LAKES DISTRICT HEALTH BOARD

Healthy Skin

Protocols for the Management of Skin Infections in Children and Young People in Community and Primary Health Care Settings, in the Lakes District Health Board Region.

January 2015

HEALTHY SKIN

Contributors

Acknowledgements

Lakes District Health Board (DHB) has based these protocols on those developed by Healthy Skin in Greater Wellington – Protocols for the Management of Skin Infections in Children and Young People, in Community and Primary Health Care Settings, October 2013.

Lakes DHB acknowledges the work of this group and appreciative that we have been able to use large parts of this work to develop protocols for Lakes District Health Board region. We also acknowledge the previous work of the Wiri Central School Pilot Working Group, Counties Manukau DHB.

These protocols have been endorsed by;

Date 7/4/15

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Disclaimer

These protocols aim to provide guidance for health professionals and allied workers in the prevention, assessment, management and treatment of common skin infections. While every effort has been made to ensure that the information herein is accurate, Lakes District Health Board takes no responsibility for any errors, omissions, or for the correctness of, the information contained in these papers. Lakes District Health Board does not accept liability for error or fact or opinion, which may be present, nor for the consequences of any decisions based on this information.

The following information is a consensus guide. The aim of the document is to assist with the selection of an appropriate antibiotic for bacterial skin infections commonly seen in the community. Individual patient circumstances and local resistance patterns may alter treatment choices.
The medicines listed in this document are currently available on the PSO (Practitioner's Supply order) but may be subject to change. Fully subsidised medicines should be prescribes as first-line choices, where possible. To check the subsidy statuses of a medicine

see the New Zealand Formulary at: www.nzformulary.org or the Pharmaceutical Schedule online at: www.pharmac.health.nz
This is taken from the Antibiotics – choices for common Infections book bpacNZ 2013 edition

Abbreviations

- Lakes DHB Lakes District Health Board
- GP General Practitioner
- PHO Primary Health Organisation

Table of Contents

Statement

The Protocols for the Management of Skin Infections in Children and Young People in Community and Primary Health Care Settings have been developed to address the high rates of avoidable hospital admissions from serious skin infections amongst children in the Lakes DHB region. The project is a collaborative effort across primary and secondary care.

Hospital admissions from serious skin infections are preventable if detected early and adequately treated in a timely manner. These protocols have been developed as there was no standardised approach or guidelines for the management and treatment of skin infections in the community and primary health care setting in Lakes DHB region.

This document may be used in conjunction to the standing orders document to ensure that adequate management of bacterial skin conditions may be completed in a timely manner preventing the development of serious complications.

Aim

The aim of these protocols is to promote evidence-based practice for the prevention, assessment, management and treatment of skin infections in children and young people and therefore to reduce the burden of skin infections in our communities and progression to serious skin infections requiring hospitalisation.

It is expected that these protocols are a guide for clinical decision making and should not replace clinical judgement in individual cases. The protocols will form the basis for the management of skin infections for children and young people, in the community and Primary Health Care settings in the Lakes DHB Region.

Scope

These protocols are to guide best practice for the prevention, assessment, management and treatment of skin infections and are for use by general practitioners, primary health care nurses, school health nurses, community nurses public health nurses and pharmacists – all working within their respective professional scopes of practice.

The protocols include prevention measures and the management of some skin conditions that can lead to skin infections and bacterial skin infections, both with and without the use of antibiotics or other prescription medication.

For the purposes of these protocols the most common bacterial skin infections covered are impetigo, boils, cellulitis, human and animal bites. Other minor skin conditions included which are problematic in the community and are known to lead to serious bacterial skin infection are insect bites head lice and scabies.

This protocol does not replace the need for competency and experience in the diagnosis and assessment of skin conditions which can be complex and difficult to diagnose accurately. If there is any doubt in the diagnosis and assessment of the skin condition, advice should be sought from a more experienced health care practitioner.

Where the supply of a particular healthcare treatment required is outside the scope of that health care practitioner, a referral should be made to a health care practitioner who is able to provide the recommended treatment.

These protocols are to be used in conjunction with health literacy and the prevention and management of skin infections September 2013 and the medication standing orders.

Background

New Zealand literature reveal serious skin infections are a significant disease burden among New Zealand (NZ) children (Craig, Taufa, Jackson, & Han, 2009; O'Sullivan, Baker & Zhang, 2010). Hospital admissions for cellulitis for New Zealand children are double the number of other developed countries such as Australia and United States of America (Hunt, 2004).

Skin infections are a heterogenous group of skin conditions most frequently caused by pathogens such as Staphylococcus aureus and Group A Streptococci (Bamberger & Boyd, 2005; Stulberg, Penrod, & Blantly, 2002). If not adequately treated in a timely manner, they can lead to serious, systemic infections requiring intensive medical and surgical interventions. Risk factors for skin infection are multi-factorial and include low socio-economic position, household crowding, poor access to medical care and medical or surgical co-morbidities. Skin infections that are left untreated or poorly managed can develop into serious complications such as infections of the kidneys, bones, blood infections and immunological reactions like rheumatic fever.

The most current epidemiology review of skin infections in NZ shows the incidence rate almost doubled since 1990 (O'Sullivan & Baker, 2010; Baker & Barnard, 2012).

The highest rates of hospitalisation for serious skin infections occurred in children aged less than 5 years who have more than twice the risk of children aged five to 9 years. The lowest rates were for children aged 10-14 years.

The incidence of serious skin infection requiring hospitalisation was significantly higher in boys than girls.

The rate of cellulitis in children in New Zealand is twice that of children in Australia and the United States (O'Sullivan, Baker, Zhang 2011).

In addition to the reported skin infection rates there is significant concern and anecdotal evidence that a high percentage of children and young people have skin issues within our community. Evidence based management in order to reduce the burden of serious skin infections is required. As is early effective care and management in the community and across primary and secondary care.

Prevention of Skin Infections in Community and Primary Health Care Settings

When working with families it is important to consider the resources currently available to the family or whanau to assist them in managing the situation. Health literacy is a barrier to understanding health issues. Consider different cultural practices and beliefs amongst families and whanau. However, it is important to take a full history of treatments tried, including complementary and traditional practices that may be compromising care.

Key messages for parents and caregivers:

Healthy Skin Messages

- Good food and nutrition is important for healthy skin
- Clean hands with soap and water often
- Cut and file fingernails
- Cover sores and cuts with plasters
- Keep skin clean
- Wear clean clothes
- Keep house clean inside and out
- Wash sheets and towels regularly
- Treat animals for fleas regularly.

Child with Minor Cut, Sores or Other Skin Conditions

- Wash hands with soap and water often
- Clean and cover cuts and sores with plasters
- Check cuts and sores on a daily basis
- Use antiseptic cream or ointment once or twice daily
- Cut and file fingernails
- Care for other skin conditions e.g. eczema - use creams and lotions
- Use own sheets and towels
- If you need help, ask the nurse or other health worker.

See the doctor or nurse today if the sore or red area has any of the following:

- Is the size of a 10c piece or bigger
- Has pus
- Is getting bigger
- Has red streaks coming from it
- Is not getting better within 2 days
- Is near the eye.

Child with Skin Infection that is Getting Worse

- See the doctor or nurse. Medication (antibiotics) may be needed.
- Get medicine from the pharmacy straight away
- Take the full course of medicines (antibiotics) as prescribed
- Don't share medicines with others
- Supervise children taking medicine
- Go back to doctor if not getting better.

Child with Serious Skin Infection

- Your child will be sore and very sick
- Will need to go to hospital
- May need surgery.

Skin infections can lead to serious and life-threatening illness if left untreated.

Assessment, Management and Treatment of Skin Infections

1 General Skin Infection Screening and Assessment

Skin infection Assessment Procedure

The health care professional must be competent to undertake a skin assessment.

Technique:

- Explain the procedure to the patient (and parent/caregiver if present)
- All health professional assessing and treating patients must use standard hygiene precautions i.e. use alcohol based hand sanitiser before and after assessing/treating patient; use gloves if patient has a discharging wound.

Assess for General Danger Signs:

- Lethargy
- Inability to drink
- Persistent vomiting
- Fever greater than 38°C
- Pain

Assess for Signs of Severe Skin Infection:

- Swelling or redness around the eyes
- Extensive warm redness and swelling

Assess For Underlying Risk Factors:

- Insect bites
- Cuts and lacerations

Assess for Diagnostic Signs and Symptoms:

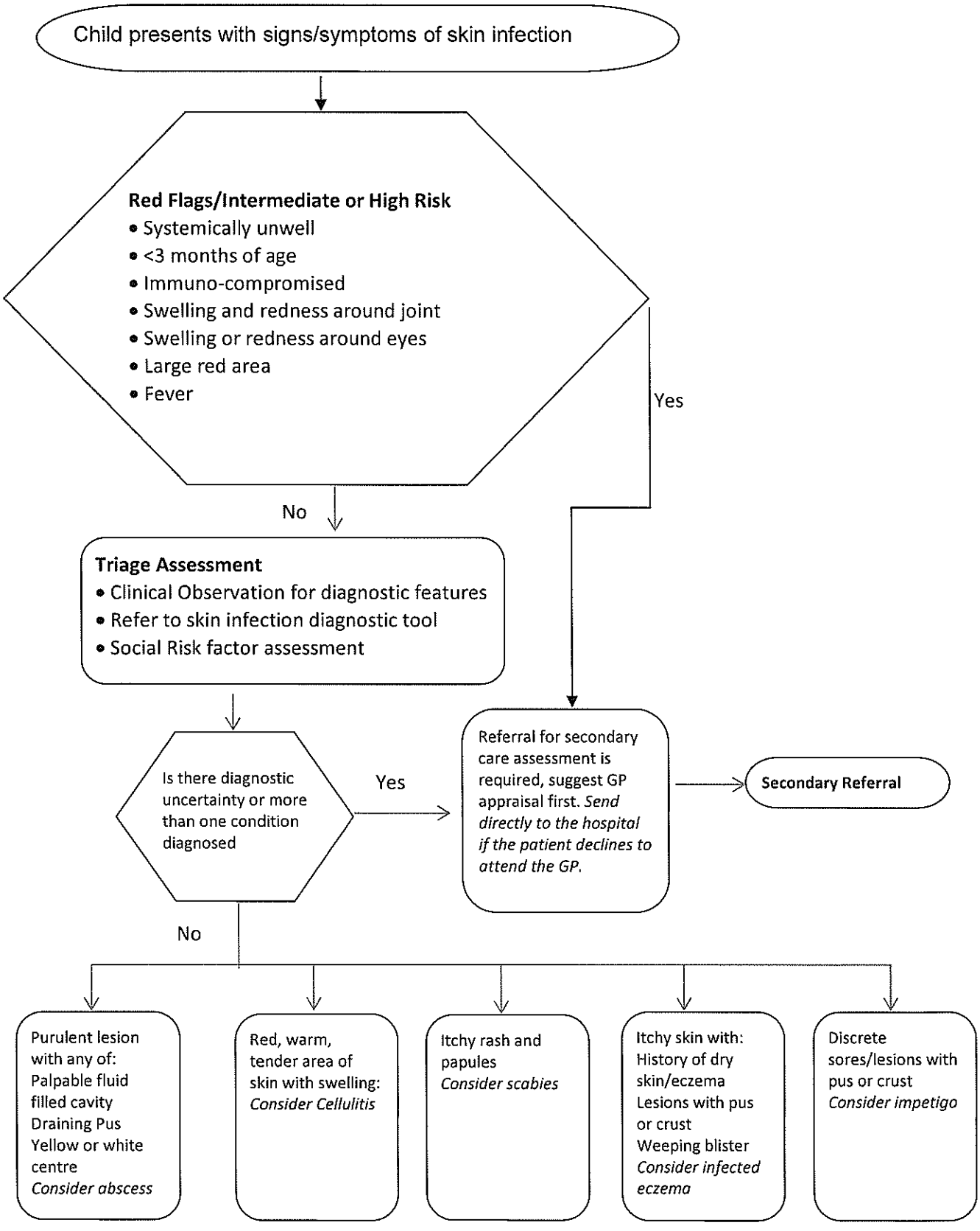
Ask if the patient has:

- Skin itchiness (pruritis)?
- Pain from the skin infection? Look for:
- Localised warm tender swelling or redness
- Discrete lesions with pus or crusts
- Papules on the hands, knees, elbows, feet, trunk
- Round or oval scaly patches
- If there are concerns about care and protection, health professionals are responsible to act on these concerns. Refer to organisational or practice policies.

Determine likely diagnosis and formulate action plan as per the table below:

Signs	Probable Condition	Action
Any general danger sign: Lethargy Persistent vomiting Inability to drink Extensive warm redness or swelling Fever greater than 38°C Pain	Very severe skin infection	Refer for immediate medical review Call for ambulance if above not available.
Swelling or redness around eyes	Consider peri-orbital or orbital cellulitis	Refer for medical review
Localised warm tender swelling and redness	Consider abscess or cellulitis	Refer cellulitis or boil guideline
Discrete sores/lesions with pus or crusts	Consider impetigo	Refer impetigo guidelines
Itchiness and papules	Consider scabies (Also insect bites, eczema, viral rash etc).	Refer scabies guidelines
Itchy skin with 3 or more of the following: Visible flexural dermatitis involving the skin creases (or visible dermatitis on the cheeks and/or extensor areas of children aged 18 months or younger) Personal history of flexural dermatitis (or dermatitis on the cheeks and/or extensor areas of children aged 18 months or younger) Personal history of dry skin in the last 12 months Personal history of asthma or allergic rhinitis (or history of atopic disease in a first degree relative of children if child under age 4 years) Onset of signs and symptoms under the age of two years (do not use this criterion for children under the age of 4 years	Consider eczema	Refer to medical practitioner
Round or oval flat scaly patches, often itchy	Consider fungal infection	Refer to medical practitioner
Bite from a human or animal (mammal) Including injuries that occur to the fist as a result of contact with teeth	Consider human or animal bite (Be aware of non-accidental injury)	Refer to medical practitioner

Algorithm: General Skin Infection Screening and Assessment



Adapted from Northern Regional Clinical Pathway- July 2013

2 Management and Treatment of Mild Skin Conditions

(Insect Bites, Scabies and Head Lice)

2.1 Insect Bites

Non-venomous insect bites usually cause little more than an intense irritating itch (papular urticaria) for most people. The bite may show up as a small raised red spot. It may blister.

Unfortunately the urge to scratch usually results in an open sore that may become infected and take longer to heal.

The main treatment aim for insect bites is to prevent itching. Options include oral antihistamines, emollients and topical low potency topical steroid e.g. Hydrocortisone 0.5-1%, which is available over the counter.

Assess the home environment for stagnant water, long grass, accumulated rubbish etc, that may be contributing to the problem.

If the insect bites become infected please follow the impetigo algorithm and standing order.

See http://dermnetnz.org/arthropods/bites.html for more information, including pictures.

2.2 Scabies

Scabies is an itchy rash caused by a little mite that burrows in the skin surface. The human scabies mite's scientific name is *Sarcoptes scabiei* var. *hominis.*

Scabies is nearly always acquired by skin-to-skin contact by someone else with scabies. Occasionally it is acquired by bedding or furnishings, as the mite can survive for a few days off its human host.

Signs and Symptoms

Itch

The itching appears a few days after infestation. It may occur within a few hours if the mite is caught a second time. The itch is characteristically more severe at night and affects the trunk and limbs. It does not usually affect the scalp.

Burrows

Scabies burrows appear as tiny grey irregular tracks between the fingers and on the wrists. They may also be found in armpits, buttocks, on the penis, insteps and backs of the heels. Microscopic examination of the contents of a burrow may reveal mites, eggs or mite faeces (scybala).

Generalised rash

Scabies rash appears as tiny red intensely itchy bumps on the limbs and trunk. It can easily

be confused with dermatitis or hives (and may be accompanied by these). The rash of scabies is due to an allergy to the mites and their products and may take several weeks to develop after initial infestation.

Nodules
Itchy lumps or nodules in the armpits and groins or along the shaft of the penis are very suggestive of scabies. Nodules may persist for several weeks or longer after successful eradication of living mites.

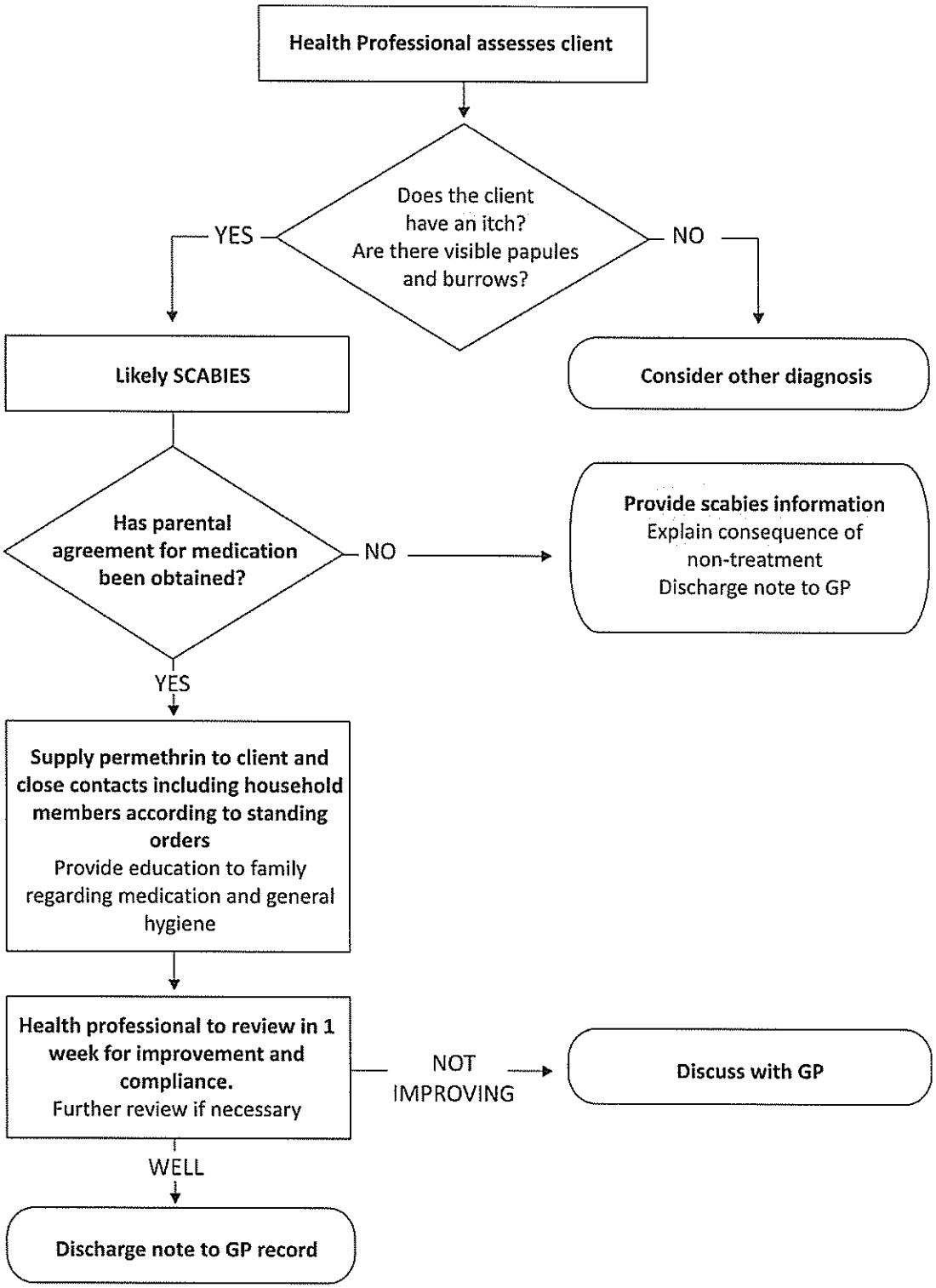
Acropustulosis
Blisters and pustules on the palms and soles are characteristic of scabies in infants.

Secondary infection
Impetigo commonly complicates scabies and results in crusting patches and scratched pustules. Cellulitis may also occur, resulting in localised painful swelling and redness, associated with fever.

Crusted scabies (also called 'Norwegian scabies') is a very contagious variant of scabies in which there are thousands or even millions of mites, but very little itch. The patient presents with a generalised scaly rash. It is frequently misdiagnosed as psoriasis. Unlike the usual form of scabies, crusted scabies may affect the scalp. Refer to dermatologist.

See http://www.dermnetnz.org/arthropods/scabies.html for more information, including pictures.

Algorithm: Scabies Management



Treatment

Scabicides are chemical insecticides used to treat scabies. Those available in New Zealand include:

- 5% Permethrin cream, left on for 8-10 hours (preferred)
- 0.5% Aqueous malathion lotion, left on for 24 hours.

Gamma benzene hexachloride cream is no longer recommended because of resistance and potential toxicity. Sulphur and crotamiton were popular in the past but are relatively weak scabicides.

The scabicide has to be applied before bed to the whole body from chin to soles. The scalp and face also need to be treated for children under 2 years, those confined to bed, and some others with reduced resistance.

Ensure all close contacts are treated, especially household contacts, at the same time. A second treatment will be required for all household members a week later if:

- The scabies infection is severe or chronic
- If any family member develops any new papules or burrows following the first treatment.

Treatment should not be repeated more than two times without medical advice. Overuse of insecticides will irritate the skin.

Each treatment with scabicide should be followed the next morning by hot-wash laundering or dry cleaning of sheets, pillow cases, towels and any clothes worn against the skin over the last week. All household members need to shower or bath the day after their treatment. Non washable items e.g. footwear, toys, should be sealed in a plastic bag and stored above 20°C for one week. Alternatively they can be frozen below -20°C for 12 hours. Rooms should be thoroughly cleaned with normal household products. Fumigation or specialised cleaning is not required. Carpeted floors and upholstered furniture should be vacuumed and all areas cleaned with normal household products. The vacuum bag should then be discarded and furniture covered by plastic or a sheet during treatment and for 7 days after.

To reduce the risk of the treatment failing:

- Ensure the scabicide is applied to the whole body from the chin down
- Leave it on for the recommended time and reapply it after washing
- Apply the scabicide under fingernails using a soft brush
- If there is crusting, secondary infection or non-response to standard treatment then medical review is required
- Antibiotics may be indicated if there is crusting or secondary infection
- Ensure all close contacts are treated whether or not they are itchy

Topical Permethrin Lotion 5%

Indications for use:

- Scabies

The medicine should be supplied or administered in accordance with the scabies management protocol.

Children aged under 6 months:

- Must be seen by a GP prior to treatment.

Children aged 6 months to 2 years:

- Prescribe or supply one 30ml bottle of permethrin lotion 5%
- Advise the caregiver to apply permethrin lotion to the child's entire skin surface from the neck down at bedtime and to wash it off the next morning (it is recommended that the lotion be left on for 8 to 14 hours). Children under 2 years of age should also have a thin film of lotion applied to the scalp, face and ears, avoiding the eyes and mouth. Application to the genital area and the skin just under the fingernails is especially important. Reapply the lotion to any area of skin which is washed during the 8 hours following application. If hands or any other parts must be washed during this period, the treatment must be re-applied to those areas immediately
- For children aged less than one year use 1/8 or 4mls of the bottle, and for 1 to 2 year olds use up to a quarter of a bottle
- Follow-up in 2 weeks and if symptoms persist consider reapplication.

Children aged 2 years and over:

- Prescribe or supply one 30ml bottle of permethrin lotion 5%
- Advise the caregiver to apply permethrin lotion to the child's entire skin surface from the neck down at bedtime and to wash it off the next morning (it is recommended to that the lotion be left on for 8 to 14 hours). Application to the genital area and the skin just under the fingernails is especially important. Do not wash or bathe for 8 hours. Reapply the lotion to any area of skin which is washed during the 8 hours following application. If hands or any other parts must be washed during this period, the treatment must be re-applied to those areas immediately
- For children age 2-5 years use ¼ or 8mls of the bottle and for children 5-12 years use ½ or 15mls of the bottle
- Follow-up in 7 – 10 days. Reapply lotion if symptoms persist.

Adults:

- Prescribe or supply one 30ml bottle of permethrin lotion 5%
- Advise the adult to apply permethrin lotion to their entire skin surface from the neck down at bedtime and to wash it off the next morning (it is recommended to that the lotion be left on for 8 to 14 hours). Application to the genital area and the skin just under the fingernails is especially important. Do not wash or bathe for 8 hours. Reapply the lotion to any area of skin which is washed during the 8 hours following application. If hands or any other parts must be washed during this period, the treatment must be re-applied to those areas immediately
- Follow-up in 7 – 10 days. Reapply lotion if symptoms persist.

Contraindications:

- Check allergy status first. Do not use if known hypersensitivity to permethrin, synthetic pyrethroids or pyrethrin
- Not to be used on infants less than 2 months old. Refer to paediatrician if required

- Not to be used during pregnancy or breastfeeding.

Precautions:

- Avoid contact with the eyes
- Avoid contact with open wounds or cuts
- Permethrin lotion is for external use only and should be kept out of reach of children
- Adults aged over 70 years
- May exacerbate pruritus, oedema and erythema.

Side Effects:

- The most common are: mild transient burning or stinging, temporary redness of the skin
- The skin may become much itchier for several days after application
- For a comprehensive list of rare side effects consult the medication data sheet in Appendix E or MIMS.

Additional Information:

As a standard practice all persons given permethrin should be told about the medication, its side effects, contraindications, and interactions with other medicines.

Refer to this table for children and adult doses for Topical Permethrin

Children	Under 6 months	Must be seen by a GP
	6months to 1year	1/8 or 4ml of 30ml bottle (1 teaspoon approximately) Topical Permethrin Lotion 5%
	1-5years	¼ or 8ml of 30ml bottle Topical Permethrin Lotion 5%
	5-12 years	½ or 15ml of 30ml bottle Topical Permethrin Lotion 5%
Adults		1 bottle of 30mls Topical Permethrin Lotion 5%

Source: http://dermnetnz.org/arthropods/scabies.html

2.3 Head Lice

Head lice are small parasitic insects (small wingless insects about 2-3mm in length or the size of a sesame seed that only live on humans), that live clinging onto our hair and feed from our scalps. Un-hatched eggs nits) are grey and they can be seen within a few mm of the scalp. It is easier to identify and remove the live lice and eggs by wet combing using a lice comb compared to visual inspection alone. Any eggs (nits) more than 1cm from the scalp will have hatched and died and can just be removed with a comb. After hatching, the nits (empty egg cases) are white.

In general, they are harmless as they do not carry or spread other diseases, but they are annoying, have been around for thousands of years and can be hard to get rid of. Scratching

can cause crusting and scaling on the scalp. Occasionally secondary bacterial infection of the scalp results in small sores on the scalp with tender glands in the neck. Dermatitis can also occur with a heavy infestation of lice.

Lice spread easily through close head to head contact with other people.

Infection is most common in children aged 3-11 years who can then pass it on to family and friends before anyone realises.

Signs and Symptoms

Itch
The itching scalp or tickling feeling

Red bumps or sores
Present on the scalp from scratching

Tiny white specks
Eggs or nits on the bottom of each hair that is hard to get off

How would you know if there is head lice present

About 50% of people have no symptoms, so it pays to check hair regularly. To find nits, use a fine comb and carefully comb through small sections of the hair at a time. They can be hard to see so make sure you are in a good light. A magnifying glass could be useful. If they are present they are easiest to find on the neckline and behind the ears.

Treatment

There are now good treatments with insecticides and a range of fine toothed combs. The two most common head lice treatment methods are wet combing and chemical treatment.

Wet combing – wet the hair and scalp with conditioner (this makes it easier to see the head lice) then comb the lice and eggs out. To do this, divide the hair into small sections and comb carefully using a fine metal comb or special head lice comb (you can get these from you chemist/pharmacy). This needs to be done daily for 10 days. A recent study in the British medical Journal (BMJ) found that finely combing wet hair with a comb specially designed for head lice was four times more effective in getting rid of head lice than malathion or permethrin based lice shampoos. (head lice: the key is in the comb) http://www.environmentalhealth.ca/lice.htm

Chemical shampoo or lotion (containing insecticide) – these aim to kill the lice and eggs. Follow the instructions carefully as some lotions are left on for 10 minutes then washed off, others are washed off after 8 hours or more.

Repeat treatment 7 to 10 days after the first treatment, to kill any head lice that may have hatched from eggs that have survived the first treatment.

Washing – some people advise hot washing of bedding and clothes to reduce re-infection.

Prevention

- Brush hair twice a day every day this can help to kill or injure lice and stop them from laying eggs. If you have long hair it is best
- Don't share brushes, combs, headbands, ribbons, hairclips, helmets or hats – basically anything that has direct contact with someone's head.
- In sports or swimming pool changing rooms, its best for the children to keep their clothes spate from other children's
- If you do get head lice in your family, treat everyone that has them at the same time, as this can help reduce the chance of re-infestation.
- Regularly check your children for head lice – e.g. every week.
- It's not possible to completely prevent head lice because they're very common and breed so quickly.
- Not all eggs (nits) are killed with one application of insecticide; therefore a second application is required.
- The lice may not be killed immediately and may take a day or so to die
- The presence of nits doesn't mean ACTIVE infection. Hatched nits (empty egg shells) will remain attached to the hair shaft until the hair grows out; unless they are actively removed of the hair is cut.
- Machine was in hot water all bed linens, clothes and towels used within the last 24 hours
- Items that can't be washed such as soft toys and helmets and should be placed in airtight plastic bags for 2 weeks.
- Wash hair brushes and combs
- Check for irritation or crusting of the scalp to exclude secondary infection if there is inflammation or crusting.

Physical methods of management

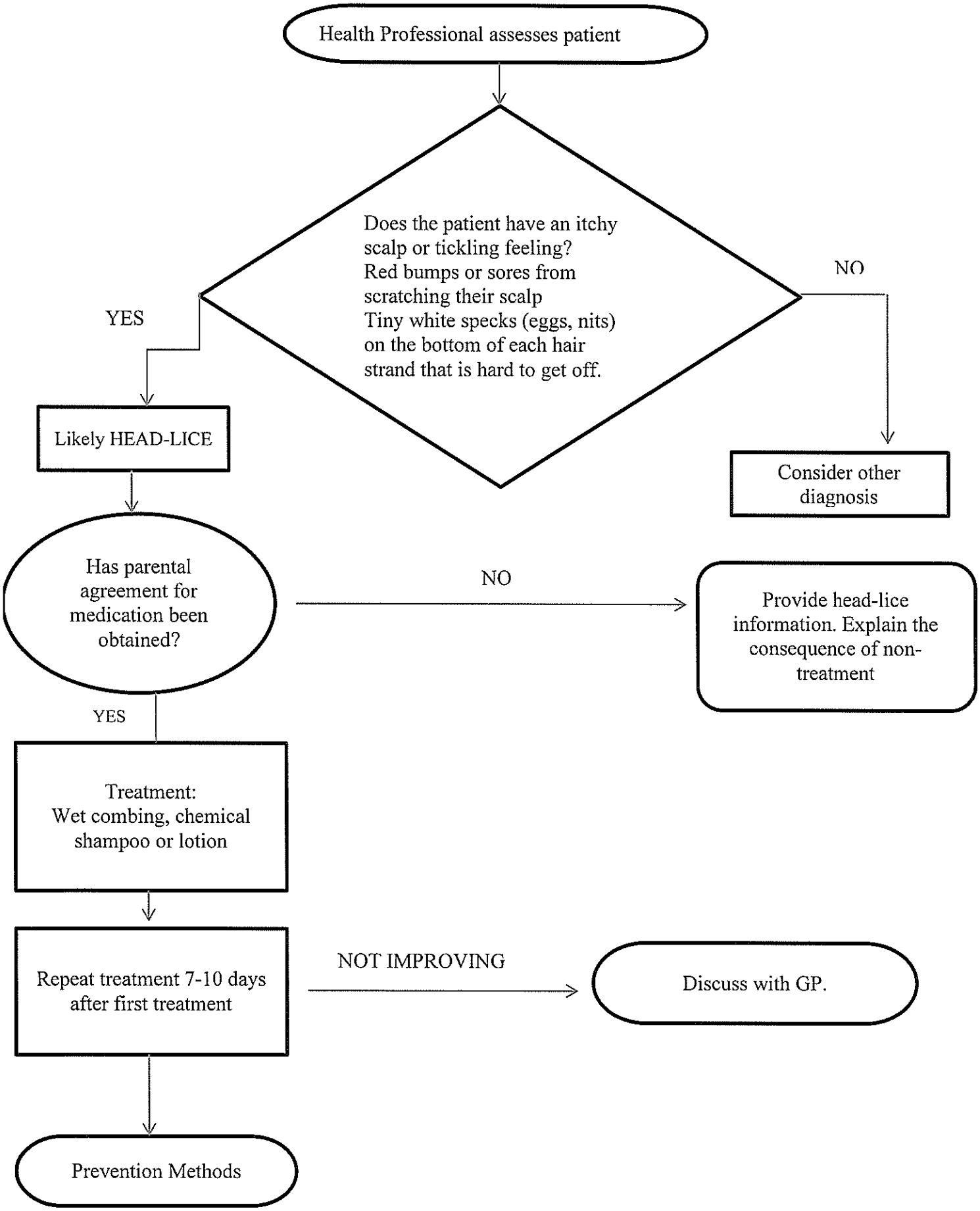
Physical methods of removing nits and lice are often neglected as part of the treatment. This can also be effective treatment on it own. They are however more reliable if used in conjunction with insecticide treatments.

Eggs are cemented strongly to the hair shaft and simple washing usually doesn't remove them. Nit combs are the most effective way of physically removing the nits. Metal combs are much more effective than plastic. Electrical combs designed to "zap" lice on the hair shaft are not effective.

- Using a nit comb is easiest when the hair is wet. Combing may be easier if a conditioner is applied first. It is best done after treating with insecticides.
- Use a good light
- Work through the hair in sections and comb down the hair shaft towards the scalp to try and remove the stubborn nits.
- It may be easier if this is done while the child is kept occupied
- Repeat the combing at least twice more on consecutive nights if possible then weekly.

Cutting the hair (i.e. No.1 cut) may be useful in difficult cases. This makes searching and removing lice easier but wont prevent re-infestation.

Algorithm; Head lice management



Chemical Treatment

In New Zealand insecticides available to treat head lice include:

- Organophosphates such as **malathion** (preferred and subsidised by Pharmac)
- A- Lices scalp and body hygiene shampoo
- Derbac-M liquid
- Para Plus Aerosol
- Pyrethrum/pyrethrin/Phenothrin
- Synthetic pyrethroids (permethrin)

Lotions, liquids or cream are preferred to shampoo. All are topical applications; therefore they are applied directly to the scalp. Even so, a small portion may be absorbed into the body and for this reason it is important to follow the manufacturer's advice on how long to use it and how often to repeat treatment.

Malathion Lotion 0.5% (w/v) (A-Lices Lotion)

Indications for use

- For the treatment and eradication of head lice and eggs

The medicine should be supplied or administered in accordance with the head lice management protocol.

- If one member of a household requires treatment with Malathion lotion, it is necessary to treat the whole household.

Children aged 6 months and older – Adults:

- Supply one bottle of Malathion lotion 0.5%
- Apply to dry hair. Advise the caregiver to rub the liquid gently into the scalp until all hair and scalp is thoroughly moistened. Pay particular attention to the partings, back of the neck, fringes and around the ears. Leave the hair to dry naturally in a warm but well ventilated room.
- After 12 hours, or the next day if preferred, shampoo the hair in the normal way. Rinse the hair and comb whilst wet to remove dead head lice and eggs (nits)
- Do not use conditioner or dry the hair with a hair dryer either after application of the lotion or after washing off the lotion.
- Re-apply 5-10 days after the first application.

Contraindications:

- Check allergy status first. Do not give if known hypersensitivity to Malathion or other organophosphates
- Do not use on infants less than 6 months old.

Precautions:

- Avoid contact with eyes
- It is advisable that nursing staff in regular contact with this product should wear protective gloves when carrying out this treatment
- Malathion lotion is for external use only and should be kept out of reach of children
- Continued prolonged treatment with Malathion lotion should be avoided
- Do not use for more than 3 consecutive weeks
- This treatment may affect permed, coloured or bleached hair.

- Adults over 70 years old
- May exacerbate pruritis, oedema, and erythema
- Pregnancy and breastfeeding

Side Effects:

- Very rarely, skin irritation has been reported. For a comprehensive list of rare side effects consult the medication data sheet in MIMS

Source: http://dermnetnz.org/arthropods/headlice.html

Additional Information:

As a standard practice for all persons given Malathion they should be told about the medication, its side effects, contraindications, and interactions with other medicines.

3 Management and Treatment of Bacterial Skin Infections

(Impetigo, Cellulitis, Boils and Human and Animal Bites)

3.1 Impetigo

Impetigo is a bacterial skin infection. It is often called school sores because it most often affects children. It is quite contagious.

Streptococcus pyogenes and/or *Staphylococcus aureus* are the micro-organisms responsible for impetigo.

Impetigo may be caught from someone else with impetigo or boils, or appear 'out of the blue'. It often starts at the site of a minor skin injury such as a graze, an insect bite, or scratched eczema.

Signs and Symptoms

Impetigo presents with pustules and round, oozing patches which grow larger day by day. There may be clear blisters (bullous impetigo) or golden yellow crusts.

See http://dermnetnz.org/bacterial/impetigo.html for more information including pictures.

Management of Impetigo:

- Consider swab of moist lesion if high risk of recurrence or complicating features (living in areas of deprivation or previous infections, antibiotic resistance)
- Localised staphylococcal infections may be managed using meticulous wound care and antiseptics for local application and cleanser. **Antibiotics should only be used if impetigo lesions are not resolving or are worsening.**
- The routine use of topical antibiotics such as fusidic acid or mupirocin is **undesirable** because of increasing prevalence of topical antibiotic-specific and methicillin - resistant strains of staphylococci these can be used during decolonisation if this process is required – Hydrogen Peroxide or Iodine based products work well due to less risk of resistance. **There are no known pathogenic bacteria or fungi that develop resistance to hydrogen peroxide**
- Some families may find adding any brand of bleach to bathwater useful for reducing the bacterial load on the skin, 5ml bleach per 5L of water twice a week. This is approximately 100mls or 1/3 cup for a 15cm deep full sized bath. Use 1 capful for baby's baths.[1] Care should be taken to clarify measurement with a *'bottle cap'* so as not to be misunderstood as a *'cupful'.* **Bleach should never be used directly on the skin**
- An unsubsidised alternative to bleach which has the advantage of being moisturising is Oilatum Plus®. Use 4 - 8 capfuls in an 8inch bath.
- If indicated apply topical antiseptic such as Crystacide/crystaderm or Betadine after soaking or bath e.g. this would be for children with just localised impetigo (small lesions only)

[1] www.adhb.govt.nz/starshipclinicalguidelines/Cellulitis.html accessed August, 2012

- Keep affected areas covered with a breathable dressing preferably a fabric plaster or gauze
- Stay away from school for 24 hours after treatment initiated
- Review common prevention messages with child and family
- Moderate impetigo or multiple lesions will require treatment with oral antibiotics.

Indications for Antibiotic Therapy:

Mild or localised impetigo; (same size or smaller than the size of a 10c coin), a trial of meticulous wound care and antiseptics for local application and cleanser for 2-3 days. If impetigo lesions are not resolving or worsening, oral antibiotics should be prescribed.

Moderate impetigo (lesions larger than 10c coin or multiple lesions) the child should be prescribed oral antibiotics for 7days:

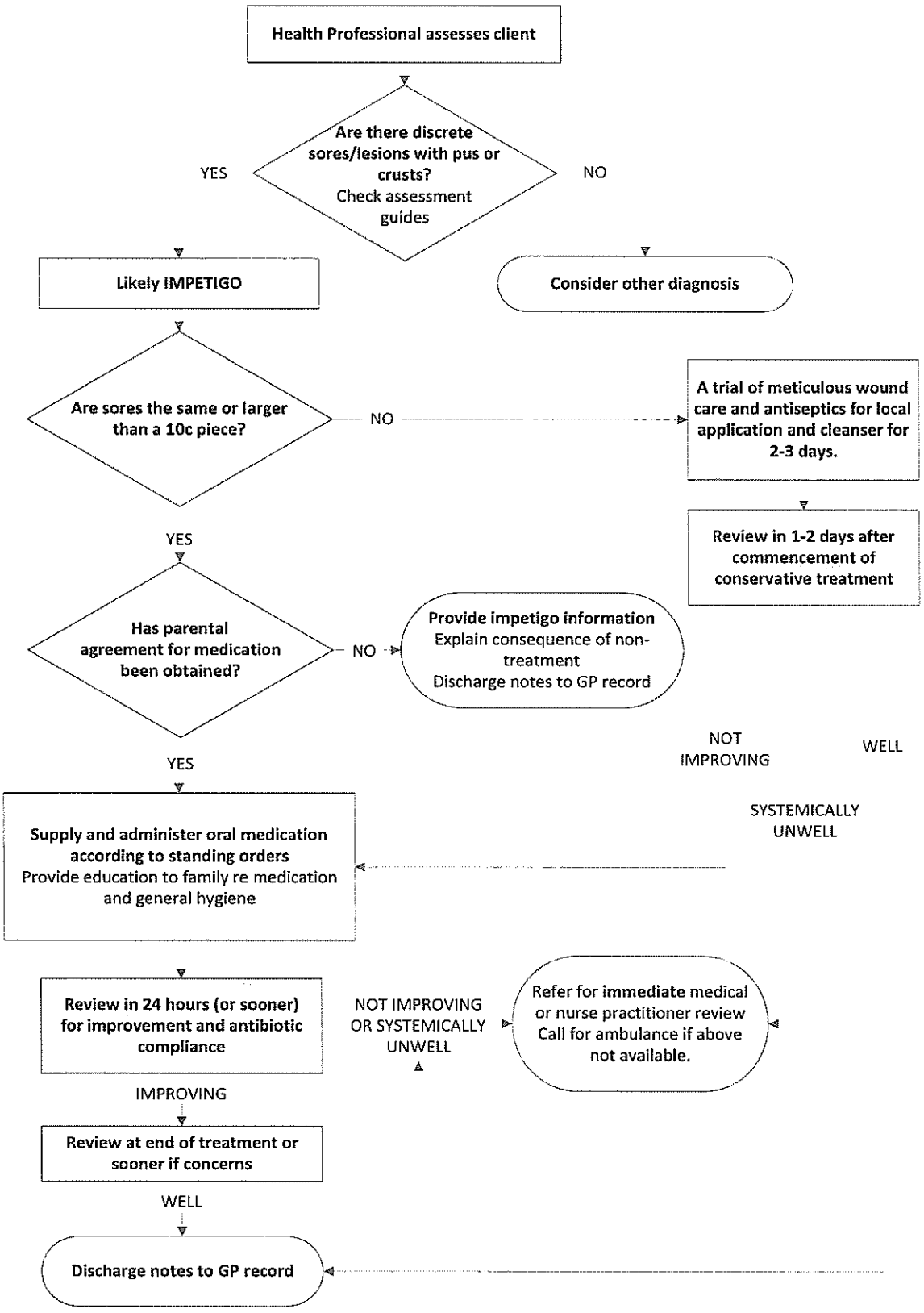
- Cephalexin if NO allergy/contraindication to cephalosporins /penicillins and unable to swallow capsules **(cephalexin is now subsidised)**
- Flucloxacillin if NO allergy/contraindication to cephalosporins/penicillins and able to tolerate the suspension or swallow capsules
- Erythromycin if YES to allergy to cephalosporins/penicillins and no allergy/contraindication to erythromycin
- Co-trimoxazole is used in Methicillin resistant staphylococcus aureus (MRSA) but needs to be in consultation with the GP.

Sources: http://dermnetnz.org/bacterial/impetigo.html
http://www.bpac.org.nz/magazine/2009/february/impetigo.asp#key

Arrange review of child on antibiotics within 24 hours or sooner if not improving. Ask the parents, or carers of the children to bring the antibiotics with them also.

Any child who is systemically unwell needs a medical review.

Algorithm: Impetigo Management



3.2 Cellulitis

Cellulitis is a common bacterial infection of the skin, which can affect all ages. It usually affects a limb but can occur anywhere on the body. Symptoms and signs are usually localised to the affected area and include warmth, redness, tenderness and swelling. The most common pathogens are *Staphylococcus aureus*, *Staphylococcus pyogenes* and Group C or Group G streptococci.

If the cellulitis is:

- periorbital or orbital OR
- circumferential around a limb OR
- located over a joint OR
- located on the hand or foot OR
- appears to be an abscess - localised, painful, hot swelling (see boils section)
- caused by a human or animal bite (see next section)
- is the same size or larger than a 10c coin (1.5 - 2 cms in diameter)
- tracking – lines of redness (erythema) proximal to the main lesion OR
- if the child is under 1 year of age
- if the child is significantly unwell (with fever >38°C, chills and shakes, persistent vomiting, lethargy, inability to drink).

A medical review is urgently needed as the child may need admission to hospital.

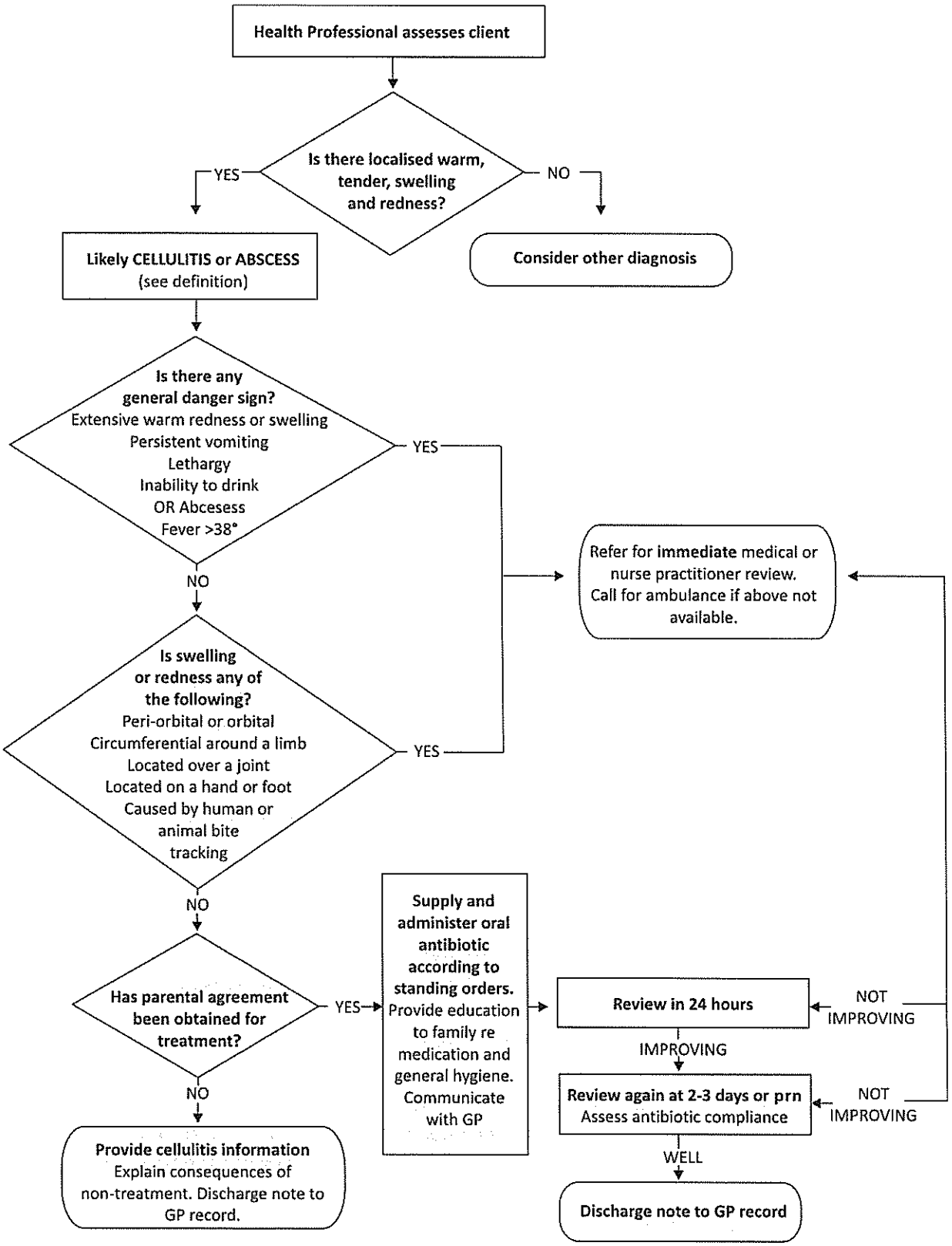
Severe or rapidly progressive cellulitis may lead to septicaemia (blood poisoning), bone or joint infections or endocarditis (heart valve infection) or necrotising fasciitis, a more serious soft tissue infection that is more common in adults.

Management

- Antibiotic treatment is indicated
- Keep affected area elevated and assess response to treatment. May require referral to hospital if severe
- For peri-orbital cellulitis, in all but very mild cases, refer to hospital
- Consider swab of moist lesion if high risk of recurrence or complicating features such as antibiotic resistance or MRSA
- Consider nasal swab to identify MRSA, for recurrent cellulitis or multiple antibiotic exposure previously or where cellulitis is not improving on standard treatment and there is no exudate (Liu, Bayer, Cosgrove, et al., 2011)
- Review common prevention messages with child and family.

Source:
http://www.bpac.org.nz/magazine/2010/november/infectious.asp?section=4#cellulitis

Algorithm: Cellulitis and Boils Management



Adapted from the Manual of Operations for a Registered Nurse-Led Primary School-Based, Primary Health Care Programme; Wiri Central Primary School, Manukau City, Counties Manukau DHB, 2011.

Antibiotic Therapy

- Cephalexin if NO allergy/contraindication to cephalosporins/penicillins and unable to swallow capsules
- Flucloxacillin if NO allergy/contraindication to cephalosporins/penicillins and able to tolerate the suspension or swallow capsules
- Erythromycin if YES to allergy to cephalosporins/penicillins and no allergy/contraindication to erythromycin
- Co-trimoxazole is used in Methicillin resistant staphylococcus aureus (MRSA) but needs to be in consultation with the GP.

Arrange review of child on antibiotics within 24 hours or sooner if not improving.

Any child who is systemically unwell needs a medical review.

3.3 Boils (Furuncles)

Boils (furuncles) are a deep infection of the hair follicles and present as one or more tender red spots, lumps or pustules. Common pathogen responsible is Staphylococcus aureus.

Careful inspection reveals that the boil is centred on a hair follicle. A boil is a deep form of bacterial folliculitis; superficial folliculitis is sometimes present at the same time. *Staphylococcus aureus* can be cultured from skin lesions.

If there are multiple heads, the lesion is called a 'carbuncle'. Large boils form abscesses, defined as an accumulation of pus within a cavity. Cellulitis may also occur, i.e. infection of the surrounding tissues, and this may cause fever and illness.

See **http://dermnetnz.org/bacterial/boils.html** for more information, including pictures

Management

- Swab of at least one moist lesion
- Localised staphylococcal infections may be managed using meticulous wound care (including incision and drainage of large furuncles and abscesses) and antiseptics as local application and cleanser
- The routine use of topical antibiotics such as fusidic acid or mupirocin is **undesirable** because of increasing prevalence of topical antibiotic-specific and methicillin-resistant strains of staphylococci. Hydrogen Peroxide (Crystacide/derm)or Iodine based products (Betadine)work well due to less risk of resistance **There are no known pathogenic bacteria or fungi that develop resistance to hydrogen peroxide**
- Antibiotics may be considered if there is fever, surrounding cellulitis or co-morbidity
- e.g. eczema or if the lesion is in a site associated with complications e.g. face
- Review common prevention messages with child and their family.

Recurrent Boils

- Consider staphylococcal decolonisation with a one week course of intranasal

mupirocin or fusidic acid
- Consider other household contacts
- The patient should be advised to shower daily using antiseptic body wash, as well as hot laundering of bed linen and towels
- Consider recurrent skin infection prevention guidelines (See Appendix C)

Consider MRSA if there is a lack of response to first line antibiotics (Flucloxacillin or Cephalexin).

Antibiotic Therapy

- Cephalexin if NO allergy/contraindication to cephalosporins/penicillins and unable to swallow capsules
- Flucloxacillin if NO allergy/contraindication to cephalosporins/penicillins and able to tolerate the suspension or swallow capsules
- Erythromycin if YES to allergy to cephalosporins/penicillins and no allergy/contraindication to erythromycin
- Co-trimoxazole is used in MRSA but needs to be in consultation with the GP.

Source:
http://www.bpac.org.nz/resources/handbook/antibiotics/antibiotics_guide.asp

Arrange review of child on antibiotics within 24 hours or sooner if not improving. Any child who is systemically unwell needs a medical review.

3.4 Human and Animal (Mammalian) Bites

- Should be reviewed by a doctor or referred to the hospital as may require other medical interventions.

3.5 Infected Eczema (also known as Infected Atopic Dermatitis)

Skin with active eczema becomes dry, red, itchy and inflamed. It can easily get infected. Eczema can affect any part of the body and can change a lot from day to day.
Eczema can usually be controlled by good skin care and avoiding triggers. The treatment that is needed will change with time. A few children do still have bad eczema despite good care and need a specialist review. Infection is the most common cause of flares of eczema.

Signs and Symptoms

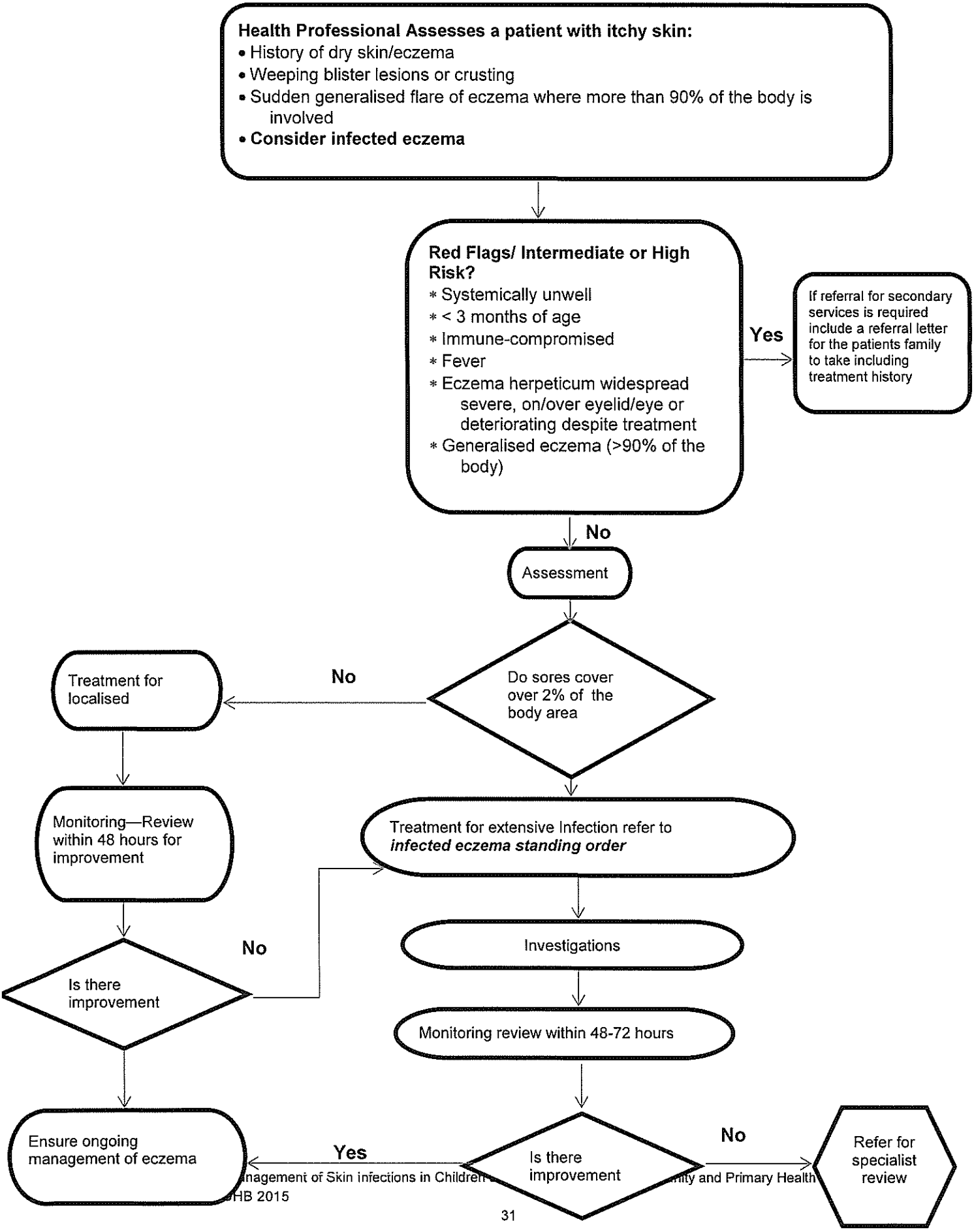
- Weeping crusted areas
- Lots of pustules (yellow/white) pimples
- Sudden flaring of eczema all over the body.
- Shivering, painful skin
- Areas of the skin start swelling and become more painful
- The infected eczema is bigger than a 10c coin
- Small red spots appear around the eczema
- Painful chicken pox like blisters and sores – this can be the cold sore virus – see a

Doctor immediately
http://dermnetnz.org/dermatitis/atopic.html

Management of Infected Eczema (atopic dermatitis)

- Bath or shower every day to clean the skin
- Use warm water and a soft cloth to gently soak and lift off any crusts
- Use a soap-free wash e.g. non-ionic cream, aqueous cream, emulsifying ointment. Don't use soap and bubble bath as these make the skin dry.
- Antiseptic baths two times per week can help:
    - ***Bleach baths:***
    - Bleach should be plain, without added fragrance of detergent
    - Budget or no brand Household bleach (2.2%) is recommended
    - Fill the bath tub with warm water – a full sized bath filled 10cm deep holds about 80litres of water, a baby's bath holds about 15 litres of water.
    - Add 2ml of bleach to 1litre of water or in a full sized bath filled to 10cm will need half a cup (150mls) of 2.2% bleach
    - Soak in the bath for 10-15 minutes
    - Rinse off with tap water – pat skin dry, DO NOT rub, DO NOT share towels
    - Apply creams either steroid or moisturiser
    - Use diluted bleach baths 2 times per week.
- Steroid creams and ointments – apply steroid to all red and itchy skin (active eczema) once a day. Immediately after a bath is best
  Use enough to make the skin shiny
  When the skin is not longer red and itchy stop using the steroid but keep moisturising. If the eczema come back start using the steroid again
- Moisturiser (emollient) – smooth on lots of moisturiser many times a day to keep the skin soft. Apply all over not just where there is eczema. Aim to finish a tub every 2-3 weeks.
- Return to the doctor or nurse – if the infection is not improving after 2-3 days of meticulous treatment, other people in the house have skin infections – they also need to get treatment. If your child is missing school, getting lots of skin infections or not sleeping well because of eczema.

Algorithm: Infected Eczema



Indications for Antibiotic Therapy:

Mild or localised Eczema;

Follow management of infected eczema as noted on page 30.

Moderate Eczema;

Multiple areas of extensive infected eczema. Sores cover more than 2% or the body area.

The child should be prescribed oral antibiotics for 7 days as per the standing orders.

- Cephalexin if NO allergy/contraindication to cephalosporins/penicillins and unable to swallow capsules
- Flucloxacillin if NO allergy/contraindication to cephalosporins/penicllins and able to tolerate the suspension or swallow capsules
- Erythromycin if YES to allergy to cephalosporins/penicillins and no allergy/contraindication to erythromycin
- Co-trimoxazole is used in Methicillin Resistant Staphylococcus Aureus (MRSA) but needs to be in consultation with a GP.

Arrange to review the child on antibiotics within 48-72 hours or sooner if not improving

Ask the parents or carers of the children to bring the antibiotics with them also.

Any child that is systemically unwell needs a medical review

4 Antibiotics for Bacterial Skin Infections

Oral Cephalexin Monohydrate:

Indications for use:

- Moderate impetigo or mild impetigo lesions that have not responded to conservative treatment (see algorithm page 25).
- Uncomplicated celluitis
- Boils with complicating features
- Cephalexin preferred for children unable to take tablets due to increased compliance and palatability compared with flucloxacillin.

Charting and administration:

- The medicine should be supplied or administered in accordance with the relevant management protocol.
- The paediatric pharmacopoeia dose for cephalexin is 12.5mg/kg/dose 6 hourly to a maximum of 500mg 6 hourly

Children > 30kg

- 500mg twice a day for 7 days
- If child can swallow capsules use 500mg capsules, One twice a day for 7 days
- If child cannot swallow capsules use **250mg/5ml** oral suspension, 10ml twice a day for 7 days
- The suspension must be kept refrigerated following reconstitution.

Children 20kg - 30kg

- Use **250mg/5mls** oral suspension, 5mls twice a day for 7 days
- The suspension must be kept refrigerated following reconstitution.
-

Children 10kg -20kg

- Use **125mg/5mls** oral suspension, 5mls twice a day for 7 days
- The suspension must be kept refrigerated following reconstitution.
-

Children under 1yr or <10kg

- Needs review by medical or nurse practitioner.

Contraindications:

- Check allergy status first. Do not give if previous hypersensitivity to cephalosporin antibiotics or previous major allergy to penicillin.

Precautions:

- History of gastrointestinal disease, particularly colitis
- Impaired renal function
- Currently taking probenecid, metformin, oral anticoagulants may reduce the effect of oral contraceptives
- Avoid prolonged use.

Warning:

- Pseudomembraneous colitis has been reported with use of cefalexin monohydrate and must be considered in any patient who develops diarrhoea
- Stevens-Johnson syndrome, erythema multiform or toxic epidermal necrolysis may occur rarely.

Side Effects:

- The most common side effects are: Gastroinestinal (diarrhoea, nausea, vomiting, dyspepsia, abdominal pain) or Hypersensitivity (rash, urticaria, angioedema)
- Other: itchiness, vaginitis, dizziness, fatigue, headache, agitation, confusion, hallucinations, arthralgia, arthritis, joint disorders
- For a comprehensive list of rare side effects consult the medication data sheet in Appendix F.

Additional Information:

- As a standard practice all persons given cefalexin monohydrate should be told about the medication, its side effects, contraindications, and interactions with other medicines.

Oral Flucloxacillin:

Indications for use:

- Moderate impetigo or mild impetigo lesions that have not responded to conservative treatment
- Uncomplicated celluitis
- Boils with complicating features AND
- Child is able to take capsules.

Charting and administration:

- The medicine should be supplied or administered in accordance with the impetigo management protocol.
- The paediatric pharmacopoeia dose for flucloxacillin is
- Usual 12.5mg/kg/dose 6 hourly
- Severe infection 25mg/kg/dose 6 hourly to a maximum of 500 mg 6 hourly

Children 30kg and over who can swallow capsules:

- One 500mg capsule three times a day for 7days
- Each dose should be taken on an empty stomach if possible, either one hour before or two hours after food.

Contraindications:

- Check allergy status first. Do not give if allergic to penicillins (including flucloxacillin or amoxicillin) or cephalosporin antibiotics such as cephalexin
- Flucloxacillin is contraindicated in patients with a previous history of flucloxacillin-associated jaundice/hepatic dysfunction.

Precautions:

- May reduce the effectiveness of oral contraceptives

- Impaired liver or kidney function
- Currently taking probenecid.

Side Effects:

- If any hypersensitivity reaction occurs, the treatment should be discontinued
- Minor gastrointestinal disturbances may occur during treatment
- Pseudomembranous colitis, hepatitis and cholestatic jaundice have been reported
- Interstitial nephritis, neutropenia (including agranulocytosis) and thrombocytopenia may occur but are reversible when treatment is discontinued.

Additional Information:

- As a standard practice all persons given flucloxacillin should be told about the medication, its side effects, contraindications, and interactions with other medicines.

Oral Erythromycin Ethyl Succinate:

Indications for use:

- Moderate impetigo or mild impetigo lesions that have not responded to conservative treatment
- Uncomplicated celluitis
- Boils with complicating features AND
- Allergy to penicillin or cephalosporin antibiotics present.

Charting and administration:

- The medicine should be supplied or administered in accordance with the impetigo management protocol.
- The paediatric pharmacopoeia dose for erythromycin is 12.5mg/kg/dose 6 hourly to a maximum of 750mg 6 hourly

Children >40kg

- 1.6g per day in 2 to 4 divided doses for 7days
- Use **400mg/5mls** oral suspension or **400mg** tablets (if child is able to take tablets)
- Suspension requires refrigeration following reconstitution. Children 10- 40kg
- 40mg/kg per day in 2 to 4 divided doses (max 1.6g per day) for 7days
- Use 200mg/5mls or 400mg/5mls oral suspension
- Suspension requires refrigeration following reconstitution. Children under 1yr or <10kg
- Needs review by medical or nurse practitioner.

Contraindications:

- Check allergy status first. Do not give if previous hypersensitivity to erythromycin ethyl succinate or other erythromycin salts
- Impaired liver function
- Currently taking terfenadine, astemizole, pimozide and ergotamine or dihydroergotamine.

Precautions:

- May interact with antiepileptics and warfarin.

Side Effects:

- The most common side effects are: nausea, vomiting, diarrhoea, abdominal pain, anorexia
- For a comprehensive list of rare side effects consult the medication data sheet in Appendix E.

Additional Information:

- As a standard practice all persons given erythromycin ethyl succinate should be told about the medication, its side effects, contraindications, and interactions with other medicines.

Appendix A: Healthy Skin tool

NB. This is the latest version with minor changes from the original. Developed by the Keeping Well, Healthy Skin in Greater Wellington Group, Regional Public Health, 2011.

HEALTHY SKIN

Keep skin clean * Clean hands often * Cut fingernails * Cover sores and cuts with plaster

Well child

- Good food and nutrition is important for healthy skin
- Keep skin clean
- Check skin daily
- Wear clean clothes
- Wash hands with soap and water often
- Wash sheets and towels regularly
- Keep house clean inside and outside
- Treat animals for fleas regularly

Child with minor cut, sore or other skin condition

- Wash hands with soap and water often
- Clean and cover cuts and sores with plasters
- Check cuts and sores on a daily basis
- Cut and file fingernails
- Care for other skin conditions e.g. eczema – use your creams and lotions
- Use own sheets and towels
- If you need help, ask the nurse or health worker

Child with minor skin infection

Even if the child appears well, see the doctor or nurse today if the sore or redness has any of the following:

- is near the eye
- is the size of a 10c piece or bigger
- has pus
- warm to touch
- is painful
- is getting bigger
- has red lines coming from it
- is not getting better within 2 days

Child may or may not have a fever

Child with skin infection that is getting worse

- See the doctor or nurse. Medicine (antibiotics) may be required
- Get medicine from the pharmacy and start taking straight away
- Take the full course of medicines (antibiotics) as prescribed
- Don't share medicines with others
- Supervise children taking medicine
- Check skin daily
- Go back to doctor if not getting better

Child with serious skin infection

Skin infections can spread very fast and the child can become unwell very quickly. It is important that you don't wait for the infection to get to this stage.

- Your child may appear very unwell
- Will need to go to hospital
- May need surgery

If the infection is left untreated, it can lead to serious and life threatening illness.

For skin infection information and resources visit www.rph.org.nz

Produced by: Regional Public Health, Private Bag 31 907, Lower Hutt 5040. Ph 04 570 9002

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Regional Public Health

Appendix B: Assessment of a child with a fever

For children with a fever the following assessment procedure should be utilised:

- Identify any immediately life-threatening features including compromise of the airway, breathing or circulation and decreased level of consciousness
- Use the "traffic light system" to predict risk of serious illness.

Clinical Condition	Low risk	Intermediate risk	High risk
Skin appearance	Normal colour of skin, lips and tongue	Pallor reported by parent/carer	Pale, mottled, ashen, blue
Responsiveness	Responds normally to social cues Content/smiles Stays awake or awakens quickly Strong normal cry or not crying Can move as normal	Not responding normally to social cues Wakes only with prolonged stimulation Decreased activity No smile	No response to social cues Appears ill to a healthcare professional Does not wake or if roused does not stay awake Weak, high pitched or continuous cry
Respiratory	Normal	Nasal flaring Tachypnoea: 6–12 months RR > 50 breaths/minute >12 months RR > 40 breaths/minute Oxygen saturation ≤ 95% in air Crackles/chest signs	Grunting Tachypnoea: RR > 60 breaths/minute Moderate or severe chest indrawing
Hydration	Normal skin and eyes Moist mucous membranes	Dry mucous membranes Poor feeding in infants Capillary refill time (CRT) ≥ 3 seconds Reduced urine output	Reduced skin turgor
Other	None of the amber or red symptoms or signs	Fever for ≥ 5 days Swelling of a limb or joint Non-weight bearing, not using an extremity A new lump > 2 cm None of the red symptoms or signs	Age 0 – 3 months, temperature ≥ 38°C Age 3 – 6 months, temperature ≥ 39°C Non-blanching rash Bulging fontanelle Neck stiffness Status epilepticus Focal neurological signs Focal seizures Bile-stained vomiting
ACTION	**Reassure**	**Review by GP**	**Refer - Requires immediate admission to hospital**

Refer - Requires immediate admission to hospital if ANY of the symptoms or signs in the red column present

- Immediately life-threatening illness – call ambulance
- All other situations – to be assessed in secondary care within two hours

Review by GP: ANY of the symptoms or signs in the amber column, but NONE in the red column

- Diagnosis made – treat accordingly
- No diagnosis – provide parent/carer with verbal and written information on warning symptoms and ensure that they know how to access further healthcare after hours
- Arrange an appointment for follow-up.

Reassure: ANY of the symptoms and signs in the green column, but NONE in the amber or red columns. Provide parent/carer with advice on symptomatic management and when to seek further attention from healthcare services.

Useful advice for parents when caring for children with high fever at home. Also refer to 'Key messages for parents and caregivers' on page 6.

Managing child's temperature	Care at home	When to seek further help
DO □ Use paracetamol if the child appears distressed or unwell □ Use ibuprofen if there is no response to paracetamol **DO NOT** □ Routinely use paracetamol and ibuprofen together □ Use paracetamol for the specific purpose of preventing febrile convulsion □ Under-dress or over-wrap the child □ Sponge the child (i.e. "tepid sponging")	□ Keep up regular fluids (breast milk if breast feeding) □ Look for signs of dehydration: sunken fontanelle, dry mouth, sunken eyes, absence of tears, decreased urine output, overall unwell appearance □ Look for signs of a non-blanching rash □ Check the child regularly overnight □ Keep child away from day-care or school while the fever persists (notify them of illness)	□ The child has a fit □ The child develops a non-blanching rash □ The fever is persistent □ The parent/carer feels that the child's condition is worsening rather than improving □ The parent/carer is more worried than when they previously sought advice □ The parent/carer is distressed or concerned that they are unable to look after the child

Source: http://www.bpac.org.nz/magazine/2010/july/fever.asp, Accessed December, 2011

Appendix C: Recurrent Skin Infections Guidelines[2]

Preventive educational messages on personal hygiene and appropriate wound care are recommended for all patients with skin and soft tissue infection (SSTI). Instructions should include:

- Keep discharging wounds covered with clean, dry bandages
- Maintain good personal hygiene with regular bathing/ showering and cleaning of hands with soap and water or alcohol-based hand gel; particularly after touching infected skin
- Avoid reusing or sharing personal items (e.g., disposable razors, linens, and towels)
- Avoid sharing bath, swimming, and cleaning water with an infected wound.

Environmental hygiene measures to be considered in the household or community setting:

- Focus cleaning on high-touch surfaces such as counters, door knobs, bath tubs, and toilet seats that may contact bare skin or uncovered infections
- Hot washing of towels, bedding and clothing of patient with skin infection
- Ensure creams used are not contaminated by using spoons, spatulas to remove and decant into smaller containers. Dispose of if contamination suspected.

Decolonisation to be considered where:

- A patient develops a recurrent SSTI despite optimising wound care and hygiene measures
- Ongoing transmission is occurring among household members or other close contacts despite optimising wound care and hygiene measures
- Underlying conditions such as eczema, diabetes etc is well controlled.

Decolonisation strategies should be offered in conjunction with ongoing reinforcement of hygiene measures and may include the following:

- Nasal decolonisation with mupirocin twice daily for 5 days
- Nasal decolonisation with mupirocin twice daily for 5 days and topical body decolonisation with a skin antiseptic solution (chlorhexidine) for 5–14 days or dilute bleach (janola) baths. (1/3 cup in bath or 5ml per 5 litres) given for 15 min twice weekly. Note: chlorhexidine is not subsidised
- Oral antibiotic therapy is recommended for the treatment of active infection only
- Decolonisation measures must be undertaken at the same time as oral antibiotic treatment.

Where household or interpersonal transmission is suspected:

- Personal and environmental hygiene measures in the patient and contacts recommended.
- Contacts should be evaluated for evidence of S. aureus infection:
- Evaluate and treat symptomatic contacts; consider nasal and topical body decolonisation in conjunction with treatment of active infection
- Consider nasal and topical body decolonisation of asymptomatic household contacts.

[2] Adapted from: Preventing Recurrent Skin Infections Pamphlet. Child Health, C&CDHB

The role of cultures in the management of patients with recurrent SSTI is limited:

- If no screening has been undertaken it is recommended for recurrent cellulitis or cellulitis not improving on standard treatment where there is no exudate, to nasal swab for MRSA
- Surveillance cultures following a decolonisation regimen are not routinely recommended in the absence of an active infection.

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