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Prevention of sexual transmission of human immunodeficiency virus

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Introduction

Sexual intercourse, whether homosexual or heterosexual, is the major route of transmission of the human immunodeficiency virus (HIV) throughout the world. The virus can be transmitted by any penetrative sexual act in which HIV-infected semen, vaginal or cervical secretions, or blood is exchanged. The guidelines given here for the prevention of sexual transmission of HIV are based on the information available in mid-1989. Since the extent of the HIV problem and the resources available to deal with it differ from country to country, the guidelines should be adapted to the local situation.

These guidelines cover the most important measures available for the interruption of the global pandemic of sexually transmitted HIV infection; they should be given the highest priority in all national programmes. Only by concerted and effective implementation of these measures—even though they may offend certain sensibilities in dealing explicitly with sexual behaviour—can the pandemic of sexually transmitted HIV infection be contained.

Every person should consider how he or she can apply this knowledge in order to reduce or eliminate his or her personal risk of sexual exposure to HIV.

1. Transmission of HIV

Epidemiological studies throughout the world have shown only three modes of HIV transmission, described below.

- Through sexual intercourse (from an infected person to his or her sexual partner—man to woman, woman to man, man to man, and woman to woman) or donated semen. In these guidelines, sexual intercourse refers to penetrative penile–vaginal, penile–anal, or oral–genital contact.

- From exposure to blood, blood products, or transplanted organs or tissues. Exposure to HIV-infected blood may occur as a result of the transfusion of unscreened blood, the reuse of contaminated syringes and needles, e.g., by intravenous drug users, or in other settings.

- From an infected mother to her fetus or infant, before, during, or shortly after birth (perinatal transmission).

HIV is not transmitted by the respiratory or enteric routes or by casual person-to-person contact in any setting, whether household, social, work, school, or prison. Nor is HIV transmitted by insects, food, water, toilets, swimming-pools, shared eating and drinking utensils, or other objects such as second-hand clothing or telephones.

Sexual transmission of HIV

HIV has been isolated from many body fluids of infected persons. Detailed epidemiological studies throughout the world have documented sexual transmission through exposure to blood, semen, and vaginal or cervical secretions. Exposure to any of these fluids may occur during sexual intercourse.

The precise risk of HIV transmission from a single act of sexual intercourse is not known. Population-based estimates suggest that the risk of transmission through penile–vaginal or penile–rectal contact is generally less than one infection per hundred exposures. However, such a statistic describes the average within a group of people and cannot be applied to an individual case; while some people have had multiple sexual contacts with an infected person without acquiring HIV infection, others have become infected following a single sexual encounter. Repeated intercourse with an infected person increases the risk of infection.

The risk of becoming infected with HIV as a result of sexual intercourse depends on: (1) whether the sexual partner is infected; (2) the type of

sexual contact involved; (3) the amount of virus present in the blood or secretions of the infected partner; and (4) the presence in either partner of other sexually transmitted diseases and/or genital lesions, which increase the risk of HIV transmission.

1. Probability that sexual partner is HIV-infected

The prevalence of HIV infection among sexually active people varies in different areas and among population subgroups within those areas. The probability that a person has acquired a sexually transmitted HIV infection is, in general, proportional to the number of sexual partners the person has had in recent years. In areas where the predominant mode of HIV transmission is through heterosexual intercourse, the highest prevalence of infection has been found among female prostitutes, and the next highest among men who frequent female prostitutes. As with most sexually transmitted diseases, the ratio of the number of HIV-infected men to the number of infected women appears to be lowest (less than 1) among sexually active teenagers and young adults and highest (more than 1) among older adults.

In industrialized countries the highest prevalence of HIV infection is found among homosexual and bisexual men and users of intravenous drugs. In general, infection is more common in urban than in rural areas. The probability of a homosexual man encountering an HIV-infected sexual partner ranges from a few per cent for those with only a few male sexual partners in areas of low AIDS prevalence to more than 70% for men who have many male sexual partners in areas of high AIDS prevalence. Among drug users, a similar range of prevalence of infection has been observed, related principally to the extent of needle-sharing and the time that has elapsed since the introduction of the virus into the drug-using community.

In areas where the major modes of HIV spread thus far have been male homosexual intercourse and intravenous drug use, the probability of HIV infection among heterosexuals who do not use intravenous drugs is still low. However, the risk of heterosexual transmission of HIV appears to be increasing gradually in many countries, especially among those with multiple sexual partners and those with a sexually transmitted disease that produces genital ulcers.

There is an increased probability of HIV infection among people who received multiple blood transfusions or anti-haemophilia factor between 1978 and the time of institution of screening of donated blood and heat treatment of factor concentrates.

2. Type of sexual contact involved

All forms of sexual intercourse carry a risk of HIV transmission. While existing data suggest differences in the relative risk of various forms of

intercourse, the precise level of risk associated with each is not yet known. Trauma to the mucous membrane of the rectum or vagina may facilitate transmission of HIV, but is not essential for transmission to occur. The highest risk for HIV infection occurs among men and women who engage in receptive anal intercourse with an HIV-infected partner. Vaginal intercourse probably carries a higher risk for heterosexual men and women than oral intercourse.

With some sexually transmitted diseases, e.g., gonorrhoea, the risk of transmission from an infected male to an uninfected female sexual partner is greater than the risk of transmission from an infected female to an uninfected male sexual partner. Such differences of risk have been suggested but not yet established for HIV infection.

Oral–genital contact may transmit HIV, but the available data are too limited to permit quantification of the risk from such contact.

Kissing has not been shown to pose a risk of transmission. Nevertheless, while not substantiated, there is a theoretical risk of HIV transmission during "wet" kissing (tongue kissing).

Self-masturbation obviously poses no risk of HIV transmission. However, mutual masturbation, which may involve exposure to semen or cervical and vaginal secretions, may pose a theoretical risk of HIV transmission.

3. Amount of virus present in the blood or secretions of the infected partner

HIV-infected individuals are thought to become more infectious as they progress to overt disease and acquired immunodeficiency syndrome (AIDS).

4. Presence of other sexually transmitted diseases

There is increasing evidence that the presence of another sexually transmitted disease in one or both partners may increase the risk of HIV transmission. Genital ulceration, such as may occur with chancroid, syphilis, or herpesvirus infection, appears to increase the susceptibility to infection of uninfected individuals and to enhance the infectivity of those who are already infected. The role of sexually transmitted diseases as a risk factor for HIV transmission is described in the consensus statement from a WHO Consultation on the topic (Annex 1).

2. Prevention of sexual transmission of HIV

Education

In the absence of an effective vaccine or cure for HIV infection, education on how HIV is transmitted and how exposure to it can be minimized or eliminated is the most important means of reducing its spread. Such education should be aimed at people whose behaviour places them at risk of acquiring HIV infection. As sexual behaviour is private and much risk behaviour is disapproved of in the community, education must be provided for the entire population so as to reach all those at risk. Particular attention should be given to adolescents and young adults who are entering the age of sexual exploration. Educational messages must be understandable to the target audience, accurate, continuous, and sensitive to the socio-cultural background.

Educational programmes should provide information that helps people to understand the implications of HIV infection and so motivate them to modify or eliminate the risk of HIV infection from their sexual behaviour. The emphasis should be on clarity, simplicity, and feasibility.

Educational programmes should also consider including education and training in interpersonal skills, such as talking about sexual practices, discussing the avoidance of risks with a partner, and asserting personal preference in a sexual relationship (including abstinence from sex, non-penetrative sex, or the use of condoms).

Condoms and spermicides

Latex condoms are recommended as a barrier method of reducing the risk of HIV transmission. Natural membrane condoms, which are often made from sheep gut, are not recommended since they have tiny pores through which HIV may pass. Even latex condoms are not completely effective in preventing HIV transmission, just as they are not completely effective as contraceptives, partly because there is a risk that they may break; effectiveness also depends on proper use.

For maximum effectiveness in the prevention of HIV transmission, condoms must be put on before, and used throughout, penetrative sexual intercourse, so as to prevent any contact between the rectal, vaginal,

urethral, or oral mucosa and semen, vaginal and cervical secretions, or blood. Condoms should not be reused. They should be disposed of after use, tied at the end to prevent leakage and placed in the receptacles normally used for refuse.

The promotion and supply of condoms should be viewed as a specific disease control measure. Condoms should not be seen merely as contraceptives or as associated with a particular social or sexual life-style. A condom for use by women is being developed, but its effectiveness has not yet been proven.

Spermicidal compounds containing nonoxynol-9, menfegol, or benzalkonium chloride have been shown to inactivate HIV *in vitro*. Some condoms contain nonoxynol-9 in the tip or as a lubricant. Spermicides alone are not adequate to prevent sexual transmission of HIV. Their efficacy in preventing transmission in conjunction with barrier contraceptives such as the condom, the diaphragm, and the contraceptive sponge is being studied.

HIV antibody tests and counselling

Serological tests that detect antibodies against HIV have been commercially available in many countries since early 1985. The presence of HIV antibodies in a person's blood indicates that he or she is currently infected with HIV, even if there are no clinical symptoms of disease. Antibodies to HIV commonly become detectable 4–6 weeks after infection and most individuals develop a readily demonstrable antibody response within 12 weeks of infection. However, a small proportion of infected individuals may remain antibody-negative for more than 3–4 months. Thus there is a period during which the currently available antibody tests may not identify a newly infected person, even though that person may be capable of transmitting the virus.

Counselling, in conjunction with testing for HIV antibodies, provides a person at risk of HIV infection with the information and support needed to permit him or her to take the appropriate decisions to avoid infection or, if infected, to avoid transmitting HIV to others, and to seek appropriate medical advice. Early diagnosis of HIV infection may enable a person to obtain prophylactic treatment against infection with such opportunistic organisms as *Mycobacterium tuberculosis,* more timely diagnosis, treatment, and prophylaxis for diseases such as *Pneumocystis carinii* pneumonia and, in some areas, access to antiretroviral therapy. People who have information regarding their health status are better able than those who do not to take decisions regarding their own management. Thus HIV antibody testing, in association with pretest and post-test counselling, can play an important role in HIV/AIDS prevention.

Partner notification

Partner notification covers public health activities in which sexual partners or individuals with HIV infection and those sharing drug injection equipment with them are notified, counselled about their exposure, and offered services.

The potential benefits of partner notification include the possibility of helping to prevent HIV transmission and to reduce the morbidity and mortality associated with HIV infection. However, unless confidentiality is assured, partner notification may inflict individual and social harm and thereby detract from other AIDS prevention and control activities. In the context of a comprehensive AIDS prevention and control programme, therefore, the objectives of partner notification must be clearly defined, the underlying principles rigorously observed, and the key methodological issues given due attention.

Partner referral guidelines should be based on the following considerations:

1. It is primarily the responsibility of HIV-infected people to notify their own past and current sexual partners so that those partners can seek appropriate medical and counselling services.

2. All HIV-infected persons should be informed about the assistance available to help them notify and refer their partners, i.e., support if they choose to do it themselves, and the offer to do it for them with guaranteed confidentiality.

3. Assistance should be made available to HIV-infected persons who choose to take the sole responsibility for notifying and referring their sexual partners. Assistance should also be given to other HIV-infected persons who choose or need to involve a third party for partner notification because of logistics, sensitivity, or anticipated fear of an adverse reaction.

4. Confidentiality and appropriate management of the records are of paramount importance.

5. Partner notification and referral undoubtedly help limit the spread and complication of some sexually transmitted diseases, such as syphilis, and the prevention of such disease may also be of value in limiting the sexual transmission of HIV.

6. The knowledge that one is infected may be an important motivating factor in altering risk behaviour, but it may also have a major adverse psychological and social impact. A tactful approach is needed in informing individuals that they are infected, and provision should be made for any psychological and social support that may be required.

The issues of partner notification are addressed further in the consensus statement from the WHO Consultation on Partner Notification for Preventing HIV Transmission (Annex 2).

3. Guidelines

The following general guidelines are aimed at individuals or groups. They may need to be adapted to different local situations.

Recommendations to public health authorities and other groups involved in AIDS prevention as part of the national AIDS programme

- Education should be given to health care providers on HIV transmission and prevention and the possible role of sexually transmitted diseases in facilitating HIV infection. Where appropriate, training should be given to health care providers on counselling and HIV testing.

- Information and education programmes should be undertaken aimed at reducing the sexual transmission of HIV among high-risk groups and individuals, adolescents and young adults, and the general population.

- Education should be provided about condoms, including their correct storage, use, and disposal, and sufficient supplies of good-quality condoms should be ensured where they are needed and at a price that users can afford.

- Voluntary HIV testing and counselling services should be offered. Such services may be offered through the health facilities, including sexually transmitted disease clinics, drug abuse treatment centres, tuberculosis clinics, and family planning and prenatal clinics.

- People infected with HIV should be urged to take the necessary measures to avoid transmitting the virus to others; they should be supported in doing so.

- People infected with HIV should be urged to inform their sexual partners about the need for medical evaluation and counselling. Appropriate support services for partner notification should be provided when indicated, and the quality of the services should be regularly monitored.

Recommendations to health care providers

- Be aware of and sensitive to sexual behaviour that places people at risk of HIV infection.
- Obtain a sexual history routinely. Be non-judgemental.
- Educate patients about HIV transmission and its prevention, including as appropriate the avoidance of partners at high risk of infection (e.g., users of intravenous drugs, prostitutes, men who have sex with prostitutes, people who engage in high-risk sexual activities), and provide instruction on the correct use of condoms.
- Offer HIV testing and counselling to people at increased risk of HIV infection.
- Find out what services and resources are available within the community so that people can be referred appropriately.
- Where resources and programmes exist, be prepared to provide additional support through counselling, peer groups, and other services for HIV-infected persons and their sexual partners, or at least refer them to public health or other medical facilities for such support.
- Urge the patient (the index person) to refer sexual contacts, and be prepared to fulfil your role in such referrals, including referring the contacts to public health agencies when indicated.
- Assist HIV-infected and non-infected users of intravenous drugs to obtain treatment for their addiction and to avoid sharing needles and drug-injecting equipment.
- Inform HIV-infected women who are pregnant about the great health risk to their unborn child and the potential risk to themselves, and provide them with opportunities for counselling. Provide similar information and counselling to all HIV-infected women in the child-bearing age group.

Recommendations to HIV-infected persons

- Inform former and current sexual partners about your HIV infection and recommend that they visit a testing centre or health care provider for counselling and evaluation (including, if available, serological testing). If you are unable or unwilling to notify former and current sexual partners personally, request health workers or public health agencies to notify or help with notifying such partners.

- Inform potential sexual partners of your HIV infection and either decide to avoid sexual intercourse, rigorously restricting sexual contact to activities (e.g., hugging, caressing) that do not involve sharing of semen, vaginal and cervical secretions, or blood, or discuss the precautions that need to be taken to minimize the risk of HIV transmission from sexual activity (e.g., the use of condoms).

- If you both decide to engage in penetrative sexual intercourse, learn how to use a condom correctly, as consistent correct use will reduce the risk of HIV transmission.

- Strictly avoid sexual intercourse when you or your sexual partner has an infection or lesion in the genital, anal, or oral areas and during menstruation.

- Avoid pregnancy. HIV-infected women who are pregnant should know about the health hazard to their unborn child and the potential health hazard to themselves, and be provided with counselling services. HIV-infected men should discuss the hazards of pregnancy with their partners.

- Do not donate blood, plasma, semen, breast milk, body organs, or other tissues.

Recommendations to sexual partners of known HIV-infected persons

- Contact a health care provider for counselling and evaluation (including, if available, serological testing). If the HIV serological test is negative and you are clinically healthy, and if the last unprotected sexual or needle-sharing exposure to your infected partner was six or more months ago, it can generally be assumed that you have not acquired HIV infection from that exposure. If your last exposure was less than six months ago, or if you continue to have sexual intercourse with your infected partner, repeat tests will be necessary to determine whether infection has occurred. If you were negative on initial serological testing, see the recommendations below.

- Be aware that avoiding sexual intercourse with an HIV-infected person or rigorously restricting sexual contact to activities that do not involve sharing of semen, vaginal and cervical secretions, or blood (e.g., hugging, caressing) is the only way of eliminating the risk of acquiring HIV infection from that person. If this is not acceptable, the use of a condom is an alternative, but it is not without risk. Although the precise effectiveness of condoms in preventing HIV infection is unknown, their correct and consistent use will reduce the risk of transmission.

- Avoid all sexual intercourse when either you or your sexual partner has an infection or lesion in the genital, anal, or oral area, and during menstruation.

- If you are pregnant, find out and seek counselling about HIV antibody testing. If you are tested and found to be seropositive, find out and seek counselling about the great health risk to your unborn child and the potential risk to yourself.

- Do not donate blood, plasma, semen, breast milk, body organs, or other tissues.

Recommendations to all persons to prevent sexual transmission of HIV

- Be aware that if you have a mutually faithful relationship with your sexual partner, if you are both HIV seronegative, and if neither of you is exposed to contaminated blood, e.g. by using intravenous drugs or sharing needles, you are not at any risk of a sexually transmitted HIV infection.

- If you intend to have sexual intercourse and are not in a mutually faithful sexual relationship, be aware that your chance of acquiring HIV infection is influenced by the following three main factors.

  1. The choice of your sexual partner(s)

  The risk of infection is directly related to the likelihood that your partner may be infected; for heterosexual and homosexual partners, this varies considerably according to the part of the world. Therefore:

  - Do not have sexual relations with casual or unknown partners.

  - Do not have sexual relations with people who may use or have used injectable drugs, such as heroin or cocaine.

  - Do not have sexual relations with people who have many different sexual partners, such as male or female prostitutes.

  2. The number of sexual partners

  The greater the number of partners with whom you have sexual intercourse, the greater the likelihood that you will encounter a partner with HIV infection. Therefore reduce the number of sexual partners to the greatest extent possible.

3. The type of sexual behaviour practised

If you are considering sexual relations with someone whose infection status or sexual or intravenous drug-using history is unknown to you, abstention from sexual intercourse or rigorous restriction of sexual contact to activities that do not involve the sharing of semen, vaginal and cervical secretions, or blood (e.g., hugging, caressing) will eliminate the risk of acquiring HIV infection. In all other instances, the routine correct use of a condom is strongly recommended.

Consensus statement from the WHO Consultation on Sexually Transmitted Diseases as a Risk Factor for HIV Transmission

On a worldwide basis, sexual transmission is the most important route of HIV[1] spread, and the Global AIDS Strategy and national AIDS programmes have proposed extensive programmes to prevent sexual transmission of HIV. In this context, information regarding biological factors that may influence the sexual transmission of HIV is potentially of great importance for the design and conduct of AIDS prevention programmes. Sexually transmitted diseases are priority health problems in many areas of the world and national prevention and control programmes have been developed and implemented, but often need strengthening.

Recent studies have suggested that sexually transmitted diseases (STDs), particularly those that cause genital ulceration,[2] may facilitate the transmission of the human immunodeficiency virus, type 1 (HIV-1). Accordingly, WHO convened a Consultation on Sexually Transmitted Diseases as a Potential Risk Factor for HIV Transmission, from 4 to 6 January 1989 in Geneva, to develop a consensus based on critical analysis of available evidence regarding the potential role and importance of sexually transmitted diseases as a risk factor for HIV-1 transmission.

The Consultation had the following objectives:

1. to review and assess the available data regarding STDs as a risk factor for HIV transmission;

2. to identify future research priorities and methodologies that might lead to a better understanding of the biological interactions between HIV and STDs;

3. to consider strategic and programmatic implications of the results of the discussion on objectives 1 and 2.

The Consultation developed the following consensus statement:

[1] HIV is used throughout this annex unless the data are specific for HIV-1 or HIV-2.
[2] Herein referred to as genital ulcer disease, although the ulcerations may not be clinically evident.

STDs as a risk factor for HIV transmission

1. While HIV-1 is transmitted sexually in the absence of other STDs, the weight of the evidence for genital ulcer disease as a risk factor for HIV-1 transmission is sufficiently strong that intervention against such disease may contribute to prevention of sexual transmission of HIV-1.

2. Several studies in developing countries have shown that genital ulcer disease is associated with HIV-1 infection in heterosexuals. A few studies have shown an association between the presence of antibodies to herpesvirus 2 or to *Treponema pallidum* (the major causes of genital and anorectal ulcers in industrialized countries) with HIV-1 infection in homosexual men and in heterosexual men and women.

3. Evidence for these associations is consistent in most studies, but because both genital ulcer disease and HIV-1 are sexually transmitted it is necessary to examine only studies that have attempted to measure and adjust for confounding and bias, primarily involving sexual behaviour.

4. The evidence for an association between genital ulcer disease and HIV-1 is strongest in Africa, where prospective studies have given consistent results. There is also evidence for a temporal association between genital ulcer disease and HIV-1 infection which further suggests that genital ulcer disease facilitates transmission of HIV-1.

5. Seroepidemiological studies have demonstrated a consistent association between HIV-1 infection and both herpesvirus 2 and *T. pallidum*. Some evidence in homosexual men suggests that a temporal association exists between herpesvirus 2 and HIV-1.

6. While some studies have found an association between other sexually transmitted disease pathogens or syndromes and HIV-1 infection, the available data are inconsistent and insufficient to permit assessment of their role as risk factors for HIV-1 transmission.

7. It is biologically plausible for all STD pathogens that cause genital ulcers or inflammation to be risk factors for increased infectiousness or increased susceptibility to HIV-1 infection.

8. In general, it is not possible from available data to distinguish between a possible increase in susceptibility to HIV-1 infection in an HIV-seronegative person with an STD, and possible increased infectiousness for HIV-1 in an HIV-seropositive person with an STD.

9. The importance of genital ulcers in increasing transmission at the population level (population attributable risk), as opposed to the individual level, has been calculated in only one study of prostitutes and patients at an STD clinic and cannot be generalized. Therefore, the proportion of sexually transmitted HIV-1 infections that can be

attributed to genital ulcer disease has not yet been defined for the general population.

10. Intervention trials have not yet been done to examine the role of genital ulcer disease as a risk factor in increasing HIV-1 transmission; such trials would be helpful in assessing the effectiveness of control of genital ulcer disease in reducing the sexual transmission of HIV-1.

Research priorities

The main areas identified as needing further research are:

1. Effectiveness of control of genital ulcer disease in reducing sexual transmission of HIV-1 (intervention trials).

2. The effects of sexually transmitted diseases on HIV-1 transmission. Although a large volume of data is available in this area, few cohort studies have been performed and rigorously controlled for the microbiological etiology of the STD and the sexual behaviour of the participants. In addition, the statistical methodologies for examining the effects and interactions of two highly related events need to be refined and standardized. The two specific questions that need to be examined in female to male, male to female, and male to male sexual relations are: *(a)* Among individuals not infected with HIV-1, do STDs increase susceptibility to HIV-1 infections? *(b)* Among those infected with HIV-1, do STDs increase the likelihood of HIV-1 transmission to their uninfected sexual partners? Important factors to be included in any study are: controlling for sexual behaviour; attempting to quantify HIV-1 exposure risk; examining with reliable methods all potentially important STDs; and appropriate consideration to sample size and methods of analysis. Other factors to be considered in study design and analysis are circumcision, contraception, social class, duration of HIV-1 infection, and stage of disease.

3. There is an urgent need for innovative strategies for control of genital ulcer disease.

4. Studies of epidemiology and biology of STDs in relation to HIV-1 transmission, and the effect of HIV-1 on STDs. A better understanding of the epidemiology of some STDs, such as chancroid, is required. Better assessments of population prevalence and incidence of STDs are needed for determination of population attributable risk and for monitoring changes in sexual behaviour. Appropriate diagnostic techniques for many STDs, especially genital ulcer disease, need to be developed or improved, especially for field conditions. The effect of HIV-1 infection on manifestations, recurrence, diagnosis, and therapy of STD needs to be clarified. These studies need to take into account the effects of sexual orientation, gender and geographical setting.

5. Basic research is needed on techniques for assessing sexual behaviour. In addition, it is important to collect systematic information on the sexual behaviour of different populations in all areas of the world.

6. The effect of STDs on the natural history of HIV-1 infection in individuals.

7. The biology of the sexual transmission of HIV-1 and STDs. Basic studies should include the immunopathology of STDs, genital shedding of HIV-1 with and without STD, the effects of mechanical damage to the genital epithelium and study of potential target tissues in the genital tract. Animal models may be useful for simulating sexual transmission of HIV-1.

8. Previous studies have evaluated the association between HIV-1 and STDs; it is also important to obtain information on the interaction of STDs with HIV-2 infection.

The Consultation also identified three priority areas for action:

1. Development of study design and statistical methods most appropriate for examining the interactions between two highly related events, such as STD and HIV infection.

2. Promotion of exchange of information and discussion among investigators in this field.

3. Development of intervention studies on control of genital ulcer disease and on the effects of such control on HIV transmission.

Strategic and programmatic implications

1. The global importance of STDs, including their complications and sequelae particularly in women and newborns, as well as the emergence of the HIV pandemic, necessitate the development and strengthening of STD control programmes in all countries and at all levels. In countries where effective STD control does not yet exist, interventions should be established and integrated into the existing primary health care infrastructure.

2. The AIDS pandemic further emphasizes the urgent need for increased support for broad programmes of STD prevention, control and research. At the national and international levels, staff of STD and AIDS prevention and control programmes should work together to develop strategies and effective means of programme interaction and mutual support. In addition, it is essential that STD and AIDS researchers collaborate in areas of common interest.

3. Because the modes of transmission are similar, primary prevention of either STD transmission or sexual transmission of HIV will help to reduce transmission of the other. For example, behavioural interventions, such as promotion of condoms, will help reduce both STD transmission and sexual transmission of HIV; persons at high risk for HIV infection can be reached through STD services for preventive interventions.

4. STD and AIDS programmes need to take into account the emerging evidence on genital ulcer disease and HIV-1, since early and adequate management of genital ulcer disease may contribute to reducing HIV-1 transmission.

5. The World Health Organization is requested to consider coordinated action to address the policy, programmatic and research issues discussed in this statement.

Consensus statement from the WHO Consultation on Partner Notification for Preventing HIV Transmission

The global strategy for the prevention and control of AIDS has three objectives: (1) to prevent transmission of the human immunodeficiency virus (HIV); (2) to reduce the morbidity and mortality associated with HIV infection; and (3) to unify national and international efforts against AIDS. The key to preventing HIV infection is information and education, linked with relevant health and social services and carried out in a supportive and non-discriminatory social environment. The global strategy calls for information and education programmes to be directed to the general population as well as to target audiences, which include people whose behaviour places them at increased risk of infection with HIV. In addition, the global AIDS strategy emphasizes the need to protect the rights and dignity of HIV-infected persons.[1]

During the past year, increasing interest has been expressed by many countries in partner notification as a method of targeting information and education to those at highest risk of HIV infection—the sexual and injection equipment-sharing partners of people with HIV infection. Partner notification is similar to "contact tracing", the practice of identifying, counselling and treating sexual partners of people with STD as a component of STD control programmes. However, HIV infection differs in important ways from many other STDs.

Additional issues that should be addressed before considering any HIV testing or screening programme have been defined by the World Health Organization.[2]

It was therefore considered important to develop a consensus, based on critical analysis of available experience, regarding the potential role of partner notification activities as part of comprehensive AIDS prevention and control programmes. For this reason, the World Health Organization convened a Consultation in Geneva on 11–13 January 1989, with the following objectives:

[1] Resolution WHA41.24. *Avoidance of discrimination in relation to HIV-infected people and people with AIDS.*

[2] *Screening and testing in AIDS prevention and control programmes.* Unpublished WHO document, WHO/SPA/INF/88.1; available on request from Global Programme on AIDS, World Health Organization, 1211 Geneva 27, Switzerland.

1. to review experience with partner notification in HIV prevention programmes with emphasis on the different objectives, methods and measures of efficacy employed;

2. to review and assess available data on the costs and benefits of partner notification programmes, including social, legal, political and ethical issues;

3. to reach a consensus on the potential role and approaches for partner notification as part of a comprehensive AIDS prevention and control programme and to develop a list of points to consider prior to establishing an HIV partner notification programme.

Definitions

For the purposes of the Consultation, the following working definitions were used:

Index person: an individual recognized as having HIV infection or AIDS. The index person's sexual and injection equipment-sharing partners are the ones considered for partner notification.

Partner: an individual who has had sex or shared injection equipment with an index person during the period of infeciousness.

Period of infectiousness: the period of risk of possible transmission, that is, the time since HIV infection.

Partner notification: the spectrum of public health activities in which sexual and injection equipment-sharing partners of individuals with HIV infection are notified, counselled about their exposure, and offered services. Partner notification consists of two general approaches, patient referral and provider referral.

Patient (index person) referral: the approach by which HIV-infected persons are encouraged to notify partners of their possible exposure to HIV, without the direct involvement of health care providers. In this approach, the health care provider counsels the HIV-infected person with regard to the information to be passed on to his or her partners and the techniques for providing it.

Provider referral: the approach by which health care providers or other health workers notify an HIV-infected person's partners. In this approach, HIV-infected persons give their partners' names to health care providers or other health workers, who then confidentially notify the partners directly. This notification can be undertaken in the context of primary health care and can involve the index person as well as the health care provider or other health worker.

Consensus statement

The Consultation developed the following consensus statement:

Partner notification programmes should be considered within the context of a comprehensive AIDS prevention and control programme. However, partner notification raises serious medical, logistic, social, legal and ethical issues. Partner notification has potential benefits and risks; these include the potential to help prevent HIV transmission and reduce the morbidity and mortality of HIV infection, but also the potential to produce individual and social harm and detract from other AIDS prevention and control activities. In addition, the costs and contribution of partner notification programmes to AIDS prevention and control objectives in a given population and area may vary considerably and are difficult to document. Therefore, in the context of a comprehensive AIDS prevention and control programme, the objectives and underlying principles of partner notification, as well as a series of key variables and critical methodological issues must be carefully and explicitly considered before a decision is taken on whether or not to implement partner notification. Partner notification programmes that fail to take these issues into consideration may be individually harmful and counter-productive to AIDS prevention and control. The following description of objectives, principles, variables and methodological issues is intended as a guide to the critical issues for those considering the development of partner notification activities within a comprehensive AIDS prevention and control programme.

Objectives

Partner notification can contribute to two objectives of the global AIDS strategy, i.e. prevention of HIV transmission and reduction of morbidity and mortality associated with HIV infection, by identifying individuals who have been exposed to HIV infection sexually or by sharing injection equipment, and informing them of the risks to which they have been exposed, so that they can be offered counselling and other services.

Principles

Partner notification, as a part of a comprehensive AIDS prevention and control programme, is acceptable only if the following principles are adhered to. Partner notification should:

(*a*) be in accordance with the Global AIDS Strategy and national AIDS programme goals;

(*b*) respect the human rights and dignity of the index person and his or her partners;

(*c*) be a balanced part of a comprehensive AIDS prevention and control programme and be coordinated in the context of primary health care with other public health activities, such as programmes on STD, maternal and child health, family planning and prevention of substance abuse;

(*d*) be voluntary[1] and not coercive; index persons and their partners should have full access to available services whether or not they are willing to cooperate with partner notification activities;

(*e*) be confidential; this applies to written records, information on the whereabouts of partners, and, in provider referral, the identity of the index person. Occasionally, however, in provider referral, the identity of the index person may be able to be inferred, e.g., where the contact has had only a single partner.

(*f*) be undertaken only when appropriate support services are available to index persons and partners; the minimum requirements are counselling on the implications of having been exposed to infection, the availability of voluntary, confidential HIV testing with pre- and post-test counselling and appropriate health and social services; the quality of these services should be assured and regularly monitored.

Key variables

In deciding whether to undertake partner notification as part of a comprehensive AIDS prevention and control programme, the following key local and national factors must be taken into account:

(*a*) epidemiology—HIV seroprevalence; seroincidence and patterns of transmission and disease; demographic factors; and knowledge, attitudes, beliefs and practices in the relevant population groups;

(*b*) resources—finance; personnel; facilities for diagnosis and management, including scientific and technical developments in diagnosis, treatment and prevention; and organization of health and social services;

(*c*) local environment—relevant legislation; cultural considerations; political constraints; social climate; and perceived and actual threats to human rights;

(*d*) existing AIDS prevention and control activities—including activities in STD control, maternal and child health, family planning, and substance abuse.

[1] In certain situations, when an index person refuses to notify or permit notification of a partner known to the health care provider, the provider will be required to make a decision consistent with medical ethics and relevant legislation.

Methods

Taking into account the programme objectives, principles and key variables, the methodological issues outlined below should be explicitly considered before a partner notification programme is implemented.

Programme issues

Will patient referral, provider referral or a mix of the two approaches be used? Patient referral is the natural starting point for partner notification; however, this approach may not be feasible for selected index persons and partners.

Which partners and populations will be targeted?

How will partner notification relate to other AIDS prevention and control activities and other relevant public health programmes?

How will confidentiality be assured for the index person, the partners, and the written records? The only relevant piece of information that should be related to the partners being notified is the possibility of HIV exposure.

How will health care providers participating in partner notification activities be trained and how will quality be assured?

Will information about partners in other countries be communicated to health officials in those countries in circumstances where the index person cannot or will not notify his or her partners? Exchange of information between countries is quite complex and may create special problems, particularly regarding confidentiality.

How will the programme be monitored and evaluated?

Index person issues

How will the diagnosis of HIV infection be confirmed?

How will the informed consent of the index person be obtained?

How will the index person be interviewed?

How and when will the issue of partner notification be raised?

What portion of the period of infectiousness will be used for determining the partners to be notified? The portion of the period of infectiousness for determining which partners should be notified should be as complete as is practicable and useful.

How will the index person be counselled regarding informing his or her partners?

Partner issues

Which partners will be notified?

How will the partners be notified?

How will they be counselled?

Will they all be offered testing and, if so, how?

What clinical services will be available to persons found to be HIV-infected through partner notification programmes? As a general principle, partners thus notified should have ready access to voluntary testing, counselling and other services.

Evaluation

The risks and benefits of partner notification and its effectiveness in decreasing the incidence of HIV infection in a community have not been clearly established. The direct measurement of these risks and benefits in a properly controlled intervention trial will rarely be feasible. Thus, the incremental contribution made by partner notification to comprehensive AIDS prevention and control programmes and, hence, its true effectiveness, have not been assessed.

Indicators of trends in HIV incidence, both direct and indirect, such as behavioural change, reduction in incidence of other STDs, and condom use, are, nevertheless, important measures of the overall effect of a comprehensive AIDS prevention and control programme, of which partner notification may be a component.

To assess the efficiency of partner notification activities and to assure their quality, a variety of programme measures should be monitored. These include:

(*a*) quantitative measures:

- number of index persons
- number of partners identified
- number of partners notified and counselled and their seroprevalence
- cost of the programme

(*b*) qualitative measures:

- satisfaction of participants
- compliance of participants
- acceptability to participants

(*c*) quality assurance activities:

- assessment of counselling and support resources
- level of staff training
- confidentiality provisions and legal protections
- monitoring of counselling (and, as appropriate, testing activities)
- adequacy of follow-up.

Research needs

The basic research questions concern the effectiveness of partner notification as a component of a comprehensive AIDS prevention and control programme. Since countries vary widely in HIV epidemiology and availability of relevant data and resources, it will be helpful to develop and disseminate standard instruments for collecting information on programme design and implementation, including objectives, key variables, methods and evaluation measures. To the extent that uniform or comparable data are available, comparisons among programmes can be made about the costs and contributions of partner notification to AIDS prevention and control.

Further information that may be of importance to the programme includes data on factors that influence the efficiency of HIV transmission (e.g., stage of infection, coexistence of other STDs) and possible treatment for early HIV infection.

On the social level, research could help to establish whether particular risk behaviour or ethnic and cultural groups provide especially favourable or unfavourable settings for partner notification efforts. In addition, prospective surveys of knowledge, attitudes, beliefs and practices of the population, index persons and notified partners could provide important information.

As part of the social considerations, the effect of partner notification activities on partner relationships and on willingness of individuals to participate in HIV prevention and control activities must be carefully

assessed in the local context. As a corollary, it will be useful to ascertain whether testing of notified partners appears to be a useful or effective component of the partner notification effort.

Recommendations to WHO

WHO should:

(*a*) provide technical support to national AIDS prevention and control programmes wishing to consider the advantages and disadvantages of undertaking partner notification programmes;

(*b*) provide technical support, including training materials and guidelines, to national AIDS programmes that undertake partner notification activities;

(*c*) develop uniform standards and instruments for describing, comparing and evaluating partner notification programmes;

(*d*) explore the feasibility of designing and implementing controlled intervention trials to evaluate the role of partner notification in decreasing HIV transmission;

(*e*) facilitate exchange of information on the design, implementation, monitoring and evaluation of partner notification activities as part of comprehensive AIDS prevention and control programmes;

(*f*) critically examine the experience of partner notification in comprehensive STD control programmes and its potential contribution to prevention and control of STD and AIDS.