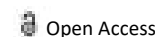




PERSPECTIVE



## Skin Infections and its Causes

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### Description

Skin infections occur when bacteria infect the skin and sometimes the deeper tissues beneath the skin. Cellulitis is a common type of skin infection that causes redness, swelling, and pain in the infected area of skin. Another type of skin infection is a skin abscess, which is a collection of pus under the skin.

Cutaneous infection is an infection of the skin in humans and other animals that can also affect associated soft tissues such as loose connective tissue and mucous membranes. These include a category of infections called skin and Skin Structure Infections (SSSIs) or skin and Soft Tissue Infections (SSTIs), and Acute Bacterial SSSIs (ABSSSIs). They are distinguished from dermatitis (inflammation of the skin), although skin infections can lead to inflammation of the skin.

### Causes

**Bacterial:** In 2013, bacterial skin infections affected about 155 million people, and cellulitis affected about 600 million people. Bacterial skin infections include:

- Phlegmon, widespread inflammation of the connective tissue with severe inflammation of the skin and subcutaneous layers of the skin. In addition, cellulitis can be divided into purulent and non-purulent, depending on the most likely causative agent and the manifestation of symptoms. Suppurative cellulitis is often caused by *Staphylococcus aureus*, including both Methicillin-Susceptible *Staphylococcus aureus* (MSSA) and Methicillin-Resistant *Staphylococcus aureus* (MRSA). Non-purulent cellulitis is most commonly associated with group A beta-hemolytic streptococci, such as *Streptococcus pyogenes*. In rare cases, the infection can develop into necrotizing fasciitis, a serious and potentially fatal infection.

- Erythema is a bacterial infection that mainly affects the superficial skin and often involves the superficial lymphatics. Hardly cellulite, it does not affect the deep layers of the skin. It is mainly caused by group A beta-hemolytic streptococci, the most common causative agent being *Streptococcus pyogenes*.
- Folliculitis is a skin condition in which a hair follicle located in the dermis of the skin becomes infected and inflamed. It is mainly caused by bacterial infections, especially *Staphylococcus aureus*, which leads to superficial bacterial folliculitis. Other causative agents of folliculitis include fungi (most commonly *Malassezia* species), viruses (such as herpes simplex virus), and mites (*Demodex* species).
- Impetigo, a highly contagious ABSSSI (Acute Bacterial Skin And Skin Structure Infection) common among preschool children, is mainly associated with *S. aureus* and *S. pyogenes*. Impetigo has a characteristic appearance with yellow (honey-colored) crusts around the mouth, nose, and chin. It is estimated to affect 140 million people worldwide at any given time. Impetigo can be further classified into bullous and non-bullous forms. Nebulous impetigo is the most common form, accounting for approximately 70% of diagnosed cases. The remaining 30% of cases are bullous, which is mainly caused by *S. aureus*. In rare cases, impetigo bullous can spread and lead to Staphylococcal Scalded Skin Syndrome (SSSS), a potentially life-threatening infection.

**Fungal:** Fungal skin infections can manifest as superficial or deep infections of the skin, hair, and/or nails. Mycetomas are a broad group of fungal infections that occur in the skin and subcutaneous tissues of the foot.

Without proper and timely treatment, mycetoma infections can spread to deeper tissues such as bones and joints, causing osteomyelitis. Extensive osteomyelitis may require surgical resection of the bones and even amputation of the lower limbs. As of 2010, they affect about one billion people worldwide. Some examples of common fungal skin infections are:

- Dermatophytosis, also known as ringworm, is a superficial fungal infection of the skin caused by various species of fungi. Fungal genera that cause skin infections in humans include *Trichophyton*, *Epidermophyton*, and *Microsporum*. Although dermatophytosis is a fairly common fungal skin infection worldwide, it is more common in areas with high humidity and ambient temperature. It is believed that about 20%-25% of the world's population suffer from superficial fungal infections, with dermatophytoses being predominant.
- Oral candidiasis, also commonly called oral thrush, is a fungal infection caused primarily by *Candida albicans* that affects the mucous membranes of the mouth and tongue. *C. albicans* accounts for approximately 95% of oral thrush cases. The fungus is part of the normal oral flora and causes infection only when the host's immune and microbiota barriers are compromised, allowing *C. albicans* to proliferate. Oral candidiasis is estimated to affect approximately 2 million people worldwide each year.
- Onychomycosis is a fungal infection that mainly affects the toenails. The two most common causative agents of onychomycosis are *Trichophyton mentagrophytes* and *Trichophyton rubrum*. Common signs and symptoms include discoloration and thickening of the nail, separation of the nail from the nail bed, and brittleness of the nail. The estimated prevalence of onychomycosis in North America is between 8.7% and 13.8%.