

Syphilis

**Hanisah L. Corner^A, Deborah L. Couldwell^B
and Chris P. Bourne^C**

^ANSW Public Health Officer Training Program,
NSW Department of Health

^BParramatta Sexual Health Clinic, Sydney West Area
Health Service

^CNSW Sexually Transmissible Programs Unit, Sydney Sexual
Health Centre, South Eastern Sydney Illawarra Area
Health Service

Syphilis is an infectious disease of increasing public health significance. An estimated 12 million people are infected each year worldwide.¹

What is syphilis?

Syphilis is a bacterial infection caused by the spirochaete *Treponema pallidum*, subsp. *pallidum*.² Clinical disease encompasses three stages: primary, secondary and tertiary syphilis. Latent syphilis, or syphilis with no clinical manifestations, is divided into early and late latent infection, with early latency being within 12 months of infection. For public health and surveillance purposes, infectious syphilis includes primary, secondary and early latent syphilis (tertiary syphilis is exceedingly rare in Australia). Congenital syphilis is a foetal infection that occurs frequently as a result of untreated syphilis infection in pregnant women.

Mode of transmission

Syphilis is transmitted sexually from direct contact with infectious exudates from obvious or concealed early lesions of skin and mucous membranes of infected people. It is also transmitted through vertical transmission from mother to child in utero. Transmission after the first 12 months of infection is rare. The incubation period for syphilis ranges from 9 to 90 days.

The clinical manifestations of syphilis include a primary ulcer (chancre) with swollen lymph nodes, skin rashes, warts, and bone, cardiovascular and neurological disease. Syphilis in pregnancy can cause abortion, premature delivery, stillbirth and congenital syphilis.

Epidemiology of syphilis in NSW

In 2007, New South Wales (NSW) had the third highest rate of diagnosis of infectious syphilis in Australia at 6.4 per 100 000 population. The highest occurrence was in the Northern Territory where the rate was 49.0 per 100 000 population.³

Surveillance data in NSW show a rapid increase in infectious syphilis notifications since around 2001. Infectious syphilis in inner Sydney rose more than 10-fold (from six cases in 1999 to 162 cases in 2003), and the increase was confined to men.⁴ Between 2004 and 2008, the majority of new notifications of infectious syphilis in NSW were in men, with just over half in the 30–44 year age group (55.7%) and with a median age of 37.⁵

In NSW the rate of infectious syphilis in Aboriginal Australians dropped from 9 per 100 000 in 2004 to 6 per 100 000 in 2006.³ The rate of diagnosed infectious syphilis in non-Aboriginal Australians was lower, but also dropped from 5 per 100 000 population in 2004 to 3 per 100 000 population in 2006.³

Public health implications

Syphilis is of public health significance due to the serious morbidity of adult and congenital infection, and its association with increasing risk of human immunodeficiency virus (HIV) transmission. Syphilis increases the risk of both transmitting and contracting HIV. Syphilis can be harder to cure, may progress more quickly and be more complicated in people with HIV. A study in the United States of 52 HIV-infected men with primary or secondary syphilis – 58% of whom were receiving antiretroviral therapy – showed that syphilis is associated with significant increases in plasma viral load and significant decreases in CD4 cell counts, a marker of cell-mediated immune function.⁶

It is important to understand the current epidemiology of syphilis (including behavioural risk) through enhanced surveillance to ensure prevention activities are directed at the most at-risk populations.

Policy directions

The NSW Sexually Transmissible Infections Strategy 2006–2009 aims to reduce transmission and associated morbidities of syphilis and other sexually transmissible infections (STIs) by targeting interventions to at-risk populations.⁷ Two specific targets have also been set in relation to syphilis: to eliminate syphilis transmission within Aboriginal communities and to reduce rates of syphilis among gay and other homosexually active men by 50%.⁷

Within Aboriginal communities, the target has been approached by improving syphilis care systems by enhancing surveillance, strengthening partnerships via stakeholder consultation and targeting health promotion and education strategies.

A similar approach has been taken with gay and other homosexually active men. The STI in Gay Men Action Group partnership formed in 2000 to provide leadership and strategic direction for reducing and preventing STIs, including syphilis, among gay and other homosexually active men in the (former) South Eastern, Central and Northern Sydney area health services. The group aims to strengthen surveillance and health care provider education; support health care service reorientation; undertake social marketing; and implement culturally competent health education and promotion for gay and other homosexually active men.

Syphilis testing for people born in high-prevalence countries, especially through antenatal screening programs, is also important to detect and prevent potential congenital infections, and to prevent long term consequences of untreated infection, such as neurological and cardiovascular syphilis.

Conclusion

Since 2001, syphilis has re-emerged in NSW as a disease of public health significance. The serious consequences of adult and congenital syphilis infection, and the important role it plays in HIV transmission, mean control efforts need to be strengthened.

References

1. Gerbase AC, Rowley JT, Heymann DH, Berkley SF, Piot P. Global prevalence and incidence estimates of selected curable STDs. *Sex Transm Infect* 1998; 74(Suppl 1): S12–6.
2. Heymann DL, editor. *Control of Communicable Diseases Manual*. 18th ed. Washington, DC: American Public Health Association; 2004, pp. 518–24.
3. McDonald A, editor. *HIV/AIDS, Viral Hepatitis and Sexually Transmissible infections in Australia: Annual Surveillance Report 2008*. Darlinghurst: National Centre in HIV Epidemiology and Research; 2008.
4. Jin F, Prestage GP, Kippax SC, Pell CM, Donovan BJ, Kaldor JM. Epidemic syphilis among homosexually active men in Sydney. *Med J Aust* 2005; 183: 179–83.
5. NSW Department of Health. *Notifiable disease database*. North Sydney: NSW Department of Health; 2007.
6. World Health Organization. *Global strategy for the prevention and control of sexually transmitted infections: 2006-2015: Breaking the chain of transmission*. Geneva: World Health Organization; 2007.
7. NSW Department of Health. *NSW Sexually Transmissible Infections Strategy 2006-2009*. North Sydney: NSW Department of Health; 2006.