

Prevention First: A Three-Pronged Strategy To Integrate Family Planning Program Efforts Against HIV and Sexually Transmitted Infections

By James D. Shelton

The vast human misery caused by HIV and other sexually transmitted infections (STIs) provides a compelling rationale for enlisting the support of family planning and related health program efforts against these diseases. Yet the main tool that such programs have used—syndromic management of vaginal discharge—has been a major disappointment.

While syndromic management of conditions such as urethral discharge in men and genital ulcers in both men and women appears to be effective, it has turned out to be decidedly ineffective against the key cervical infections—gonorrhea and chlamydia. Most women with such cervical infections have no perceptible discharge, and women with a discharge are not much more likely to have these cervical infections than those without one. Moreover, while syndromic management was promoted for its simplicity, its actual implementation has been, ironically, quite difficult in real-life family planning settings.

What can we do instead? In my view, primary prevention is the compelling choice: It is a way to deal with all STIs rather than with just a few, it takes advantage of the special dynamics of STI transmission, it helps protect everyone in the population and it builds on ongoing family planning efforts at relatively little additional cost. By pursuing a three-pronged prevention strategy focusing on individuals at high risk of transmitting infection, on men and on the general population, family planning efforts can contribute much, especially if they move beyond the “clinic box” (service provision in clinics) to include social marketing, aggressive condom promotion, general awareness and education, communication for behavior change, and policy and advocacy.

Equity demands that we marshal our

scarce resources to help the most people in the most effective way. While STI treatment has a selective role, the best way to help protect women against STI infection is not an ineffective treatment approach for the few, but a strategic approach to protect the many.

The Context

Health programs for women in the developing world (including family planning and related reproductive health efforts) have increasingly included elements targeted against STIs. In part, this represents a heartening response to the HIV epidemic, and to concern over STIs generally; it also reflects the desire to broaden support for reproductive health, partly in response to the 1994 International Conference on Population and Development.

While many such programs include STI prevention, the major thrust of their interventions is commonly curative—syndromic management of STIs. Although a full description of syndromic management is beyond the scope of this article, the approach seems to offer some advantages in resource-poor settings.¹ With syndromic management, providers do not try to diagnose specific STIs (which usually requires relatively sophisticated laboratory procedures). Instead, they use an algorithm of decision points and specific regimens to treat syndromes such as vaginal discharge, urethral discharge (in men), genital ulcers and pelvic pain.

A major attraction of syndromic management is the belief that where resources are scarce, it is feasible, simple and (presumably) effective. However, because the lion’s share of maternal and child health and family planning services are directed toward women in the general population, and because vaginal discharge is so common in developing countries, in reality the syndromic management approach has

largely meant syndromic management of vaginal discharge among women in the general population—an approach with major problems.

Syndromic management of STIs was the intervention that appeared to reduce HIV transmission in the Mwanza area of Tanzania.² However, enthusiasm for applying the Mwanza model to typical maternal and child health and family planning service delivery has waned considerably: It was a highly accessible, well-focused and well-executed community-based approach; in addition, the locale had both relatively high STI prevalence and a high level of service to men. Unfortunately, such conditions do not reflect the typical clinical situation in a maternal and child health and family planning program.

Further, the findings in Mwanza are paradoxical—an apparently sizable impact on HIV transmission but only fairly subtle effects on the “intermediary” STIs.³ Moreover, mass treatment of STIs in the Rakai district of rural Uganda failed to have an impact on HIV transmission,⁴ further undermining confidence in the Mwanza findings.

Finally, rapidly accumulating evidence has shown syndromic management to be specifically disappointing against gonorrhea and chlamydia. Thus, I believe it is time for the family planning and reproductive health community to step back and reexamine our objectives and approach to HIV and STIs.

Setting Priorities

Both HIV and other STIs are important. Clearly, we want to reduce STIs in order to limit HIV transmission,⁵ but other STIs

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are extremely important *in their own right*. Gonorrhea, syphilis and especially chlamydia contribute to a huge disease burden in the world, as do incurable viral STIs such as herpes, human papillomavirus (responsible for cervical cancer) and hepatitis B.⁶

Thus, the key goal is to find a way to reduce both HIV and other STIs that is based on developing country realities and that complements other efforts. It may be argued that STIs and AIDS are so important that we must do *something*. But doing something ineffective can be worse than doing nothing if it takes resources and attention away from other, effective interventions. STIs and HIV are so important that we must do something to improve people's actual health—and on a broad scale.

To best deploy our efforts against HIV and STIs, we must honestly confront the real situation that developing countries face. Many countries have only a few dollars to spend per capita per year on health, and most of these funds are already committed to fixed costs, such as salaries and infrastructure. Typically, staff are poorly paid and receive little supervision or support; supplies are lacking; physical facilities are poor; and demand for services is great. Under such conditions, it is often difficult to do even one or two things moderately well. Moreover, other health priorities compete for attention, among them postabortion care, breastfeeding promotion, safe delivery, immunization, oral rehydration therapy, tuberculosis, vitamin A and malaria.

It is important to recognize that family planning and related efforts will not generally be the primary “engines” of intervention against HIV and STIs, but rather must complement other HIV and STI control initiatives. In my view, another major pitfall in integrating family planning and maternal and child health with STI and HIV services has been a preoccupation with clinical, and largely curative, services. Many of the stronger components of family planning efforts (e.g., social marketing and behavior change communication) transcend clinical services. These can contribute the most in concert with other efforts.

Weaknesses of Syndromic Management of Vaginal Discharge *Technical Problems*

Syndromic management replaces more sophisticated diagnostic procedures with direct treatment of specific syndromes. While some gain clearly results from eliminating lab testing, a corresponding price is paid in loss of precision of diagnosis; moreover,

more than one antibiotic is typically used. Thus, the approach is limited by the need to properly segregate those who are or are not actually infected. Some STI syndromes appear amenable to this approach.

Yet even if it is implemented perfectly, syndromic management of vaginal discharge is for a number of reasons poor at sorting out who does and does not have gonorrhea or chlamydia.⁷ First, most women with gonorrhea or chlamydia do not have a perceptible discharge. Gonorrhea and chlamydia are primarily localized infections of the cervix, not of the vagina, and so they often produce little or no apparent discharge.

Second, the presence of a discharge is not very helpful in determining who has gonorrhea or chlamydia—i.e., the positive predictive value is low. For example, in a study of family planning clients in Tanzania, 8% of all women were infected with gonorrhea or chlamydia. However, among women identified as having a vaginal discharge (using the World Health Organization's syndromic management algorithm), only 15% actually had gonorrhea or chlamydia.⁸ Thus, women with a discharge were only somewhat more likely to have gonorrhea or chlamydia than women with none.

Such a situation is understandable, given that vaginal discharge can be caused by many conditions, some of them quite common (such as yeast infection, trichomonas and bacterial vaginosis). The addition of questions about behavior related to risk adds only modestly to the predictive power of syndromic management.⁹ Moreover, these additional questions are situation-specific, and have generally been developed retrospectively rather than assessed in a prospective manner.

The poor positive predictive value of syndromic management not only means a high degree of overtreatment, but also vitiates partner notification (a difficult undertaking in the best of circumstances). If a woman “diagnosed” with an STI has an 85% chance of not having that STI, it makes little sense to notify her partner—especially in view of our increasing understanding about violence against women.¹⁰

Poor Implementation

One of syndromic management's major appeals was supposed to be its simplicity. Yet, paradoxically, it has turned out to be difficult to implement in real developing-world service delivery. Even in some of the best settings and after considerable effort, provider performance in syndromic management has been distinctly poor.¹¹

Common lapses include failing to ask clients about symptoms or risk factors; failing to examine clients properly or at all (when indicated in the algorithm); failing to follow the syndromic management algorithm; substituting “clinical” diagnosis; failing to prescribe the right drugs; neglecting to counsel clients properly on appropriate drug-taking; failing to counsel clients about prevention; failing to provide condoms; and failing to discuss partner notification.

Other Treatment Weaknesses

Setting aside the specific weakness of syndromic management, any case-treatment approach in the general population has severe limitations. World Health Organization experts estimate that globally, more than 150 million new cases just of gonorrhea and chlamydia occur each year.¹² A relatively small proportion of infected individuals can be identified, treated properly, cured and have their partner successfully referred for treatment, even in a service delivery system that is operating optimally.¹³

The issue of the cost of drugs is especially daunting. Moreover, antibiotics present other major difficulties, such as the logistics of providing multiple antibiotics; misuse and diversion; and the growth of resistance. In addition, as with any intervention, substantial programmatic costs are involved in such areas as training, supervision, management, quality control, physical space, surveillance and evaluation.

Further, substantial damage may occur even before treatment begins (for example, with pelvic inflammatory disease). Finally, unlike prevention, treatment is effectively limited to the specific STIs that are treatable.

So What Can Programs Do?

If we want to help in a meaningful way the millions of people infected with serious STIs each year, I believe that a different approach is needed—one that is strategic, one that is based on prevention and one that takes advantage of all of the resources of existing family planning and related programs, not just the “clinical” resources. We need to deal with all STIs rather than a few. We must take advantage of the special dynamics of STI transmission. We must implement an approach that helps protect everyone. And we must build on ongoing family planning and maternal and child health activities at relatively low additional cost.

The prospect of more than 150 million new cases annually of gonorrhea and chlamydia alone is daunting indeed. For-

tunately, the general dynamic of STI transmission offers a major opportunity for primary prevention.

Dynamics of STIs

Many STIs are fueled and substantially propagated by individuals who engage in high-risk sexual behavior and who carry a high risk of transmission (referred to here as “high transmitters”). Such individuals are often commercial sex workers, but also include members of the military, truck drivers and some clients of commercial sex workers. Often, such individuals collectively generate a powerful and dynamic locus of infection and reinfection that then “bridges” into the general population. A number of STIs would not be sustained in many general populations without such a dynamic of transmission.¹⁴

STI experts have long known the importance of this phenomenon and have mounted significant efforts against it. Indeed, a sizable body of evidence has shown that prevention efforts directed at high transmitters can work.¹⁵ Yet in recent years program efforts seem to have veered away from such interventions.

A common misconception holds that once HIV prevalence reaches a certain level in the population, the prevalence of high transmitters is no longer relevant, and efforts need to be shifted to the general population. While I fully support control efforts in the general population, efforts to reach high transmitters remain a major priority. Notably, HIV prevalence still remains relatively low in most of the world. Moreover, HIV prevalence is not the same as STI prevalence: Even where HIV prevalence is high, the combined prevalence of gonorrhea and chlamydia in the general population is often considerably lower. Most important, the dynamic of high risk of HIV transmission does not disappear just because overall HIV infection rates are high—high transmitters remain a crucial source of infection.

A recent World Bank publication makes the point.¹⁶ Based on modeling of actual HIV transmission rates, 500 commercial sex workers would be expected to infect 10,000 partners in a year, but 500 of their typical male partners would be expected to infect only 88 others. Moreover, the relatively monogamous regular female partners of these male clients transmit a much smaller number of cases still.

Another reason for the shift in emphasis away from high-risk populations is a sincere concern to avoid stigmatizing commercial sex workers and other high transmitters, which can foster denial about

the true extent of the problem. But while we must act humanely to help high transmitters, we must not be diverted from dealing effectively with the problem. As these high transmitters are crucial to STI spread, so too are men who may have only a few partners, including commercial sex workers, but who act as “bridge populations” to infect their other, often monogamous, partners.

A Three-Pronged Strategy

In my view, a compelling approach to STI prevention includes three intervention components: high transmitters, men and the general population. These three groups clearly overlap: For example, some men are high transmitters, but also are part of the general population. Nevertheless, this distinction can be useful in determining programmatic directions and interventions. The interventions that I cite below all involve building onto ongoing, robust family planning interventions.

High Transmitters

The epitome of successful experience with high transmitters is Thailand’s “100% condom use” effort, which emphasized aggressive condom provision and promotion among commercial sex workers in brothels in Thailand.¹⁷ This approach was complemented by education and by the promotion of condom use among clients, but placed little additional emphasis on STI treatment.

The results were profound. The intervention with commercial sex workers and their clients resulted in a decrease of about 80% in all five reportable STIs among men in Thailand as a whole. More recently, HIV prevalence among military recruits in Thailand has declined.¹⁸ Thus, a vigorous but selective primary prevention effort can have a substantial impact on an entire country—preventing many thousands of cases of STIs. Although Thailand is unique, because of its highly organized and visible sex industry, programs could apply similar prevention approaches to high transmitters elsewhere.

The female condom is another important approach. Making both male and female condoms available to commercial sex workers tends to increase the proportion of sex acts protected by a condom, and one study actually found a resulting decrease in STI rates.¹⁹ Because the female condom’s price is high, however, it must be deployed selectively among high transmitters.

Despite misgivings about STI treatment in general, programs should make treatment a priority for high transmitters, be-

cause of their crucial role in the dynamic of STIs. Both etiologic and syndromic approaches could be used. With periodic presumptive treatment, for example, programs could offer patients antibiotic treatment periodically (e.g., monthly), without making any attempt at diagnosis. In South Africa, such an approach to commercial sex workers was effective in reducing the level of STIs among *men*.²⁰ Thus, treatment served an important preventive role.

But if the usual clientele of family planning and maternal and child health programs generally are not high transmitters, how can programs best reach such individuals? While such efforts need not be the primary “engine” against HIV and STIs, they can complement existing STI control efforts directed at high transmitters. For example, ongoing family planning and maternal and child health services may already be located in places that serve high transmitters (such as near truck routes or military installations), and could adapt their services to them. New sites could also be developed to serve high transmitters with STI, family planning and other services.

High transmitters should be served sensitively, to minimize and mitigate the stigma associated with being in a high-risk group. Indeed, efforts aimed at these individuals are more likely to succeed if the interventions help improve their lives. Likewise, officials must avoid the pitfall of believing that STDs are only the problem of the high transmitters themselves, and thus ignoring the real threat that STDs pose to society at large.

Men

Ironically, one of the best ways to help protect women against STIs is to help men avoid infection. Family planning and maternal and child health programs traditionally have not reached men, however.

Notably, men may have more of a vested interest in STI prevention than they do in pregnancy prevention. Men, after all, do not get pregnant, but they do get STIs, and urethritis and genital ulcers often hurt. Men may also be highly motivated if they understand the threat that STIs can pose to their ability to reproduce (and hence, their perception of virility), as well as STIs’ potential impact on their progeny. Interestingly, STI services could provide an entree for men into family planning and other reproductive health activities that otherwise might not reach them.

Some approaches to men may be highly targeted, while others can be more

broadly based. Condom promotion and social marketing are key interventions. The family planning field already has contributed significantly to STI prevention through the extensive social marketing of condoms throughout the developing world, especially in Africa. Before AIDS, condoms were seldom used in Africa. Now they are ubiquitous.

But the social marketing of condoms deserves even more emphasis. First, it is one of the few practical ways to reach men. In addition, the population at large has a need for condoms, since virtually everyone is at some risk. Furthermore, social marketing programs can “target” men to some extent, using market segmentation approaches. Moreover, people self-select into condom use, based on their perceptions of elevated risk. For example, in Zambia, consumers were more likely to use condoms outside of marriage, including with casual partners.²¹ In addition, promoting condoms broadly in the population helps legitimize both condoms and STI prevention.* Finally, the social marketing of condoms is, programmatically, often relatively easy and inexpensive.

Communication about behavior change is increasingly targeted to men, and can take both community-based and mass media approaches. STI treatment of men is likewise crucial for broader prevention. Although opportunities for the family planning and maternal and child health community to implement treatment for men may be limited, programs should lend support to such approaches whenever feasible. For example, the social marketing of appropriate drugs to men for treatment of urethritis could have a sizable impact. Men frequently are symptomatic, often seek care from pharmacies and pay substantial amounts for STI treatments (which may often be inadequate). Marketing appropriate antibiotics with other suitable prevention components, such as condoms and referral cards to encourage partners to seek treatment, might be commercially sustainable. Moreover, with trained providers, appropriate antibiotics and accurate information, such efforts might actually reduce inappropriate antibiotic use.

General Population

Although high transmitters and men can be useful target populations for certain approaches, other goals may be best achieved

*An important side issue is that when condom distribution is broadly related to contraception, it may provide a “constructive ambiguity” around condom use that allows men to use condoms without acknowledging an STD prevention purpose.

by addressing the general population.

- *Promoting general awareness, education and behavior change.* Essential steps in the prevention of STI transmission are promoting a community norm of STI prevention and educating people about STIs and how to protect themselves. Family planning program efforts have extensive experience in mass media and behavior change. Mass media spots, soap operas, docudramas, community-based communication efforts and sports promotions, among other, can help educate and motivate the general population. The popular culture’s obsession with themes of love and sex can be a major advantage for those seeking to promote reproductive health-related topics, including STI prevention, because of the many chances to integrate “prosocial” messages about responsible behavior, caring, communication and prevention into an entertaining formats.

In addition, STI awareness and education can be covered directly in family planning and maternal and child health service delivery, through counseling and education. Unfortunately, such contacts often reach relatively few women for brief periods of time. Moreover, clinic time and other resources are scarce. In addition, sexual topics remain highly taboo in many countries, ignorance among providers is widespread and women themselves are often powerless to affect their STI risk, even with the best of counseling.

- *Promoting condoms aggressively.* Making condoms very easily available in clinics, community-based distribution programs and other settings is another priority. In Kenya, for example, under the “No Missed Opportunity Initiative,” condoms are very readily available in clinics (e.g., in waiting rooms, examination rooms and restrooms). They are thus available not only to the female clientele of these facilities, but also to their partners and anyone else who comes to the clinics.

Anecdotal reports suggest that large numbers of condoms are distributed through these approaches. The main logistical problem seems to be keeping them stocked. Distributing condoms freely in settings where there are people at high risk of transmitting infection (such as in STI clinics, brothels, military facilities and truck stops) is also key.

- *Selecting appropriate contraceptive methods.* STI risk-assessment is a principal aspect of contraceptive choice. IUDs are not recommended for women who are at appreciably increased risk of STIs,²² because IUD use among such women increases their risk of pelvic inflammatory disease.

However, even in places such as sub-Saharan Africa, where STI rates are relatively high, the incidence of pelvic inflammatory disease is quite low when women are screened for their history and IUDs are inserted with good technique.²³

Higher STI risk in a population makes condom use more attractive because it offers “dual protection” against both pregnancy and STIs. However, in typical use, condoms are not as effective in preventing pregnancy as are many other contraceptive methods. This dilemma has led to increased interest in promoting dual method use—i.e., the use of condoms along with other, more effective methods. Two studies (in Jamaica and Kenya) have shown dual method use to be surprisingly common (15–20%), even without being vigorously promoted.²⁴

Another approach to dual method use is to promote condoms as the “primary” contraceptive method and emergency contraception as a back-up method. More information is needed on this alternative, however. In addition, spermicides can be used to protect against both pregnancy and STIs. Unfortunately, spermicides alone are among the least effective contraceptive methods and have been disappointing in preventing STIs.²⁵ Thus, they are recommended only as something of a last resort for STI prevention, although they have a time-honored role when used in conjunction with condoms. It is possible that the diaphragm may also afford some additional protection against HIV and STIs as a barrier protecting the cervix, but more research is needed in this area.

- *Reaching young adults and adolescents.* Family planning and maternal and child health programs are increasingly rising to the challenge of reaching young adults and adolescents—an especially important group for STI and HIV prevention. While adolescents have often been regarded as difficult to reach, in Uganda adolescents are the group in which HIV seroprevalence has declined the most substantially.²⁶ This decline is correlated with a delay in age at first intercourse for both men and women, as well as increased condom use and a modest decline in sexual relations with nonregular male partners. Notably, the decline in HIV prevalence was not associated with any special STI treatment efforts. Innovative interventions for adolescents can support this kind of behavior change, including efforts at education, empowerment and delay of intercourse.

- *Advocacy and policy.* Tragically, many countries are still in “denial” with respect to HIV and STIs. Irretrievable time is being lost as

a result. Many family planning programs have strong policy and advocacy components. These often package information for policy makers, with the goals of changing policies and of increasing the resources that are devoted to family planning and other means of improving reproductive health. Such analytic skills and entrée to policy makers should be harnessed to make the case for the needed strategies and resources to fight STIs. Further, family planning and maternal and child health have many links with nongovernmental organizations and other potential advocates who can help form a constituency to act effectively against STIs and HIV.

• *Antenatal testing, counseling and treatment.* Antenatal screening and treatment for syphilis appear to be highly cost-effective:²⁷ Both screening and treatment are reasonably inexpensive, while morbidity and mortality from congenital syphilis are high. In many parts of the world, antenatal services are well established, and a relatively large number of women have made at least one antenatal visit.²⁸ Interestingly, identifying and treating male partners may be feasible in the antenatal context, perhaps because fathers will have a strong concern about preventing infection in their offspring.²⁹ As with any intervention, however, the appropriateness of antenatal syphilis screening and treatment depends upon the prevalence of syphilis.

• *Very selective use of syndromic management among women.* Notwithstanding syndromic management's major deficiencies when used against gonorrhea and chlamydia in the general female population, it may play a useful role in selected situations. Syndromic management of genital ulcer disease often appears worthwhile, especially in the event of an outbreak or where the prevalence of treatable disease is high. Syndromic management of vaginal discharge might also be appropriate against gonorrhea and chlamydia when their combined prevalence is very high (e.g., above 20%). To date, however, evidence suggests that such high rates are rather uncommon.³⁰ Programs also should strengthen linkages for referring clients to facilities that are able to properly diagnose and treat STIs.

In addition, syndromic management of vaginal discharge that is directed toward vaginitis (instead of to cervical infections) may have merit. Both trichomonas and bacterial vaginosis are major causes of vaginal discharge, and bacterial vaginosis especially may enhance HIV transmission.³¹ Further, symptoms of both can be treated with a single dose of metronida-

zole, an inexpensive and widely available drug. On the other hand, vaginitis has many other causes, notably yeast infection. Further, effective treatment of bacterial vaginosis is very difficult in the long term. The costs and benefits of treating vaginitis have to be weighed against the host of other serious diseases and ailments so common in the developing world.

• *HIV testing and counseling.* Data on the effectiveness of HIV testing and counseling at changing behavior at a reasonable cost are sparse.³² Nevertheless, such testing seems to offer a relatively low-cost, somewhat targeted approach to encourage effective behavior change. As with any other intervention, it will need to be deployed strategically (for example, among high transmitters and women seeking antenatal services). Social marketing of testing and counseling is another innovative approach to evaluate.

Future Prospects

With current tools, we can be more effective against STIs—witness the success achieved in Thailand. Yet, we need better tools. Better physical and chemical barriers to protect against STIs or pregnancy, including more acceptable male and female condoms, spermicides and microbicides, would help significantly. Current barrier methods are still unpopular with many people, and women have little that they can use directly to protect themselves. Also, simple, quick inexpensive diagnostic tests for various STIs would overcome some of the deficiencies of the treatment approach. We need a better understanding of vaginitis and better tools against its causes. Finally, a huge operations research “agenda of innovation” remains, to try out ideas such as social marketing of antibiotics to men and new ways to reach adolescents.

Conclusion

There is no single magic bullet to control HIV or STIs. But many more conventional program “bullets” that emphasize prevention can collectively work their magic to reduce the misery caused by all STIs. The dynamics of STI transmission support a three-pronged prevention strategy aimed at high transmitters, men and the general population. While ultimate success will require support from a number of other segments of the health community and from broader society, family planning and related health efforts can contribute much, especially by building onto ongoing prevention activities.

Women are more vulnerable than men

to STIs, and suffer their effects more severely. It is only natural to want to directly help women with “curable” STIs. Unfortunately, at this moment, the primary curative approach for women in the general family planning and maternal and child health context (syndromic management) is difficult to implement, will not have a true impact on the HIV and STI epidemic and is largely ineffective.

The issue is not about whether to try to treat one specific individual who is presenting with symptoms. It is about how to mobilize overall program efforts to benefit many individuals. The principle of equity obliges us to benefit as many women, men and children as possible, and to spend our meager program resources wisely. Reducing STIs and AIDS on a broad scale, including a global one, is clearly not easy. But it can happen—if we put prevention first.

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