Children < 16 years old – Primary Care

Skin & Soft Tissue Infections

Atopic Eczema

- In the absence of signs of infection antimicrobials do not improve skin condition, but risk drug-related adverse events and promote antimicrobial resistance development.
- **If significant superinfection is present, manage as impetigo.**
- Patients with bacterial superinfection which does not respond to treatment or which is recurrent should be referred to a dermatologist.
- Cases of **eczema herpeticum** (generalised herpes simplex virus infection) should be referred for urgent admission.

Impetigo Contagiosa

Duration: 5 days

Minor/localized infection

First line: **Hydrogen Peroxide 1% cream** topically 8 to 12-hourly

Second Line: **Fusidic acid 2% topically** 3 times daily

Known or suspected MRSA carriage:

Mupirocin 2% topically 3 times daily (unlicensed in Children under 1 year old)

Widespread infection

First line: Flucloxacillin PO dose as per BNF for Children

Penicillin allergy: Clarithromycin PO dosed as per BNF for Children

Clarithromycin should **not** be prescribed concurrently with ciclosporin, sirolimus and tacrolimus.

Known or suspected MRSA: Contact infection specialist.

Notes

Non-bullous impetigo (crusted impetigo) is the most common form and usually affects the area around the nose and mouth. Lesions begin as vesicles or pustules, which burst and develop yellow-golden crusts. **Bullous impetigo** (Scalded Skin syndrome) is a form of impetigo in neonates and infants, and presents with flaccid, fluid-filled vesicles and blisters in the axillae, neck folds, and nappy area. The lesions are painful and may be rapidly spreading. They burst easily and eventually form thin, flat, brown-to-golden crusts. Infants with bullous impetigo should be referred for admission.

Topical antibiotics should only be used for very localised lesions and systemic antibiotics used for extensive, severe or bullous impetigo.

Impetigo is diagnosed clinically and swabs are usually not required. **Take a swab for bacterial culture if the infection is**: very extensive or severe, recurrent, suspected to be a community outbreak, or suspected to be caused by MRSA. Review any culture results and ensure that an appropriate antibiotic has been prescribed.

General advice: Hygiene measures, such as daily changes of towels and bed linen, are important to aid healing and stop the infection spreading to other sites on the body and to other people.

Fungal Skin Infections

Ringworm

Localised Lesion

Therapy:	**Miconazole 2% topically** twice daily for **28 days**
If unresponsive to treatment:	**Terbinafine 1% topically** daily for **7 days** (Not licensed for use in children)

Fungal infection of the skin presents with itch and scaly or erythematous macular skin lesions. In athlete's foot, pustular eruptions may be present.

Treat any positive culture results. Susceptibility testing of **dermatophytes** is not required, as resistance is unusual and susceptibilities do not predict outcome. For **fungal isolates that are not dermatophytes or a *candida sp***., seek the advice of a microbiologist or dermatologist.

Samples are not needed for uncomplicated athlete's foot, mild infections of the groin and mild skin ringworm. **Take samples if oral treatment is being considered**, in severe or treatment refractory infections or when the diagnosis is uncertain.

Dermatophyte Infection of the Proximal Fingernail or Toenail

For superficial or early infection

Duration:	Fingers **6 months**, toes **9 - 12 months**.
Therapy:	**Amorolfine 5% nail lacquer**, apply after filing and cleansing twice a week. (Not licensed for use in children <12 years old)

Yeast and Non-Dermatophyte Infection of the Proximal Fingernail or Toenail

For superficial or early infection

Duration:	Fingers **6 months**, toes **9 - 12 months**
Therapy:	**Amorolfine 5% nail lacquer**, apply after filing and cleansing twice a week. (Not licensed for use in children <12 years old)

Notes

Only 50% of nail dystrophy are fungal.

Fungal infections of the nail can present with a variety of nail changes, such as nail deformity, brittle or crumbling nails, and white or yellow discolouration.

Fungal Infections of the Hair and Scalp

Fungal infections of the scalp present as scaling, itchy, erythematous plaques with or without hair breakage.

If you suspect a fungal infection of the hair or scalp, investigation and treatment should be discussed with a dermatologist.

Facial or Peri-Orbital Cellulitis – Outpatient Treatment

Duration: 7 days

First Line: Co-amoxiclav PO dosed as per BNF for Children

Penicillin Allergy: Clindamycin PO dosed as per BNF for Children (Clindamycin liquid is unlicensed – CONSULTANT use only)

Notes

Suspect orbital cellulitis if there is evidence of skin and soft tissue infection in the eye area with peri-orbital oedema, a displaced globe, double vision, ophthalmoplegia, or reduced visual acuity.

Primary care: This is an **emergency**, as it is potentially sight-threatening, and any suspected case should be referred to secondary care for assessment and treatment.

In the ED: all cases of facial/peri-orbital cellulitis should be discussed with a senior member of ED medical staff and a maxillo-facial surgeon or ophthalmologist.

Limb Cellulitis – Outpatient Treatment

If there is a history of river or sea water exposure, treatment choices should be discussed with a microbiologist.

Duration: 5 – 7 days

First line: Flucloxacillin **PO** dosed as per BNF for Children

Penicillin allergy: Clarithromycin **PO** dosed as per BNF for Children

Clarithromycin should **not** be prescribed concurrently with ciclosporin, sirolimus and tacrolimus.

Notes

Cellulitis presents as an area of skin which is acutely red, hot, tender, and swollen; it is not uncommon for blisters or bullae to develop. The leg is the most common site and presentation is almost exclusively unilateral. Minor breaks in the skin can act as portal of entry.

If the patient is not febrile and has no underlying chronic diseases or immunocompromise, cellulitis can be managed as an out-patient or in primary care.

Refer any patient in primary care with the following for IV treatment:

- comorbidities that may affect wound healing, e.g. diabetes;
- frail patient;
- any patient that appears systemically unwell.

Take a swab for bacterial culture and sensitivity from any possible portal of entry or areas of broken down skin. Review any culture results and ensure that an appropriate antibiotic has been prescribed.

General advice: Draw around the perimeter of the affected area with a permanent marker pen for future comparison**.** Advise rest and elevation of the affected limb.

Bites – Outpatient Treatment

Animal Bites

Discuss treatment of pig bites with a microbiologist.

Duration:	7 days
First line:	Co-amoxiclav **PO** dosed as per BNF for Children
Penicillin allergy:	Clarithromycin **PO** dosed as per BNF for Children *Plus* Ciprofloxacin **PO** dosed as per BNF for Children *Plus* Metronidazole **PO** dosed as per BNF for Children Clarithromycin should **not** be prescribed concurrently with ciclosporin, sirolimus and tacrolimus.

Notes

Prophylactic antibiotics are indicated if the wound has been caused by a **cat or pig**, or if it is a high risk injury, such as;

- animal bites to the hand, foot, face and genitalia
- puncture or crush wounds; wounds requiring surgical debridement
- wounds involving bones, joints, tendons, ligaments, or suspected fractures
- bites on limbs with impaired circulation
- wounds that have undergone primary closure
- people who are at risk of serious wound infection (for example those who are diabetic, cirrhotic, asplenic, immunocompromised, or at extremes of age)
- people with a prosthetic valve or joint
- delayed presentation (more than 8 hours but less than 24 - 48 hours)

Take a pus sample or deep wound swab for culture before cleaning the wound and starting antibiotics. State clearly on the form that swab is from an infected animal bite.

Assess the risk of tetanus and rabies. For infected wounds, review at 24 and 48 hours to ensure that infection is responding to treatment, particularly if the patient has been prescribed a non-penicillin based regimen.

If the bite wound is not infected, advise the person to check for signs of infection and if these develop to attend urgently for review.

If the wound is infected, review at 24 and 48 hours to ensure the infection is responding to treatment. Advise the person to attend urgently for review if the infection worsens or if they feel increasingly unwell.

Primary care: Refer patients with wounds that require surgical debridement or wound closure, wounds on the hand or foot, and wounds that involve joints, tendons, or ligaments. Refer all patients with severe infection and signs of systemic illness.

Insect

Many insect bites present with erythema, induration and pronounced itch caused by histamine release in the tissue surrounding the bite; this does not require antibiotic treatment in the first instance and can be managed with rest, elevation and antihistamines.

If symptoms are severe or fail to improve and antibiotic treatment is felt to be necessary, treat as **cellulitis**.

Tick - Lyme Disease

Duration:	14-21 days
First Line:	Amoxicillin **PO** dosed as per BNF for Children
Penicillin allergy:	Clarithromycin **PO** dosed as per BNF for Children Clarithromycin should **not** be prescribed concurrently with ciclosporin, sirolimus and tacrolimus.

Notes

Lyme disease is unlikely if a tick has been attached for less than 24hrs. Erythema migrans (EM) develops within six weeks of a tick bite.

Investigation and treatment of **late** manifestations of Lyme disease, such as Lyme arthritis, Lyme carditis or neuroborelliosis should be discussed with an infection specialist.

Any patient with EM following significant exposure or known tick bites should be treated for Lyme disease without confirmatory testing. In the absence of documented tick bites and/or clinical features of Lyme disease, neither treatment nor serological testing are indicated.

Human Bites

Duration:	7 days
First line:	**Co-amoxiclav PO** dosed as per BNF for Children
Penicillin allergy:	**Clarithromycin PO** dosed as per BNF for Children ***Plus* Metronidazole PO** dosed as per BNF for Children Clarithromycin should **not** be prescribed concurrently with ciclosporin, sirolimus and tacrolimus**.**

Notes

Prophylactic antibiotics are advised for all human bites. **Assess the risk of blood borne virus transmission.**

Take a pus sample or deep wound swab for culture before cleaning the wound and starting antibiotics. State clearly on the form that swab is from an infected human bite.

For infected wounds, review at 24 and 48 hours to ensure that infection is responding to treatment, particularly if the patient has been prescribed a non-penicillin based regimen. Advise the patient/parent/guardian to attend urgently for review if the infection worsens or if they feel increasingly unwell.

Primary care: Refer patients with wounds that require surgical debridement or wound closure, wounds on the hand or foot, and wounds that involve joints, tendons, or ligaments. Refer all patients with severe infection and signs of systemic illness.

Varicella Zoster Virus Infections

Chickenpox: Both chickenpox and shingles present with a typical skin rash in which itchy red papules develop into vesicles and eventually crusting lesions; all stages can be seen at any time. The rash appears in typical “crops” with several lesions grouped tightly together.

Shingles: Both chickenpox and shingles present with a typical skin rash in which itchy red papules develop into vesicles and eventually crusting lesions; all stages can be seen at any time. The rash appears in typical “crops” with several lesions grouped tightly together. In shingles, this rash is present in a dermatomal distribution and is often preceded by neuralgic pain in the area.

Children with immunocompromised should be discussed with a paediatrician.