

## YAWS FACT SHEET

Source: World Health Organization <https://www.who.int/news-room/fact-sheets/detail/yaws>

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### Key facts

- **Yaws is a chronic disfiguring and debilitating childhood infectious disease caused by *Treponema pallidum* subspecies *pertenue*.**
- **It is one of the first diseases targeted for eradication by WHO and UNICEF in the 1950s. WHO renewed global efforts to eradicate yaws in 2012.**
- **The disease affects skin, bone and cartilage. Humans are currently believed to be the only reservoir, and transmission is from person to person.**
- **Yaws is cured with a single oral dose of an inexpensive antibiotic called azithromycin.**
- **There are 15 countries currently known to be endemic for yaws. Recently, 3 countries that were classified as previously endemic have reported suspected yaws cases. There are 76 countries and territories previously endemic for yaws that need to confirm the current status of the disease.**
- **In May 2016, WHO declared India to be free of yaws.**

Yaws forms part of a group of chronic bacterial infections commonly known as the endemic treponematoses. These diseases are caused by spiral bacteria of the genus *Treponema*, which also includes endemic syphilis (bejel) and pinta. Yaws is the most common of these three infections.

The causative organism, *Treponema pallidum* subspecies *pertenue*, is closely related genetically to *T. pallidum* subspecies *pallidum*, the causative agent of syphilis and the causative bacteria of bejel and pinta.

The disease is found primarily in poor communities in warm, humid and tropical forest areas of Africa, Asia, Latin America and the Pacific. The majority of affected populations, mostly children, live at the “end of the road”, far from health services. Poverty, low socio-economic conditions and poor personal hygiene facilitate the spread of yaws.

About 75– 80% of people affected are children under 15 years of age, and they constitute the main reservoir of infection. Peak incidence occurs in children aged 6–10 years, and males and females are equally affected. Transmission is through direct (person-to-person) contact of minor injuries. Most lesions occur on the limbs. The initial lesion of yaws is teemed with the bacteria. The incubation period is 9–90 days, with an average of 21 days. Without treatment, infection can lead to chronic disfigurement and disability.

### Scope of the problem

In 2013, there were 13 countries known to be currently endemic with yaws. Since then, through intense surveillance activities, 2 additional countries reported confirmed (Liberia and Philippines)

and 3 countries reported suspected yaws cases (Colombia, Ecuador and Haiti). Out of the countries and territories known to have been endemic in the 1950s, at least 76 need to be assessed to determine if the disease is still present. This can be done through integrated surveillance with other diseases, especially the skin-NTDs. In 2018, 80 472 suspected yaws cases have been reported to WHO, out of which 888 cases were confirmed by Dual Path Platform (DPP® Syphilis Screen & Confirm Assay). There is currently a huge emphasis towards strengthening laboratory confirmation of the cases and standardizing the yaws data collection both at country and global levels.

### **Clinical Presentation**

Yaws initially presents as a papilloma teemed with bacteria. The papilloma is a typical presentation of yaws and clinical diagnosis is straightforward. Without treatment, the papilloma will ulcerate. The diagnosis of the ulcerative form is more challenging and requires serological confirmation. Papilloma and ulcers are very infectious and in the absence of treatment can quickly spread to others. Other clinical forms of yaws exist but they are not very infectious.

Secondary yaws occurs weeks to months after the primary infection and typically presents with multiple raised yellow lesions or pain and swelling of long bones and fingers (dactylitis). WHO has developed training material to help health workers and community volunteers identify the disease.

Ulcers caused by *Haemophilus ducreyi* is an important cause of skin ulcers (2) (mostly on the legs) which clinically mimic the ulcerative form of yaws could complicate clinical diagnosis. About 40% of ulcers clinically identified as yaws are caused by *H. ducreyi*.

### **Diagnosis**

Traditionally, laboratory-based serological tests such as Treponema pallidum particle agglutination (TPPA) and rapid plasma reagin (RPR) are widely used to diagnose treponemal infections (for example, syphilis and yaws). These tests cannot distinguish yaws from syphilis, however, and the interpretation of results from these tests in adults who live in yaws endemic areas therefore needs careful clinical assessment.

Rapid point-of-care (tests that can be used in the field are widely available. However, most of them are treponemal-based and cannot distinguish between past and current infection and therefore has a limited use in monitoring interruption of transmission. DPP can detect both past and present infection. This simplifies diagnosis in the field and can also be used to monitor interruption of transmission.

Polymerase chain reaction (PCR) technology is used to definitively confirm yaws by detecting the organisms' DNA in the skin lesions. It can also be used to monitor azithromycin resistance. The application of PCR in yaws eradication will be very useful after mass treatment and post-elimination surveillance when the few cases that occur must be proven to be yaws.

### **Treatment and follow-up**

Either of 2 antibiotics – azithromycin or benzathine penicillin – may be used to treat yaws:

1. Azithromycin (single oral dose) at 30 mg/kg (maximum 2 g) is the recommended treatment.
2. Benzathine penicillin (single intramuscular dose) at 0.6 million units (children aged under 10 years) and 1.2 million units (people aged over 10 years) can be used for patients with suspected clinical treatment failure after azithromycin, or patients who cannot be treated with azithromycin.

Patients should be reexamined 4 weeks after antibiotic treatment – in over 95% of cases, complete clinical healing will be observed. Any individual with presumed treatment failure requires macrolide resistance testing.

### **Prevention**

There is no vaccine for yaws. Health education and improvement in personal hygiene are essential components to reduce transmission of the disease. Contacts of patients with yaws should receive empiric treatment.

### **Eradication strategy**

The approach to yaws eradication consists of mass treatment (also called Total community treatment, TCT) in which oral azithromycin (30 mg/kg, maximum 2 g) is administered to the entire population (aiming for coverage of at least 90%) in areas known to harbor yaws. Two or three rounds of mass treatment might be enough to interrupt transmission.

### **Criteria for Eradication**

Three criteria for eradication of yaws are:

- Absence of new serologically-confirmed indigenous cases for 3 consecutive years despite strengthened surveillance.
- Absence of any case proven by PCR
- Absence of evidence of transmission for 3 continuous years measured with sero-surveys among children aged between 1–5 years (for example, no young children with RPR seroreactivity).
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### **Collaboration with other programmes**

Collaboration with other neglected tropical diseases particularly the skin-NTDs will help to improve the surveillance of yaws in a number of countries. Sexually transmitted infections programmes, will be essential to advancing the eradication of yaws.

### **WHO response**

WHO's work on yaws eradication involves:

- Strategy development to guide countries in planning and implementing yaws eradication activities:
- Supporting countries via WHO-secured donation of 153 million tablets of azithromycin:
- Standardized tools to guide data collection and reporting:
- Strengthening collaboration and coordination among partners and stakeholders:
- Promoting operational research to improve the implementation of yaws eradication activities: and
- Advocacy and partnerships