

Why Is Scabies Making a Recent Comeback?

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March 12, 2024

STORY AT-A-GLANCE

- › Scabies, caused by the human itch mite, leads to intense itching, rash and potentially serious secondary infections
- › Scabies has had a “continuously rising incidence worldwide in recent years”
- › Cream made from permethrin, a pyrethroid insecticide, is one of the most often recommended scabies treatments, but treatment failures, including drug resistance, are common
- › Two doses of ivermectin cleared scabies in 98% of those treated
- › Ivermectin isn’t being used as a first-line scabies treatment as widely as it should be, due to its widespread vilification during the COVID-19 pandemic

Scabies, caused by the human itch mite (*Sarcoptes scabiei* var. *hominis*), leads to intense itching and a skin rash. The highly contagious parasitic infestation is the result of the tiny mites burrowing into the skin and laying eggs.¹ Long assumed to be a disease affecting those living in squalor, scabies is on the rise worldwide, including in developed countries.²

While the increasing prevalence of scabies is well-documented, the reasons behind it are less defined. But problems with treatment, including those stemming from the vilification of ivermectin during the COVID-19 pandemic, may be involved.

Cases of Scabies on the Rise Globally

A systemic literature review published in the Journal of the European Academy of Dermatology and Venereology noted scabies has had a "continuously rising incidence worldwide in recent years." Most of the 43 studies reviewed included data for medium or low human development index countries. Among children and adults, the highest prevalence of scabies was 71%, detected in Ghana.

When only children were included, an Indonesian boarding school recorded the highest prevalence, at 76.9%. "[S]cabies is still a serious, increasing disease that occurs globally and is clustered in developing countries," according to the researchers.³ Data from Germany, France, Norway, Croatia and other countries have also documented an increase in observed scabies cases over the last 10 to 20 years.⁴

Worldwide, more than 200 million people suffer from scabies at any given time, but cumulatively this rises to more than 400 million people annually.⁵ Cases are also surging across Europe, including in the U.K. Wired reported:⁶

"Kamila Hawthorne, chair of the UK's Royal College of GPs, told WIRED that weekly incidences per 100,000 for the north of England continue to be well above the national and five-year average. Their most recent surveillance reports detailed 1,926 cases across the country between early December and January.

The UK's surge of cases is part of a wider, longer trend. Scabies cases have been rising consistently across Europe and around the globe for a decade."

How Does Scabies Spread – and What Are the Risks?

Scabies spreads through close, person-to-person contact. This can occur through sexual activity as well as in areas where people spend time in close quarters, such as nursing homes, prisons and child day cares. While prolonged, skin-to-skin contact is usually required to spread the infestation, it may also spread indirectly via shared clothing, towels or bedding, albeit this is less common.⁷

In most cases, only 10 to 15 mites infect an individual, but they burrow into the skin where the females lay eggs.⁸ After three to four days, the eggs hatch, growing into adult mites in one to two weeks. Symptoms typically don't occur for four to six weeks after infestation in those who have never had scabies before and are the result of an allergic reaction to the mite proteins and feces in the burrows. Symptoms include:⁹

- Severe itching that's often worse at night
- Skin rash
- Burrow lines on the skin, which may appear as thin, skin-colored lines or tunnels
- Small bumps on the skin

In people with suppressed immune systems, crusted, or Norwegian, scabies may occur. This type of infestation may involve millions of mites and lead to scaly patches on the skin, but often no itching. Crusted scabies spreads very easily, including via clothing and furniture, and can cause secondary infections, making it potentially life-threatening.¹⁰

However, even typical scabies infestations may lead to bacterial infection, skin infection, impetigo and even septicemia. One hospital in Australia recorded a 30-day mortality rate of 2.5% for those admitted with severe or crusted scabies.¹¹ According to a report in Faculty Reviews:¹²

"Secondary bacterial skin infection with Streptococcus pyogenes can lead to septicemia and immune-mediated disease, such as acute post-streptococcal glomerulonephritis (APSGN) and acute rheumatic fever. Scabies-related septicemia carries a substantial mortality rate.

Scabies mites release complement inhibitors into the epidermis, which is thought to potentiate streptococcal and staphylococcal infections, ranging from the clinical entities of impetigo to cellulitis, abscesses, necrotizing fasciitis, and finally septicemia."

Kidney disease and rheumatic heart disease have also been associated with scabies skin infections.¹³ Michael Head, a senior research fellow in global health at the

University of Southampton in the U.K., told Wired, "There's some links to the cardiac and renal systems. Not fully understood, but it does look like they are genuine, occasional secondary consequences of an initial scabies infection."¹⁴

Treatment Failures, Drug Resistance Blamed for Some Scabies Spread

Due to treatment failures, treatment shortages and delays in getting treatment — often due to the stigma surrounding the disease¹⁵ — scabies is often left to continue unchecked, leading to further spread. Cream made from permethrin, a pyrethroid insecticide, is one of the most common scabies treatments.

Made from synthetic chemicals derived from natural chemicals found in chrysanthemums, animal studies suggest pyrethroids cause neurological, immune and reproductive damage while Canadian research suggests pyrethroids may be associated with behavior problems in children.

A tenfold increase in urinary levels of one specific pyrethroid breakdown product doubled the child's risk of scoring high for parent-reported behavioral problems, such as inattention and hyperactivity, in one study.¹⁶ Aside from the health risks, drug resistance is also a problem, according to research published in *Life (Basel)*.¹⁷

"There has been an increasing trend in drug-resistant scabies — which is the result of long-term use or overdosing of scabicides, resulting in prolonged treatment procedures, repeated visits to healthcare providers, high healthcare costs, and social stigmatization for an ever-greater number of patients," researchers explained.¹⁸

Permethrin cream is also challenging to use and often fails to get rid of the infestation. Jo Middleton, a research fellow at Brighton and Sussex Medical School, told Wired:¹⁹

"[I]t's very difficult to put on. You have to cover your whole body, leave it on for 12 hours without washing it off, and then you have to do it again seven days later. The reality is that we see a lot of failure, where people put on this

medication and end up continuing to have scabies and infecting other people, because the application is so difficult."

In a study of scabies treated with permethrin or other drugs, including ivermectin, crotamiton, benzyl benzoate, malathion, sulfur or lindane, the overall prevalence of treatment failure was 15.2% – but this rose to 26.9% in the Western Pacific region. Further, permethrin treatment failure prevalence increased by 0.58% per year. According to the study, published in the British Journal of Dermatology:²⁰

"The increase in treatment failure over time hints at decreasing mite susceptibility for several drugs, but reasons for failure are rarely assessed. Ideally, scabicide susceptibility testing should be implemented in future studies."

Two Doses of Ivermectin Eliminate Scabies 98% of the Time

Ivermectin is a widely used antiparasitic drug that's listed on the World Health Organization's essential medicines list²¹ and approved by the U.S. Food and Drug Administration.

In low- and middle-income countries, ivermectin is commonly used to treat parasitic diseases including onchocerciasis (river blindness), strongyloidiasis and other diseases caused by soil-transmitted helminthiasis, or parasitic worms.²² The drug is also used to treat scabies and lice, with great effectiveness.

"As *Sarcoptes scabiei* is becoming less sensitive to permethrin, clinicians have started to prescribe oral ivermectin (OI) as a first-line treatment," researchers explained in *Clinical and Experimental Dermatology*. "Guidelines suggest OI 200 µg kg⁻¹ as two doses, 1 week apart."²³ They conducted a study comparing a single dose of ivermectin with two doses and found the two-dose regimen cleared scabies in 98% of those treated.

In comparison, a single dose of ivermectin successfully cleared scabies in 58% of patients.²⁴ "This study confirms that the absence of a second intake of OI is one of the

main predictors of treatment failure ($P < 0.001$), which may also increase the likelihood of emerging resistance in *S. scabiei*," the scientists explained,²⁵ stressing the importance of the double dosage.

Yet, even with a close to 100% effectiveness rate, ivermectin isn't being used as a first-line scabies treatment as widely as it should be, due to its widespread vilification during the COVID-19 pandemic. Since 1987, 3.7 billion doses of ivermectin have been used among humans worldwide.²⁶

Further, the total doses of ivermectin distributed equals one-third of the world's population, and it's "considered extremely safe for use in humans."²⁷ Ivermectin even has antiviral and anti-inflammatory properties, widening its potential scope of use.

But when Dr. Pierre Kory, who is part of the group that formed the Front Line COVID-19 Critical Care Working Group (FLCCC), pleaded with the U.S. government early on in the pandemic to review the expansive data on ivermectin to prevent COVID-19, keep those with early symptoms from progressing and help critically ill patients recover — he was met with backlash.^{28,29}

The campaign against ivermectin only continued to grow from there, with health care professionals who dared to recommend it ridiculed, threatened and denied the ability to use ivermectin to treat COVID-19. This stigma has persisted to keep ivermectin out of the hands of those who need it to treat scabies. According to Wired:³⁰

"In the global south, scabies is managed effectively through an oral medication, a powerful antiparasitic called ivermectin ... Yet ivermectin is not routinely used to treat scabies in the UK, something that researchers attribute to the repeated false claims regarding its potential uses for treating COVID-19.

At one point endorsed by former US president Donald Trump, ivermectin's supposed usefulness against the SARS-CoV-2 virus was never backed up with reliable evidence, and Middleton believes this is sadly now inhibiting its use in conditions where it is proven to work.

'Some people were claiming that it had efficacy against COVID,' he says. 'To try and control that you had other people describing it as horse paste, because it is – like a lot of human medicines – also a veterinary drug. That then gave it a kind of bad reputation. But we are hoping it will be used more against scabies.'"

For the record, not only did ivermectin work against COVID-19, it was remarkably effective, resulting in a 74% reduction in excess deaths in the 10 states where it was used most intensively.³¹ It's possible that it holds a solution for the worldwide scabies problem as well.

Sources and References

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