

Staphylococcus aureus

[Science](#), [Epidemiology](#)



Foodborne Illness Short Answer Questions Staphylococcus •What is the infectious agent (pathogen) that causes this infectious disease? The pathogen that causes Staphylococcus is called Staphylococcus aureus. Staphylococcus aureus is also called Staph and is abbreviated to S. aureus or Staph aureus in medical literature. S. aureus is a bacterium that causes various infections. Staph is commonly found on the skin and also in mucus membranes (mostly the nose and throat) of up to 25% of healthy people and animals. Depending on the type of strain S. aureus, can cause minor skin infections such as pimples, boils, carbuncles, and abscesses or life-threatening diseases such as pneumonia, meningitis, endocarditis and toxic shock syndrome. (Microbiology, 2005) Some strains produce an enterotoxin that causes staphylococcus aureus gastroenteritis, also known as food poisoning. The most harmful species of S. aureus is Methicillin-resistant Staphylococcus aureus (MRSA); this bacterium has developed antibiotic resistance. (Microbiology, 2005) Each year, approximately half a million people are admitted to a hospital in the U. S. due to a staphylococcal infection. •How is this infectious agent transmitted through food or water? S. aureus is not necessarily transmitted through food or water but primarily through direct person-to-person contact. It is also possible to transmit through indirect contact (i. e. contaminated environmental surfaces). Staph infections are common hospital-acquired infections due to the possibility of healthcare providers being carriers of this, usually harmless, bacteria. A carrier of S. aureus can easily contaminate their own hands by contact with their nose in the course of routine activities.

Skin to skin contact is the most significant mode of transmitting the pathogen and hand washing can significantly reduce transmission. Staph infections can spread through contact with pus from an infected wound, contact with objects such as towels, sheets, or clothing. (Wiki, 2012) S. aureus can remain living for long periods of time on linen, clothing and dust.

- What is an example of a real life outbreak of this foodborne illness in the United States? I found this example of a real life outbreak, although it is not in the US, I found it astonishing that the outbreak ended with proper hygiene.

In January 2008, a cluster of neonates with bullous impetigo in a hospital of northern Thailand was investigated. Medical records and working timetables of healthcare workers (HCWs) were reviewed. During an environmental study, bacteriological samples from HCWs and equipments were taken. The study resulted in 16 confirmed cases and 14 probable cases. The attack rate was 42%. Most cases had skin blisters (28 cases) followed by pustules (five cases) and exfoliation (three cases). The location of the lesion was the trunk (17 cases), neck (14 cases) or armpits (nine cases).

Nineteen cases had symptoms onset after discharge from hospital. Median age at onset was 4 days. The strain isolated from an infected newborn shared the same phage type as the contaminated equipment. Insufficient hand hygiene was an observed risk behavior of HCWs and visitors. Exposure to a nasal carrier of Staphylococcus aureus and ward sharing with a symptomatic case increased the risk of acquiring the infection. The outbreak ended abruptly after implementation of hand hygiene practices and

equipment cleaning. (Eurosurveillance, 2008) What are the clinical symptoms, duration of the disease, and treatment if any? The clinical symptoms of a skin staph infection are boils and puss-filled abscesses. These areas of the infection are commonly red, swollen and painful. Drainage of the infections is common practice. When *S aureus* enters the blood stream it can spread to organs and cause serious infections, this is known as bacteremia or sepsis. Patients with underlying lung disease may develop staphylococcus pneumonia which causes an abscess formation in the lungs. Infection of the heart valves, also called endocarditis, can lead to heart failure.

Staphylococcal food poisoning causes nausea, vomiting, diarrhea and dehydration. (MedicineNet, n. d.) Minor skin infections may be treated with an antibiotic ointment or oral antibiotics. Serious and life-threatening illness may be treated with intravenous antibiotics depending on the particular staphylococcal strain. Some strains, such as MRSA, are resistant to many antibiotics. •What steps can be taken to prevent further outbreaks?

Include individual as well as environmental precautions and methods. There is not a vaccine available against *Staphylococcus aureus* since bacteria are so widespread. But there are common hygiene practices that can reduce the risk of developing staph infections. Thoroughly washing hands is the best defense against germs. If you have a cut or wound, keep it clean and covered with sterile bandages until they heal completely. Avoid sharing personal items such as towels, sheets, razors and clothing. Women that use tampons can reduce their risk by changing tampons frequently.

Hospitals can reduce transmission of staphylococcal aureus and MRSA by ensuring proper hygiene is a priority with all healthcare workers. They can also disinfect surfaces that are handled by healthcare workers, patients and visitors daily. A study was done to test the growth rate of staphylococci on stainless steel and brass. The results of this study showed the growth of the bacteria to be lower on the brass covered hardware. This could be a change hospitals can make to help reduce the spread of staphylococcus. Noyce, Michels, & Keevil, 2006, p. 290) Reference: Microbiology. (2005, May 25). What Is Staphylococcus Aureus? Bionewsonline. com Retrieved January 21, 2012, from http://www.bionewsonline.com/i/what_is_staphylococcus_aureus.htm Wikipedia. (2012, January 17). Staphylococcus Aureus. Wikipedia. org Retrieved January 21, 2012, form http://en.wikipedia.org/wiki/Staphylococcus_aureus Eurosurveillance. (January 2008). An outbreak of hospital-acquired Staphylococcus aureus skin infection among newborns, Nan Province, Thailand, January 2008. EuroSurveillance. org. Retrieved January 21, 2012, from <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19372> MedicineNet. (n. d.). Staph Infection. MedicineNet. com. Retrieved on January 21, 2012 from http://www.medicinenet.com/staph_infection/article.htm#symptoms J. O. Noyce, H. Michels, & C. W. Keevil. (2006). Potential use of copper surfaces to reduce survival of epidemic Methicillin-resistant Staphylococcus aureus in the healthcareenvironment. [Electronic Version]. Journal of Hospital Infection, 63, 289-297