

WHO/ADH/93.1  
Original: English  
Distr.: Limited

**SEXUALLY TRANSMITTED DISEASES**

**AMONGST ADOLESCENTS**

**IN THE DEVELOPING WORLD**

**A REVIEW OF PUBLISHED DATA**



Adolescent Health Programme  
Division of Family Health  
World Health Organization

Geneva, August 1993

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## ACKNOWLEDGEMENTS

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The Adolescent Health Programme would like to acknowledge the United Nations Population Fund (UNFPA) for its financial support of this work, and the technical contribution of Dr Michael Catchpole of the Communicable Disease Surveillance Centre of London, England, for the data analysis, and of Dr Michel Thieren, c/o WHO Costa Rica, in the data collection.

## INTRODUCTION

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The importance of sexually transmitted diseases (STD) as a major threat to public health at a global level has increased dramatically since the early 1980's. The new position of prominence of STD within the public health arena has been the consequence of a number of factors, including changes in the epidemiology of this group of diseases, increasing awareness of the serious medical sequelae and wideranging socio-economic consequences of STD, and, most significantly, the advent of the AIDS/HIV pandemic.

STD are found predominantly among the young sexually active members of a population, with the highest rates amongst those aged 15 - 29 years. Susceptibility to infection by certain STD organisms and also susceptibility to the more severe sequelae of some infections is greatest amongst adolescents.

With the advent of the AIDS/HIV pandemic and the extensive epidemic of other STD, including "incurable" viral STD, there is a new urgency in the need for reliable data on these diseases, both as causes of morbidity in their own right and as important cofactors for the transmission of HIV.

Despite the fact that STD have been a significant cause of morbidity throughout both the developed and developing world for much of this century, they have been 'the poor relation' of other communicable diseases in many countries with respect to the resources committed to their surveillance and control. Surveillance programmes for AIDS and HIV infection have been established throughout the world but unfortunately, in many countries, these have not been coordinated with existing STD surveillance.

There is growing evidence of the need to gather STD surveillance data on adolescents and youth (10-24 years old) for the planning of STD prevention and control programmes. The need to place emphasis on adolescents within such programmes is the consequence of a number of factors, including educational and behavioural factors that may lead to high risk behaviour, increased biological susceptibility of adolescents to certain STD and their sequelae, restricted accessibility, acceptability, and availability of existing STD treatment facilities for adolescents in many countries, the fact that primary prevention is the only effective form of control for HIV and other STD, and the lowering of the age of sexual maturation and sexual debut that has been seen on a global scale.

This literature search and data analysis was undertaken to review available data from developing countries on STD and adolescents, to examine the strengths and weaknesses of the kinds of data available and modes of collection in order to indicate ways in which data collection, analysis and dissemination of information of STD in adolescence can be used for the promotion of adolescent health.

## BACKGROUND

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Sexually transmitted diseases have been defined as a group of communicable diseases that are transferred predominantly by sexual contact. Many of these diseases are also transferred via other routes, in particular through blood transfusion and from mother to neonate during the perinatal period.

Sexually transmitted diseases may be classified from a historical perspective into three categories:

- the traditional venereal diseases of syphilis, gonorrhoea, and chancroid, which now make up a minority of all STD in many industrialised countries but remain a more significant proportion of STD in developing nations;
- the second generation of STD, including chlamydial infections, hepatitis B, genital herpes and genital warts, which have been recognised as an increasingly important cause of STD morbidity since the 1970's;
- and HIV, the most recent addition to the list of STD.

### *Types of reporting*

The diagnosis and reporting of sexually transmitted diseases may be aetiological, which means that it is based on the pathogens causing the clinical symptoms and signs exhibited by the patient, or it may be syndromic, that is, based on the clinical symptoms and signs that are presumed to have been caused by a sexually transmitted pathogen.

The principle advantage of syndromic reporting is that the diagnosis of cases can in most instances be made on clinical grounds alone, such as genital ulcer disease, or on the basis of relatively simple investigations, such as urine microscopy for the diagnosis of urethritis. Syndromic reporting is therefore particularly well suited to surveys carried out in areas that are distant from sophisticated laboratory diagnostic facilities. Moreover, it is in practice the only possibility for reporting by health services seeing patients in developing countries and in many settings in industrialized countries (eg. other than specific STD clinics). Syndromic reporting is also frequently cheaper than aetiological reporting, because of the low level of technology required, and therefore larger populations can be surveyed for a given cost.

However, syndromic reporting lacks specificity and sensitivity and is therefore less satisfactory than aetiological reporting as an instrument for measuring the frequency and distribution of STD and hence for assessing the service planning needs and the costs associated with STD. In addition, as many STD are asymptomatic, especially among women, syndromic reporting will underestimate disease frequency (as will aetiological reporting), hence requiring regular surveys with "testing" of individuals (active case-finding).

### *The costs of sexually transmitted diseases*

Although HIV infection is now the most significant of all the STD in terms of projected morbidity and mortality, health care costs, and potential social consequences, the costs associated with other STD also represent a major, and increasing, burden to the economies of many

countries. Both HIV and other STD as a whole occur with much greater frequency in developing countries than in developed countries and in many developing countries, STD are hyperendemic.

There is growing evidence that certain STD, in particular genital ulcers, have been responsible for enhanced HIV transmission within these groups. The social and economic impact of STD is increased further by the high rate of complications and long term sequelae of these diseases seen in developing countries. The relative paucity of diagnostic and treatment facilities is a major contributing factor to the higher rates of complications such as infertility, ectopic pregnancy, adverse pregnancy outcomes for both mother and newborn, neonatal and infant infections, and longer term sequelae such as urethral stricture in males and cancer of the cervix and penis. The cost of treating some STD has risen alarmingly because of widespread and increasing resistance to cheap, first line antibiotics.

### *The extent of the problem*

There are no globally recognised common definitions for the reporting of STD, with the exception of AIDS, and there is enormous variation in the availability of diagnostic facilities and reporting systems for this group of diseases. These factors make it virtually impossible to produce reliable global estimates of the frequency of STD, other than AIDS and HIV infection. However, an estimated 250 million new infections - including syphilis, genital herpes, trichomoniasis, chlamydia, HIV and others - occur annually around the world according to a recent analysis by WHO. (WHO Features, December 1990, no 152)

### *Surveillance of sexually transmitted disease*

The objectives of STD surveillance are the documentation of the frequency and distribution of STD, the identification of priority areas for health promotion and disease prevention and control programmes, the evaluation of the effectiveness of STD control and prevention programmes, and the provision of management information to facilitate rational service planning and resource allocation.

For many countries STD surveillance, apart from AIDS and HIV surveillance, is confined to the traditional venereal diseases of syphilis, gonorrhoea and chancroid, while for others there is a much more comprehensive list of diseases included within STD surveillance programmes.

Significant levels of underreporting occur both for compulsorily notifiable STD and for voluntarily notifiable STD in many countries with STD surveillance systems. Underreporting due to the treatment of STD by non-health service agencies, such as traditional healers and pharmacies, is a particular feature of developing countries. Underreporting among adolescents is likely to be greater than among other groups. Adolescents tend to underutilize health services because they do not cater for their particular needs. They are even less likely than older individuals to consult for STD because they anticipate an unsympathetic reception and judgmental attitudes on the part of health workers.

The other major problems that frequently undermine routine STD surveillance systems are underdetection and misclassification of disease. Underdetection and misclassification both occur most commonly where there is a lack of diagnostic resources or a lack of suitable training of diagnosticians. These variations in the organization and efficiency of national surveillance systems often make international comparisons meaningless.

### *Epidemiology of sexually transmitted diseases*

The major demographic variables relating to STD are age, gender, sexual preference, marital status, socioeconomic status, and place of residence.

The incidence of STD is highest among the most sexually active age groups in the population. Age-specific data from many countries indicates that the peak incidence of STD is seen in the 15-29 year age group. Among sexually active adolescents, the incidence of infection is highest in those who are youngest.

For the majority of STD the incidence is greater for men than for women. This observed difference is undoubtedly in part the reflection of an ascertainment bias, in that the clinical manifestations of infection are frequently more obvious in men than in women, and hence males tend to present earlier and more frequently to diagnostic and treatment facilities. Although the incidence of disease is greater for men, the severity of the associated morbidity is generally greater for women, and homosexual men, than for heterosexual men.

Risk of infection and site and severity of infection of many STD are very much influenced by sexual preference and associated behaviour. Male homosexual behaviour has been identified as a particular risk for acquiring STD.

The frequency of sexually transmitted infection is higher among single, divorced, and separated persons than among married couples. Individuals from the lowest socioeconomic groups have the highest morbidity rates.

Prostitutes and migrant workers have been recognised as special risk groups with respect to STD. This is a particularly important issue in developing countries with rapidly expanding urban populations, where male workers, who have migrated from rural areas in search of work, live apart from their wives and families for considerable periods of time. Many of the women working as prostitutes in these countries are in the 15 to 24 year age range.

As mentioned above, the highest rates of STD are found amongst those aged 15 - 29 years. However, control and prevention programmes for what are frequently seen as "adult" diseases are frequently not accessible, acceptable, or appropriate to this section of the population.

A recent WHO review of adolescent reproductive behaviour has demonstrated that in many developing countries there are particularly high rates of sexual experience and child bearing among adolescents. These same behaviours are associated with the acquisition and transmission of STD, and therefore it is essential that adolescents are recognised as an important target group for STD prevention and control programmes.

## **THE WHO ADOLESCENT HEALTH PROGRAMME (ADH) DATABASE**

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The data reviewed in this paper were collated in 1988 and 1989 by the UNFPA supported Reproductive Health in Adolescence project\* in Maternal and Child Health Unit, WHO, Geneva, as part of a more general database, assembled as background material for World Health Assembly Technical Discussions in 1989, on the state of health of adolescents. The database represents a compilation of the information available within the WHO on the topic of STD among adolescents in developing countries (see Tables 1-9).

The documents for inclusion in the database were selected according to the diagnosis for which the frequency measures were provided or could be calculated. Three broad categories of diagnosis were included: aetiological diagnoses, such as syphilis or gonorrhoea; syndromic diagnoses, such as urethritis or genital ulcer; and complications or sequelae of STD, such as pelvic inflammatory disease or ectopic pregnancy.

The majority of data was obtained as the result of the search of medical journals published between 1971 and 1989, and much of the remainder from published and unpublished WHO documents dating from the same period. The data itself derives from surveillance programmes and studies conducted between the years of 1955 and 1987, although just over 50% of the data relates to observations made since 1979, and 25% to the period of 1983 to 1987.

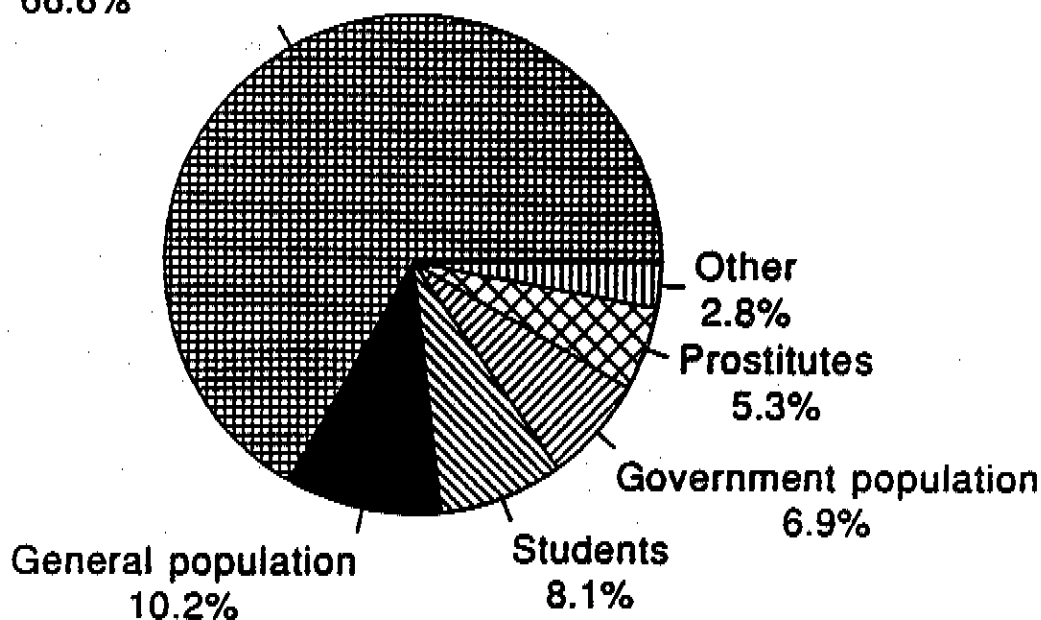
Analysis of data was undertaken by review of the source documents for details of case definitions, diagnostic tests and epidemiological methods. One hundred and ninety-three source documents were identified as a result of the literature review. Data on the absolute or relative frequency of STD among population groups aged 10 - 24 years in 61 countries from five WHO regions make up the database.

A total of 244 independent study populations are represented within the database. The most frequently identified sources of data on STD among adolescents are surveys of attenders at health services (66%) the most frequently studied group being STD clinic attenders (30%). The other major sources of data are official government statistics and vital registration data (11%), population based surveys of whole communities (10%), surveys of school and college attenders (8%), and surveys of prostitutes (5%). There are however, marked variations between regions in the mix of study populations used for estimating the frequency of STD among adolescents.

## Study Population (All regions)

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Health service attenders  
66.6%

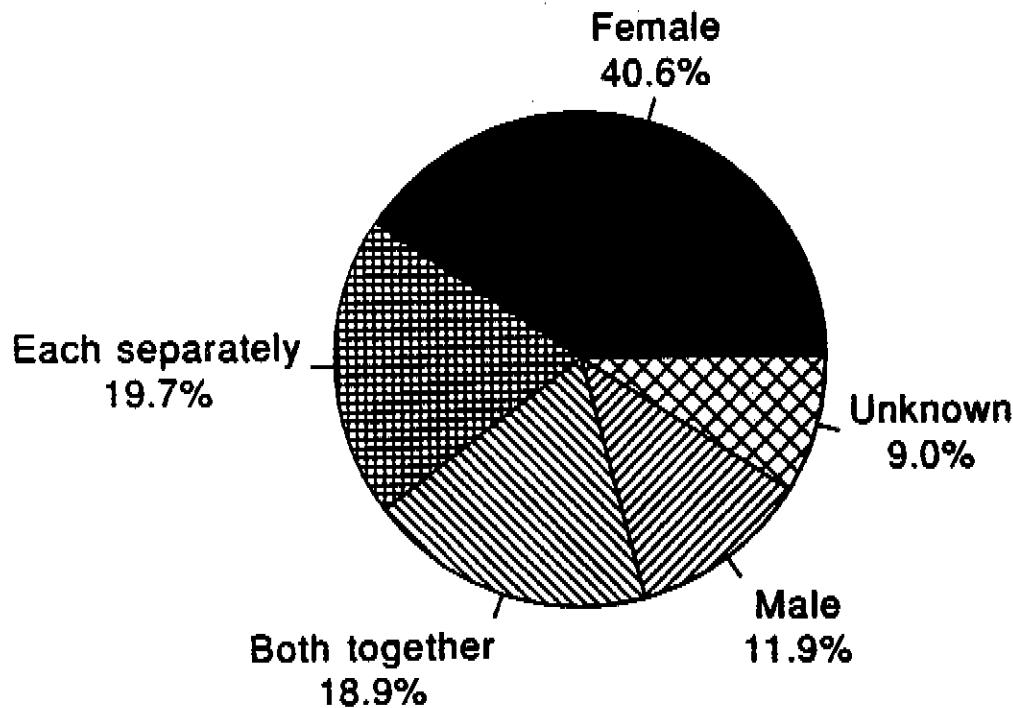


The majority of surveys were conducted among urban populations only (67%), with only 9% of surveys conducted exclusively among rural populations, and 4% among both urban and rural populations.

Study populations consist of both males and females in 39% of the surveys, although for only half of these surveys are separate disease frequency estimates provided for each sex. Study populations comprised of females only account for another 41% of the surveys, and surveys restricted to male study populations for 12%. The higher proportion of surveys of female population groups is mainly the result of the relatively large proportion (36%) of surveys of attenders at gynaecology and maternity services (18%).

## Sex of study population (All regions)

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The surveys represented in the database vary widely in the range and grouping of ages for which disease frequency estimates are expressed. This handicaps considerably the comparison of data from different surveys. The majority of surveys in the database take all attenders at specific health services as their study populations, among which adolescents often represent only a small minority.

The method of data collection has been categorised under four broad headings: community surveys, review of health service records, vital registration, and review of government statistics.

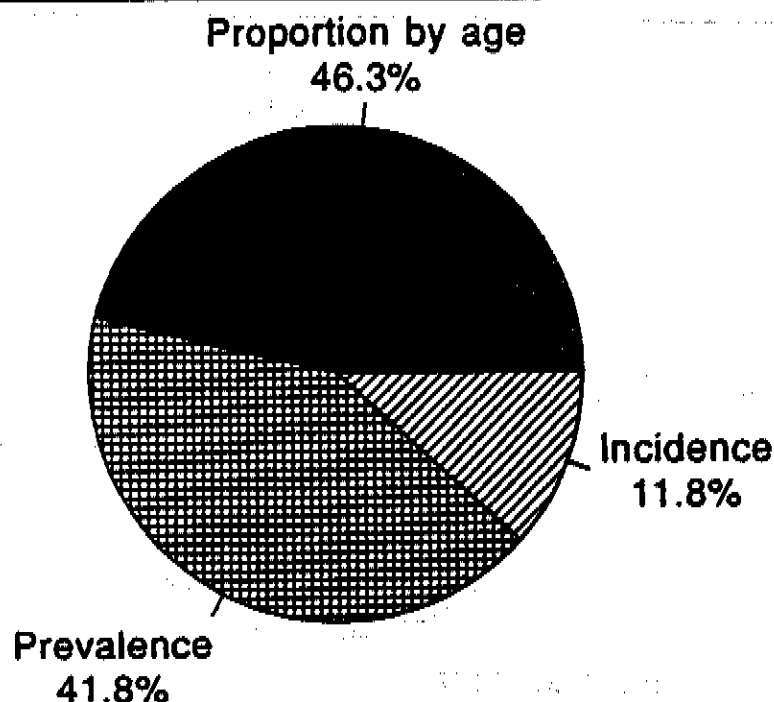
The most frequently represented category of survey in the database is review of health service records, accounting for 66% of surveys, of which the majority were undertaken in hospitals based in urban centres.

The measures of disease frequency used in the database are incidence per 100,000 population, prevalence percent, and proportion of cases by age. The data is most frequently expressed as proportion of cases by age (50%), followed by prevalence percent (40%), and incidence per 100,000 population (10%).

# Measures of disease frequency

(All regions)

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Ninety three percent of the surveys for which the data were presented in the format of proportion of cases by age were conducted among health service attenders. Incidence data were mainly derived from government statistics and vital registration data, while prevalence data were derived mainly from community surveys and health service attender surveys.

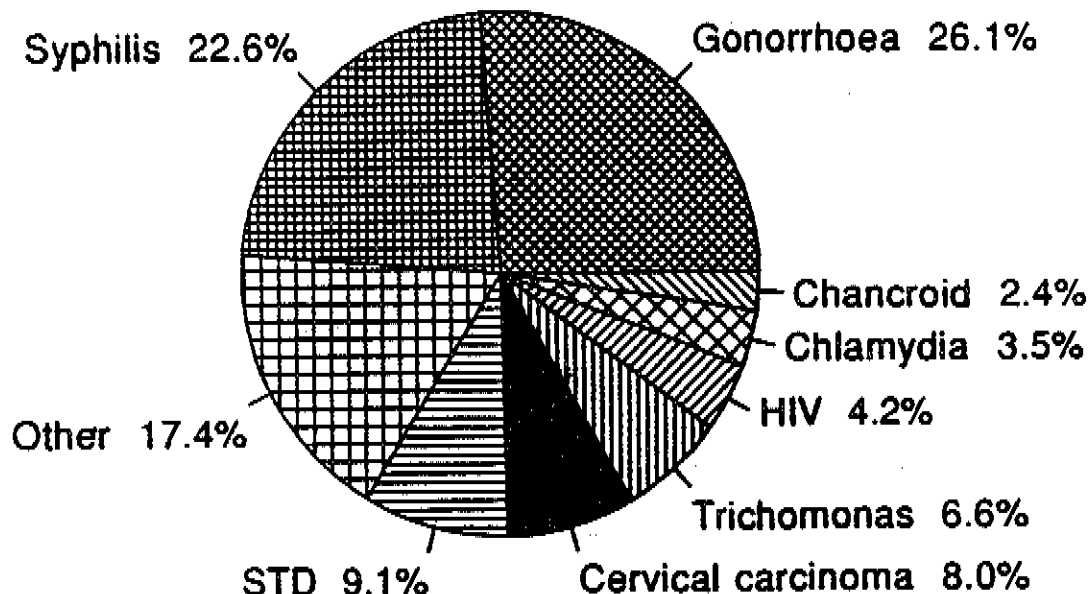
Approximately 75% of the surveys represented in the database provide data for study populations larger than 100 persons, and approximately 50% for study populations larger than 300 persons.

## *Review of the epidemiology of sexually transmitted disease amongst adolescents in developing countries*

Lack of standard definitions, variation in survey design and study population and use of different diseases and measures of disease frequency pose major obstacles to both the interpretation and, more particularly, the comparison of data from different surveys. Nonetheless, a broad brush picture of the epidemiology of STD among adolescents by geographical region can be drawn from an overview of the results of studies of similar design and study population, and a more precise image of the problem constructed from the surveys of sound design and execution.

## Surveys by disease investigated (All regions)

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Total exceeds 100% because more than one disease studied in some study populations

The most reliable data on the distribution of disease by age and sex within populations are those derived from population-based surveys. Population-based surveys among open communities and among student populations in Africa and the Middle East provide evidence that the prevalence of gonorrhoea is higher among persons aged 15 to 29 years than among other age groups, and that within the 15-29 year age-band the prevalence tends to be highest among those aged 15-19 years. Surveys among health service attenders do not demonstrate a consistent age gradient in the prevalence of gonorrhoea, which probably reflects the paucity and non-representativeness of adolescents included within these surveys.

Community surveys of the prevalence of syphilis in Central and North Africa, South America, and South-East Asia provide evidence that the prevalence is higher among persons aged 25 years and over than among adolescents. The prevalence of syphilis among adolescents appears to increase with age, not only in community surveys but also in surveys of health service attenders. The data from population-based surveys of the prevalence of HIV infection in Rwanda (ADO 1018), Congo (ADO 0625), and Trinidad and Tobago (ADO 1046) demonstrate an increasing prevalence with age, with higher rates among those aged 25 years and over than among those aged under 25 years.

The prevalence of HIV infection among female prostitutes and males in the Ivory Coast (ADO 0983), on the other hand, was highest among those aged under 25 years. The results of community surveys of the prevalence of genital chlamydial infection and trichomoniasis do not demonstrate a consistent trend with age.

The prevalence data presented in the literature reviewed for this report indicate that there is a significant level of transmission of STD among persons aged 15-24 years, and to a lesser extent among persons aged 10-14 years, in developing countries in all regions represented in the database. The data appear to provide conflicting evidence as to the frequency of STD among adolescents relative to older age groups, with the prevalence of gonorrhoea appearing to be higher among adolescents than among adults aged over 25 years but that of syphilis and HIV infection appearing to be lower among adolescents than among adults aged over 25 years. Surveys undertaken more recently than those in the ADH database suggest that this pattern may be changing, at least in East Africa.

Both HIV infection and syphilis are associated with chronic persistence of serological markers of infection following first exposure to the causal agent, and therefore surveys of these markers will tend to reflect the prevalence of lifetime exposure to HIV or *T.pallidum* rather than the incidence of infection. Furthermore, because adolescents often exhibit erratic patterns of sexual behaviour, with long periods of abstinence, the average frequency of sexual contact is probably lower for adolescents than for older age groups. The chronicity of serological markers for HIV and *T.pallidum* infection and the lower rates of sexual contact among adolescents, as compared with older age groups, found in the surveys of the prevalence of HIV infection and syphilis may, like the prevalence data for gonorrhoea, also be consistent with previous observations that the risk of transmission of STD is highest among sexually active adolescents.

Relatively few of the surveys identified during the literature search permit the direct comparison between the sexes in the same study population of the prevalence of specific infections. The data that do allow such comparisons suggest that the prevalence of syphilis, gonorrhoea, genital chlamydial infection, and trichomoniasis tends to be higher among females than males aged less than 20 years. This may be due to that fact that STD in females are of longer duration (because of few or non-specific symptoms) and therefore the prevalence is higher even at same or lower incidence in women than men. Above the age of 20 years the sex distribution is less consistent, with many surveys reporting higher prevalences among males than among females.

Within each age and sex stratum there are differences in the reported frequency of disease according to the characteristics of the study population. Because of the variations between surveys in the methods used, these differences between study populations are most reliably demonstrated by the results of surveys that specifically compare populations. Prostitutes represent the most frequently cited high risk group for STD. Survey results that allow the prevalence of STD (including gonorrhoea, syphilis, chlamydial infection, and HIV infection) among prostitutes to be compared with that among other study populations are reported from Cameroon (ADO 0414), the Ivory Coast (ADO 0483), Korea (ADO 1102), Nigeria (ADO 0645), Rwanda (ADO 1017), and Somalia (ADO 0407). In each of these surveys, a much higher prevalence of disease was found among prostitutes than among comparison groups representing the general population, students, soldiers, and health service attenders.

In those surveys that compare health service attenders with samples of the general population the prevalence of STD tends to be higher among health service attenders than among the general population. Similarly surveys that compare STD clinic attenders with other health service attenders demonstrate a higher prevalence of STD among the former.

Evidence of a gradient in disease frequency between urban and rural populations within the same country is to be found in the results of surveys of HIV in Rwanda (ADO 1018) and of syphilis in Brazil (ADO 1051). In both cases the prevalence of disease is higher in the urban population. The Brazilian survey includes two isolated rural villages, two urban settlements, and one rural village situated close enough to urban settlements for there to be regular contact between

the villagers and the urban populations. The prevalence of syphilis among the inhabitants of the latter village is intermediate between that in the remote villages and that in the urban settlements. These results are consistent with the observation that migrant workers, moving from rural homes to urban centres in search of work, are at particular risk of acquiring STD, which may then be transported back to the rural population at home.

Indirect evidence of this phenomenon is to be found in the results and discussion of Arya *et al*'s survey of the prevalence of gonorrhoea among a village population in Uganda (ADO 0398). The authors report a much higher prevalence of STD among young women than among young men, but also noted that young men were under-represented in their population sample as a result of migration of these men to find work in towns.

It is in making comparisons between countries and between regions that the variations in survey design and method present most problems. Furthermore, the differences in prevalence of the same disease between urban and rural populations in the same country, and between health service attenders and samples of the general population in the same country, are at least as great as differences observed between apparently similar study populations in different countries. Thus, although for a number of diseases the lowest prevalences of disease are more often reported from countries in South-East Asia and the Middle East than from those in Africa and South America, it is not possible to assess from the data available whether these observations reflect true differences between regions in the level of transmission of disease.

## QUALITY OF INFORMATION IN THE DATABASE

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It is extremely difficult to identify representative adolescent study populations for two main reasons. Adolescence is a time of transition in socioeconomic status within the community, from full time education to full time employment (or unemployment). Furthermore, the heterogenous nature of the adolescent section of the population with respect to physical, psychological, emotional, social and economic factors argues against the use of a single estimate of disease frequency for adolescents as a whole, particularly for diseases for which the epidemiology is so closely linked to behaviour.

### *Method of data collection and survey population*

As mentioned above, two thirds of the study populations represented in the database are comprised solely of health care attenders, and almost half of these were attenders at STD clinics. The advantages of health service derived data, and in particular hospital surveys, are that better diagnostic facilities are usually available to the diagnosticians in such settings than to field workers undertaking surveys among open communities. The availability of these diagnostic facilities offers the opportunity for better validated diagnoses and for aetiological reporting of disease.

These advantages are frequently outweighed, however, in epidemiological terms by the non-representativeness of the sampled population. Low levels of attendance of adolescents at health services, particularly for STD, as a result of inaccessibility and unacceptability of those services to adolescents can compound the problems of non-representativeness common to all health service attender study populations.

For the purposes of international comparison, a higher prevalence of STD among gynaecology clinic attenders in one country compared to another, may reflect real differences in disease frequency between the two countries but may equally well reflect differences in the use of traditional healers, in the availability or accessibility of STD clinics or in utilization of services offered by the private sector.

In the case of infections which are frequently asymptomatic and may only be detected through active case finding and screening, surveys of health care attenders may substantially underestimate rates of STD in the community.

Disease frequency estimates derived from population based surveys of general communities and community surveys of school and colleges are less prone to this selection bias. In addition, their study population is more likely to be representative of the total population. In order to cover young people both in and out of school, both kinds of survey should be undertaken.

These surveys therefore, which represent only 18 % of the surveys in the database, are in many ways the most important source of data on adolescent STD. They are more suitable both for between country comparisons and for assessing the true magnitude and distribution of a disease within the total adolescent population.

The disadvantage of community surveys is their cost and, in many developing countries, their lack of diagnostic facilities outside specialist centres. Reporting by syndrome rather than by aetiology is therefore more appropriate for these surveys, notwithstanding the loss in sensitivity and specificity.

The accuracy of government statistics which are often derived from surveys of health care attenders are difficult to assess. The problem of under-diagnosis referred to above is compounded by under-reporting of cases due to inadequacies in disease notification.

Populations comprised of prostitutes, while not representative, are an extremely important study group because not only are they behaviourally vulnerable to the acquisition of STD but because their practices expose other members of the population to STD, including HIV.

Urban/rural comparisons must take into account the bias which results from differences in study populations. Urban populations are often represented by STD clinic attenders (where disease frequency estimates are consistently higher than in other study populations) and rural populations by community samples.

Migration of young men from rural to urban communities may have significant effects on real and observed frequency of STD in both communities. If infected males seek attention at clinics in urban centres, partners they may have infected in the rural community are likely to be undetected by routine surveillance if this is based on health service records.

### *Sex distribution*

The over representation of females over males in study populations in the database is mainly the result of the large proportion of surveys of health service attenders at gynaecology and maternity services.

### *Age structure*

The lack of standard age groups within the sources reviewed and the need to impute age ranges for some studies, present considerable obstacles to comparison between studies. Furthermore, for many of the studies, adolescents represent a minority of the study population which is neither representative of the total adolescent population nor large enough to provide robust estimates of disease frequency.

### *Measures of disease frequency*

Sixty-nine percent of the surveys expressed their data in the format of proportion by age (various age ranges), which at best provides information about relative frequency of infection of adolescents compared to the rest of the population. However, it is more likely that this measure reflects patterns of service utilization rather than true distribution of disease.

Incidence and prevalence because they are measures of rate and are independent of the age structure of the population, provide a much more useful measure of disease frequency than proportion of cases by age. Interpretation of incidence and prevalence data must, however, take into account features of design and implementation such as case definitions and methods of ascertainment. Levels of under-detection, under-reporting, and misclassification of cases vary according to the method of ascertainment and for each method, vary according to the disease being studied.

### *Sample size*

Whilst large sample size does not of itself guarantee accuracy of estimates of disease frequency, for well designed and executed studies, the larger the sample size, the more reliable the estimate. Fifty percent of health service attender surveys, but only 25% of community

surveys, were based on samples of less than 200. Surveys from member states of the African region and the South East Asian region tended to be of larger sample size than those from other regions.

#### *Date of surveys*

Most of the information held in the database, dates from the period that preceded the major thrust of global AIDS programmes. They therefore, represent a potential baseline against which to assess the impact of AIDS prevention strategies.

#### *Diagnostic categories*

For many of the surveys in the database, neither the case definition nor the method of diagnosis is stated. For some conditions, this is not a significant obstacle to comparative analysis. However, for syphilis it is important for the staging of the disease and for HIV it is also important for assessing the specificity of the reported HIV serologic results. It is more of an obstacle to interpretation and comparison for statistics on syndromic diagnoses than for aetiological diagnoses.

#### *Surveys as indicators of professional and political commitment*

The number of surveys undertaken in different countries conveys information about the commitment of professionals and politicians to STD prevention. Despite the fact that this group of diseases represents one of the greatest public health problems currently faced by developing countries, official government statistics on the frequency of STD were identified for only 21% of the countries represented in the database.

There is an urgent need for information on STD at national level in many developing countries. The information that does exist tends to relate to health services attached to university and teaching hospitals and may be of limited use to programme managers responsible for the control and prevention of STD in the general population. A publication bias must be however noted, in so far as fewer publications are accessible from non-English speaking countries and centres with limited research capacity.

The review of the statistics in the database indicates that STD are to be found among adolescents in developing countries throughout the world. In most countries there is some awareness of this problem but this is based on scant evidence derived from a few surveys of health service attenders. In general, adolescents are not seen as a priority group for STD surveillance.

## **INFORMATION REQUIREMENTS FOR THE PREVENTION AND CONTROL OF SEXUALLY TRANSMITTED DISEASES**

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There is an urgent need for the development and improvement of surveillance of STD among adolescents in developing countries, with the objective of providing relevant, up to date, and valid information using methods that are uniform over time and by site, that are appropriate to the social and medical infrastructure of the country, and to the technology and resources available.

Although aetiological reporting is a more sensitive and specific measure of levels of STD in situations in which the necessary technical support is available, syndromic reporting is more appropriate where such resources are lacking and indeed, in many such situations, syndromic reporting will be the only valid measure of levels of STD.

Guidelines on the assessment of STD in a population, and on syndromic diagnosis of STD are being developed by the WHO Programme on Sexually Transmitted Diseases within the Global Programme on AIDS in Geneva.

A particular problem in the surveillance of STD among adolescents is that of the choice of representative study populations. The marked heterogeneity of physical, behavioural and socioeconomic characteristics of adolescents poses problems both in terms of the level of coverage of the 'adolescent population' represented by any one study population and in terms of the validity of looking for a single measure of the frequency of disease among adolescents.

Community surveys of school and college attenders might cover the younger age range and community surveys of general populations or employment recruits might cover the older age range but these surveys are expensive and difficult to undertake. The major source of routine surveillance data in most countries is health service attendance data which is unfortunately particularly unsuited for the surveillance of STD among adolescents, especially younger adolescents, since those services are often relatively inaccessible or unacceptable to teenagers.

Sentinel surveillance at specific health service, employment or educational facilities augmented by case finding programmes for specific diseases (eg. syphilis in pregnant women) or other special surveys may be the best solution. Suitable sites for sentinel surveillance of STD among adolescents include health services specifically for paediatric and adolescent patients, premarital and antenatal services, and school health services. Student health services for college attenders and employment health services also represent suitable sites for sentinel surveillance.

Younger adolescent populations are uniquely suited to serial seroprevalence surveys as a means of monitoring changes in the incidence of diseases with chronic serological markers. This is because a much greater proportion of the pool of prevalent cases will be represented by individuals with recently acquired infection than would be the case with older population groups.

Special surveys may need to be undertaken with core groups whose high level of sexual activity and disease transmission may be maintaining the endemicity of STD in many populations.

For HIV and the other viral STD, the only effective method of prevention is primary prevention of disease through the promotion of healthy behaviours. Special surveys of the knowledge and behavioural patterns of adolescents should therefore be seen as an integral part of surveillance for STD control and prevention programmes.

## RECOMMENDATIONS

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- \* Sentinel surveillance of STD among adolescents, complemented with special surveys, is a priority for providing information that will facilitate the prevention and control of those diseases, and should be advocated as a public health priority in developing countries. Information about STD should be collected by age and by sex, and in the 15 to 19 year age range, by year.
- \* Standard case definitions and criteria for diagnosis should be developed for surveillance programmes and made explicit to those responsible for reporting cases and those responsible for interpretation of surveillance data.
- \* Surveillance systems for STD and for HIV infection should be closely linked as should the control and prevention of these diseases. They should also be linked with other reproductive health information systems and, in order to identify 'clusters' of problems, with other relevant health data.
- \* There should be regular, timely, and widespread feedback of surveillance information to the providers of data, other health care workers, policy makers, and the community at large, in a format that will facilitate the prevention and control of STD.
- \* Young people should be educated about STD; how they are contracted, how they can be recognized and treated, how they can be avoided and the consequences of non-treatment.
- \* Information about health service utilization patterns for STD and how young people perceive these services should be made a research priority.
- \* Services for the prevention, detection, control and treatment of STD should be made more accessible to adolescents through the training of staff and the provision of information to adolescents about the existence of these services and how to use them. Evaluation of the acceptability and appropriateness of these services should be undertaken with the participation of young people.

TABLE 1 :

## GONORRHOEA

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
UGANDA	CS	GEN POP (R)	1973	500	M	15-19	0.0	398
					M	20-29	6.1	
					F	15-19	28.1	
					F	20-29	21.3	
IRAN	CS	GEN POP (U)	1972	900	F	15-24	15.4	1180
CAMEROON	CS	PROS	1982	UNK	F	14-30	50	414
NIGERIA	CS	PROS	1980	57	F	15-19	9.5	645
					F	20-24	19.0	
INDIA	CS	PROS	1978	50	F	20-25	55.0	1153
INDIA	CS	PROS	1986	40	F	10-25	2.5	UNKNOWN
MALAYSIA	CS	PROS	1980	30	F	<21	10.0	1074
CAMEROON	CS	SCHOOL (R)	1979	140	M	16	7	630
					M	17	6	
					M	18	10	
					M	19	15	
UGANDA	CS	SCHOOL (R)	1973	2296	B	10-20	0.7	1024
CAMEROON	CS	STUDENTS (N)	1982	UNK	F	14-23	20	414
NIGERIA	CS	STUDENTS (U)	1981	569	M	10-14	1.5	708
					M	15-19	2.6	
					M	20-24	1.0	
					F	10-14	0.0	
					F	15-19	8.3	
					F	20-24	9.1	
NIGERIA	CS	STUDENTS (U)	1980	300	M	15-19	2.7	645
					M	20-24	1.7	
					F	15-19	32.2	
					F	20-24	13.3	
SUDAN	CS	STUDENTS (U)	1986	225	M	20-25	0	676
					F	20-25	0	
NIGERIA	CS	SOLDIERS	1980	580	M	15-19	6.7	645
					M	20-24	2.9	

## KEY TO PREVALENCE TABLES (1 - 9)

Survey Type: CS = Community Survey, HR = Survey of Health Service Attenders

Sex : F = female, M = male, B = Male &amp; Female

Study Population: FPC = Family Planning Clinic attenders  
 Gynae = Gynaecology hospital/clinic attenders  
 Obstet = Obstetric hospital/clinic attenders  
 STD = Sexually transmitted disease clinic attenders  
 Hosp = Attenders at hospital or clinics other than otherwise mentioned  
 Gen Pop = General population  
 Pros = Prostitutes  
 (U) = Urban  
 (R) = Rural  
 (N) = Not known/mixed population

TABLE 1 (contd):

## GONORRHOEA

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
NIGERIA	HR	FPC	1983	500	F	15-25	7.4	403
TANZANIA	HR	FPC	1981	200	F	15-19	30.0	648
					F	20-24	6.0	
CONGO	HR	GYNAB	1985	600	F	<20	2.7	626
					F	20-25	2.8	
NIGERIA	HR	GYNAB	1974	70	F	<17	2.9	646
KENYA	HR	OBSTET	1984	UNK	F	15-19	11.5	649
					F	20+	4.0	
INDIA	HR	OBSTET	1982	200	F	15-19	15.6	1152
					F	20-24	8.9	
NIGERIA	HR	HOSP	1980	125	M	10-14	0.0	645
					M	15-19	0.0	
					M	20-24	20.0	
					F	10-14	18.2	
					F	15-19	2.5	
					F	20-24	3.7	
DEMOCRATIC REPUBLIC OF KOREA	HR	PROS	1981	116	F	17-19	12.9	1100
					F	20-24	14.1	
CAMEROON	HR	STD	1985	2500	M	15-19	11.0	399
					M	20-24	7.5	
					F	15-19	5.9	
					F	20-24	3.7	
CONGO	HR	STD	1985	400	M	<20	42.9	626
					M	20-25	27.7	
NIGERIA	HR	STD	1975	UNK	F	15-19	4	404
					F	20-24	5	
BANGLADESH	HR	STD	1978	286	M	10-19	0.5	1132
					M	20-29	15.4	
					F	10-19	1.3	
					F	20-29	9.7	

TABLE 2:

## SYPHILIS

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
RWANDA	CS	FPC (R)	1971	557	M	18-25	2.2	1017
					F	17-24	2.2	
GAMBIA	CS	GEN POP (R)	1984	150	B	06-11	2.0	410
					B	12-19	2.4	
					B	20-29	0.0	
TOGO	CS	GEN POP (U)	1983	600	M	14-17	0.0	631
					M	18+	5.4	
					F	14-17	0.0	
					F	18+	3.0	
BRAZIL	CS	GEN POP (U)	1982	340	B	10-19	23-26	1051
					B	20-29	31-36	
BRAZIL	CS	GEN POP (R)	1982	300	B	10-19	0-15	1051
					B	20-29	5-27	
TUNISIA	CS	GEN POP (U)	1960	4500	B	15-20	10.8	700
					B	20-30	14.7	
INDIA	CS	GEN POP (R)	1981	259	M	10-19	0.0	UNKNOWN
					M	20+	0.7	
					F	10-19	0.0	
					F	20+	2.1	
DEM REP OF KOREA	CS	GEN POP (N)	1982	2833	B	<20	0.7	1102
					B	20-29	1.8	
RWANDA	CS	PROS	1973	43	F	UNKNOWN	11.6	1017
INDIA	CS	PROS	1986	40	F	10-25	42.5	UNKNOWN
DEM REP OF KOREA	CS	PROS	1982	2500	F	<20	11.1	1102
					F	20-29	12.9	
DEM REP OF KOREA	CS	PROS	1982	3000	F	<20	8.6	1102
					F	20-29	7.0	
MALAYSIA	CS	PROS	1980	30	F	<21	16.7	1074
MAURITANIA	CS	SCHOOL (R)	1984	750	B	06-13	7.2-45.0	986
					B	14-18	12.3-58.8	
UGANDA	CS	SCHOOL (R)	1973	2296	B	10-20	0.2	1024
RWANDA	CS	STUDENTS (N)	1971	153	F	16-18	0.7	1017
RWANDA	CS	SOLDIERS	1972	493	M	UNKNOWN	4.4	1017
INDIA	CS	WORKERS (U)	1978	450	M	<25	10.6	1155

TABLE 2 (contd):

## SYPHILIS

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
INDIA	HR	HOSP	1982	300	M	16-25	1.7	UNKNOWN
					F	16-25	4.1	
NIGERIA	HR	OBSTET	1984	550	F	15-19	0.0	402
					F	20-24	1.3	
RWANDA	HR	OBSTET	1972	862	F	18-25	1.6	1017
INDIA	HR	HOSP	1982	290	M	15-19	0.0	UNKNOWN
					M	20+	1.4	
					F	15-19	5.0	
DEM REP OF KOREA	HR	HOSP	1982	3000	B	<20	1.4	1102
					B	20-29	3.8	
SAUDI ARABIA	HR	HOSP	1985	6684	M	15-19	0.05	1124
					M	20-24	0.65	
					F	15-19	0.08	
					F	20-24	0.27	
BRAZIL	HR	PROS	1977	103	F	15-19	38.9	1052
					F	20-29	32.6	
ETHIOPIA	HR	STD	1977	550	B	10-14	12.0	417
					B	15-19	35.4	
					B	20-24	47.4	
BRAZIL	HR	WORKERS (U)	1977	1300	M	15-19	1.0	1052
					M	20-24	2.2	
					F	15-19	0.0	
					F	20-24	2.7	

TABLE 3:

## CHLAMYDIA

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
KENYA	CS	GEN POP (U)	1984	UNK	F	15-19	11.5	649
SOMALIA	CS	PROS	1987	53	F	14-19	50.0	407
					F	20-25	32.0	
MALAYSIA	CS	PROS	1980	30	F	<21	3.3	1074
CAMEROON	HR	GYNAE	1985	87	F	<20	0.0	400
					F	20-29	10.2	
CAMEROON	HR	OBSTET	1985	58	F	<20	25.0	400
					F	20-29	10.0	
SOMALIA	HR	OBSTET	1987	96	F	14-19	21.0	407
					F	20-25	16.0	
SINGAPORE	HR	OBSTET	1983	50	F	15-28	14.0	1083
CONGO	HR	HOSP	1984	11	M	20-25	36.4	628
ETHIOPIA	HR	STD	1982	350	M	<15	0.0	1000
					M	15-29	30.2	
					F	<15	22.2	
					F	15-29	46.2	
MADAGASCAR	HR	STD	1986	36	B	18-20	25	612
					B	21-25	53	

TABLE 4:

## HIV

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
IVORY COAST	CS	GEN POP (N)	1985	600	M	10-14	3.0	983
					M	15-24	1.8	
RWANDA	CS	GEN POP (U)	1986	1770	B	05-13	5.9	1018
					B	14-20	12.6	
					B	21-30	25.7	
RWANDA	CS	GEN POP (R)	1986	695	B	05-13	0.8	1018
					B	14-20	1.8	
					B	21-30	2.9	
TRINIDAD & TOBAGO	CS	HOMOSEXUALS	1983	100	M	15-22	39.0	1046
					M	23-42	41.0	
IVORY COAST	CS	PROS	1985	93	F	15-24	43.8	983
TANZANIA	CS	PROS	1985	53	F	21-25	42.3	UNKNOWN
CONGO	HR	OBSTET	1987	140	F	15-20	4.0	625
					F	21-25	4.5	

TABLE 5:

## TRICONOMIASIS

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
MALAYSIA	CS	PROS	1980	30	F	<21	20.0	1074
SUDAN	CS	SCHOOL (U)	1984	208	M	16-19	0	655
					F	16-19	0	
SUDAN	CS	STUDENTS (U)	1986	225	M	20-25	0.9	676
					F	20-25	0.9	
TANZANIA	HR	FPC	1981	200	F	15-19	10.0	648
					F	20-24	21.7	
ZAMBIA	HR	GYNAE	1977	170	F	15-19	28.9	967
					F	20-24	5.3	
EGYPT	HR	GYNAE	1981	500	F	15-19	17.0	421
					F	20-24	16.0	
IRAN	HR	GYNAE	1977	769	F	15-24	22.8	1178
INDIA	HR	GYNAE	1982	380	F	10-19	6	1165
INDONESIA	HR	GYNAE	1976	235	F	<20	0.0	1069
					F	20-29	11.7	
ZAMBIA	HR	OBSTET	1977	130	F	15-19	14.6	967
					F	20-24	11.5	
ZIMBABWE	HR	OBSTET	1980	142	F	14-20	22.0	711
					F	21-25	37.0	
ZIMBABWE	HR	OBSTET	1983	199	F	16-19	24	713
NIGERIA	HR	HOSP	1978	400	F	10-14	0.0	411
					F	15-19	24.7	
					F	20-29	8.3	
DEM REP OF KOREA	HR	HOSP	1975	977	M	15-19	0.0	1106
					M	20-24	2.1	
ZAMBIA	HR	HOSP	1977	8000	M	10-15	2.1	967
					M	16-20	6.3	
					M	21-25	4.9	
					F	10-15	8.5	
					F	16-20	14.5	
					F	21-25	4.3	
ZIMBABWE	HR	STD	1983	156	F	16-19	48	713
SUDAN	HR	STD	1983	631	F	14-17	12.5	674
					F	20-30	11.4	

TABLE 6:

## CHANCROID

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
INDIA	CS	PROS	1986	40	F	10-25	5.0	UNKNOWN
UGANDA	CS	SCHOOL (R)	1973	2296	B	10-20	0.1	1024

TABLE 7:

## PELVIC INFLAMMATORY DISEASE

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
NIGERIA	HR	GYNAE	1974	70	F	<17	11.4	646
NIGERIA	HR	STD	1975	UNK	F	20-24	3	404

TABLE 8:

## INFERTILITY

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
<b>Primary Infertility</b>								
TANZANIA	CS	GEN POP (R)	1984	7500	F	18-19	5.3	650
					F	20-25	3.9	
THAILAND	CS	GEN POP (N)	1981	2087	F	<20	0.5	1093
					F	20-29	2.1	
<b>Secondary Infertility</b>								
TANZANIA	CS	GEN POP (R)	1984	7500	F	18-19	1.4	650
					F	20-25	6.7	
THAILAND	CS	GEN POP (N)	1981	2087	F	<20	0.0	1093
					F	20-29	2.7	

TABLE 9:

## CARCINOMA OF THE CERVIX

COUNTRY	SURVEY TYPE	STUDY POPULATION	YEAR	SAMPLE SIZE	SEX	AGE	PREVALENCE	REFERENCE
BARBADOS	HR	FPC	1964	6500	F	15-19	4.5	1038
					F	20-24	6.8	
MALAYSIA	HR	GYNAE	1968	10000+	F	<25	0.0	1077
MALAYSIA	HR	OBSTET	1968	5000	F	<25	0.0	1077
CHILE	HR	HOSP	1981	10000+	F	15-19	1.1	1064
					F	20-24	1.2	

ADOLESCENT HEALTH STATISTICS

Reproductive health

ACCESSION NUMBER :

- AD00398 Arya G.P., et al. Clinical, cultural, and demographic aspects of gonorrhoea in a rural community in Uganda. Bulletin of the World Health Organisation, 49: 587-595 (1973).
- AD00399 Garrigue G., et al. Sensibilite aux antibiotiques des souches de neisseria gonorrhoeae isolees a yaounde. Annales de l'Universite des Sciences de la Sante., 3(3): 173-180 (1986).
- AD00402 Fakeya R. & al. Anti-treponemal antibodies among antenatal patients at the university of Ilorin Teaching Hospital. African Journal of Sexual Transmitted Diseases, 2(1): 9-10 (1986).
- AD00403 Okpere E.E. & al. Type of intra-uterine contraceptive device (IUCD) used and the incidence of asymptomatic neisseria gonorrhoeae. African Journal of Sexually Transmitted Diseases, 3(1): 7-8 (1987).
- AD00404 Adelusì B. & al. Epidemiology of acute pelvic inflammatory disease in a female population attending an STD clinic in Ibadan. African Journal of Sexually Transmitted Diseases, 3(1): 9-11 (1987).
- AD00405 Afework G.B., Kidanemariam M. Penicillinase producing neisseria gonorrhoeae in Addis Ababa, Ethiopia (1983-84). African Journal of Sexually Transmitted Diseases, 3(1): 12-13 (1987).
- AD00407 Jama H. & al. Genital chlamydia trachomatis infection in pregnant women and female prostitutes in Mogadishu, Somalia. African Journal of Sexually Transmitted Diseases, 3(1): 17-20, 25 (1987).
- AD00408 Pallangyo, K.J. & al. Experiences of running a referral clinic for sexually transmitted diseases in Dar es Salaam. African Journal of Sexually Transmitted Diseases, 3(1): 21-22, 25 (1987).
- AD00410 Bello C.S.S. Treponemal antibodies in rural Gambian villagers: what significance?. African Journal of Sexually Transmitted Diseases, 1(1): 19-20 (1984).
- AD00411 Mosuzu A. Trichomoniasis in Iwo State, Nigeria. A first report. African Journal of Sexually Transmitted Diseases, 1(1): 27-28 (1984).
- AD00412 Rotowa, M.A. & al. Casual contacts of infective type - an infective pool of gonorrhoea in a developing country. African Journal of Sexually Transmitted Diseases, 2(1): 16-18 (1986).
- AD00414 Fomulu J.N., Masah B.T. Review of sexually transmitted diseases (STD) and infertility in Africa and the world. Annales de l'Universite des Sciences de la Sante, 3(3): 215-221 (1986).
- AD00416 Anonyme. Tableau recapitulatif des maladies transmissibles observees. Organisation de Coordination pour la Lutte contre les Endemies en Afrique Centrale Le Bulletin de Liaison et de Documentation, 80 (2): 8-16 (1987).
- AD00417 Friedman, P.S. & al. Observations on syphilis in Addis Ababa. 2. Prevalence and natural history. British Journal of Venereal Diseases, 53: 276-280 (1977).
- AD00420 Verhaegen, A. R. Social and epidemiological determinants of gonorrhoea in an East African country. British Journal of Venereal Diseases, 48: 277-286 (1972).
- AD00421 Ebtissam, O & al. A study on the prevalence of trichomonas vaginalis in gynaecological and early obstetric patients. High Institute of Public Health The Bulletin of the High Institute of Public Health, 10: 63-76 (1980).
- AD00422 Hanafy, M. M. & al. Isolation of chlamydia trachomatis from cases of cervicitis. The Journal of the Egyptian Public Health Association, 59(5,6): 454-464 (1984).
- AD00424 Bussman H. Patterns of teenage sexuality. Results of a survey done amongst primary and secondary school students in Mochdi, Botswana. Journal of the Medical and Dental Association of Botswana, 16(1): 2-16 (1986).
- AD00587 Yala F. and al. A propos de 756 cas de maladies sexuellement transmissibles observees a Brazzaville et a Pointe-Noire. Aspects biologiques, epidemiologiques et cliniques. Afrique Medicale, 24 (234): 481-486 (1985).
- AD00591 Hobonou A.K.S. and al. La sterilite conjugale en milieu africain au CIU de Lome. Ses facteurs etiologicals. A propos de 976 cas. Medecine d'Afrique Noire, 30(12): 534-543 (1983).
- AD00592 Toure P. and al. Le cancer du col uterin en milieu africain a Dakar (etude retrospective de 411 cas observees a l'institut du cancer). Dakar Medical, 26(1): 59-70 (1981).
- AD00594 Mafiamba P.C. Aspects etiologicals de la sterilite. Medecine d'Afrique Noire, 21(11): 769-771 (1974).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD00610 Mounanga M. et al. La grossesse extra-utérine : étude de 95 cas. *Medicine d'Afrique Noire*, 33(5): 172-179 (1986).
- AD00611 MULUMBA NKATA. Etiologie de la grossesse ectopique. Etude de 136 cas. *Medicine d'Afrique Noire*, 33(5): 224-229 (1986).
- AD00612 Ravaoarimoro M. et al. Etude sero-épidémiologique des infections à Chlamydia dans la région d'Antananarivo. *Medicine d'Afrique Noire*, 33(12): 887-890 (1986).
- AD00613 Tchangai-Walla K. et Agbeta A. Aspect épidémiologique du chancre mou au Togo. *Medicine d'Afrique Noire*, 33(12): 905-907 (1986).
- AD00616 Borges Da Silva G. et Cabaye-Borges Da Silva. Approche épidémiologique des maladies sexuellement transmissibles en milieu ouvrier d'Afrique Occidentale. *Medicine d'Afrique Noire*, 27(5): 479-480 (1980).
- AD00619 Toure I.M. et al. Contribution à l'étude épidémiologique des infections urogénitales bactériennes à Bamako et banlieue. *Afrique Médicale*, 16(151): 381-384 (1977).
- AD00621 Toure I.M. et Kane Y. Etude bactériologique et clinique des urethrites non compliquées chez l'homme et traitement par la Sismicine 2\*100mg. *Afrique Médicale*, 25(247): 671-675 (1986).
- AD00623 Kombila M. et al. Etude des Mycoses vaginales à Libreville (Gabon). Evaluation thérapeutique du Miconazole 400mg. *Medicine d'Afrique Noire*, 31(12): 679-682 (1984).
- AD00625 Makoua M. et al. Séro-épidémiologie HIV chez les femmes enceintes. A propos de 422 cas. *Les Cahiers du Laboratoire de Santé Publique*, 8: 49-54 (1985).
- AD00627 Bourgairel J. et al. Un An d'activité du laboratoire de recherche sur la biologie de la reproduction. *Les Cahiers du Laboratoire National de Santé Publique*, 7: 5-22 (1986).
- AD00628 Silou J. et al. Enquête préliminaire sur l'infection à CHLAMYDIA TRACHOMATIS à Brazzaville. *Les Cahiers du Laboratoire National de Santé Publique*, 7: 36-45 (1986).
- AD00630 Mankah Ch. Gonococcie asymptomatique chez les jeunes garçons. *Bulletin OCGE Information*, 68: 32 (1980).
- AD00631 Toure I.M. et al. Maladies à transmission sexuelle dans les préfectures de Kloti, de La Binah et de L'Ot'i en République Togolaise : Résultats d'une Mission d'enquête. *Bulletin OCGE Information*, 87: 41-56 (1983).
- AD00632 Morton R.S. assignment report : Venereal disease control in Somalia. 5 January-3 March 1976. *WHO : EM/VD/36* : 1-12 (1976).
- AD00637 Bello C.S.S. et al. Sexually transmitted diseases in northern Nigeria. Five years' experience in a university teaching hospital clinic. *British Journal of Venereal Diseases*, 59: 202-205 (1983).
- AD00641 Meheus A. et Habimana A. Les Maladies vénériennes. Probleme de sante publique. *Revue Médicale Rwandaise*, 20: 1-3 (1972).
- AD00645 Bello C.S.S. Population screening for Gonorrhoea in Northern Nigeria. *West African Journal of Medicine*, 2(2): 49-52 (1983).
- AD00646 Djejonah F.M.E. et al. Paediatric and Adolescent Gynaecological Disorders seen at the University of Benin Teaching Hospital. *Tropical Journal of Obstetrics and Gynaecology*, 3(1,2): 57-61 (1982).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD000648 Mhalu F.S. and al. Selected sexually transmitted diseases among women on different contraceptives in Dar es Salaam. *Journal of Obstetrics and Gynaecology of Eastern and Central Afr.* 5(1-2): 49-52 (1986).
- AD000649 Mati, J.K.G. Sexually Transmitted Diseases (STD) in Adolescents. *Journal of Obstetrics & Gynaecology of Eastern and Central Africa* 4: 4-5 (1985).
- AD000650 Mtimavalye L.A.R. and al. Infertility among women in five rural and two urban districts of Tanzania. *Journal of Obstetrics & Gynaecology of Eastern and Central Africa* 3: 125-129 (1984).
- AD000651 Adelusì B. Carcinoma of the Cervix uteri in Ibadan : Clinico-pathologic features. *Nigerian Medical Journal*, 8(2): 129-132 (1978).
- AD000653 Alausa O. and Osoba O. The role of Sexually Transmitted Diseasea in Male Infertility in Tropical Africa. *Nigerian Medical Journal*, 8(3): 225-229 (1978).
- AD000655 Omer E.E. and al. Incidence of urogenital Trichomoniasis among high risk Sudanese groups. *East African Medical Journal*, 61(2): 140-144 (1984).
- AD000657 Walton S.M. and Mati J.K.G. An Evaluation of secondary infertility in Kenya. *East African Medical Journal*, 53(6): 310-314 (1976).
- AD000672 Maseille S.Y. and Mwakagile D.S.M. Genital ulcer diseases in Dar es Salaam - Observation on clinical responses of chancroid to single dose therapy with Trimethoprim/Sulfamethoxazole. *Tanzania Medical Journal*, 2(1) Suppl 31-38 (1985).
- AD000674 Omer F.E. Trichomoniasis in Sudanese Women presenting with vaginal discharge. *Sudan Medical Journal*, 16(1,2): 1-5 (1978).
- AD000676 El Fadil E. Omer, Sexually Transmitted Diseases among Sudanese university students : Preliminary report. *Arab Medical Bulletin*, 7(11,12): 13-22 (1985).
- AD000700 Capinski T.Z. Rapport de mission sur Les maladies veneriennes a Dakar. Essai d'un traitement en une seule injection. *EM/VD/32* : WHO unpublished document, : 1-16 (1961).
- AD000705 Deubel V. A propos des uretrites aigues masculines a Dakar. *WHO/VD/T74.395* : WHO unpublished document, : 1-6 (1974).
- AD000709 Ratnam A.V. Sexually Transmitted diseases in Lusaka. *Medical Journal of Zambia*, 14(5): 71-74 (1980).
- AD000711 Mason, P.R. and Forman, L. Serological survey of Trichomoniasis in Zimbabwe, Rhodesia. *The Central African Journal of Medicine*, 26(1): 6-8 (1980).
- AD000712 Sorokin A.O. Microbiological study of sexually transmitted diseases among out-patients in a Nigerian Hospital. *The Central African Journal of Medicine*, 27(3): 42-44 (1981).
- AD000715 Clave H. et al. A propos d'une serie de 104 cas de grossesses extra-uterines. *Tunisie Medicale*, 56(3): 221-232 (1978).
- AD000723 Sogbetun A.O. and al. Herpesvirus hominis antibodies among children and young adults in Ibadan. *British Journal of Venereal Diseases*, 55: 44-47 (1979).
- AD000943 Forcain, M. et al Aspects cliniques du S.I.D.A. et des syndromes apparentes a Poin  
*Medicine Tropicale*, 46(4): 346-348 (1986).

Observation on clinical responses of chancroid to single dose therapy with Trimethoprim/Sulfa

- AD00959 Brown, McL. and Cruickshank, J.G. Aetiological factors in pelvic inflammatory disease in urban black. *South African Medical Journal*, 50: 1342-1344 (1976).
- AD00967 Hira, P.R. Observations on Trichomonas vaginalis infections in Zambia. *Journal of Hygiene, Epidemiology, and Immunology* 21(2): 215-224 (1977).
- AD00974 Mann, J.H. et al Surveillance for AIDS in a central African city, Kinshasa, Zaire. *Journal of the American Medical Association*, 255(23): 3255-3259 (1986).
- AD00977 Sangaret, A.M. et al Etiologie de la sterilité a Abidjan a propos de 334 cas. *Etudes Medicales*, 1: 35-45 (1983).
- AD00979 Dow, E.K. et al Tubal pregnancy: a review of 404 cases. *Ghana Medical Journal*, 14(3): 232-237 (1975).
- AD00980 Duncan, J.T.K. Radiotherapeutic management of cancer of cervix in Nigeria. *Ghana Medical Journal*, 12(4): 374-382 (1973).
- AD00983 Ouattara, S.A. et al Retrovirus infections (LAV/HTLV-III and HTLV-I) in Ivory Coast, W. Anole Institut Pasteur/ Viral, 137E: 303-310 (1986).
- AD00986 Monjour, L. et al A screening of serological syphilis in Mauritania. *Acta Tropica*, 41: 81-86 (1984).
- AD00987 Sarrat, H. Infections genitales feminines a Dakar. *Bulletin Societe Medicale Afrique Noire Francaise*, 19(1): 29-32 (1974).
- AD00988 Dosso, M. et al Aspects epidemiologique et prevalence de Neisseria gonorrhoeae d. *Bulletin de la Societe de Pathologie Exotique*, 79: 130-139 (1986).
- AD01000 Forsey, T. Chlamydial genital infection in Addis Ababa, Ethiopia. *British Journal of Venereal Disease*, 58: 370-373 (1982).
- AD01010 Bagshawe, A. and Nganda, N.T. Hepatitis B antigen in a rural community in Kenya. *Transactions of the Royal Society of Tropical Medicine & Hygiene*, 67(5): 663-670 (1973).
- AD01012 Muazzam, H.G. and Elkassaby, S.M. A study of infertility in females by histopathological examination of endometrial curettage in Socialist People's Libyan Arab Jamahiriya. *Bangladesh Medical Journal*, 12(3): 101-111 (1983).
- AD01013 Sypniewska, S.R.E. et al. Incidence of cancer cervix in the Benghazi area. *Garyounis Medical Journal*, 7(1): 49-53 (1984).
- AD01015 Asuzu, M.C. Contact tracing in the control of STD in Ibadan, Nigeria. *Br J Vener Dis*, 60: 114-116 (1984).
- AD01016 Meheus, A. Incidence et prevalence des maladies veneriennes dans des populations selectionnees en region urbaine au Rwanda. *Ann. Soc. Belge Med. tropicale*, 53(3): 179-185 1971-72.
- AD01017 Meheus, A. Serological evidence for syphilis in different population groups in Rwanda. *Tropical and geographical medicine*, 27: 165-168 (1975).
- AD01018 Godefroid, B. et al. Etude sur la seropositivite (iee a l'infection au virus de l'immuno-deficience humaine au Rwanda. *Revue medicale Rwandaise*, 20(54): 37-42 (1988).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD01021 Taha, O.M.A. Study of STD's in patients attending venereal disease clinics in Khartoum, Sudan. *Br.J.Vener.Dis.*, 55: 313-315 (1979).
- AD01022 Rushwan Hamid. Etiologic factors in pelvic inflammatory disease in Sudanese women. *Am.J.Obstet.Gynecol.*, 138(7): 877-879 (1980).
- AD01023 Anonime. Annual statistical Bulletin. (1982).  
Central Statistical Office, P.O. Box 456, Mbabane
- AD01024 Bennett, F.J. The health of secondary school children in a rural community in Uganda. *Uganda Medical Journal*, 2: 74-90 (1974).
- AD01026 Muir, D.C. and Beisey, M.A. Pelvic inflammatory disease and its consequences in the developing world. *Am.J. of Obst. & Gyn.*, 138(7): 913-928 (1980).
- AD01027 Grech, E.S. et al. Epidemiological aspects of acute pelvic inflammatory disease in Uganda. *Tropical Doctor*, 3: 123-127 (1973).
- AD01028 Kairuki, H.C.W. Analysis of clinical features and treatment of ectopic pregnancy at Mulago Hospital in Kampala - Uganda. *Uganda Medical Journal*, 4(1 & 2): 20-25 (1975).
- AD01029 Islam, M.N. et al. The incidence of hepatitis B antigen and anti-hepatitis B among blood donors in Ndola, Zambia. *Tropical and geographical medicine*, 27: 47-51 (1975).
- AD01030 Melbye, M. et al. Evidence for heterosexual transmission and clinical manifestations of human immunodeficiency virus infection and related conditions in Lusaka, Zambia. *Lancet*, 15: 1113-1114 (1986).
- AD01031 Ratnam, A.V. et al. Gonococcal infection in women with pelvic inflammatory disease in Lusaka, Zambia. *Am.J. Obstet. Gynecol.*, 138(7): 965-968 (1980).
- AD01035 Claros Sabillon, J.M. Analisis retrospectivo de su manejo y resultados. *Revista medica hondurena*, 51(2): 45-53 (1983).
- AD01036 Galvan, A.G. AIDS in Mexico. *Bulletin PANO*, 21(2): 204-208 (1987).
- AD01037 Reeves, W.C. et al. Cervical cancer in the Republic of Panama. *American Journal of Epidemiology*, 119(5): 714-724 (1984).
- AD01038 Barron, B.A. and Richard, R.M. An epidemiologic study of cervical neoplastic disease. *Cancer*, 27: 978-986 (1971).
- AD01039 Almanza, C. et al. Diagnostico y epidemiologia de la gonorrea en la pareja humana. *Rev.Cub.Hig.Epid.*, 18: 95-100 (1980).
- AD01040 Werthein, L.J. et al. Vigilancia y control de las enfermedades de transmision sexual: la experiencia cubana. *Rev.Cub.Hig.Epid.*, 18: 279-287 (1980).
- AD01041 Werthein, L.J. et al. Programa de control de enfermedades venereas. *Rev.Cub.Hig.Epid.*, 14: 93-98 (1976).
- AD01042 Hernandez, O. et al. Sifilis en embarazadas. Estudio en la provincia de La Habana durante 1973. *Rev.Cub.Hig.Epid.*, 14: 111-116 (1976).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD01043 Anonym. Ministerio de Salud Publica de Cuba Informe anual 1980, 19-21 (1980).
- AD01044 Anonym. Departement de la Sante publique et de la Population Bulletin annuel d'epidemiologie, 8: (1981).
- AD01045 Hull, B. et al. Hepatitis B in Trinidad. West Indian Medical Journal, 27: 31-35 (1978).
- AD01046 Bartholomew, C. Transmission of HTLV-I and HIV among homosexual men in Trinidad. JAMA, 257(19): 2604-2608 (1987).
- AD01047 Corincho, S. Treatment of gonorrhoea with thiamphenicol: a study of 4,500 male patients. Sexually Transmitted Diseases, 11(4): 400-403 (1984).
- AD01048 Lombardi, C. et al. Aspectos epidemiologicos da gonorreia na clientela do Centro de Saude Geraldo H. de Paula Souza, da Faculdade de Saude Publica da Universidade de Sao Paulo. Saude publ., S. Paulo 14: 173-184 (1980).
- AD01049 Misako, A. et al. Estudo das doencas sexualmente transmissiveis no municipio de Londrina, Parana, Brasil. III: A prevalencia da gonorreia em 1976-77. Rev. Saude publ., S. Paulo 14: 36-42 (1980).
- AD01051 Ferraroni, J.J. and da Silva Lacaz, C. Prevalencia de anticorpos contra os agentes causadores da hepatite, malaria, sifilis e toxoplasmosose em cinco populacoes humanas dif. Rev. Inst. Med. trop. Sao Paulo, 24(3): 155-161 (1982).
- AD01052 Gones Pereira, M. Inquerito sorologico de sifilis em adultos: Planaltina, DF, Brasil, 1977. Rev. Saude publ., S. Paulo 14: 358-365 (1980).
- AD01054 Mattioda de Lima, S.H. and Basilio-de-Oliveira, C.A. SIDA. Aspectos epidemiologicos e clinicos em 26 pacientes. A Folha Medica, 94(4): 195-199 (1987).
- AD01055 Diaz, F.G. Urethritis masculina. Estudio prospectivo de 254 casos. Biomedica, 3(1,2): 5-9 (1983).
- AD01057 Aroca C.F. Problematica actual de las enfermedades venereas. Revista Ecuatoriana de Higiene y Medicina Tropical, 29: 31-36 (1976).
- AD01062 Alfei, B. and Meurel, D.L. Investigacion de contactos en enfermos de sifilis en Mar del Plata, Argentina. Bol. Of. Sanit. Panam, 95(3): 253-260 (1983).
- AD01063 Grinspun, D.M. and Goldenberg, R. Epidemiologia y control de la sifilis en el area sur, Santiago, Chile. Bol. of Sanit. Panam, 83(1): 48-55 (1977).
- AD01064 Dabancens, A.O. Prevalencia de las lesiones preclinicas del cervix uterino. Rev. Med. Chile, 114: 586-590 (1986).
- AD01065 Hla, T. Recent trends in venereal diseases epidemiology in Rangoon. Burma Medical Journal, 22: 33-44 (1976).
- AD01069 Budihardjo et al. Incidence of trichomonas vaginalis in Rumah Sakit Mangkuyudan Hospital, Yogyakarta. Berkala Ilmu Kedokteran, 8(2): 55-57 (1976).
- AD01070 Lim Kwat Bee and Trinh Phang. Treatment of uncomplicated gonococcal urethritis in males with two doses of augmentin, six hours apart. Singapore Medical Journal, 26(2): 147-149 (1985).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD01071 Lim Nuat Bee. Single-dose oral treatment with cefaclor for men with uncomplicated gonococcal urethritis. *Med. Journal Malaysia*, 39(4): 272-274 (1984).
- AD01072 Lim Nuat Bee. Kanamycin in the treatment of gonococcal urethritis in males. *Med. J. Malaysia*, 38(3): 182-184 (1983).
- AD01073 Ridzuan Bakar and Lim, Y.K.E. Single-dose oral ampicillin in the treatment of gonococcal urethritis in males. *Med. J. Malaysia*, 36(4): 202-204 (1981).
- AD01074 Teoh, S.K. and Ngeow, M.F. Sexually transmitted diseases in teenage girls from a remand home. *Med. J. Malaysia*, 35(2): 109-111 (1980).
- AD01076 Lim, M.A. Ectopic pregnancy - A study of 77 cases. *The Medical Journal of Malaysia*, 28(3): 171-175 (1974).
- AD01077 Sinnathuray, T.A. and Lau, K.S. The early detection of unsuspected carcinoma of cervix in Malaysia by exfoliative cytological screening. *The Medical Journal of Malaysia*, 27(2): 70-74 (1973).
- AD01078 Wirey-Zarbo, L. et al. Oral roxoxacin in the treatment of uncomplicated gonorrhoea in females. *Journal of the Philippine Medical Association*, 60(1): 10-11 (1984).
- AD01080 Sotto, L.S.-J. Cancer of the uterine cervix among Filipino women. *Journal of the Philippine Medical Association*, 49(3): 139-156 (1973).
- AD01081 Ministry of Health, Health Intelligence Service, Rep. of the Philippines. Notifiable diseases: reported cases and deaths by age-group and by sex. Same as for Author. *Philippine Health Statistics 1979*, : (1979).
- AD01082 Rajan, V.S. Sexually transmitted diseases on a tropical island. *British Journal of Venereal Diseases*, 54: 141-143 (1978).
- AD01083 Chaudhuri, P. et al. Chlamydia trachomatis infection in unmarried women seeking abortions. *Genitourin Med*, 62: 17-18 (1986).
- AD01085 Goh, C.L. and Thirumorthy, T. Vaginal candidiasis in a sexually transmitted disease clinic. *Singapore Medical Journal*, 25(8): 122-125 (1984).
- AD01086 Chew, S.Y. A 6 year review of ectopic pregnancy. *Singapore Medical Journal*, 20(3): 395-398 (1979).
- AD01087 Panikabutra, K. et al. Cefoxitin in the treatment of uncomplicated gonorrhoea in the Male. *J. Med. Ass. Thailand*, 65(3): 140-143 (1983).
- AD01088 Limsuan, A. et al. Treatment of uncomplicated gonorrhoea with Roxoxacin. *J. Med. Ass. Thailand*, 66(18): 770-773 (1983).
- AD01089 Panikabutra, K. Results of the treatment of uncomplicated gonorrhoea in the male with four different schedules. *J. Med. Ass. Thailand*, 61(5): 247-254 (1978).
- AD01090 Panikabutra, K. Clinical aspects of uncomplicated gonorrhoea in the female. *Brit. J. Vener. Dis.*, 49: 213-215 (1973).
- AD01092 Bhadrakom, C. et al. Treatment of severe pelvic inflammatory disease with thiamphenicol. *J. Med. Ass. Thailand*, 66(1): 37-40 (1983).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD01093 Koetsawang, S. et al. Prevalence of infertility in urban and rural Thailand. *Asia-Oceania J. Obstet. Gynaecol.*, 11(3): 315-323 (1985).
- AD01094 Tangtrakul, S. et al. Treatment of cervical intraepithelial neoplasia by cryosurgery. *J. Med. Ass. Thailand*, 66(1): 1-6 (1983).
- AD01095 Senapad, S. Lymph node invasion in uterine cervical cancer stage 1, with relation to the size of the primary lesion. *Journal of the Medical Association of Thailand*, 59(9): 399-402 (1976).
- AD01096 Tepongkol, P. Radiation therapy for carcinoma of cervix uteri. A clinical study in Siriraj Hospital. *Journal of the Medical Association of Thailand*, 63(9): 512-516 (1980).
- AD01098 Wang Wen-Ying. Surgery in early cancers of uterine cervix. A long-term follow-up study of therapeutic effects in 271 cases (1955-77). *Chinese Medical Journal*, 59(2): 121-125 (1981).
- AD01099 Kook Yoon Hoh et al. Incidence of Hemophilus vaginalis vaginitis. *The Seoul Journal of Medicine*, 22(1): 75-82 (1981).
- AD01100 Berliner, D.S. and No, P.-U. Prevalence of Penicillinase-producing Neisseria gonorrhoeae in Korea. *Aviation, Space and Environmental Medicine* 57(12): 1170-1175 (1986).
- AD01101 Lee, S.H. et al. Study on patterns of the sensitivity to various antibiotics of N. gonorrhoea. *Report of NIH, Korea* 10: 371-378 (1973).
- AD01102 Lee, O.Y. et al. Studies on the sexually transmitted disease infections in Korea (1982-84). *Report of NIH Korea*, 21: 41-54 (1984).
- AD01106 Chong Yoon Joo and Dong Mik Choi. Prevalence of Trichomonas vaginalis in Korean military personnel. *The Korean Journal of Parasitology*, 18(2): 247-252 (1980).
- AD01108 Department of Statistics and Research, Ministry of Finance, Rep. of Cyprus. *Health and Hospital Statistics, 1986.*
- Same as for Author. *Health Statistics: Series I*, 7: (1986).
- AD01110 Directorat of Vital and Health Statistics, Ministry of Health, Republic of Iraq. *Statistical compass for 1974-75.*
- Same as for Author. 1974-75.
- AD01111 Al-Rawi, Z.T. et al. Pathogenesis of vaginal discharge. *Journal of the Faculty of Medicine, Baghdad* 28(4): 49-62 (1986).
- AD01118 Siegman-Igra, Y. et al. AIDS in Israel, 1987. *Israel Journal of Medical Sciences*, 24: 131-136 (1988).
- AD01120 Department of Statistics, Hashemite Kingdom of Jordan. *Morbidity statistics in hospitals, 1977.*
- Same as for Author. 1977.
- AD01122 Omar, Y.T. and El-Ghemrawi, K.A. Carcinoma of the cervix uteri in Kuwait. *Journal of the Kuwait Medical Association*, 10(3): 141-148 (1976).
- AD01124 Hossain, A. Serological tests for syphilis in Saudi Arabia. *Genitourin Med.*, 62: 293-297 (1986).
- AD01125 Jabbar, F.A. and Al-Wakeel, M. Ectopic pregnancy at Riyadh Maternity Hospital. A study of 45 cases. *Pakistan Journal of Medical Research*, 20(3): 76-80 (1981).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- ADO1131 Morton, R.S. Venereal disease in Bangladesh. *British Journal of Venereal Diseases*, 50: 64-67 (1974).
- ADO1132 Khasru, M.A. et al. Incidence of urethritis in Bangladesh. *Bangladesh Medical Research Council Bulletin*, 8(1): 25-30 (1982).
- ADO1133 Bhargava, R.K. and Sharma, M. Psychiatric profile of STD patients. *Indian Journal STD*, 7: 22-26 (1986).
- ADO1134 Nigam, P. and Mukhija, R.D. Pattern of sexually transmitted diseases at Gorakhpur. *Indian Journal of STD*, 7: 70-73 (1986).
- ADO1135 Jeyasingh, P. et al. Treatment modalities of VD patients prior to attending VD clinic. *Indian Journal of Dermatol. Venereol. Leprol.*, 50: 209-210 (1984).
- ADO1136 Garg, B.R. et al. Pattern of sexually transmitted diseases at JIPMER, Pondicherry. *Indian Journal of STD*, 6: 41-43 (1985).
- ADO1137 Garg, B.R. et al. Sexually transmitted diseases in children. *Indian Journal of STD*, 7: 11-13 (1986).
- ADO1138 Arora, S.K. et al. Pattern of sexually transmitted diseases at Smt. Sucheta Kriplani Hospital, New Delhi. *Indian Journal of STD*, 5: 5-7 (1984).
- ADO1149 Mukherjee, G. et al. Comparative trial of co-trimoxazole and co-trifamole in acute gonococcal urethritis. *Indian Journal of STD*, 4: 7-11 (1983).
- ADO1150 Ganguli, D.D. et al. Profile of Gonorrhoea in males. *Indian Journal of STD*, 6: 44-46 (1985).
- ADO1151 Ganguli, D.D. et al. Default among patients with gonorrhoea - the role of health education. *Indian Journal of Dermatology, Venereology and Leprosy* 48(4) 198-202 (1982).
- ADO1152 Kaur, P. et al. Social variables among female patients having gonococcal infection. *Indian Journal of STD*, 3: 20-23 (1982).
- ADO1153 Lahiri, V.L. et al. Prevalence of gonorrhoea in prostitutes at Agra (India). *Indian Journal Prev. Soc. Med.*, 9(2): 61-62 (1978).
- ADO1154 Sharma, M. et al. Blood VDRL reactivity in STD and antenatal clinics in Chandigarh. *Indian Journal of STD*, 7: 14-15 (1986).
- ADO1155 Dubey, P.C. and Kulkarni, S.M. Vulnerability of policemen to syphilis and gonorrhoea. *Indian Journal of Dermatology, Venereology and Leprosy* 44(4) 206-210 (1978).
- ADO1156 Bhattacharjee, S.K. et al. Ecology of early syphilis patients: a study of eighty cases. *Indian Journal of Dermatology, Venereology and Leprosy* 45(6) 436-441 (1979).
- ADO1157 Subash Babu, D. A study of problem of venereal diseases among university male resident students. *Indian Journal of Dermatology, Venereology and Leprosy* 42(3) 129-132 (1976).
- ADO1158 Datta, A.K. Genital ulcers in male. *Indian Journal of Dermatology, Venereology and Leprosy* 44(4) 204-205 (1979).

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD01159 Pandhi, R.K. Clinical profile and response to chemotherapeutic agents in non-specific urethritis. *Indian Journal of Dermatology, Venereology and Leprosy* 50 252-255 (1984).
- AD01160 Bhargava, R.K. et al. Methylene blue and photo inactivation in herpes-progenitalis. *Indian Journal of Dermatology, Venereology and Leprosy* 43(2) 86-88 (1977).
- AD01161 Kumari, S. et al. Screening for seroprevalence of HTLV-III/HIV infection in high risk groups in Delhi. *The Journal of Communicable Diseases*, 18(2): 77-80 (1986).
- AD01165 Joydev Mukherjee and Roy Chokhury, M.N. Leucorrhoea in adolescent girls. *Calcutta Medical Journal*, 83(1,2): 21-26 (1986).
- AD01166 Jayasingh, P. et al. Epidemiology of trichomoniasis in Madurai. *Indian Journal of STD*, 3: 32-34 (1982).
- AD01171 Sikder, K. and Roychoudhuri, M.N. An epidemiological study of carcinoma cervix. *Calcutta Medical Journal*, 78(1,2): 7-11 (1981).
- AD01178 Farid, K. et al. Vaginal infection with trichomonas vaginalis in women in Isfahan, Central Iran. *Iranian Journal of Public Health*, 7(4): 214 (1978-7).
- AD01180 Zirak-Zadah, T. et al. Penicillin-resistant strains of Neisseria gonorrhoeae in Shahre-Now. *Tropical Doctor*, 7: 57-58 (1977).
- AD01181 Alemi, A.A. and Subramanian, M. The problem of venereal diseases in Teheran - a retrospective study. *Iranian Journal of Public Health*, 4(4): 254-265 (1976).
- AD01183 Behrard, S. et al. Carcinoma of cervix in Southern Iran. *Iranian Journal of Medical Sciences*, 10(1-4): 129-142 (1979).
- AD01184 Shukya, G.R. Pattern of sexually transmitted diseases at Kopalganj (A clinico-epidemiological study). *Journal of the Nepal Medical Association*, 22(3-4): 7-16 (1984).
- AD01186 Gurubacharya, V.L. and Shrestha, H.G. Cancer of breast and female genital tract in Nepal. *Journal of the Nepal Medical Association*, 18(1): 43-50 (1980).
- AD01188 Jayasuriya, P.L.B. The pattern of venereal diseases in a provincial clinic. *Ceylon Medical Journal*, 22: 52-54 (1977).
- AD01190 Gunaratne, M. The epidemiology of infertility: a selected clinic study. *Ceylon Medical Journal*, 24: 36-42 (1979).
- AD03492 Leke, R.J.J. Commentary on unwanted pregnancy and abortion complications in Cameroun. *International Federation of Gynecology and Obstetrics*, *International Journal of Gynecology and Obstetrics*, Suppl. 3: 33-35 (1989).
- AD03960 Ni, A.P. et al. The prevalence of Chlamydia infection in outpatient clinics in Beijing, China. *Genitourinary Medicine*, 66(2): 125 (1990).
- AD03975 Youth Advisory Services and Family Health International. Reproductive health survey of young adults in Harare. Final report. Family Health International, 1988.
- AD03984 Gambia Family Planning Association. Reproductive health survey of young adults in greater Banjul, The Gambia. The Gambia Family Planning Association/Family Health International/Pathfinder Fund, 1986.

ADOLESCENT HEALTH STATISTICS

Reproductive health

- AD03994 Lens, V.M. et al. A review of the medical aspects of adolescent fertility in Kenya. *J. of Obstetrics and Gynaecology of Eastern and Central Africa*, 9(1): 37-43 (1991).
- AD04015 Rossanigo, P.L. et al. Seroepidemiology of HIV infection: An early survey in a peripheral area of Uganda. *Microbiologica*, 1484: 337-342 (1991).
- AD04023 Nishimura, M. et al. (Epidemiological study on Chlamydia trachomatis infection in pregnant housewives and investigation on its influence on outcome of pregnancy and on the Popline abstract, Kansenshogaku Zasshi, 64(2): 179-187 (1990).
- AD04035 Arkutu, A. Facing up to the needs of youth. *Choices*, July: 14 (1992).
- AD04070 Beaujean, G. and Willems, I. Prevalence of Chlamydia trachomatis infection in pregnant women in Zaire. *Genitourinary Medicine*, 66(2): 124-125 (1990).
- AD04094 Hayashi, K. et al. (Studies on the detection rate of Chlamydia trachomatis in married and unmarried pregnant women - field survey in Hokkaido). (Popline abstract), *Kansenshogaku Zasshi*, 64(7): 830-839 (1990).
- AD04096 Ichinose, M. et al. (Epidemiological study on Chlamydia trachomatis infection in obstetrics and gynecology filed in Tokyo). (Popline abstract), *Kansenshogaku Zasshi*, 65(10): 1309-1316 (1991).
- AD04100 Mbunda, W.M. Adolescent fertility in Tanzania: knowledge, perception and practices. Survey report. Dar es Salaam, Chama Cha Uzazi Na Malezi Bora Tanzania (UMATI), (Popline abstract), 123 1988.