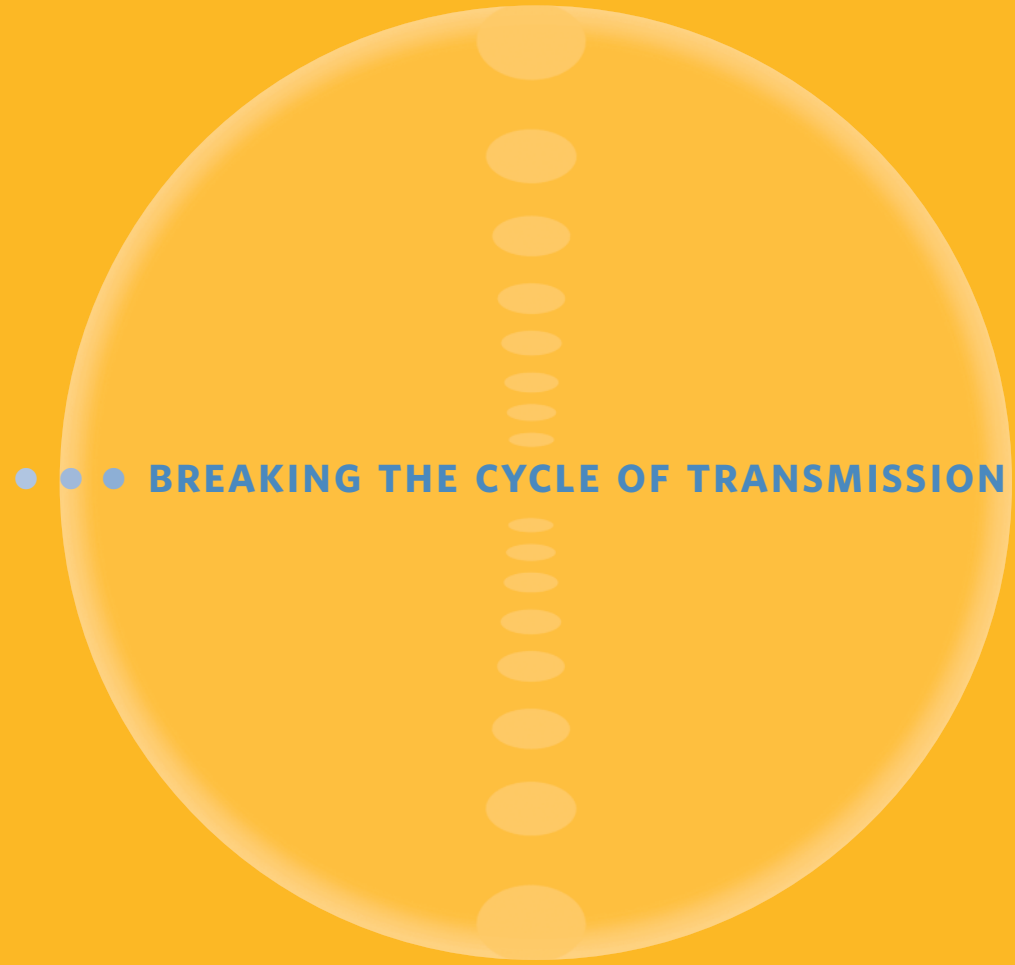


REPRODUCTIVE HEALTH BRANCH • TECHNICAL SUPPORT DIVISION

sexually transmitted infections



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**sexually transmitted infections:
BREAKING THE CYCLE OF TRANSMISSION**

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A growing consensus underscores the urgent need to give sexually transmitted and other reproductive tract infections (STI/RTI) greater prominence in reproductive health policies and programmes. In 1994, the ICPD Programme of Action stressed the importance of managing sexually transmitted infections within integrated, comprehensive reproductive health programmes. However, these infections continue to be a serious health problem, particularly among women. Where access to timely treatment is not available, sexually transmitted infections may result in pelvic inflammatory disease, infertility, cancer, neonatal complications or even death.

Moreover, mounting evidence suggests that people who have sexually transmitted infections are much more likely than others to contract and transmit the HIV virus. Thus, though prevention and treatment should be pursued for their own sake, the role of STI/RTI in fueling the HIV pandemic has made this an even more pressing human rights and public health issue.

Because ample literature is already available on the subject, this publication does not specifically address HIV/AIDS. Emphasis is given instead to the most common and treatable infections. However, because HIV is usually sexually transmitted, most of the information here about prevention applies equally to it. Moreover, programming should strive to avoid duplication of efforts and take advantage of possible synergies in providing services for those with any reproductive health concerns.

Managing STI/RTI is challenging in terms of diagnostic accuracy and appropriate treatment, especially in resource-poor settings. Integration of STI/RTI care within the reproductive health care infrastructure, as called for by ICPD, is a challenge as well. The discussion of these challenges and their implications for reproductive health policy form the core of this programming note.

We hope the information presented here will be useful to UNFPA staff, especially those in Country Offices, in deciding what programmes to support, and as background for their participation in health-policy discussions on health sector reform and sector-wide approaches.

A handwritten signature in black ink, appearing to read 'Mari Simonen', with a horizontal line extending from the end of the signature.

Mari Simonen, Director
Technical Support Division

Issues and Programme Implications

Common sexually transmitted infections can have severe consequences for individuals and communities. Apart from being serious diseases on their own, the presence of untreated sexually transmitted and other reproductive tract infections (STI/RTI) can increase the risk of HIV infection and transmission by a factor of two to nine.

The most serious complications and long-term consequences of untreated sexually transmitted infections tend to be in women and newborn babies. Gonorrhoea and chlamydial infections can cause pelvic inflammatory disease, which can lead, in turn, to ectopic pregnancy and infertility. Almost all STI/RTI have been associated, for pregnant women, with premature delivery and low birth weight babies. Children can be born with congenital syphilis or herpes or with serious eye infections due to gonorrhoea or chlamydia.

PREVENTION

Creating community awareness of STI/RTI and how to prevent them should be central to reproductive health programming. Family planning settings present excellent opportunities to promote condoms for dual protection (from both unwanted pregnancy and infection).

Routine screening of pregnant women can result in better pregnancy outcomes and fewer neonatal complications. From a public-health perspective, special efforts should be made to target the high-risk groups that are disproportionately responsible for sustaining and spreading STI within a community. Early treatment of infected individuals is critical to breaking the chain of transmission. However, because STI are often asymptomatic, they often go untreated, and continue to be transmitted.

DIAGNOSIS AND TREATMENT

Diagnosis of STI/RTI is not straightforward. Simple tests using microscopy can detect certain vaginal infections, but laboratory tests to detect cervical infections caused by gonorrhoea and chlamydia are more expensive and complicated. Moreover, results are generally not available while the patient is still at the clinic, which often means a missed opportunity for treatment if infection is found. And in resource-poor settings, laboratory methods of diagnosis are often neither affordable nor available.

In many settings, therefore, treatment is

Although the syndromic approach has drawbacks, it is an essential component of STI/RTI management where resources are limited.

based upon a patient's symptoms and clinically observed signs (the 'syndromic' approach). This approach uses standard flowcharts, adapted to the local epidemiological profile, to decide on a treatment that will be effective against all the organisms most commonly known to cause the particular syndrome in the particular setting. Although the syndromic approach has drawbacks, it is an essential component of STI/RTI management where resources are limited. The method is simple and does not require extensive training for health personnel. An important advantage is that this approach helps to ensure that the patients get effectively treated at their first – and probably only – contact with the health system. However, this also means treating for several possible infections even if the patient has only one.

Many studies have found that syndromic diagnosis of STI/RTI is generally reliable for men, but less so for women. Abnormal vaginal discharge is highly indicative of vaginal infections, but is a poor predictor of cervical infections, which are often asymptomatic.

Strategies have been developed to improve syndromic management of vaginal discharge and to detect more cases of cervical infection (the cervix is the most common site of infection for gonorrhoea and chlamydia). Syndromic management may be improved in populations with high prevalence of gonorrhoea and chlamydia by introducing speculum examinations to detect cervical mucopus (although where this is not possible, it is better to treat presumptively when cervical infection is suspected). Given the low rate of return by clients for follow-up, diagnosis and treatment

in one visit is generally preferable. Diagnostic accuracy, however, is enhanced if the patient's condition can be reviewed a week or so after the initial treatment. Specific guidelines for diagnosis and treatment should be adapted to local conditions.

INTEGRATING STI/RTI CARE INTO EXISTING PROGRAMMES

Prevention and treatment of STI/RTI must go together, and neither should be sacrificed for the other. While prevention is relatively easy to incorporate into health infrastructures, the urgent need to address the large health burden of STI requires that diagnosis and treatment also be integrated into reproductive health services, as ICPD has mandated.

Full integration does pose challenges in terms of overcoming barriers related to the stigma attached to STI and in terms of reaching higher risk groups. However, several programme examples show that with sufficient resources it is possible to surmount social barriers within clinics. For example, some programmes offer STI management at different hours than family planning or antenatal care, and offer services beyond the clinic confines to reach key target groups.

IMPLICATIONS FOR PROGRAMMING AND POLICY

For STI management in resource-poor settings, a gradual approach is called for. All reproductive health programmes should undertake prevention and counselling (with a special emphasis on the dual protection that male and female condoms provide), and symptomatic clients should be treated as appropriate.

Married women tend to be the main users of reproductive health clinics. But wherever feasible, STI/RTI care also should be offered to men, unmarried women and adolescents. This may require separate entrances or areas, or clinic hours, or special 'youth-friendly' services to overcome social barriers. But if these key sectors of the population are ignored, community control of STI will be

very difficult to achieve.

In areas where overall prevalence rates are low, targeting services to especially vulnerable groups – such as sex workers, long-distance truck drivers, prisoners, street children, refugees and the internally displaced – can be a cost-effective way to break the cycle of transmission and reduce rates of infection.

The following additional recommendations identify ways in which STI/RTI management can be more fully incorporated into reproductive health programming:

- Promote STI integration, as discussed above, in reproductive health care and address the issue in policy dialogues, such as those concerning health-sector reform and sector-wide approaches (SWAs).
- Ensure active support by training providers at the level of service appropriate to their reproductive health care settings (from STI prevention and counselling to diagnosis and treatment).
- Adopt a policy of promoting dual protection in all family planning programmes, especially in areas of high prevalence of STI (including HIV).
- Encourage screening and treatment for maternal syphilis as part of routine antenatal care.
- Support campaigns to sensitize policy makers in governments and donor agencies on STI/RTI not only as a public health issue, but also in terms of its links to poverty and gender.
- Link UNFPA activities with wider advocacy efforts and community-based education campaigns on the risks of STI and ways of preventing them. Potential partners in this effort include women's health advocates and organizations active in HIV/AIDS prevention, safe motherhood and adolescent reproductive health.
- Support projects on STI prevention and treatment for adolescents and youth.

continued

- Support research on the role of gender-based violence in increasing the spread of STI/RTI and appropriate interventions.
- Assist countries in gathering epidemiological data on STI/RTI to establish local prevalence rates for different populations.
- Support costing studies, on actual costs and cost-effectiveness, for various STI interventions.
- For all levels of integration, use the UNFPA Reproductive Health Commodity Security global strategy at the country level to provide necessary logistics and supplies such as posters, clinic supplies, diagnostic equipment, condoms and essential drugs.
- Ensure that STI management includes responding to the needs of people living with HIV/AIDS.
- Increase awareness of higher vulnerability to infection due to interactions between HIV/AIDS and other STI.



The ICPD Programme of Action calls for safeguarding the reproductive health of women in a comprehensive and holistic manner.

There is wide agreement that STI prevention, such as awareness-raising and the promotion of dual protection, should be a part of family planning services, and that antenatal care/family planning (ANC/FP) clinics afford a natural setting for some degree of STI management. However, integrating the management of STI/RTI more fully into reproductive health-care settings is complicated by the challenges for proper diagnosis and treatment of these infections, social barriers, accessibility and cost.

Often, the treatment and care for sexually transmitted infections is confined to hospitals, private doctors, pharmacies and specialized STI clinics. Surveys show that integration usually requires antenatal/family-planning infrastructures to absorb the additional services of providing STI management. The degree of integration varies. In some cases, only STI prevention activities are added to family planning services. In other cases, STI diagnosis and treatment may be taken on as well. Integrated STI/FP programmes may include outreach to communities and schools in the form of educational campaigns, STI services for sex workers, for men in workplaces, and strategies to reach other groups at risk.

ADVANTAGES OF FULL INTEGRATION

Offering STI/RTI screening, diagnosis and treatment at ANC/FP clinics has many advantages. Millions of women access these clinics each year (surveys in several East

African countries show that more than 90 per cent of women use these services). These visits are often their only interaction with the health-care system. Therefore, a visit to a family planning clinic offers an opportunity to learn about STI/RTI risks and prevention, and, if the facility is equipped to do so, to be screened, diagnosed and treated for infections.

All health-care providers, including family-planning providers, should be given specialized training in the prevention and detection of, and counselling on, sexually transmitted diseases, especially infections in women and youth, including HIV/AIDS.
(ICPD Programme of Action, para. 7.31)

Integration can provide a more holistic approach to health care, convenience to clients ('one-stop shopping') and cost efficiency – since the same health-care providers, if properly trained, can provide the range of services involved. Besides, family planning and STI/RTI services require overlapping supplies (condoms, for example) and equipment (such as speculums), similar knowledge (knowing, for instance, which contraceptive methods provide dual protection and what special precautions should be taken with IUDs) as well as similar counselling skills.



SERVICE INTEGRATION: BENEFITS & CHALLENGES

CHALLENGES TO INTEGRATION

Integrating STI/RTI care into reproductive health programmes can pose significant challenges from a sociocultural perspective and in terms of planning. First, the stigma attached to STI can create social barriers. Family planning and antenatal care facilities serve primarily – though not exclusively – married women and those in stable relationships. These women are not high transmitters of STI, and may, some argue, stay away from the health centres because of the stigma and the different clientele associated with STI/RTI services.

Moreover, prevention messages need to be directed to men and to other higher risk groups. When these messages are directed at women at antenatal care and family planning settings, they may have a limited impact, since women often have little power to influence their partners' sexual behaviour.

In addition, male partners of STI-infected patients may be reluctant to be treated in a family planning clinic where the providers are usually women. Thus, it may be useful to offer services for men where they work (occupational services) or through referrals. There may also be possibilities to work with local pharmacies and traditional care providers to ensure they are aware of STI treatment guidelines and the importance of protecting partners.

Another argument against integration is based on the need to reach higher risk populations. Family planning and antenatal care centres may be unlikely to attract the key targets of STI management: men, unmarried women, adolescents and other high-risk groups. A study

in Bangladesh concluded that targeting populations with an elevated risk of sexually transmitted infection could prove more cost-effective than offering STI management at family planning clinics, where prevalence of these infections is likely to be lower.

OVERCOMING THE CHALLENGES

Despite these concerns, the integration of STI management with reproductive health services has produced positive results in many settings, both in terms of treatment and cost-effectiveness. Various examples show that it is possible for an integrated programme to also reach out to vulnerable or at-risk groups.

In Indonesia, the integration of STI services, including a programme for female sex workers, began in 1995. The concerns that the family planning services would be stigmatized and that serving sex workers would tarnish the clinic's image were addressed by scheduling STI services outside regular clinic hours and by physically separating examination rooms for STI patients and regular clinic clients. The project demonstrated the feasibility of integration of STI and family planning services. STI management within the clinic was assessed positively.

Another study to test the feasibility of providing comprehensive, affordable STI services through an existing primary-care infrastructure reached a similar conclusion. The study urged wider integration and found that the integrated services cost 31 per cent less than separate services for STI/HIV and family planning, with the savings resulting primarily from reduced staff costs, supplies and overhead.



Raising awareness of the dangers that STI/RTI pose and how to avoid them is essential for preventing their spread.

However, in order for information and communications to be effective, they must be linked to services so that individuals can take appropriate actions to protect their reproductive and sexual health. Specific prevention activities include:

- Community education about the symptoms of and complications that can result from STI/RTI and how to prevent them
- Promotion of health-care-seeking behaviours
- Making sure services are accessible and acceptable, so that people do not hesitate to use them if they have concerns. This includes removing barriers to service use, including cost, hours and location, and strengthening non-health, facility-based approaches
- Encouraging men to participate in STI/RTI prevention
- Condom promotion and distribution
- Early diagnosis and treatment (of clients and their partners)
- Offering youth-friendly services and promoting the ABC approach to risk reduction (abstain from sex, be faithful to one partner, use condoms)
- Reaching out to higher risk populations, such as female and male sex workers, and other identifiable groups who are at risk primarily due to their mobility and high-risk sexual contacts (for example, long-distance truck drivers, military personnel and migrant workers)
- Addressing some of the deep contributing causes of STI, such as poverty, gender-based violence and empowerment of women

As in all cases of infectious disease, primary prevention goes hand-in-hand with early and effective treatment of infected individuals. Early treatment can reduce the duration of infection, prevent the development of complications, protect their current or future sexual partners, and break the chain of transmission (secondary prevention).

Information, education and counselling for responsible sexual behaviour and effective prevention of sexually transmitted diseases, including HIV, should become integral components of all reproductive and sexual health services. (ICPD Programme of Action, para. 7.32)

STI PREVENTION AND FAMILY PLANNING METHODS

Family planning consultations provide an excellent opportunity to discuss STI/RTI prevention and concerns. For clients seeking family planning methods, dual protection (from unwanted pregnancy and STI) should be encouraged.

A dual protection counselling session should involve a discussion of the following topics with family planning clients:

- Sexual behaviours that carry increased risk of contracting an STI
- Safer sexual practices, including the correct

use of condoms and negotiation strategies

- Demonstration of condom use
- Voluntary counselling and testing for HIV

Clients should be advised that condoms, both male and female, are the only forms of contraception that provide substantial protection against bacterial as well as viral STI. For this reason, condom use is especially important for individuals at higher risk of acquiring, or transmitting, an STI, even if other forms of contraception are used. Diaphragms, when used in conjunction with spermicides, provide only modest protection against bacterial STI. While earlier studies had indicated that spermicides such as Nonoxynol-9 (N-9) might help protect against bacterial STI, WHO in 2001 found no evidence that N-9 provides any such protection, and some researchers now believe it may facilitate the spread of HIV. Neither hormonal contraceptives nor IUDs provide STI protection.

PREVENTION STRATEGIES BASED ON LOCAL CIRCUMSTANCES

The prevalence of STI and their local transmission patterns and epidemiology can guide the emphasis in programme strategies in terms of stressing mass education and services or targeting higher risk groups.

From a public health perspective, prevention measures aimed at high-frequency transmitters (those who have many partners or engage in high-risk sexual behaviours) can be more effective than measures targeting the general population. This is especially true where overall prevalence rates are low.

Specific strategies that have been used for reaching high-frequency transmitters are:

- Training sex workers to educate their peers about STI/RTI and to distribute condoms
- Providing STI diagnosis and treatment for commercial sex workers
- Basing STI service delivery sites in workplaces where vulnerable populations, such as migrant workers, are found

GENDER ISSUES AND IMPLICATIONS

For physiological and social reasons, women are more vulnerable to STI/RTI than men. Because of their greater biological susceptibility, women have a higher incidence of STI/RTI than men. Moreover, women with STI are more frequently asymptomatic than men. And because women's infections may go undiagnosed and untreated, they often lead to severe health consequences, such as infertility. Women generally have less power than men to negotiate safer sexual practices. It is often especially hard for married women to refuse sex with their husbands or to insist on use of a condom, and efforts to empower them in partner negotiation may be helpful.

Men tend to have more sexual partners than women, and thus are more likely to spread an STI. For these reasons it is extremely important that men try to protect their partners, by using condoms in all casual sexual encounters and by making sure their partners get care if there is any risk of STI exposure. Men may be more receptive to prevention messages if they understand that STI threaten their own health and fertility, and may endanger the lives of their partners and children.



Because STI can affect every aspect of reproductive health, their prevention and management should be an integral part of reproductive health care for both men and women.

Women need to be concerned about STI especially in terms of family planning options, fertility, reproductive tract cancers and pregnancy, including possible effects on the health of the foetus and newborn. A holistic approach requires that the same health facility address all of these conditions (whether on-site or

by referral) and that health-sector policy makers take steps to incorporate as many aspects of STI management as possible into primary/reproductive health care, appropriate to the particular service setting. The points below should be considered in designing or implementing programmes or advocating for policy.



**POLICY AND
PROGRAMME
INTERVENTIONS**

INCREASING SERVICE COVERAGE AND PROMOTING INTEGRATION

To reduce the incidence of STI in the general population and for populations at risk, coverage should be strategically expanded:

- Wherever feasible, expand reproductive health services to include STI prevention, counselling and case management for men, unmarried women, and young people of both sexes. To overcome initial social barriers, separate entrances or areas, separate days or hours, may be assigned for STI services.
- Consider the special needs, sensitivities and vulnerabilities of young people. Comprehensive 'youth-friendly' services (within or separate from ANC/FP centres) that offer family planning and condom distribution, life skills counselling and behaviour-change communication can be offered in addition to STI management. Such subprogrammes can also include social marketing of condoms.
- Where resources permit, reach out to populations at greater risk of acquiring and transmitting STI with prevention messages, counselling, screening and treatment. High-risk populations may include sex workers, long-distance truck drivers, prisoners, army personnel, street children, adolescents in penal institutions, refugees and the internally displaced. Wherever possible, STI management should be integrated into existing health services for these populations (especially for prisoners, army personnel and refugees).

Continued

- Reproductive health programmes in most developing country settings, can, with minimal provider training, make STI prevention (especially dual protection and condom promotion) and counselling services available. Such counselling should be a routine part of any reproductive health consultation. It should include determining whether the client has experienced STI symptoms. If so, the client should be referred to a higher level of service for screening, diagnosis and treatment. Voluntary counselling and testing for HIV should also be suggested for high-risk clients and for all clients in areas of high HIV prevalence.
- Most reproductive health centres, with additional training of staff, can undertake diagnosis and treatment of men with urethral discharge (chlamydia and gonorrhoea) and of men and women with genital ulcers (syphilis, chancroid and herpes simplex), using WHO algorithms or flow charts. Women with vaginal discharge and/or lower abdominal pain and other symptoms should be referred to a higher level of service.
- In areas of high prevalence for gonorrhoea and chlamydia and in centres where staff have undergone rigorous training, diagnosis and treatment of cervical infections can be undertaken using WHO algorithms and drug treatment protocols.
- Given the serious consequences of untreated syphilis, routine screening of pregnant women at their first visit should be an integral part of all antenatal care. Selected sites can obtain RPR kits to test for syphilis and train staff in their use. Centres with no facilities for syphilis screening should refer pregnant women to those that do. A new rapid syphilis test is now on the market that will make it easier for all centres to screen for the disease.
- Supervise outside health-care services that treat STI. Periodic monitoring of diagnostic and treatment efficacy should be carried out in view of the danger of frequent misdiagnosis and over-treatment. The local prevalence rate for each STI should be established and patient specimens should be sent for more definitive laboratory tests to monitor diagnostic accuracy.
- A network of reproductive health clinics within a town or district offering different levels of service is a feasible model for maintaining cost-effectiveness while providing access to all aspects of STI management. In this model, all clinics should offer the most basic level of primary health care, namely, prevention and counselling services. Some suitably selected sites will also diagnose and treat urethral discharge and genital ulcer syndromes. Other sites will provide the highest level of service, from STI prevention to diagnosis and treatment of cervical infections. Because clients need to be referred to easily accessible centres, this model applies more to urban than to isolated rural settings.

WHAT UNFPA CAN DO

- Promote STI integration in reproductive health care policy dialogues, such as those concerning health-sector reform and SWAps (sector-wide approaches).
- Support campaigns to sensitize policy makers in governments and donor agencies on STI, not only as a public health issue, but also in terms of their links to poverty and gender.
- Link UNFPA activities with wider advocacy efforts and community-based education campaigns on the risks of STI and ways of preventing them. Potential partners in this effort include women's health advocates and organizations active in HIV/AIDS prevention, safe motherhood and adolescent reproductive health.
- Support projects on STI prevention and care for adolescents and youth.
- Support research on the relationship between gender-based violence and STI and appropriate interventions.
- Assist countries in gathering epidemiological data on STI to establish local prevalence rates for different populations.
- Support costing studies, on actual costs and cost-effectiveness, for various STI interventions.
- Identify areas of overlap and take advantage of possible synergies between HIV/AIDS and STI/RTI services.
- For all levels of integration, use the UNFPA Reproductive Health Commodity Security global strategy at the country level to provide necessary logistics and supplies such as posters, clinic supplies, diagnostic equipment, condoms and essential drugs.
- Adopt a policy of promoting dual protection in all family planning programmes, especially in areas of high prevalence of STI (including HIV).
- Encourage screening for maternal syphilis as part of routine antenatal care.
- In cooperation with WHO and other partners, strengthen the capacity of health services to train providers at the level of service appropriate to their reproductive health-care settings – from STI prevention and counselling (including on empowering women in partner negotiations) to diagnosis and treatment as well as working with private providers to increase the availability and quality of services.

Governments should strive to ensure that by 2015 all primary health care and family planning facilities are able to provide, directly or through referral... prevention and management of reproductive tract infections, including sexually transmitted diseases.... By 2005, 60 per cent of such facilities should be able to offer this range of services, and by 2010, 80 per cent of them should be able to offer such services.

– *Key Actions for the Further Implementation of the ICPD Programme of Action, adopted by the UN General Assembly, 1999, para. 53*



The serious consequences of syphilis infection point to the need for routine screening of all pregnant women attending antenatal clinics, and many developing countries have such a policy in place, with varying degrees of implementation. Such screening is cost-effective even in areas with prevalence as low as 0.1 per cent.

The most widely used test for this purpose is the RPR (rapid plasma reagin) blood test,

which suitably trained health-care providers in primary health-care settings can perform. A new, even easier-to-use and affordable test is now available in many places. Because the risk of infection to the foetus is greatest during the first 16 weeks of pregnancy, women should be encouraged to seek antenatal care as early as possible. Here too, partner notification and treatment are crucial to prevent reinfection.



This section presents a brief overview of some of the complexities of STI/RTI diagnosis and treatment that may be important for those designing or implementing programmes. Service providers should consult WHO guidelines for clinical protocols for STI/RTI management, as this programming note is not intended as a guide to treatment.

In general, the diagnosis of infectious disease is based either on laboratory tests to identify the pathogen or on symptoms and clinically observed signs (syndromic approach). Where resources are available, diagnostic tests can give greater certainty as to the specific infection and appropriate treatment, and can detect cases that otherwise might not be obvious. However, the delay in getting test results may discourage follow-up treatment.

Where resources are not available for testing, STI/RTI can be treated based on the syndromic approach, which has been developed and refined by WHO. Since this approach does not identify a specific pathogen, treatment may need to cover several possibilities, and may result in over-treatment of some individuals.

DIAGNOSTIC TESTING

Diagnostic testing may require specimen collection, cultures (and incubators), blood samples and their careful handling, testing equipment and trained personnel with the ability to interpret results.

Some tests, namely those for vaginal infections, are relatively easy to perform and interpret, so that most health-care providers can be trained in their use. These involve

collection of vaginal discharge and wet mount or Gram stain microscopy. Speculum examinations to detect the presence of cervical mucopus can be added as a further diagnostic tool to increase a provider's ability to distinguish vaginal and cervical infections.

The rapid plasma reagin (RPR) test, a blood test widely used to detect syphilis, is fast and can be performed on site in a suitably equipped primary health-care centre. A new rapid test for syphilis, which can be used anywhere and can give results in two or three minutes, is now available in many places at a cost of less than \$1. Chancroid can be detected by a culture.

Tests for chlamydial infection and gonorrhoea, on the other hand, are more complicated and costly. In resource-constrained settings, laboratory-based diagnosis for these two infections is simply not feasible. This is problematic because both chlamydia and gonorrhoea are often asymptomatic in their early stages, and may go undiagnosed and untreated, especially in low-risk populations.

Commercial test kits that provide rapid tests for many common STI are now available, but their efficacy in primary health-care settings

has not yet been established (except for the new syphilis test), and most are relatively expensive – ranging from about \$6 (gonorrhoea) to about \$15 (chlamydia) – especially given the limited degree of certainty they provide.

Beyond the cost issues, the principal drawback of most laboratory diagnoses is the time lag from the initial visit to getting results. This lag also means a delay in treatment and, often, a failure of clients to return for treatment.

THE SYNDROMIC APPROACH

The syndromic approach to STI/RTI management was developed by WHO as an alternative method of diagnosis and treatment in places where laboratory tests are not available or affordable. This method is valuable when patients spontaneously complain of symptoms, when immediate treatment is necessary because pelvic inflammatory disease is suspected, or when there is concern that the patient may not return for treatment.

The syndromic method uses step-by-step guidelines in the form of flowcharts to reach a diagnosis and apply an appropriate treatment regimen. These tools can make a clinician's management of a given syndrome as standard and as objective as possible, and ensure that the prescribed treatment covers a range of organisms most commonly known to cause the particular syndrome in the particular setting.

The benefits of the syndromic approach include simplicity, minimal provider training requirements and, above all, diagnosis and treatment in one visit, which may be the only one. Its principal limitation is that the method requires treatment for several infections at the same time, which may result in overuse of

antibiotics and drug-resistant pathogens.

Diagnosis of STI in women using the syndromic approach is more complicated than for men, and the identification of cervical infections (usually gonorrhoea or chlamydia) may be missed because so many women are asymptomatic. Clinical signs of pelvic inflammatory disease (PID) are varied and may be minimal. Because of the serious consequences of PID, health-care providers should treat all suspected cases.

Over-treatment may occur with the syndromic approach because several STI/RTI share the same or similar symptoms, as illustrated in the following list of symptoms and possible causative pathogens:

- **Urethral discharge:** usually caused by gonorrhoea or chlamydial infection in men (up to 90 per cent are symptomatic)
- **Genital ulcer:** usually caused by syphilis, chancroid or herpes simplex virus in men and women
- **Vaginal discharge:** usually caused by bacterial vaginosis, trichomoniasis, candidiasis, and rarely by gonorrhoea or chlamydial infection.
- **Lower abdominal pain:** one of the symptoms of pelvic inflammatory disease, mostly a result of cervical infection by gonorrhoea and chlamydia spread to the upper reproductive tract. Additional symptoms include vaginal discharge, cervical motion tenderness and rebound tenderness felt on examination (a pelvic examination should be routine for all women who are either at risk or suspected of having an STI).

In many parts of the world, genital herpes (with recurrent episodes of small lesions) is

the principal cause of genital ulceration. Depending on local prevalence, treatment should be given for herpes as well as syphilis and chancroid. Although the association between genital ulcer with herpes simplex virus, syphilis and chancroid is sufficiently strong to make a fairly reliable diagnosis, such ulcers are more difficult to detect in women than in men. Also, in the case of syphilis, ulcers in both sexes are painless and may not be noticed by the patient.

STRATEGIES TO IMPROVE THE ACCURACY OF SYNDROMIC DIAGNOSIS

Some experts question the efficacy of syndromic management for women because of the possibility of missing cervical infections. They emphasize instead the need for rapid, low-cost screening technologies. In the absence of such affordable, easy-to-use technologies, however, how can we prevent serious complications for the millions of women worldwide who are infected with gonorrhoea and chlamydia annually (most of whom live in resource-poor countries)? In an attempt to answer this question, WHO has developed strategies to improve the accuracy of syndromic diagnosis. These strategies require local prevalence data for different patient populations, as well as the use of a reliable reference laboratory to check results and monitor the effectiveness of the approach taken.

Screening and treatment guidelines need to be adapted to local conditions and each programme must base its strategies on local characteristics, needs and limitations. For example, where resources permit, screening for common asymptomatic STI should be included as part of

preventative health care along with other common 'well-woman' screenings. However, separate flowcharts should be used in the screening of asymptomatic women and diagnosing those who seek care because of STI symptoms.

Although diagnosis and treatment in one visit is preferable (given the low rate of return by clients for follow-up), diagnostic accuracy is enhanced by the opportunity to review a patient's condition a week or so after the initial treatment. If symptoms persist, then other treatment options are considered. The effectiveness of this strategy may depend on client behaviour patterns in different settings, as rates of client returns for follow-up have been found to vary widely. Where chlamydia and gonorrhoea are prevalent, presumptive treatment may be warranted in situations where infection seems likely. A two-step approach to syndromic diagnosis may be suitable in settings in which a health-seeking culture is more entrenched, and patients can be expected to return for follow-up.

Risk assessment is no longer considered to be helpful in applying the syndromic approach. For one thing, many women are at risk only because of their partner's behaviour, and they may not be aware of the risk they face. Moreover, almost all studies conclude that in populations with low prevalence of gonorrhoea and chlamydial infection (such as clients of antenatal care and family planning clinics), risk assessment does not significantly improve a health-care provider's ability to detect cervical infections.

PARTNER NOTIFICATION AND TREATMENT

Although partner notification and treatment are key to preventing the spread of STI, this is difficult to achieve in most settings. For one thing, patients are often reluctant to inform their partner(s) because of the stigma associated with STI and the possibility of partner accusations. In any case, sexual partners, except those of women diagnosed with maternal syphilis, often fail to follow up for treatment, according to surveys. To overcome this barrier, some clinics supply clients diagnosed with STI with packages containing appropriate drugs and information to be given to their partner. The efficacy of this promising strategy is under evaluation.

Given the sensitivities associated with STI, it is important to keep in mind the uncertainty surrounding diagnosis. Providers should be cautious in their assessment and honest with the patient about the fact that many symptoms are too nonspecific for definitive diagnosis. Pointing out that all RTI are not STI leaves open the possibility of a non-sexual origin of the infection and may alleviate client discomfort with the situation. Treatment and partner notification can be presented as a precaution to prevent complications, such as pregnancy complications and infertility for both partners. To approach the matter otherwise would be unethical, given the possibility of partner abuse, violence or divorce, and the possibility that the patient may not have the infection in question.

COUNSELLING

All methods of STI/RTI management, whether laboratory-based or syndromic, regardless of

the setting (STI/RTI clinic, primary health-care or antenatal care and family planning clinic) must include client counselling. This requires more than handing out information. Counselling is an interactive process involving patient participation and requiring interpersonal skills on the part of the provider such as empathy, a non-judgmental approach, an understanding of the patient's situation, and cultural sensitivity.

Sensitivity is especially called for in counselling victims of sexual violence (which increases the risk of contracting STI). Special skills for dealing with adolescent populations are required as well. Privacy and the assurance of confidentiality are of paramount importance. All clients should be counselled on STI awareness and prevention (including dual protection). However, following the diagnosis of STI, counselling should also address:

- Assessing the patient's risk of HIV and helping him or her decide whether to undergo testing for it
- Clarifying steps to prevent future infection, including how to negotiate safe sex and condom use
- Discussing how to deal with the difficult issue of partner notification

TREATMENT

Important criteria to be considered when selecting STI drugs include: efficacy, cost, microbial resistance, single versus multiple dosage, administration route, contraindications for special groups such as pregnant and lactating women, drug interactions and dosing in the context of HIV infection. Newer antimicrobial agents that are effective against

resistant organisms tend to be much more expensive, but these higher costs should be considered in the context of further morbidity and spread from inadequate control of the initial infection. It is most important that drug treatment of STI be at least 95 per cent effective, irrespective of the level of the health-care facility.

The UNFPA list of commodities* includes drugs that are commonly used for treating STI. However, in the selection of these drugs, the capability and experience of clinic staff should be taken in consideration. Furthermore, Country Offices should encourage national authorities to include appropriate drugs in the national essential drug lists.

ADDRESSING PERINATAL COMPLICATIONS

All of the major STI/RTI are associated with premature delivery and low birthweight. In addition, infants can acquire serious eye or lung infections from mothers infected with gonorrhoea or chlamydia. Children can be born with congenital herpes, which can affect their

nervous system. When an outbreak of herpes occurs before delivery, a Caesarean section is recommended.

Symptomatic cases of suspected gonorrhoea or chlamydia in pregnant women can be treated either presumptively or according to the syndromic approach in high prevalence settings. All newborn babies, regardless of maternal signs or symptoms of infection, should receive prophylactic eye drops against neonatal conjunctivitis (*ophthalmia neonatorum*) caused by gonorrhoea or chlamydial infection.

SCREENING FOR MATERNAL SYPHILIS: A PRESSING CONCERN

Apart from HIV, syphilis has the potential to result in the most adverse pregnancy outcomes. Maternal syphilis can cause spontaneous abortion, premature birth, stillbirth and low birthweight. Worse, it can lead to congenital syphilis in the newborn, resulting in death or long-term illness. More than half of women who test positive for syphilis and are not treated experience adverse pregnancy outcomes.

AVERAGE COST PER CASE TREATED (DRUGS ONLY) IN 2001 IN US DOLLARS BASED ON COST ESTIMATES IN SOME 20 DEVELOPING COUNTRIES USING A SYNDROMIC APPROACH

Genital ulcer (<i>syphilis, chancroid</i>)	\$2.12
Urethral discharge (<i>syphilis, chancroid</i>)	\$2.30
Vaginal discharge (<i>gonorrhoea, chlamydia, trichomoniasis, candidiasis, vaginosis</i>)	\$2.55

*Essential Drugs and Other Commodities for Reproductive Health Services can be viewed at <http://www.unfpa.org/publications/detail.cfm?ID=142&filterListType=>

Every year, an estimated 340 million people worldwide become infected with one or more of the four major *curable* STI/RTI.

ESTIMATED ANNUAL INCIDENCE OF THE MAJOR CURABLE STI (MILLIONS WORLDWIDE)

Gonorrhoea	62
Chlamydia	92
Syphilis	12
Trichomoniasis	174
TOTAL	340

SOURCE: WHO, 2001

This figure does not include less common STI/RTI, such as chancroids and granuloma inguinale, nor viral ones – including the human papilloma virus (HPV) and the herpes simplex virus (HSV). Nor does it include HIV. Viral infections in general do not have definitive drug treatments, only a means of keeping them in check. If the viral STI are added, the number of new cases may be three times as high. Endogenous reproductive tract infections, which are more common than sexually transmitted infections but do not have as severe consequences, would bring the figure much higher still.

IMPLICATED IN A WIDE RANGE OF SERIOUS HEALTH PROBLEMS

Curable sexually transmitted infections can have severe consequences for individuals and communities. Apart from being serious

diseases on their own, the presence of an untreated STI/RTI can increase the risk of HIV infection and transmission by a factor of two to nine.

The most serious complications and long-term consequences of untreated STI tend to be in women and newborn babies. Gonorrhoea and chlamydial infections can cause pelvic inflammatory disease in women, which can lead, in turn, to ectopic pregnancy and infertility. Some strains of HPV, one of the viral STI, can lead to cervical cancer – the leading cause of cancer death among women in developing countries.

Women can transmit STI to their children during pregnancy and childbirth, leading to infant morbidity and mortality. Almost all STI/RTI have been associated, for pregnant women, with premature delivery and low birthweight babies. Children can be born with congenital syphilis or herpes or with serious eye infections due to gonorrhoea or chlamydia. Syphilis is spread to a foetus during pregnancy, resulting in foetal or perinatal death in up to 40 per cent of affected infants. HIV may be transmitted during pregnancy, delivery and through the ingestion of breast milk. Gonorrhoea transmitted during childbirth can cause *ophthalmia neonatorum* (neonatal conjunctivitis), which can lead to blindness if untreated. Chlamydia infects the lungs of newborns and can lead to pneumonia.



THE HEALTH BURDEN OF STI/RTI

MOST COMMON STI/RTI, THEIR SYMPTOMS, COMPLICATIONS AND TREATMENT*

Common STI (excluding HIV)	Symptoms	Consequences/ Complications	Treatment
GONORRHOEA <i>Neisseria gonorrhoeae</i>	<i>Men:</i> pus-like discharge or pain during urination. <i>Women:</i> often asymptomatic, or some of the following: burning urination, pelvic or lower abdominal pain, yellowish-green discharge	Pelvic inflammatory disease (PID), ectopic pregnancy, infertility. Ophthalmia and conjunctivitis in newborns.	Ciprofloxacin, Ceftriaxone Cefixime, Spectinomycin <i>Alternatives:</i> Kanamycin Trimethoprim/ Sulfamethoxazole
CHLAMYDIA <i>Chlamydia trachomatis</i>	Up to 85 per cent of women and 40 per cent of men have no symptoms, or some of the following: Discharge, painful or burning urination, excessive vaginal bleeding, painful intercourse for women, swelling or pain in testicles for men, abdominal pain, nausea, fever	Cervicitis leading to PID, infertility, ectopic pregnancy. Infects the lungs of newborns, leading to pneumonia.	Doxycycline Azithromycin <i>Alternatives:</i> Amoxicillin Erythromycin Ofloxacin Tetracycline
SYPHILIS <i>Treponema pallidum</i>	Painless sores, or wet ulcers appear from 3 weeks to 90 days after infection on the genitals, in vagina, cervix, lips, mouth or anus, sometimes accompanied by swollen glands	The organism can remain in the body for life, leading (in one third of untreated cases) to disfigurement, neurologic disorder, or death. Foetus and perinatal damage: heart, brain, skeleton and blindness. Associated with HIV	Benzylpenicillin Benzathine <i>Alternatives:</i> Procaine-benzylpenicillin For penicillin allergy and non-pregnant: Doxycycline, Tetracycline
CHANCROID <i>Haemophilus ducrei</i>	Painful sores on the genitals, sometimes swollen lymph glands in the groin	Increased risk of contracting HIV	Ciprofloxacin Erythromycin Azithromycin <i>Alternatives:</i> Ceftriaxone

continued

MOST COMMON STI/RTI, THEIR SYMPTOMS, COMPLICATIONS AND TREATMENT*

Common STI (excluding HIV)	Symptoms	Consequences/ Complications	Treatment
TRICHOMONIASIS <i>Trichomonas vaginalis</i>	Frothy, smelly discharge, itching, swelling of the groin, pain and burning during urination. Sometimes asymptomatic in women. Rarely symptomatic in men	May cause premature rupture of the membranes during pregnancy and pre-term delivery. Increases risk of HIV	Metronidazole, orally, in single dose; Tinidazole
HERPES <i>Herpes simplex virus</i>	Blisters around the site of infection, sometimes accompanied by fever, swollen glands and aches and pains. Periodic attacks of painful blisters recur throughout life, though subsequent episodes are less painful	Increased chance of contracting HIV. May cause miscarriage or stillbirth. Serious risk, including neurological damage, to newborn if blisters are present during delivery	No cure. Palliative treatment only. Symptoms may be alleviated or shortened with antiviral therapies: Acyclovir, Famciclovir, Valaciclovir
HUMAN PAPILLOMA VIRUS	Some specific HPV strains cause warts (which appear 3 weeks to 9 months after infection) on or around the genitals. Difficult to identify if inside the vagina	Some other HPV strains may lead to carcinoma of the cervix	Certain drugs - Podofilox and Imiquimod - can be useful for removal, however there is no cure and infectiousness may remain

*Some infections discussed in this note, including human papilloma virus, candidiasis and trichomoniasis, can also be transmitted through skin contact. Different treatment protocols may apply to pregnant women and persons living with HIV/AIDS.

Facts about STI/RTI

- An estimated 340 million new cases of four curable STI (gonorrhoea, chlamydia, syphilis and trichomoniasis) occur each year. If viral STI – such as human papilloma virus (HPV), herpes simplex virus (HSV) and HIV – are included, the number of new cases may be three times higher. Among women, RTI that are not sexually transmitted are even more common.
- Women, because of their greater biological susceptibility, have a higher incidence of STI/RTI than men. Moreover, women with STI are more frequently asymptomatic than men, and because their infections frequently go undiagnosed and untreated, women more often experience severe health consequences, such as infertility.
- The consequences of STI/RTI are very serious in women, and sometimes fatal (in the case of cervical cancer, ectopic pregnancy or sepsis, for example). In their babies it can cause stillbirth or blindness.
- STI/RTI are among the most common causes of illness throughout the world, especially in women.
- Serious STI/RTI complications include: pelvic inflammatory disease, ectopic pregnancy, pre-term labour, miscarriage, stillbirth, congenital infection, neurological dysfunction and death.
- Increased risk of HIV/AIDS is another consequence of some STI/RTI. The presence of an untreated STI/RTI can increase the risk of HIV infection and transmission dramatically (studies suggest by a factor of two to nine).
- Sexually transmitted infections are found worldwide but their prevalence varies widely. Syphilis, gonorrhoea and chancroid spread more rapidly in places where communities are disrupted, migrant labour is common and sex networks are active.
- STI prevention means reducing exposure – by abstinence, delaying sexual initiation, reducing the number of sex partners and using condoms. Condoms must be used correctly and consistently to prevent STI.

continued

¹ SOURCE: WHO

- Consistent and correct use of condoms is highly effective for preventing both pregnancy and STI (referred to as dual protection).
- More than 20 pathogens are responsible for STI/RTI. Bacterial, fungal and parasitic STI/RTI are curable, viral ones are not. To date, only one viral STI – hepatitis B – can be prevented by vaccination.
- The clinical appearance of several RTI and STI overlap, especially in women. Health-care providers should recognize that labelling a condition as sexually transmitted might be inaccurate and have serious social consequences for a couple.

FOR FURTHER INFORMATION

Providers should refer to the WHO website to make sure they have the most recent treatment guidelines: http://www.who.int/reproductive-health/pages_resources/listing_RTIs_STIs.htm

These publications may be useful as well:

Guidelines for the Management of Sexually Transmitted Infections. WHO, 2003.

Reproductive Tract and Sexually Transmitted Infections Programme Guidance Tool kit - Technical Documents and Country Reports. WHO, 2004

Safety of Nonoxynol-9 When Used for Contraception. Report from WHO/CONRAD Technical Consultation, October 2001.

Sexually Transmitted and Other Reproductive Tract Infections: A Guide for Essential Practice. WHO, 2004 (in press).



Sexually transmitted and reproductive tract infections are overlapping categories.

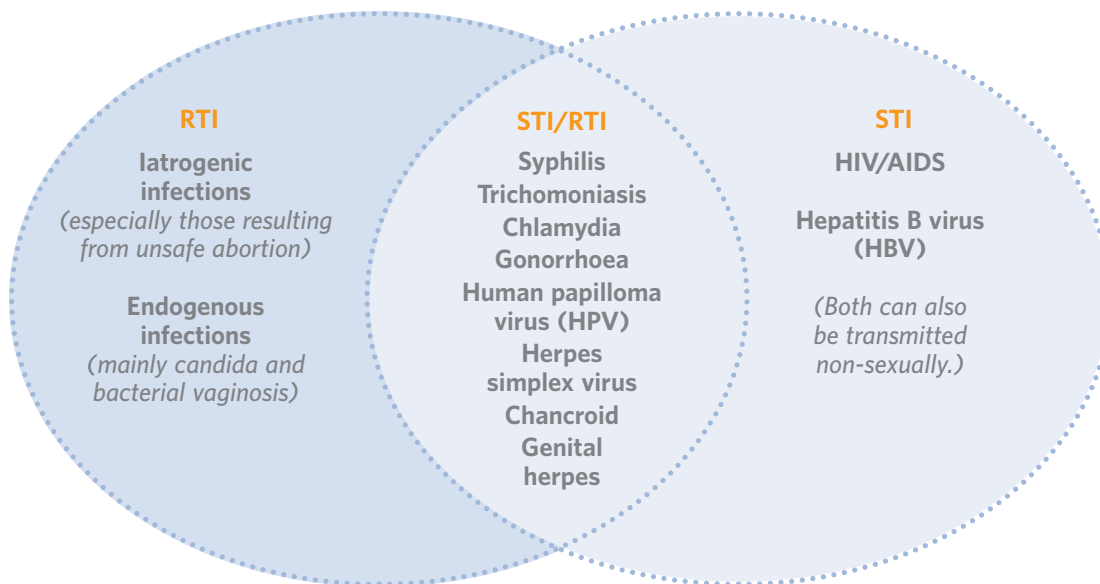
As shown in the figure below, all *sexually transmitted infections* (STI) are not *reproductive tract infections* (RTI) and all reproductive tract infections are not sexually transmitted infections. In these terms, ‘sexually transmitted’ refers to the *mode* of transmission, whereas ‘reproductive tract’ refers to the *site* of the infection. For instance, although HIV is sexually transmitted, it is not limited to the reproductive tract. Hepatitis B and C are other examples of STI that are not RTI, and are not discussed extensively in this note.

Because those reproductive tract

infections that are sexually transmitted generally have much more severe health consequences than the other RTI, the STI/RTI term is used to highlight the importance of STI within reproductive tract infections. When information provided refers to sexually transmitted infections only, the term STI is used alone.

This presentation focuses on the most common STI/RTI, including *trichomoniasis*, *syphilis*, *chancroid*, *chlamydia*, *gonorrhoea*, *human papilloma virus* (HPV) and *genital herpes*. *Bacterial vaginosis* and *candidiasis* are also discussed. Because so much literature

Sexually transmitted and reproductive tract infections



already exists on HIV, it is not covered extensively in this briefing.

Reproductive tract infections are common throughout the world among both men and women. Among women, most episodes of RTI are not sexually transmitted, but are *endogenous* infections, resulting from an alteration in the balance of the normal, protective flora in the reproductive tract. The most common of these, *candidiasis* (yeast) and *bacterial vaginosis*, are influenced by environmental, hygienic, hormonal and other factors.

Another category of RTI, which are also not transmitted as a result of sexual contact, consists of *iatrogenic* infections – mostly infec-

tions acquired through gynaecological or obstetric procedures being carried out by health workers.

In general, the diagnosis of infectious disease is based either on laboratory tests to identify the causative agent responsible for the infection (*aetiological diagnosis*) or on symptoms and clinically observed signs (*syndromic approach*). Neither method for detecting STI/RTI is 100 per cent accurate in terms of identifying all who have an infection and excluding all those who do not, although aetiological diagnosis is usually considered to be more accurate if done properly.

ABBREVIATIONS

AIDS	acquired immune deficiency syndrome
ANC/FP	antenatal care/family planning
HIV	human immunodeficiency virus
HPV	human papilloma virus
HSV	herpes simplex virus
ICPD	International Conference on Population and Development
IUD	intrauterine device
PID	pelvic inflammatory disease
RPR	rapid plasma reagin (blood test for syphilis)
STI	sexually transmitted infections
RTI	reproductive tract infections
SWAPs	sector-wide approaches
WHO	World Health Organization





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