

Human pathogen information sheet

What is tuberculosis?

Tuberculosis is caused by bacteria. The pathogens mostly affect the lungs, where the first symptom they produce is coughing, but can also invade almost any other organ and cause severe illness. Usually, however, the disease does not break out. In Germany, the number of tuberculosis cases had been receding steadily for decades. Reasons for this include improved living conditions and effective treatments for the disease. The number of cases reported annually has declined only minimally since 2009, however, and actually increased significantly in 2015. These changes are the result of an aging population and the movements of migrants.

Around the world, increasing numbers of tuberculosis strains are becoming resistant against the most important medication for treatment. Resistant pathogens cause diseases that are more difficult to treat and often remain contagious for longer.

How does tuberculosis spread?

Person-to-person

Tuberculosis usually spreads by person-to-person contact.

In case of open lung tuberculosis, the patient mostly emits pathogens when coughing and sneezing. Minute pathogen-containing droplet cores (known as “aerosols”) enter the air and can then be inhaled by others. Tuberculosis is not particularly contagious: whether or not infection occurs depends on the length and intensity of contact with the patient, and the susceptibility of the person to an infection.

Tuberculosis affecting organs outside of the respiratory system, e.g. bones, joints or lymph nodes, is usually not contagious.

Via foodstuffs

In Central Europe, disease transmission via food such as raw milk can be largely excluded, since cattle tuberculosis is now virtually non-existent in this region.

What symptoms do the patients show?

With the lung affected (most common case)

The disease usually starts with non-specific symptoms such as fatigue and exhaustion. Fever, lack of appetite with undesired loss of weight and night sweats may also occur. Typical symptoms include a persistent cough, sometimes with bloody sputum and pain when breathing.

With other organs affected (more rarely)

If the bacteria spread in the body through the lymph or blood vessels, other organs may be affected as well, such as lymphatic nodes, the pleura, kidneys or the urinary tract. Bones, joints, the spine, gastrointestinal tract or the central nervous system are affected more rarely.

Miliary tuberculosis and meningitis (very rare)

Very rare but especially dangerous forms include miliary tuberculosis, where several organs are affected, and tuberculous meningitis. Infants and toddlers, as well as persons with an impaired immune system are at particularly high risk.

If recognised in time and treated properly, tuberculosis will usually heal without consequences.

What's the incubation period – and how long are you contagious?

An infection can usually be detected 6 to 8 weeks after transmission. This does not mean that the person is sick, however – only that the immune system has encountered the pathogen. Only 5% to 10% of adolescents and adults will fall ill after becoming infected. In children and people with weakened immune systems, this likelihood is around 20% to 40%.

There are three options after infection with tuberculosis pathogens:

1. In most cases, the disease will not break out because the body's defences control the pathogens or render them harmless.

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2. The pathogens remain dormant in the body at first. However, if the immune system weakens, the disease may still break out after years or decades. In children, active tuberculosis develops more frequently and often in the first year after infection. Sick children often have no typical symptoms and their condition only becomes evident (if at all) because the child develops more slowly.

3. The illness breaks out.

Patients with open lung tuberculosis are contagious while they emit pathogens able to procreate in their cough and they can be documented in the sputum. Once they are taking effective medication, patients are usually no longer infectious after 2 to 3 weeks.

Who is most at risk?

Persons at especial risk include those with close contact to patients with open tuberculosis of the lungs and persons with immune systems that have been weakened (e.g. by an HIV infection or by taking medication that suppresses the immune system) as well as diabetics, alcoholics and infants. The same applies to persons who are drug addicts or homeless, since this often coincides with bad nutrition or bad hygienic conditions.

What to do in case of illness?

- ▶ Tuberculosis is subject to the rules of the German Prevention of Infection Act. The relevant health authority will take all required steps to protect others from the disease.
- ▶ Patients who excrete tuberculosis pathogens with sputum are isolated while they are contagious. This is usually done in the hospital, but may be done at home in coordination with the health authority.
- ▶ Tuberculosis is treated with a combination of medications that are only effective together and must be taken reliably for several months. The disease can be healed this way. Taking the medication incompletely or not for long enough may cause the pathogens to grow resistant, i.e. that they no longer react to these substances.

How can I protect myself?

- ▶ See a doctor if a cough persists for more than three weeks. If the cough produces blood, then a medical opinion must be sought immediately. The sooner tuberculosis is recognised, the better can it be treated.
- ▶ Strictly observe the recommended hygiene measures of the treating facility.
- ▶ Preventive treatment after contact with someone is recommended if this person is subsequently diagnosed with an infection. It may prevent the disease from breaking out. Since young children are at an increased risk of catching and developing the disease, preventive treatment should be started right after contact even if infection cannot be documented yet. This can prevent either infection or the further progress of the disease. The medication is prescribed by a doctor.

Important: A vaccine against tuberculosis has not been recommended in Germany since 1998.

Where can I find out more?

Your local health authority can provide you with further advice. Since tuberculosis infections must be reported, they will also have the latest information and be very experienced in dealing with the disease.

More (specialist) information is also available online from the Robert Koch Institute (www.rki.de/tuberkulose) and the German Central Committee for Combating Tuberculosis (<http://www.dzk-tuberkulose.de/>).

For more information on how hygiene can guard against infection, please visit the Federal Centre for Health Education website (www.infektionsschutz.de).



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