

Acting early to prevent AIDS:

The case of Senegal



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Acknowledgement

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UNAIDS/99.34E (English original, June 1999)

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UNAIDS
Geneva, Switzerland
1999

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Introduction

*D*espite recent advances in therapy, AIDS remains a disease without a cure. Preventing new HIV infections is still the only way to control the epidemic and the misery it brings to families and communities.

Much has been written about the importance of intervening early to stop the spread of the virus that causes AIDS before it gets a solid grip on a population. And yet the spotlight tends to fall on countries such as Uganda and Thailand, whose admirable prevention efforts have succeeded in reducing already rampant rates of HIV infection.

Does that mean there are no examples of countries in the developing world that intervened early to stop HIV ever taking off in the general population? Not necessarily. But scientists have sometimes shied away from highlighting these examples, because it is never possible to be absolutely sure what would have happened in the absence of any prevention efforts. So if a country intervenes early and HIV infection rates stay low, it is difficult to say with scientific confidence that the low rates were definitely the consequence of the intervention.

In some cases, however, there is solid evidence that early action contributes significantly to the safe behaviour that keeps HIV infection and AIDS low. This paper describes the experience of Senegal, a West African country that has worked hard to prevent HIV spreading, and that has maintained one of the lowest rates of infection in sub-Saharan Africa. It discusses the situation in Senegal before AIDS began its rapid spread across much of Africa. It looks at how the country reacted to the threat of the disease, and examines whether that reaction had any effect on people's behaviour and, ultimately, on rates of HIV infection in the country.

Sources of information

*I*nformation in this document is drawn from several sources. Much of the information about marriage and age of sexual activity comes from Demographic and Health Surveys (DHS), an international survey programme that asks questions of a nationally representative sample of men and women. In Senegal, the most recent DHS was carried out in 1997.

Information on sexual behaviour and condom use come from a number of surveys of sexual behaviour. Most comprehensive was a random household survey of sexual behaviour, knowledge and attitudes conducted in 1997 among nearly 2000 men and women in the capital, Dakar, which is home to a quarter of the country's population.

Two rounds of targeted behavioural surveys—conducted in 1997 and 1998 among school children, students and sex workers and in 1998 among salaried employees—provide additional information on sexual behaviour and knowledge. The respondents were randomly selected to give data as representative as possible of the particular group being studied.

Data on sexually transmitted diseases (STDs) among sex workers come from special clinical studies conducted in 1991 and 1996. HIV prevalence data are provided by a regular system of unlinked anonymous testing of pregnant women at antenatal clinics, as well as regular screening of sex workers during health check-ups, and men being treated for STDs.

Socio-economic data and health indicators are provided by the World Bank.

Other information is provided by the national AIDS programme and nongovernment organizations (NGOs) working to prevent AIDS in Senegal.

Sources of information on other countries are similar: DHS surveys, cross-sectional surveys of sexual behaviour and attitudes, published studies and national data on HIV infection.

Before AIDS: Society and sex in Senegal

Development

Senegal is among the world's poorer nations. Per capita income is below US\$ 600 a year, and life expectancy is low. Most men will not live to 50; women can expect to live to 52. While efforts are being made to increase access to education—primary school enrolment increased by 30 percent for boys and twice that for girls between 1980 and 1995—literacy among adults is still the exception. Some 57 percent of adult men and 77 percent of women are illiterate.

Social organization

Senegal is a religiously cohesive country. Some 93 percent of the population is Moslem and another five percent is Christian. Most people are active participants in religious activities. Both Moslem and Christian religious leaders actively promote family and sexual norms that would tend to reduce the transmission of HIV. But religious traditions undoubtedly contribute in other ways to limiting the rapid spread of HIV in Senegal. Firstly, circumcision is universal and circumcized men appear less likely than the uncircumcized to contract or pass on sexually transmitted infections, including HIV. Secondly, alcohol consumption is uncommon, in accordance with Islamic tradition. In the behavioural study in Dakar in 1997, just three percent of women and four percent of men reported having any alcoholic drink in the previous month.

Much social activity is organized around religious associations, which are active in many fields of development, including health and education. Other community organizations, such as women's groups and youth clubs also contribute to health and education campaigns. They get together to promote immunization, for example, or to fight malaria.

The health sector

Senegal has long emphasized prevention and primary health care as the most rational use of limited resources. Spending on health from public funds is around US\$ 1 per capita. This is supplemented by donor funds, but at least 40 percent of spending on health comes out of family budgets. Poor families in Senegal spend more on health than on anything else except for food.

Reproductive health and child health are well established priorities, and are reflected in health indicators. Infant mortality and under-5 mortality rates both dropped

dramatically between 1970 and 1996. In that time, infant deaths fell from 135 to 60 per 1000 births, and the fall in under-5 mortality was greater still. Family planning services are expanding: modern contraceptive use doubled in the five years to 1997. The country's STD control programme will soon enter its fourth decade. Safe motherhood is actively promoted, with most pregnant women now going to clinics for care before child-bearing. This provides an important opportunity for sexual health education. With the advent of AIDS, it also provides a solid infrastructure for monitoring the spread of infection.

NGOs are especially active in the field of health—at least a quarter of all NGOs nationwide invest in this field. This proved particularly important in the 1980s and early 1990s, when an economic downturn and a devaluation of the currency led to a collapse of much of the government-run infrastructure in health. The number of medical consultations fell by eight percent between 1978 and 1986, even though the population grew by 28 percent over the same period. NGOs were obliged to step in to take up much of the slack, and became very active in rallying public support for health campaigns.

It was against this background of economic distress—a background shared with many other countries on the continent—that the fight against AIDS was launched in Senegal.

Marriage patterns

As in many West African countries, polygamy is common in Senegal. Over all, nearly half of all married women share their husband with other wives. In polygynous societies it is a general rule that men marry much later than women (since a small number of older, wealthier men are able to partner a much larger number of younger women). This is certainly the case in Senegal, where half of all women are married by 20 but where half of men remain unmarried by age 31. In the 1997 behavioural survey in Dakar, half of all the female respondents were married, compared with less than one third of the male respondents.

Senegalese women tend to be relatively old at first marriage compared to women in other countries in Africa. And the age of marriage has been rising in recent years. Twenty years ago, of girls aged 15 to 19, just over four in 10 were still single. By 1997, over seven out of 10 were unmarried in their late teens. The age at marriage is rising because more girls are spending longer at school than they used to. In fact, those with no schooling are still getting married young: half of unschooled girls are married by 18. For women with secondary education or above, the median age at marriage is a full 10 years more than that.

For men, education makes a difference to marriage patterns, too. The more educated a man, the less likely he is to have several wives. However there seems to be a sort of social compensation for formal monogamy: more educated men are also likely to have more sexual partners overall in their lives than less educated men.

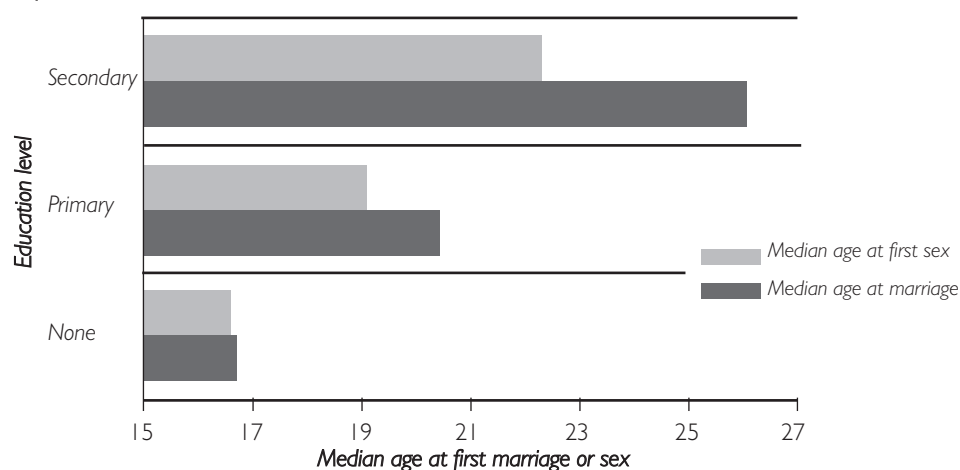
Married women in Senegal rarely have partners beside their husband. In the 1997 Dakar study, 99 percent of married women said they had not had sex with anyone except their husband in the preceding 12 months. Among men, the proportion is much higher: some 12 percent of married men said they had sexual partners other than their wives in the preceding year. Unfortunately, these data do not exist for the pre-AIDS era. However as discussed below, these rates of extramarital activity are low compared to those found in other countries.

Premarital sex

*F*or women, sex before marriage was traditionally uncommon. However it is not unheard of in Senegal—women married some decades ago report younger average ages at first sex than at first marriage, suggesting that some at least must have been sexually active before their marriage. In recent years, the age at first sex and the age at first marriage have both been rising. But the age at marriage is rising faster than the age at first sex. This means that, while they remain virgins for longer, Senegalese women are more likely to have premarital sex now than in the past.

Again, education is a factor. For uneducated women, the gap between age at first sex and age at marriage remains small, as Figure 1 shows. More educated women wait longer to have sex, but then have more years of premarital sex than those with less schooling. Women with at least secondary education are virgins for six years longer, on average, than women with no education, but they get married nine years later than uneducated women.

Figure 1. Median age at first marriage and first sex for women currently aged 20–49, by educational level



Women are far less likely to have sex before marriage than men. In the Dakar behavioural study, 68 percent of women said they had not had sex before marriage. Among men, less than 10 percent were virgins at marriage. This is perhaps not surprising given the high average age at marriage for men.

Prostitution

*I*n many countries, prostitution was ignored until the advent of AIDS, when it became clear that sex workers were very vulnerable to HIV infection and could quickly pass the virus on to large numbers of other people.

In Senegal, however, services for prostitutes have existed since the profession was legalized in 1969. Registered sex workers have since then been required to have regular health checks, and are treated for curable STDs if necessary. This system of registration provided a framework within which to approach sex workers with educational and health campaigns.

Senegal's response to the advent of AIDS

*T*he first reports of AIDS in Senegal came in 1986, when six cases were identified. The response was immediate. A national AIDS programme was set up, and steps were quickly taken to protect the population from unnecessary exposure to the virus. By 1987, for example, a system had been established in all ten regions of the country so that every blood unit for transfusion could be screened for HIV antibodies.

Strong interest from a well established scientific community helped in solidifying the response. Senegalese researchers collaborated with partners from other countries in establishing research projects. These projects generated credible data early on, data that could be used to generate political support for a response in this difficult area.

Political leadership

*W*hile politicians in some other countries ignored the threat of AIDS for fear of alienating conservative supporters by initiating a discussion about safe sex, politicians in Senegal supported efforts to confront the epidemic. The government in Dakar was the driving force behind a declaration on AIDS made by the heads of state of members of the Organization of African Unity in June 1992. The declaration focused on the need for political, religious and community leadership in the fight against the epidemic.

The government has put money where its mouth is. In association with international donors, it invested close to US\$ 20 million in AIDS prevention programmes between 1992 and 1996. And it tackled obstacles to programme success. For example, an excise tax which quadrupled the price of condoms to Senegalese consumers was dropped to help condom promotion campaigns. Political support for the leadership of the national AIDS programme, leadership that has been remarkably consistent over time, has also contributed to a successful response.

Efforts have more recently been made to increase the scope of political support for AIDS prevention. Information campaigns to meet the needs of members of parliament were designed, and in July 1996 the first parliamentary meeting on AIDS was held—a two day information session involving NGOs, people living with HIV and many other actors in the national response. Other influential groups, such as media owners, editors and journalists, have also been targeted with information and provided with training on HIV-related issues.

Religious leadership

*P*erhaps the greatest obstacle to AIDS prevention activities in many countries has been opposition, or even just the fear of opposition, from religious authorities. The tendency for religious leaders to prescribe abstinence and mutual monogamy in the face of overwhelming evidence that these behaviours are not always the norm has been seen in almost every corner of the world. The fear of offending powerful religious constituencies has created gridlock in some national governments, and for good reason. Conservative lobbies have shown that they can obstruct everything from family life education to condom promotion if they choose.

Since almost all Senegalese are active practitioners of Islam or Christianity, religious leaders obviously have an enormously important role in national life. Their support for AIDS prevention activities was vital if the activities were to succeed. And it was clear that religious leaders wanted to be involved in this important area. As early as 1989, a conservative Islamic organization, Jamra, approached the national AIDS programme to discuss HIV prevention strategies. Although initially rather hostile to condom promotion and some other aspects of AIDS prevention, the group became an important partner in a dialogue between public health officials and religious leaders.

In order to better understand the needs of the religious constituency, the government supported a survey of Moslem and Christian leaders. The survey results showed that religious leaders felt they were poorly informed about HIV and AIDS, and wanted more information to enable them to give clear guidance to their followers. They also expressed reservations about what they were prepared to support. For example, they were reluctant to support condom use between unmarried youngsters, but were prepared to support it within marriages.

In response, educational materials were designed to meet the needs of religious leaders. They focused in part on testimonials from people living with AIDS—the human face of the epidemic, often hidden where prevalence remains low. Training sessions about HIV were organized for Imams and teachers of Arabic, and brochures were produced to help them disseminate information. AIDS became a regular topic in Friday sermons in mosques throughout Senegal, and senior religious figures addressed the issue on television and radio.

In March 1995, 260 senior Islamic leaders gathered for a conference on AIDS. The result of the conference was clear support for AIDS prevention efforts. The religious leaders declared that HIV was not a divine retribution for immoral behaviour. They supported the rights of people living with AIDS, including the use of condoms to protect from infection within marriage if one partner is infected. And they stated that everyone should have access to full and accurate information about HIV and AIDS.

Among Christians, and especially Catholics opposed to the use of any contraception, there was substantial resistance to AIDS prevention at first. And yet

Christian organizations are important providers of health services in Senegal, and AIDS clearly threatened to become a major health issue if it were not prevented. Led by a Catholic NGO, SIDA Service, the churches gradually developed a more supportive outlook towards prevention. They provided important counselling and psychosocial support, and frequently referred those in need to alternative providers where they could not meet needs, for example for condom provision.

In January 1996 Christian leaders gathered in another conference on AIDS. Every bishop in Senegal was in attendance. Again, the result was a consensus that AIDS prevention was an important national activity.

The moral support for AIDS prevention given by religious leaders allowed secular and health authorities to work productively in providing education and specific HIV prevention services.

Community leadership

As mentioned, Senegalese society has a tradition of active community involvement in health and development issues. When it became clear that AIDS was a potential threat to national well-being, religious, women's, youth and other community groups were well placed to respond. By 1995, 200 NGOs were active in the fight against AIDS. Over 400 women's groups, with a total of half a million members, also supported AIDS-related activities, which ranged from national AIDS walks to puppet shows.

Clearly, this was a new field for NGOs and community organizations, and many needed support in developing skills for AIDS prevention work. An umbrella NGO organization was formed, providing support for members and acting as a liaison with the national AIDS programme. Training was provided for more than 100 organizations that wanted to respond to the threat of HIV but felt they lacked the necessary skills.

Staying safe: Young people

Policy makers quickly realized that young people needed information about HIV and safe behaviour before they became sexually active. Although sexual activity starts relatively late in Senegal, an effort was made to introduce sex education early. By 1992, sex education was part of the curriculum in both primary and secondary schools. In addition, an effort was made to reach young people who were not in school, mostly through youth groups.

Young people get information from many sources, but parents can be especially influential. Through religious and community organizations, parents were actively encouraged to assume responsibility for protecting their children's sexual health by providing full information and support for safe behaviour.

Messages for young people have tended to focus on increasing knowledge about the risks of unprotected sex and encouraging abstinence. But there is some concern that actual provision of services for young people who do choose to be sexually active has been inadequate.

Staying safe: Sex workers and their partners

Registration of sex workers had been routine in Senegal for more than 15 years by the time AIDS arrived. Registered sex workers were required to have regular health checks, and STDs were treated if necessary. This meant that sex workers were in regular contact with the health services, and the spread of HIV infection could easily be monitored in this group.

It was immediately clear that sex workers were at extremely high risk both of contracting HIV and of passing it on to their clients. Preventive interventions centring on the promotion of condom use with clients were immediately put in place. Many sex workers began to join support groups to safeguard their health in the face of AIDS. Over 30 such groups have been established. Members attend talks, films and other information sessions about HIV and AIDS—usually around five times a year. They also act as outreach educators for women who work in the sex trade but who have not joined support groups. These include women who have not registered as sex workers. It is hard to know exactly how many unregistered sex workers there are—by some estimates there are as many again as there are registered sex workers. Little is known, too, about levels of infection or risk behaviour among these women. They will certainly become an increasing focus for future prevention efforts.

There are also renewed efforts to reach populations that may be regular suppliers or consumers of casual sex, whether or not in exchange for money. These include mobile populations such as migrant workers and transport workers. Locations where casual sex may take place, such as weekly markets, are also becoming targets for more active prevention efforts.

It has long been known that the presence of other STDs makes it easier to contract or pass on HIV infection. So regular and adequate treatment of STDs moved up the list of health priorities once the threat of an HIV epidemic became clear. The provision of STD services was strengthened both among sex workers and in the general population.

Senegal was one of the first countries in Africa to establish a national STD control programme, and one of the first to integrate STD care into its regular primary health services. In response to the threat of AIDS, the country undertook a massive training of health workers in the syndromic management of STDs. The quality of care improved greatly after the training compared with a baseline study before training. The provision of correct advice about future prevention as well as about partner notification rose even more dramatically.

Has the response made a difference?

What difference, if any, have all these prevention activities made? This is sometimes difficult to tell, because it is impossible to know what would have happened without the prevention activities, or because we don't know enough about the situation before the HIV epidemic. In some areas, though, the effect is obvious. Condom use, for example, rose from virtually nothing before the AIDS epidemic to 67 percent among men having casual sex in 1997. Is it conceivable that this rise would have taken place without the education and condom promotion campaigns to which the men were exposed? Not really.

This section will examine the current status of knowledge, sexual activity, condom use, STD prevalence and HIV prevalence in Senegal. Where possible, it will look at trends over time to try to determine what effect prevention activities may have had.

Knowledge about AIDS and how to prevent it

AIDS awareness campaigns have clearly been doing their job. In repeat cross-sectional surveys in 1997 and 1998, over 95 percent of secondary school pupils and 99 percent of sex workers knew about AIDS and could name at least two correct ways of preventing it.

High proportions also knew about more complex issues such as asymptomatic infection. Four out of five students and close to 70 percent of sex workers knew that HIV could be transmitted by someone who looks perfectly healthy.

In the general population across the country as a whole, more men than women know about sexual transmission of HIV (81 percent of men versus 76 percent of women). However in urban areas there is no difference in knowledge between men and women. Nor is there any difference between men and women who have more than primary education.

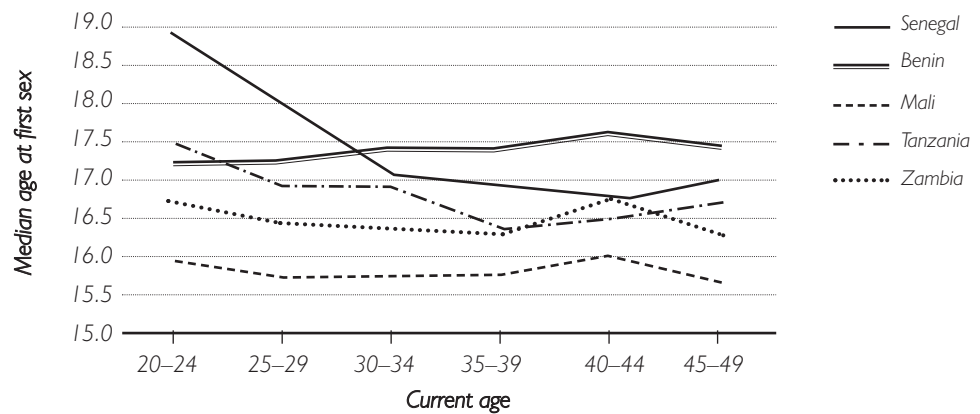
Such high levels of knowledge demonstrate the success of the relentless information campaigns that have reached the Senegalese people everywhere from the classroom to the mosque to the radio to the marketplace. These information campaigns have not, however, done such a good job of reducing misconceptions. Up to a third of the various population groups questioned about knowledge and behaviour in 1997 and 1998 thought they could get HIV/AIDS from a mosquito bite or from sharing a toilet with someone who had AIDS.

The campaigns have, on the other hand, apparently been successful in fostering supportive attitudes to people living with HIV and AIDS. Three quarters of female students questioned in 1998 said they believed that HIV-positive students should be allowed to attend school.

Sexual activity

There is only limited information about sexual activity before AIDS. What is clear is that women are choosing to remain virgins for longer than they did in earlier decades. Most women who were in their early 20s in 1997 did not have sex until they were almost 19 or older. For their mother's generation, the median age at first sex was closer to 16. Such a trend has not been seen in other African countries (see Figure 2). The more educated a girl is, the longer she is likely to wait before having sex. In a study of female students in 1998, 95 percent reported that they had never had sex.

Figure 2. Median age at first sex for women currently aged 20–49



Male students were far more sexually active than female students, but they still reported only sporadic sex, and a limited number of partners. While two thirds of male students questioned in 1998 said they were not virgins, only a quarter had had sex in the past year, and fewer than one in 10 had had more than one partner in the previous 12 months.

And yet in the population as a whole, premarital sex is not unknown. Some 14 percent of unmarried women in a population-based study in Dakar said they had had sex in the past 12 months, and 38 percent of men reported the same. This is due in part to the rapidly increasing age at first marriage, described in greater detail on page 8. It is worth repeating that, while premarital sex appears to be on the rise, it is happening at ever later ages. Since younger women are more susceptible to HIV infection than more mature women, it is likely that this increasing age at first sex provides added protection against HIV infection.

Young people do not seem to be engaging in one-night stands. In one study, the median time between first meeting and first sex was three months for men and five months for women, and casual relationships among people under 25 tended to last an average of 6 months for women and half that for men.

Among married people, casual sex is much rarer than among the unmarried. Some 99 percent of married women and 88 percent of married men in a study in Dakar in 1997 said they had not had sex with anyone other than their spouses in the previous 12 months. Of those who did have extramarital partners, the vast majority of both men and women had only one.

Unfortunately, it is not possible to know to what extent AIDS prevention campaigns have affected the relatively low levels of sexual activity outside marriage recently recorded in Senegal. It seems likely that extramarital sex was never common in this cohesive and religiously active society. It is possible, however, that AIDS prevention campaigns have reinforced these traditional patterns of behaviour, staving off an increase in extramarital sex at young ages which may otherwise result from increasing urbanization and social mobility, and perhaps also from economic changes which make access to cash increasingly important for young people.

Condom use

*T*he main channel for the spread of HIV in Senegal, as in most of sub-Saharan Africa and many other countries, is unprotected sex between men and women, at least one of whom has other, non-faithful partners. While most AIDS prevention campaigns aim to discourage sex with multiple partners, they also aim to increase condom use in partnerships that may be risky.

Before the HIV epidemic, condom use in Senegal was extremely low, less than one percent. And indeed, it remains low as a method of contraception or between spouses. However in casual sexual relationships—exactly those targeted by the AIDS prevention campaign—condom use has risen dramatically. In a 1997 population survey in Dakar, more than two thirds of men and close to half of women who had had casual sex in the past 12 months used a condom with their last casual partner. In studies of specific populations a year later the rates were even higher. Some 81 percent of workers and 67 percent of schoolboys said they had used a condom the last time they had casual sex (although the total number of sexually active schoolboys was small). And it seems that condom use is fairly consistent. Nearly two thirds of male students with non-regular partners said they had used a condom every time they had had sex with a non-regular partner over the last year. Just one in 10 said they never used condoms in casual encounters.

Information and condom promotion targeted at sex workers seems to have been even more effective. In a 1998 study of prostitutes, 99 percent reported that they had used a condom with their most recent new client, and 97 percent with their most recent regular client. It is common the world over for prostitutes to use condoms less frequently with non-paying partners than with their clients, and Senegal is no exception. However even with men who are not clients, condom use remained a relatively high 60 percent, according to the study.

One of the factors known to increase the risk for sex workers is, logically enough, the number of partners they have. In a clinical study of sex workers in Dakar, the average

number of partners reported by sex workers was rather low: 2.2 a week. Overall, 84 percent of sex workers in this group reported that they used a condom with every client. However, of a small group of women who had many more partners—seven a week or more—96 percent said they used a condom with every partner. This suggests that women increase their levels of protection in line with their exposure to risk. It would be plausible to assume that they made this decision in response to information about the risks of unprotected sex with multiple partners.

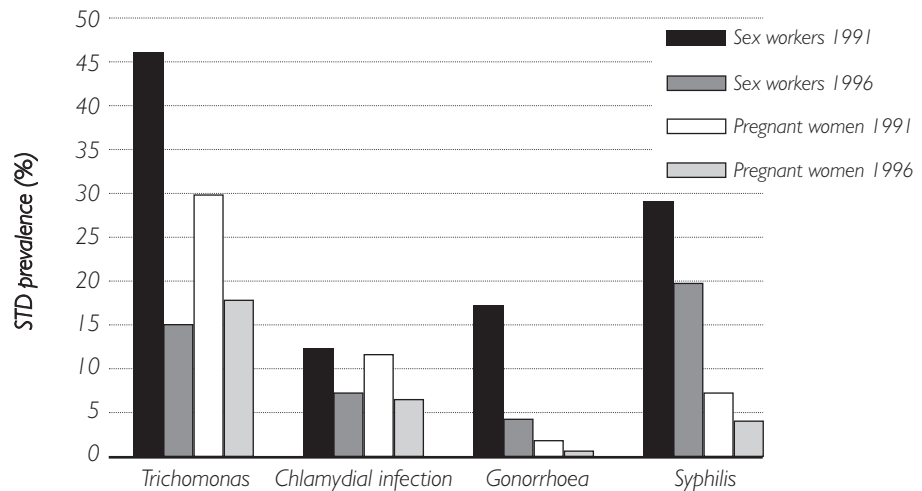
All the information on condom use relies on people reporting their behaviour accurately. Is it possible that people are simply reporting more condom use in response to prevention campaigns, rather than actually using more condoms? It would seem unlikely, given the dramatic rise in condom sales. Condom sales rose from just 800 000 in 1988 to seven million in 1997. Efforts to improve condom distribution also appear to have paid off. Virtually all sex workers questioned reported that they could easily get hold of a condom if they wanted to. Over 85 percent of secondary school girls said the same, even though this group was the least likely to report actual sexual activity.

Prevalence of sexually transmitted diseases

The behavioural data suggest, then, that sexual activity with multiple partners other than spouses is relatively low, and a high proportion of casual sex (including virtually all commercial sex) is protected by condoms. But again, most of this information relies on people reporting their behaviour accurately. Is there any other evidence to support these claims?

Yes. Since STDs are spread in the same way as HIV, they are a good marker of risk activity. And since they are curable, they usually reflect risk activity in the relatively recent past, whereas HIV infection may be caused by risk behaviour several years previously.

Figure 3. Sexually transmitted diseases among sex workers and pregnant women in Dakar, Senegal



A study of sexually transmitted diseases among sex workers and pregnant women in 1991 and 1996 showed dramatic falls in infection rates for all STDs measured, and for both groups of women, as Figure 3 shows.

These clinical findings confirm low reported prevalence of STDs. In a national DHS survey in 1997, just 0.7 percent of women and one percent of men reported having any STD symptoms in the past year. Since many sexually transmitted infections in women are asymptomatic, it is to be expected that women report lower levels of STDs than are found in systematic screening programmes. In a population-based study in the capital the same year, 2.3 percent of men reported any symptoms of STDs in the past year.

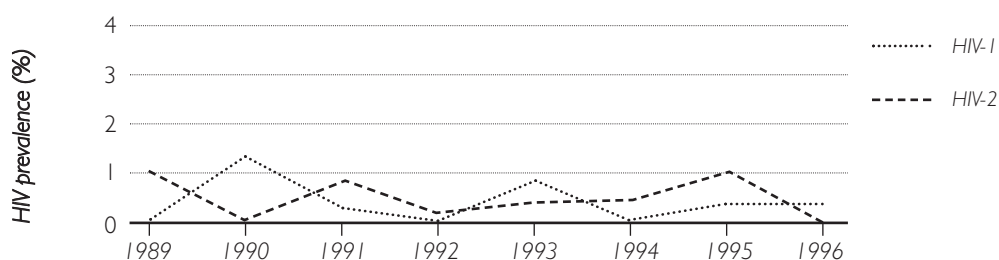
Fewer than half of all sex workers questioned in a 1998 study reported any STDs in the previous 12 months, and just eight percent reported more than one episode. However, it is worth noting that even these levels seem relatively high in the light of low levels of partner exchange and extremely high levels of condom use reported by sex workers in surveys.

Prevalence of HIV

With such low rates of casual sex, falling rates of STD infection and high levels of condom use, it might be expected that HIV infection in Senegal has remained low. A possible exception might be among sex workers, whose levels of STDs suggest a rather high cumulative risk of HIV infection, even when the majority of their sexual contacts are protected by condom use.

And indeed, the available HIV surveillance data bear out these expectations. National AIDS programme data show that HIV prevalence among pregnant women was 1.41 percent at the end of 1996. There has been no significant trend over time in this population. Figure 4 shows HIV-infection rates among pregnant women in the capital Dakar. There are also sentinel surveillance sites at antenatal clinics in three other major urban areas—Saint-Louis, Kaolack and Ziguinchor; they all show much the same rates, with HIV infection below two percent in pregnant women most years between 1989 and 1996, and no upward trend in HIV prevalence over time.

Figure 4. HIV prevalence among pregnant women, Dakar, Senegal



In male STD patients, generally thought to be a group representing high risk of infection, HIV infection rates have remained more or less consistently below 5 percent over time in all sites. It is only among female sex workers, probably the group at highest risk of infection, that HIV prevalence levels have risen significantly over time. They are highest in the south of the country—HIV infection among registered sex workers in the southern city of Ziguinchor reached close to 35 percent in 1996. In the capital, Dakar, HIV infection among sex workers appears to have remained stable at around 17 percent since 1993.

Stable HIV prevalence does not, of course, mean there are no new infections. For every person who drops out of the group tested for HIV—because they have died, are too sick to present at health facilities, are no longer fertile or for any other reason—there must be one new infection to keep prevalence stable. But in the case of Senegal, it does not appear that stable prevalence is masking rising incidence. An incidence study of sex workers in Dakar registered new HIV infections at around 1.1 per 100 person years of observation in the decade between 1985 and 1995, with no significant rise in infection levels over time.

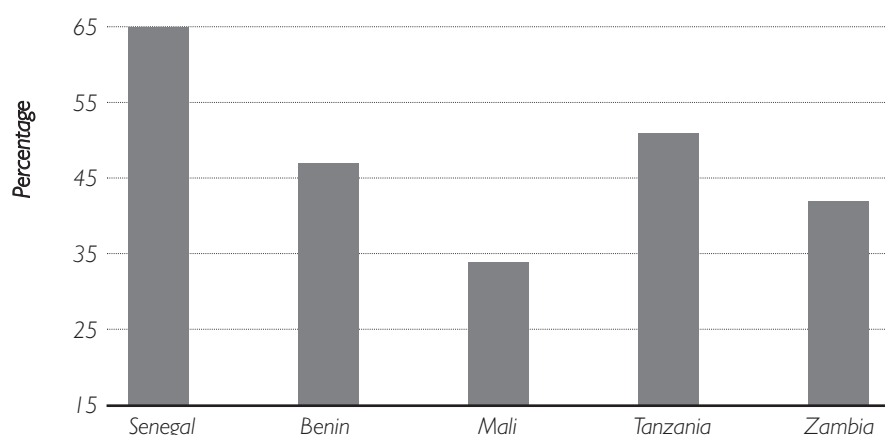
Among pregnant women, too, there seems to be no evidence of high infection rates in the youngest age group—the age group where prevalence levels are most likely to reflect incidence, or new infections. Between 1989 and 1996, only one out of more than 400 pregnant teenagers screened for HIV was found to be infected with the virus.

Was Senegal's response to HIV really necessary?

One of the great dilemmas for prevention programmes in public health is that it is never possible to be sure what would have happened if the prevention programme were not in place. This is especially true for national level programmes. If a prevention programme reaches the whole country, then there is no population within the country that can be used as a comparison group, to show what would have happened without the programme. In this situation, the best that can be done is to make comparisons with other countries with similar situations where no interventions took place. But even that is not as easy as it sounds. First, countries with no interventions rarely have monitoring and evaluation systems to collect data that would allow for the necessary comparisons to be made. Secondly, there may be other factors besides the intervention which differ from one country to the next. Having said that, much can still be learned from inter-country comparisons.

One of things that has changed over time in Senegal has been the age at first sex, which has risen steadily over the years. How does that compare with other countries? As Figure 2 (p. 16) shows, age at first sex has risen faster and to higher levels in Senegal than in any of the other African countries for which data are available. Practically, that means that fewer teenagers are sexually active and exposed to HIV infection in Senegal than elsewhere. This is confirmed by the data in Figure 5, which shows the proportion of 15–19 year-olds who are still virgins. Since the safest kind of sex is no sex, this confirms that young Senegalese women are less vulnerable to HIV infection or other STDs than young women elsewhere.

Figure 5. Percentage of 15–19 year old women who have never had sex



Premarital sexual activity is also far lower in Senegal than in other countries with similar data, at least for women. In Dakar in 1997, some 14 percent of women said they had had sex with at least one person in the previous year. In a DHS survey conducted in Zambia a

year earlier, that proportion was as high as 40 percent, while in Tanzania it was 35 percent. Among married women, too, there was a difference, although levels were low everywhere. Just one percent of married women in Dakar had sex with someone other than their husband in the preceding year, compared with twice that level in Zambia and five times that in Tanzania. In Côte d’Ivoire and Guinea Bissau, the proportion of men reporting two or more casual partners in the preceding 12 months was between three and four times as high as in Dakar.

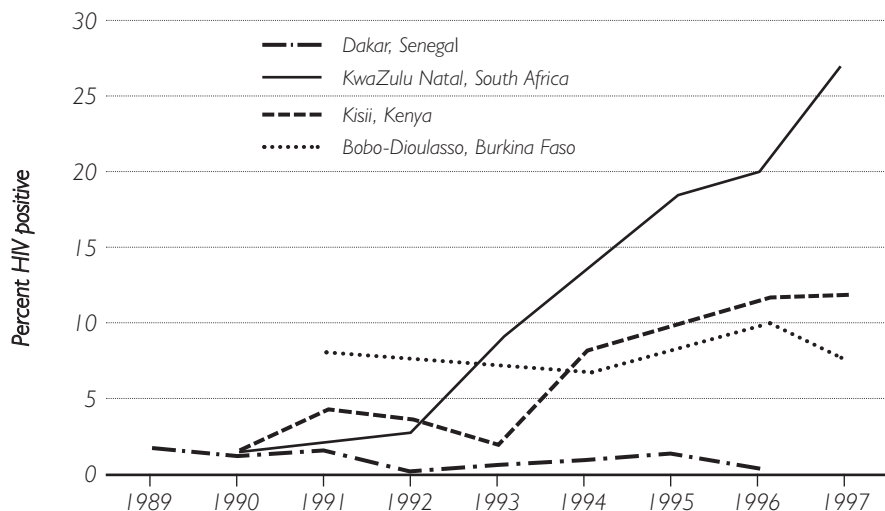
Although sexual activity outside marriage is far lower in Senegal than in other countries studied, condom use in extra-marital sex is far higher. Indeed, twice as many men and women used a condom at last non-regular sex in Dakar as in other African cities where similar studies have been conducted. Indeed the only country in Africa that reports similar levels of condom use in casual sex is Uganda, where an active prevention campaign was put in place only after hundreds of thousands of Ugandans had died of AIDS, and millions more had watched the ravages of the disease at close quarters.

High levels of condom use are supported by comparatively good availability of condoms. In 1997, around seven million condoms were made available in Senegal to meet the needs of the four million people in the most sexually active age bracket of 15–49. That compares with two million condoms for five million people in the same age bracket in Burkina Faso. In Tanzania in the same year, just over 19 million condoms were imported to serve a population of 15.5 million people between 15 and 49.

How do these differing levels of sexual activity and condom use translate into HIV infection? UNAIDS estimates for the end of 1997 put HIV prevalence among adults in Senegal at 1.8 percent, in Burkina Faso at 7.2 percent, in Tanzania at 9.4 percent and in Zambia at 19.1 percent.

In terms of HIV infection measured among pregnant women at individual sentinel sites in major cities, the gap is similarly large. Figure 6 gives trends of HIV prevalence over time in sentinel sites in a few African cities or regions.

Figure 6. HIV-1 infection among pregnant women in various African cities



Conclusion

*I*t seems that HIV infection has indeed remained low in Senegal since the start of the epidemic, and that it shows no signs of an upwards trend. But has this review of the evidence been able to suggest why?

It is possible to identify three major factors directly determining exposure to HIV infection and resulting in the low levels recorded in Senegal. First, sexual activity begins relatively late and extramarital sex is relatively limited. Secondly, condom use during extramarital sex, and especially during commercial sex, is high. Thirdly, STD control programmes are apparently quite effective.

The second and third of these factors are certainly linked to the country's AIDS prevention efforts. Late first sex and limited extramarital sex are probably determined more by social and religious values than by AIDS prevention messages. It is, however, plausible to imagine that these values are being reinforced and maintained by an AIDS prevention programme in which religious, community and political leaders are all actively engaged.

So it appears that Senegal's early and comprehensive prevention efforts have made a major contribution to keeping HIV infection rates low. But how was the country able to mount such a swift response, on such a massive scale, at a time when the country was struggling through particularly difficult economic times? The answer must lie in part in political leadership, and in part in the country's social organization. Political leadership laid the groundwork for a productive dialogue with religious and other community leaders. A long and active tradition of community participation in health and development was mobilized around AIDS prevention activities. Maximum use was made of existing structures to provide information and services to communities at high risk, especially sex workers. A pragmatic approach to public health—emphasizing prevention and the provision of essential services—provided the foundation for strengthened efforts at STD control and the widespread promotion of condoms.

So there was much in the social structure of Senegal as well as in the structure of its health services even before the advent of AIDS that favoured a response once the threat of an HIV epidemic became clear. But it was the determined use of those existing advantages to generate a national response early on that can be credited with the fact that, at the end of the 1990s, Senegal has one of the lowest rates of HIV infection in sub-Saharan Africa.

The Joint United Nations Programme on HIV/AIDS (UNAIDS) is the leading advocate for global action on HIV/AIDS. It brings together seven UN agencies in a common effort to fight the epidemic: the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the United Nations International Drug Control Programme (UNDCP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO) and the World Bank.

UNAIDS both mobilizes the responses to the epidemic of its seven cosponsoring organizations and supplements these efforts with special initiatives. Its purpose is to lead and assist an expansion of the international response to HIV on all fronts: medical, public health, social, economic, cultural, political and human rights. UNAIDS works with a broad range of partners – governmental and NGO, business, scientific and lay – to share knowledge, skills and best practice across boundaries.



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