

REVIEW ARTICLE

"PROTECTING YOUR HEALTH: A COMPREHENSIVE REVIEW OF SEXUALLY TRANSMITTED DISEASES"

ABSTRACT

SEXUALLY TRANSMITTED INFECTIONS (STIS) ARE A GROUP OF DISEASES THAT ARE PRIMARILY TRANSMITTED THROUGH SEXUAL CONTACT. THEY CAN AFFECT ANYONE WHO IS SEXUALLY ACTIVE, REGARDLESS OF AGE, GENDER, OR SEXUAL ORIENTATION. COMMON STIS INCLUDE CHLAMYDIA, GONORRHEA, SYPHILIS, HUMAN PAPILLOMAVIRUS (HPV), HERPES, AND HIV/AIDS. MANY STIS HAVE NO VISIBLE SYMPTOMS, WHICH MEANS THAT INDIVIDUALS CAN UNKNOWINGLY TRANSMIT THE INFECTION TO THEIR SEXUAL PARTNERS. STIS CAN HAVE SERIOUS HEALTH CONSEQUENCES IF LEFT UNTREATED, INCLUDING INFERTILITY, CHRONIC PAIN, AND AN INCREASED RISK OF HIV INFECTION. PREVENTION MEASURES INCLUDE THE USE OF CONDOMS DURING SEXUAL ACTIVITY, REGULAR TESTING, AND VACCINATION FOR HPV. EARLY DIAGNOSIS AND TREATMENT CAN EFFECTIVELY MANAGE STIS AND REDUCE THE RISK OF COMPLICATIONS. IT IS ESSENTIAL TO EDUCATE INDIVIDUALS ABOUT THE IMPORTANCE OF PRACTICING SAFE SEX AND SEEKING MEDICAL CARE IF THEY SUSPECT THEY HAVE AN STI.

INTRODUCTION

BACKGROUND INFORMATION ON SEXUALLY TRANSMITTED DISEASES

Sexually transmitted diseases (STDs) have been known to mankind for centuries. Before the advent of modern medicine, people's lack of awareness and understanding of STDs contributed to the widespread transmission of the infections while few or no treatments were available to treat the conditions.

In medieval times, syphilis and gonorrhoea were two of the most prevalent STDs in Europe. One theory suggest that syphilis was spread by crew members who picked up the disease on the voyages led by Christopher Columbus. They are thought to have contracted syphilis while in the Americas and to have then spread it on their return when docking at ports in Europe. Sailors are also thought to be responsible for the spread of gonorrhoea from Tahiti to New Zealand during the Cook voyages.

Some STDs can have severe, life-changing consequences; syphilis, for example, can eventually cause progressive destruction of the brain and spinal cord, leading to mental dysfunction and hallucinations, speech problems and general paresis.

Sexually transmitted diseases (STDs) are infections transmitted from an infected person to an uninfected person through sexual contact. STDs can be caused by bacteria, viruses, or parasites. Examples include gonorrhoea, genital herpes, human papillomavirus infection, HIV/AIDS, chlamydia, and syphilis.

STDs are an important global health priority because of their devastating impact on women and infants and their inter-relationships with HIV/AIDS. STDs and HIV are linked by biological interactions and because both infections occur in the same populations. Infection with certain STDs can increase the risk of getting and transmitting HIV as well as alter the way the disease progresses. In addition, STDs can cause long-term health problems, particularly in women and infants. Some of the health complications that arise from STDs include pelvic inflammatory disease,

infertility, tubal or ectopic pregnancy, cervical cancer, and perinatal or congenital infections in infants born to infected mothers.

OVERVIEW OF SEXUALLY TRANSMITTED DISEASES(STD) AND IT'S SIGNIFICANCE

OVERVIEW

More than 30 different bacteria, viruses and parasites are known to be transmitted through sexual contact, including vaginal, anal and oral sex. Some STIs can also be transmitted from mother-to-child during pregnancy, childbirth and breastfeeding. Eight pathogens are linked to the greatest incidence of STIs. Of these, 4 are currently curable: syphilis, gonorrhoea, chlamydia and trichomoniasis. The other 4 are incurable viral infections: hepatitis B, herpes simplex virus (HSV), HIV and human papillomavirus (HPV).

In addition, emerging outbreaks of new infections that can be acquired by sexual contact such as monkeypox, *Shigella sonnei*, *Neisseria meningitidis*, Ebola and Zika, as well as re-emergence of neglected STIs such as lymphogranuloma venereum. These herald increasing challenges in the provision of adequate services for STIs prevention and control.

KEY FACTS

- More than 1 million sexually transmitted diseases (STDs) are acquired every day worldwide, the majority of which are asymptomatic.
- Each year there are an estimated 374 million new infections with 1 of 4 curable STIs: chlamydia, gonorrhoea, syphilis and trichomoniasis.
- More than 500 million people 15–49 years are estimated to have a genital infection with herpes simplex virus (HSV or herpes) (1).
- Human papillomavirus (HPV) infection is associated with over 311 000 cervical cancer deaths each year (2).
- Almost 1 million pregnant women were estimated to be infected with syphilis in 2016, resulting in over 350 000 adverse birth outcomes (3).

- STIs have a direct impact on sexual and reproductive health through stigmatization, infertility, cancers and pregnancy complications and can increase the risk of HIV.
- Drug resistance is a major threat to reducing the burden of STIs worldwide

SCOPE OF THE PROBLEM

STDs have a profound impact on sexual and reproductive health worldwide.

More than 1 million STDs are acquired every day. In 2020, WHO estimated 374 million new infections with 1 of 4 STDs: chlamydia (129 million), gonorrhoea (82 million), syphilis (7.1 million) and trichomoniasis (156 million). More than 490 million people were estimated to be living with genital herpes in 2016, and an estimated 300 million women have an HPV infection, the primary cause of cervical cancer and anal cancer among men who have sex with men. An estimated 296 million people are living with chronic hepatitis B globally.

STIs can have serious consequences beyond the immediate impact of the infection itself.

STIs like herpes, gonorrhoea and syphilis can increase the risk of HIV acquisition.

Mother-to-child transmission of STIs can result in stillbirth, neonatal death, low-birth weight and prematurity, sepsis, neonatal conjunctivitis and congenital deformities.

HPV infection causes cervical and other cancers.

Hepatitis B resulted in an estimated 820 000 deaths in 2019, mostly from cirrhosis and hepatocellular carcinoma. STIs such as gonorrhoea and chlamydia are major causes of pelvic inflammatory disease and infertility in women.

DEFINITION AND CLASSIFICATION OF SEXUALLY TRANSMITTED DISEASES (STDs)?

Sexually transmitted diseases (STDs), or sexually transmitted infections (STIs), are infections that are passed from one person to another through sexual contact. The contact is usually vaginal, oral, or anal sex. But sometimes they can spread through other intimate physical contact. This is because some STDs, like herpes and HPV, are spread by skin-to-skin contact.

There are more than 20 types of STDs, including:

- Chlamydia
- Genital herpes
- Gonorrhea
- HIV/AIDS
- HPV
- Pubic lice
- Syphilis
- Trichomoniasis

What causes sexually transmitted diseases (STDs)?

STDs can be caused by bacteria, viruses, and parasites.

WHO IS AFFECTED BY SEXUALLY TRANSMITTED DISEASES (STDs)?

Most STDs affect both men and women, but in many cases the health problems they cause can be more severe for women. If a pregnant woman has an STD, it can cause serious health problems for the baby.

WHAT ARE THE SYMPTOMS OF SEXUALLY TRANSMITTED DISEASES (STDs)?

STDs don't always cause symptoms or may only cause mild symptoms. So it is possible to have an infection and not know it. But you can still pass it on to others.

If there are symptoms, they could include:

- Unusual discharge from the penis or vagina
- Sores or warts on the genital area
- Painful or frequent urination
- Itching and redness in the genital area
- Blisters or sores in or around the mouth
- Abnormal vaginal odor
- Anal itching, soreness, or bleeding
- Abdominal pain
- Fever

EXPLANATION OF DIFFERENT TYPES OF STDS AND THEIR CHARACTERISTICS

CHLAMYDIA

Chlamydia results from an infection with *Chlamydia trachomatis*. It is a common infection that can spread through anal, vaginal, and oral sex. It can also spread to a baby during childbirth.

Chlamydia does not usually cause any symptoms, but it can result in infertility and other complications if a person does not seek treatment for it. It is easy to cure with early treatment.

If symptoms do occur, they may include a change in vaginal discharge and burning pain during urination.

Chlamydia can also affect the rectum if it occurs as a result of anal sex or spreads from another area of the body. This can lead to:

rectal pain

rectal bleeding

rectal discharge

In those who do develop symptoms, they will usually appear around 7–21 days after exposure.

CRABS (PUBIC LICE)

Crabs, or pubic lice, usually attach to pubic hair. Sometimes, however, they can affect the hair in the armpits, mustache, beard, eyelashes, or eyebrows. They are very small and difficult to see, but a person will likely notice itching in the areas they affect.

The first stage in the life cycle will be the appearance of the eggs. This stage lasts for around 6–10 days^{Trusted Source}. After hatching, the lice will look like tiny crabs. They need blood to survive and will live for around 2–3 weeks. In the last couple of days, the females will lay more eggs, and the cycle will continue.

Pubic lice can spread during close physical contact, including sexual contact. They can also transmit via shared towels or bed linen. However, they cannot spread via toilet seats.

To remove pubic lice in the genital area, a person can apply a 1% permethrin^{Trusted Source} solution or a similar product. These are available over the counter from most drugstores and pharmacies. It is essential to follow the instructions precisely.

If pubic lice are affecting the hair near the eyes, the person may need a prescription medication

GENITAL HERPES

The herpes simplex virus (HSV) is a common virus that affects the skin, cervix, and genitals, as well as some other parts of the body.

HSV-1 usually affects the mouth. It can spread through saliva or if there is a herpes-related sore around another person's mouth. It can pass to the genital area during oral sex.

HSV-2 can affect the genital area, the anal area, and the mouth. It transmits through vaginal, oral, and anal sex.

Herpes cannot spread via utensils, toilet seats, swimming pools, soaps, or bedding. However, if a person touches a body part where herpes is present and then touches another part of their body, the herpes can spread to that area.

Once herpes is present, it stays in the body. It usually remains dormant, however, and many people will never develop symptoms.

The main symptoms are blisters around the mouth, anus, or genital area. These blisters can break, causing a painful sore that takes a week or longer to heal.

Some symptoms of initial infection include:

fever

body aches

swollen lymph nodes

Some people never have symptoms, some have only an initial outbreak, and some have repeated outbreaks.

The first bout is usually the most severe, but people with compromised immune systems — due, for example, to HIV — have a higher risk of experiencing severe symptoms overall. Having herpes can also increase the chance of contracting or transmitting HIV.

A person might never know that they have the herpes virus, but it can still spread to others.

There is currently no cure, but medication can help relieve any symptoms. Daily antiviral medications can help prevent the spread of herpes.

Wearing a condom will not completely prevent the transmission of herpes.

HEPATITIS B

Hepatitis B can cause a long-term infection and result in liver damage. Once a person has the virus, it can remain in their semen, blood, and other bodily fluids.

Transmission is possible through:

engaging in sexual contact

using nonsterile equipment for injections

puncturing the skin with a sharp object where the virus is present

This infection can pass to a baby during pregnancy or delivery. However, a doctor can advise on ways to prevent this.

As long as the nipples are not cracked, the risk of transmitting the virus through breast milk is negligible, according to the Centers for Disease Control and Prevention (CDC) Trusted Source.

People at high risk of contracting hepatitis B should ask their doctor about a vaccine, which can offer some protection. The vaccine may not provide long-term immunity, however, and the person may need booster doses for continued protection.

TRICHOMONIASIS

Trichomoniasis, or trich, can affect anyone, but females are more likely to experience symptoms. *Trichomonas vaginalis* is the cause of this infection.

In females, it is most likely to affect the vagina. In males, the infection can develop in the urethra.

Transmission can occur through penetrative sex and vulva-to-vulva contact.

Many people do not experience any symptoms. If symptoms do occur, they may include:

- unusual discharge
- pain during urination
- pain during ejaculation
- pain or discomfort during sex

Trich can also lead to pregnancy complications and increase the chance of both contracting and transmitting HIV.

A doctor can prescribe medications to resolve trich, but both partners will likely need treatment, or the infection may return. Without treatment, trich can last for months or years.

HIV

HIV is a virus that attacks the immune system. It can spread through sexual contact and some other means.

HIV makes a person more prone to certain other infections. People with HIV also have a higher risk of contracting other STIs. Without treatment, this susceptibility to infection worsens and may lead to life threatening complications.

Once a person has HIV, the virus will be present in their bodily fluids, including semen, blood, breast milk, and vaginal and rectal fluids. If these fluids enter another person's body, that person can also contract HIV.

This can happen through sexual contact, sharing needles, contact with broken skin, giving birth, and breastfeeding.

Treatment can reduce the amount of the virus present in the body to an undetectable level. This means that the amount of the virus within the blood is so small that blood tests cannot detect it. It also means that it cannot spread to other people.

A person with undetectable HIV must continue to follow their treatment plan exactly as the doctor prescribes to keep virus levels low.

Some other ways to prevent transmission include:

using a condom or other barrier method of contraception during vaginal or anal sex

taking preexposure prophylaxis (PrEP), which is a drug that can help prevent HIV in people with exposure to the virus

not sharing needles

using gloves and disposing of sharps carefully, such as when working in a healthcare setting

HUMAN PAPILLOMAVIRUS

Human papillomavirus (HPV) refers to a group of viruses that affect the skin and mucous membranes, such as the throat, cervix, anus, and mouth. There are various types, and some pose a higher risk than others.

HPV is common. It affects around 79 million people in the United States. Nearly everyone who is sexually active will have HPV at some point in their lives, unless they have received a vaccination to prevent it.

Many people experience no symptoms, but in these cases, it is still possible for the virus to spread.

Some types of HPV can lead to genital warts. These tend to be low risk.

Having HPV can also increase the risk of cervical cancer and throat cancer.

HPV can spread through:

- vaginal and anal sex
- oral sex

- genital-to-genital contact

from a pregnant person to a baby, though this is rare

Vaccination can help prevent the transmission of HPV.

MOLLUSCUM CONTAGIOSUM

Molluscum contagiosum is a contagious viral skin infection that is usually benign.

It can affect both adults and children. Doctors consider it an STI when it occurs in adults but not when it occurs in young children. Experts believe that it is a type of pox.

Among adults, transmission tends to occur through skin-to-skin contact or lesions, usually during sexual activity.

Symptoms include small, round bumps and indents on the skin. There may only be one of these. The bump or bumps usually disappear without treatment, but this can take time, and they remain contagious while present.

Some ways of removing the bumps include taking certain prescription medications, applying chemicals or an electrical current, or freezing them.

Using a barrier method of contraception can help prevent the transmission of the virus. Anyone who has the virus should wash their hands carefully after touching an affected area of skin to prevent the spread of the virus to another part of the body or another person.

SCABIES

Scabies is a contagious skin condition Trusted Source that develops due to *Sarcoptes scabiei*, which is a mite. This condition can cause a pimple-like rash to appear anywhere on the body.

The first time a person has scabies, the symptoms may appear after 2–6 weeks of exposure. If they have scabies again, symptoms can appear 1–4 days after exposure. Scabies can spread before a person even knows that they have it.

Transmission usually occurs through skin-to-skin contact and due to sharing items such as towels and bedding.

A doctor can prescribe topical creams that kill the mites. While a person has scabies, they should avoid skin-to-skin contact with others. Once it has cleared up, they should decontaminate any personal items, including all bedding and clothes.

SYPHILIS

Syphilis stems from an infection with the bacterium *Treponema pallidum*. It is a potentially serious infection, and early treatment is necessary to prevent permanent damage and long-term complications.

There are usually four stages. In the first stage, a person may notice a round, firm sore at the site of the infection, usually around the genitals, anus, rectum, or mouth. This tends to last for 3–6 weeks Trusted Source.

The sore may not be visible, since it is often painless and may be hidden, for example, in the vagina.

The bacterium can spread at any point during the infection. Syphilis can also pass to a baby during pregnancy.

At the secondary stage, there may be:

a non-itchy rash of rough, brownish or red spots on the palms of the hands or soles of the feet

lesions in the mucous membranes, such as the mouth, vagina, or anus

swollen lymph nodes

hair loss

headaches

weight loss

muscle aches

fatigue

fever

In the latent stage, the symptoms disappear, but the bacteria remain in the body and can continue to cause damage.

In the tertiary stage, life threatening complications can affect the brain, nervous system, eyes, heart, and several other organs. Symptoms at this stage will depend on which part of the body the syphilis affects.

The only way to confirm whether or not syphilis is present is by conducting a test. If the result is positive, the person should inform their sexual partner or partners, and they, too, should seek medical advice.

Symptoms will appear around 21 days after the transmission of the bacteria, on average, but they can take between 10 and 90 days to appear

GONORRHEA

Gonorrhea is a common infection that develops due to the bacterium *Neisseria gonorrhoeae*. It is highly contagious and, without treatment, can lead to life threatening complications.

Gonorrhea can spread during oral, vaginal, or anal sex. If a person touches an infected area of the body and then touches their eye, gonorrhea can also lead to pink eye.

This infection can also spread to a baby during childbirth.

N. gonorrhoeae thrive in warm, moist parts of the body, such as the vagina, penis, mouth, rectum, and eye. This infection can spread during sexual contact.

There are often no symptoms, but if they do occur, they may include:

pain during urination

discharge

swelling of the genitals

bleeding between periods

If it affects the rectum, it can lead to:

anal itching

pain during bowel movements

discharge

An infection that occurs as a result of oral sex can lead to burning pain in the throat and swollen lymph nodes.

In females, the infection can lead to pelvic inflammatory disease. Males, meanwhile, may experience inflammation of the epididymis, which is the tube that stores sperm. Both conditions can affect fertility.

As soon as a person has gonorrhea, the bacteria can spread to other people and to other parts of the body through physical contact. Receiving treatment with antibiotics can usually resolve the infection.

Symptoms can appear 1–14 days^{Trusted Source} after infection. Males usually notice symptoms 2–5 days after exposure. Females often do not experience any symptoms at all, but if they do, the symptoms will usually appear up to 10 days after exposure.

CHANCROID

Chancroid is a rare bacterial infection that develops due to *Haemophilus ducreyi*. It can only spread through sexual contact.

It causes painful sores on the genitals. Chancroid can also increase the chance of HIV, and it can make HIV harder to treat.

Treatment is with antibiotics. Anyone who receives a diagnosis of chancroid should inform any partners they have had sexual

RISK FACTORS FOR SEXUALLY TRANSMITTED DISEASES

1.) 15-24 Years of Age

In the United States, about 50% of all people who are diagnosed with STDs are between the ages of 15 and 24 years. In this group, the younger your first sexual encounter, the higher your risk of being infected with an STD.

2.) Females

Because men can be asymptomatic with many STDs and because they penetrate the female vagina during sexual intercourse, men pass STDs more readily to women than women do to men. While condoms are not foolproof, they can greatly reduce your chances of getting an STD. Additionally, pregnant women run the risk of causing harm to the fetus with certain STDs.

3.) Minorities

Research indicates that both men and women who are members of minority groups, particularly those of Black or Mexican heritage, have a higher incidence of STDs.

4.) New Partners, Multiple Partners, and Partners with a History of an STD

If you have a new partner, ask if they have had multiple partners, if they have been screened for STDs, and if they have a history of any STD. It is recommended that both you and any new partner be screened by a healthcare provider prior to your first sexual encounter.

5.) History of STD

Anyone with a prior history of an STD, particularly HIV/AIDS, is at a higher risk of carrying any other STD. In other words, having an STD makes you more vulnerable to being infected with another STD in the future.

6.) Men Who Have Sex with Men

It is reported that men who have sex with men are more likely to be carrying an STD that can be passed on to others. This is particularly true with HIV, although increased rates of syphilis, gonorrhea, and chlamydia have also been reported.

7.) Unprotected Sexual Activity

Any sexual acts that occur without condoms can result in the transmission of STDs. This includes both vaginal and anal sex. Even with oral sex, STDs such as chlamydia, gonorrhea, and herpes can be transmitted. Remember that some people may not be having symptoms but can still pass on the disease.

STD SYMPTOMS

If an STD starts with a symptomatic STI, you might first experience:

Pain or discomfort during sexual activity or urination

Sores, bumps, or rashes on or around the vagina, penis, testicles, anus, buttocks, thighs, or mouth

Unusual discharge or bleeding from the penis or vagina

Painful or swollen testicles

Itchiness in or around the vagina

Unexpected periods or bleeding after sexual activity

But remember that not all STIs have symptoms.

If an STI progresses to an STD, symptoms can vary. Some of them may be similar to the above, such as pain during sexual activity, pain during urination, and irregular or painful periods.

But other symptoms can be quite different and depend on the STD. They can include:

Fever

Recurring pain

Fatigue

Memory loss

Changes to vision or hearing

Nausea

Weight loss

Lumps or swellings

Underlying STD causes

All STDs are caused by an STI.

These infections are usually transmitted through sexual contact, including through bodily fluids or skin contact via vaginal, oral, and anal sex. Some of them never become a disease, especially if they're treated, and they can even go away on their own.

But if the pathogens that caused the infection end up damaging cells in the body and disrupting its functions, an STI will progress to an STD.

TYPES OF STDs

While the list of STIs is pretty lengthy, there are fewer STDs.

They range from pelvic inflammatory disease (PID), caused by STIs like chlamydia and gonorrhea, to some forms of cancer caused by human papillomavirus (HPV). Below are the main STDs to be aware of:

1.) PELVIC INFLAMMATORY DISEASE: Gonorrhea, chlamydia, and trichomoniasis are common STIs that can lead to PID if left untreated. But not all cases of PID are caused by an STI, as other bacterial infections can play a role. Around 2.5 million women in the United States have a reported lifetime history of being diagnosed with PID, according to the Centers for Disease Control and Prevention (CDC).

Although this infection of the female reproductive organs is classified as a disease, some people have no symptoms. Those who do have symptoms may experience:

Pelvic or lower abdominal pain

Pain during penetrative vaginal sex or when urinating

Irregular, heavy, or painful vaginal bleeding

Unusual vaginal discharge

Nausea

High temperature

Antibiotics can successfully treat PID if it's diagnosed early enough. However, they won't treat any scarring on the fallopian tubes that may have occurred.

This scarring can make an ectopic pregnancy more likely and has also been linked to infertility, with around 1 in 10 people with PID becoming infertile as a result.

2.) TERTIARY SYPHILIS

The early stages of syphilis —a relatively uncommon infection — are considered an STI. The infection first appears as one or more small round sores on the genitals, anus, or mouth. If left untreated, syphilis will move to the latent phase, which has no symptoms. However, around a quarter of people will go on to develop tertiary syphilis from here —a process that can take between 10 and 30

years after the initial infection. This disease can have serious consequences for several organ systems in the body, leading to:

Loss of vision

Loss of hearing

Memory loss

Mental health conditions

Infections of the brain or spinal cord

Heart disease

The earlier syphilis is diagnosed and treated, the less damage it does. While penicillin injections are typically used to treat tertiary syphilis and remove the bacteria from the body, they can't reverse any damage that's already occurred. Of course, if the disease causes problems with major organs, like the heart, other medications and procedures may be required.

3.) HUMANPAPILLOMA VIRUS (HPV): Although some strains of HPV tend to cause no disease, other strains can cause abnormal cell changes.

This can lead to cancer, including oral cancer, cervical cancer, vulvar cancer, penile cancer, and anal cancer.

According to the National Cancer Institute, most cases of HPV-related cancer in the United States are caused by HPV 16 and HPV 18. HPV causes almost all cervical cancers, as well as over 90% of anal cancers, 75% of vaginal cancers, and over 60% of penile cancers. Symptoms of these cancers vary, depending on where in the body they affect. Swellings and lumps, bleeding, and pain can be common. If cancer is diagnosed early, it's often easier to treat with chemotherapy, radiotherapy, or surgery. Some screening tests exist to detect pre-cancerous cell changes caused by HPV.

4.) GENITAL WARTS

Some lower-risk strains of HPV can cause a disease called genital warts. These skin-colored or white bumps show up on the genitals or anus, with over 350,000 people developing them every year.

They are treatable, but not curable, as the virus that causes them may remain. (In some cases, HPV disappears on its own). Genital warts can also go away by themselves, but they can also come back. If you want to get them removed, options range from freezing or burning them off to applying a chemical cream or liquid.

5.) AIDS: HIV can damage the immune system and increase the risk of contracting other viruses or bacteria and developing certain cancers. With today's treatments, many people with HIV live long, healthy lives. But if left untreated, the virus can lead to AIDS, where the body becomes vulnerable to serious infections and illnesses.

People with AIDS may experience: rapid weight loss, extreme fatigue, sores, infections, neurologic disorders, cancers.

No cure is available for AIDS. And due to the variety of diseases that can be contracted as a result of a severely weakened immune system, life expectancy without treatment is around 3 years.

CONSEQUENCES OF STDs

STDs can have severe medical consequences, including death.

Untreated gonorrhea and chlamydia can cause pelvic inflammatory disease, or PID, in women, which can lead to infertility or chronic pain. PID can also cause ectopic pregnancy with subsequent maternal death. Cervical cancer is closely

associated with certain types of HPV infection. This cancer is common and has high mortality rates in many developing countries, where screening programs for its early detection are limited.

Some STDs, such as herpes and syphilis, may affect pregnancy outcome, causing spontaneous abortion, premature birth and stillbirth. Gonorrhea and chlamydia can also affect the babies born to infected women, causing eye infections and blindness. Syphilis, HIV and herpes can be transmitted to newborns, potentially causing chronic disease and death. In addition, herpes can lead to mental retardation in babies.

Some STDs, if untreated in men, can lead to infertility or a narrowing of the urethra.

And of course, HIV/AIDS is fatal.

STDs can also have severe social and economic consequences. Women, especially in developing countries, may be blamed for an STD or resulting infertility. This may lead to violence, abandonment or divorce. STDs can also result in lost work time due to illness.

LONG TERM EFFECTS

1.) GONORRHOEA

Gonorrhoea has a name as ugly as its long-term side effects. Just like chlamydia, it won't always cause symptoms, so you might not even know it's there while it messes with your body.

Gonorrhoea that has not been properly treated can cause an infection in the testicles, leading to infertility. Like chlamydia, it can also lead to PID, which may cause chronic pain, infertility and increased risk of having an ectopic pregnancy.

Gonorrhoea infection also increases the risk of HIV transmission in people of any gender.

2.) HPV

Human papillomavirus or HPV is a virus that can cause genital warts, but it won't always cause symptoms. You can catch HPV even when there are no warts around. If you have warts, these can be treated.

There are many strains of the HPV virus, some of which, in rare cases, have been linked to cervical, anal and mouth and throat cancer.

The good news is that regular cervical screening through the National Cervical Screening Program can accurately detect a HPV infection. If you have a cervix and are aged over 25 years, you should talk to a doctor or nurse about having a cervical screening test.

Also, you can get vaccinated against HPV, and people of all genders can get this vaccination. You can read more about how and when to get vaccinated on the HPV Vaccination website. (Note: you should still have cervical screening tests even if you have had the HPV vaccine).

3.) **SYPHILIS**

Diagnosed cases of syphilis are on the rise in Queensland, more than doubling between 2015 and 2019. Caused by a type of bacteria, it's easily curable but can leave permanent damage if it's not treated.

At first, syphilis causes sores or ulcers around the mouth, anus, penis or vagina that are often painless and don't bleed. They're kind of like an ulcer you might get when you accidentally bite your cheek, but that doesn't necessarily hurt.

Other possible symptoms of a syphilis infection are similar to those you experience when having the flu. In its later stage, it can cause rashes, swollen glands, wart-like lumps on your body, hair loss, headaches, tiredness and pain in your muscles, bones and joints. Sound bad? It gets worse.

If not treated, the signs of syphilis will come and go over years. But regardless, the infection will still be in your body and can lead to serious permanent problems like damage to the nerves and large vessels near the heart.

A pregnant person with syphilis can also pass it on to their unborn baby, which can cause a severe, disabling and life-threatening infection in the baby and sometimes, the baby can die from it. This is why a syphilis test is routinely recommended for those who are pregnant.

4.) **HIV**

Unprotected sex is one of the most common ways to get Human Immunodeficiency Virus, or HIV. With its complex history there is a lot of unnecessary and harmful stigma around HIV. The reality though is there is no need to be scared of or avoid people living with HIV.

HIV can be passed on when infected pre-cum, semen, blood or vaginal fluid enters the body of a person who doesn't have the virus during sexual activity or sharing injecting equipment. You can't catch HIV from kissing, hugging, sharing eating utensils, shaking hands or from any other everyday social contact. It can be passed on during pregnancy and breastfeeding though, so a routine HIV test is recommended for those who are pregnant.

When not treated, HIV can progress to Acquired Immune Deficiency Syndrome (AIDS). This can damage the immune system, making the body vulnerable to infections that can lead to serious illness.

There are a number of ways to prevent getting HIV. These include using condoms when engaging in vaginal and anal sex and talking with sexual partners about whether they have HIV before engaging in sexual activity. Another prevention method is Pre-exposure Prophylaxis, PrEP, a daily pill that is effective in preventing the HIV virus from becoming established in the body. It is recommended when people are engaging in high risk activities such as unprotected anal intercourse. Post exposure prophylaxis, PEP, is also available to help reduce the risk of getting HIV if, for example, a condom breaks and there is concern the person may have HIV.

People living with HIV are also able to reduce their risk of passing on HIV to sexual partners through something known as 'treatment as prevention' or U=U (Undetectable = Untransmissible). When a person who has HIV is taking HIV treatment and has an undetectable viral load (this means very low levels of HIV in their blood test), they are unlikely to pass the virus on through sex. For more information see HIV prevention

While HIV prevention and treatment has come a really long way in terms of reducing its effects and transmission, it's important that diagnosis is made as early as possible, so you can get started with treatment.

PSYCHOLOGICAL EFFECT OF STDs

STIs are associated with an important psychological and social burden.[4] Individuals who have been diagnosed with STIs reported shame, anxiety, embarrassment, isolation, fear of rejection, and fear of not being sexually desirable.[5,6,7,8] Shame might be caused by the violation of some role or standard, the failure to meet expectations, or by a defect of the self that cannot easily be repaired.

ECONOMIC EFFECT OF STDs

The estimated annual cost of sexually transmitted HIV infection in 1994 was approximately \$6.7 billion. 8 Including these costs raises the overall cost of STDs in the United States to nearly \$17 billion in 1994. These cost estimates underscore the enormous burden of STDs on the U.S. economy. Much of the direct costs of STDs result from failure to detect and effectively manage STDs in their initial, acute stages. For example, nearly three-fourths of the \$1.5 billion cost of chlamydial infections is due to preventable complications resulting from untreated, initially uncomplicated infections.

CURRENT STRATEGIES AND INTERVENTION

OVERVIEW OF EXISTING STRATEGIES TO CONTROL AND ELIMINATE STDs

Towards the end of the 15th century, a devastating epidemic of infectious syphilis swept Western Europe. Observers at that time quickly perceived the disease to be transmitted sexually, but this group of 'venereal diseases' was subsequently regarded as unproblematic until it was noted to be a severe problem among military personnel in the 19th and 20th centuries¹. Interest in sexually transmitted infections (STIs) was further fuelled in the early 1980s by the advent of the HIV/AIDS epidemic and recognition of the role of STI in facilitating the sexual transmission of HIV². Interest in STI control has reached a peak recently when it was shown that many interventions to control STIs can help reduce the spread of HIV. Furthermore, this can be achieved through the use of low technology in sustainable and cost-effective control programmes³.

However, despite decades of control efforts, STIs still thrive today. There are problems in the effective implementation of control programmes because STIs are not just biological and medical problems, but also behavioural, social, political and economic problems – many facets that have not been adequately addressed in the past. This realisation is slowly translating into more comprehensive approaches to STI control involving several disciplines. Yet, there is growing evidence that the epidemiology of STIs and HIV is changing, and control efforts may be severely challenged once again

Sexually transmitted infections (STIs) continue to cause high rates of infections worldwide. According to global estimates, more than 1 million curable STIs are acquired every day worldwide, primarily caused by gonorrhoea, chlamydia, syphilis and trichomonas infections. In addition, emerging outbreaks of new infections that can be acquired by sexual contact such as Monkeypox, *Shigella sonnei*, *Neisseria meningitidis*, Ebola and Zika as well as re-emergence of neglected STIs, such as lymphogranuloma venereum herald increasing challenges in the provision of adequate services for STIs prevention and control.

When left untreated, certain STIs can lead to long-term irreversible outcomes such as chronic pelvic pain, cancers, infertility, adverse pregnancy and congenital complications, some of which can be potentially fatal.

The 75th World Health Assembly in May 2022 agreed to the implementation of the new Global Health Sector Strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030 (GHSS). The new strategies propose a common vision to end AIDS and the epidemics of viral hepatitis and STIs by 2030.

For STIs, the GHSS set ambitious targets to:

reduce new cases of syphilis, gonorrhoea, chlamydia and trichomoniasis;

reduce new cases of congenital syphilis;

increase the percentage of girls fully vaccinated with human papillomavirus (HPV) vaccine by 15 years of age;

increase the percentage of screening of syphilis among priority populations and pregnant women, increase the percentage of screening of gonorrhoea among priority populations;

increase the percentage of women screened for cervical cancer; and

increase the number of countries reporting antimicrobial resistance in *Neisseria gonorrhoeae* to the WHO Gonococcal Antimicrobial Surveillance Programme.

In order to accomplish this, GHSS recommends to deliver high-quality, evidence-based, people-centered STIs services across the cascade of STIs care; generate STIs data; engage communities and civil society; and drive innovations for STI prevention diagnostics, testing and treatment.

In light of this, the global response to STIs must undergo a number of strategic and operational shifts:

creating an environment that encourages individuals to discuss sexually transmitted infections, adopt safer sexual practices, and seek treatment;

scaling up primary prevention;

scaling up integration of sexually transmitted infection services;

increasing accessibility of people-centered services;

closing funding gaps;

facilitating the adoption of point-of-care diagnostics and new technologies; and

investing in research.

WHO will lead a multisectoral coalition of partners, advocates and affected communities to raise and sustain commitment to end the epidemics of STIs. WHO will lead the development of evidence-based norms and standards and promote the use of up-to-date guidelines, tools and service delivery approaches by all countries. WHO will continue to provide technical support to countries to implement their national responses to STIs and will provide leadership to shape the global research agenda for STIs

Sexuality, according to the World Health Organization (WHO, Citation2006), is a central aspect of being human, and sexual satisfaction and healthy sexual functioning are considered integral and essential to quality of life (e.g., Yuen Loke, Citation2013). The term sexual health has come to refer to all aspects of sexuality related to health and wellbeing (Sandfort & Ehrhardt, Citation2004), including issues as diverse as sexual desire, sexual function, sexual networking, sexually explicit media use, non-consensual sex, and sexually transmitted infections (STIs), including infection with the human immune deficiency virus (HIV). This review is

specifically concerned with STIs, which continue to pose a global public health threat and adversely affect sexual health.

Every day, more than one million STIs occur globally, and STIs are among the most common infectious diseases (Rowley et al., Citation2019). STIs, including HIV, can have serious long-term health impacts that affect an estimated 1.2 billion people globally (Vos et al., 2016). The brunt of the burden of STIs is borne by people in low- and middle-income countries (e.g., Unemo et al., Citation2017), and women are more affected than men (e.g., James et al., Citation2020). Also, younger people (< 25 years) are more affected than older people (e.g., Kreisel et al., Citation2021; Mohammed et al., Citation2018), and gay, bisexual, and other men who have sex with men (MSM) (e.g., Beyrer et al., Citation2016), and transgender people (e.g., MacCarthy et al., Citation2017) are disproportionately affected by STIs.

Interventions to promote STI prevention behaviours

Interventions to reduce sexual behaviours that put people at risk of STIs (e.g., early initiation of sex) and promote preventive behaviours (e.g., condom use) have long been the backbone of STI control, predominantly for HIV prevention. However, by the late 2000s/early 2010s the global HIV pandemic was continuing largely unabated, which was conducive to claims that 30 years of behavioural prevention was failing (cf. Kippax & Stephenson, Citation2012). As a case in point, biomedical scientists pointed to the absence of evidence from randomized controlled trials that behavioural interventions promoting protective sexual practices could reduce new HIV infections and highlighted that such evidence was available in support of novel biomedical interventions (e.g., Padian et al., Citation2010), which include the now much promoted treatment-as-prevention and PrEP. Biomedical prevention, however, also relies on people's behaviours (e.g., Kippax & Stephenson, Citation2012). Interventions are hence required to promote an increasing range of STI prevention behaviours, including getting

tested regularly, and initiating and adhering to HIV-treatment or PrEP. Avenues to strengthen HIV prevention centre around the notion of combination prevention (Coates et al., Citation2008), that is, drawing on a mix of communication channels and making use of the full range of prevention approaches, including behavioural, biomedical, and structural interventions.

Numerous studies have tested a diversity of behavioural interventions to promote condom use and reduce sexual risk behaviours. HIV prevention interventions for MSM target individuals (mostly counselling or motivational interviewing by a counsellor, educator, other professional or peer), small groups (typically multisession discussions led by a counsellor, facilitator, or peer) and communities (e.g., deploying popular opinion leaders) (see Herbst et al., 2007). Typical interventions for young people are sexuality education programs delivered in-school, after school in community settings, or in health clinics (see Goesling et al., Citation2014). The conclusion from a large body of evidence is that behavioural interventions can effectively promote condom use and reduce condomless sex, numbers of sex partners and rates of STIs in most affected population groups, including young people and MSM (e.g., Noar, Citation2008; Scott-Sheldon et al., Citation2011). On average, behavioural interventions resulted in a 32%-34% increase in the odds of condom use or reduction in the odds of condomless sex and STIs; effects on numbers of partners were smaller, with an average 15% reduction observed (Noar, Citation2008). There is also meta-analytic evidence that behavioural interventions can significantly reduce numbers of HIV infections (Scott-Sheldon et al., Citation2011), assuaging earlier concerns of a lack of robust evidence (e.g., Padian et al., Citation2010).

A meta-analysis provided evidence that behavioural HIV prevention specifically targeting adolescents can reduce rates of STIs and numbers of sexual partners, increase condom use, and reduce or delay penetrative sex (Johnson et al., Citation2011). Support has also been compiled in a review of systematic reviews that school-based sexual-health and relationship education programs can reduce

adolescent sexual risk behaviours, although abstinence-only programs are ineffective (Denford et al., Citation2017). Furthermore, a systematic review of studies mostly with adolescents and young adults found that individual behavioural counselling in primary care can increase condom use and reduce sexual risk and rates of STIs (Henderson et al., Citation2020). There is also evidence from a meta-analysis that digital communication technology-based interventions (e.g., computer programs, texting, websites, social media, and combinations thereof) can increase condom use and abstinence in young people (Widman et al., Citation2018)

Sexually transmitted diseases (STDs) are a major public health concern and there are several strategies in place to control and eliminate them. These include:

- **Education and Awareness:** One of the most important strategies is to educate the public about the dangers of STDs, how they are spread, and how to prevent them. This includes providing information about safe sex practices, condom use, and regular testing.
- **Screening and Testing:** Regular testing is a key component in controlling STDs. This includes testing for common STDs such as chlamydia, gonorrhoea, syphilis, and HIV. Screening can detect STDs in their early stages, allowing for prompt treatment and reducing the risk of complications and transmission to others.
- **Treatment and Management:** Effective treatment and management of STDs is essential to controlling their spread. This includes antibiotics for bacterial STDs such as chlamydia and gonorrhoea, and antiretroviral therapy for viral STDs such as HIV. In some cases, medication can also be used to manage symptoms and prevent the progression of disease.
- **Contact Tracing:** Contact tracing is a process used to identify and reach out to people who have had close contact with an infected individual. This allows for early diagnosis and treatment of STDs, reducing the risk of transmission to others.

- **Vaccination:** Vaccination is a highly effective way to prevent STDs, especially for viruses like HPV and hepatitis B. Regular vaccination can reduce the incidence of these STDs and help to control outbreaks.
- **Access to Services:** Making sure that people have access to comprehensive sexual and reproductive health services is important for controlling STDs. This includes access to testing, treatment, and counseling services, as well as programs that aim to reduce the risk of transmission, such as condom distribution and harm reduction programs.
- **Partnership and Collaboration:** Effective control and elimination of STDs requires the collaboration of various stakeholders, including public health agencies, healthcare providers, community-based organizations, and the general public. Working together, these groups can implement effective prevention and control strategies and help to reduce the impact of STDs on communities.
- These strategies, when implemented effectively, can help to reduce the spread of STDs, improve access to care, and improve the health outcomes for those affected by these diseases.

The assessment of the effectiveness and limitations of current approaches to control and eliminate sexually transmitted diseases (STDs) can provide valuable information for improving the current strategies and developing new ones.

- **Education and Awareness:** This approach has been effective in increasing public knowledge about STDs and reducing stigma associated with them. However, this approach may not be effective in reaching certain populations, such as those who are marginalized or have limited access to healthcare.
- **Screening and Testing:** Regular screening and testing have been shown to be effective in detecting STDs in their early stages and reducing the spread of disease. However, this approach may be limited by factors such as cost, availability, and the stigma associated with testing.
- **Treatment and Management:** Effective treatment and management of STDs can help to control their spread and reduce the risk of complications.

However, the availability of treatment may be limited in some areas, and there may be barriers to accessing care, such as cost, stigma, and lack of healthcare facilities.

- **Contact Tracing:** Contact tracing has been shown to be effective in reducing the spread of STDs and improving the timeliness of diagnosis and treatment. However, this approach may be limited by privacy concerns and the difficulty of reaching infected individuals.
- **Vaccination:** Vaccination has been shown to be highly effective in preventing STDs and reducing outbreaks. However, access to vaccines may be limited in some areas, and there may be concerns about vaccine safety and efficacy.
- **Access to Services:** Providing access to comprehensive sexual and reproductive health services has been shown to be effective in reducing the spread of STDs and improving health outcomes. However, this approach may be limited by factors such as cost, lack of healthcare facilities, and stigma associated with seeking care.
- **Partnership and Collaboration:** Partnership and collaboration among various stakeholders have been shown to be effective in improving the implementation and effectiveness of STD control and elimination strategies. However, there may be challenges in getting all stakeholders to agree on a common approach, and there may be conflicting interests among stakeholders.
- **Current approaches to control and eliminate STDs** have had varying levels of effectiveness and limitations. Regular evaluation of these strategies and addressing their limitations is essential for improving the overall impact of STD control and elimination efforts.
- The World Health Organization (WHO) plays a crucial role in addressing sexually transmitted diseases (STDs) globally. WHO works to support countries in the prevention, diagnosis, and treatment of STDs, and to reduce the impact of these diseases on individuals, communities, and societies.

- **Technical Assistance:** WHO provides technical assistance to countries to help them develop and implement effective STD control and elimination programs. This includes providing guidance on screening and testing, treatment and management, and vaccine implementation.
- **Advocacy and Awareness:** WHO advocates for increased attention and investment in STD control and elimination efforts, and raises awareness about the impact of STDs on global health. WHO also works to reduce stigma and discrimination associated with STDs and to promote human rights for those affected by these diseases.
- **Surveillance and Monitoring:** WHO collects and analyzes data on the incidence and prevalence of STDs to better understand the impact of these diseases and to inform prevention and control efforts. WHO also provides guidance on surveillance and monitoring methods to countries.
- **Research and Development:** WHO supports research and development of new tools and technologies to prevent and control STDs, such as vaccines, rapid diagnostic tests, and new treatments.
- **Partnership and Collaboration:** WHO works closely with a wide range of partners, including other international organizations, governments, civil society groups, and the private sector, to promote integrated and effective approaches to STD control and elimination.
- **In conclusion,** the role of WHO in addressing STDs is vital for improving global health outcomes and reducing the impact of these diseases on communities and societies. By providing technical assistance, advocacy, data and research, and partnerships, WHO plays a crucial role in promoting and supporting effective STD control and elimination efforts globally

WHO RESPONSE/ROLES IN ADDRESSING STDS

WHO is currently guided by the Global health sector strategy on HIV, Hepatitis and Sexually Transmitted Infections, 2022–2030. Within this framework, WHO:

- Develops global targets, norms and standards for STI prevention, testing and treatment;
 - Supports the estimation and economic burden of STIs and the strengthening of STI surveillance;
 - Globally monitors AMR to gonorrhoea; and
 - Leads the setting of the global research agenda on STIs, including the development of diagnostic tests, vaccines and additional drugs for gonorrhoea and syphilis.
-
- As part of its mission, WHO supports countries to:
 - Develop national strategic plans and guidelines
 - Create an encouraging environment allowing individuals to discuss STIs, adopt safer sexual practices, and seek treatment
 - Scale-up primary prevention (condom availability and use, etc.);
 - Increase integration of STI services within primary healthcare services
 - Increase accessibility of people-centred quality STI care;
 - Facilitate adoption of point-of-care tests;
 - Enhance and scale-up health intervention for impact, such as hepatitis B and HPV vaccination, syphilis screening in priority populations.
 - Strengthen capacity to monitoring STIs trends .
 - Monitor and respond to AMR in gonorrhoea.

POTENTIAL NEW STRATEGIES AND INTERVENTION

There are several potential new strategies and interventions for sexually transmitted diseases (STDs), including:

- Vaccines: The development of vaccines for common STDs such as HIV, herpes, and chlamydia could significantly reduce the transmission and prevalence of these diseases.

- Increased access to testing and treatment: Making STD testing and treatment more widely available and affordable, including through telemedicine and self-testing options, could help increase detection and treatment rates.
- Partner notification and treatment: Programs that encourage people who test positive for an STD to notify their sexual partners and provide them with testing and treatment could help reduce the spread of STDs.
- Pre-exposure prophylaxis (PrEP): PrEP involves taking medication before potential exposure to HIV to reduce the risk of infection. Expanding access to PrEP could help reduce the incidence of HIV.
- Behavioral interventions: Educational and behavioral interventions that target high-risk populations could help reduce risky sexual behaviors and prevent the spread of STDs.
- Expansion of HPV vaccination programs to reduce the prevalence of genital warts and certain types of cancer
- Development of new rapid diagnostic tests for a wide range of STDs, which can increase early detection and treatment
- Implementation of digital health technologies, such as telemedicine and mobile apps, to increase access to care and improve patient education and adherence to treatment
- Use of novel antibiotic and antiviral drugs, which can improve treatment outcomes and reduce the risk of antibiotic resistance
- Overall, a multifaceted approach that combines several of these strategies is likely to be most effective in reducing the incidence and impact of STDs

CONCLUSION

Sexually transmitted diseases (STDs) represent a major public health problem in the world and the advent and increase of human immunodeficiency virus infection during the last decade has highlighted the importance of infections spread by the sexual route. The World Health Organization estimates that the global incidence in 1995 of new cases of selected curable STDs, which are

gonorrhoea, chlamydial infection, syphilis and trichomoniasis, was 333 million. Control programs for STDs must prevent the acquisition of STDs, their complications and sequelae and interrupt and reduce transmission.

Sexually transmitted infections (STIs) are spread predominantly by unprotected sexual contact. Some STIs can also be transmitted during pregnancy, childbirth and breastfeeding and through infected blood or blood products.

STIs have a profound impact on health. If untreated, they can lead to serious consequences including neurological and cardiovascular disease, infertility, ectopic pregnancy, stillbirths, and increased risk of Human Immunodeficiency Virus (HIV). They are also associated with stigma, domestic violence, and affects quality of life.

The majority of STIs have no symptoms. When they are present common symptoms of STIs are vaginal or urethral discharge, genital ulcer and lower abdominal pain.

The most common and curable STIs are trichomonas, chlamydia, gonorrhoea and syphilis. Rapidly increasing antimicrobial resistance is a growing threat for untreatable gonorrhoea.

Viral STIs including HIV, genital herpes simplex virus (HSV), viral hepatitis B, human papillomavirus (HPV) and human T-lymphotropic virus type 1 (HTLV-1) lack or have limited treatment options. Vaccines are available for hepatitis B to prevent infection that can lead to liver cancer and for HPV to prevent cervical cancer. HIV, HSV and HTLV-1 are lifelong infections: for HIV and HSV there are treatments that can suppress the virus, but currently there are no cures for any of these viral STIs.

Sexually transmitted diseases (STDs) are a major health problem in the world. These diseases, including human immunodeficiency virus (HIV) infection, represent some of the most complex ones in modern medicine. STDs exhibit a higher incidence and prevalence, an alarming rate of antimicrobial resistance, a higher rate of serious complications and interaction with HIV infection in developing countries. Failure to diagnose and treat traditional infections, such as

gonorrhoea, chlamydial infections and syphilis which can have deleterious effects during pregnancy and on the newborn, is also common in these countries. Other complications especially in women, such as pelvic inflammatory disease, ectopic pregnancy, infertility and cervical cancer, are large health and social problems. In most developing countries, the incidence and prevalence of STDs may be 20 times higher than those in developed countries.

Point-prevalence studies are employed most widely in the developing world. Such information is useful but limited since it is not totally representative of the whole population as it is obtained mostly from high risk groups of individuals and/or patients. The developing world is a heterogeneous community, but it has at least one common feature, that the STDs in this community are expected to occur among those between 20 and 40 years of age, in contrast to the population of developed countries. The consequence of this is not only a higher absolute incidence of STDs in the developing countries but also a potentially worsening situation in the future.

2 Frequency of STDs in the world.

More than 1 million STIs are acquired every day. In 2020, WHO estimated 374 million new infections with 1 of 4 STIs: chlamydia (129 million), gonorrhoea (82 million), syphilis (7.1 million) and trichomoniasis (156 million). More than 490 million people were estimated to be living with genital herpes in 2016, and an estimated 300 million women have an HPV infection, the primary cause of cervical cancer and anal cancer among men who have sex with men. An estimated 296 million people are living with chronic hepatitis B globally.

STIs can have serious consequences beyond the immediate impact of the infection itself.

STIs like herpes, gonorrhoea and syphilis can increase the risk of HIV acquisition.

Mother-to-child transmission of STIs can result in stillbirth, neonatal death, low-birth weight and prematurity, sepsis, neonatal conjunctivitis and congenital deformities.

HPV infection causes cervical and other cancers.

Hepatitis B resulted in an estimated 820 000 deaths in 2019, mostly from cirrhosis and hepatocellular carcinoma. STIs such as gonorrhoea and chlamydia are major causes of pelvic inflammatory and infertility in women.

STDs may be subdivided into curable and non-curable STDs. Curable STDs are *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Treponema pallidum*, and *Trichomonas vaginalis* infections while non-curable STDs are of viral (HIV, herpes simplex virus (HSV), human papilloma virus (HPV) and hepatitis B virus) origin.

The World Health Organization (WHO) has been responsible for surveying problems represented by STDs and HIV infection. It estimates an annual total of 333 million of new STD infections in adults. The number of new cases is 12 million for syphilis, 62 million for gonorrhoea, 89 million for chlamydial infections and 170 million for trichomoniasis, excluding genital papilloma virus infection which WHO itself had previously estimated at 30 million new cases per year and herpetic infection at 20 million. Genital ulcers show a relatively higher frequency among STDs, and chancroid followed by syphilis is a major cause of genital ulcers in the developing countries. WHO projections for HIV infection show a current range of 15–20 million cumulative infections worldwide and it is projected that cumulative worldwide totals of HIV infections will reach 30–40 million by the year 2000 [1]. STDs were concentrated in South East Asia with approximately 150 million new cases in 1995 and in sub-Saharan Africa with 64 million. There was a significant decline in the incidence of curable STDs such as syphilis and gonorrhoea in developed countries during 1980–1991. These infections were either at a negligible rate in general or particularly absent in some localities in these countries. In developing countries in contrast, for example in the eastern part of Europe and especially in the recently independent states of the former USSR, the situation was quite different. There has been an extremely rapid rise in the notification of syphilis in the Russian Federation reaching 86 per 100 000 in 1994

and 172 in 1995 with a 40-fold increase from 1989 to 1995. In contrast to the low prevalence of HIV infection in some developing countries, such as those in Eastern Europe and the Middle East, the numbers of reported HIV cases were considerably high in Poland and Ukraine in 1994–1995.

Table 1 The annual total of sexually transmitted diseases (excluding HIV)

| Disease | Total (million) |
|-------------------------|-----------------|
| Bacterial | |
| Genital chlamydia | 89 |
| Gonorrhoea | 62 |
| Syphilis | 12 |
| Chancroid | 7 |
| Viral | |
| Genital papilloma virus | 30 |
| Genital herpes | 20 |
| Protozoan | |
| Trichomoniasis | 170 |

The prevalence of common STDs in developing countries is very high in particular risk groups. Prevalence of gonorrhoea can reach 50% among commercial sex workers (CSWs) and syphilis ranges from 23 to 32% for acute or previous infection, while *C. trachomatis* positivity can be as high as 25%. Prostitution is a particular driving force for STDs and HIV; for example in Kenyan urban STD clinics, 60% of men with a gonococcal urethritis or chancroid reported commercial sexual exposure as the probable source of infection [1]. Prevalence rates of gonococcal

infections among pregnant women range from 2 to 20% in Africa [6,7]. Although this infection is a common STD in many developing countries, its prevalence rate is very small in the developed world.

The prevalence rates of syphilis in pregnant women in some developing countries ranges from 1 to 20%. Several African surveys showed that high rates of trichomoniasis among pregnant women were found, ranging from 10 to 30%. The prevalence rates of this infection among CSWs were not significantly different from those in pregnant women. Women and men attending STD clinics constitute another high risk group and levels of infection are considerably high as should be expected. Syphilis is a treatable disease which can be diagnosed with a very simple test, the fact that it is still prevalent in many developing countries is unacceptable.

Most developing countries have also undertaken HIV seroprevalence studies, particularly among CSWs, intravenous drug users and pregnant women. High levels of infection in these groups are found in most sub-Saharan African and South-East Asian countries. There is a high rate of concurrent infection for HIV and other well known STDs in patients. Rates as high as 70% of HIV infection are found in African patients with STD, whereas the rates are reaching 15–20% in patients with STD in Thailand.

The global problem of STDs is influenced by a number of factors: different infecting agents with different host relationships and susceptibilities to therapy, age group, social status, sexual orientation and sexual behavior of infected persons in different continents, countries and cultures in different time periods, absence or presence of national prevention programs and therapy guidelines, different medical specialities dealing with STDs and last but not least reliability of registry data. Pregnant women, sex workers, recruits, STD clinic attenders and prisoners are often studied populations.

STDs in Turkey: 'as a model among developing countries'

Nowadays in Turkey, knowledge of the epidemiology of STDs is very limited, except for reportable diseases such as syphilis and HIV/AIDS, the reportable diseases for which contact tracing and treatment of infected partners are enforced by law and also free of charge, if patients cannot afford the due cost in Turkey. However, genital chlamydial infections caused by *C. trachomatis* are not reportable and the diagnostic tests are not free of charge.

In developing countries, the most important problem is insufficient sexual education. In Turkey as a model among developing countries, sex and STDs were taboo until the last few decades. However, there are still some cultural values in this country.

Prostitution, free sex and homosexuality are usually rejected by society. On the other hand, these are very common in Turkey, especially in metropolitan area

To be a virgin is still an important factor for marriage;

To have an STD is still regarded as shameful;

Most STD patients prefer to hide their illnesses and hardly ever consult a physician;

Most STD patients usually ask for drugs from their friends or pharmacies;

Most STD patients go to a physician when serious complications occur.

Actually the above-mentioned cultural values are still problems in most developing countries.

STD control activities and programs

STD control activities can be classified into three distinct categories:

- . Reducing rates of new sex partner acquisition;
- . Reducing susceptibility of exposed individuals;
- . Reducing duration of infectivity of those responsible for spread of disease.

In order to manage these activities, national control programs, consisting of intervention strategies and support components, are developed and implemented. These interventions in developing countries include:

Health promotion to change sexual behavior and adoption of 'safer sex' practices;

Adequate management of patients with STDs and their sex partners;

Screening for HIV, gonorrhea, syphilis, and chlamydia in high risk groups known to have a high prevalence of infection.

The control programs for STDs in developing countries play an important role in the prevention of these diseases. The control programs in the prevention of STDs in these countries should include:

Professional training;

Social, political and economic reforms;

Research projects (early detection programs);

Laboratory services (specific laboratory technology);

Counselling centers;

Safer sex behavior models;

Treatment regimens;

Cost-benefit analysis.

In conclusion, in developing countries, in contrast to developed ones, more funds for STD screening, diagnosis, treatment and of course education are needed. These should include the right combination of medical, behavioral and social interventions.

Sexually transmitted diseases most commonly get acquired due to unsafe sexual practices. Hence, it is the person's responsibility to ensure protected sex. And in case of any symptoms, quick medical assistance should be sought without delay.

Condoms used correctly and consistently are effective methods to protect against STIs and HIV. Screening with early diagnosis of people with STIs and their sexual partners offers the best opportunity for effective treatment and for preventing complications and further transmission.

Sexually transmitted diseases (STDs) are a major public health concern and there are several strategies in place to control and eliminate them. These include:

Education and Awareness: One of the most important strategies is to educate the public about the dangers of STDs, how they are spread, and how to prevent them. This includes providing information about safe sex practices, condom use, and regular testing.

Screening and Testing: Regular testing is a key component in controlling STDs. This includes testing for common STDs such as chlamydia, gonorrhea, syphilis, and HIV. Screening can detect STDs in their early stages, allowing for prompt treatment and reducing the risk of complications and transmission to others.

Treatment and Management: Effective treatment and management of STDs is essential to controlling their spread. This includes antibiotics for bacterial STDs such as chlamydia and gonorrhea, and antiretroviral therapy for viral STDs such as HIV. In some cases, medication can also be used to manage symptoms and prevent the progression of disease.

Contact Tracing: Contact tracing is a process used to identify and reach out to people who have had close contact with an infected individual. This allows for early diagnosis and treatment of STDs, reducing the risk of transmission to others.

Vaccination: Vaccination is a highly effective way to prevent STDs, especially for viruses like HPV and hepatitis B. Regular vaccination can reduce the incidence of these STDs and help to control outbreaks.

Access to Services: Making sure that people have access to comprehensive sexual and reproductive health services is important for controlling STDs. This includes access to testing, treatment, and counseling services, as well as programs that aim to reduce the risk of transmission, such as condom distribution and harm reduction programs.

Partnership and Collaboration: Effective control and elimination of STDs requires the collaboration of various stakeholders, including public health agencies, healthcare providers, community-based organizations, and the general public. Working together, these groups can implement effective prevention and control strategies and help to reduce the impact of STDs on communities.

These strategies, when implemented effectively, can help to reduce the spread of STDs, improve access to care, and improve the health outcomes for those affected by these diseases.

B. The assessment of the effectiveness and limitations of current approaches to control and eliminate sexually transmitted diseases (STDs) can provide valuable information for improving the current strategies and developing new ones.

Effectiveness:

Education and Awareness: This approach has been effective in increasing public knowledge about STDs and reducing stigma associated with them. However, this approach may not be effective in reaching certain populations, such as those who are marginalized or have limited access to healthcare.

Screening and Testing: Regular screening and testing have been shown to be effective in detecting STDs in their early stages and reducing the spread of disease. However, this approach may be limited by factors such as cost, availability, and the stigma associated with testing.

Treatment and Management: Effective treatment and management of STDs can help to control their spread and reduce the risk of complications. However, the availability of treatment may be limited in some areas, and there may be barriers to accessing care, such as cost, stigma, and lack of healthcare facilities.

Contact Tracing: Contact tracing has been shown to be effective in reducing the spread of STDs and improving the timeliness of diagnosis and treatment. However, this approach may be limited by privacy concerns and the difficulty of reaching infected individuals.

Vaccination: Vaccination has been shown to be highly effective in preventing STDs and reducing outbreaks. However, access to vaccines may be limited in some areas, and there may be concerns about vaccine safety and efficacy.

Access to Services: Providing access to comprehensive sexual and reproductive health services has been shown to be effective in reducing the spread of STDs and improving health outcomes. However, this approach may be limited by factors such as cost, lack of healthcare facilities, and stigma associated with seeking care.

Partnership and Collaboration: Partnership and collaboration among various stakeholders have been shown to be effective in improving the implementation and effectiveness of STD control and elimination strategies. However, there may be challenges in getting all stakeholders to agree on a common approach, and there may be conflicting interests among stakeholders.

Current approaches to control and eliminate STDs have had varying levels of effectiveness and limitations. Regular evaluation of these strategies and addressing their limitations is essential for improving the overall impact of STD control and elimination efforts.

C. The World Health Organization (WHO) plays a crucial role in addressing sexually transmitted diseases (STDs) globally. WHO works to support countries in the prevention, diagnosis, and treatment of STDs, and to reduce the impact of these diseases on individuals, communities, and societies.

Technical Assistance: WHO provides technical assistance to countries to help them develop and implement effective STD control and elimination programs. This includes providing guidance on screening and testing, treatment and management, and vaccine implementation.

Advocacy and Awareness: WHO advocates for increased attention and investment in STD control and elimination efforts, and raises awareness about the impact of STDs on global health. WHO also works to reduce stigma and discrimination associated with STDs and to promote human rights for those affected by these diseases.

Surveillance and Monitoring: WHO collects and analyzes data on the incidence and prevalence of STDs to better understand the impact of these diseases and to inform prevention and control efforts. WHO also provides guidance on surveillance and monitoring methods to countries.

Research and Development: WHO supports research and development of new tools and technologies to prevent and control STDs, such as vaccines, rapid diagnostic tests, and new treatments.

Partnership and Collaboration: WHO works closely with a wide range of partners, including other international organizations, governments, civil society groups, and the private sector, to promote integrated and effective approaches to STD control and elimination.

In conclusion, the role of WHO in addressing STDs is vital for improving global health outcomes and reducing the impact of these diseases on communities and societies. By providing technical assistance, advocacy, data and research, and partnerships, WHO plays a crucial role in promoting and supporting effective STD control and elimination efforts globally

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