

Causes and Diseases of *Staphylococcus aureus*

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DESCRIPTION

Staphylococcus aureus is a gram-positive bacterium which causes a variety of clinical diseases. Long ago *Staphylococcus aureus* has been recognized as one of the most important bacteria which cause diseases in humans. The food poisoning of *Staphylococcus aureus* is a gastrointestinal illness which occurs by eating contaminated food with toxins produced by *Staphylococcus aureus* bacterium. *Staphylococcus aureus* is a type of bacteria which is present in about 30% of people noses. If the bacteria also tend to accumulate on medical devices in the body, such as artificial heart valves or joints, heart pacemakers, and catheters inserted through the skin into blood vessels. *Staphylococcus aureus* can also cause serious infections like bloodstream infections, pneumonia, and bone/joint infections.

Causes of diseases

Bloodstream infections: If a catheter inserted into a vein has been indwelled for a long time.

Endocarditis: Injecting illegal drugs, inserting a prosthetic heart valve, or having an infected catheter in vein.

Osteomyelitis: When *Staphylococcus aureus* spreads to the bones by infection in the bloodstream or by an infection in the nearby soft tissues, as it may be seen in people with deep pressure sores or foot ulcers from diabetes.

Pneumonia: Also known as lung infection. If a person have the flu (especially) or a bloodstream infection, when taking corticosteroids or drugs which suppress the immune system ("immunosuppressants"), or when hospital as they need endotracheal intubation and ventilator (known as nosocomial pneumonia).

The treatment remains challenging because of the emergence of multidrug-resistant strains such as MRSA (Methicillin-Resistant *Staphylococcus aureus*). Although most of the staphylococcal infections are not so serious, people who carry staphylococci should wash their hands thoroughly before touching the food or they can contaminate the food if they do not wash their hands properly. When food is contaminated with staphylococci, the bacterium in the food multiplies and releases toxins that can

make people sick. Cooking kills the staphylococci but does not destroy the toxins which can still cause illness. Foods that have not been cooked after processed, such as hams, puddings, pastries, and sandwiches, are at particular risk if they are contaminated with staphylococcal toxins. Food which is contaminated with staphylococci toxin may not smell bad or look spoiled. Anyone can develop a staphylococcal infection, but people with chronic conditions such as diabetes, cancer, vascular disease, eczema, lung disease, and people who inject drugs, are at higher risk. Most infections caused by *Staphylococcus aureus* are skin and soft tissue infections.

Skin and soft tissue infections

Abscess: Pocket of Infection which forms at the site of injury. It is usually filled with pus. The area around the abscess is usually red, painful, swollen, and the skin around the abscess feels warm to touch.

Cellulitis: It is the infection of lower layers of the skin. This is usually caused by a scratch or cut on the skin that allows bacteria to enter, even though no injury will be visible. Cellulitis can appear anywhere in the body, but is most commonly seen on the legs and arms. Symptoms include redness, inflammation, and pain at the site of the infection.

The most important treatment is to drink plenty of fluids. The best way to avoid staphylococcal food poisoning is not to keep food at unsafe temperatures (between 40°F and 140°F) for more than 2 hours. Use a food grade thermometer to cook food to the lowest safe internal temperature. Keep hot foods warm (above 140°F) and cold foods colder (below 40°F). Wash your hands with soap and water for at least 20 seconds before, during and after food the preparation of food and also before eating. If you are having diarrhea or vomiting do not prepare the food. If you have cuts or infections on your hands or wrists, wear gloves when cooking. Antibiotics do not help treat this disease because the toxin is not affected by them. *Staphylococcus aureus* food poisoning is characterized by sudden nausea, vomiting, and stomach cramps. Most of the people also have diarrhea. Symptoms usually appear within 30 minutes to 8 hours after eating or drinking something containing the staphylococcal toxin and lasts not more than a day, serious illness is rare, and

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the disease is not contagious from person to person. *Staphylococcus aureus* contamination in food can cause severe staphylococcal food poisoning. It has been identified as the

causative agent in many foodborne outbreaks and may be involved in more individual and family group cases than the records indicate.