
**SEXUALLY TRANSMITTED DISEASES: A COMPREHENSIVE
REVIEW**

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Article Received: 09 March 2026, Article Revised: 29 March 2026, Published on: 19 April 2026

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DOI: <https://doi-doi.org/101555/ijarp.8576>

ABSTRACT

Sexually transmitted diseases (STDs), also known as sexually transmitted infections (STIs), continue to represent a major global public health issue. These infections are primarily transmitted through sexual contact, including vaginal, oral, and anal intercourse, but can also spread through non-sexual routes such as vertical transmission from mother to child, blood transfusions, and shared needles. STDs are caused by a wide range of pathogens including bacteria, viruses, parasites, and fungi, and may lead to serious complications such as infertility, malignancies, and increased vulnerability to human immunodeficiency virus (HIV) infection.

The global incidence of STDs remains high due to factors such as antimicrobial resistance, inadequate healthcare access, and persistent social stigma. This review provides a

comprehensive overview of the epidemiology, etiology, transmission, clinical features, diagnostic approaches, treatment strategies, and preventive measures associated with STDs. Understanding these aspects is essential for reducing transmission rates and improving overall public health outcomes.

KEYWORD: Sexually Transmitted Diseases (STDs), Epidemiology of STIs, Pathogenesis of STDs, Antimicrobial Resistance, Prevention and Control Strategies.

1. INTRODUCTION

Sexually transmitted diseases are infections that are predominantly spread through sexual contact and affect millions of individuals worldwide each year. According to global estimates, more than one million new cases of STIs occur daily, with hundreds of millions of new infections reported annually for curable diseases such as chlamydia, gonorrhea, syphilis, and trichomoniasis. The severity of these infections varies widely, ranging from mild, self-limiting conditions to life-threatening diseases.

The burden of STDs extends beyond individual health, significantly impacting reproductive health, economic productivity, and healthcare systems. The emergence of antimicrobial-resistant strains, particularly in gonorrhea, has further complicated disease management. Public health strategies such as education, vaccination, early diagnosis, and timely treatment are essential in controlling the spread of STDs.

2. Epidemiology

Sexually transmitted diseases remain among the most prevalent infectious diseases worldwide. Their distribution varies across regions, with higher prevalence observed in low- and middle-income countries due to limited healthcare resources and insufficient awareness. Young individuals, particularly those aged 15–24 years, represent a significant proportion of new infections.

Multiple factors contribute to the spread of STDs, including unprotected sexual practices, multiple sexual partners, co-existing infections, substance abuse, and lack of awareness. Social and behavioral factors, combined with limited access to healthcare services, play a crucial role in the increasing burden of these infections.

3. Etiology and Causative Agents

STDs are caused by a diverse group of microorganisms, including bacteria, viruses, parasites, and fungi. Bacterial infections include chlamydia, gonorrhea, syphilis, and infections caused

by *Mycoplasma genitalium*. Viral infections include HIV, herpes simplex virus (HSV), human papillomavirus (HPV), and hepatitis B virus (HBV). Parasitic infections such as trichomoniasis and fungal infections like candidiasis also contribute to the spectrum of STDs. Each of these pathogens has unique characteristics in terms of transmission, disease progression, and complications, necessitating specific diagnostic and therapeutic approaches.

4. Transmission Mechanisms

The primary mode of transmission for STDs is sexual contact, including vaginal, oral, and anal intercourse. However, non-sexual modes of transmission also play a significant role. Vertical transmission from mother to child can occur during pregnancy, childbirth, or breastfeeding, particularly in infections such as HIV, syphilis, and hepatitis B. Bloodborne transmission through contaminated needles or transfusions is another important route. Additionally, certain infections such as HPV and HSV can spread through direct skin-to-skin contact.

5. Clinical Manifestations

The clinical presentation of STDs varies depending on the causative organism. Human immunodeficiency virus infection initially presents with flu-like symptoms, followed by a prolonged asymptomatic phase and eventual immune suppression. Syphilis progresses through distinct stages, including primary, secondary, and tertiary phases, each characterized by specific clinical features.

Gonorrhea and chlamydia commonly present with symptoms such as painful urination and abnormal discharge, but may remain asymptomatic in many cases. Herpes simplex virus infections are characterized by recurrent painful blisters or ulcers, while human papillomavirus infections may lead to genital warts and are associated with certain cancers. Trichomoniasis typically presents with vaginal irritation and discharge, although it may be asymptomatic in men.

6. Diagnosis

Accurate diagnosis of STDs is essential for effective management and prevention of complications. Various diagnostic techniques are employed depending on the suspected infection. Serological tests are commonly used for detecting infections such as HIV, syphilis, and hepatitis B. Nucleic acid amplification tests (NAATs) provide high sensitivity and specificity for detecting pathogens like chlamydia and gonorrhea. Microscopy and culture

methods are used for parasitic infections such as trichomoniasis. Clinical examination also plays an important role in identifying visible lesions and symptoms.

7. Treatment and Management

The treatment of STDs depends on the type of causative organism. Bacterial infections are typically treated with antibiotics such as penicillin for syphilis, azithromycin or doxycycline for chlamydia, and ceftriaxone for gonorrhea. Viral infections such as HIV require lifelong antiretroviral therapy, while herpes infections are managed with antiviral agents such as acyclovir. Although there is no definitive cure for HPV, vaccination and symptomatic management are effective in controlling the disease.

Parasitic infections like trichomoniasis are treated with metronidazole, while fungal infections such as candidiasis are managed with antifungal agents. Comprehensive management also includes partner treatment, counseling, and follow-up to prevent reinfection.

8. Prevention Strategies

Prevention of STDs involves a combination of behavioral, medical, and public health interventions. Vaccination against HPV and hepatitis B plays a significant role in reducing disease burden. The consistent use of barrier protection methods such as condoms is highly effective in preventing transmission. Regular screening and early treatment are essential, particularly for high-risk populations.

Public health initiatives focusing on education, awareness, and stigma reduction are crucial in encouraging individuals to seek testing and treatment. Improving access to healthcare services is also vital in controlling the spread of STDs.

9. Global Impact and Challenges

STDs continue to pose significant challenges to global health systems. The emergence of antimicrobial resistance, particularly in gonorrhea, has made treatment more difficult and costly. Social stigma and discrimination often discourage individuals from seeking medical care, leading to delayed diagnosis and increased transmission. Additionally, limited healthcare infrastructure in developing regions further exacerbates the problem. Addressing these challenges requires coordinated efforts at both national and international levels.

10. CONCLUSION

Sexually transmitted diseases remain a major public health concern worldwide, affecting millions of individuals and placing a significant burden on healthcare systems. A comprehensive approach involving prevention, early diagnosis, and effective treatment is essential for controlling their spread. Advances in diagnostic techniques, therapeutic strategies, and vaccination programs offer promising opportunities to reduce the impact of STDs. However, continued efforts are needed to address challenges such as antimicrobial resistance, stigma, and healthcare accessibility. Strengthening public health policies and promoting awareness will be key to improving outcomes and reducing the global burden of these infections.

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