**Syphilis Nursing**

**Introduction**

*Syphilis* is a systemic, bacterial infection caused by the spirochete Treponema pallidum. Due to its many protean clinical manifestations, it has been named the great imitator and mimicker.The origin of syphilis has been controversial and under great debate, and many theories have been postulated regarding this.

The pre-Columbian theory looked at findings on skeletal markers of syphilis before 1490. However, there is insufficient proof, as evidenced by the DNA and paleopathology findings, to support the existence of syphilis before 1492.

The Columbian and most accepted theory postulates that syphilis came from Europe in the 1490s when Columbus arrived in the New World (America). Syphilis spread when Christopher Columbus arrived in Naples (Italy). After Naples lost the battle to the French troops, this new disease spread across Europe.[[1]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)

Syphilis remains a contemporary plague that continues to afflict millions of people worldwide.

**Nursing Diagnosis**

* Inadequate healing
* Insufficient knowledge
* Anxiety
* Risk for transmission of infection to others
* Unsafe sex practice
* At risk for transmitting the infection to the fetus

**Causes**

German scientists identified Treponema pallidumas the agent that causes syphilis in 1905. One year later, a test to diagnose this infection was developed. Its genome was sequenced in 1998. Treponemagenus is a spiral-shaped bacteria with a rich outer phospholipid membrane that belongs to the spirochetal order. It has a slow metabolizing rate, as it takes an average of 30 hours to multiply.

T. pallidum is the only agent that causes venereal disease. The other T. pallidumsubspecies cause non-venereal disease that is transmitted via non-sexual contact: Treponema pertenuecauses yaws, Treponema pallidum endemicum causes endemic syphilis, and Treponema carateumcauses pinta. All the treponematoses have similar DNA but differ in their geographical distribution and pathogenesis.[[2]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)

The only host for the organisms is humans, and there is no animal reservoir. Syphilis is considered a sexually transmitted disease as most cases of syphilis are transmitted through vaginal, anogenital, and orogenital contact. The infection can rarely be acquired via non-sexual contact, such as skin-to-skin contact, or via blood transfer (blood transfusion or needle sharing). Vertical transmission occurs transplacentally, resulting in congenital syphilis

**Risk Factors**

According to the Centers for Disease Control and Prevention (CDC) statistics, there were 88,042 reported new diagnoses of syphilis in 2016. Out of all syphilis cases, 27,814 were primary and secondary syphilis. In 2016, most syphilis cases occurred among gay, bisexual, and other men who have sex with men. Men aged 20 to 29 years have the highest rates of primary and secondary syphilis.

From 2008 to 2012, rates of congenital syphilis declined but increased by 38% 2012. During 2016, 628 cases of congenital syphilis were reported, with rates 8.0-times and 3.9-times higher among infants born to black and Hispanic mothers compared to White mothers.

Syphilis is endemic in the developing world and is especially common among poor people with limited access to health care.[[3]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)Promiscuity plays an important role in disease transmission as it is more common among people with multiple partners.

Syphilis is an important synergistic infection for HIV acquisition and has been closely linked with HIV infection.

**Assessment**

Primary syphilis appears 10 to 90 days after exposure to the infection and comprises a painless, indurated ulcer (chancre) at the site of inoculation with the T. pallidum. HIV patients usually develop multiple chancres. These lesions resolve without treatment in 3-6 weeks. Regional lymphadenopathy is common and consists of rubbery lymph nodes.

Secondary syphilis appears 2 to 8 weeks after the disappearance of the chancre and has multiple systemic manifestations that can involve any system and body part. The cutaneous manifestations are also varied (condyloma lata, alopecia, mucous patches, palmar or truncal rash, papulosquamous rash), and because they contain a high load of spirochetes, these lesions are highly contagious.

Untreated primary or secondary syphilis is followed by an early latent phase (one year or less later) or late latent phase (over one year). It is characterized by positive serologic tests but negative clinical manifestations.

Tertiary syphilis is late symptomatic syphilis that can manifest months or years after the initial infection as cardiovascular syphilis (an aortic aneurysm, aortic valvulopathy), neurosyphilis (meningitis, hemiplegia, stroke, aphasia, seizures, tabes dorsalis), or gummatous syphilis (infiltration of any organ and its subsequent destruction).

Congenital syphilis results from transplacental transmission or contact with the infectious lesions during birth and can be acquired at any stage, causing stillbirth or neonatal congenital infection. There are many presentations of congenital syphilis, including nasal cartilage destruction (saddle nose), frontal bossing (Olympian brow), bowing of the tibia (saber shins), morbilliform rash, rhinitis (snuffles), sterile joint effusion (Clutton joints), peg-shaped upper central incisors (Hutchinson's teeth). Many of the neonates born with congenital syphilis are asymptomatic at birth. [[4]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)

Early signs can manifest up to 48 months as rash, hepatosplenomegaly, fever, bulging fontanels, seizures, or cranial nerve palsies. Those untreated neonates enter a latent period. Routine screening is recommended at the first prenatal visit and during the third trimester and delivery in high-risk women.

**Evaluation**

Testing strategies for syphilis consist of dark-field microscopy and serological tests.

Dark-field examination by microscope allows for direct examination of spirochetes from the mucosal lesion and thus offers an immediate diagnosis.

The serological tests are classified as non-treponemal and treponemal. The non-treponemal tests (venereal disease research laboratory tests, rapid plasma reagin test) are screening tests that detect antibodies to cardiolipin in blood. The VDRL and RPR tests are only positive after the development of the primary chancre.

Positive non-treponemal tests are confirmed with treponemal tests (fluorescent treponemal antibody absorption assay, T. pallidumparticle agglutination assay) that detect antibodies to the T. pallidumin blood. Syphilis is a reportable disease.

Patients with neurologic symptoms should undergo a cerebrospinal (CSF) examination.

Reverse sequence screening is an increasingly used algorithm across US laboratories that use treponemal tests as the initial screening to identify those patients with treated, untreated, or incompletely treated syphilis. [[5]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)Because of a lack of validation of the reverse algorithm, higher rates of false-positive results can be seen, leading to difficulty interpreting these tests and the need for second confirmatory treponemal tests.

**Medical Management**

Treatment depends on the disease stage.

Primary, secondary, or early latent syphilis is treated with a single dose of intramuscular (IM) penicillin G benzathine 2.4 million units. Alternative therapies include doxycycline 100 mg orally (PO) twice daily for 14 days or ceftriaxone 1 to 2 gm IM or intravenously (IV) daily for 10 to 14 days or tetracycline 100 mg PO 4 times daily for 14 days.

Late latent syphilis is treated with IM penicillin G benzathine 2.4 million units once weekly for three weeks. Alternative therapies include doxycycline 100 mg PO twice daily for 28 days or tetracycline 100 mg PO four times daily for 28 days.

Tertiary syphilis is treated with IM penicillin G benzathine 2.4 million units once weekly for three weeks.

Neurosyphilis is treated with IV penicillin G aqueous 18-24 million units daily for 10 to 14 days.

Patients with a high titer of secondary syphilis can develop Jarisch-Herxheimer reaction, which is an immune-mediated self-limited reaction that occurs within 2 to 24 hours of treatment and is characterized by high fever, headache, myalgias, and rash.

**Nursing Management**

* Educate patient on safe sex practice
* Encourage the use of condoms
* Encourage treatment of a partner
* Administer benzathine penicillin
* Educate the patient on avoiding sex with an infected partner
* Listen to the heart for the murmur of aortic regurgitation
* Check the chest x-ray report (syphilis can cause aortic aneurysms)
* Assess neurologic and mental status (rule out tertiary syphilis)
* Assess genitals to ensure healing has occurred

**When To Seek Help**

If nursing staff encounter exam findings that deviate from the norm or are unsure of any aspects of the patient's sexual or social history, they should alert the clinician for further assessment.

**Outcome Identification**

The outlook for most patients who comply with treatment is good, but those who delay or fail to comply with treatment can develop life-threatening complications.[[6][7]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)

**Monitoring**

Post-treatment, patients need to be followed at 3, 6, 9, 12, and 24 months with serial non-treponemal tests. A 4-fold decline in these tests indicates successful treatment.[[8][9]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)

**Coordination of Care**

Once the diagnosis of syphilis has been made, the management is with a multidisciplinary team since the infection can affect almost every organ in the body. These patients need close follow-up by the cardiologist, neurologist, dermatologist, internist, ophthalmologist, obstetrician, and infectious disease expert. The patient must be followed by the infectious disease nurse to ensure that the treatment is working and the patient is compliant with therapy. The patient's partner has to be investigated and treated if positive. If the patient with syphilis is pregnant, close follow-up with an obstetrician is highly recommended.[[10][11]](https://www.ncbi.nlm.nih.gov/books/NBK568808/)

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