

## Human pathogen information sheet

### What is tuberculosis?

Tuberculosis is caused by bacteria. The pathogens mostly affect the lungs and cause, among others, coughing. According to estimates of the World Health Organisation (WHO), one third of the global population carries tuberculosis pathogens. Usually, however, the disease does not break out. In Germany, the number of tuberculosis cases had been receding steadily for decades. The reason for this was improved living conditions and good control of the disease. The number of cases reported has declined only minimally since 2009, however, and actually increased in 2015. These changes are the result of an aging population and the current movements of migrants in the country.

Around the world, more and more tuberculosis bacteria 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. Whether contagion will occur or not depends on the length and intensity of contact with the patient.

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

#### *Via foodstuffs*

In Central Europe, it is mostly excluded that the disease is transmitted through food such as raw milk, since there cattle tuberculosis hardly exists any more.

### What symptoms do the patients show?

#### *With the lung affected (most common case)*

The disease usually starts with fatigue and exhaustion. Fever, lack of appetite with undesired loss of weight and night sweats may also occur. Typical symptoms include coughing, 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 particularly feared forms are miliary tuberculosis, where several organs are affected, and the tuberculosis 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?

Only 5–15% of adults will fall ill after contagion. Among children and teens younger than 15 years, these are approx. 20% to 40%. The infection can usually be documented for 6 to 8 weeks after infection. Depending on age and immune strength, months or decades may pass until the disease occurs. In half of all cases, the disease occurs in the first 2–3 years after infection. In children, it usually occurs in the year after infection. 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. The lung develops nodule-shaped inflammations that usually cause no problems. However, if the immune system weakens, the disease may still break out after years or decades. Sick children often have no complaints and only become evident due to delayed development.

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. If taking effective medication, this usually is 2 to 3 weeks, rarely for any longer.

### Who is most at risk?

Close contact persons of patients with open lung tuberculosis and persons with weakened immune systems, e.g. by an HIV infection, or from taking medication that clearly weakens the immune system, diabetics and alcoholics are at particular risk. 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 is recommended if infection is documented after contact with a patient. 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 either prevent infection or the further progress of the disease. The medication is prescribed by a doctor.

**Important: The 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](http://www.rki.de/tuberkulose)).

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



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