

## Appendix D

### HIV and STI Resource Materials

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## What Are STIs and RTIs?

*Sexually transmitted infections (STIs)*—also known as sexually transmitted diseases (STDs)—are infections passed from person to person primarily by sexual contact.

Some STIs can be passed to a baby during pregnancy, delivery, or breastfeeding, causing serious complications. Some STIs, including *human immunodeficiency virus (HIV)*, the virus that causes *acquired immunodeficiency syndrome (AIDS)*, can also be passed through unclean surgical instruments, injection needles, and skin-cutting tools, as well as through transfusions of infected blood.

STIs are part of a broader group of infections known as *reproductive tract infections (RTIs)*. RTIs include infections of the reproductive system that:

- Are not caused by sexual contact, including infections caused by an imbalance of normal reproductive tract microorganisms (such as yeast infections)
- Are acquired during medical procedures (often when there is a failure in aseptic technique)

STIs can be divided into two broad categories: curable and incurable.

- **Curable STIs** can be treated with medications, such as antibiotics or antimicrobials. These STIs include syphilis, gonorrhea, chlamydia, trichomonas, lymphogranuloma venereum (LGV), chancroid, granuloma inguinale, pubic lice, and scabies. If not diagnosed and treated in time, some of these curable STIs can have serious—even fatal—consequences.
- **Incurable STIs**, such as HIV and AIDS, hepatitis B, genital herpes, and human papillomavirus (HPV), are caused by viruses. While these diseases cannot be cured, in some settings they can be managed by preventing, relieving, or reducing their symptoms. (HPV infection can often be treated with no recurrence.)

Infection with an STI might lead to symptoms in the reproductive organs themselves, in the skin around the genitals or anus, or in the throat or mouth. Some STIs may lead to systemic symptoms that cause problems in other parts of the body or throughout the body, while others may cause no symptoms at all. Common STI symptoms include:

- Abnormal discharge from the vagina or penis
- Pain or burning with urination
- Itching or irritation of the genitals
- Sores, blisters, or bumps on the genitals
- Rashes, including rashes on the palms of hands and soles of feet
- Pelvic pain

It is important to remember that the symptoms associated with STIs and other RTIs can vary from none to minor to severe. You cannot always tell if a person has an STI, and people without symptoms often transmit the infection to others unknowingly.

STIs and other RTIs can lead to serious complications, including infertility, chronic pain, and even death, especially if they are not detected and treated early. No cure exists for HIV infection or AIDS, and infection usually results in death. STI infection significantly increases the risk of acquiring or transmitting HIV.

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### Seriousness of STI/RTI Complications

Millions of men, women, and children all over the world are affected by the long-term complications of STIs and RTIs.

These infections can lead to numerous serious, long-term, and sometimes deadly complications, particularly in women. Some STIs/RTIs can also lead to pregnancy-related complications or congenital infections. Unfortunately, symptoms and signs of many infections may not appear until it is too late to prevent serious consequences and damage to the reproductive organs.

Even curable STIs can cause serious complications if left untreated. If they are not diagnosed and treated in time, some of these infections can cause infertility, chronic pelvic pain, premature labor and delivery, spontaneous abortion, ectopic pregnancy, inflammation of the testicles, cardiovascular or neurological complications, or even death. Some infections can also lead to pneumonia, respiratory infections, and eye infections in infants.

In addition, the complications of STIs and RTIs affect even more than an individual's health. The morbidity associated with them has a profoundly adverse effect on the quality of life and economic productivity of many women and men, their families, and, consequently, entire communities.

Some of the most common complications of STIs/RTIs include:

- Pelvic inflammatory disease (PID), which can lead to ectopic pregnancy, infertility, and chronic pelvic pain
- Increased susceptibility to opportunistic infections
- Infertility, early labor and delivery, stillbirth, and spontaneous abortion
- Neurological, cardiovascular, and other systemic conditions
- Chronic pain and discomfort

PID is an infection of the internal reproductive organs in women, involving inflammation, irritation, and swelling of the uterus (womb), fallopian tubes, ovaries, and surrounding pelvic tissues. PID is caused by STIs (most commonly chlamydia and gonorrhea) that have been left untreated. Other types of bacteria may also play a role in the disease.

The primary symptom of PID is lower abdominal (pelvic) pain. In mild cases, women may have no symptoms or may experience only slight cramping. In severe cases, the pain may be constant and very intense. Physical activity, and especially sexual intercourse, may greatly increase the pain.

Other symptoms of PID include:

- Abnormal vaginal discharge
- Abnormal or heavy vaginal bleeding
- Bleeding between periods
- Fever and chills
- Nausea and vomiting

PID, the most serious infection of the reproductive tract in women, can lead to infertility and chronic pelvic pain. PID can also place women at increased risk for *ectopic pregnancy* (a pregnancy that occurs outside the uterus, most commonly in the fallopian tubes), which can lead to life-threatening complications. If a client who has PID is pregnant at the time of diagnosis, it may be necessary for her to receive treatment in a hospital. If she becomes pregnant after acquiring PID, it is important to make sure early on that the pregnancy is not ectopic.

### Why Should Reproductive Health Services Focus on STIs and RTIs?

STIs and other RTIs are a rapidly growing problem throughout the world. Although the impact of STIs is serious in both developed and developing countries, it is most profound in the developing world:

- Every year, approximately 400 million adults worldwide become infected with an STI.
- In the year 2000, approximately 5.3 million people (including 600,000 children under the age of 15) were infected with HIV.
- As of November 2000, an estimated 36.1 million adults and children worldwide are living with AIDS or HIV infection, and 25.3 million of these are in Sub-Saharan Africa.
- In some developing countries, STI prevalence rates of 5% to 52% have been reported among women attending antenatal and family planning clinics.
- Today, STIs and other RTIs are among the most common problems for which people in the developing world seek health care services.

The human costs of HIV and other STIs are incalculable. Premature deaths and disabilities not only devastate families, but also threaten the cultural and economic stability of communities, countries, and whole continents.

### Links to HIV/AIDS

STI treatment and prevention can be an important tool in limiting the spread of HIV infection, since:

- A person with an STI has a much higher risk for *acquiring* HIV from an infected partner
- A person infected with both HIV and another STI has a much higher risk for transmitting HIV to an uninfected partner

For example, a person who has chancroid, chlamydia, gonorrhea, syphilis, or trichomonas infection can have as much as nine times the risk for getting HIV from a sexual partner as a person who is not infected with one of these STIs. An ulcerative STI (such as genital herpes, syphilis, or chancroid) increases the risk for HIV transmission per exposure significantly more than a nonulcerative STI (such as gonorrhea or chlamydia), since HIV can pass more easily through genital ulcers. But STIs that do not cause ulcers also increase risk, because they increase the number of white blood cells (which have receptor sites for HIV) in the genital tract and because genital inflammation may result in damage that can allow HIV to enter the body more easily.

In addition, HIV infection may complicate the diagnosis and treatment of other STIs, because HIV may change the patterns of disease or clinical manifestations of certain infections and may

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affect laboratory tests. In people with HIV infection, STI symptoms may be more severe, the period of infectivity may be increased, and normal treatments may fail.

### **Family Planning Methods and STIs/RTIs**

Contraceptive methods other than male or female condoms are not effective against the transmission of STIs, including HIV. While spermicides and barrier methods, such as the diaphragm, may offer some increased protection against bacterial STIs (e.g., against gonorrhea or chlamydia), the level of protection is fairly low.

Recent research results indicate that women who use some hormonal contraceptives (oral contraceptives or Depo-Provera) have an increased risk for contracting some STIs or RTIs, but a decreased risk for contracting others. For example, women using oral contraceptives were at increased risk for chlamydia and vaginal yeast infections, but at decreased risk for bacterial vaginosis, relative to women not using family planning. This altered susceptibility to STIs could influence the transmission of HIV. There has also been some concern about the possibility that hormonal contraceptives might increase women's susceptibility to HIV as a result of endometrial, cervical mucus, or bleeding changes that can occur when these methods are used. Some evidence suggests that methods with higher levels of progestins may increase risk; however, other studies have found mixed results. Additional research on this topic is needed.

Women who use hormonal methods are less likely to use condoms, so it is important to target these women with counseling messages promoting dual protection (i.e., hormonal methods for pregnancy prevention and condom use for disease prevention).

Intrauterine devices (IUDs) have been considered an inappropriate method for women at risk for STIs because of concerns about the potentially increased risk for PID following IUD insertion in women with cervical infections (gonorrhea, chlamydia, or both). The risks associated with IUD use may have been overstated in the past. Based on current evidence, it appears that PID rates associated with IUD insertion in women with cervical infections fall within or below the range of rates reported in infected women who do not have an IUD inserted. There is an inherent risk for PID in women who have an STI, even if they do not have an IUD inserted.

The level of risk for PID depends on the prevalence of gonorrhea and chlamydia in the population seeking family planning. In many settings, the prevalence is low. Symptomatic PID caused by IUD use is actually quite uncommon, even where STI prevalence is quite high. The vast majority of women with cervical infection who receive an IUD do not develop PID. Asking screening questions related to STI risk could greatly reduce risk by screening out a high percentage of those likely to be infected. IUD use may be unnecessarily restricted in many settings.

### **No Missed Opportunities**

Because STIs and other RTIs are a widespread global problem, it is important for health care providers to take advantage of all opportunities to communicate prevention messages. In addition to discussing STI and RTI prevention with clients, providers can address clients' concerns and answer clients' questions.

For many women, family planning and antenatal care visits are their only contact with the health care system and are the only opportunity for them to receive information about the prevention of and the potential impact of HIV, other STIs, and RTIs on their sexual and reproductive health.

### **Special Concerns for Women**

Although STIs affect both women and men, research shows that women are more susceptible to infection and are less likely to seek treatment than are men. The potential complications of untreated RTIs are more serious in women, and infections can be transmitted to the offspring of pregnant women as well.

Although infection rates vary tremendously among and within countries, the World Bank reports that STIs are the second most important cause of healthy life-years lost among women of childbearing age (after pregnancy-related problems). It is important to recognize that biologically, women are more vulnerable to diseases of the genital tract than are men, since:

- The lining of the vagina is a mucous membrane more permeable to infection than the skin on the outside of the penis
- Women's genitals have more surface area through which infection can occur
- Lack of lubrication during intercourse or changes in the cervix during the menstrual cycle can facilitate more efficient transmission of infection to women
- Younger women are particularly vulnerable because their cervical tissues may be less mature and more readily penetrated by organisms such as chlamydia and gonococcus
- Older women are more likely to get small abrasions in the vagina during sexual activity because of the thinning of the tissues and dryness that occur with age

Women who already have an infection (particularly one that causes genital lesions) are more likely to get or transmit HIV, and since women are often asymptomatic when they become infected with an STI, they often are not aware of this increased risk.

Other risks for women include the use of vaginal douches (which increase the risk for PID) and the influence of hormonal contraceptives on acquiring or transmitting STIs, although this relationship is not yet fully understood.

Many women are at risk for infection, particularly when their primary partners have other partners. Social and economic vulnerability amplify women's risk for infection. For example, many women lack the economic resources to live by themselves and are fearful of their male partner's abandonment or violence. Therefore, they have little control over how and when they have sex, which in turn hampers their ability to protect themselves from infection.

### **Common STIs and RTIs**

Any individual can become infected with an STI or an RTI, regardless of age, background, or socioeconomic class. The World Health Organization (WHO) estimates that there are more than 340 million new cases of curable STIs each year, and UNAIDS calculates that in 2000 alone, 5.3 million people became infected with HIV. RTIs that are not sexually transmitted are even more common.

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The STIs and RTIs that providers are most likely to encounter during client visits include the following:

- Bacterial vaginosis—An RTI in women caused by an upset of the vagina's normal environment and overgrowth of bacteria in the vagina
- Chancroid—An STI that causes swelling of the lymph nodes and painful ulcers in the genital area
- Chlamydia—An STI in both men and women that often is asymptomatic
- Genital herpes—An STI that causes painful genital ulcers
- Genital warts, or human papillomavirus (HPV)—Bumps in the genital area caused by some forms of HPV (Other types of HPV can lead to cervical cancer.)
- Gonorrhea—An STI that can cause infertility in both men and women
- Hepatitis B—A virus that can cause liver damage and possibly even liver failure
- Hepatitis C—A virus that can cause liver damage and possibly even liver failure
- HIV infection—A retrovirus that weakens the immune system and causes AIDS
- Syphilis—An STI that initially causes sores that will heal on their own but that if left untreated can cause serious complications or even death
- Trichomonas infection—An STI in both men and women that is often asymptomatic
- Vaginal yeast infection—An RTI in women that occurs when the normal environment in the vagina changes

*Note:* Nongonococcal urethritis (NGU) is a term used to describe discharge from the penis that is *not* due to gonorrhea. It is usually caused by chlamydia and sometimes by trichomonas infection.

Less common STIs and RTIs include:

- Cytomegalovirus (CMV)—A common virus (a member of the herpes family) that can cause serious infections in people with compromised immune systems and can be transmitted sexually
- Donovanosis—An STI that can cause serious ulcers at the site of infection, ulcers that can grow together and cause permanent scarring and genital destruction
- Lymphogranuloma venereum (LGV)—An STI that causes inflammation of and prevents drainage of the lymph nodes in the genital area, and that can cause destruction and scarring of surrounding tissue
- Molluscum contagiosum—An STI that causes relatively benign skin infections and that can lead to secondary bacterial infections

## Signs and Symptoms of Common STIs and RTIs

To effectively manage STIs and RTIs, health care providers must be able to recognize the various signs and symptoms of infection. However, different infectious agents can cause very similar symptoms.

The following list identifies signs and symptoms of the most common STIs and RTIs:

### *In men*

- Urethral discharge—chlamydia, gonorrhea, trichomonas infection
- Urethral itching—chlamydia, gonorrhea, trichomonas infection
- Swollen or painful testicles—chlamydia, gonorrhea

### *In women*

- Unusual vaginal discharge—bacterial vaginosis, chlamydia, gonorrhea, trichomonas infection, vaginal yeast infection
- Genital itching—bacterial vaginosis, trichomonas infection, vaginal yeast infection
- Abnormal or heavy vaginal bleeding—chlamydia, gonorrhea  
(*Note:* This symptom is often caused by factors other than STIs.)
- Bleeding after intercourse—chlamydia, gonorrhea
- Lower abdominal pain (pain below the belly button or pelvic pain)—chlamydia, gonorrhea
- Persistent vaginal yeast infections—HIV/AIDS

### *In men or women*

- Blisters or ulcers (sores) on the mouth, lips, genitals, anus, or surrounding areas—chancroid, genital herpes, syphilis
- Burning or pain during urination—chlamydia, genital herpes, trichomonas infection, gonorrhea
- Itching or tingling in the genital area—genital herpes
- Jaundice (yellowing of the eyes and skin) or fever, headache, muscle ache, dark urine—hepatitis B, hepatitis C
- Warts or bumps on the genitals, anus, or surrounding areas—HPV (genital warts)

The following list identifies symptoms of some of the less common STIs and RTIs:

- Flu-like syndromes (fever, fatigue, headaches, and muscle aches), mild liver inflammation—CMV
- Small, dimpled bumps or lesions on the skin that usually do not hurt or itch and are flesh colored, but can vary from white to yellow to pink—molluscum contagiosum
- Small, red bumps or ulcers in the genital or anal area, or lymph node swelling in the genital area, or chronic ulcers on the genitals or anus—LGV
- Red nodules or bumps under the skin on the mouth, genitals, or anus that ulcerate, become tender, and often bleed easily—donovanosis

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### Asymptomatic Infections

Some STIs (for example, chlamydia, gonorrhea, HPV, hepatitis B, and genital herpes) often cause infections that are *asymptomatic*. This means that although the person has an infection, he or she has no symptoms of infection and thus may not realize that he or she is infected.

For example, some studies have shown that gonorrhea is asymptomatic in as many as 50% to 70% and chlamydia in as many as 80% to 90% of infected women. Additionally, the majority of HPV infections in women and men cannot be recognized clinically, and up to 75% of primary episodes (i.e., initial infections) of herpes are asymptomatic or produce only mild or unrecognized symptoms.

With asymptomatic infections, there is no evidence of infection on clinical exam; therefore, these infections can be diagnosed using laboratory tests only—a particular problem in parts of the developing world where testing resources are scarce or nonexistent.

Asymptomatic infections can be transmitted to others and can cause serious complications, particularly for women. For example, if left untreated, some infections can lead to PID and infertility in women. Therefore, it is critically important to test or treat female sexual partners of symptomatic men whenever possible, even if they show no signs and symptoms of infection.

### Safer Sex

*Safer sex* refers to practices that allow couples to reduce their sexual health risks and lower the likelihood of STI transmission. Generally, safer sex practices prevent contact with genital sores and prevent the exchange of body fluids, such as semen, blood, and vaginal secretions.

While some use the term *safe sex*, here we use the word “safer” in recognition of the fact that all sexual practices can have consequences—whether in terms of emotional consequences or in terms of disease and pregnancy—and that very few practices are without any risk of infection transmission.

*Remember: RTIs* refer to all infections of the reproductive tract, including STIs. *STIs* refer to infections transmitted primarily through sexual contact, including HIV infection.

### Critical Components of STI and RTI Management

The objectives of STI and RTI management are to diagnose the infection, treat it, encourage change in sexual behaviors and other risk-reduction strategies, and ensure that sexual partners are appropriately treated. High-quality management of STIs is important because it:

- Prevents the development of long-term complications
- Reduces the length of time during which a person is infected, and therefore reduces the further spread of STIs
- Reduces the level in the population of STIs that present an increased risk for sexual transmission of HIV
- Allows for education and counseling on risk reduction and health-seeking behaviors
- Generally improves the quality of people’s lives

Management of STIs and RTIs involves more than simply diagnosis and treatment of the infection. It also consists of:

- *Counseling and education.* Client-centered counseling helps prevent the spread of infection and reduce clients' risk of infection and reinfection. Counseling and education also provide clients with information on potential complications, as well as strategies to change risky sexual behaviors.
- *Condom promotion.* Demonstration or instruction in the correct use of condoms and access to an adequate supply of condoms are essential parts of STI management. Programs should help clients understand the importance of consistent and correct condom use and the steps of proper condom use, as well as help them develop skills for negotiating condom use.
- *Adherence with treatment.* Providers must educate clients about the importance of following and completing treatment regimens, even after all symptoms have disappeared. Providers should explore ways that clients can successfully adhere to treatment regimens by identifying potential barriers to adherence (e.g., costs, schedule, or family or partner finding out) and strategize ways to overcome these barriers.
- *Partner notification.* When feasible, sexual partners of clients with STIs should be notified and encouraged to seek appropriate care. (However, strict confidentiality is critical, and issues of domestic violence or potential harm to the client must also be addressed.) Treating partners prevents the further spread of the infection and reinfection of the client. There are three options for notifying partners:
  - Clients can be counseled about talking to their partners on their own
  - Providers can tell partners in conjunction with clients
  - If resources permit, providers or public health workers can inform partners

These four components are sometimes referred to as the “Four Cs”:

1. Counseling and education
2. Condom promotion
3. Compliance with treatment
4. Contacting partners

*Note:* The preceding material is adapted from: EngenderHealth, 2003g.

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### What Are HIV and AIDS?

*HIV*, which stands for *human immunodeficiency virus*, is the virus that causes AIDS. HIV destroys certain types of blood cells (known as *T-cells* or *CD4 cells*) that help the body fight off infection.

A person can be infected with HIV for many years before any symptoms occur, and during this time an infected person can unknowingly pass the infection on to others. HIV can be transmitted through some forms of sexual contact, through contact with infected blood and other body fluids (such as during the shared use of injection needles, through the use of contaminated skin-cutting tools, by means of needlestick injuries in health care settings, or via transfusions of infected blood), and through mother-to-child transmission during pregnancy, delivery, or breastfeeding.

*AIDS* is *acquired immunodeficiency syndrome*, an advanced stage of HIV infection that occurs when the immune system cannot fight off infections that the body is normally able to withstand. At this stage, the infected person becomes more susceptible to a variety of infections, known as *opportunistic infections*, and other conditions (e.g., cancer). Some examples include chronic cryptosporida diarrhea, cytomegalovirus eye infection, invasive cervical cancer, Kaposi's sarcoma, lymphoma, mycobacterium avium complex, pneumocystis pneumonia, toxoplasmosis, and tuberculosis.

At present, there is no cure for AIDS, and it is believed that most people with HIV infection will eventually die from an AIDS-related illness. However, with advances in HIV/AIDS therapies, including those that fight the virus itself as well as those that prevent or treat opportunistic infections, the lives of some people with HIV or AIDS—mostly in developed countries—have been dramatically extended and improved. Unfortunately, these therapies are rarely available in resource-poor countries, where the majority of those with HIV or AIDS live.

### How HIV Is Transmitted

HIV is spread through three main modes. These modes of transmission are as a result of exposure to body fluids (blood, semen, vaginal fluids, and breast milk) of infected individuals. Specifically, HIV can be transmitted through:

1. Sexual contact:

- Vaginal sex
- Anal sex
- Oral sex

2. Blood contact:

- Injections or needles (sharing needles, intravenous drugs, and drug paraphenalia, or suffering an injury from contaminated needles or other sharp objects)
- Cutting tools (using contaminated skin-piercing instruments, such as scalpels, needles, razor blades, tattoo needles, or circumcision instruments)
- Transfusions (receiving infected blood or blood products) or transplants using infected organs
- Contact with broken skin (exposure to blood through cuts or lesions)

### 3. Mother-to-child transmission:

- Pregnancy
- Delivery
- Breastfeeding

Although any exposure through one of these methods can lead to HIV infection, not every exposure results in transmission of the infection.

### How HIV Is *Not* Transmitted

Many myths exist about how HIV is transmitted, and many myths are culturally specific. It is important that people realize that HIV is actually quite difficult to transmit. It is far less transmissible than hepatitis B or some other STIs, for example. HIV is *not* transmitted by:

- Having ordinary social or casual contact
- Donating blood
- Sharing clothing
- Touching
- Sharing food or dishes
- Dry kissing
- Shaking hands
- Having contact with toilet seats
- Experiencing insect bites
- Massaging another person
- Sexually stimulating a partner using your hand (although a risk may exist if blood, semen, or vaginal fluids come in contact with broken skin)
- Masturbating
- Living with a person with HIV

In addition, HIV is not transmitted through tears, sweat, saliva, vomit, feces, or urine. Although these substances can contain HIV, they do not contain the virus in amounts significant enough to cause infection. Extensive, continuing studies of new HIV infections over the last 20 years in many countries have not uncovered any cases of infection through these substances. To date, there is no documentation of HIV transmission via these substances. Blood, semen, vaginal secretions, and breast milk are the only body fluids through which HIV transmission has been documented.

It is theoretically possible to transmit the virus through deep kissing if the gums have open sores or are bleeding, but this is highly unlikely. Even so, transmission in this case would be through blood rather than through saliva.

### Modes of Transmission

#### Transmission through Sexual Contact

One of the most common ways in which HIV is transmitted is through sexual contact, primarily through unprotected vaginal or anal intercourse. In every act of sexual penetration, there is an inserter and a receiver. The receiver is generally at greater risk than the inserter, although if the penis of the inserter has open cuts, sores, or ulcers, then the inserter's risk is increased.

Unprotected anal sex (penetration of the anus by the penis) between two men or between a man and a woman is particularly risky because the chance of damage (small tears and lesions) to the thin lining of the rectum is high. This facilitates HIV transmission by enabling the virus in semen to quickly enter the bloodstream.

With penile-vaginal sex, the female partner is generally at higher risk because of the greater exposed surface area in the female genital tract than in the male genital tract, the higher concentrations of HIV in seminal fluids than in vaginal fluids, and the larger amount of semen than vaginal fluids exchanged during intercourse.

Although HIV transmission can occur through unprotected oral sex—cunnilingus (oral-vulval contact) or fellatio (oral-penile contact)—the risk is much lower than for unprotected vaginal or anal sex. But this behavior is not free of risk: With oral sex, the person at greater risk is the one using his or her mouth to stimulate the other person's genitals. The risk is increased when that person has open sores in the mouth or bleeding gums. The risk is also increased when that person receives semen in the mouth or swallows any secretions.

HIV transmission has also been reported through infected semen used for artificial insemination. Reputable sperm banks now test all samples before using them.

*Remember:* If both partners in a relationship know that they are not infected and they are monogamous (which is difficult to know), there is *no* risk of HIV transmission during unprotected sex.

#### Transmission through Blood and Blood Products

##### *Sharing Injection Drug Works*

The sharing of HIV-contaminated needles, syringes, drugs, and other drug paraphernalia can transmit HIV. Even if syringes and needles are sterile, drugs that are mixed in containers (including spoons or bottle caps) and are shared or drugs that are shared from a common container make for very risky injections.

While intravenous injections hold the greatest risk for infection, it is possible to be infected from subcutaneous and intramuscular injections as well. In many countries, injectable medications, syringes, and needles are available to the general public without a prescription. If multiple people use these, the risk for HIV transmission will increase.

##### *Transfusions and Organ Transplants*

Transfusions or treatments with infected blood or blood products can lead to HIV transmission. Many parts of the world now routinely test donated blood for HIV before approving its use, but

some countries lack the resources to do so. Organs or tissues taken from individuals with HIV can also transmit the virus to the people receiving them.

### ***Sharing Skin-Cutting or Skin-Piercing Tools***

HIV can be transmitted by skin-piercing, skin-cutting, and tattooing instruments (needles, razor blades, or circumcision instruments) that have been in contact with infected blood or body fluids and have not been properly processed before reuse.

### ***Transmission in Health Care Settings***

Health care workers, including cleaners and lab technicians, are at risk for becoming infected with HIV if they are exposed to blood and other body fluids of infected individuals during their work.

One type of exposure among workers in health care settings is needlestick injuries with HIV-contaminated needles. The risk for HIV transmission to clients during clinical or surgical procedures exists when clients are exposed to blood or body fluids containing HIV from other clients.

Following appropriate infection prevention practices can drastically reduce the risk for occupational exposure and HIV transmission to clients. The best way to prevent infections at a health facility is by following standard precautions. These are a set of recommendations designed to help minimize the risk for both clients and staff being exposed to infectious materials.

Providers should follow standard precautions with every client, regardless of whether they believe the client might have an infection. This is important because it is impossible to tell whether someone is infected with HIV, and often the infected persons themselves do not know that they are infected. (For detailed information on infection prevention in health care settings, see EngenderHealth, 2003e.)

*Remember:* It is safer to act as if every client is infected, rather than to apply standard precautions to some clients and not others.

### **Mother-to-Child Transmission**

A woman infected with HIV can pass the virus to her baby during pregnancy, labor and delivery, or through breastfeeding.

Roughly 15% to 30% of newborns of untreated HIV-positive women will become infected with HIV during pregnancy and delivery, and an additional 10% to 20% will become infected during breastfeeding. The risk varies by region, with transmission rates of 15% to 25% in the industrialized countries of Western Europe and in the United States, but rates of 25% to 35% in developing countries. Some studies have found rates as high as 43% in Sub-Saharan Africa. These rates represent the risk for transmission without preventive intervention. Treatment options that can greatly reduce the rate of HIV transmission from mother to child are now available in some settings.

The risk for HIV transmission through breastfeeding, which has been estimated to be between 10% and 20%, increases with a longer duration of breastfeeding. This risk appears to be great-

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est in the first few months of life and is lower among infants who are fed breast milk exclusively (exclusive breastfeeding) than among those who are breastfed and also receive supplemental foods or liquids (mixed feeding). In a recent study in South Africa, babies who were exclusively breastfed were significantly less likely to have become infected in the first three months than were those fed both breast milk and other food.

The risk for HIV transmission from an individual woman to her child is affected by a variety of factors, including:

- *Stage of infection.* If a woman is further along in her infection, she has a higher viral load and is more likely to transmit the virus to the child. Also, if she becomes infected during or just before pregnancy, the initial spike in viral load at the time of infection may increase the risk for mother-to-child transmission.
- *Breastfeeding pattern.* Exclusive breastfeeding has been found to present a decreased risk over mixed feeding, which is the norm in many countries.
- *Duration of breastfeeding.* Risk increases with the duration of breastfeeding.
- *Oral or breast lesions.* Lesions in the baby's mouth or on the mother's breasts increase the risk for transmission, because of the increased number of portals of entry for the virus.
- *Gastrointestinal illness.* When the virus is found in breast milk, a weakened gut may increase portals of entry in a baby who is breastfeeding.
- *Antiretroviral therapy.* This can significantly *reduce* the risk for mother-to-child transmission during pregnancy and labor and delivery.
- *Cesarean section.* This can significantly *reduce* the risk for mother-to-child transmission, but it is not necessarily realistic in resource-poor settings because of its technical demands and cost.
- *Invasive procedures.* Avoidance of invasive procedures during delivery can significantly *reduce* the risk for mother-to-child transmission.

It is important to note that all children born to HIV-positive women will test positive for HIV antibodies at birth, regardless of whether they are actually infected. This is because of the presence of the mothers' antibodies in the children's blood. Antibody testing can accurately determine infection after the age of 18 months.

### ***Facts about Mother-to-Child Transmission***

- The risk for HIV transmission is estimated at 5% to 10% during pregnancy, at 10% to 20% during labor and delivery, and at 10% to 20% during breastfeeding.
- When no preventive measures are taken, the overall risk for transmission among women with HIV is estimated at approximately 15% to 35%.
- The risk for transmission increases if a woman becomes infected or is reinfected with HIV during pregnancy or while breastfeeding, or if she develops AIDS, because of the higher viral loads. Viral, bacterial, or parasitic placental infections may also increase the risk for transmission.
- If a woman becomes infected with HIV while breastfeeding, the risk for mother-to-child transmission will increase.

*Note:* More information on mother-to-child transmission and interventions appears in the "Preventing HIV Transmission" module of EngenderHealth, 2003d.

## HIV Risk and Vulnerability

A variety of demographic, behavioral, and social factors place people at risk for becoming infected with HIV and other STIs. Traditionally cited risk factors include, for example, age, multiple sexual partners, partners with multiple sexual partners, a history of STIs, and drug and alcohol use. Early in the AIDS epidemic, there was a tendency to refer to “high-risk groups”—those groups of people who have historically contracted the infection in large numbers. This often included, for example, sex workers and homosexuals. These types of categorizations may lead some people to assume that they are not at risk for infection if they do not belong to these groups.

### Risk “Behaviors,” Not Risk “Groups”

Over time, experience has taught that risk is not based on *who you are*, but rather on *what you do*. The idea of risk behaviors is that HIV and AIDS do not discriminate. Anyone who engages in a behavior that exposes himself or herself to HIV is at risk for infection. This includes:

- Anyone of any age who engages in unprotected vaginal, oral, or anal intercourse with anyone other than an uninfected, mutually monogamous partner
- Anyone whose partner engages in unprotected intercourse with others
- Drug users who share needles and other drug works
- Anyone who receives an injection with a potentially contaminated needle or syringe
- The sexual partner(s) of an injection drug user
- Recipients of transfusions or those treated with blood or blood products in regions where reliable screening of the blood supply does not occur
- Anyone who uses potentially contaminated tattoo needles or other skin-piercing instruments
- Any workers or clients at health care facilities who come in contact with blood, blood products, unclean needles, or surgical instruments
- A fetus or nursing child of a mother who is infected with HIV

This understanding, along with the experience that identifying groups of people as “high risk” leads to unjust stigma and discrimination, has led to a shift in the language from “risk groups” to “risk behaviors.” The distinction between risk groups and risk behaviors is important.

### Vulnerability

More recently, there has been a growing recognition that in addition to individual behaviors or characteristics, certain social, economic, and political forces make people or groups of people vulnerable to infection. In a sense, HIV and AIDS *do* discriminate. Some factors that affect social vulnerability include gender inequalities, economic power, youth, cultural constructs, and government policies. The following sections consider the particular vulnerabilities of women, men, and children and youth.

### Women’s Vulnerability and Risk

The number of women living with HIV and AIDS has been steadily increasing over the past decade. AIDS now ranks as one of the leading causes of death for women between the ages of 20 and 40 in parts of Europe, North America, and Sub-Saharan Africa. In Sub-Saharan Africa, infection rates among women have now surpassed those among men: Women now account for

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55% of all infections, and rates of infection among pregnant women are extremely high in many countries. Women are vulnerable to infection for biological, social, and economic reasons.

Women may be particularly vulnerable to infection because of gender inequalities and lack of power within sexual relationships, which make it difficult, if not impossible, for them to negotiate safer sex with partners. Lack of economic power can lead to vulnerability as some women are forced to enter into sex work or to form temporary partnerships to barter sex for economic survival. Furthermore, because of women's greater biological vulnerability to infection transmission, they face greater risk for infection.

Biologically, the risk for transmission from male to female is greater than the risk from female to male, for several reasons. These include:

- There is a more exposed surface area in the female genital tract than in the male genital tract.
- HIV is in higher concentrations in semen than in vaginal fluids.
- More semen than vaginal fluid is exchanged during intercourse.
- Coercive or forced sex might lead to microlesions in the genital tract that facilitate entry of the virus.
- Traditional practices such as female genital cutting can expose women to risk if the cutting instruments are not properly cleaned.
- Women often have STIs that are left untreated, which increases their vulnerability to HIV.

All over the world, social factors stemming from gender inequalities also make women particularly vulnerable to HIV infection caused not by their own behavior, but by that of their partner. These factors include that:

- Women are often expected to remain monogamous, yet being married often places them at high risk for infection (because men are not often expected to be monogamous, and in some cases, are even encouraged to have multiple partners).
- Women lack the social power to reduce their risk for infection.
- The threat of physical violence, the fear of abandonment, or the loss of economic support can act as significant barriers inhibiting women from negotiating condom use, discussing fidelity with their partners, or leaving relationships they perceive to be risky.
- Cultural norms often deny women knowledge of sexual health.
- When women possess knowledge of sexual health, society often considers it inappropriate for them to reveal this knowledge, making partner communication about risk and safety impossible.
- Women often have little control over their bodies and little decision-making power, with men making most decisions about when, where, and how to have sex.
- Social pressure to bear children may also affect women's choices concerning the relative importance of pregnancy versus protection from disease.
- Women are at greater risk than men for being raped, for being coerced into sex, or for being forced into sex work or sexual slavery.

Lack of economic power can also lead to vulnerability for several reasons, including that:

- Some women are forced to enter into sex work or multiple temporary partnerships so they can barter sex for economic gain or survival, including food, shelter, and safety.

- Many women are at risk simply because they are economically dependent on their husbands for survival and support, which limits their decision-making and negotiating power.
- Sex workers in general are at an extremely high risk for infection, particularly when they do not have the ability to negotiate with clients who refuse to wear a condom or when they are in settings where commercial sex work is illegal.

### **Risks for Men**

A variety of social factors also put men at risk for infection. Socially ingrained concepts of masculinity and common attitudes and behaviors can translate into risk behaviors that threaten men's health and the health of their partners.

For example, cultural norms of “masculinity” that expect men to be experienced and knowledgeable about sex may place men (particularly young men) at risk because they are less likely to seek information about risk reduction, for fear of admitting a lack of knowledge. Attitudes about masculinity encourage men to demonstrate sexual prowess by having multiple partners and by consuming alcohol or other substances that may contribute to risk-taking behavior. Men are often socialized to be self-reliant, to not show emotion, and to not seek assistance in times of need or stress—ideas that do not support men in protective or health-seeking behaviors. Men are also more likely to use injection drugs.

In many cultures, communities deny the existence of men who have sex with other men, which results in a lack of prevention, care, and health information directed to men who may be at risk. Discrimination and stigmatization against men who have sex with other men contribute to denial and secrecy, making it difficult to reach these men with HIV-prevention interventions.

To safeguard men's health and the health of their female partners and their children, health care services and providers must address the relationship between men's behavior and HIV transmission, to encourage men and boys to make a strong commitment to preventing the spread of the infection and to promote programs that respond to the needs of both men and women.

### **Risk and Vulnerability of Children and Youth**

AIDS is very much a disease of the young. Although comprehensive data are lacking, there is evidence that more children and young people younger than 18 are living with HIV and AIDS than ever before. UNAIDS and WHO estimate that more than 4 million children younger than 15 have been infected with HIV since the beginning of the epidemic, and that in 2000 alone, 500,000 children younger than 15 died an AIDS-related death.

The vast majority of infected children—well over 90%—live in developing-world countries; moreover, in the regions most affected by the epidemic, if current infection rates remain unchecked, AIDS may increase infant mortality by as much as 75% and mortality of children younger than 5 by more than 100%. HIV infection leads to AIDS and death much faster in children than in adults, and pediatric AIDS results in death more quickly in developing countries, because of widespread poverty, poor nutrition, and other contributing factors.

Most infected children younger than 14 acquire the virus from their mothers, either before or during birth or through breastfeeding. As more women of childbearing age have become infect-

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ed, the number of children infected has also risen. Aside from the risk for mother-to-child transmission, children and adolescents are also extremely vulnerable to infection through blood transmission, sex (including incest, other sexual abuse, and commercial exploitation), and injection drug use.

In many countries, the first consensual sexual experience occurs before age 18, and young people may not have the knowledge or experience to reduce their risk for exposure to HIV and AIDS. Adolescents may lack knowledge about pregnancy and about STI and HIV transmission, and they may be less likely to recognize potentially risky situations or to negotiate safer sex behaviors. In addition, peer pressure, drug and alcohol use, and other factors may increase adolescents' likelihood of engaging in high-risk behaviors.

Young people of both sexes are vulnerable to infection for many reasons, including social, biological, behavioral, and demographic factors. For example, young men often face tremendous pressure to be sexually active and are, therefore, less likely to seek information about how to protect themselves and their partners, for fear of appearing inexperienced. Young women, on the other hand, may be particularly vulnerable for biological reasons (for example, less mature tissues may be more readily permeated or damaged) and for social reasons, including lack of economic resources and negotiating power.

Young women are often forced into relationships with older men for economic survival, and anecdotal reports from some high-prevalence countries indicate that older men may seek younger women and girls for sexual relations, believing that they are less likely to be infected. Wide age disparities in infection rates substantiate these social patterns, with young women in many places having infection rates equal to those among men 10 years older.

### HIV Testing

The most frequently used HIV tests detect the presence of antibodies to HIV, not the actual virus. A positive HIV antibody test indicates the presence of antibodies to the virus, while a negative test result indicates either no antibodies or an undetectable level of them. It is possible that these tests can miss infection in a person who was recently infected with HIV and has not yet developed enough antibodies to show a positive result.

The period of time from infection with HIV until the body has developed detectable antibody levels is called the *window period*. The window period is approximately three months long, on average. A person who is worried that he or she may have been exposed to infection should be encouraged to seek testing, and the counselor should explain that if the test comes back negative, it should be repeated after three months to confirm the result, since the person could have been infected but still may be in the window period. During this period, a person may not test positive even if he or she is infected with HIV.

### Rationale for Testing

HIV testing should always be done voluntarily and should never be mandated or coerced. People who desire to know whether they are infected have a right to know. It is strongly recommended that clients be counseled both before and after testing. Where testing is readily avail-

able, a person who thinks that he or she might have been exposed to HIV should consider being tested for a number of reasons:

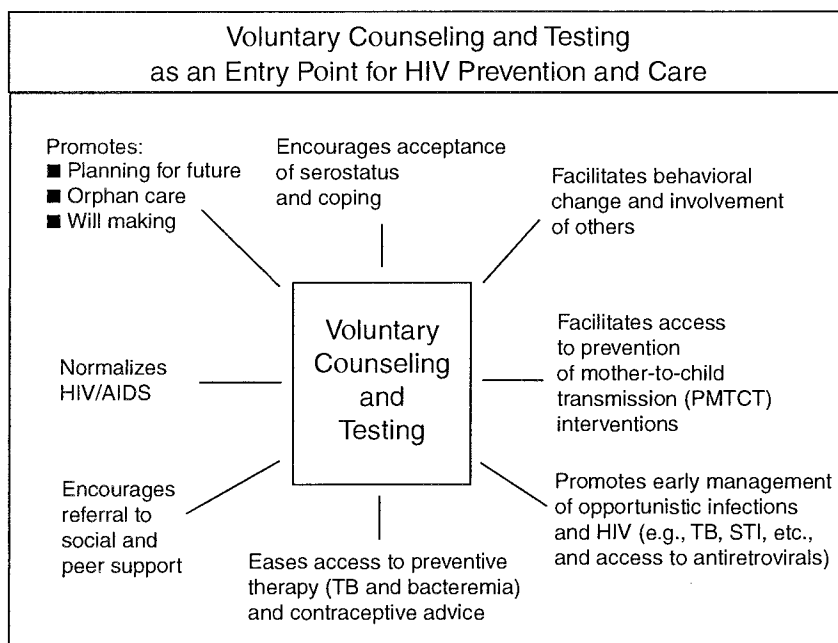
- A person who knows that he or she is HIV-infected can take steps to avoid transmitting the infection to others.
- In settings where medications are available to combat opportunistic infections and keep people healthy longer, it is best for people to know they are infected as soon as possible, so they can begin treatment and schedule regular checkups right away.
- Women who know that they are infected can make informed decisions about family planning, pregnancy, and breastfeeding. In some settings, treatment can greatly reduce a pregnant woman's risk for transmitting HIV to her child.
- Some people want to know their HIV status so that if they are infected with HIV, they can make lifestyle changes that will preserve their health to live longer or better lives.

HIV counseling and testing can be important decision-making tools for clients and service providers and can help even uninfected clients understand their risk for HIV. In addition, testing enables health care providers to offer information to infected clients about living with HIV infection and assist them in obtaining any available support services, including treatment, emotional and practical support, prevention of mother-to-child transmission, and legal services.

### Voluntary Counseling and Testing

Voluntary counseling and testing (VCT) is a combination of two activities—counseling and testing—into a single service that can amplify the benefits of both. In its ideal form, VCT can be used as a form of prevention rather than strictly for diagnostic purposes, or to facilitate entry into HIV care services.

The “gold standard” for VCT incorporates pretest counseling and posttest counseling. Helping clients understand and perceive their own risk (and the risks that their behavior may pose to others) and reduce that risk are integral components of the counseling in VCT.



Source: WHO, 1999.

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VCT is an important entry point for other HIV and AIDS services, which can benefit clients with either positive or negative test results. For example, clients with negative results can still be encouraged to adopt behaviors that may reduce their risk of being exposed to HIV and other STIs, making VCT an important strategy for prevention. When they are well implemented, VCT services offer the possibility of benefiting the community by “normalizing” the existence of HIV and AIDS—that is, reducing stigma and promoting awareness (see chart, page 233).

VCT is an essential component of programs intended to prevent mother-to-child transmission, because such programs cannot be implemented if women do not know their HIV status. Programs should not focus only on identifying HIV-positive women for intervention, however; they should also focus on reducing women’s risks and on helping those who test negative remain that way. VCT programs for pregnant women can benefit from men’s involvement: Some studies have shown that when women test positive for HIV and their male partners are not tested, the women are often blamed for introducing the infection into the couple. Such unfounded blame can lead to conflict, abandonment, and even violence.

*Note:* The preceding material is adapted from: EngenderHealth, 2003d.