

4. STD Risk Assessment Strategies for Family Planning Clinics

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Introduction

The recent emergence of the sexually transmitted pathogen HIV and its association with AIDS have renewed interest in the prevention and control of sexually transmitted diseases (Laga, Nzila and Goeman 1991). Sexually transmitted diseases are thought to be important risk factors in HIV transmission; STD control, therefore, has the potential to be a highly cost-effective health intervention in the fight against HIV. Although the evidence for a **causal** relationship between STDs and HIV is not as strong as is widely perceived, HIV and STDs have common **risk factors**. Thus, prevention strategies for STDs also will benefit HIV prevention.

Sexually transmitted diseases and cervical cancer have a devastating impact on reproductive and family health. Both have high prevalence rates in many developing countries as well as in the Western world. Yet many primary health care facilities, including maternal/child health and family planning clinics, do not provide services for detection and management of diseases of the female reproductive tract. Clinics treating sexually transmitted disease, on the other hand, often are overcrowded and women may not feel comfortable using such services.

Recognition of these issues suggests that STD management should be part of a comprehensive program of reproductive health services. Offering STD management as a separate service emphasizes their sexual acquisition, which is potentially stigmatizing. Furthermore, no opportunities should be missed to improve women's health. Thus, family planning clinics in particular need to recognize their role in providing family health care and include sex education, especially for adolescents; behavior modification; condom promotion; cervical cancer screening; and STD management in their services.

Epidemiology of STDs and HIV

Sexually transmitted diseases are recognized as a serious threat to the health of women, especially in developing countries because:

- STDs have high incidence and prevalence rates
- STDs have a major impact on health, particularly in women and neonates
- STDs facilitate HIV transmission
- women often are asymptomatic
- access to health care is limited
- the need for services far exceeds available prevention and treatment facilities

Although the incidence of STDs has declined in the last decade in many parts of the industrialized world, the impact of STDs on reproductive morbidity is still significant worldwide. Currently approximately 12 million cases of STDs occur in the US yearly, mostly among young people 15–29 years of age (USDHHS 1991). In developing countries, STD prevalence is much higher, now ranking among the top ten most important health problems (Over and Piot 1990). Prevalence rates for the most common STDs in developing countries range between 1 and 20 percent for low-risk groups and are reported as high as 40 percent in commercial sex workers (Meheus and DeSchryver 1991; Piot et al 1986). Many factors contribute to this STD epidemic

including rapid population growth and urbanization, economic and sociocultural factors, ignorance, insufficient health services and shortages of condoms and drugs for treatment.

Sexually transmitted diseases are important causes of morbidity and mortality worldwide and affect both men and women. Yet the burden of STDs is heavier on women for several reasons. Women are badly treated by *nature*, having more serious sequelae of STDs/HIV on their reproductive health; by *society* which responds to their role of child bearers and food and health providers with social inequalities and inferior health care; and by their *partners* who transmit STDs and then blame women for being infected.

The sequelae of STDs are more serious in women because of the risk for ascending infections leading to pelvic inflammatory disease (PID), infertility, ectopic pregnancy and increased risk of cancer of the genital tract (Meheus 1992; Muir and Belsey 1980). Moreover, the impact of STDs on pregnancy outcome and on the neonate is grave. Beyond the pain and discomfort of acute illness, women often experience long-term impairment of their reproductive health as a consequence of these reproductive tract infections. Some sequelae, such as ectopic pregnancy and cervical cancer, represent a significant source of morbidity and mortality. Others, such as infertility and chronic pain, have devastating personal effects and ultimately compromise economic and social security (Wasserheit 1989). Prompt recognition and treatment of these often curable diseases provide a unique opportunity to improve women's health. This consideration is of special relevance to family planning and maternal health clinics.

Sexually transmitted diseases also account for enormous expenditures of governments' health budgets as well as vast human misery (Over and Piot 1991; Piot and Rowley 1991). Treatment is complicated by the increased level of antimicrobial resistance of several sexually transmitted pathogens. The new drugs are very expensive but use of the old, inadequate drugs may be far more costly in the long run than the newer therapies.

Furthermore, cervical cancer, which is among the most common cancers in women in developing countries, is probably related to sexually transmitted agents. Cancer of the cervix is responsible for serious morbidity and mortality among young women and could be substantially reduced by early detection programs (Meheus and DeSchryver 1991). Inadequate facilities and a shortage of trained personnel result in nonexistent or poorly functioning cervical cancer screening programs. Moreover, management and followup of women with cervical lesions often are poor. This lack of management and followup must be addressed because it is unethical to improve diagnostic health facilities without also providing appropriate treatment.

The World Health Organization (WHO) estimates that worldwide 14 million adults and 1 million children currently are infected with HIV, of whom 80 percent are living in sub-Saharan Africa. In many African countries, HIV infection rates in pregnant women are well below 1 percent, particularly in rural areas; however, HIV seroprevalence rates range between 5 percent and 30 percent and are rising rapidly among pregnant women in many urban regions (Temmerman et al 1992). The demographic impact of AIDS is already being felt in some parts in Africa (Mulder et al 1994; Preble 1990). Community-based data from a relatively low prevalence area in Uganda (4.8 percent) show an overall mortality in HIV seropositive adults that is twice as high as in the HIV seronegative individuals (Mulder et al 1994). Most HIV transmission in developing countries takes place through heterosexual contact, with men and women equally infected.

Interaction between STDs and HIV

A major issue in examining the association between HIV and STDs relates to the confounding effect of sexual behavior, for which adjustment is difficult. Available data suggest a causal association between STDs, especially those which result in breaks in epithelial barriers or which elicit strong inflammatory responses, and an increased risk of transmission of HIV. Most studies report a three-fold increase of the risk for both ulcerative and non-ulcerative STDs, but the population attributable fraction might be higher for non-ulcerative STDs as the prevalence rates are higher (Van Bergen 1993). Other confounding factors, including smoking, circumcision, polygamy, dry sex and sexual harassment, often have not been controlled for.

Prevention of HIV/STD transmission through condom use and modification of sexual behavior use, as well as early and prompt management of STDs, including partner notification, are considered key strategies in the fight against HIV. Primary health care clinics and FP/MCH services therefore can play a leading role in prevention and control through health education and provision of appropriate services. More work needs to be done, however, to examine whether STD treatment is a viable, feasible and cost-effective option for STD control (Preble 1990).

Strategies for STD Control

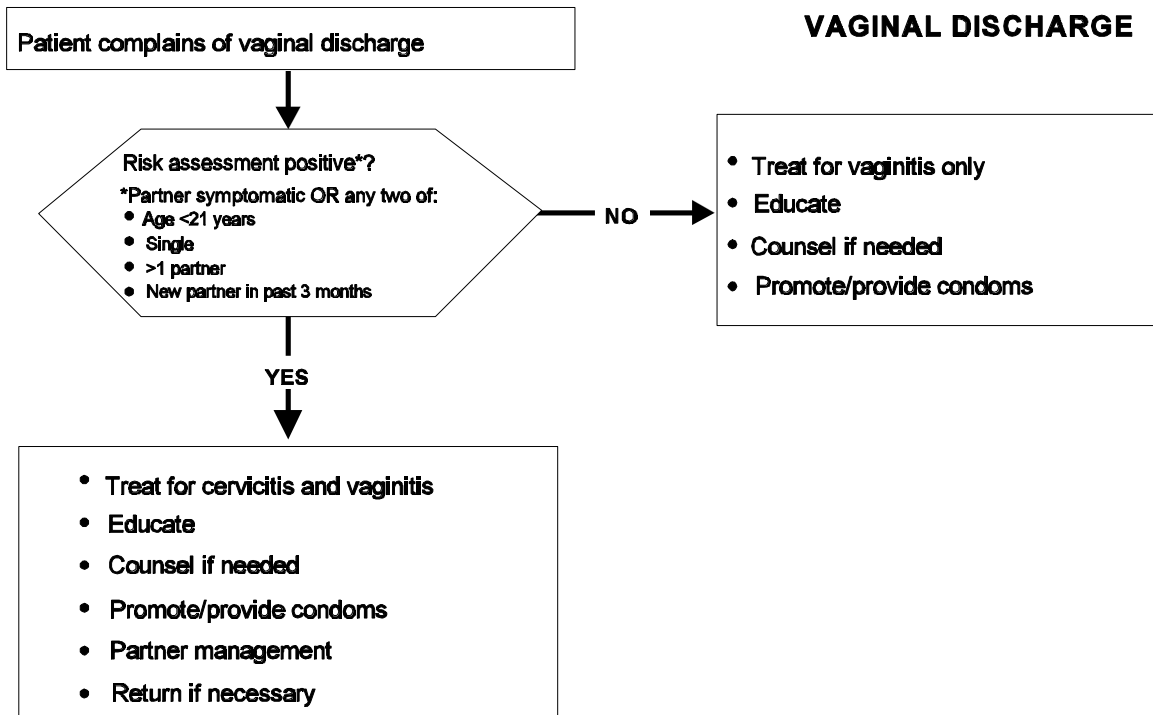
Prevention is the optimal solution for the problem of sexually transmitted diseases and their complications. Until effective and affordable strategies for **prevention** of STDs are identified, control strategies, such as those listed below, are the most appropriate approach:

- **Active case detection and treatment** in countries with high STD prevalence rates is the obvious approach to this problem, but adequate laboratory facilities are not available in many developing countries
- **Diagnostic algorithms** based on clinical signs and symptoms have been developed to identify women at high risk for infections. These clinical algorithms may be useful in countries where resources are limited, but have a relatively low validity, and rely on gynecological examination which often is not available. **Figure 4-1** shows an algorithm to be used when no examination is possible. A more detailed example of a first level algorithm is the WHO flowchart for vaginal discharge shown in **Figure 4-2**. **Figure 4-3** shows an algorithm to be used when gynecological examination is possible.
- Treatment based on **symptoms and risk assessment**
- **Mass treatment** of specific groups

Figure 4-1. First Level Algorithms (No Examination Possible)

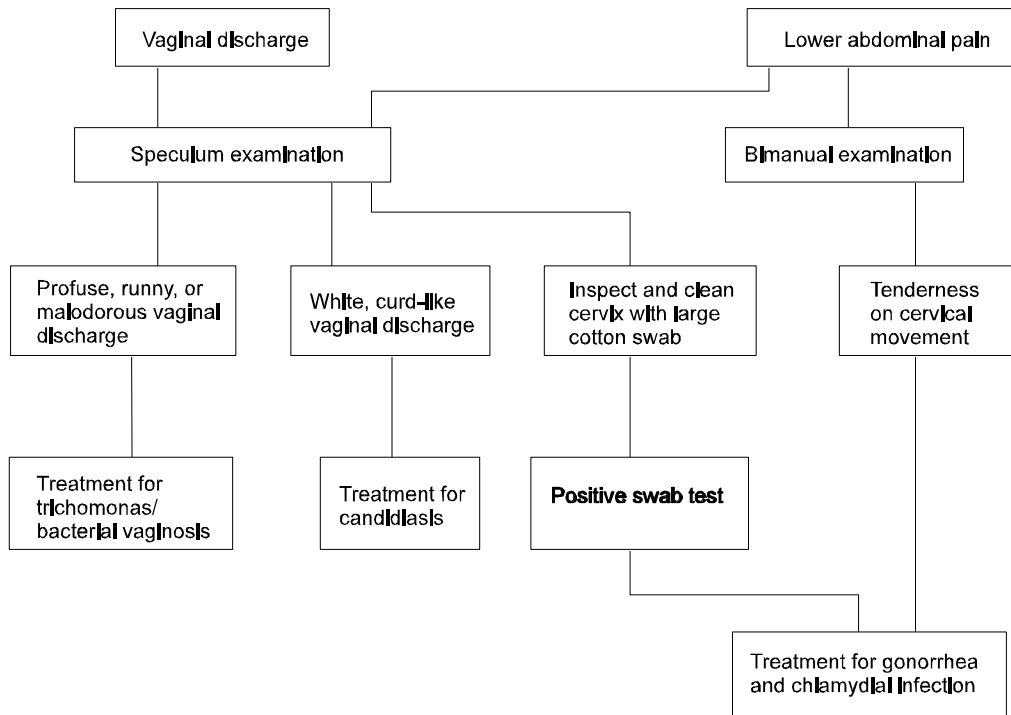


Figure 4-2. Flow Chart for Vaginal Discharge



Adapted from: WHO 1993.

Figure 4-3. Algorithm If Gynecologic Examination Possible



Diagnostic algorithms for cervical infection based on clinical signs and symptoms and/or on behavioral characteristics have been tested in several developing countries, mainly in pregnant women and in high-risk groups. Clinical algorithms as well as non-hierarchical scoring systems have been tested by several groups in Africa. Most authors conclude that scoring systems that include risk markers as well as signs and symptoms may be affordable alternative methods of screening for gonococcal and/or chlamydial infections among women in resource-poor settings. **Table 4-1** shows which of the risk factors were found to be significant. The positive predictive values of the different algorithms are low but negative predictive values are all above 90 percent, which is an acceptable level of accuracy (**Table 4-2**). These scoring systems need further evaluation in terms of validity and feasibility in different settings (Vuylsteke et al 1993).

Table 4-1. Predictors of STDs: Example from Kinshasa, Zaire

	FACTORS FOUND SIGNIFICANT	FACTORS FOUND NOT SIGNIFICANT
Risk determination	Age < 25 Single status >1 sex partner in last year	Age ≥25 Never having used a condom
Symptoms	Vaginal discharge Vaginal itch	Dysuria Lower abdominal pain
Signs	Vaginal discharge Cervical motion tenderness	Malodor Endocervical mucopus Cervical erosion Cervical friability
Results of simple tests and microscopy	LED test on urine ~ 500 PMNs/ μ L Positive swab test Leukocytes ≥10/hpf on vaginal smear Leukocytes ≥10/hpf on cervical smear gram-negative diplococci: intracellular or extracellular	

Table 4-2. Performance of Different Scoring Systems in Mwanza

SCORING SYSTEM	SENSITIVITY	SPECIFICITY	POSITIVE PREDICTIVE VALUE	NEGATIVE PREDICTIVE VALUE	CORRECT TREATMENT RATE	OVER-TREATMENT RATE
WHO	62%	65%	18%	89%	64%	36%
Kinshasa	89%	50%	19%	97%	54%	50%
Mwanza	69%	52%	16%	93%	54%	48%

The Mwanza R2 Simple Algorithm on Risk Assessment uses the following markers as predictors of disease: age less than 25, unmarried status, polygamous marriage, having any previous child, having previous child born more than 5 years ago, and having more than one sex partner in the past year. If any three items are found, the client is considered positive for gonorrhoea and chlamydia. When the algorithm was applied to data from Kenya (see below), sensitivity was found to be 48 percent, specificity was 57 percent and the positive predictive value was 12 percent. When applied to data from Mwanza, sensitivity was 69 percent, specificity was 54 percent and the positive predictive value was 12 percent.

The “Supermarket Model” for women’s reproductive health was a demonstration intervention project carried out in 1994 in Nairobi, Kenya. Its objectives were to measure the burden of STDs, HIV and cervical dysplasia in clients at a family planning clinic and to determine priorities for reproductive health interventions. Clients at the Ribiero Clinic were randomly selected for inclusion in the project. Baseline data were collected from them, and they received information and counseling, a gynecological examination, blood tests for STDs and cervical cytology. Twenty-four percent of the clients used IUDs.

Screening a group of family planning clients from the “Supermarket Model” project for STDs by history and laboratory investigation revealed the findings shown in **Table 4-3**.

Table 4-3. Results of Screening for Sexually Transmitted Diseases

STD HISTORY	N (%)	STD DETECTION	N (%)
Vaginal discharge	178 (34)	Chlamydia	20 (4)
Genital ulcers	51 (10)	Gonorrhea (cult.)	11 (2)
Genital warts	15 (3)	Syphilis	11 (2)
PID	22 (4)	Warts (clinical)	6 (1)
Ophth. neonatorum	17 (3)	GUD (RPR negative)	6 (1)

Table 4-4. Comparison of WHO Algorithm and Zaire Scoring System Applied to the Kenya “Supermarket” Data

	SENSITIVITY	SPECIFICITY	POSITIVE PREDICTIVE VALUE
WHO Algorithm	50%	79%	23%
Zaire Scoring System	19%	75%	10%

The WHO algorithm and the Zaire scoring system were applied to the “Supermarket” model data (**Table 4-4**). When the WHO algorithm was applied to pregnant women in Nairobi, sensitivity was 50 percent, specificity was 79 percent and the positive predictive value was 23 percent. When the Kinshasa scoring system was applied to the same women, sensitivity was 19 percent, specificity was 75 percent and the positive predictive value was 10 percent.

In general, the relatively simple WHO algorithm was found to be a better predictor of disease than the more complex Kinshasa scoring system. Neither method of predicting disease, however, was found to have high levels of sensitivity and specificity.

Conclusions

- Screening for STDs in MCH/FP clinics remains a major challenge in women's health care.
- The WHO diagnostic algorithms may be useful in symptomatic women but are not sensitive enough to be used as a screening tool.
- Incorporating risk determinants, signs, symptoms and simple laboratory tests into a non-hierarchical scoring system can improve sensitivity and specificity. Specific models to be used have to be adapted to the setting and field tested.

- Even in “low risk” populations, the prevalence of STDs may be high.
- The association of the classic clinical symptoms and signs with the presence of gonorrhea and/or chlamydia was weak in both low- and high-prevalence populations.
- No single sign or symptom reached an acceptable level of sensitivity or specificity.
- The hierarchical algorithms based on interviews, with or without clinical examination, were insensitive for the screening of high- or low-risk populations, because of the low level of sensitivity of the one variable based algorithm.
- The score-driven method yielded a higher positive predictive value than those obtained with the WHO diagnostic models.
- The scoring system needs further evaluation in terms of field validity, acceptability and feasibility in different settings.
- More data on STD management in family planning clinics are urgently required.

Recommendations

It is clear that there is still an enormous amount of work to be done, including social action, education and restructuring of primary health care systems in general as well as specific family planning, mother-child health and STD programs.

- Research and evaluation of new preventive and curative interventions are needed to reduce the STD/HIV burden.
- Sexually transmitted disease case detection and management does not seem to be feasible and affordable. Score-driven systems including signs, symptoms and risk markers should be developed and field tested for different populations.
- Women and men must be taught how to recognize signs of infection so that they can seek treatment for themselves and their partners. People currently know more about HIV than other STDs because of the many educational messages about HIV. In contrast, few messages exist about STDs (Moses et al 1992).
- The industrialized world realized during both world wars that STDs had economic repercussions. Measures such as wide distribution of condoms, walk-in clinics where no referral or appointment was required, anonymity and free services helped to reduce the spread of STDs. Treatment of partners of presenting clients became the norm. Many physicians, including gynecologists, however, do not consider investigations or referral of the male partner in cases of PID. Nowadays, there is an enormous need for comprehensive reproductive health services with well-trained personnel capable of identifying and managing STDs, especially in developing countries. These services should be comprehensive and integrated into primary health care and MCH/FP clinics.
- Inexpensive, simple, rapid, accurate, stable and convenient STD diagnostics should be developed and tested.
- Recommended treatment schedules for STDs should be efficacious, affordable and safe. Today, new single-dose regimens of second generation antibiotics are available which improve compliance. Still more research is needed to identify and test “the STD drug.”
- User charges for STDs should be exempted for the poor, and this policy should be supported by national bodies and international donor organizations.

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