A Risk-Assessment Tool for Integrated Reproductive Health Services

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Given the growing importance of the AIDS epidemic, and the contribution made by other sexually transmitted diseases (STDs) to the spread of the human immunodeficiency virus (HIV), offering STD and HIV services in family planning settings seems natural. However, the recent expansion of family planning services to include management of genital infections, whether by diagnosing and treating clients with symptoms or by screening asymptomatic clients, has placed further demands on limited resources. Because of the emphasis on balanced budgets in today’s political climate, family planning providers will have to explore creative ways to achieve their reproductive health objectives.

A tool known as STD risk assessment, which has been a traditional part of disease control programs for decades, can help make the most cost-effective use of increasingly limited resources. Since the risk of infection is an important consideration in choosing a contraceptive method, family planning providers can use STD risk assessment not only for disease control, but also for counseling clients about behavioral and contraceptive choices that will help them achieve their future childbearing goals.

What exactly is STD risk assessment? Quite simply, it is a practical tool that uses a variety of demographic, behavioral and clinical information (other than laboratory test results) to assess the likelihood that persons are currently infected with an STD or are at high risk of future infection. These factors can be either incorporated into guidelines for clinical management of specific patients or aggregated into graduated scales predicting STD risk. The results can then be used as aids for effective STD management and appropriate family planning counseling. By helping family planning providers assist women in choosing the most appropriate contraceptive method, STD risk assessment provides a unified pathway for integrated reproductive health services.

Disease Management

Within family planning programs, risk assessment can be used as a guide for deciding which asymptomatic clients to test when STD laboratory services must be rationed because of limited resources. Under certain conditions, it can also be used as a guide for treatment of STD symptoms while waiting for definitive laboratory results.

Management of STD Screening

Laboratory tests can determine whether an asymptomatic person is infected. However, testing all family planning clients can be costly. One way of avoiding the cost of universal screening is to identify a set of demographic, behavioral and clinical criteria for use in an aggregate STD risk assessment scale. Such pretest criteria may be a more cost-effective way of identifying a high proportion of infected persons than screening the entire clinic population. Many studies have shown that screening for asymptomatic cervical gonococcal and chlamydial infections is cost-effective. Selective screening is most effective when the prevalence is low (less than 3%). In high-prevalence settings (more than 6%), universal screening is most cost-effective.

Presumptive Treatment of STDs

In situations where immediate treatment is desirable, risk assessment can guide presumptive treatment of persons with STD symptoms. Each constellation of symptoms is treated with a drug regimen appropriate for the particular organisms associated with it. Once the results of laboratory tests are known, the drug regimen can be adjusted as needed. A personal history and a physical examination (including simple in-office tests) can improve the effectiveness of presumptive treatment by identifying variables that better predict which organisms are involved.

Guidelines developed for presumptive treatment of STDs have been evaluated for their accuracy in treating specific organisms. In general, such approaches to treating the symptoms of either genital ulcers (in both men and women) or urethral discharge have worked relatively well. However, treatment of vaginal discharge based on such guidelines has been much less effective than treatment based on laboratory test results, because similar symptoms can be caused by a variety of organisms. Therefore, diagnoses and treatment based on risk assessment should always be confirmed by laboratory testing.

Contraceptive Management

The same approaches used to assist in STD management can aid in counseling family planning clients regarding appropriate contraceptive methods. Just as selective screening criteria are helpful in conserving limited laboratory resources, an STD risk assessment scale can help identify women who may be good candidates for barrier methods or inappropriate candidates for the IUD.

A Conceptual Model

A real-world population distributed according to the probability of being infected with an STD would form a bell-shaped curve on a scale between those who are definitely uninfected (score 0) and those who are definitely infected (score 10). The position of this curve on the scale would depend on the population being served (Figure 1, page 42). For example, populations attending STD clinics would have a curve skewed toward the higher end of the scale, while those attending family plan-
ing clinics would be located nearer the lower end of the scale. Finally, given the results of recent surveys of sexual behavior, the curve representing STD risk scores for the general population would be positioned even further down on the scale.

In this model, a graduated scale ranging from 0 to 10 would be based on a variety of interacting behavioral, clinical, demographic and epidemiologic factors. Those who are sexually inactive, have no symptoms or signs, are older and married, or reside in regions with low STD prevalence would have the lowest scores; those who have had recent unprotected sex with an infected partner, are young and unmarried, or live in high-prevalence regions would have higher scores. Those who have STD symptoms would have the highest scores.

From the standpoint of clinical management for STDs, clients with the lowest scores would provide a relatively low “yield” if screened for particular STDs. Thus, limited laboratory resources can be focused on clients with intermediate or higher scores. Those with symptoms and thus the highest scores can be assumed to be infected and treated presumptively while waiting for laboratory verification.

The scores from the risk-assessment scale would also be useful in guiding clinical contraceptive management (Figure 2). For example, a woman desiring an IUD can be assessed for current infection. If symptoms or signs of infection are found, presumptive or specific treatment is indicated, and the decision about IUD use should be postponed. If the STD risk assessment demonstrates a high level of risk, the woman should be discouraged from using an IUD and encouraged to use a barrier method, with emergency contraception as a back-up. If the risk-assessment score is low, an IUD can be inserted at that visit. Finally, if the risk assessment score is moderate, laboratory testing may be indicated to ensure that the client is uninfected before her IUD is inserted.

**Need for Empiric Data**

Many family planning and STD health professionals are already operating their clinics implicitly according to these principles. The key is to derive objective criteria for each population.

The results of previous studies can help guide family planning clinicians in this effort. In the United States, a variety of investigations have attempted to determine the combination of demographic, behavioral and clinical criteria that would best predict the likelihood of chlamydial infection. Using a risk assessment approach, they have aggregated these criteria into weighted scores and evaluated them for their screening yield. For chlamydia, the factor most consistently associated with infection is age younger than 20 years. Other, behavioral factors (e.g., new sex partner or sex partner with symptoms) have varied in their effectiveness in predicting chlamydial infection, depending on the population involved.

The prevalence of infection plays an important role in determining both the predictive value of risk assessment tools and the cost-effectiveness of selective screening for STDs. For example, a study in the Pacific Northwest found that selective screening criteria other than young age made only a minimal contribution to the yield of teenagers infected with chlamydia. Because the likelihood of chlamydial infection was so high among teenagers in the population of family planning clients in this study, universal screening was the most cost-effective strategy.

International studies have also found variations in STD risk predictors among populations. For example, family planning providers in Jamaica using the STD risk assessment found that the best predictor of current infection was, as expected, having a recent casual sex partner. However, this characteristic was relatively infrequent (less than 5%) in the Jamaican family planning population; the most common factor associated with infection was a woman’s lack of certainty that her sex partner had no other partners. In Curaçao, in the Netherlands Antilles, the variable most predictive of chlamydial infection was young age. In Tanzanian antenatal clinics, locally determined variables were disappointing in their ability to predict cervical infection. The highest positive predictive value—for vaginal discharge—was only 21%, meaning that near-
ly four in five women with vaginal discharge did not have a cervical infection.\textsuperscript{11} Finally, in Egypt, STD risk assessment is being used in family planning clinics to determine criteria identifying women as good candidates for the IUD.\textsuperscript{12} Until empirical data are available for each population or facility, guidelines based on the consensus of experts may help clinicians make the best judgments.

While these examples have concentrated on the risk of current STD infection, the same concept can be used to assess the likelihood of future infection. Unfortunately, even fewer data are available to use in predicting the risk of a future infection that could be used in creating guidelines for contraceptive and STD counseling. However, the same combination of demographic, behavioral and clinical factors influence both current and future risks. Those risks should, nevertheless, be assessed separately.

This model should not be viewed as static. Contraceptive needs change as a person’s sexual behavior, and resultant STD risk status, changes. A woman who is currently a good candidate for an IUD may need to use a barrier method in the future, either as her primary contraceptive method or as a second method to provide STD protection with new sex partners. Further studies should help us make more informed judgments as to which predictors of current STD risk, if any, are the best predictors of STD risk in the future.

Conclusion

The absence of data should not discourage us, but rather should stimulate a variety of investigations to determine which factors (or combination of factors) applied to particular client populations in specific health facilities work best in predicting current and future STD infection risk. The fields of family planning and STD and HIV prevention should use STD risk assessment as a tool to further integrate essential reproductive health services. In the end, clients and providers alike would benefit.

References


12. M. Barone, personal communication, June 8, 1996.