

# SCABIES: EPIDEMIOLOGY, DIAGNOSIS AND TREATMENT

Israa N Abed Al-Saadi  
Ministry of Education in Iraq  
Asraa7319@gmail.com

## Abstract

Scabies is a contagious skin condition caused by a parasitic mite. The outcome is a significant global burden of disease, with around three million cases documented annually. Although those residing in impoverished or overcrowded conditions are considerably more vulnerable to the condition. Young children, the elderly, and anyone with weakened immune systems are at a higher risk of developing scabies. Scabies outbreaks in institutional settings have also been recorded. Scabies not only causes a very itchy rash, but it can also lead to secondary bacterial infections and related complications, as well as social stigma, sadness, sleeplessness, and significant financial difficulties. The main treatment for scabies is topical creams specifically designed to cure the condition. However, in certain cases, oral ivermectin has been shown to be effective. It is recommended that all individuals living in the same household, regardless of whether they exhibit symptoms or not, should have therapy at the same time. Globally, the presence of scabies commonly signifies inadequate living conditions and underscores the necessity for improvements in basic necessities. Healthcare professionals that engage in collaboration with Indigenous people can expand their expertise in detecting and treating scabies and should actively promote the enhancement of living conditions in regions where scabies is prevalent.

**Keywords:** Prevention, Detection, Scabies.

## Introduction

Worldwide, some 300 million people are afflicted by scabies each year, a skin condition that is very contagious. Although people of all income levels can get scabies, the risk of scabies and its sequelae is much higher among the young, the old, those with impaired immune systems, and those with developmental delays (1). The entire community and institutions have been impacted by outbreaks that have occurred in jails, long-term care facilities, and childcare settings (2). Because scabies is so closely associated with poverty, overcrowding, hunger, and limited access to treatment, it disproportionately affects some Indigenous and resource-poor groups. Healthcare providers who deal with Indigenous communities have noted, however, that scabies causes substantial morbidity, which is often underreported. Certain Indigenous communities are more likely to have scabies transmission due to circumstances such as poverty, overcrowding, co-sleeping, and high birth rates (3). Failure to recognize scabies, delays in diagnosing the condition, and inefficient treatment for both the affected individuals and others they have come into touch with might result from a lack of competence and familiarity with the local community. Skin infections and other problems may develop in the future if there isn't access to clean flowing water.



Scabies will have less of an impact on Indigenous communities if their living conditions are improved and local health competence is increased (4).

The *Sarcoptes scabiei* mite invades hosts and spreads the skin disease scabies through intimate skin-to-skin contact. The mite can only survive for around 24 to 36 hours outside of human skin, which limits its transmission potential. Consequently, there is less potential for transmission through inanimate items like as clothes and bedding. Over the course of five days, the mature female mite burrows into the skin's outermost layer, creating tunnels in which she lays her eggs. After laying eggs, the larvae need from two to four days to hatch and another ten to fourteen days to mature into adults. Approximately three weeks after the first contact, the infected person usually experiences an enhanced immune response to the mite, its eggs, or its feces. Following reinfestations, the immune response can begin to develop quickly, sometimes even the day following (6).

Scabies is characterized by a tunneling sensation under the skin, red raised bumps, and severe itching, which is exacerbated at night. In addition to the vaginal or mammary regions, burrows can be observed in the spaces between the fingers, on the undersides of the wrists, elbows, or armpits. But it's not always easy to spot them (7). You can find burrows, which look like vesicles, pustules, or nodules, on the heads and necks of babies and the elderly. A number of itchy skin disorders, such as psoriasis, tinea corporis (ringworm), eczema, and impetigo, are sometimes mistaken for scabies. As an example, based on Brazilian study (8). A large percentage of youngsters diagnosed with eczema actually had scabies, according to the research (18% to 43%). Secondary bacterial infections, such as *Staphylococcus aureus* and group A streptococcus infections (pyoderma and impetigo), are common outcomes of scratching. Bacterial infections can lead to a variety of complications, including post-streptococcal glomerulonephritis and cardiovascular disease (11). Scabies can cause a lot of problems, including social isolation, emotional distress, sleeplessness, and financial difficulties. Rarely seen in humans, crusted scabies (also known as Norwegian scabies) is an immune system response to a mite infestation. The outcome is an infestation of mites, which causes skin inflammation and thickening (12). Crusty scabies does not itch about half of the people who get it. Although crusted scabies can affect healthy people, it is more common in those who have impaired immune systems due to conditions like HIV, leukemia, T-cell lymphoma, autoimmune illnesses, developmental delay, or malnutrition (13). It is possible to misdiagnose crusted scabies as psoriasis or eczema, particularly in cases when a topical corticosteroid has been applied in the past. More so than with typical scabies instances, it poses a higher degree of management difficulty. The vast numbers of mites that cause crusted scabies make it more contagious than classic scabies and can cause outbreaks on a grand scale (14).

### Diagnosis and treatment

To prevent reinfestation and transmission, it is necessary to treat all household contacts at the same time, even if they do not exhibit symptoms. Scabies symptoms, particularly in new instances, might take several weeks to show, which is why it is important to treat household contacts. Mass treatment should be given serious consideration in cases of outbreaks that affect an entire community or even an entire institution. Table 1 depicts the usual course of treatment for scabies. Although oral ivermectin has only been used in rare cases as of late, topical creams are still the gold standard for treating scabies (15). It is also recommended to apply lotion to the face of infants. Because they don't kill the mite eggs, several products require reapplication after a week or two



(16). A retreatment within seven days usually increases effectiveness. Although the mites have been killed, itching may continue or even worsen for a few weeks due to hypersensitivity; however, this is not always indicative of a continuing infection. It is important to note that the development of new lesions should be taken seriously as an indication of ongoing infection and a call to retreat. It is important to inform patients and their families of the potential for prolonged itching. It may be suggested to use an antihistamine or steroid as an additional measure to alleviate pruritus (17). Permethrin topical creams or lotions, as compared to other therapies, are very expensive, but they have low toxicity and outstanding results. It is common practice to provide a second treatment seven days after the first to kill any newly born eggs. Benzyl benzoate is quite effective and inexpensive; it is utilized extensively outside of North America; nonetheless, it can occasionally cause instant skin irritation; the recommended dosage for adults is 28% and for children it is 10% to 12.5%. After alternative treatments have failed, the poisonous organochloride lindane (gamma benzene hexacholoride) is tried (18). This drug has been removed from the market in several regions of the globe. Precipitated sulphur in petroleum jelly has been used safely on pregnant women and small children, however treatment adherence may be compromised due to its unpleasant smell and untidy application (19) see table 1 which show the medicine which use to treat the scabies.

Table 1: - shows the different type of medicine which use to treat the scabies.

Treatment	Application period	Repeat	Age restrictions	caution	Other comments
5% permethrin cream (Nix Dermal Cream, Kwellada-P Lotion)	Leave on for 12–14 h, followed by bathing	7 days	>3 months of age		Consider as first-line treatment
Benzyl benzoate 28% in adults, 10%–12.5% in children	24 h	May be repeated 1 day apart	Caution in pregnancy		
1% Lindane cream	Apply 8–12 h for adults, 6–8 h for children, followed by bathing	Only if new mites or papules after 7 days of treatment	Use with caution in small children	Associated with neurotoxicity, ataxia, tremors and bone marrow suppression	Consider as second-line treatment only
Ivermectin (oral) for outbreak (Stromectol, Mectizan)	Single dose oral 200 mcg/kg	May need to be repeated in 2 weeks	Safety not established in infants		
Ivermectin (oral) for crusted scabies (Stromectol, Mectizan‡)	Single dose oral 200 mcg/kg	Multiple repeat doses with keratolytics and consider combination with 5% permethrin	Safety not established in infants		

Ivermectin is a synthetic medication that was unintentionally found to affect scabies when administering large-scale treatments for filariasis and strongyloides. Oral administration of



ivermectin as a single dose provides a benefit in some contexts, even if studies continue to show that 5% permethrin has superior efficacy (20). Oral ivermectin quickly reduces scabies symptoms and has been successful in treating epidemics in institutions or communities (21). When applied topically with 5% permethrin or in conjunction with keratolytics (which dissolve the keratin in the scales), it has proven to be a helpful tool in the management of crusted scabies, particularly in cases of recurring disease (22).

### Prevention of scabies

Apply one of the treatments to all members of the family, including those who are asymptomatic and those who are in close contact with them. By treating the known case and all close contacts at the same time, you can prevent reinfection. Launder any delicate items (such as sheets, pillowcases, and blankets) and items that come into direct contact with skin (such as underwear, T-shirts, socks, and pants) on the hot cycle (22). If there is no hot water available, lock all garments and linens in plastic bags and keep them away from people in the house and those who are close to them for five to seven days. If the mite is not touched by a human for at least four days, it will die. After the first set of treatments is complete, children can go back to school or daycare the following day. Indigenous communities can better their living conditions and increase their local skills to decrease the danger of scabies and individual morbidity (23).

### Recommendation.

Globally, scabies is a significant health burden, and the World Health Organization (WHO) recognizes it as a neglected tropical illness. With this certification, perhaps additional studies looking into the incidence and prevention of scabies will be conducted. In Iraq efforts to alleviate this disease's impact on Indigenous communities should focus on enhancing health care access and tackling fundamental risk factors like poverty, overcrowding, and water contamination. Because of fundamental living conditions, scabies disproportionately affects Indigenous populations in Iraq. Medical personnel interacting with Indigenous communities are encouraged by the Iraqi peoples Paediatric Society to:

- Become well-versed in the symptoms, diagnosis, and treatment options for scabies.
- Take part in advocacy initiatives to bring attention to the correlation between scabies and poor living conditions, and to push for better basic living standards.

### References

1. Sunderkötter C, Aebischer A, Neufeld M, et al.: Increase of scabies in Germany and development of resistant mites? Evidence and consequences. *J Dtsch Dermatol Ges* 2019; 17: 15–23.
2. Nenoff P, Suss A, Schulze I, et al.: Skabies-Renaissance einer Ektoparasitose: Diagnostik und Therapie – Vorgehen in der Praxis. *Hautarzt* 2021; 72: 125–36.
3. Boralevi F, Diallo A, Miquel J, et al.: Clinical phenotype of scabies by age. *Pediatrics* 2014; 133: e910–6.
4. Elsner E, Uhlmann T, Krause S, Hartmann R: Anstieg von Skabies und Therapierefraktärität bei Bundeswehrangehörigen: Acht-Jahre-Follow-up-Studie aus der Hautklinik des Bundeswehrkrankenhauses Berlin (2012–2019). *Hautarzt* 2020; 71: 447–54.



5. Kortas AZ, Polenz J, von Hayek J, et al.: Screening for infectious diseases among asylum seekers newly arrived in Germany in 2015: a systematic single-centre analysis. *Public Health* 2017; 153: 1–8.
6. Karimkhani C, Colombara DV, Drucker AM, et al.: The global burden of scabies: a cross-sectional analysis from the Global Burden of Disease Study 2015. *Lancet Infect Dis* 2017; 17: 1247–54.
7. Arora P, Rudnicka L, Sar-Pomian M, et al.: Scabies: a comprehensive review and current perspectives. *Dermatol Ther* 2020; 33: e13746.
8. Leung AKC, Lam JM, Leong KF: Scabies: a neglected global disease. *Curr Pediatr Rev* 2020; 16: 33–42.
9. Mellanby K: The development of symptoms, parasitic infection and immunity in human scabies. *Parasitology* 1944; 35: 197–206.
10. Arlian LG, Vyszynski-Moher DL: Life cycle of *sarcoptes scabiei* var. *canis*. *J Parasitol* 1988; 74: 427–30.
11. Hamm H: Skabies. In: Von Stebut E (ed.): *Reisedermatosen*: Berlin, Heidelberg, New York: Springer 2015; 151–7.
12. Mellanby K: Transmission of scabies. *Br Med J* 1941; 2: 405–6.
13. Arlian LG, Runyan RA, Achar S, Estes SA: Survival and infectivity of *sarcoptes scabiei* var. *canis* and var. *hominis*. *J Am Acad Dermatol* 1984; 11 (2 Pt 1): 210–5.
14. Arlian LG, Runyan RA, Sorlie LB, Estes SA: Host-seeking behavior of *sarcoptes scabiei*. *J Am Acad Dermatol* 1984; 11 (4 Pt 1): 594–8.
15. Sunderkötter C, Feldmeier H, Fölster-Holst R, et al.: S1 guidelines on the diagnosis and treatment of scabies—short version. *J Dtsch Dermatol Ges* 2016; 14: 1155–67.
16. Thomas C, Coates SJ, Engelman D, et al.: Ectoparasites: scabies. *J Am Acad Dermatol* 2020; 82: 533–48.
17. Hamm H, Stoevesandt J, Sunderkötter C: Skabies im Alter. *Z Gerontol Geriatr* 2019; 52: 795–807.
18. Cassell JA, Middleton J, Nalabanda A, et al.: Scabies outbreaks in ten care homes for elderly people: a prospective study of clinical features, epidemiology, and treatment outcomes. *Lancet Infect Dis* 2018; 18: 894–902.
19. Li FZ, Chen S: Diagnostic accuracy of dermoscopy for scabies. *Korean J Parasitol* 2020; 58: 669–74.
20. Mang R, Kremer A, Lehmann P, Assmann T: Videodermoscopic clues for scabies diagnosis and assessment of therapeutic efficacy. *J Dtsch Dermatol Ges* 2020; 18: 1022–4.
21. Engelman D, Yoshizumi J, Hay RJ, et al.: The 2020 International Alliance for the Control of Scabies consensus criteria for the diagnosis of Scabies. *Br J Dermatol* 2020; 183: 808–20.
22. Hamm H, Beiteke U, Höger PH, Seitz CS, Thaci D, Sunderkötter C: Treatment of scabies with 5% permethrin cream: results of a German multicenter study. *J Dtsch Dermatol Ges* 2006; 4: 407–13.
23. Hu S, Bigby M: Treating scabies: results from an updated Cochrane review. *Arch Dermatol* 2008; 144: 1638–40.

