

## SCABIES

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Scabies is an infectious disease of the skin caused by a mite, *Sarcoptes scabiei* whose penetration is visible as papules or vesicles, or as tiny burrows containing the mites and their eggs.

### Epidemiology

The female mite can burrow beneath the skin surface in 2½ minutes. She burrows into the epidermis to lay eggs. The eggs hatch into larvae in three to four days and larvae mature into adults in 14 to 17 days. Male adult mites are smaller than females, remain on the skin surface and die shortly after mating. The life expectancy of a female mite is about 30 days.

Transmission is by direct skin-to-skin contact. There is evidence that mites can live for up to three days without a human host. A reported outbreak of scabies among laundry workers provides evidence that fomites may spread disease.

While animal strains of scabies exist and can infect humans, the mites cannot complete their life cycle or be passed to other hosts.

Incubation period: is usually from two to six weeks. Lesions may not appear for as long as six weeks after exposure during which time infested contacts are capable of transmitting mites to previously treated or untreated persons.

### Clinical Description

Infestation is characterized by rash and an intense itching, especially at night.

The skin lesions predominantly occur around

- the finger webs
- anterior surfaces of the wrists
- anterior surface of the elbows
- under the arm
- belt line, thighs
- nipples
- abdomen
- buttocks
- male genitalia.

The lesions begin as tiny erythematous papules and can progress to vesicles or pustules. Linear burrows are a classic feature but are not seen commonly. Excoriation and ulceration also may be present

and a more generalized hypersensitivity reaction, including urticaria, may occur. In severe cases and in immunocompromised hosts, large areas of crusting may be seen.



The mite that causes scabies has not been shown to transmit an infectious agent; however, a secondary infection of the skin with staphylococci or streptococci may occur, with resulting complications.

### **Laboratory Tests**

Identification of mites/eggs in skin scrapings is not available at the State Laboratory.

### **Treatment**

Treatment consists of application to the whole body except the head and neck. (Follow directions on the medication bottle) with either of these products:

- One percent (1%) gamma benzene hexachloride (lindane, Kwell®)
- Crotamiton (Eurax®)

Emulsion of benzyl benzoate: On the next day, a cleansing bath is taken and a change made to fresh clothing and bedclothes. (Itching may persist for one to two weeks and during this period, should not be regarded as a sign of drug failure or reinfestation). Over-treatment is common and should be avoided because of toxicity of some of these agents, especially gamma benzene hexachloride (Kwell®).

Ivermectin (Stromectol®) is related to macrolide antibiotics; it was developed in the 1970s as a veterinary treatment for animal parasites. Ivermectin also has been used to treat animal scabies, which causes mange. Ivermectin has been used in humans to treat millions of cases of onchocerciasis, other filariases and intestinal nematodal infections such as strongyloidiasis. In 1993, a study comparing oral ivermectin with topical 10% benzyl benzoate found that absolute results favored the use of ivermectin, but the difference was not statistically significant. Studies in Africa and India have suggested that an effective dosage of ivermectin is 200 µg per kg. Ivermectin seems to be concentrated in the liver and fat tissue, with very low levels reaching the central nervous system. No significant drug interactions have been reported. Ivermectin is not approved for treatment of scabies by the U.S. Food and Drug Administration. There are concerns regarding its use in young children and pregnant women, because there may be more drug penetration of the immature blood-brain barrier.

Although standard topical treatment of scabies is effective in many patients, there may be a particular role for oral ivermectin in refractory infestations or when compliance with head-to-toe application of topical agents is logistically difficult (e.g., large institutional outbreaks or mentally impaired patients). Immunocompromised patients with crusted scabies have very high parasite loads and also may benefit from oral treatment. Some authors recommend concomitant oral and topical treatment because systemic medication may not effectively penetrate thick, crusted areas. Topical formulations of ivermectin also exist but have been less widely studied.

### **Surveillance**

Scabies is a not reportable condition. However the health department is often called to provide information on how to control the infestation.

### **Case Definition**

A case of scabies is defined as any individual from whom skin scrapings have been examined (by microscopic examination), and mites identified.

## **Intervention**

No case investigation is required the Department of Health. However, since close contacts (household, school, etc.) of infested individuals should be examined for signs of infestation, the health department may be asked for assistance. Assistance is limited to provide advice.

The handling of the case(s) must be done at the school /hospital /facility level by having ONE PERSON at the facility responsible for the preventive measures. That person should:

1-Identify suspect cases: burrows, itchy lesions on the wrist flexures, borders of the hands and fingerwebs, more rarely elbows and axillary pits are the most common sites and the easiest ones to inspect. The incubation period (from infection to first lesions) is long (up to six weeks) so that surveillance for new cases cannot be a three day exercise then stopped. Search for unreported or unrecognized cases among companions or household members.

2-Instruct close contacts, family, etc. to search for unreported or unrecognized cases among companions or household members; single infestation in a family is uncommon. The school should try to identify the case's best friends and recommend treatment at once for them and exposed family members. (Measures should be taken to preserve the dignity and right to privacy of students.)

3-Refer suspect cases need to be examined by a nurse practitioner or physician to confirm the diagnosis and eventually be treated.

4-Ensure that cases should be excluded until effective treatment has been administered. Contact isolation until 24 hours after the start of effective therapy for the hospitalized patient.

5-Ensure that treated cases are examined to make sure the lesions have disappeared before returning to the facility.

- Note: The surveillance described above has to be maintained for about four weeks after the last case was treated

6-Prophylaxis: All persons who have had skin-to-skin contact with infested persons (including all family members, sexual contacts, etc.) should be treated prophylactically. Most individuals don't develop the rash or itching for two to six weeks - but during that period, they can actively transmit the parasite to other people. If you treat them only after symptoms develop, they have undoubtedly already exposed several other individuals. Treatment is effective even though a patient has not yet developed symptoms. Staff members and patients in hospital and institutional outbreaks who have had prolonged skin-to-skin contact with infested patients require prophylactic treatment.

7- Environmental disinfection: The primary source is NOT in the environment. Therefore closing the school for extensive cleaning and disinfection the school WILL NOT DO ANYTHING to stop the spread. The main reason is that humans are the main source of infection. As soon as the school re-opens, an untreated case will start spreading mites again. These mites do not survive very long in the environment (maximum 1 to 3 days). Routine cleaning and surface disinfection done regularly is the only environmental measure to be taken.

Bedding and clothing worn next to the skin should be laundered. Clothing that cannot be laundered should be stored for a week to avoid reinfestation.

**Hospital Precaution and Isolation:** Contact precautions.