



ECTOPARASITES

KEY POINTS

Ectoparasites live on the skin or in the hair or in the environment and bite transiently

Because they are visible (or their effects are visible [as in scabies]), they cause disproportionate anxiety

Apart from scabies which proliferates in AIDS and then may be more infectious to carers, these organisms are rarely a problem of cross infection

Simple hygienic precautions will protect health care workers

INTRODUCTION

Scabies and lice live near the skin so personal disinfection is needed. Fleas and bedbugs reside in the environment and are carried only transiently while they are feeding. For these, treatment of the furniture and room is needed. These diseases are not notifiable. Removal of cockroaches, silver fish, Pharaoh's ants which are not parasitic to man but live within the hospital, is the responsibility of the Housekeeping/Patient Support/Domestic Manager.

AIM

The aim of this policy is to give guidance for eliminating parasites in the patient or environment and prevent transmission. When a patient is admitted with an infestation, please let the Infection Control Team know. If not readily identified, send a parasite to microbiology in a specimen pot.

COMMON ECTOPARASITES OF HUMANS

Scabies

Lice (head, body and pubic)

Fleas (cat, dog, human)

Bedbugs

SCABIES (*Sarcoptes scabiei*)

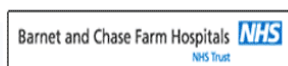
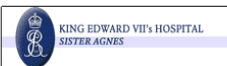
The itch mite burrows and lays eggs in the skin, often causing a rash on wrists, elbows, axillae and sometimes waist and thighs. This rash represents an allergic reaction and may not correspond to the sites of burrowing. Burrows are characteristically seen around the wrists but adults are not visible to the naked eye. Each burrow contains a fecund female which lays eggs which eventually emerge on the skin. A simple scrape and examination under low power microscopy will reveal the adult and eggs. The illness reflects allergy to the mite faeces.

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TRANSMISSION

By prolonged personal contact or sharing clothes or bedding. Extensive scabies (the "Norwegian" or crusted variety) is common in AIDS, though by no means unique to immunocompromised patients and may infect health workers who do not observe simple hand hygiene. Transmission is most likely to occur before the diagnosis is made.

TREATING THE PATIENT

If sores are seen, inform the doctor before treatment. Read "Cautions and Instructions" on the prescribed lotion container. Use gloves and apron for all direct contact with patient until cured.

EQUIPMENT

- Disposable plastic gloves and apron
- Clean towel and disposable washing cloth
- Receiver and gauze swabs
- Prescribed lotion with instructions
- Yellow disposable bag and a clear plastic bag for clothing to be laundered

PROCEDURE

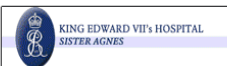
- Explain procedure to patient
- Don plastic apron and gloves
- Take patient to bathroom, remove clothing into plastic bag, put patient into a warm bath and wash with soapy cloth. NB A bath is not essential for effective treatment
- Pour lotion into a receiver and with gauze swabs paint over the entire body surface except the face and scalp. Include palms, soles and external genitalia. Include the face and scalp for Norwegian scabies
- Allow to dry in air
- Apply fresh lotion sparingly to hands and wrists after each hand wash
- Leave lotion on skin for 12 hours then bathe thoroughly
- Dress patient in clean nightwear
- Clean bath or washbowl with cream cleanser
- Dispose of washing cloth, plastic apron and gloves, in a yellow bag, and send towel in laundry bag. List clothing items, and close clothing bag with rubber band or tape ready for storage, laundering or other disinfections

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- Clothing and bedding should be laundered
- The itch may persist for two weeks after treatment and can be relieved by antipruritics. Do not retreat simply because of itching.

SCABIES IN HIV INFECTED PATIENTS

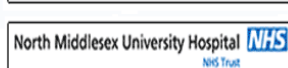
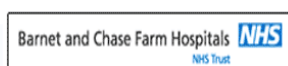
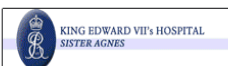
Sarcoptes scabiei proliferates to an alarming degree in HIV infected patients and close bonding between patients, their partners and carers ensures effective transmission. Because of the immunosuppression, the HIV-infected individual may not mount the usual sort of allergic reaction, but may have extensive psoriasis-like hyperkeratosis and descaling of affected skin, or may shed large numbers of parasites and eggs without being aware of the infestation. Outbreaks of scabies have occurred in groups of HIV-infected patients and are common in the ward situation, and may be transmitted to staff especially during lifting patients using bare arms.

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MANAGEMENT OF SCABIES IN THE HIV INPATIENT UNIT

1. Patients should be examined for scabetic burrows when admitted.
2. Identify suspicious cases. Source isolate patients with a suspicious rash on admission. Patients with any rash should be referred to the Dermatology SpR who will give a clinical opinion and can do direct microscopy of scrapings from suspect skin lesions.
3. Patients exfoliating with Norwegian scabies must be nursed in Source Isolation until the parasite is effectively cleared.
4. Treat infected individuals: Use the solution in current use. Lotions should be applied to the whole body but avoiding the eyes, whether or not the Norwegian variety is present.
5. More than one cases in the ward suggests a possible outbreak. An outbreak group will be convened. This group should include representatives from the ward(s) involved, infection control, dermatology and pharmacy. All the patients should be carefully examined again and those with suspected and definite scabies treated. It may be prudent to treat all new patients to the ward during a period of scabies activity.
6. The risk to health care workers is small. They will not catch scabies if they observe simple hand hygiene standards. If staff do acquire scabies they will have to be treated (by Occupational Health under guidance from the Dermatologists and Infection Control Team). Self-diagnosis and self-treatment are not recommended.

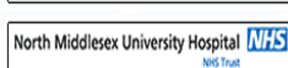
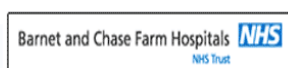
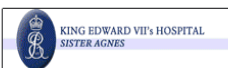
NOTE: SOME PATIENTS APPEAR TO BECOME CHRONICALLY COLONISED AND APPEAR TO BE RESISTANT TO TREATMENT. THIS IS EXTREMELY RARE AND WITH PROPER APPLICATIONS OF THE RECOMMENDED LOTIONS, CLEARANCE CAN BE ACHIEVED IN THE MAJORITY. ITCHING MAY PARADOXICALLY INCREASE DURING THE EARLY PHASE OF TREATMENT. AN ALTERNATIVE EXPERIMENTAL THERAPY (IVERMECTIN AS A SINGLE ORAL DOSE), HAS BEEN USED WITH SUCCESS IN TRUE REFRACTORY CASES.

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LICE

These wingless insects live near the skin in hairy areas. Eggs are fixed to hairs (and to clothing fibres by the body louse). Lice bite and suck blood and this causes irritation. Body lice usually are found in those who are unable to change their clothes or bath regularly. Head and pubic lice may infect anyone.

TRANSMISSION

Is by close contact.

HEAD LICE (*Pediculus capitis*)

Egg cases (nits) are seen fixed to hairs near scalp or eyebrows. (Crab lice nits may be seen on lashes in children and adults as well as on pubic hairs). Visible nits are old empty egg cases and the distance of the nit from the skin reflects the length of infestation. School nursing and medical officers deal with cross infection in the class room.

TREATING THE PATIENT

If sores are seen, inform the doctor before treatment. Read Caution and Instructions on the prescribed lotion container. Current insecticides are very effective against lice and eggs but itching may persist for several weeks after treatment. Do not repeat treatment unnecessarily.

EQUIPMENT

- Disposable plastic apron and gloves
- Clean towel
- Shampoo spray or jug
- Prescribed lotion and instructions
- Fine tooth comb and eyebrow tweezers

PROCEDURE

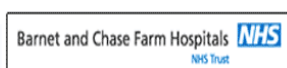
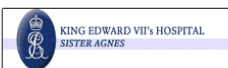
- Explain procedure to patient
- Don apron
- Take patient to bathroom (if confined to bed, use plastic wash bowl), arrange shoulder cape
- Treat hair with prescribed lotion following the directions on the container
- Allow hair to dry slowly without towel or drier

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- Dispose of apron (gloves) in yellow bag
- Send towel to laundry
- Wash hair 12 hours after treatment using ordinary shampoo

NOTE: A fine metal tooth comb (e.g. Saker) can be used to remove killed lice and unsightly nits from wetted hair if these are profuse. Remove any nits from lashes or brows with forceps. Clothes and bedding need not be treated. The comb can be used to check the efficacy of treatment.

PUBIC LICE (*Phthirus pubis*)

Eggs are fixed to hairs near pubic skin, or on eye lashes or eyebrows.

TRANSMISSION

This is a sexually transmitted disease and is most often seen in the Genito-Urinary medicine outpatient clinics. The guidance below is for inpatients coincidentally found to have this infestation.

TREATING THE PATIENT

If sores are seen inform the doctor before treatment. Read Caution and Instructions on the prescribed lotion container.

EQUIPMENT

- Plastic apron and gloves
- Clean towel
- Prescribed aqueous lotion. Alcoholic lotion is not recommended in the groin
- Yellow disposal bag
- Fine tooth comb and eyebrow tweezers if needed

PROCEDURE

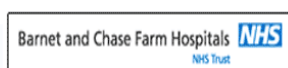
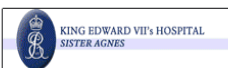
- Explain procedure to patient
- Don apron
- Do not shave. Apply the prescribed lotion to dry hair according to the directions on the container. Make sure that axillary chest and abdominal hair and eyebrows are treated as well as the groin
- Dispose of apron and gloves in yellow bag
- Remove any nits from lashes or brows with tweezers
- Clothes and bedding need not be treated

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BODY LICE (*Pediculus corporis*)

TRANSMISSION

Found on body area and seams of inner clothing. Eggs fixed to cloth fibres, in seams and sometimes to body hairs. Usually occur in patients with poor attention to personal hygiene who do not change their clothes.

TREATING THE PATIENT

If sores are seen inform the doctor before treatment.

EQUIPMENT

- Plastic apron and gloves
- Clean towel and disposable washing cloth
- Scissors
- Yellow disposal bag, clear plastic bag for clothing, etc

PROCEDURE

- Don apron and gloves
- Take patient to bathroom (if confined to bed, use bedbath procedure) and remove clothing into plastic bag
- It is not necessary to shave body hair but it may be reasonable to cut hair short
- Put patient into warm bath and wash with soapy cloth. The lice will float off
- Dress patient in clean clothes
- Clean bath or washbowl with cream cleanser
- Dispose of washing cloths, plastic apron and gloves in yellow bag
- Clothes, etc: hot tumble drying of clothes for a few minutes is very effective for killing lice on body clothes, and should preferably be done before sending to the laundry. Dry-cleaning is also effective

PROVISION OF FRESH CLOTHES

Only available through voluntary agencies.

Diseases carried by lice

Check the patient does not have bartonellosis (consult microbiologist).

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FLEAS

There are many species of these wingless insects. Eggs are laid in floors, carpets or pets' bedding. In Britain now, most bites are by the cat flea or the dog flea (*Ctenocephalides felis* and *C. canis*). The eggs and larvae can survive for months in an empty house and then reactivate in response to pet or human activity.

TRANSMISSION

The flea jumps from infected resting area of cat or dog onto a human, bites, feeds and jumps off again.

TREATMENT

- Recommended bathing and antipruritics
- At home, vacuum suction cleaning and use of proprietary insecticides are the quickest way to eliminate fleas
- Treat animals and their bedding with proprietary insecticide

BEDBUGS (*Cimex lectularius*)

These wingless insects live and lay eggs in walls, furniture and bedding. Faecal tracks may be seen on the walls, the room has a unique odour. Eggs are often laid on the floor by the wainscot. The bedbugs are active at night, causing a biting nuisance and disturbed sleep.

TRANSMISSION

Directly from infested premises on portable bedding or baggage. Bedbugs are rarely found on the person, but may be brought in on patient's clothes or effects.

TREATMENT

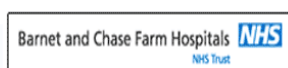
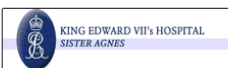
- No treatment for the patient is necessary
- In hospital, Domestic Manager will arrange decontamination of an infested room

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TICKS

Adult and larval ticks live on low shrublands and climb onto animals (eg deer) for a blood meal. Man may pick them up onto clothing, and domestic animals onto their coat, and they will then feed. A heavy infestation picked up, for example, by dragging a coat through the undergrowth, will be an unpleasant biting nuisance and the ticks will later decamp to the sitting room sofa! Adult ticks stay resident for days and grow very large. They are very difficult to remove. Most recent interest has been in the observation that common species of hard tick (eg *Ixodes ricinus*) cosmopolitan in temperate climes, are vectors of Lyme disease (*Borrelia burgdorferi*) and erlichiosis (North America and central Europe. Different ticks transmit Congo-Crimean haemorrhagic fever in Africa and the Middle-East. These are zoonoses carried by deer and other mammals. If a patient presents with a tick bite, send serum to be saved in microbiology.

RECOMMENDED TREATMENT OF BODY PARASITES

These are subject to change according to National recommendations. If in doubt, check with Pharmacy Doctor.

Scabies

First choice

LINDANE 1% LOTION (QUELLADA)

Apply over the whole body except the head and neck (except HIV and Norwegian scabies). Wash off after 12-24 hours. Repeat in 3 days.

Alternatives

MALATHION 0.5% AQUEOUS SOLUTION (DERBAC-M LOTION): may be more suitable for children or lactating women.

BENZYL BENZOATE, etc.

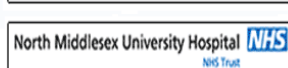
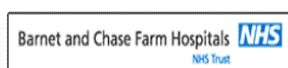
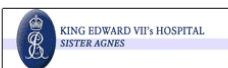
IVERMECTIN 200mcg/Kg body weight to the nearest 3mg as a single oral dose (unlicensed indication in human medicine in UK)

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Pediculosis (lice)

Caution with any lotion in babies under 6 months of age. Take advice.

Trace all contacts and make sure they are treated at the same time.

First choice

PERMETHRIN 1% (LYCLEAR CREME RINSE): Apply to freshly shampooed hair and leave for 10 minutes before rinsing off.

Alternatives

MALATHION 0.5% SHAMPOO (PRIODERM SHAMPOO) or

MALATHION 0.5% AQUEOUS LOTION (DERBAC M):

Although these may be more acceptable and easier to use than carbaryl, they are less reliable in killing parasites and 3 applications with an interval of 3 clear days are essential. Tepid (not hot) water must be used.

PERMETHRIN 0.2% LOTION (FULL MARKS LOTION): This is an alcoholic preparation similar to Lyclear. It may be more effective but will cause more skin irritation and be poorly tolerated by asthmatics and people with sensitive or broken skin.

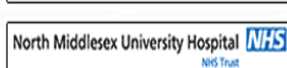
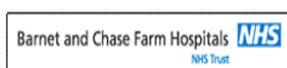
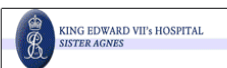
CARBARYL 1% AQUEOUS LOTION (DERBAC C LIQUID). This is now not recommended by the DoH and is not available off prescription. However, it is very effective and may be used in refractory cases. The lotion is sprinkled into dry hair rubbed well into the scalp and especially around the ears, then washed off with ordinary shampoo. There is no residual activity. Repeat treatment (not more often than weekly or more than 3 times) if the first application fails to kill all insects (eg from those hatched from egg cases after treatment).

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