



THE CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMME



This module has been accredited by the College of Pharmacy Practice as suitable for use by pharmacists as part of their continuing professional development cycle. Complete the record form on page viii for inclusion in your CPD portfolio. Previous modules in the Pharmacy Magazine CPD Programme are available to download at www.pm-modules.co.uk

MODULE 173

Welcome to the one hundred and seventy third module in the *Pharmacy Magazine* Continuing Professional Development programme, which looks at skin infections. This module is valid until February 2013.

Continuing professional development (CPD) is now a mandatory requirement for pharmacists. Journal-based educational programmes (unscheduled learning) are an important means of keeping up-to-date with clinical and professional developments and will be a significant element of your CPD. Completion of this module will contribute to the nine pieces of CPD that must be recorded a year.

Before reading the module, assess your learning needs by answering the questions below. After reading the module, complete the record form on page viii for inclusion in your CPD portfolio. You can also test your knowledge by answering the multiple choice questions. A £3.75 marking charge applies to each module.

Self-assess your learning needs:

- How should folliculitis be managed in primary care?
- Which dermatophyte infections can be managed with OTC treatments?
- What is the role of systemic antiviral treatment in shingles?

This module supports the following CPD competences: C1a, C1b, C1c, C1d, C1f and C3. More details on pvii

CURRENT THINKING ON...

SKIN INFECTIONS

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Introduction

Skin conditions are the commonest reason for people to consult their GPs, and the commonest category of skin complaint is skin infections, according to a dermatology healthcare needs assessment (HCNA) published in 2009¹.

Self-treatment is common for skin complaints and over-the-counter sales of preparations for skin diseases account for 18 per cent of all OTC sales, a similar proportion to cough and cold remedies (19 per cent) and second only to pain relief medication (23 per cent)¹.

There are, therefore, compelling reasons for community pharmacists to become skilled in the provision of support and advice to patients with skin conditions in general and skin infections and infestations in particular. Pharmacists play an important role in ensuring that the treatments used for skin infections and infestations are used effectively and are monitored.

In this, the first of two modules concerned with skin infections and infestations, we describe

common bacterial, fungal and viral skin infections and their treatment. The second module next month will look at infestations, including head lice and scabies.

A. Bacterial skin infections

Bacterial skin infections can be categorised according to the sites of infection – for example, epidermal, dermal, follicular and other (see Table 1).

Impetigo

Impetigo is a common infection of the superficial layers of the skin, usually caused by *Staphylococcus aureus* and less commonly by *Streptococcus pyogenes*. It most commonly affects young children. Underlying conditions that weaken the skin barrier, such as eczema, head lice or scabies, can increase susceptibility to impetigo.

The commonest form is crusted impetigo. The characteristic lesions usually form around the

FOR THIS MODULE

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GOAL: To provide an overview of current thinking on the management of common skin infections.

OBJECTIVES: After completing this module, you should be able to:

- Describe the measures involved in the management of common skin infections in primary care
- Assess whether treatment is being used appropriately
- List the choice of treatments for dermatophyte infections and common warts.



Common skin infections

Bacterial infections

Impetigo
Folliculitis, boils, carbuncles and whitlows
Cellulitis and erysipelas

Fungal infections

Dermatophyte infections:
Tinea pedis (athlete's foot), tinea corporis (ringworm), tinea cruris (groin), tinea unguium (nails), tinea capitis (scalp)
Candidal skin infections
Pityriasis versicolor

Viral infections

Molluscum contagiosum
Warts and verrucae
Herpes simplex
Herpes zoster (shingles)

nose and mouth, starting as small vesicles or pustules and quickly bursting to form yellow-crusts, weeping plaques. Some textbooks describe this appearance as "the golden crust"; others suggest the lesions look like stuck-on cornflakes.

The condition normally heals without scarring. It is contagious and often spreads in nurseries and playgroups. The fluid from the weeping lesions is highly infectious. Children should be kept at home until scabs have formed over the lesions.

Small areas of localised infection can be treated with topical fusidic acid. Larger areas require systemic treatment for seven days with flucloxacillin or clarithromycin.

Practice points – impetigo

- Suspected impetigo should be referred to a GP for antibiotics
- Good hygiene is important to prevent the infection spreading to other areas or being passed to other people. Towels, flannels and clothing should not be shared with others until the infection is cleared
- A factsheet for patients and carers is available from the Health Protection Agency (see 'further reading')

Folliculitis, boils, carbuncles and whitlows

Boils, carbuncles, folliculitis, acute paronychia and whitlows are most commonly caused by staphylococcal infection. Folliculitis can be caused by a number of different bacteria, including *Pseudomonas aeruginosa* (see hot tub folliculitis). Chronic paronychia is usually caused by fungal infection (see piii).

Risk factors for boils, carbuncles and folliculitis include nasal carriage of *S. aureus*, existing skin conditions (e.g. dermatitis), immunosuppression, obesity and malnutrition. In addition, factors such as poor hygiene, wax epilation, shaving and topical corticosteroids can predispose to folliculitis.

Folliculitis

Folliculitis is usually a mild condition but it can still be distressing for the patient. Removal of aggravating factors (e.g. tight clothing, occlusive dressings) and daily use of an antiseptic wash product are the first steps to take.

Products containing chlorhexidine or triclosan in detergent vehicles (rather than alcohol) are suitable. Antiseptic-emollient products (e.g. the Dermal range for topical application and washing, and antiseptic bath additives such as Oilatum Plus and Emulsiderm) are recommended for use on the face or where skin is dry or inflamed. If the area is shaved, then patients should be advised to shave in the direction of hair growth.

Occasionally, topical fusidic acid is used on localised areas of folliculitis.

Hot tub folliculitis

Hot tub folliculitis is caused by infection of the hair follicles by *Pseudomonas aeruginosa*. This organism is commonly found in contaminated (i.e. poorly maintained) whirlpools, hot tubs, water slides, physiotherapy pools or even loofahs. The rash of hot tub folliculitis comprises 0.5-3cm red papules or wheals with a central pustule. It can erupt anywhere on the body that has been in contact with the contaminated water.

Boils and carbuncles

A boil starts as a painful pink or red bump. Over the next few days the swelling and inflammation increases and the boil fills with pus. It develops a yellow or white tip and eventually ruptures and drains. Small boils may heal without scarring; larger ones can leave a scar or patch of discoloured skin.

Common sites for boils include hair-bearing areas of the face, neck, axillae, buttocks, groin and the anogenital region.

Carbuncles appear as tender, multiple abscesses discharging pus from several points. Surrounding tissue is inflamed. Common sites for carbuncles include the back of the neck, shoulders, hips and thighs.

The management of boils, carbuncles, staphylococcal paronychia and whitlows depends on whether they appear to contain a collection of pus or not. If they do contain pus (non-fluctuant), management comprises the application of moist heat three to four times a

Table 1: Bacterial skin infections

Name	Description
Epidermal Impetigo (crusted)	Superficial lesions around the mouth that start as small vesicles and burst to form yellow-crusts weeping plaques
Dermal Erysipelas Cellulitis	Erythematous skin lesions with a sharply demarcated raised edge, that rapidly enlarge. These can form a red, swollen, warm, hardened and painful rash, often with a characteristic "orange peel" appearance. Involves the dermis and dermal lymphatic vessels Acute onset of red, painful, hot, swollen and tender skin. The inflammation spreads and there may also be blistering. Involves the subcutaneous tissue
Follicular Folliculitis Boil (furuncle) Carbuncle	Superficial infection of the hair follicles, which develop into small inflammatory papules or pustules A red, hot, tender, inflammatory nodule with walled-off purulent material, arising from a hair follicle. Boils can exude pus and necrotic material Infection of a group of adjoining hair follicles, which develops into a large, swollen, tender mass with multiple points draining pus. There may be inflammation in surrounding and underlying connective tissue
Miscellaneous Acute paronychia Staphylococcal whitlow	Infection bordering the nail, which causes painful swelling and possibly a visible collection of pus Abscess of the fleshy area of the palmar aspect of the fingertip

(Adapted from CKS 'Boils and paronychia', and other sources)

day and provision of analgesics (ibuprofen or paracetamol). This relieves discomfort and is believed to help to bring them to a head. If the lesions contain pus, then they may be incised and drained by an experienced practitioner. Moist heat and analgesics will also be helpful. Antibiotic treatment is only indicated if the patient has a fever or co-morbidities, or if the lesion is very large.

Practice points – boils, carbuncles

- Moist heat (a facecloth squeezed out in clean, warm water and held against the area for 10 minutes, three or four times a day) and analgesics may be all that is needed for a small boil
- People with any of the following features should be referred to their GP: rapidly enlarging lesions, fever, cellulitis, co-morbidities such as diabetes, apparently pus-filled lesions, lesions that are not resolving
- Patients should not squeeze the lesions or attempt to incise and drain them
- Spontaneously discharged lesions should be covered with a dressing to prevent spread of infection

Erysipelas and cellulitis

Erysipelas is an acute infection caused by *Strep. pyogenes* involving the dermis and dermal lymphatics. It usually affects the face or extremities. It initially forms erythematous skin lesions with sharply demarcated, raised edges that rapidly enlarge. These can form a red, swollen, warm, hardened and painful rash, often with a characteristic “orange peel” appearance.

Cellulitis, unlike erysipelas, involves the subcutaneous tissue, and is most commonly caused by *Strep. pyogenes* or *Staph. aureus*. Cellulitis presents with an acute onset of red, painful, hot, swollen and tender skin. The inflammation spreads and there may also be blistering. Fever, malaise, nausea, shivering and rigors may accompany or precede the skin changes.

Chronic oedema, stasis dermatitis and breaks in the skin (e.g. burns, lacerations) can all

Table 2: Tinea infections – features and differential diagnosis

Site/name	Features
Tinea pedis (athlete's foot)	Itchy, macerated skin between the toes, typically of the 4th/5th toe web space. The skin around the toe spaces can also be involved. Chronic infection of the sole of the foot often appears as fine, dry, powdery scaling. Commonly associated with shared washing facilities, swimming baths, occlusive footwear (rubber boots, trainers) and hot weather
Tinea of the nails (tinea unguium)	Thickened, crumbly, discoloured nails. Changes start at the free edge of the nail. Usually affects toenails in people who have or have had tinea pedis infections. Rarely affects all toenails. Rarely affects fingernails
Tinea of the hands (tinea manuum)	Diffuse powdery scaling of the palm, most noticeable in the creases. Usually asymmetrical (affects one palm only) and associated with tinea pedis
Tinea of the groin (tinea cruris)	More commonly affects men than women. Known as 'jock itch' or 'd'hobie itch'. Circular erythematous lesion with well-defined scaly edge. Affects upper, inner thighs, pubis and anal region; rarely involves the scrotum. Sometimes asymmetrical. Often associated with tinea pedis
Tinea of the trunk and limbs (tinea corporis)	Single or multiple plaques with erythema and scaling, particularly at the edges. The lesions enlarge slowly, whilst clearing from the middle, leaving a typical ring-like appearance (hence the old name 'ringworm')
Tinea of the scalp (tinea capitis)	Small, rounded patch in which the hair is temporarily lost. Usually affects children
Tinea of the face – beard area (tinea barbae)	Similar to tinea capitis with patchy loss of hair in the beard area. Exacerbated by shaving

predispose to the development of cellulitis. Athlete's foot (tinea pedis; see Table 2 above) is the commonest portal of entry associated with leg cellulitis.

In practice it can be difficult to distinguish between erysipelas and cellulitis.

Only people with mild or moderate cellulitis with no systemic illness or uncontrolled co-morbidities should usually be managed in primary care.

Practice points – erysipelas, cellulitis

- Anyone with suspected erysipelas or cellulitis should be referred to his/her GP for antibiotic treatment
- Advise patients to take paracetamol or ibuprofen for pain and fever and to drink plenty of fluids
- For cellulitis affecting the leg, it is helpful to raise the leg to help to reduce swelling and relieve pain, but to be effective the foot must be higher than the hip

B. Fungal infections

Fungal infections of the skin are caused mainly by two groups of fungi:

- Dermatophytes, which invade keratin (e.g. hair, skin and nail tissue)
- Yeasts, which opportunistically infect warm, moist sites.

Anthropophilic dermatophytes are spread from person to person and cause mild inflammation by delayed hypersensitivity, or through the effects of their metabolic products. Zoophilic (animal) dermatophytes tend to cause more severe inflammation.

Superficial dermatophyte infections (ringworm, athlete's foot, groin infection) can be treated with OTC antifungal agents.

Dermatophyte infections of the scalp and hands require systemic treatment, as do widespread infections of the trunk. Nail infections affecting a small number of nails may respond to topical treatment but extensive nail infection requires systemic treatment.



Athlete's foot is the commonest type of fungal infection in humans. It is estimated to affect 15 per cent of the population and 1.2 million people in the UK are believed to have fungally infected toenails.

The clinical presentation depends on the site of infection and the organism concerned. Table 2 summarises the features of tinea infections. The aims of treatment are to:

- Eradicate infection
- Promote healing
- Prevent reinfection.

Warm, damp conditions encourage the growth of dermatophytes and so measures to keep the feet and body folds cool and dry are important.

Topical treatments for dermatophyte infections

Tinea pedis, tinea corporis and tinea cruris can all be treated with topical creams, gels, sprays or powders. There are two types of topical antifungal products – imidazole derivatives (clotrimazole, miconazole, ketoconazole, sulconazole, econazole) and terbinafine (an allylamine).

Allylamines have a fungicidal action whereas azoles are fungistatic. Although overall cure rates have been similar in some trials, allylamines take effect more quickly and require shorter treatment times.

Practice points – dermatophyte infections

- Refer to GP:
 - People with suspected dermatophyte infections of the scalp or hands and those with suspected extensive nail or body infection
 - Immunosuppressed individuals with suspected fungal infections
- The primary source for many fungal infections on the body is often athlete's foot – fungal spores can be transferred to other parts of the body from skin debris in clothing
 - Towels should not be shared
 - Footwear is likely to be heavily contaminated with spores and skin debris, so advise discarding old trainers
- When treating fungal infection of the feet, the antifungal cream, gel or spray should be applied to both feet, between and over the toes, the soles and sides of the feet

When treatment is started the itching and inflammation subside in a few days, but treatment should be continued for one to two weeks after this to ensure that the infection is completely eradicated. The commonest problem in the management of athlete's foot is poor adherence to treatment. The single application treatment, Lamisil Once, could be helpful here.

Lamisil Once is a liquid that is painted on to the feet and forms an invisible, water-resistant film on the skin, which acts as a drug reservoir. High levels of terbinafine persist in the stratum corneum for 13 days. Overall, this treatment is as effective as a one-week treatment with terbinafine cream.

Lamisil Once must be painted on both feet, between the toes, on the sides and soles, and allowed to dry. The feet should not be washed for 24 hours after application.

Systemic treatments for dermatophyte infections

Tinea capitis, tinea manuum, tinea unguium and widespread tinea corporis require systemic treatment.

Fungal nail infection (onychomycosis)

Fungal nail infection may be caused by dermatophytes (tinea) or other fungi (e.g. candida). It often occurs in association with tinea pedis. About five per cent of cases in the UK are caused by non-dermatophyte moulds, which may not respond to conventional therapy.

Ideally, suspected onychomycosis should be confirmed by microscopy (to identify the presence of fungal elements) and culture (to identify the species). Both nail clippings and debris from beneath the affected nail are required. This is the only way to identify the infecting dermatophyte positively and avoid unnecessary or ineffective treatment.

Given that treatment with amorolfine is unlikely to do any harm, dermatologists agree that OTC treatment can be started without a positive diagnosis.

Amorolfine 5% nail lacquer (Curanail) can be sold for treatment of mild cases of fungal infection beneath the tips and sides of nails caused by dermatophytes, yeasts and moulds

and affecting up to two nails. Amorolfine has to be applied regularly until all of the affected nail tissue has grown out. This can take nine to 12 months for toenails and six months for fingernails.

For more extensive dermatophyte nail infections in adults, oral terbinafine 250mg once a day is the drug of choice. Treatment should continue for between six weeks and three months for fingernails, and for three to six months for toenails. The alternative is pulsed itraconazole treatment. This is given as 200mg twice a day for one week, with subsequent courses repeated after 21 days. Two courses are required for fingernails and three for toenails. For candidal nail infection, itraconazole is the agent of first choice as terbinafine is only fungistatic against candida.

Griseofulvin is no longer recommended for the treatment of onychomycosis.

Candidiasis

The yeast *Candida albicans* is an opportunistic pathogen. Like the dermatophytes, it flourishes in warm, moist conditions and can cause candidal intertrigo (infection of skin folds), paronychia and onychomycosis. It can also cause genital and oral infections but these are beyond the scope of this module.

Predisposing factors for candidal skin infection include diabetes, immunosuppression and humid environments. Predisposing factors for candidal nail infection include prolonged exposure to water, trauma to nail folds and immunosuppression. The clinical presentation of candidal infections varies with the site.

Candidal intertrigo typically causes moist, glazed areas of erythema and maceration in a body fold, such as under the breasts, in the armpits or groin. It can also occur between the fingers in people whose hands are wet for much of the time.

Candidal paronychia is usually chronic rather than acute (see acute staphylococcal paronychia). The proximal nail fold – the area at the base of the nail – becomes swollen, inflamed and boggy. The cuticles are lost and small amounts of pus can be squeezed out. The nail is discoloured and has transverse ridges.

Reflection exercise 1

What products do you keep for treatment of dermatophyte infections and how would you guide a patient through the choice of different formulations?

Candidal nail infection more commonly affects fingernails than toenails.

Cutaneous candidiasis can be treated with topical antifungal agents. In addition to the imidazoles, nystatin is also active against candida species.

Candidal paronychia can be treated with topical antifungal agents but candidal onychomycosis requires systemic treatment.

Pityriasis versicolor

Pityriasis versicolor (previously called tinea versicolor) is caused by the proliferation of the yeast, *Malassezia furfur*, which is part of the normal flora of human skin. Usually malassezia species grow sparsely in the seborrhoeic areas (scalp, face and chest) without causing a rash.

Hot, humid conditions favour overgrowth of the organism. It causes patchy pigmentation changes characteristically affecting the trunk and upper parts of the limbs. Young adults are most commonly affected.

Superficial patches with fine scales ('pityriasis' means bran-like scale) appear pink or fawn on untanned skin, but look pale on tanned skin. People with this condition are usually symptom-free but distressed by its appearance.

Pityriasis versicolor can be treated with topical imidazole antifungal creams, such as clotrimazole, miconazole, econazole and ketoconazole. Clotrimazole spray would be an effective way to treat the affected area. Another way to treat large areas, such as the trunk, is to apply ketoconazole or selenium sulphide shampoo to wet skin and leave it on for 10 minutes before washing off. Repeat daily for 10 days.

C. Viral infections:

Molluscum contagiosum

Molluscum contagiosum is caused by a pox virus. Clusters of pearly, flesh-coloured, umbilicated (dimpled) papules develop, usually on the face, neck or trunk. The small hole in the centre of each dome-shaped papule helps to distinguish them from common warts. Mollusca generally affect children or young adults and are spread by contact. The incubation period varies from two to six weeks. There may be extensive infection in people with atopic eczema due to



Common warts on the hand or fingers can be treated with OTC products

Reflection exercise 2

What advice would you offer to someone asking for an OTC freezing treatment for warts?

scratching and the use of topical steroids. Lesions may be surrounded by eczematous patches. There may also be secondary infection as a result of scratching. Such patients must be referred to their GPs.

Untreated lesions will clear spontaneously after a period of months, following a brief episode of inflammation. In older children and young adults, mollusca can be cleared by squeezing out the contents with forceps or by curettage, but these measures are inappropriate for young children. Cryotherapy can also be used in older children and adults.

Viral warts

Most people have at least one wart at some time during their lives. The prevalence of warts is highest in childhood and they affect four to five per cent of schoolchildren in the UK. Viral warts are caused by infection of the epidermal cells

with the human papilloma virus (HPV). The infection is spread by direct contact and immunosuppressed individuals are at greater risk of developing warts.

Warts occur in a number of patterns:

- Common warts are most frequently seen on the knuckles, fingers and knees. They are firm and raised and as they grow they develop an irregular, hard cauliflower-like surface that gives the typical 'wart' appearance. Common warts can also affect the face and genitalia
- Plantar warts (verrucae) grow on the soles of the feet. The surface is almost flat and the wart grows into the dermis, is usually covered with thickened skin (callus) and is painful
- Mosaic warts are rough marginated plaques made up of many tightly-packed palmar or plantar warts, making up a mosaic pattern
- Plane warts are smooth, flat-topped papules, usually on the face or backs of the hands. They are usually skin-coloured, yellowish or light brown
- Facial warts are commonest in the beard area of adult men and are spread by shaving



■ Anogenital warts affect the penis in men and the vulva, perineum and vagina in women. They are papillomatous, cauliflower-like lesions which can coalesce to form larger lesions that can be a source of discomfort and irritation.

Non-genital warts in people who are not immunosuppressed are harmless and usually resolve spontaneously within months or years. In children, for example, 30-50 per cent of common warts will resolve spontaneously within six months. Warts are contagious but the risk of spread is low. People generally seek treatment for warts when they are painful (often in the case of verrucae) or cosmetically unacceptable.

Practice points – warts, verrucae

- Common warts on the hand and verrucae on the feet are amenable to treatment with OTC products
- People with warts that are extensive, on the face or anogenital region, or who also have eczema, diabetes or poor peripheral circulation, should be referred to their GP

The objectives of treatment are to remove and destroy virus-infected cells and to restore normal appearance. Two main treatments are recommended:

- Topical salicylic acid
- Cryotherapy with liquid nitrogen.

Topical salicylic acid products are available OTC but cryotherapy must be administered by an experienced practitioner. Neither method has rapid effects. Salicylic acid treatment can take up to 12 weeks and cryotherapy requires several clinic visits, can be painful at the time of application, and may cause pain, blistering, infection and depigmentation. A systematic review has concluded that cryotherapy is no more effective than salicylic acid therapy. OTC treatments based on glutaraldehyde, formaldehyde, silver nitrate or podophyllum resin are no longer recommended.

Cryotherapy with an OTC freezing product does not tend to be recommended because the evidence for its effectiveness is weak and the freezing product (dimethyl ether/propane) may not reduce tissue temperature far enough to

cause adequate cell necrosis. Dimethyl ether/propane evaporates at -57°C whereas liquid nitrogen evaporates at -196°C .

Topical salicylic acid applied daily for 12 weeks is an effective treatment for warts, according to a Cochrane systematic review. The available OTC products contain salicylic acid in concentrations of 12-50 per cent; some are formulated in a collodion base that forms a medicated film over the wart or verruca. Regular application for a long enough period and protection of surrounding skin are key factors in the successful treatment of warts and verrucae.

Duct tape for warts

One other possible treatment is duct tape occlusion. One trial has shown that this was significantly more effective than cryotherapy in the treatment of common warts in children². Duct tape was applied to the warts for six days and then replaced. Treatment continued for two months. There was complete resolution of warts in 85 per cent of patients with duct tape and 60 per cent with cryotherapy. The authors concluded that duct tape treatment was painless, non-threatening, cheap and effective.

Practice points – warts, verrucae (cont.)

- Regular (daily or alternate day) treatment is needed until the wart or verruca has disappeared and the skin healed
- The recommended procedure is:
 - Soak the skin in hot water for several minutes to soften it
 - Dry the skin, then remove dead tissue and old wart gently using a pumice stone or emery board
 - If necessary (e.g. for a verruca) apply a protective plaster or corn ring so that the paint or gel cannot spread to surrounding tissue
 - Apply paint or gel
 - If necessary, cover with occlusive plaster
 - Repeat daily/alternate days until healed or for 12 weeks before seeking alternative treatment
- Patients with verrucae may need to use a protective rubber sock whilst showering or bathing to keep the dressing dry. They should also be advised not to share towels or walk around barefoot until the verruca has healed.

Herpes simplex; herpes labialis (cold sores)

Cold sores are usually caused by the herpes simplex type 1 virus. A typical experience is a burning, tingling or prickling sensation followed by the development of one or more small, painful vesicles on the lips or face. The vesicles rupture within a few days, leaving painful, weeping erosions that later form crusts and then heal without scarring. The whole process takes 10-14 days.

Most people have a primary infection with herpes simplex in infancy or childhood. Thereafter the virus travels to the dorsal root ganglion and remains dormant until triggered into activity (see causes of herpes simplex reactivation). Cold sores are the result of the reactivation of the dormant virus. Recurrences are common and tend to be in the same general area. Spread of the virus to other parts of the body is prevented by normal immune activity. It follows that people who are immunosuppressed may be at risk of disseminated infection.

Eczema herpeticum

Infants with eczema who are exposed to the virus for the first time are at risk of developing eczema herpeticum. This is characterised by:

- Areas of rapidly worsening, painful eczema
- Possible fever, lethargy or distress
- Clustered blisters consistent with early-stage cold sores
- Punched-out erosions (usually 1-3mm), uniform in appearance, which may coalesce.

Eczema herpeticum requires immediate systemic treatment with aciclovir and urgent referral to a dermatologist³.

Genital herpes infections are predominantly caused by the herpes simplex type 2 virus, although they can be caused by the type 1 virus. This topic is beyond the scope of this module.

Causes of herpes simplex reactivation

- Exposure to ultraviolet light (including sunlight)
- Exposure to cold winds
- Trauma
- Systemic upset
- Emotional stress, fatigue, tiredness
- Viral illnesses
- Menstruation
- Dental surgery
- Dermabrasion or laser resurfacing

Practice points – cold sores

- Uncomplicated cold sores on or around the lips are amenable to treatment with OTC products
- People with cold sores who are immunosuppressed or who have evidence of systemic disease (e.g. fever, malaise) should be referred to their GP
- Suspected eczema herpeticum must be referred urgently

Two topical antiviral agents (aciclovir and penciclovir) are available for the OTC treatment of cold sores. They can reduce the duration of pain and healing time by half a day. In order to be effective, treatment must be started at the earliest possible stage – when there is tingling, burning or itching and before the lesion has blistered or crusted. Penciclovir is used for a shorter period (four days *vs* five to 10 days) but must be applied more frequently (two hourly *vs* four hourly) than aciclovir.

An alternative approach is to use a thin hydrocolloid dressing (Compeed cold sore patch) on the cold sore. In a randomised trial comparing the patches with aciclovir cream 5%, there was no difference in median healing times but participants reported a high level of protection, less noticeable lesions and greater relief of social embarrassment.

Cold sores can be very painful and topical analgesics (e.g. choline salicylate) or local anaesthetics can be useful, although they need to

RPSGB competences

This module supports the following community pharmacy competences

Competence	Where this module supports competence development
C1a, C1b, C1c, C1d, C1f	The module addresses the appropriate selection and effective use of pharmacological treatments in the management of skin infections
C3	The health and medication needs of people with skin infections are addressed

be reapplied frequently. Combination products containing ammonia, phenol and menthol are unlikely to shorten the attack but can sometimes provide temporary symptomatic relief.

Shingles

Shingles is caused by reactivation of the herpes virus (varicella-zoster), which has remained dormant in the sensory root ganglion after an earlier episode of chickenpox. It is experienced as a painful, vesicular rash that occurs in the distribution of a single dermatome (area of skin served by one nerve), on one side of the body. Occasionally it can be more extensive and affect two or three adjacent dermatomes.

In response to an unknown trigger, the virus replicates and travels down the nerve to the skin. During this prodromal period, most patients will experience symptoms of malaise, chills and gastrointestinal disturbances. Pain and tenderness in the affected area may precede the eruption by several days, followed by characteristic vesicles and erythema. The vesicles become pustular and then form crusts.

The scabs separate after two to three weeks, sometimes leaving small scars. Shingles usually affects adults over the age of 50 years. Approximately 50 per cent of cases will involve the thoracic dermatomes, and so the rash will appear on one side of the trunk.

Practice points – shingles

- The prodromal pain of shingles may be severe and can even mimic cardiac pain
- Herpes zoster infection involving the ophthalmic division of the trigeminal nerve can lead to corneal ulcers and scarring (and permanent impairment of vision). Refer if suspected
- Systemic treatment with antiviral agents (e.g. aciclovir, famciclovir or valaciclovir), if needed, must be given within the first 48 hours of an attack
- Shingles lesions shed virus and can infect previously unexposed or immunosuppressed people with chickenpox
- Shingles is recurrent in five per cent of cases

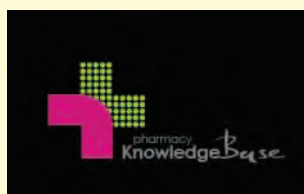
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2. Focht DR, Spicer C and Fairchok MP. (2002) The efficacy of duct tape vs cryotherapy in the treatment of verruca vulgaris (the common wart). *Archives of Pediatrics & Adolescent Medicine* 156(10),971-974
3. Atopic eczema in children: management of atopic eczema in children from birth up to the age of 12 years. NICE Clinical Guideline 57. December 2007

Further reading and additional information

Clinical Knowledge Summaries:

- Impetigo: www.cks.nhs.uk/impetigo
- Boils and paronychia: www.cks.nhs.uk/boils_and_paronychia
- Cellulitis – acute: www.cks.nhs.uk/cellulitis_acute
- Fungal skin infection – www.cks.nhs.uk/fungal_skin_infection_foot
- Fungal skin infection – www.cks.nhs.uk/fungal_skin_infection_body_and_groin
- Fungal skin infection – www.cks.nhs.uk/fungal_skin_infection_scalp
- Fungal nail infection: www.cks.nhs.uk/fungal_nail_infection#-377353
- Molluscum contagiosum: www.cks.nhs.uk/molluscum_contagiosum
- Warts and verrucae: www.cks.nhs.uk/warts_and_verrucae



Pharmacy Magazine's CPD modules are now available on Cegedim Rx's PMR systems, Pharmacy Manager and Nexphase. Just click on the 'Professional Information & Articles' button within Pharmacy KnowledgeBase and search by therapy area. Please call the Cegedim Rx helpdesk on 0870 841 1234 for further information.



ASSESSMENT QUESTIONS

SKIN INFECTIONS

1. Which is due to a bacterial infection?

- a. Impetigo
- b. Pityriasis versicolor
- c. Intertrigo
- d. Molluscum contagiosum

2. Which is NOT due to infection in the hair follicle?

- a. Carbuncle
- b. Folliculitis
- c. Erysipelas
- d. Furuncle

3. Which organism commonly causes hot tub folliculitis?

- a. *Staphylococcus aureus*
- b. *Streptococcus pyogenes*
- c. *Staphylococcus epidermidis*
- d. *Pseudomonas aeruginosa*

. Which should NOT be treated with topical antifungals?

- a. Fungal infection of the groin (tinea cruris)
- b. Fungal infection of the scalp (tinea capitis)
- c. Cutaneous candidiasis
- d. Fungal infection of the feet (tinea pedis)

5. Topical amorolfine 5 can be used to treat fungal infection:

- a. Affecting toenails only
- b. Due to dermatophytes only
- c. Affecting up to two nails
- d. Of the base of the nails

. Pityriasis versicolor can be treated with:

- a. Fake tanning lotion
- b. Topical fusidic acid
- c. Coal tar shampoo
- d. Selenium sulphide shampoo

7. Which treatment is NOT recommended for warts?

- a. Topical salicylic acid
- b. Duct tape
- c. Topical glutaraldehyde
- d. Liquid nitrogen cryotherapy

. Which is NOT true of eczema herpeticum?

- a. It should be treated with systemic antiviral agents
- b. It should be treated with hydrocolloid dressings
- c. It involves areas of rapidly worsening, painful eczema
- d. It is associated with 'punched-out' erosions

PHARMACY MAGAZINE CPD RECORD – MARCH 2010

USE THIS FORM TO RECORD YOUR LEARNING AND ACTION POINTS FROM THIS MODULE ON SKIN INFECTIONS AND INCLUDE IT IN YOUR CPD PORTFOLIO OR RECORD ONLINE AT WWW.UPTODATE.ORG.UK

Activity development completed (Act)

Date:

Time taken to complete activity:

What did I learn that was new? (Evaluate)

How have I put this into practice? (Provide examples of how learning has been applied – what did you do differently as a result?) (Evaluate)

Do I need to learn anything else in this area? (Reflect)

If as a result of completing your evaluation you have identified another new learning objective, start a new cycle – this will enable you to start at **Reflect** and then go on to **Plan, Act and Evaluate**. This form can be photocopied to avoid having to cut this page out of the module.

MODULE 173 ANSWER SHEET

ENTER YOUR ANSWERS HERE Please mark your answers on the sheet below by placing a cross in the box next to the correct answer. Only mark one box for each question. Once you have completed the answer sheet in ink, return it to the address below together with your payment of £3.75. Clear photocopies are acceptable. You may need to consult other information sources to answer the questions.

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|----|-----------------------------|----|-----------------------------|----|-----------------------------|----|-----------------------------|----|-----------------------------|----|-----------------------------|----|-----------------------------|----|-----------------------------|
| 1. | a. <input type="checkbox"/> | 2. | a. <input type="checkbox"/> | 3. | a. <input type="checkbox"/> | 4. | a. <input type="checkbox"/> | 5. | a. <input type="checkbox"/> | 6. | a. <input type="checkbox"/> | 7. | a. <input type="checkbox"/> | 8. | a. <input type="checkbox"/> |
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Name (Mr, Mrs, Ms)

Business home address

Town

Postcode

Tel:

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Processing of answers
Completed answer sheets should be sent to Precision Direct Marketing, Precision House, Bury Road, Beyton, Bury St Edmunds IP30 9PP (tel: 01284 718918; fax: 01284 718920; email: cpd@precisiondm.com), together with credit/debit card/cheque details to cover administration costs. This assessment will be marked and you will be notified of your result and sent a copy of the correct answers. The examiners' decision is final and no additional correspondence will be entered into.