

Assessment of Health Services for Treatment of Sexually Transmitted Infections Among Nigerian Adolescents

FRIDAY E. OKONOFUA, MD, FMCOG,* JAMES I. OGOROR, PhD,* FRANSISCICA I. OMORODION, PhD,* MIRIAM T. TEMIN, MPH,† PAUL A. COPLAN, DSC,† JOAN A. KAUFMAN, DSC,† AND H. KRISTIAN HEGGENHOUEN, PhD†

Background: The available evidence indicates that Nigerian adolescents use various health practitioners for the treatment of sexually transmitted diseases (STDs). However, the quality of the STD treatment used by adolescents has not been investigated previously.

Goal of this Study: To investigate the quality of services provided by health practitioners for the treatment and prevention of STDs among adolescents in Benin City, Nigeria.

Study Design: In-depth interviews were conducted with 48 formal and informal sector health practitioners who were identified by key informants as being the main providers of STD treatment in the city. Their facilities were visited to evaluate the quality of services they provide for STD treatment.

Results: Health providers in the informal sector showed inadequate knowledge of the appropriate treatment methods for STDs. Although providers in the formal sector had better knowledge, they lacked appropriate management guidelines and were poorly oriented to the problems of STDs in adolescents. There was consensus among the health providers that adolescents most frequently use informal treatment for STDs. Nevertheless, among all providers, there was evidence of inadequate counseling of adolescents, a poor attitude toward the promotion of condom use, and inadequate use of referral opportunities.

Conclusions: Comprehensive public health measures are needed to address these problems in Nigeria. These include the provision of reproductive health education for adolescents, the retraining of health providers, and the consolidation of services for the prevention and treatment of STDs.

From the *Women's Health and Action Research Centre, Ugbowo, Benin City, Nigeria; †Department of Population and International Health, Harvard School of Public Health, Boston, Massachusetts; and †Reproductive Health Program Office, Ford Foundation, Beijing, China

AVAILABLE INFORMATION SUGGESTS that the rate of sexual activity for Nigerian adolescents is increasing, whereas the age of their sexual debut is decreasing.¹⁻⁴ This increased rate of sexual activity, coupled with their inadequate knowledge of reproductive health, is responsible for the increasing rate of sexually transmitted diseases (STDs) among Nigerian adolescents. Although the prevalence of STDs among Nigerian adolescents is not known with accuracy, there is widespread belief that adolescents have a higher rate of infection compared with adults. Several population-based studies have showed high rates of the classic STDs among Nigerian adolescents.⁵⁻⁸ Despite the high rate of STDs among Nigerian adolescents, it is now well recognized that many adolescents either do not receive treatment or receive inadequate treatment for various STDs.⁸ This lack of proper treatment of STDs is largely responsible for maintaining the high rate of infection among the adolescent population. Among the adolescents in the study reported by Brabin et al.,⁸ 43% had not received treatment. Our preliminary investigations have shown that among adolescents receiving treatment for STDs, many self-medicate with drugs purchased over the counter from pharmacists, drug hawkers, and patent medicine dealers⁹ (unqualified persons officially registered to sell patented drugs). A significant number of adolescents visit traditional healers, whereas a few use the services provided by private medical practitioners. Many adolescents tend not to use the formal STD treatment services provided by public hospitals and formal STD clinics. This poor use of formal STD treatment by Nigerian adolescents is largely because of their poor perception of risks and symptoms as well as the social stigma attached to seeking treatment for STDs. This situation is not peculiar to Nigeria, as similar poor use of STD services has been reported among adolescents in Ethiopia¹⁰ and some developed countries.¹¹

This study was conducted by the Women's Health and Action Research Centre (WHARC) in Nigeria in collaboration with the Harvard School of Public Health. We gratefully acknowledge the receipt of funds from the MacArthur and Rockefeller Foundations for the project. We particularly appreciate the role of Dr. Leni Silverstein of the MacArthur Foundation and Dr. Jane Hughes of the Rockefeller Foundation for their technical input in developing the project.

WHARC is a nongovernmental, nonprofit organization whose mission is to promote women's reproductive health through research, documentation, advocacy, and training in reproductive health. The Centre receives core funding from the Ford Foundation and continued technical support and collaboration from the Harvard School of Public Health.

Correspondence: Professor F. E. Okonofua, Executive Director, Women's Health and Action Research Centre, 4 Alofoje Street, Off Uwasota Street, P.O. Box 10234, Ugbowo, Benin City, Nigeria. E-mail: wharc@warri.rcl.nig.com

Received for publication July 14, 1998, revised November 24, 1998, and accepted November 25, 1998.

To date, the quality of services provided by STD treatment providers in formal and informal sectors in Nigeria has not been systematically investigated. Investigating the quality of services in these outlets would be highly relevant, because it could lead to the identification of measures to improve the treatment and prevention of STDs among Nigerian adolescents. Improved treatment and prevention of STDs would in turn lead to a reduced propensity to acquisition of HIV/AIDS by this age group, because STDs have been shown to be a significant cofactor in HIV transmission.¹² To date, the Nigerian STDs/HIV control program estimates that more than 60% of new HIV cases in the country occur in adolescents aged between 15 and 25 years.

The primary objective of this study was to identify a framework for improving the treatment and prevention of STDs among Nigerian adolescents. The specific objective of the study was to investigate the quality of services provided by formal and informal treatment channels for STDs among adolescents in Benin City, Nigeria. We believe that the results of the study will prove valuable for designing appropriate interventions for reducing the rate of STDs and HIV among adolescents.

Setting and Methodology

An adolescent STD prevention study was commenced in Benin City, Nigeria, in October 1996. The first phase of the project consisted of a series of qualitative and quantitative studies aimed at providing contextual sociocultural information for designing the interventions. Initial in-depth interviews and focus groups discussions were conducted with adolescents, both those who had previously experienced symptoms of STDs and those who had not,⁹ to understand the basic pattern of their health-seeking behavior as regards STDs. The results suggested that adolescents most often seek STD treatment from informal sector health providers (pharmacists, patent medicine dealers, traditional healers, and laboratory technologists) and less frequently seek care from formal sector providers (doctors and nurses in public and private practice). Subsequently, we undertook a qualitative study to evaluate the quality of STD treatment offered to adolescents by these providers. This report details the methodology and results of this part of the study.

Benin City is a cosmopolitan city in midwestern Nigeria, with an estimated population of nearly 1 million. Adolescents aged 10 to 20 years make up nearly 20% of the population. Inhabitants of the city are mainly farmers, petty traders, and civil servants. There are a considerable number of primary and secondary schools, and there is a large federal-funded university. The large number of educational institutions in the city may account for its large number of adolescents, one of the highest in Nigeria.

The city has several private and public health institutions. Apart from a large university hospital, there is a general hospital, located in the center of the city, that provides specialist

care. Both hospitals have categorical STD clinics, with the STD clinic at the general hospital being more centrally placed and therefore more accessible. One feature of Benin City is its large number of private health institutions. Several small and large private health institutions and laboratories dot the city, providing general clinical as well as STD services. Additionally, there are several faith and traditional healers that provide STD treatment services. Because of a downturn in the national economy and the increasing costs of treatment within the formal health sector, these traditional healers are now increasingly patronized by both urban and rural dwellers. Many of these traditional practitioners frequently advertise their services using billboards, television, and radio. By contrast, orthodox health practitioners are prohibited by their professional regulatory bodies from advertising their services.

At the beginning of the study, in-depth interviews were conducted with key informants to elicit information on the main providers of STD treatment and prevention services in the city.¹³ The key informants were purposely chosen from among health providers, adolescents, and community leaders who were perceived as having accumulated knowledge on the pattern of health-seeking behavior for STDs in the city. Thereafter, selected treatment providers in the seven identified categories of formal and informal health providers in the city were selected and approached for interviews. They were apprised of the purpose of the study, and only those who agreed to participate were finally interviewed. The study protocol was approved by the Human Subjects Committee of the Harvard School of Public Health and the Ethical Review Committee of the Obafemi Awolowo University Teaching Hospital in Nigeria. The health providers were assured that the information collected for the study would be confidential.

Fourteen doctors in private hospitals, five doctors in public hospitals, five private pharmacists, five patent medicine dealers, five traditional healers, five private laboratory scientists, and nine private nurses were interviewed. Therefore, a total of 48 health providers were visited and interviewed in their clinic locations on their experiences and practices relating to the treatment and prevention of STDs in adolescents. In each clinic, we interviewed the clinic heads to obtain a sense of the standard of care for STD treatment and prevention that has been established for the clinics.

In-depth interviews of the health providers were undertaken by the first two authors with assistance from three trained research assistants. In addition, on-site inspection of the clinics was undertaken to ascertain the facilities available for STD treatment and prevention and the nature of the attending clients. The interviews were conducted with a semistructured study protocol. The protocol elicited information on the characteristics of the health providers and clinics, their intakes of adolescents, the types of clinical problems often presented by adolescents, and the health providers clinical approach to adolescents who present with STD symptoms. We also solicited information on counseling techniques, their practice of

partners' notification, and whether adolescents are frequently referred to higher levels of care.

The interviews were conducted in English or pidgin English as appropriate, audiotaped, and then transcribed in detail. The transcripts were analyzed for pattern and content. The responses were categorized into various sections and the analyses presented according to the sections and desegregated by health providers where necessary.

Results

Characteristics of Health Providers and Clinics

The majority of the health providers who were interviewed were men, with the exception of nine nurses/midwives, one laboratory technologist, and one pharmacist. Among the public doctors interviewed were the heads of the two categorical STD clinics in the city and the director of a Youth Advisory Centre in the city. All doctors, pharmacists, laboratory technologists, and nurses were registered with their professional regulatory bodies. By contrast, the patent medicine dealers and traditional healers had no specific professional certificates. One patent medicine dealer was a nurse, whereas the others had secondary school certificates. Among the five traditional healers who were interviewed, two had university degrees, one had a National Certificate in Education, one had a secondary school certificate, and the fifth had no formal education. Most of the traditional healers obtained their knowledge of traditional healing by understudying other traditional healers, most often their parents. The public practitioners who were interviewed were drawn from the two specialist hospitals in the city. The private practitioners were purposely selected from among clinics that are known to have high intakes of adolescents. Three private practitioners were obstetricians and gynecologists, one was a family physician, and the fifth was a general practitioner.

The private clinics were modest and had little diagnostic and treatment facilities. The pharmacists had large stocks of drugs and several pharmacy assistants. There was often an

attending pharmacist who attended to patients in a separate room. The patent medicine dealers often operated in one room with the drugs displayed on shelves in the room. They had fewer drugs compared with the pharmacists and were managed on a daily basis by a single individual, who often was also the proprietor.

Most of the traditional healers interviewed operated their clinics from their homes, except one who operated a formal traditional medicine clinic. The nurse/midwives who were interviewed included those who operated their own registered clinics. The laboratory technologists were those who provided private laboratory facilities for the diagnosis of various disease conditions. Many of the laboratory technologists were those used by private health providers for the diagnosis of various STDs. Adolescent clients are often referred to these laboratories by private health providers. In addition, adolescents often visit these clinics without being referred, to request diagnosis of their STD symptoms. Some of these adolescents are sometimes treated by the laboratory technologists, although they are not permitted by law to undertake such treatments.

Intake of Adolescents

All the health providers indicated that they treat adolescents in their clinics. However, the reported frequency of clinic visits by adolescents varied according to clinic type (see Table 1). The results indicate that private doctors, patent medicine dealers, traditional healers, and laboratory technologists treated more adolescents, whereas public doctors, pharmacists, and nurses treated the smallest number of adolescents. Private doctors tended to treat more female adolescents, with one private doctor reporting the treatment of about 126 female adolescents each week. By contrast, traditional healers reported that they treated more males and less females. An explanation for this difference was provided by one traditional healer, who said: "female adolescents do not like to come to us. They prefer to go to places where they would not be seen."

The public doctors interviewed reported the lowest number of treated adolescents. The median weekly number of

TABLE 1. Frequency of Visits by Adolescents as Reported by Various Health Providers

	PD	P	PMDs	TH	PuD	Nurses	LTech
Total number of respondents	14	5	5	5	5	9	5
Do adolescents visit this clinic? Yes	14	5	5	5	5	9	5
Frequency of visits by adolescents							
Very often	8	0	1	2	1	1	2
Often	3	2	3	2	3	5	1
Rarely	3	3	1	1	1	3	2
Median number of female adolescents seen each week	40	12	12	4	6	7	5
Range	7-52	6-20	5-21	2-12	4-13	4-15	2-20
Median number of male adolescents seen each week	2	10	10	15	7	8	7
Range	1-6	2-15	2-25	5-30	5-13	6-12	4-15

PD = private doctors; P = pharmacists; PMDs = patent medicine dealers; TH = traditional healers; PuD = public doctors; LTech = laboratory technologists.

female adolescents reported by the public doctors was six (range, 0–12), whereas the median number of male adolescents was seven (range, 1–14). Indeed, the directors of the two STD clinics in the city reported that they had not treated adolescent clients in the 6 months preceding the interview. This evidence was substantiated by the nurses who work in the clinics.

The results show that malaria is the most common disease treated in the clinics, with the exception of traditional healers who reported STDs as the major disease treated in their clinics. Traditional healers and laboratory technologists reported STDs as the main diagnosis in adolescents. By contrast, other health providers reported malaria as the primary disease diagnosed, although the majority reported STDs as the second most prevalent diagnosis in adolescents. Doctors and nurses also reported that adolescents frequently visit them when they have unwanted pregnancies and are seeking termination.

Diagnosis and Recognition of STDs in Adolescents

The health providers were requested to identify the most common STDs they diagnose in adolescents. Gonorrhea was most frequently mentioned by all the groups, followed by candidiasis and syphilis. The private and public doctors and laboratory technologists mentioned the most STD types, whereas pharmacists, patent medicine dealers, and traditional healers mentioned the least types of STD diagnoses. One private practitioner reported a high rate of herpes among adolescents attending his clinic. Only two laboratory technologists spontaneously mentioned HIV as a common diagnosis in adolescents. This may be because many of the other clinics did not routinely investigate their patients for HIV.

When the types of STD diagnoses were desegregated by gender, gonorrhea and nongonococcal urethritis were most commonly reported in male adolescents. By contrast, candidiasis was most commonly reported among female adolescents, followed by pelvic inflammatory disease, trichomoniasis, gonorrhea, and syphilis. Gonorrhea was rarely mentioned by the health providers as a common diagnosis in female adolescents. This may be because of the asymptomatic nature of gonorrhea in females.

The health providers were asked to describe the symptoms of STDs reported by adolescents. The most correct descriptions were provided by doctors and laboratory technologists, whereas the least correct descriptions were given by nurses, patent medicine dealers, and pharmacists. The symptoms proffered in male adolescents were urethral discharge, painful urination, rashes around the genital area, and bloody urethral discharge. In female adolescents, these were vaginal discharge, itching in the genital area, abdominal pain, burning sensation on urination, increased micturition, and fever. Traditional healers were more likely to speak in great detail about the symptoms and mode of presentation of STDs in adolescents. However, their descriptions did not often correspond with clinical reality. They were also more likely to misclassify various types of STDs.

Regarding the methods of STD diagnoses in adolescents, the doctors and nurses reported that they carry out history taking, physical examination, speculum examination, bimanual examination, and laboratory investigations in adolescents before initiating treatment. By contrast, the pharmacists and patent medicine dealers do not carry out a clinical or vaginal examination. However, they sometimes refer adolescent clients to laboratory technologists for tests before initiating treatment. The traditional healers said they take a clinical history from their adolescent clients, but they do not carry out vaginal examination. Three of the five traditional healers mentioned that they frequently examine the external genitalia of adolescents before initiating treatment. One described how he examines the external genitalia with a hand-held magnifying lens, whereas another described how he uses a snake to make an STD diagnosis by using the snake to "scan" the abdomen of the patient.

Among the laboratory technologists, the majority said they carry out vaginal examinations to obtain specimens for STD diagnosis. However, only one admitted that he frequently treats such clients as well. The majority of the technologists refer such patients back to the referring clinics with the laboratory results. An assessment of the diagnostic facilities available in the laboratories showed that none of them had facilities to culture *N. gonorrhoea* or *Chlamydia trachomatis*. However, most of them frequently diagnose *N. gonorrhoea* with gram stain and *Candida albicans* and *Trichomonas vaginalis* with light microscopy. Only one laboratory carried out serologic testing for syphilis, whereas another had a screening test for HIV.

Treatment of STDs in Adolescents

The methods reported by the health providers for the treatment of STDs are presented in Table 2. Private doctors and pharmacists mentioned the most modern and expensive drugs for the treatment of STDs. By contrast, public doctors, patent medicine dealers, and nurses mentioned less expensive drugs. The clinical conditions for which the use of the drugs were reported were more likely to be correctly given by doctors and pharmacists. The dosages and duration of treatment were also more likely to be correct with doctors and pharmacists. However, only one private doctor used the WHO syndromic approach for selecting appropriate STD treatment for patients. The majority of the doctors, including the directors of the two STD clinics in the city, had no knowledge of the syndromic approach to STD treatment. Therefore, it was not surprising that many of the doctors used drugs and dosages that are no longer regarded as efficacious in the treatment of STDs. The patent medicine dealers, although they knew of some STD drugs, often used them incorrectly with inappropriate dosages and for a shorter duration of time.

The traditional healers reported that they used roots and herbs whose efficacy could not be ascertained. However, many of the traditional healers believe that their methods of treatment of STDs are more effective than those of orthodox practitioners.

TABLE 2. Drugs and Methods Mentioned by Various Health Providers for the Treatment of STDs in Adolescents

Health Provider	Treatment Mentioned
Traditional healers	Herbal medicines, roots, mystical powers, traditional antibiotics, palm wine, onion, potash, "okpozigboro"
Public doctors	Togamycin, septrin, erythromycin, metronidazole, rocephin, tetracycline
Nurses	Canesten cream, gentamycin, streptomycin, metronidazole, penicillin, septrin, vitamins
Patent medicine dealers	Antifungals, analgesics, ampiclox, ampicillin, metronidazole, Vitamin B complex, tetracycline, doxycycline, chloramphenicol, chlorpheniramine, canesten, septrin
Pharmacists	Canesten, ciproxin, tarivid, metronidazole, procaine penicillin, togamycin, gentamicin, erythromycin, furadantoin
Private doctors	Tarivid, ciproxin, gentamicin, peflacin, zinacef, flagyl erythromycin, quinolones, doxycycline, resophin, canesten, septrin, gentamycin, tetracycline, procaine penicillin

STD = sexually transmitted disease.

One pharmacist revealed that traditional practitioners frequently add antibiotics and other STD medications to the herbs they administer to patients. He maintained that the efficacy of the medications used by traditional healers was due to these additional medications rather than to the specific effects of the traditional drugs. Further investigations showed that the practice of mixing orthodox drugs with traditional medications was probably widespread among traditional healers in the city. When we compared the cost of STD treatment reported by the clinics, we found that traditional healers offered the most expensive, whereas patent medicine dealers offered the least expensive. Among doctors and pharmacists, the cost of treatment by private doctors was least expensive and "variable," whereas that of public doctors was most expensive and "fixed." By comparison, although pharmacists offered relatively less expensive treatment, the method of payment was often "fixed."

We used the treatment of gonorrhea in a male adolescent as a case example to compare the cost of treatment at the clinics. The mean (and range) cost of treatment of gonorrhea reported by the clinics were as follows: traditional healers N2,500 (range, N1,250–N7,500); private doctors, N500 (range, N300–N750); public doctors, N650 (range, N350–N870); pharmacists, N450 (range, N200–N750); and patent medicine dealers, N200 (range, N100–N250) [1 Naira (N) = 1 U.S. dollar].

Further discussion with the traditional healer revealed that their high cost of treatment was because of their perceptions that they treat the more difficult types of STDs. Traditional healers believe that adolescents patronize them after they experience the failure of orthodox treatment. It would appear that adolescents mainly purchase STD drugs over the counter (mainly from patent medicine stores), and when these fail,

they understand this to mean a failure of orthodox treatment. Consequently, they consult traditional healers who then charge higher fees. The same brands of drugs are sold by pharmacists and patent medicine dealers. However, patent medicine dealers are able to sell at lower prices because of their lower overhead costs.

Prevention of STDs in Adolescents

All of the health providers interviewed said they counsel their adolescent clients about STDs. However, none had informational materials about STDs for distribution to patients in their clinics. Many of them reported that they counsel adolescents on the mode of acquisition of STDs and the need to refrain from having multiple sexual partners. The private doctors, nurses, and traditional healers said they regularly promoted the use of condoms among adolescents. Many doctors and pharmacists said they did not often promote condoms in adolescents. This was because, as one public doctor put it: "we are too busy to discuss this with adolescents." In addition, some of them, because of their religious beliefs, did not believe in promoting condom use among adolescents. One pharmacist, who was a senior member of the Catholic church in the neighborhood, disliked the promotion of condoms to adolescents and insisted that abstinence from premarital sex should be promoted instead.

From the interviews, it would appear that traditional healers are most active in promoting condom use by adolescents. Four traditional healers said they regularly promote condom use in adolescents, whereas another said he frequently recommends the use of traditional herbs and antibiotics to be taken after an act of sexual intercourse as a way to prevent STDs in adolescents. Only two patent medicine dealers, four pharmacists, one private medical doctor, and two traditional healers had condoms in their clinics at the time of the interviews. The public doctors said their stock of condoms were located in their family planning clinics, which are situated and run separately from the STD clinics. As a result of the physical separation between the STD and family planning clinics, it was often not practical to obtain condoms from family planning clinics for use in STD clinics in the public hospitals. This strongly suggests that there is a need to integrate these two clinics in these hospitals.

We also solicited information on the referral of adolescent patients with STDs. All of the nurses and laboratory technologists interviewed refer STD patients to doctors in private and public practice. However, we were able to determine that there are very few referrals to the two STD clinics in the city. We identified that this is because of perceptions among practitioners that adolescent patients would not go to STD clinics. Indeed, in the General Hospital, located in the heart of the city, there is a standing procedure that requires that STD patients presenting to the General Outpatients Department (GOPD) are referred to the STD clinic. However, despite the

fact that the STD clinic is located a few meters behind the GOPD, no adolescent client had been referred to the STD clinic from the department in the preceding 6 months. The evidence showed that many of the adolescents were simply treated and sent away without follow-up treatment and counseling. There was no evidence of a systematic referral of adolescent patients from the pharmacists, patent medicine dealers, and traditional healers to orthodox medical practitioners. Only one pharmacist, one patent medicine dealer, and one traditional healer said they occasionally refer difficult cases to medical practitioners.

Regarding the notification and treatment of partners, only the private and public doctors said they frequently requested that their clients refer their partners for treatment. However, there was no evidence that they used a systematic approach for obtaining partner notification and treatment. Indeed, many of the private practitioners admitted that they often did not succeed with partner notification, because many of the clients counseled often failed to attend with their partners. There was a perception among all of the health providers who were interviewed that notification of partners is difficult and sensitive. The major reason for not pursuing partner notification that was proffered was that STD patients often had multiple sexual partners and that many would not know which partner to notify about the STD diagnosis. Many practitioners argued that notifying partners would strain the relationship between the partners.

Discussion

The results of this study have confirmed the existence of a multitude of STD health providers in the formal and informal health sectors who are active in providing STD treatment and prevention for adolescents. However, the informal and private sectors appear to be more active in providing treatment for adolescents than the formal and public sector. From the responses provided by the health providers, we believe that adolescents first visit patent medicine dealers or pharmacists when they have STD symptoms. When these fail, our impression is that adolescents tend to seek the services of private doctors (for female adolescents) or traditional healers (for male adolescents). It is only when these still fail that they occasionally visit doctors and nurses in public health institutions.

This type of information is critical for designing interventions to improve the treatment and prevention of STDs among Nigerian adolescents. It is possible that adolescents seek informal treatment channels as a result of incorrect information or perceptions regarding cost, confidentiality, or parental notification.^{9,14} Nevertheless, the results of our analysis suggest that suboptimal treatment and prevention services currently operate both in the informal as well as in the formal health sectors. The informal sector (traditional healers and patent medicine dealers) is particularly problematic, as many of the practitioners in this sector provide inappropriate STD treatment and preventative services that are nevertheless patron-

ized by a large proportion of adolescents. By contrast, although the formal treatment sector practitioners (private and public doctors, pharmacists, and laboratory technologists) provide appropriate STD treatment, they demonstrated substantial inadequacies in several areas. In particular, the private and public doctors lacked appropriate diagnostic tools for confirming various STD diagnoses. Consequently, the results of our study indicate that they frequently resort to the use of private laboratories which were, in themselves, inadequately equipped to diagnose even the most common STDs prevalent in the area. In addition, many private and public doctors were not familiar with the modern protocols for the treatment of common STDs, and many did not systematically include counseling, contact tracing, and promotion of condom use in the management of adolescents with STDs. Worse still, there was no established system for referring patients between the informal and formal systems of care or even between providers within the formal system of care.

Clearly, there is a need to improve the organization of services as well as the quality of health care available for the treatment and prevention of STDs among adolescents in Edo State, Nigeria. First, there is a need to educate adolescents on the appropriate treatment and prevention methods for STDs. The need to introduce sexuality education in Nigerian schools has been well articulated.¹⁵ However, before this recommendation takes full effect, there is a need to provide specific information to adolescents on effective methods for preventing STDs, such as abstinence and the use of condoms. In addition, adolescents require specific information on STD symptom recognition and the need to obtain treatment in formal treatment channels when they have symptoms of STDs.

It would appear that providers in both the formal and informal sectors require training and retraining in the basic aspects of STD treatment and prevention. Because it would be impractical and impossible to outlaw treatment in informal treatment sectors, the best strategy to address the problem is to find ways to link informal health providers with formal systems of health care. A good approach would be to provide informal health providers with the basic skills necessary to recognize various types of STDs and to require them to provide the most basic treatment, following which they would refer such adolescents to formal systems of care. In performing this role, they would be provided clear guidelines and linked to specific formal treatment outlets in their neighborhoods. In addition, the results of our study indicate that informal treatment providers can be enlisted in counseling adolescents about the risk factors that lead to STDs and the consistent use of condoms for the prevention of STDs.

By contrast, public and private health providers need to be taught to adopt adolescent-friendly approaches in the management of various types of STDs and to integrate STD treatment and prevention into other forms of service delivery. Specific issues that need to be addressed to increase the likelihood that adolescents would use formal treatment channels

include confidentiality, fear of parental notification, cost of services, and long waiting periods in health facilities. In addition, formal health providers should be taught to use clear guidelines and protocols such as those that have been established for the management of STDs by the WHO and the Nigerian Federal Ministry of Health. Formal health providers require improved skills in counseling adolescents on STD prevention, especially on condom use, partner notification, and reduction in number of sexual partners.

Certain limitations are inherent in the conduct of this study. These include the nonuse of inferential methods to verify the authenticity of the responses of the health practitioners, the small number of health practitioners interviewed, and the fact that the adolescent clients of the health providers were not directly interviewed. However, the study was mainly tentative and qualitative, with the sole purpose of obtaining rapid preliminary data for targeting interventions on a subject with very limited published information in this region. Nevertheless, additional studies are justified to further explore some of the key findings reported in this study.

In conclusion, the results of our study indicate that there is a multitude of health providers in the formal and informal sectors for the treatment and prevention of STDs among adolescents in Edo State, Nigeria. However, none of the providers offer acceptable standards of care geared toward reducing the incidence and prevalence of STDs among adolescents in the State. The public health measures needed for addressing these problems include the provision of reproductive health education for adolescents, the training and retraining of health providers in the formal and informal sectors, and the consolidation of services for the prevention and treatment of STDs in adolescents.

References

1. Feyisetan B, Pebley AR. Premarital sexuality in urban Nigeria. *Studies Fam Plann* 1989; 20:343-354.
2. Nichols D, Ladipo OA, Paxman JM, Otolurin EO. Sexual behaviour, contraceptive practice and reproductive health among Nigeria adolescents. *Studies Fam Plann* 1986; 17:100-106.
3. Orubuloye IO, Caldwell JC, Caldwell P. Sexual networking in Ekiti district of Nigeria. *Studies Fam Plann* 1991; 22:16-73.
4. Renne EP. Changes in adolescent sexuality and the perception of virginity in a southwestern Nigerian village. *Health Trans Rev* 1993; supp 3:121-133.
5. Bello CSS, Elegba OY, Dada JD. Sexually transmitted diseases in northern Nigeria. Five years experience in a university teaching hospital clinic. *Br J Venereal Dis* 1983; 59:202-205.
6. Bello CSS, et al. Population screening for gonorrhoea in northern Nigeria. *West Afr J Med* 1983; 2:49-52.
7. Wosuzu A. Trichomoniasis in Imo State, Nigeria. A first report. *Afr J Sex Transm Dis* 1984; 1:27-28.
8. Brabin L, Kemp J, Coplan PM, et al. Reproductive tract infections and abortion among adolescent girls in rural Nigeria. *Lancet* 1994; 344:300-304.
9. Temin MJ, Okonofua FE, Omorodion FO, et al. Adolescent perceptions of sexual behaviour and sexually transmitted diseases in mid-western Nigeria. *Int Fam Plann Perspect*. In Press.
10. Feleke W, Ghindinelli M, Desta S, Yusuf M. Some social features of STD patients in Addis Ababa, Ethiopia. *J Health Dev* 1990; 4:143-147.
11. Godin G, Fortin C, Mahnes G, et al. University students' intention to seek medical care promptly if symptoms of sexually transmitted diseases were suspected. *Sex Transm Dis* 1993; 20:100-104.
12. Grosskurth H, Mosha F, Todd J, et al. Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania: randomised controlled trial. *Lancet* 1995; 346:530-536.
13. Omorodion FO, Okonofua FE, et al. The ethnography of sexually transmitted diseases in Edo State, Nigeria. *Health Transition Rev*. Submitted.
14. Laga M. Epidemiology and control of sexually transmitted diseases in developing countries. *Sex Transm Dis* 1994; 21(suppl 2): S45-S50.
15. Okonofua FE, Harris D, Zerai A, Odebiyi A, Snow RC. The social meaning of infertility in Southwest Nigeria. *Health Transition Rev* 1997; 7:205-220.