days due to pain and swelling.

ANSWER 5

A number of other options, apart from occlusion and chemical topical treatments (e.g. salicylic acid) and cryotherapy, are available to treat warts. Additional treatment options include electro-surgery (curettage and cautery), topical or oral retinoids, fluorouracil cream, bleomycin injections, as well as immune-based treatment approaches, for example, imiquimod cream. Lastly, laser vaporisation or pulse dye laser destruction of feeding blood vessels could be considered.¹

Note that specialist dermatological advice should be sought if intralesional bleomycin (a chemotherapeutic agent that inhibits DNA synthesis in viruses) or immunotherapy and cantharidin are considered.⁶ Use of histamine H₂-receptor antagonists for the

treatment of common warts is not currently recommended.⁶

In your surgery you are able to offer laser therapy and curetting of the wart.

ANSWER 6

Various lasers have been reported as being useful for the treatment of warts, with variable cure rates. For example, cure rates of 75–82% have been reported using CO₂ laser for treatment of common warts and pulsed dye laser (PDL) for treatment of extragenital and genital warts, respectively.¹⁰ In a study of 369 patients using ND:YAG laser, an overall clearance rate of 96% was reported, with a 73% clearance following first treatment for verruca vulgaris.¹¹ ND:YAG laser has been shown to completely eliminate viral load (viral DNA) in treated warts, compared with untreated warts (100% viral DNA present) and cryo-treated warts (96% viral DNA present).¹² A recent study in 46 participants comparing two lasers reported that both PDL and ND:YAG lasers were effective in the management of resistant plantar warts, with no significant difference in cure rates or relapse rates. However, while PDL was safer and involved less pain, it required more treatments. ND:YAG was associated with greater pain and more complications, with haematoma being the most common.¹³

Laser treatment can be used together with curettage. Pain and discomfort are minimal. The light-based therapy works by cutting the blood supply to the wart. It may be administered as a series of 2–4 treatments at 4–6 weeks apart. Concomitant use of the immune modifier imiquimod may improve efficacy.^{14,15} There is still some 'downtime' to enable treatment to be effective, but usually most sporting activities can be undertaken.

For optimal results, the upper layers or calloused skin must be minimised by paring with a medical blade. This allows for deeper penetration and more absorption by the targeted vascular component.

Patients usually state the laser feels 'like hot pulse or electric shock'; however, after laser application the lesion feels warm for the next few minutes. Disposable ice packs may be applied immediately after the laser application to decrease the heat. The desired appearance immediately after the pulse is a slight ashen colour.

It is recommended that the lesion is left uncovered after treatment to allow the heat to dissipate. The wart usually appears black or crusty within 24–72 hours of treatment and may remain like this for 1–2 weeks. Little black dots, which are blood vessels that have been heated, may also appear after laser. Treated tissue usually sloughs off 1–4 weeks after treatment. A blister may form if the heat temperature was too hot and if this occurs it must be treated as a wound. It is important not to laser outside the wart border. Mosaic warts are more resistant to therapy and may require multiple treatments or combination therapy with intralesional bleomycin.¹⁶

ANSWER 7

Transmission of warts is facilitated by direct and indirect means and occurs more often when skin is wet or damaged.⁸ Infection may be transmitted from many locations, and clusters of infection may occur in families. HPV has spreads directly and sports changing room

showers or shared footwear are common sources of infection.¹⁷ Guidelines recommend that patients are given information about reducing the risk of spreading infection.^{5,8}

Dale is advised not to walk in bare feet, avoid sharing socks, shoes and towels with others, keep feet dry and change socks daily, use an antiseptic spray, and avoid scratching the lesions.⁸

ANSWER 8

Laser is a relatively new modality and there is paucity of data regarding long-term outcomes. In most cases, clinical clearance occurs after 2–3 treatments.¹⁴ Failure of treatment may be due to a number of factors, training in use of the machine being uppermost. Immunosuppression, patient compliance and age-related healing can all impact on success.⁴ Wart eradication may take longer in some individuals due to the large volume of the lesion.¹⁴

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RESOURCES FOR PATIENTS AND DOCTORS

- Better Health Channel. Warts Fact sheet. Available at www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Warts
- Patient information for care of areas treated with liquid nitrogen. In: eTG Complete [Internet]. Melbourne: Therapeutic Guidelines Ltd; 2013. Available at www.tg.org.au

Dermatology

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

- read and complete the unit of *check* in hard copy or online at the *gplearning* website at <http://gplearning.racgp.org.au>
- log into the *gplearning* website at <http://gplearning.racgp.org.au> and answer the following 10 multiple choice questions (MCQs) online
- complete the online evaluation.

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

The expected time to complete this activity is 3 hours.

Do not send answers to the MCQs into the *check* office.

This activity can only be completed online at <http://gplearning.racgp.org.au>

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**FOR A FULL LIST OF ABBREVIATIONS AND ACRONYMS USED IN THESE QUESTIONS PLEASE GO TO PAGE 3.
FOR EACH QUESTION BELOW SELECT ONE OPTION ONLY.**

QUESTION 1

Rosemary, aged 36 years, is a marketing director. She has weekly manicures but in recent months she has only had shellac nail polish applied to her nails. She explains that shellac is a type of nail polish that is applied to natural nails. After each application (base coat, colour and top coat) the polish is cured briefly for seconds to several minutes under an ultraviolet lamp. The polish requires professional removal. Shellac allows Rosemary to have manicures less frequently as it lasts for several weeks.

Today she presents complaining that in recent months her nails have been chipping, splitting and flaking more so than usual. She believes these problems predate the use of shellac polish. Examination of her unvarnished nails reveals brittle nails with signs of splitting and flaking. The nail on her right thumb is splitting vertically at the midline, and the top third of the nail has separated from the nail bed. More than half of the nail is yellow/white in colour and there are no signs of thickening. Which of the following statements is NOT true?

- An undiagnosed underlying disease could account for some of Rosemary's nail problems.
- Her problems and, in particular, separation of her thumb nail from the nail bed may be due to aggressive manicure technique or repetitive trauma arising from frequent manicures.
- Rosemary may have a fungal infection in her thumb nail.

- Clinical examination is usually all that is required to identify a fungal nail infection.
- In cases such as this, differential diagnosis could include bacterial infection, psoriasis and eczema/dermatitis.

QUESTION 2

Which of the following statements regarding psoriasis and eczema is NOT true?

- Topical steroids are generally first-line options for both conditions and antibiotics may be required to manage secondary infections in eczema.
- Non-pharmacological management strategies should be discussed with people who have psoriasis or eczema.
- A major difference between psoriasis and eczema is that psoriasis always requires life-long monitoring of patients.
- Complementary therapies could be offered as adjunct therapies in both eczema and psoriasis.
- Avoidance of irritants and factors known to exacerbate both psoriasis (e.g. hot water, soap, stress) and eczema (e.g. soap) should feature in any management plan for both conditions.

QUESTION 3

Joe, a farmer aged 61 years, presents requesting a tetanus injection after a mishap on the farm. He casually mentions a small lesion on his forearm. On examination, there is a small, pink/red, slightly inflamed papule on his distal forearm, measuring approximately 3 x 3 mm. Which of the following options is TRUE?

- As Joe had a melanoma removed 10 years ago one could assume that this lesion may be a melanoma and may be an AHM even though the lesion is pigmented.
- Use of dermoscopy may assist with differential and provisional diagnosis of this lesion and AHM cannot be ruled out at this stage.
- In order to establish a definitive diagnosis a medical history should be taken and an excision biopsy should be performed.
- A, B and C are correct.
- B and C are correct.

QUESTION 4

Jason, aged 61 years, is a former professional footballer. He attends your practice complaining of funny looking toes, which he claims have slowly become weird over many months. On examination you notice that the nails on the big toes of both feet are yellowish in colour. The right toe is worse than the left: 80% of the nail is discoloured and there is nail thickening and some lifting of the nail from the nail bed. There is also some crumbling of both nails. You suspect a fungal nail infection. Which of the following options is the best one for management of Jason's nails?

- You recommend a topical over-the-counter agent and tell him that he will need to use it for a long time.

- B. You recommend oral terbinafine as this is the treatment of first choice according to current guidelines.
- C. You suggest that the combination of a topical therapy with an oral antifungal is the best option as this has been shown to improve outcomes.
- D. You recommend laser nail therapy as this technique is minimally invasive, has a quick turnaround time and produces high cure rates.
- E. You advise Jason that you need to take nail samples to confirm your presumptive diagnosis microbiologically before any treatment can commence and ask him to make a follow-up appointment to see you to discuss his laboratory results and a management plan.

QUESTION 5

Jackson, aged 7 months, has been brought in by his mother to discuss her concerns about a very itchy, recent-onset rash on his face and body. On examination the rash appears red and dry, and is slightly cracked and weepy in areas. Examination reveals a rash on his face and behind his ears. His scalp is unaffected. Tiny patches of rash are also starting to appear on his limbs. Further questioning reveals that Jackson has been formula-fed and was started on solids in the last two months. There is a history of atopy on both sides of the family. Jackson's father was diagnosed with asthma at age 9 years. Which of the following statements is NOT correct?

- A. Given Jackson's age, family history and presenting symptoms he may have atopic eczema.
- B. In children, chronic severe asthma can lead to major sequelae, such as growth retardation.
- C. Hydrocortisone (1%) would be an appropriate first-line topical treatment for Jackson's eczema.
- D. Apart from a topical steroid no other therapy(s) will be required for Jackson.
- E. If Jackson's eczema does not show improvement with treatment it would not be unreasonable to consider the possibility of allergy and/or secondary infection.

QUESTION 6

David, aged 26 years, is a personal trainer at a local gym. He presents complaining of foot pain. He has noticed bumpy growths on the sole of his foot, which have presented over a number of months. They have been increasing size, are starting to feel uncomfortable and are now causing him pain on walking. Given that he is on his feet all day for work he wants to know if these growths can be removed. Examination reveals typical cauliflower-like lesions on the sole of his feet. Which of the following statements is NOT correct?

- A. Underlying comorbidities do not impact on management options for people with warts.
- B. Most warts are generally diagnosed on the basis of clinical appearance rather than by biopsy or culture.
- C. Differential diagnosis of raised lesions, such as warts, could

include solar keratosis, squamous cell carcinoma, basal cell carcinoma and embedded foreign body.

- D. Different human papillomavirus strains have been implicated in genital warts, compared with other types of warts.
- E. Salicylic acid topical therapy and cryosurgery have been shown to produce similar results.

QUESTION 7

Simon, a lawyer aged 53 years, presents complaining of recent-onset joint pain and tiredness. He has had longstanding psoriasis, which was diagnosed several decades ago. He is confident in managing his psoriasis using a number of treatment modalities, including topical steroids and UV lamp therapy. He is into 'clean living', meditates to manage stress, eats well and exercises regularly. Which of the following is NOT true?

- A. Ongoing attention to stress management is useful for people with psoriasis.
- B. Simon's joint pain is not related to his psoriasis.
- C. Even though Simon's psoriasis is well controlled he should be reviewed annually.
- D. People with psoriasis should be asked questions about their psychological and social wellbeing and any problems identified should be managed.
- E. Given the potential impact of psoriasis on long-term mortality and morbidity, it is important to monitor risk factors for cardiovascular disease, diabetes and depression.

QUESTION 8

While lasers have been used medically for many decades, in recent times the use of lasers has been expanded substantially to include a variety of common skin problems, including removal of cutaneous warts and treatment of fungal nail infections. Which of the following statements is NOT true regarding the use of lasers?

- A. The quality of training provided to the individual performing laser therapy may influence treatment outcomes.
- B. Laser therapy can be successfully used to treat wart virus and fungal nail infections.
- C. Treatment of fungal toenail infections using laser therapy takes more time than traditional topical treatment options.
- D. Laser therapies are typically minimally invasive, compared with other treatment options for both warts and fungal nail infections.
- E. A, B and D are correct.

QUESTION 9

Jane, a student aged 16 years, presents with her mother to discuss an itchy, red, scaly rash on her hands, elbows and knees. She has had the rash for a number of months and it seems to be getting worse. She has been using a natural 'organic' body moisturiser, which was a birthday gift, on her skin. Jane had eczema as a child and her mother is concerned that her eczema is returning. Her mother is also concerned

that this might be psoriasis as her father had this problem when he was alive. Which of the following is true?

- A. Careful examination of all of the skin on Jane's body should be undertaken before a diagnosis is made.
- B. While topical steroids are the treatment of choice for both eczema and psoriasis, consideration should also be given to the incorporation of non-pharmacological strategies in the treatment plan.
- C. Should this rash prove to be eczema Jane will require life-long follow up.
- D. A, B and C are correct.
- E. A and B are correct.

QUESTION 10

Amelanotic/hypomelanotic malignant melanoma (AHM) is a subtype of melanoma where lesions present with little or no pigment on visual inspection. It may mimic benign and malignant variants of both melanocytic and non-melanocytic lesions, which may lead to delayed clinical diagnosis. Which of the following statements is NOT true?

- A. Use of dermoscopy significantly increases the chances of diagnostic accuracy in AHM.
- B. Consideration should be given to following up initial AHM biopsy results with referral to a specialist centre for wider excision and possible sentinel node biopsy.
- C. Clinicians should be hyper-vigilant when examining amelanotic and/or hyomelanotic lesions
- D. The various established dermoscopic rules and criteria are very helpful with the diagnosis of AHM.
- E. AHM requires long-term management of patients, who may also require emotional counselling and support.