Integration of STI Prevention and Management with Family Planning and Antenatal Care in Sub-Saharan Africa—What More Do We Need to Know?

CONTEXT: *The high prevalence of sexually transmitted infections (STIs) and their role in HIV transmission have made integrating STI prevention and management into existing family planning and antenatal care programs a goal in most resource-poor countries, especially in Sub-Saharan Africa. However, little is known about how integrated services can best be configured, and what impact they have on prevention of infection and unwanted pregnancy.*

METHODS: *The literature is reviewed to examine what is and is not known about integration and to identify priority areas to be addressed through research.*

RESULTS: *The feasibility and effectiveness of strategies that focus on the addition of either STI prevention services or detection and treatment activities are uncertain. An urgent need for research exists in three areas. The first is the development and testing of strategies that, instead of adding STI-related activities to existing family planning and antenatal care programs, seek to reorient the goals of routine consultations toward protection against the dual risks of unwanted pregnancy and infection and involvement of clients in deciding the outcome of the consultation. Second, strategies that reach male partners and facilitate access by adolescents to sexual and reproductive health services need to be developed and tested. Finally, prospective, preferably randomized studies need to be carried out to test and compare the impact of alternative integration strategies on population-level indicators of behavior and health.*

CONCLUSIONS: *Strategies for integration of services need to be rigorously tested to ensure that they are both feasible and effective before they are implemented.*

International Family Planning Perspectives, 2002, 28(2):77–86

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The way in which reproductive health services are offered, or at least how policies recommend they should be offered, has been undergoing considerable revision over the past few years. In most cases, these revisions focus on reorganizing the way in which services are configured, and the configurations receiving the most attention are those that integrate STI and HIV prevention, detection and management with family planning and antenatal care. There are several reasons for this in the Sub-Saharan region.[1]

Reproductive tract infections (RTIs), particularly those that are sexually transmitted (STIs), continue to be a serious public health problem in Sub-Saharan Africa, with the World Health Organization (WHO) estimating that 12% of 15–49-year-olds have a curable STI.[2] Not only are the prevention and management of STIs important public health concerns in themselves, but the presence of some STIs enhances the sexual transmission of HIV, and STI management has been shown to be effective in reducing HIV transmission. Moreover, the Programme of Action of the 1994 International Conference on Population and Development (ICPD) emphasized reorienting health care systems to enable women to obtain comprehensive and quality reproductive health services. Finally, configuring services jointly rather than separately has perceived financial benefits for health systems.

The clients of public-sector programs providing maternal and child health care and family planning services are almost exclusively women using family planning, pregnant women and women with newborn babies—women who usually are married and are considered at low risk for STIs. Data from a variety of sources[3] indicate that in some populations, 2–7% of pregnant women and of women using family planning have a cervical gonorrheal, chlamydial or syphilis infection. Moreover, trichomoniasis—a sexually transmitted vaginal infection—has been diagnosed in 4–34% of such women. (Non–sexually transmitted vaginal infections such as candidiasis and bacterial vaginosis are also common among these women—8–38%—but present less serious consequences to the woman and her fetus or newborn.) Finally, 25–30% of pregnant women in several parts of the region are infected with HIV.[4] These data indicate that many women served by maternal and child health and family planning programs should no longer be considered at low risk, and that efforts to reach them through these programs are justifiable on a public health basis. This article will focus on public programs, which are the primary source of family planning and antenatal services in Sub-Saharan Africa.

A study in Uganda has shown that men are twice as likely as women to bring an HIV infection into a marriage,[5] emphasizing that the risk of HIV and other STIs among married women, who make up the majority of maternal and child health and family planning program clients in this

region, is more likely to come from their husbands' behavior than from their own. Consequently, these programs must simultaneously help women protect themselves against such infections, detect and manage infections among women attending for services, and help women prevent unplanned pregnancies or achieve successful, wanted pregnancies.

Integrating services to both improve individual women's and infants' health and reduce the transmission of HIV and other STIs in the wider population may not be effective, however, because virtually none of the groups that are at highest risk of acquiring and transmitting STIs and HIV (males of all ages; single, sexually active women; and sex workers) are normally reached by conventional programs providing family planning or maternal and child health services. The recognition of this epidemiological dynamic is the basis for calls to increase the allocation of resources to enable maternal and child health and family planning programs to reach "high transmitters" generally, and men specifically.[6]

Given this situation, what can and should public programs providing family planning, antenatal and postnatal services do to offer both preventive and management services for curable STIs to their clientele?* Despite strong advocacy efforts in favor of their integration—including policy rhetoric, the allocation of substantial resources for training, and the production of "how-to" guides[7]—there is remarkably little empirical evidence on the feasibility, effectiveness or cost-effectiveness of combining these services. Indeed, most efforts to integrate these services are not developed from or confirmed by research-based evidence, but derive from intuition and experience, combined with a multifaceted ideology that necessarily compromises several reproductive health goals.[8] Although the urgency of responding to the HIV epidemic could justify intuition and expertise as the basis for early integration efforts, the body of scientifically based knowledge concerning integration has not kept up with programmatic efforts to implement it.

A clear example of how designing integrated services based on intuition can prove to be inappropriate has been the promotion, funding and implementation of strategies to build the capacity of clinic nurses to use symptoms and signs of STIs to diagnose and manage STIs among their family planning and antenatal clients. A body of empirical evidence now indicates that syndromic management of the most commonly presented symptom, vaginal discharge, is ineffective for managing cervical infections such as gonorrhea and chlamydia in family planning and antenatal clients.[9] The syndromic approach fails to identify and manage appropriately a substantial proportion of women with a cervical infection (i.e., it has low sensitivity), and it identifies many women as being infected when in fact they are not (i.e., it has a low positive predictive value). The latter shortcoming is of particular concern because treating an uninfected woman with vaginal discharge for an STI creates unnecessary expenditures and the potential of increasing drug resistance. Moreover, a false-positive diagnosis may put a woman at risk of abuse from her partner.

Attempts to improve the performance of syndromic management of vaginal discharge have included recommendations to use algorithms that take into account local epidemiological data and the use of risk assessment tools, including physical and vaginal examination. Population-based and reliable local epidemiological data are lacking in Sub-Saharan Africa, however, and the use of risk assessment tools has not substantially improved performance. Undertaking vaginal examinations (including speculum examinations) of women who spontaneously report STI symptoms somewhat improves the performance of the syndromic approach; however, many women with STIs are still missed and many without infections are misdiagnosed as having infections. In Zimbabwe, for example, examining women who spontaneously reported the presence of vaginal discharge identified only half the women with cervical infections and wrongly identified more than one-third of women with no cervical infection as having one.[10]

Although the syndromic approach is also not particularly effective for managing non–sexually transmitted vaginal infections,[11] current opinion favors syndromic management of vaginal discharge for a vaginal infection, with further treatment for a cervical infection if symptoms persist.[12] Because of the recognized effectiveness of syndromic management of urethral discharge in men, and of genital ulcers in men and women, as well as poor access to resources required for laboratory diagnosis, use of syndromic management remains the recommended approach for these symptoms in resource-poor settings.

Decision-making concerning reproductive health services is becoming more "evidence-based," but the evidence base unfortunately is still extremely limited.[13] Most efforts to integrate services are still being undertaken without an evaluation component or on an experimental basis, so lessons about "better" or "best" practices are not being documented and disseminated. If there is one area of reproductive health care that would benefit from greater use of operations research to pilot test and systematically evaluate the feasibility, effectiveness and cost of alternative service configurations, it is this.

There are good reasons for this lack of evidence. First, integrated services are a relatively recent phenomenon; thus, existing data are largely descriptive rather than evaluative. Second, prospective controlled experiments of behavioral interventions and randomized clinical trials of medical procedures, which are the most widely accepted means of producing scientifically valid evidence on service effectiveness, are extremely difficult to implement and can be costly. Indeed, an exhaustive literature review could not find any examples of research on integrated services that used an experimental design.[14]

Given the contribution that experimental pilot testing of potentially feasible and effective service configurations could make to public-sector reproductive health programs in this region, what configurations should be considered?

*This paper does not address the issues of integrating HIV prevention and management services into antenatal care because of their unique complexity.

What should be the priorities? The following suggestions start with improving secondary prevention through seeking to detect and manage infections among program clients, and then review what may be needed for strategies that emphasize primary prevention.

DETECTION AND MANAGEMENT

Family Planning and Antenatal Clients

Given the disappointing experiences to date with efforts to integrate STI case detection and management into family planning and antenatal services by adding syndromic management activities, should this approach still be promoted? If not, what case detection and management strategy, if any, should be used? The recommended practice in most countries is to screen for potential STI symptoms and signs through history taking and clinical examination, and then to treat women with symptoms syndromically. One immediate question is whether this procedure should be followed with all family planning and antenatal clients or with a subsample that consists either of women selected by the provider or of clients who report symptoms.

A study in Zimbabwe[15] found that relying on family planning clients to spontaneously report STI symptoms was less effective in identifying women with an infection than was asking all family planning clients about—and examining them for—symptoms and signs. With the latter approach, 64% of family planning clients who had laboratory evidence of an RTI were identified and correctly managed; however, 27% of family planning clients without an infection were wrongly treated.

Alternatively, the active eliciting of symptoms and signs could be used only with clients considering the IUD—the one contraceptive for which presence of an STI is contraindicated. Results from a study in Nairobi, Kenya,[16] indicate that risk assessment algorithms derived from context-specific risk factors may improve providers' ability to counsel women predicted to be at high risk against using the IUD. In addition, a study in Mexico[17] found that if women seeking family planning services are informed about family planning methods and STI risk factors and prevention, and are then given the responsibility of choosing a method, they are more likely than women whose method choice is based on the physician's judgment to choose the condom rather than the IUD; this difference was even more pronounced for women having a cervical infection. These data suggest that giving women sufficient information to assess their own risk and then giving them the responsibility of choosing a method themselves is as effective as, if not more effective than, risk assessment algorithms used by providers.

All STI detection and management strategies based on symptoms and signs—not only the syndromic approach—are hampered because STIs in women are likely to be asymptomatic. Theoretically, this problem could be avoided by using laboratory tests to screen all family planning clients and treating those proving positive or by presumptively treating all family planning clients as part of the service. Apart from the logistic impossibility of following the first strategy in any region in the world, let alone in Sub-Saharan Africa, the cost would be astronomical. In Zimbabwe, for example, the additional cost per family planning client visit would be an estimated US$25.77.[18] Rapid, low-cost tests are being developed for testing STIs without the need for laboratory facilities, but only a test for syphilis is likely to be available in the near future.

Presumptive treatment would be less expensive (the Zimbabwe study estimated an additional cost of US$13.50 per client visit), but would be wasteful of limited drugs, and could lead to rapid development of drug resistance. However, presumptive treatment of STIs in the general population as well as in specific subgroups is currently being tested in Africa, through theoretical modeling[19] as well as through community trials (such as that in Rakai, Uganda[20]) and operations research[21] in mining communities. This strategy may yet prove to be of value in situations where the prevalence of HIV and other STIs is high and where mass treatment is possible. Therefore, modeling and operations research for presumptive treatment of cervical infections should be considered in such situations.

A hybrid strategy that would screen all family planning clients by asking about symptoms and signs of infection, with or without risk assessment, and would then use laboratory tests for those suspected of having an RTI was modeled in the Zimbabwe study.[22] Although this strategy does not result in a larger number of infected women being correctly identified and treated, it does eliminate the unneeded treatment of uninfected women. It would double the additional cost per client (from US$5.30 to US$10.30) and would miss more than one-third of infected clients, but it does have two advantages.

First, by eliminating wrongful treatments, it avoids wasting valuable drugs and reduces the likelihood that drug resistance will develop. Second, it allows the provider to know exactly which type of infection the woman has, and whether it is sexually transmitted. Because the syndromic approach cannot distinguish between sexually transmitted and endogenous infections, the recommended approach in most situations[23] is to treat for a non–sexually transmitted infection and to counsel women to return for treatment of a cervical infection if the symptoms persist. Consequently, efforts to enforce partner notification and management are difficult to implement because of this uncertainty,* with the result that most women with an STI are at risk of immediate reinfection and thus continue to be at an elevated risk of HIV acquisition. Including the costs of managing both a sustained STI and a potential HIV infection may produce a different perspective.

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*For example, a case study of public clinics in Nakuru, Kenya, found that partner notification was possible for only 10–12% of women diagnosed syndromically with vaginal discharge, genital ulcers or PID. (Source: Kariba J et al., *Integration of STI and HIV/AIDS with MCH-FP Services: A Case Study of the Nakuru Municipal Council's Project on Strengthening STD/AIDS Control,* Nairobi, Kenya: Population Council, 1997.) Another study discusses the practical problems involved in trying to encourage partner notification in case studies drawn from Botswana, Kenya and Uganda. (Source: Maggwa BN and Askew I, 1997, reference 24.)

The preceding discussion of alternative strategies has largely relied on modeling; therefore, it is impossible to know what would happen if these theoretical service configurations were put into practice. However, a number of descriptive studies and case studies have been conducted at the national and clinic levels to test the feasibility of existing strategies to integrate services.[24] All these analyses found that the ability of clinics to offer STI detection and treatment was undercut by a lack of such basic requirements as examination equipment and supplies, staff training and drugs, and by such service-quality problems as low levels of STI risk assessment or counseling for family planning clients and low proportions of clients receiving STI management services. However, readiness and quality were somewhat better in clinics at which additional resources had been used to develop integrated services than in other clinics. Thus, considerable problems exist everywhere that efforts have been made to integrate STI detection and management, and these problems result from a serious lack of connection between policy intentions, the program management processes (e.g., training, supervision and monitoring) by which these policies are implemented, and the service delivery procedures that are actually followed.

In summary, because none of these studies were able to observe and assess the implementation of a fully functioning strategy to integrate STI detection and management, it is impossible to determine whether this particular strategy is feasible and effective at both reducing STI and HIV incidence and meeting women's individual reproductive health needs. To date, no known prospective controlled studies have been undertaken to test specific service configurations that integrate STI detection and management into family planning services in clinics or community settings. The only examples in this region—two operations research studies undertaken in Kenya and Zimbabwe to test the feasibility of integrating STI detection and management in a controlled setting—did not use experimental designs.[25]

Controlled intervention research is essential to find out not only whether this strategy is feasible if properly implemented, but also how effective it can be in simultaneously meeting family planning, STI management and HIV prevention goals. In short, a Mwanza-type study is needed to answer this question. Given the expense and difficulty of setting up prospective intervention studies at the clinic and population levels, research into modeling the relative costs and effectiveness of different strategies for integrating detection and management of STIs is needed to allow theoretical comparisons to be made before launching field-based trials of the strategies that appear most effective.

The studies undertaken in Kenya and Zimbabwe did indicate, however, that even under controlled conditions, STI detection and management could not be implemented consistently or exactly as planned. Although the approach was acceptable to both providers and clients, the providers made numerous lapses in following the standardized screening and risk assessment procedures (despite the presence of a checklist) and in following the algorithms for managing symptomatic clients. This finding confirms the results of a study in Ghana, which found that standardized protocols for integration are frequently "adapted" to suit the way in which individual providers feel most comfortable offering these services.[26]

Syphilis Detection Among Antenatal Clients

Levels of specific STIs are often as high among pregnant women as among family planning clients, and because the vast majority of pregnant women in the region make clinic visits during pregnancy, actively detecting and managing STI cases could provide major health benefits. Syphilis, for example, can have adverse effects on fetuses and newborns (e.g., miscarriage, stillbirth, congenital abnormalities and infections), and antenatal detection and treatment have long been available and promoted as a cost-effective strategy for reducing infant morbidity and mortality. As has been shown in Nairobi, Kenya,[27] on-site syphilis screening using the rapid plasma reagin test, treatment with a single dose of penicillin and active partner notification is not only feasible and effective in detecting and managing cases of syphilis, but also adds only a small amount to the cost of a standard antenatal visit. Moreover, active partner notification led to 70% of partners of infected women being treated. This strategy probably contributed to the substantial reduction in the prevalence of antenatal syphilis in Nairobi over the past few years, although other interventions to address STIs operating at the time could also have had an effect.[28]

This strategy remains greatly underutilized throughout the region. A review of antenatal syphilis screening in 22 Sub-Saharan African countries estimated that, at best, only 38% of women attending antenatal services are screened, and that over one million syphilis-infected pregnant women attending antenatal care are missed, resulting in 600,000 adverse fetal and infant outcomes that could have been averted.[29] The authors cite a number of reasons for this poor performance: Syphilis tends to be seen as a concern of the national STI program rather than the maternal and child health program; the issue receives little attention or funding from international donors and technical assistance organizations; protocols and guidelines are lacking; and antenatal clinics and staff are not sufficiently prepared to offer screening and treatment.*

The remaining research issues concern how the strategy can best be introduced in new situations or strengthened where it currently exists, most notably by increasing access in rural areas that lack basic laboratory facilities and decentralizing it within urban settings. Once the rapid blood test for detecting syphilis without sophisticated laboratory equipment becomes available, research will be needed to determine the feasibility of what will be a new model of integrated antenatal care.

Chlamydia and gonorrhea can also lead to serious complications. However, the tests for these infections are still

*For a detailed analysis of these issues in the South African national program, see: Beksinska M et al., *Antenatal Syphilis Screening and Management Procedures in South Africa,* Durban, South Africa: Reproductive Health Research Unit, 2000.

much too expensive to be administered routinely, and diagnostic algorithms for vaginal discharge are even less effective in women who are pregnant than in those who are not.[30] Although treating all newborns is currently considered a more cost-effective way to reduce the incidence of neonatal conjunctivitis than testing infants before treatment,[31] this intervention is poorly implemented in the region, and routine ophthalmic prophylaxis will not have any impact on other adverse pregnancy outcomes related to infection (e.g., stillbirth, miscarriage, congenital abnormalities).

PREVENTION OF STI TRANSMISSION

Once detection and management of STIs in women was shown to be a difficult, and probably ineffective, integration strategy, attention shifted to efforts to integrate primary prevention activities intended to change behaviors that increase the risk of STI and HIV transmission. As one author argues, "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 to protect everyone in the population and it builds on ongoing family planning efforts at relatively little additional cost."[32] In fact, efforts to educate family planning clients about STIs and their symptoms, appropriate health-seeking behavior and behaviors to reduce the risk of transmission had been introduced into family planning services even before the current promotion of "integration."[33] The recent calls to step up primary prevention activities is as much a reaction to the poor performance of strategies to integrate detection and management as it is the promotion of an integration strategy with proven success. Indeed, as will be discussed below, uncertainties about the feasibility and effectiveness of integrating preventive activities are at least as great as those about integrating detection and treatment services.

Reaching Women Attending Clinics

Educating and counseling clients on STI awareness, health-seeking behavior, risk factors and preventive behaviors (especially condom use) is expected to result in a change to, or maintenance of, low-risk sexual behavior (e.g., fewer sexual partners and condom use), as well as more rapid and effective care-seeking behavior among women who suspect they have an infection.[34] Although most maternal and child health and family planning programs and policies in the region assume that such messages are routinely included in family planning (and, to a lesser extent, antenatal) counseling, evidence from a variety of countries and settings indicates that such "integrated" counseling is not only relatively rare, but of extremely variable quality.[35]

The provision of refresher training and the institution of standard protocols and guidelines are clearly not producing the anticipated changes in provider behavior,* but because they are the most frequently used approaches, program planners and policymakers should systematically develop them and test their feasibility and effect under controlled conditions. Many factors can inhibit providers from changing the way in which they counsel their clients, ranging from a lack of guidelines, IEC materials, condoms and other basic equipment and supplies through a perceived or actual lack of time,† to embarrassment, discomfort or judgmental attitudes among both clients and providers.[36] Training and guidelines alone cannot address all these factors.

The operations research studies undertaken in Kenya and Zimbabwe did attempt a more systematic approach to the reorientation of family planning and antenatal care services.[37] First, the researchers conducted a needs assessment, after which they trained staff, guaranteed drug supplies and developed a standardized checklist to guide staff through all components of an integrated consultation made up of a full history; a clinical examination, including a pelvic examination; a 23-question risk assessment; and education on STIs and HIV/AIDS. An analysis of the checklists completed by providers suggests that use of this job aid greatly improved the counseling of clients, who not only received family planning information, but were educated on a range of STI-related issues and had their risk assessed. The use of a structured checklist to guide providers through an integrated consultation seems to improve their ability to convey integrated messages, a finding that confirms results from Latin America.[38]

It is important that systematic efforts be made to implement and document the feasibility of strategies that integrate STI-related messages with family planning or antenatal messages *before* conclusions are drawn about their impact on behavioral change. An exhaustive review found that "a handful of studies and reports have shown changes in condom distribution (and more doubtful impact on condom use) and improvements in client knowledge of STIs and prevention methods."[39] Consequently, the review authors concluded that the little evidence that does exist "falls far short" of demonstrating any impact on behavior.[40] Because this conclusion is based on evaluations of interventions that were not well implemented, however, the authors stress that more trials are needed to produce stronger evidence about the impact of this strategy. They caution, however, that "behavioural change promotion in [family planning] settings appears to have significant potential only if it succeeds either in empowering women to negotiate safe sex with their partners or in reaching out to other segments of the population, including young and unmarried women, sex workers and men."[41] They are skeptical that simply encouraging and helping providers to offer more education about STIs, even with the assistance of a structured check-

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*A study recently completed in Kenya shows that provider behavior can change if concerted efforts are made to disseminate revised guidelines: The proportion of new clients reporting that dual method use had been recommended during the consultation increased from 40% to 57%. (Source: Stanback J et al., *The Effectiveness of National Dissemination of Updated Reproductive Health/Family Planning Guidelines in Kenya,* Nairobi, Kenya: Family Health International, 2001.)

†Janowitz and colleagues analyzed data from the Zimbabwe operations research study and found that adding risk assessment did not significantly increase the duration of the consultation, and that adding a pelvic exam increased the average consultation by 16 minutes. Even with the extended duration per client, however, providers were spending only 40% of their time with clients. (Source: Janowitz et al., 2002, reference 54.)

list, and getting them to promote condoms at every opportunity, can effectively change behavior if the woman herself does not at least feel that she can use the information and condoms provided. Moreover, because studies in Sub-Saharan Africa have found that women are generally at risk of acquiring STIs and HIV infection as a result of their male partner's behaviors rather than their own, strategies that do not reach out to men (as is the case with the existing maternal and child health and family planning programs) are not likely to sharply reduce women's risk.

Dual protection against unplanned pregnancy and STIs is one current strategy whose feasibility and effectiveness can be systematically tested *before* it is promoted as a "better practice." Most commonly, clients are encouraged to use dual protection through one of two approaches—active promotion, in which all consultations that include discussions of family planning or STIs present condoms (male or female) as a method to be used on its own or with another method; and passive promotion, in which condoms are made widely available in clinics (e.g., in toilets, waiting rooms and examination rooms). Both approaches are expected to increase correct, regular and consistent use of condoms during all sex acts. Although some evidence exists about the frequency with which condoms and dual protection are discussed during family planning consultations,[42] there is none on whether this strategy, or a strategy of increasing condom availability in clinics, results in correct, regular and sustained condom use among clinic clients and their partners. As both strategies are receiving increasing attention, it is crucial that research be conducted to determine their feasibility in the clinic setting and their effect on clients' use of condoms.*

Another approach being considered is the provision of emergency contraception with condoms to prevent unwanted pregnancy in case of suspected condom failure or nonuse. Some studies have looked at the relationship between provision of emergency contraceptive pills and use of condoms,[43] but none have examined the feasibility or effectiveness of a deliberate strategy to offer the methods together.

Another, more nuanced, approach to dual protection is to ensure that consultations for family planning clients (and for antenatal and postnatal clients who are considering family planning options) include not only information about STIs and their transmission, but also a risk assessment by and with the woman for STIs, HIV and pregnancy, and a discussion of the effectiveness of individual contraceptives in protecting against pregnancy and infection. This approach is intended to enable a woman and a service provider to assess the woman's dual-protection needs in light of her individual situation. It also allows a woman who is not exposed to STIs or HIV to choose a contraceptive method plus monogamous sexual relations with a noninfected partner as her dual-protection behavior. One study noted an increase in the proportion of infected women selecting the condom when they were given information and a risk assessment and could choose their own method.[44] An ongoing operations research study in Nigeria, in which client education on STIs and risk assessment are central to family planning consultation, has found promising preliminary results, with the proportion of visits resulting in acceptance of condoms (mostly the female condom) increasing from 2% to 9%.[45] This strategy appears to be feasible, but its effectiveness in ensuring a sustained behavior change for couples remains an important question; the researchers are currently testing an intervention aimed at reaching male partners to strengthen this aspect of the behavior change model.

Reaching the Wider Population Through Clinics

Adolescents and young, single women are at high risk of contracting STIs and HIV and of having unwanted pregnancies, yet often they are either apprehensive about going to public clinics or are dissuaded by health program policies or by staff attitudes. Strategies that reduce these barriers are expected to increase the proportion of sexually active adolescents and single women obtaining appropriate information and services and ultimately to decrease the proportions having unprotected sex. A small number of projects in Sub-Saharan Africa are exploring the feasibility of making existing public clinics more "youth-friendly,"[46] but the findings are not well-documented, and few results are available in the literature. None of these projects are evaluating their effectiveness in changing or sustaining preventive behaviors among adolescents, or their impact on reducing unwanted pregnancies or infection transmission. One review highlights the many difficulties involved in reaching adolescents—especially males—through simply "adding on" STI services to public programs, and instead emphasizes the potential of establishing dedicated services and of more fully exploiting the private sector both by referring adolescents from public or NGO clinics to private doctors for treatment and by promoting STI treatment by nonmedical health workers and other grassroots workers.[47]

Men of any age have not traditionally attended public clinics to obtain family planning information, condoms or STI treatment or to accompany their partners for antenatal or child health visits. Several opportunities for reaching men through conventional public health clinics are now being considered, but very few efforts are actually being prospectively tested and evaluated. The two preferred approaches appear to be making condoms freely available and easily accessible at clinics for occasions when men do visit, and encouraging men to accompany their partners for antenatal or family planning visits during which they can be exposed to educational messages on family planning and STIs, given condoms and offered STI tests and treatment. Once again, neither strategy has been systematically tested, although the latter approach (encouraging men to attend for antenatal care and for family planning services) is

*A study in South Africa followed a cohort of condom users from the clinic and found that after five weeks, 44% of the condoms had been used in sex, 22% had been given away, 9% had been lost or discarded and 26% were still available for use. (Source: Myer L et al., The fate of free male condoms distributed to the public in South Africa, *AIDS,* 2001, 15(6):789–793.)

currently being tested for feasibility and effectiveness through operations research in South Africa, India, Zimbabwe and Nigeria.

Very little is known about the extent to which sex workers use the public health system for contraceptive and STI services, but a study recently completed in Abidjan indicates that 28% of sex workers surveyed had obtained treatment from a public clinic or hospital for their last STI, 23% had self-treated through the informal sector and the rest had used pharmacies or private facilities.[48] Thus, public facilities should be systematically tested and evaluated as a possible venue for reaching sex workers.

OUTSIDE THE CLINIC

The focus of this article is on services offered at clinics, which are the most common service delivery points for public programs in Sub-Saharan Africa. However, some public health programs in the region also have community-based or outreach components that use either community health workers or community-based distributors of contraceptives and other primary health services.[49] The evidence clearly shows that public-sector community-based distribution (CBD) programs can effectively promote condoms to men,[50] especially when male agents are used; no evaluation has been conducted to determine whether this approach increases the overall prevalence of condom use or substitutes for other sources of supply, or whether it ultimately improves preventive behaviors.

Efforts have been made to train this cadre of service providers to include STI education during their consultations. The extent to which they have successfully incorporated this additional responsibility is not well-documented, however, due largely to the apparent reluctance of CBD programs to begin recording such activities in their routine reporting systems, and to the lack of evaluative research on this issue. Evidence from an assessment of the CBD program of Planned Parenthood of Ghana[51] shows that such training led its CBD agents to give their clients information on STI prevention during 90% of their consultations. A study of a public-sector program in northern Ghana indicated, however, that training community-level workers to include STI education did not significantly increase awareness and knowledge of STIs in the general population. However, only 20% of the population interacted with the community workers, and STIs were discussed in fewer than half of these interactions.[52]

EFFECT ON EXISTING SERVICES

This review has focused on what is known and not known about the feasibility and effect of integrating STI prevention and management into public-sector family planning and antenatal programs, but an equally important concern is whether integrating these services influences the existing services. A comprehensive review commissioned by WHO found that "data provided on the impact of integration on [family planning] services are largely impressionistic."[53]

The authors, however, conclude that efforts to integrate STI prevention activities have improved providers' attitudes, counseling skills and performance in regard to family planning services, despite initial concerns that an integrated approach would overload staff. They also believe that integrated services improve client satisfaction, in part because clients consider such services a more complete response to their needs and an opportunity to discuss issues involved in sexual behavior and gender relations. They give several examples (albeit drawn from service statistics, which can be unreliable) showing that integrated programs not only produce higher levels of condom distribution but also lead to increases in the adoption of other contraceptive methods.

Their findings, although "impressionistic," suggest that no more research is really needed to demonstrate this point, although data collected through a study that prospectively tested this hypothesis would be more credible. There may well be a need, however, for more systematically collected information concerning the implications of an integrated approach on the way in which clinic services are organized and how providers spend their time. Only two such studies exist, both of which suggest that the issue is not the amount of time, but how time is used during the day.[54] Nevertheless, the field would benefit tremendously from controlled studies that tested hypotheses concerning the effect of service integration on the quality of family planning and antenatal care clients receive, on the adoption and continuation of family planning, on the quality and use of STI and HIV/AIDS services provided and on the prevalence of these infections in the target populations.

CONCLUSIONS

The most comprehensive review to date on research conducted on integration concludes that "the ideal research study for assessing the value of STI and family planning integration has not been implemented."[55] Despite the lack of strong research-based evidence on feasibility and impact, program planners and policymakers continue to look for ways in which STI and HIV prevention, detection and management can be better integrated with existing maternal and child health and family planning services. To a large extent, they do so because providing additional services to an established and numerically large clientele through an existing program is easier for national public health programs, their funders and their technical assistance partners than venturing into the relatively unknown arena of reaching new clientele (the "high-transmitter" groups of males; young, single women; and sex workers) through new activities. To date, most strategies for reaching these groups—e.g., condom social marketing; brothel-based programs; working with truck drivers and the military; and programs to reach adolescents—have instead been undertaken by private, commercial or nongovernmental organizations.

The high level of enthusiasm for integration, and the resources available for programs that introduce such approaches, is rather worrying, given that there is actually so little evidence available from rigorously implemented re-

search. The need for research to prospectively test at least some of the strategies now being introduced is driven by a desire to avoid the risk of promoting strategies that are aimed at inducing a behavior change through female clients of maternal and child health services (either through primary prevention messages and services or through STI diagnosis and treatment), who are generally not sufficiently empowered to enact such a change.

In particular, priority should be given to supporting a few rigorously designed and implemented experimental studies that can determine the impact of integrated strategies on STI and pregnancy prevention behaviors, on STI detection and management, and—ultimately—on the incidence and prevalence of STIs, including HIV, and on levels of unwanted pregnancy. Such studies should allow comparisons between different configurations of services, so that policymakers can make decisions on what is most appropriate for their situation from a range of alternatives. However, the lack of attention to the appropriate indicators inhibits such comparative analyses. (Some efforts have been made to develop groups of indicators to evaluate integrated rather than vertical services,[56] but to date the only serious effort is the "Helping Individuals Achieve Their Reproductive Intentions" index developed by Anrudh Jain and Judith Bruce.[57]) These studies should also include cost analyses to enable comparison of the efficiency of various approaches. Given the substantial resources and time needed for intervention trials, more attention should be given to modeling studies that can draw from existing data sets.[58] In short, there is an urgent need to consider pilot-testing new strategies using experimental designs rather than launching into large-scale programs that are based on descriptive evidence of feasibility or on intuition.

Finally, priority should be given to intervention trials for strategies that seek to reorient the ways in which conventional family planning or antenatal care services are offered, rather than to testing ways of adding STI prevention or detection and management to existing program structures by providing refresher training, revising standards and guidelines or promoting condom use. The limited success of these strategies to date may result from incomplete implementation of the strategy itself. A more likely explanation, however, is that these strategies do not acknowledge the increase in the proportion of family planning or antenatal clients who are at risk not only of an unwanted pregnancy or an unsafe pregnancy, but of acquiring HIV or another STI. Nor do they address women's lack of power in negotiating dual, or even single, protection with their partners.

Strategies that seek to assess the woman's overall situation, counsel her on her risks and options and respect her right to make the final decisions concerning her behavior appear to be the most promising ways of helping her obtain the protection she needs. These strategies are extremely challenging because they require a significant change in routine procedures rather than the addition of activities to existing procedures. Reaching the male partners of maternal and child health and family planning clients is an even greater challenge. Given the scale of the dual problems of the AIDS epidemic and high fertility facing Sub-Saharan Africa, however, such challenges should be addressed as a matter of urgency.

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RESUMEN

Contexto: *Debido a la elevada prevalencia de las infecciones transmitidas sexualmente (ITS) y su papel con respecto a la transmisión del VIH, es imperiosa la necesidad de establecer como meta la integración de la prevención y el manejo de las ITS a los actuales programas de planificación familiar y de aten-*

ción prenatal en la mayoría de los países de pocos recursos, especialmente en el Africa Subsahariana. Sin embargo, es limitada la información disponible sobre cómo se puede configurar mejor la integración de estos servicios y cuál sería el impacto que tendría con respecto a la prevención de la infección y los embarazos no deseados.

Métodos: *Se analizó el material publicado para examinar el nivel de conocimiento que existe acerca de esta integración y para identificar las áreas prioritarias que deben ser abordadas mediante trabajos de investigación.*

Resultados: *La viabilidad y eficacia de las estrategias que centran la atención en los servicios de prevención de las ITS o en actividades de detección y tratamiento son inciertas. Hay una imperiosa necesidad de realizar trabajos de investigación en tres áreas. Primero, el desarrollo y ensayo de estrategias que, en vez de agregar actividades relacionadas con las ITS a los actuales servicios de planificación familiar y programas de atención prenatal, procuren reorientar las metas de las consultas de rutina hacia la protección contra el doble riesgo, del embarazo no deseado y la infección, y además, lograr la participación de las clientas en la toma de decisiones con respecto al resultado de la consulta. Segundo, el desarrollo y ensayo de estrategias dirigidas al involucrar al hombre y facilitar el acceso de los adolescentes a los servicios de salud sexual y reproductiva. Finalmente, es necesario realizar estudios prospectivos y con preferencia aleatorios, para ensayar y comparar el impacto de estrategias alternativas de integración en los indicadores del comportamiento sexual y de salud a nivel de la población.*

Conclusiones: *Las estrategias para la integración de los servicios antes de ser implementadas deben ser ensayadas rigurosamente para asegurar que son tanto viables como eficaces.*

RÉSUMÉ

Contexte: *La haute prévalence des infections sexuellement transmissibles (IST) et leur rôle dans la transmission du VIH ont placé l'intégration de la prévention et de la gestion des IST dans les programmes existants de planning familial et de santé de la grossesse parmi les objectifs des pays les plus démunis, en Afrique subsaharienne surtout. La meilleure configuration des services intégrés n'est cependant guère documentée, pas plus que leur impact sur la prévention des infections et des grossesses non désirées.*

Méthodes: *La documentation existante est passée en revue afin d'établir ce que l'on sait ou non de l'intégration et de déterminer les priorités de la recherche.*

Résultats: *La faisabilité et l'efficacité de stratégies axées sur l'ajout de services de prévention des IST ou d'activités de détection et de traitement sont incertaines. Il existe un besoin pressant de recherche à trois niveaux: 1) l'élaboration et l'essai de stratégies qui, plutôt que l'ajout d'activités IST aux programmes de planning familial et de santé de la grossesse existants, chercheraient à réorienter les buts des consultations de routine vers la protection contre le double risque de la grossesse non désirée et de l'infection, et vers la participation des clientes à la décision de l'issue de la visite; 2) l'élaboration et l'essai de stratégies aptes à atteindre les partenaires masculins et à faciliter l'accès des adolescents aux services de santé sexuelle et génésique; et 3) la réalisation d'études prospectives, de préférence randomisées, en vue de l'essai et de la comparaison de l'impact d'autres stratégies de l'intégration sur les indicateurs démographiques de comportement et de santé.*

Conclusions: *Les stratégies de l'intégration des services doivent faire l'objet d'essais rigoureux aptes à assurer leur faisabilité et leur efficacité avant la mise en œuvre.*

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