ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

USING STD OCCURENCE TO MONITOR AIDS PREVENTION

Final report of the working group on STD surveillance

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ASSESSMENT OF THE AIDS/HIV PREVENTIVE STRATEGIES

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1. ACKNOWLEDGEMENTS

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2. INTRODUCTION

Acquired immune deficiency syndrome (AIDS) prevention programmes have attempted to bring about changes in behaviour relating to the various modes of human immunodeficiency virus (HIV) transmission, through health education. Awareness of the need to assess the effectiveness of these programmes has been growing. Knowledge-Attitude-Practice (KAP) studies provide a popular approach to assessment, but their interpretation is frequently plagued by problems concerning the validity of the measures used, and the extent to which results might be generalised (1). Furthermore, experience teaches that changes in behaviour to match changes in knowledge and attitudes are far from automatic (2). The measurement of programme impact on HIV occurrence through prospective serological studies offers a more direct approach. Such studies can provide an accurate picture of secular trends in HIV seroprevalence (3) , but, without controlled trials, we cannot assess the efficacy of specific interventions, or what these trends would have been in the absence of prevention programmes.

Against this background the possibility of using the occurrence of sexually transmitted disease (STD) as a measure of programme impact become attractive. There are three ways in which STD occurrence might bear on the problem of HIV infection. Firstly STDs may influence the susceptibility of individuals to infection (4). Secondly STDs may influence the natural history or course of the disease process in those infected with HIV (5). Thirdly, because sexually transmitted pathogens share with HIV a predominant mode of transmission through sexual intercourse, the frequency of occurrence of these diseases might reflect the operation of factors relevant to the transmission of HIV.

In what follows the focus is on the third of these. The extent to which measures of STD occurrence can usefully be employed as indicators of the effectiveness of AIDS / HIV prevention programmes is considered, and some of the pitfalls and practical problems encountered are highlighted. The types of STD surveillance currently in operation in Western Europe are described, and the extent to which the shortcomings of these systems limit our ability to infer changes in sexual behaviour from trends in STD occurrence is considered. An outline of the way in which basic epidemiological research in conjunction with the further development of STD surveillance systems might enhance our ability interpret the data in this way.

3. AIMS AND OBJECTIVES

Aim

The overall aim of the project has been to assess the extent to which data on the frequency of occurrence of STDs might be useful in the monitoring and evaluation of AIDS prevention programmes.

Objectives

The objectives have been to answer the following questions:

a. Can measures of STD occurrence be used as an outcome measure of AIDS/HIV preventive efforts ? In particular:

- which diseases might be useful ?
- in what ways could they be used ?

b. If measures of STD occurrence can be used in this way, is existing surveillance data in Western Europe adequate for the purpose ? If not why not ?

c. What do data from existing STD surveillance systems tell us about the success or failure of AIDS prevention to date ?

d. What needs to be done in order that STD surveillance data in the countries of Western Europe could be used for this purpose ?

4. METHODS AND PROGRAMME OF WORK

In order to attempt to achieve the objectives within the time available the group established the following programme of work.

a. Review the literature and assess the theoretical and empirical basis for using the occurrence of STDs to monitor AIDS prevention.

b. Establish contacts with key individuals working in or responsible for STD surveillance in EC and COST countries.

c. Obtain details from each country concerning:

- nature of existing STD surveillance
- identity of those responsible for its maintenance & development
- nature and organisation of existing STD service provision
- proposals and plans for future development of surveillance
- existing surveillance data

d. Synthesise all information obtained into a report.

To this end, most of the countries concerned have been visited to enable detailed discussions with those involved in, or responsible for STD surveillance. A detailed report has been prepared on each country and these are presented in a separate documant. The report which follows presents the groups findings on the theoretical and empirical foundations on which this approach to monitoring AIDS prevention is based. Information gleaned from individual countries is presented only in summary, or where it serves to illustrate a general point.

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7. BRIEF HISTORY OF THE GROUP'S ACTIVITIES

The idea to set up the group was developed by Dr Henrik Zoffman at an EC workshop on Monitoring AIDS Prevention. The group was formally set up and funded under Dr Zoffman's leadership by the EC Concerted Action on the Assessment of AIDS/HIV Prevention Strategies in September 1989. A meeting held in Copenhagen in October 1989 established a set of guidelines for the development of STD surveillance in EC and COST countries and a set of standard case definitions. These were circulated in January 1990 to identified individuals in all the countries, together with a request that countries provide information on existing STD surveillance systems, and any available figures.

By October 1990 Sweden, Norway, Switzerland, Italy, France, Portugal, Sweden, Denmark had replied. Generally these replies comprised a brief description of the nature of existing surveillance systems together with, in some cases, comments on the shortcomings of the data, or the data itself. In some cases also it was stated that plans or proposals for improvements to the system were being developed, though with little information on the nature or timescale for such projected changes.

Owing to the departure of Dr Zoffman to EPI WHO Geneva little further progress was made by the group during 1990. In October 1990 a meeting on Assessing HIV/AIDS prevention strategies was held in Montreux, Switzerland. Dr Adrian Renton was asked to give the keynote presentation on the use of STD occurrence in this context. Following this meeting Dr Renton was asked to take on the leadership of the group and did so in January 1991.

Because only three months was then available for the preparation of a draught report, the workplan was substantially revised. The main focus became to visit individual countries in order to complete the identification and contacting of key individuals, and to obtain from them the required information. The intention has since been to prepare a separate reports on STD surveillance in each country. To this end Adrian Renton has visited Belgium, France, Spain, Portugal, FRG, Switzerland and Italy Country reports for Finland, Norway, the Netherlands, and Denmark have been prepared by other members of the group. Information has been obtained by post and telephone for Greece and the Republic of Ireland.

The group met in London in March 1991 to collate the information collected and to draft this final report.

8. CAN STD OCCURRENCE BE USED TO ASSESS AIDS/HIV PREVENTION ?

A. WHICH DISEASES ?

i. Direct And Indirect Indicators

There are two distinct ways in which STD occurrence might be used as an indicator of the occurrence of HIV infection. Where the incidence of an STD within a population changes in a known way with changes in *HIV incidence*, then trends in the incidence of that disease may be used as a direct measure of trends in HIV incidence. For the purposes of the ensuing discussion we refer to such notional STDs as *direct indicators*.

Where the incidence of an STD within a population changes in a known way with changes in *sexual behaviour*, then trends in the incidence of that disease may be used as a direct measure of trends in that sexual behaviour. If the relationship between the same sexual behaviour pattern and HIV incidence is also known and predictable, we can infer trends in HIV incidence *indirectly* from observed trends in the incidence of the STD. We refer to such notional STDs as *indirect indicators* for the purposes of discussion.

The distinction made is an important one, because an STD whose incidence is rapidly sensitive to changes in sexual behaviour (indirect indicator) is likely show quite different overall epidemiological characteristics to those of HIV infection.

ii. Theoretical And Empirical Approaches

The sexually transmitted diseases are a diverse group of viral bacterial, protozoal, fungal and ectoparasitic infections which share with HIV a common route of transmission through sexual intercourse. The most important STDs are shown in Table 1 below.

Table 1

Causative agents of the Sexually Transmitted Diseases

Bacteria	Viruses
Treponema pallidum	Herpes simplex
Neisseria gonorrhoeae	Cytomegalovirus
Chlamydiae	Hepatitis B Virus
Mycoplasma hominis	Molluscum Contagiosum Virus
Ureaplasmas	Human Immunodeficiency Virus
Bacterial Vaginosis Organisms	

Protozoa	Fungal Agents	Ectoparasites
Entamoeba histolytica	Candida Albicans	Phtirus Pubis
Trichomonas vaginalis		Sarcoptes scabie

Infection with each of these organisms presents its own pattern of clinical features, prognosis, and transmission dynamics, determined by the biological features of the organism, the host response to infection and patterns of sexual contact. We can use both theoretical and empirical approaches to identify STDs whose changes in incidence over time might closely reflect changes in sexual behaviour, or in incidence of HIV infection. The rationale for this can be summarized as follows:

Theoretical Approach

- This uses our knowledge of the biology of the organism, its mode of transmission, and host response to exposure, to predict its likely transmission dynamics and thus suitability as an indicator.

Empirical Approach

- This uses available information on the observed association between occurrence of the infection and sexual behaviour or HIV incidence to establish its suitability as an indicator.

We will deal with each in turn.

a. Theoretical Approach

Transmission models of infectious diseases enable us to identify several factors which are likely to exert an important influence on the incidence rate of a sexually transmitted infection (6). These are summarized in table 2.

Table 2

Transmission parameters determining incidence rates of Sexually Transmitted Diseases and HIV

'Biological'	'Behavioural'
- Infectivity	- Sexual contact rate
- Protective Immunity	- Type of contact
- Period of infectiousness	
- Incubation period	
- Fatality Rate	

While HIV infection and the other STDs share type and rate of sexual contact as important determinants of incidence, biological factors vary considerably between different infections, and exert a significant and perhaps dominant influence on incidence. Using disease specific knowledge of the transmission factors, is it possible , a priori, to identify which diseases might be good indicators either for type and rate of sexual contact, or for HIV incidence ?

- An Indicator for Type and Rate of Sexual Contact

A good indicator for type and rate of sexual contact will be an endemic disease whose incidence in a population moves rapidly and predictably to a new level with changes in sexual behaviour. Simple models enable us to identify likely transmission factors for such a disease (7). These are summarized in table 3.

Table 3

Features of a sexually transmitted infection which lead its incidence to change rapidly with changing sexual contact rate

- high infectivity
- short period of infectiousness
- short incubation period
- absence of conferred immunity

High infectivity means that secondary cases from an infectious individual will arise quickly. Hence an increase in sexual activity will rapidly generate new cases that would otherwise not have occurred. Similarly, a decrease in sexual

activity will rapidly lead to a large deficit of cases that would have occurred if the change in activity had not happened. The duration of infectiousness should be short, so that the members of the infected class 'turn over' rapidly. If the duration is long, then inertia is introduced into the system, and the number of infectious individuals is large relative to the inflow and outflow from the class. In these circumstances the number of individuals available to cause secondary infections will remain fairly constant despite short term changes in sexual activity.

The incubation period should be short for similar reasons. A long incubation period will cause an appreciable lag to occur between change in sexual activity, and the concomitant change in the size of the pool available to cause secondary infection. The importance of an absence of conferred immunity is harder to grasp. Without "herd immunity" the periodic oscillations in incidence rate which are so characteristic of the bacterial and viral diseases of childhood are dampened. This is important because these periodic oscillations, if large, may obscure trends in incidence resulting from changes in sexual contact rate, especially when such trends are considered over short time periods.

For the majority of the STDs it is difficult to quantify these transmission factors. Perhaps the best that current knowledge will allow, is a broad description of the relative size of the parameters. This is shown for some of the STDs is shown in table 4.

Table 4

Transmission parameters of some sexually transmitted pathogens

	Infectivity	Period of infectiousness		Incubation Period	Immunity
Neiserria Gonorrhoea	+++	weeks (Rx dependant)		days	-
Chlamydia Trachomatis	+	years (Rx dependant)		weeks	?
Treponema Pallidum	+	years (Rx dependant)		months	+/-
Herpes Simplex Viruses	++	years (intermittent)		days	+/-
Hepatitis B Virus	++	years (if s/e ag+)		months	+
Human Papillomavirus	+	years (intermittent)		weeks	?
Molluscum Contagiosum	++	while lesions present		weeks	?
HIV	+	years (intermittent ?)		months	-

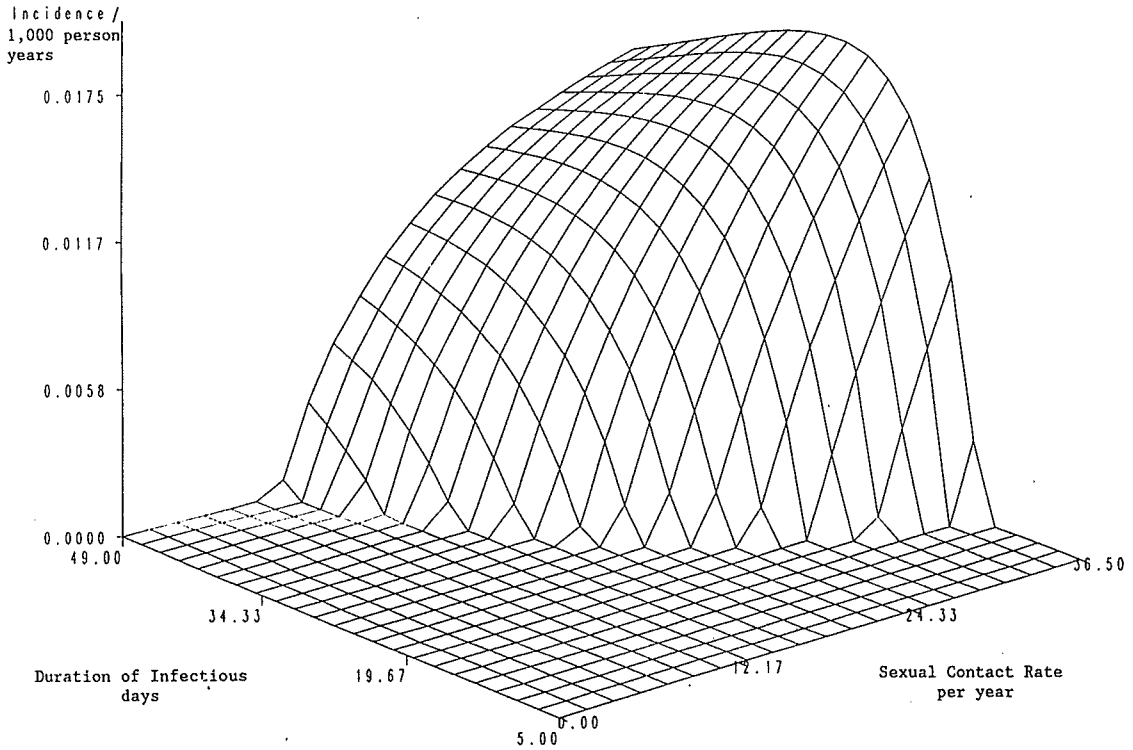
Tables 3 and 4 suggest that sexually transmitted gonorrhoea infection might satisfy our requirements for an indicator of sexual contact rate. The infectivity (defined as probability of transmission of infection during an episode of penetrative sexual contact) has been estimated at between 0.4 and 0.9 (8) . The time to become infectious is estimated at one to two days.

Hethcote & Yorke have used a simple mathematical model with sexual activity evenly distributed in the population, to estimate that, given a change in sexual contact rate, the incidence of gonorrhoea in the population would approach its new equilibrium level with a half life of 1.7 months (7). A brief examination of the properties of this model will provide important insights.

Figure 1 shows a plot of equilibrium incidence rate against duration of infection and sexual contact rate assuming an infectivity of 0.5. Sexual contact rate is defined as the average number of sexual contacts per year, for an individual in the population. The model assumes that a sexual contact is equally likely to be with any member of the population. Clearly this is not the case in reality for heterosexuals, and where the majority of individuals are in serial monogamous relationships. However, such individuals may be considered to have an effective contact rate roughly proportional to their rate of acquisition of new partners.

Figure 1

Endemic Equilibrium Incidence of Gonococcal Infection
by Duration of Infection and Sexual Contact Rate

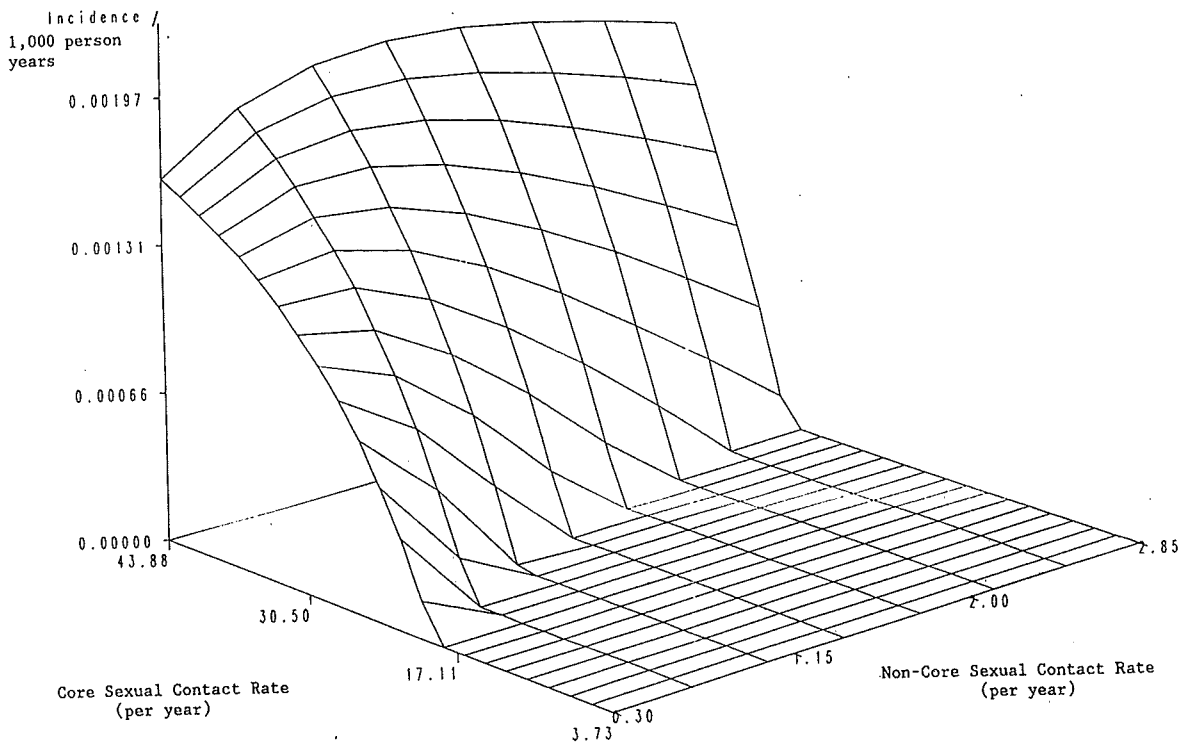


The figure reveals two interesting phenomena. Firstly, both duration of infectiousness and sexual contact rate are important in determining incidence. Because duration of infectiousness is primarily determined by treatment, a modern STD service may be expected to exert a considerable influence on gonorrhoea incidence by reducing the average period of infectiousness. Secondly using our best estimates of the values of the parameters concerned, the model predicts that gonorrhoea should have died out all together. Clearly this has not occurred. The model assumes that infected individuals are distributed evenly throughout the population and that every individual has the same expected number of sexual partners, and an equal probability of having sex with any other person. This does not reflect the real situation.

More complex models have attempted to describe the real situation more closely by dividing the population into discreet groups of individuals, defined by type and rate and sexual contact. The simplest of these postulates a core group of highly sexually active individuals and a non-core group comprising those less sexually active (7). Figure 2 shows the overall incidence of gonorrhoea predicted by this model, for various levels of sexual contact in the core and non-core groups. The average duration of infectiousness is taken as 25 days, with the core group representing 5% of the total population, and having a mean number of partners an order of magnitude greater than that of the non-core group.

Figure 2

Figure 2 Endemic equilibrium Incidence of Gonococcal Infection
Core / Non-core Model



The figure again highlights two important points. Firstly, the equilibrium incidence of gonorrhoea is mainly determined by the average contact rate in the core group, while changes in contact rate in the non-core group exert a smaller effect. Secondly, for certain rates of core contact, an increase in sexual

contact rate in the non-core group can lead, paradoxically, to a decrease in the incidence of the disease. The crux of this effect is the assumed independence of sexual contact rate between the core and non-core groups. If the two rates are independent, then an increase in the rate of the non-core group (while the core group rate remains constant) results in a larger proportion of core group contacts being with members of the non-core group. This is because there are more non-core group members available to have sex with. At low levels of sexual contact rate in the non-core group, new infections in this group do not tend to propagate. The net effect is therefore a reduction in incidence.

We cannot say whether the independence of sexual contact rate in the core and non-core groups is simply a mathematical assumption or a sociological reality, and we should clearly be cautious in our interpretation of the predictions of simple models. However, the model does emphasise that changes in gonorrhoea incidence are likely principally to reflect changes in behaviour among a small number of highly sexually active individuals. Thus gonorrhoea infections occurring in individuals with low activity will not generate many secondary infections, given the short infectious period. In contrast, because people with HIV may be infectious for many years, those with low levels of sexual activity may still contribute significantly to the overall incidence rate of infection in the long term.

It has been argued (9) that gonorrhoea infection may be acquired in circumstances unlikely to permit the transmission of HIV. This is to say that the types of sexual behaviour for which gonorrhoea infection is an indicator may not be those which are relevant to HIV transmission. This problem may be overcome in part by excluding oropharyngeal infections from the analysis. We cannot therefore assume that changes in sexual behaviour which lead to a decline in gonorrhoea incidence remove the conditions which permit the continued dissemination of HIV in the wider population. Similarly an increase in the observed occurrence of gonorrhoea may tell us little about sexual behaviour which is relevant to the dissemination of HIV in the population (9).

- An Indicator of HIV Incidence

If gonorrhoea incidence is unlikely to be a good indicator of HIV incidence, can our theoretical approach suggest an alternative candidate ? The short answer is no, for two reasons. The first is that HIV infection in contrast to gonorrhoea and many other STDs is in an epidemic phase. That is to say it has not yet reached a level of stable endemic equilibrium. Even if there were no change in patterns of sexual activity, or duration of infectiousness, one might anticipate that it would take many years for HIV incidence to reach such a point of equilibrium. The second is that many of the transmission factors and the ways in which they interact to determine the incidence of disease are not known with sufficient accuracy either for HIV or the other STDs.

b. Empirical Approach

The evidence which might provide empirical support to our theoretical insights now needs to be examined. The broad distinction drawn between an indicator of sexual behaviour, and an indicator of HIV incidence will again prove useful, and we will consider each in turn.

- An Indicator for Type and Rate of Sexual Contact

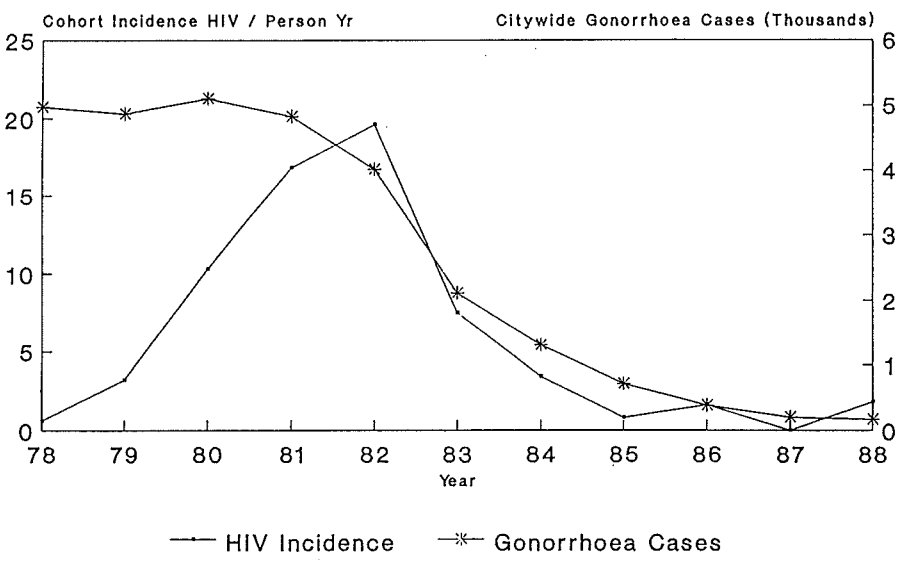
The relationship between patterns of sexual behaviour in a population and the incidence of the classical sexually transmitted diseases has never been fully investigated. This is perhaps because many STDs have been treatable, and their control can be effected by implementing programmes designed to achieve rapid diagnosis and treatment. There is thus little empirical evidence which we can use to choose an STD indicator of sexual behaviour. Ways in which we might set about obtaining such information are discussed in the final section.

- An Indicator of HIV Incidence

Prospective studies might provide the best means of identifying a suitable STD to act as an indicator of HIV incidence, as they allow direct comparison of time trends. Both prospective surveillance data and special cohort studies yield such information. HIV incidence rates in cohorts of homosexual men have been calculated for successive years during the 1980s. Figure 3 shows the results of one such study carried out in a cohort of 313 homosexual men in San Fransisco (10) . HIV incidence and number of cases of rectal gonorrhoea reported in the whole city are shown for each year between 1978 and 1988.

Figure 3

Cohort Incidence of HIV and Citywide
Cases of Rectal Gonorrhoea,
San Francisco 1978-1988

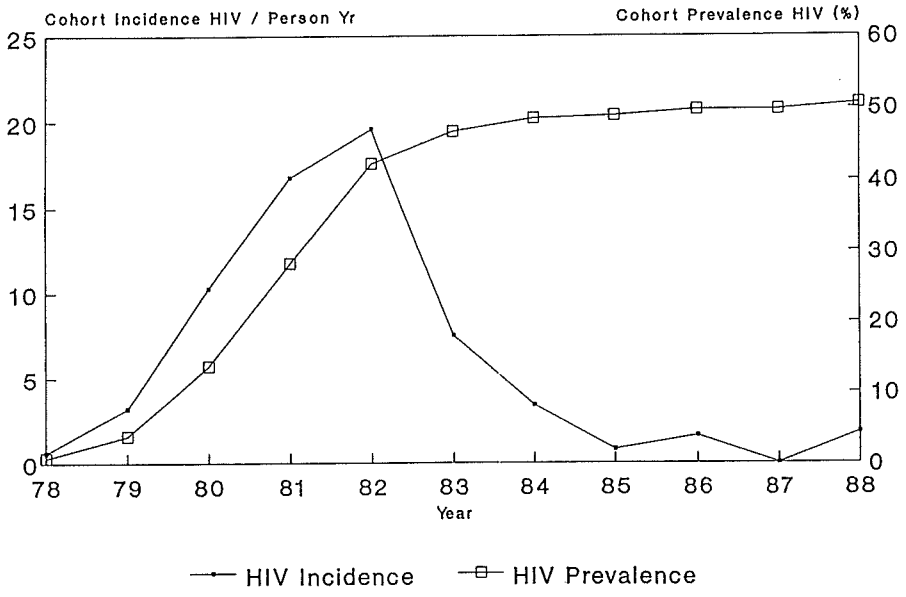


The figure shows a rapid increase in HIV incidence in the cohort up to 1982, followed by a sharp decline. A decline coincident and parallel decline city-wide notifications of rectal gonorrhoea is also shown. On the face of it these data might be interpreted as providing empirical support for the notion that rectal gonorrhoea incidence closely reflects HIV incidence, in a situation where HIV is endemic. There are two important reasons why we should not rush to accept this

view. Firstly, while the frequency of rectal gonorrhoea is measured in the whole city population, that of HIV is only measured in the cohort. Because the peak incidence of gonorrhoea in homosexual men is in 25-30 year olds, the city based figures are likely to reflect cases in this highly sexually active age range throughout the period under study. On the other hand members of the cohort are ten years older by the end of the period, a fact which is likely to be reflected in their levels of sexual activity. Any valid comparison of time trends in STD and HIV incidence must therefore be made between groups whose age structure is comparable over the period of observation (11). Secondly, as figure 4 shows, the prevalence of HIV in the cohort had already reached 40% by 1982.

Figure 4

Figure 4 Cohort Incidence and Prevalence of HIV
San Francisco 1978-1988



If, as seems likely, there was considerable heterogeneity in the cohort as regards sexual partner change, the decline in incidence after 1983 might merely reflect the fact that those whose behaviour put them at risk had already been infected by that time.

The second source of prospective data is routine surveillance. While these data can provide useful information on time trends in STD incidence, corresponding information on trends in HIV incidence has seldom been collected in a way which allows valid comparisons to be made. However, as data generated by new HIV

surveillance programmes become available many of the problems of validity may be overcome.

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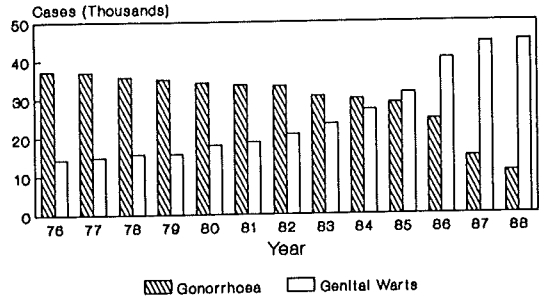
iii. Using the 'Newer STDs' as Indicators'

So far we have explored the theoretical and empirical grounds which exist to support the common-sense notion that STD occurrence can help us to monitor AIDS prevention. Our main conclusion has been that there are good theoretical reasons for supposing gonorrhoea to be a rapid and sensitive marker for type and rate of sexual contact in highly active sections of the population. No substantial basis has been found for thinking that any of the STDs will provide a reliable marker for HIV incidence. But what of the other 'newer STD' which appear to have become so much more common over recent years while syphilis and gonorrhoea have declined in importance ?

Throughout history some established infections have virtually disappeared and new ones have emerged . The reasons for these changes are generally unknown. Because in our knowledge of sexual behaviour we find an explanatory framework in which we can understand secular trends in STD incidence, we may be tempted to see changes in this behaviour as the whole cause of such trends. If we succumb to this temptation it leads us to a paradox. The figure on the next page shows numbers of men attending STD clinics in England and Wales between 1976 and 1988 (12,13,14).

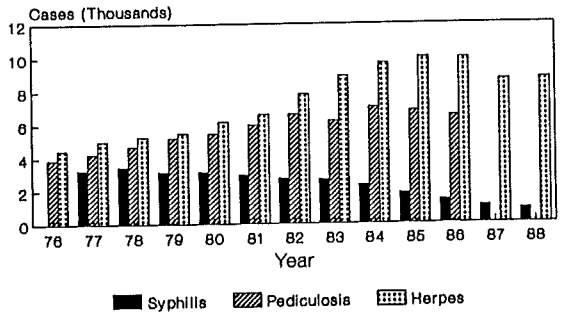
Figure 5

England and Wales STD Clinic Attenders
Gonorrhoea and Warts
MALES



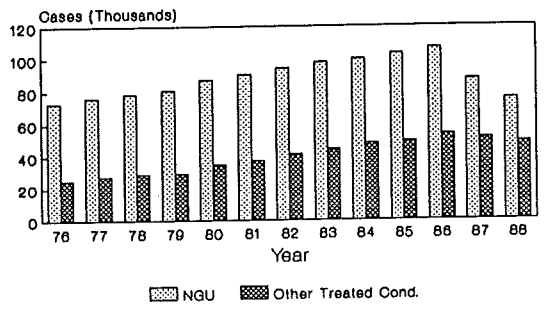
Source : UK Department of Health

England and Wales STD Clinic Attenders
Syphilis Pediculosis and Herpes
MALES



Source : UK Department of Health

England and Wales STD Clinic Attenders
NGU and Other Treated Conditions
MALES



Source : UK Department of Health

* non-gonococcal urethritis

The data show two distinct patterns. Firstly there appears to be a sharp decline in attendances at which gonorrhoea and syphilis were diagnosed. It seem unlikely that these can be wholly explained by earlier treatment, improved contact tracing or epidemiological treatment. Warts, herpes and pediculosis show a marked increase to the mid 1980s followed by a suggestion of decline. Treated non-STD cases show a similar pattern, suggesting that, at least for some of these diseases, the increase might be accounted for by the incidental ascertainment of asymptomatic disease among the increasing overall number of attenders. The numbers of attenders in whom no disease was found show very similar trends, with increases of around 50% over the period. One might argue that an increase in overall attendance of the order of 50-75% would be unlikely to account for the 4-5 fold increase in genital warts or the rise in genital herpes seen over the period, although it might more easily explain the increase in non gonococcal urethritis. However, one should remember that a considerable proportion of these reported infections will have occurred as multiple infections in the same persons.

Using our sexual behaviour framework how can we explain increases in some sexually transmitted disease while others are declining, ? One hypothesis might be that the different STDs are associated with different types of sexual behaviour Changes in such sexual behaviour would then engender changes in the occurrence of the associated disease, without having any significant effect on the occurrence of other STDs. One might attempt a preliminary test of this hypothesis by looking for changes in the proportions of cases which the different diseases contribute to the total burden of STD diagnosed among homosexual and heterosexual men over time. Generally however breakdown by sexual orientation of cases of STD other than gonorrhoea and syphilis are not available.

Another explanation might be that the newer diseases are in an epidemic phase, and have not yet reached a stable endemic equilibrium incidence. If this is the case, then they will probably be of little value as indicators of sexual behaviour within populations. This is not however to say that they are not worthy of surveillance.

A further problem with using the 'newer diseases' as direct or indirect indicators is that there is little quantitative information concerning the relationship between sexual behaviour and disease incidence. We are therefore not in a position to know in what ways their incidence will change with changes in sexual behaviour within a population.

a. Hepatitis B

Hepatitis B virus infection may be entirely asymptomatic. Incidence of the infection may be estimated both by clinical surveillance of symptomatic disease, by serial prevalence surveys of HBV antigens or antibodies or by laboratory notification of the results of tests for these immunological markers. Infection within EC countries is largely acquired through sexual activity or injecting drug use. Because it is frequently impossible to determine the mode of transmission through surveillance, it is difficult to use existing data on HIV occurrence as an indicator of sexual behaviour within populations. Because HIV is also largely transmitted during both injecting drug use and sexual contact, occurrence of HBV infection may provide a useful indicator of behaviour which puts people at risk for HIV infection.

b. Herpes Simplex Virus

The recent development of rapid sensitive and specific assays for differentiating HSV I and HSV II antibodies allow useful seroepidemiological studies to be conducted in selected populations. It has been claimed that HSV II antibody correlates well with parameters of sexual lifestyle (15), and trends in this prevalence may provide a useful indirect marker of sexual behaviour.

c. Chlamydia Trachomatis

With the widespread availability of ELISA for chlamydia trachomatis testing, both surveillance and screening programmes for this infection become possible. In particular the possibility of testing urine specimens from men may contribute significantly to our understanding of the epidemiology of this disease in the when problems of specificity and sensitivity have been resolved.

d. Syndromic surveillance

Syndromic surveillance entails the classification of STDs by their associated symptoms and not by their causative organisms. Such an approach may be especially useful where diagnostic testing is either unavailable or infrequently used. The surveillance of genital ulcer disease and urethritis in men may be used to good effect in GP sentinel networks.

e. Surveillance of Sequelae

Many STDs carry long term sequelae. Examples include infertility due to Chlamydia or Gonococcal infection, the hepatic complications of hepatitis B, neonatal Herpes Simplex virus infection, and the possible role of Human Papillomavirus in cervix cancer. Certain of these infections and/or their complications are good candidates for screening because effective approaches to their prevention and treatment are available. Examples include screening for Chlamydia, vaccination and/or screening of pregnant women for hepatitis B, virological and clinical screening of pregnant women at risk of HSV, screening for cervical dysplasia by smear and/or colposcopy. Surveillance, in this context can also provide useful information on trends in prevalence of these diseases. Furthermore if surveillance of these diseases includes the information on characteristics of patients, results will inform the development and targeting of programmes.

B. IN WHAT WAYS ?

There are several ways in which the occurrence of the STDs might be used to assess AIDS prevention.

i. Historical Association of Trends in Occurrence with Interventions

This approach in its crudest form has been taken by the majority of authors who have published data linking changes in STD incidence to AIDS awareness and Health Education campaigns (16,17,18,19,20). The frequency of occurrence of STDs is recorded over several years, and trends in occurrence may be related in time to specific preventive interventions. There are two major problems with this approach. We have noted above that patterns of sexual behaviour are only one of several influences on the frequency of occurrence of sexually transmitted disease. The effect on STD occurrence of any changes in sexual behaviour which may have been engendered by preventive interventions may therefore be confounded in time with changes in other pertinent factors, such as the biological properties of organisms, or the effectiveness of early treatment, or secondary prevention programmes. Secondly, where the occurrence of STDs is considered over periods of time spanning several years, important cohort effects come into play. It may be tempting to interpret an increase or a decrease in STD occurrence as reflecting a change in sexual behaviour patterns within a stable population at risk. Available data suggest however, that the age distribution of people who contract STDs remains similar over time, and that cases are therefore occurring in successive age cohorts (11). Changes in STD occurrence might therefore reflect patterns of sexual behaviour adopted by such successive age cohorts.

ii. Intervention studies

Intervention studies (21) can be used to compare the level or trends in incidence of an STD before and after some specific intervention. The inclusion of a control group who received no intervention represents a refinement of the historical observational approach described above. Appropriate design may overcome some of the problems of confounding identified in the previous section, where changes in influences on occurrence other than sexual behaviour may be assumed to be similar in both the intervention and control groups.

iii. Comparisons between different groups

STD incidence in various behaviourally defined groups can be compared, and corresponding differences in sexual behaviour inferred. The efficacy of a similar approach to prevention might thus be assessed in the different groups.

iv. Comparisons between different regions

The level or trends in incidence of the STDs can be compared between various geographically or sociodemographically defined regions. Observed differences may be attributed to corresponding differences in sexual behaviour.

The analysis of routinely collected data on the occurrence of STDs requires no additional resources or special studies, and is therefore likely to continue to be the most widely used and feasible approach. If however there is any move towards the formal assessment of AIDS prevention programmes through controlled trials, then STD occurrence may prove a particularly valuable outcome measure.

CAN STD OCCURRENCE BE USED TO ASSESS AIDS/HIV PREVENTION ?

- SUMMARY

Levels and trends in the incidence of the sexually transmitted diseases can usefully be employed to provide indicators of sexual behaviour within populations. As far as the relationship between sexual behaviour and HIV incidence is also known and predictable, we can infer trends in HIV incidence indirectly from observed trends in the incidence of the STD. At the present time incidence rates of the sexually transmitted diseases cannot be usefully be employed as a direct measure of levels or trends in HIV incidence.

Of the wide range of sexually transmitted diseases it is suggested on theoretical grounds that gonorrhoea and perhaps syphilis are the diseases whose incidences in a population will move most rapidly and predictably to a new level with changes in sexual behaviour. Because secondary prevention and the treatment and tracing of contacts can significantly alter their incidence, other diseases, particularly non gonococcal urethritis may provide a useful supplement.

There is little evidence of substantial differences in the distribution of the STDs across different groups which would lead us to identify specific diseases as indicators of particular value in specific groups. The obvious exception is hepatitis B, which may be of particular value among homosexual men. It is vital in this context to note that this disease is by no means exclusively sexually transmitted. Where it is possible to obtain accurate estimates of disease incidence, we can see no reason why the approach is more or less applicable in any geographical area or any particular population.

Our understanding of the relationship between sexual behaviour and STD incidence remains largely theoretical. Consequently there is a pressing need to test theoretical assumptions empirically by conducting empirical studies. A major question which remains to be answered is whether small (and cheap) analytical epidemiological studies can meet this need, or whether the only feasible approach is the collection of detailed information on patterns of sexual behaviour within the context of large scale surveillance projects.

Because HIV is in an epidemic phase it is probably impossible to relate STD incidence to HIV incidence cross-sectionally using either a direct or an indirect approach. The analysis of trends in STD incidence should therefore be the major focus of activity. Because trends can only be meaningfully analysed over

extended time periods, It makes no sense to wait upon the outcome of empirical studies of the relationship between STDs and sexual behaviour before setting up adequate surveillance systems. Thus analytic studies should be carried out in parallel to attempts to improve the accuracy and validity of STD incidence measurements within populations of interest.

9. STD SURVEILLANCE SYSTEMS IN EUROPE

STD surveillance systems in Europe were originally set up, in an era without modern antibiotics, for the primary purpose of containment and control of a limited number of venereal diseases. Clinician-based compulsory notification systems therefore dominated the scene until comparatively recently. Multiple notification of cases within these systems was quite logically considered acceptable and even desirable for control purposes. With the growth of interest in STD epidemiology which accompanied the rise in public health importance of these diseases during the 1960 and 1970s, the limited value of these data for epidemiological purposes was noted in several countries and the objectives of such systems redefined. Current objectives include obtaining information which can be used to estimate the size of the STD problem, to inform the design and evaluation of prevention and treatment programmes, and the management of services.

Many countries in Western Europe have attempted to develop STD surveillance either by enhancing existing systems, or by the implementation of new schemes (22,23). The ways in which the various countries have attempted this, and the extent to which they have succeeded has been determined by a wide range of organisational, social and political factors peculiar to their individual circumstances. Among the more important of these factors have been the nature and structure of health care delivery for STDs, the general political acceptability of public health surveillance, and the extent to which the public and governments have regarded STDs as an important problem.

A. Types of Surveillance

STD surveillance systems may be classified both by the approach taken to the ascertainment of cases, and by the extent of surveillance (22).

Cases of STD may be ascertained by:

- **Case-reporting**: where cases are ascertained in patients presenting themselves for treatment of STD related symptoms. Diagnosis may be by detection of the causative organism or by clinical syndrome.

- **Case-finding**: where cases are sought by clinical or laboratory tests to detect STDs in those seeking treatment for other reasons.

- **Screening**: testing for STD in defined populations who are not seeking care.

- **Epidemiological studies**: usually prevalence surveys (cross-sectional studies) in defined population samples.

Extent of Surveillance

- **National Surveillance.** National surveillance schemes attempt to identify all cases reaching medical care occurring within a country.

- **Sentinel Surveillance.** Sentinel surveillance schemes are generally focus on identifying cases occurring within the catchment populations of particular units delivering health care.

- **Surveillance in Special Populations** Surveillance in easily accessible, or epidemiologically relevant subgroups of the population such as military recruits and pregnant women.

The types of surveillance commonly used in Western Europe are described below.

i. National Reporting by Individual Clinicians

The principle is that clinicians should report all cases of specific diseases which they diagnose to a central authority. Reporting may be compulsory or voluntary or a combination of these. Diseases included vary from country to country. In most the 'classical' STDs: syphilis, gonorrhoea, chancroid and lymphgranuloma venereum (LGV) are covered. Usually, notification is anonymous, and attached information includes age, sex, district of residence and sometimes details of sexual contacts. National clinician-based reporting systems potentially allow the widest coverage of cases of STD.

ii. Reporting By Sentinel Clinicians

Sentinel clinician reporting systems take notifications from a subgroup of practitioners, chosen by defined characteristics, for example their clinical speciality or interest in STDs , on the basis of the population that they serve, or because of their ability and willingness to participate. STDs may represent only a small proportion of all diseases included in the system. The advantage of a high level of commitment, and the possibility of obtaining coverage of a wide range of STDs and better quality epidemiological information through such systems has made them popular in Western Europe in recent years (24). The consistency of reporting enables an accurate picture of time trends to be obtained. These systems are also flexible, and new diseases can be included with minimal disruption.

iii. National Laboratory Reporting

The general principle is that laboratories should report all positive tests for STDs which they carry out and, where appropriate, antibiotic sensitivities. Generally laboratories report a wide number of infectious diseases among which STDs are only a few. Laboratory reporting of STDs has been developed in a number of countries and complements clinical reporting systems. Reporting may be voluntary or compulsory.

iv. Sentinel laboratory reporting

Sentinel laboratory reporting systems take notifications from defined subgroup of laboratories and national reference laboratories, chosen for their interest in

STDs , on the basis of the population that they serve, or because of their ability and willingness to participate. Sentinel laboratories may be selected in conjunction with sentinel clinicians. STDs may represent only a small proportion of all diseases included in the system.

v. Screening and case finding

Much information on the prevalence of STDs within certain subgroups of the population is obtained from routine screening programmes. Hepatitis B, HIV and syphilis may be routinely screened for among blood donors, women attending for ante-natal tests, and other groups such as military recruits and prisoners. Screening programmes for chlamydia are also in vogue.

vi. Special Studies

Valuable and in some cases, unique surveillance data have been obtained from special studies of STD prevalence and antimicrobial sensitivity, and surveys of pharmaceutical prescribing. These surveys can provide new insight into the epidemiology of a disease or may serve to supplement routine surveillance systems. Unlinked anonymous screening studies for HIV (3,25) are a recent example of the use of this approach. Special studies are often the only method of obtaining information on the sequelae of STDs, such as the frequency of pelvic inflammatory disease after chlamydial infection or the frequency of carcinoma of the cervix after human papillomavirus infection.

B. CURRENT SURVEILLANCE IN WESTERN EUROPE

The following table summarises the surveillance systems which exist in most of the countries of Western Europe.

Table 5

	National Clinician Reporting	Sentinel Clinician Reporting	National Lab Reporting	Sentinel Lab Reporting
Belgium	+	+	-	+
Denmark	+	+	+	-
France	+	+	-	+
FRG	+	-	-	-
Finland	+	+	-	-
Greece	+	+	+	-
Ireland	+	-	+	-
Italy	+	+	-	-
Portugal	+	+	-	-
Netherlands	+	+	-	-
Norway	+	-	+	-
Spain	+	-	+	-
Sweden	+	+	-	+
Switzerland	+	+	+	-
United Kingdom	-	+	-	+

10. USING STD SURVEILLANCE DATA AS AN INDICATOR OF SEXUAL BEHAVIOUR

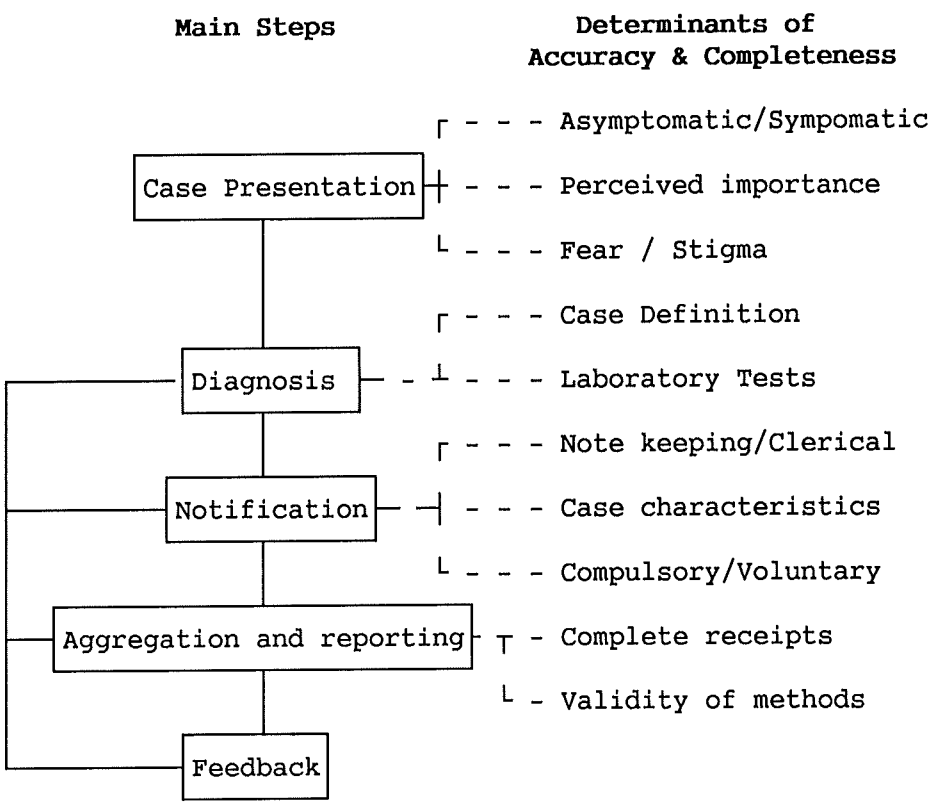
We have sought in our earlier discussion to emphasise the theoretical constraints on the use of STD occurrence to monitor AIDS prevention which are imposed by the differences in biologically determined transmission parameters between HIV and other STDs. In spite of these constraints the occurrence of STD can provide us with a useful indicator of sexual behavour within a population. We have dealt at some length with questions concerning the adequacy of measures of STD occurrence as indicators of sexual behaviour, given that the measures were themselves accurate. In attempting to interpret real data generated by real surveillance systems we musk ask ourselves four additional questions. Firstly, are the estimates of the rates or trends in occurrence sufficiently accurate or consistent to allow any conclusions to be drawn ? Secondly, are data available for long enough periods to allow the analysis of trends ? Thirdly, is sufficient information available on the pertinent characteristics of cases to allow meaningful interpretation, given the behavioural and sociodemographic heterogeneity of the populations surveyed ? And fourthly, what influences other than sexual behaviour patterns might have influenced occurrence ?

A. Accuracy And Consistency of Estimates of Level and Trends in Occurrence

Some of the factors which determine the accuracy and consistency of these estimates are common to all surveillance systems while others are peculiar to particular types of system, or the context in which they operate. The common factors can be identified using the idealized scheme shown below, which emphasises that they arise at each stage of the surveillance process.

Figure 7

Features of the surveillance process



i) Case presentation

Whether or not a person with an STD ever comes to see a doctor will depend on the presence or absence of symptoms, their perceived importance, the accessibility of medical care and the fear and stigma associated with the disease. Of these, the first two are likely to vary significantly with the specific clinical features of the disease in question. All of the factors are likely to vary substantially with gender, social class, ethnicity and other demographic characteristics

ii) Diagnosis

Where case reports are based on clinical diagnoses, diagnostic criteria may vary, and those cases reported may or may not be confirmed by laboratory tests. Laboratories may vary in the sensitivity and specificity of their diagnostic tests, and there will inevitably be changes both in the tests used and the proportion of cases tested over time.

iii) Case notification

The proportion of diagnosed cases which are notified will depend on whether the notification is compulsory, the existence of incentives, and the complexity of the notification process. This latter is particularly important. Attempts to enhance the interpretability of surveillance data by expanding details requested for each case increases the complexity of the process. This in turn may depress notification rates.

iv) Aggregation and reporting

Major problems of interpretation of notification data relate to the determination of the size of the population at risk . For crude incidence estimates this is especially a problem where surveillance data are derived from health care facilities. Where attempts are made to break down incidence rates by variables such as sexual orientation, injecting drug use, or involvement in commercial sex, the problems of assessing the size of these populations will be considerable at whatever level surveillance is being carried out.

Problems with specific systems

Surveillance through national reporting by individual clinicians aims to record all cases of STD in a country which reach medical care. The important factor limiting interpretation is under-reporting. The proportion of STD cases which are notified varies considerably from country to country but may be less than 5% (26) in some countries. In addition the patchy access to laboratory diagnostic systems may also be important, especially where the majority of cases of STD are seen by general practitioners.

For most sentinel clinician networks it is very difficult to evaluate the size and characteristics of the population which participants serve, or changes in

this population or its characteristics over time. This problem limits ability both to interpret trends, and to generalise results to countries as a whole. Furthermore the relatively small number of participants will restrict the power of the system, particularly in the surveillance of STDs of low incidence.

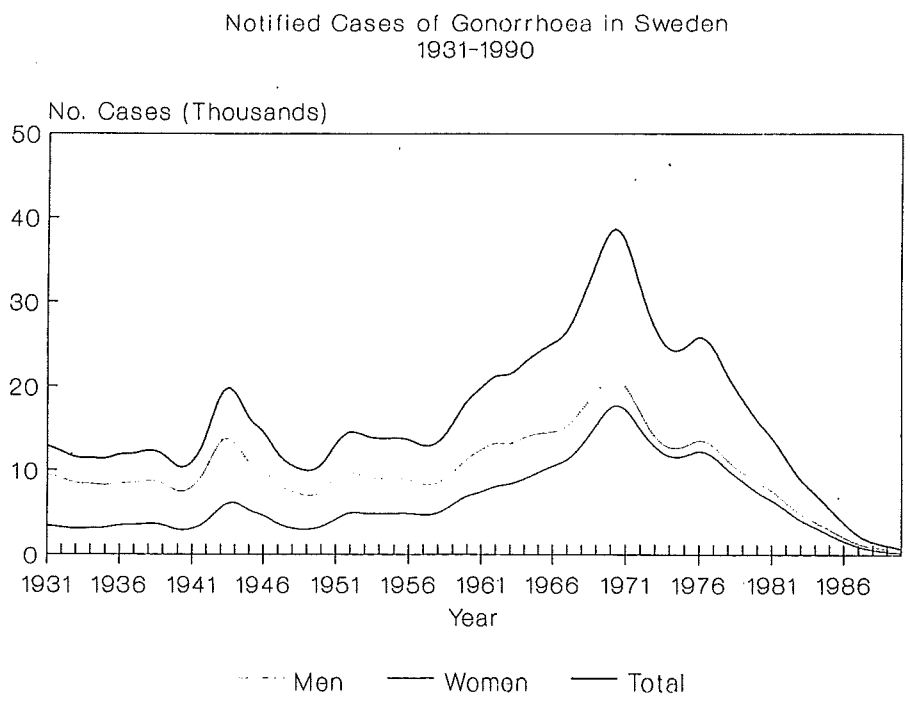
Several of the common STDs are not amenable to surveillance through laboratory reports because routine diagnostic tests are not widely available. In addition any changes in the frequency with which diagnostics tests are used, such as the recent widespread and rapid increase in the use of ELISA for chlamydia trachomatis may produce major artefacts in the observed trends in occurrence derived from laboratory notifications. Laboratory reporting can only rarely provide epidemiological information beyond the age and sex of patients and, in some cases, the site of infection.

Although the problems outlined above hamper our attempts to obtain accurate measures of STD incidence, they are less of a handicap in assessing trends in incidence. If the influences determining case presentation, diagnosis and notification have remained fairly constant over time, then proportional changes in real incidence will be reflected in reported incidence. Conversely, artefactual trends in reported incidence are likely to appear where changes have occurred in any element of the notification system. The likelihood of cases presenting may have been a particularly important bias in recent years with attempts to focus public attention on AIDS and sexual hygiene.

B. Are Data Available For Long Enough Periods To Allow The Analysis Of Trends ?

In many countries data from STD surveillance systems are only available for recent years. The experience of countries which have collected data for decades emphasises the importance of long term information. Long term trends probably arise from a complex interaction of social, behavioural and biological factors (7). Figure 8 shows annual case reports for gonorrhoea in Sweden between 1912 and 1990 (27). Numbers of reported cases are shown combined for both sexes, and for men and women individually.

Figure 8



The figure shows interesting peaks around both the first and second world wars, perhaps resulting from changes in the stable patterns of sexual behaviour during socially disrupted times. A sharp increase begins in the early 1960s reaching a peak in 1970, and then declining sharply to reach, by 1982, its lowest level at any time since 1915. The decline then continues to 1987. The figure is intended to demonstrate the magnitude of the trends which have occurred over the last 85 years, against which backdrop we must assess the influence of AIDS prevention programmes in recent years and in the future. Failing to take this longer view may lead to misinterpretation. An example will again serve to illustrate the point.

Figure 9 shows the total number of positive gonococcal isolates obtained from male patients attending the Genitourinary Medicine Clinic at St Mary's Hospital, Paddington, UK in the first six months of 1983, 1984, 1985 and 1986. The data were published in a letter, the final line which is quoted at the bottom of the figure (28).

Figure 9

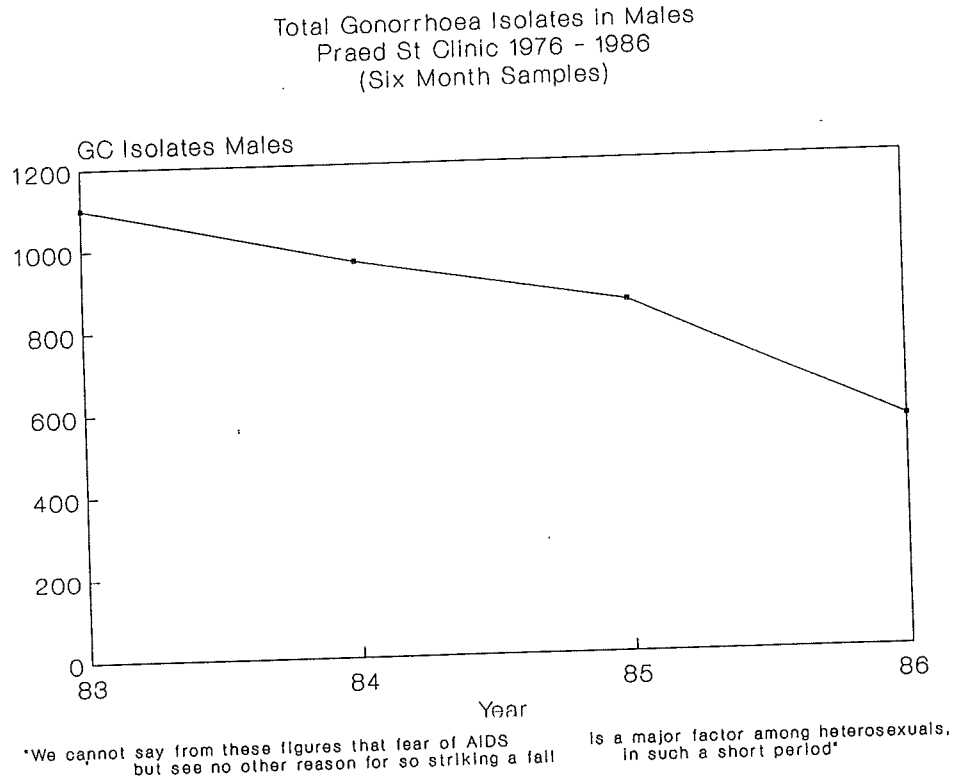
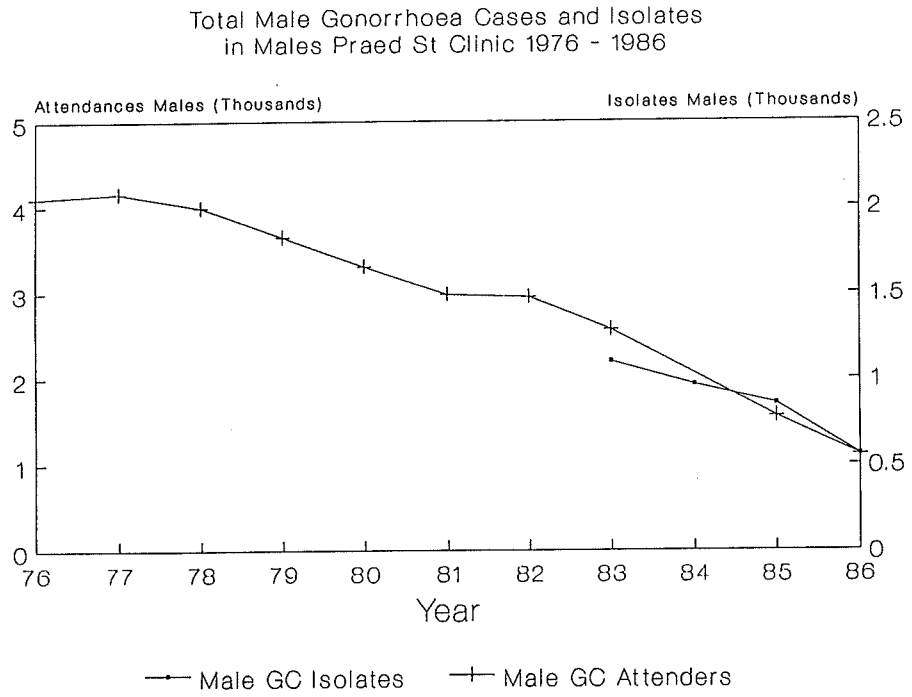


Figure 10 shows the same data plotted together with the number of cases of gonorrhoea notified to the Department of Health by the same clinic between 1976 and 1986 (29).

Figure 10



The figure suggests that the decline in number of gonococcal isolates from men actually reflected a trend in occurrence which had been occurring since at latest 1977 and was therefore not due to fear of AIDS. While it is certainly possible that in the absence of AIDS, the number of gonococcal isolates might have remained steady or increased, the need for caution in the interpretation of short term trends is emphasised.

C. Is Sufficient Information Available on the Pertinent Characteristics of Cases to Allow Meaningful Interpretation ?

While existing surveillance systems can provide a broad impression of the trends in STD incidence, very often age and sex are the only case characteristics notified. The absence of more detailed information limits the value of the data as a measure of the success of AIDS prevention programmes. Three types of information which are frequently lacking would be particularly useful:

- Whether or not a case is a reinfection, with details of STD history: this would be valuable in assessing trends, and distribution of cases.

- HIV transmission *risk category* attached to each notification: this would enable an assessment of adoption of *safer sex* practices within particular transmission groups.

- Details of the recent sexual history of cases: this would allow more accurate assessment of the relationship between sexual behaviour and STD risk.

D. What Influences Other Than Sexual Behaviour Patterns Might Have Influenced Occurrence ?

i) Effects of treatment and contact tracing programmes

Clearly these are important for diseases where treatment is available. The mean duration of infectiousness is major factor influencing the incidence of gonorrhoea (8). Treatment of cases and sexual contacts will tend to reduce the average duration substantially. We must be alert therefore to the possibility that changes in the incidence of treatable sexually transmitted diseases may result as much from the success or failure of treatment and secondary prevention programmes as from changes in sexual behaviour. The size of the effect on reported occurrence of STD may be very difficult to assess.

ii) Effects of widespread antibiotic prescribing

It is possible that the widespread use of antibiotics for the treatment of other illnesses might have significantly reduced the occurrence of syphilis and gonorrhoea by treating asymptomatic cases in the population serendipitously.

iii) Biological changes in the organisms

These must always be considered in interpreting time trends in the occurrence of any infection. It is noteworthy that in several countries the decline in gonorrhoea occurrence has been observed only in non penicillinase producing strains (30).

iv) Demographic changes

Migration of individuals from countries having a high prevalence of a particular STD to one having a low prevalence can considerably increase the incidence of the disease in the receiving country (31).

11. WHAT DO EXISTING STD SURVEILLANCE SYSTEMS TELL US ABOUT AIDS PREVENTION TO DATE ?

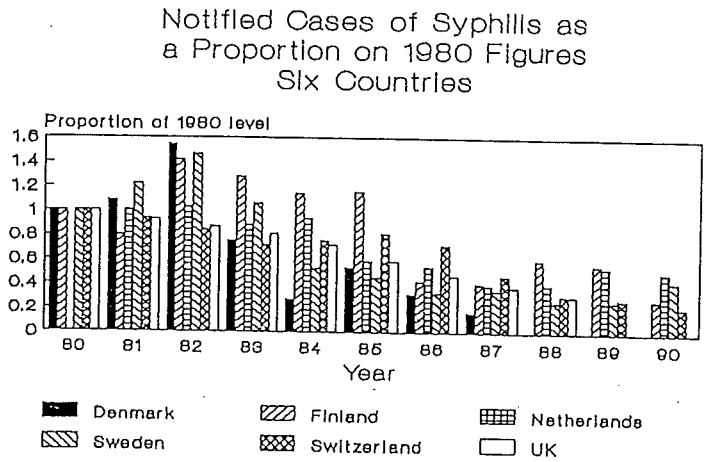
So far we have concluded that measures of the frequency of occurrence of STDs tell us little about the incidence of HIV infection directly. They may provide useful indicators of some aspects of sexual behaviour, although not necessarily those relevant to HIV transmission. Estimates of the level and trends in incidence are frequently inaccurate, and generally only available for gonorrhoea and syphilis, although STD clinic and other sentinel networks promise information on a larger number of STDs in the future. However, examination of the available national surveillance data does reveal remarkable and consistent trends.

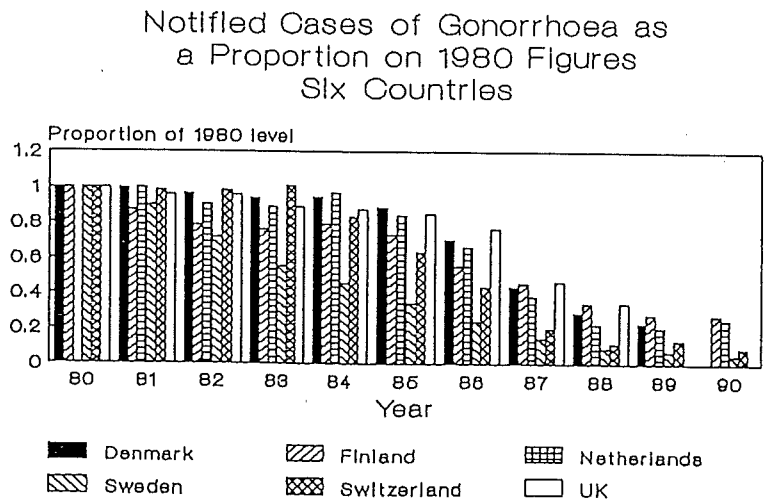
A. National Data on Occurrence of Gonorrhoea And Syphilis

Proportional changes in occurrence of both gonorrhea and syphilis between 1980 and 1990 in six countries are shown in Figure 11. The data for gonorrhoea are based on national clinician notifications for all countries except the UK and Denmark. For the UK the data derive from the STD clinic attendance figures (12,13,14) and for Denmark from the laboratory notifications.

The trends for gonorrhoea are remarkably consistent across the countries, showing an acceleration in decline from 1984 , bottoming out in 1989/90. The trends for syphilis are similar but less consistent.

Figure 11


Notified Cases of Syphilis as
a Proportion on 1980 Figures
Six Countries
Proportion of 1980 level
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
80
81
82
83
84
85
86
87
88
89
90
Year
Denmark
Finland
Netherlands
Sweden
Switzerland
UK

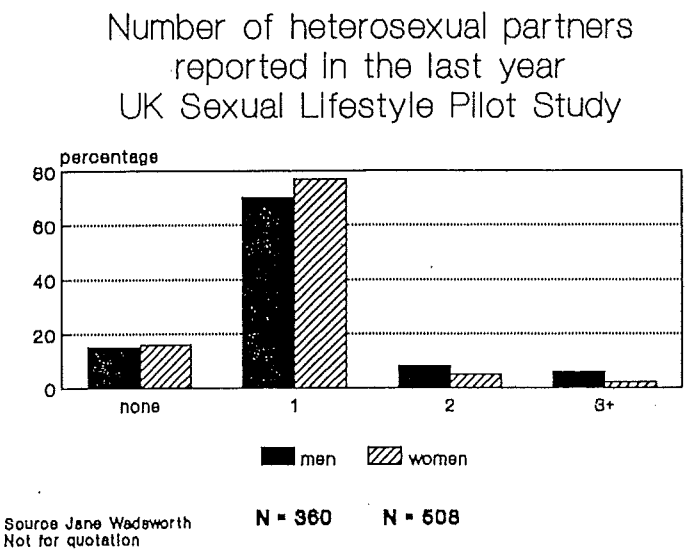

Notified Cases of Gonorrhoea as
a Proportion on 1980 Figures
Six Countries
Proportion of 1980 level
1.2
1
0.8
0.6
0.4
0.2
0
80
81
82
83
84
85
86
87
88
89
90
Year
Denmark
Finland
Netherlands
Sweden
Switzerland
UK

Despite all the cautions expressed above, these trends are impressive, and it is hard to accept them as wholly artefactual. Furthermore it seems unlikely that they can be completely explained by better treatment and contact tracing activities, or by a wider use of antibiotics for other illnesses treating incidental cases in the population serendipitously. If these trends do indeed reflect some undefined changes in sexual behaviour in the populations concerned we are faced with the problem of determining the nature of these changes, and their implications for HIV prevention. This is not a straightforward problem.

It is not frequently appreciated that trends in occurrence of an STD measured over several years cannot be accounted for by changes in behaviour in an age cohort of individuals. The median age for gonorrhoea cases has remained largely unchanged over the period 1980-1990 (12,13,14), Thus the observed decline in incidence probably reflects increased adoption of safer sex practices by young people who are becoming sexually active over the period, rather than changes towards safer sex in those who have already been active (11). This fact is of major importance to preventive strategy since it suggests that the priority might be to get the safer sex message across to younger people who are becoming more sexually active, rather than to intensify efforts designed to maintain safer sex among those who have already modified their behaviour.

The simple core / non-core model for gonorrhoea described earlier emphasises that changes in gonorrhoea incidence are likely principally to reflect changes in behaviour among a small number of highly sexually active individuals. The notion that gonorrhoea occurrence in a population reflects some evenly distributed parameter of sexual behaviour is almost certainly wrong. Such information as is available from representative population samples suggests for instance that the majority of people are effectively monogamous over long periods, with a small minority having multiple partners. The figure below shows the distribution of numbers of sexual partners in one year before interview using data taken from the pilot phase of the UK Sexual Lifestyle Survey.

Figure 12



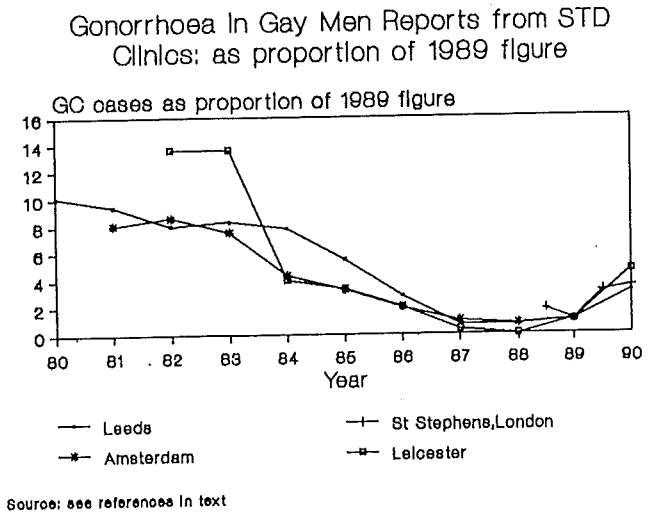
As we suggested in the context of mathematical models for gonorrhoea transmission, we cannot assume that changes in sexual behaviour which lead to a decline in gonorrhoea incidence remove the conditions which permit the continued dissemination of HIV in the population or vice versa. HIV is probably much less infectious than gonorrhoea. The period of infectiousness may last many years and

infected individuals do not move back into the pool of susceptibles. Consequently the transmission dynamics of HIV are likely to be very different to those of gonorrhoea, and it would be unwise to assume that HIV infection is not sustainable at the levels of sexual contact rate which engender a rapid decline in gonorrhoea occurrence.

B. Gonorrhoea in Homosexual Men

Some information is also available on recent trends in occurrence of STD among gay men. The following figure shows standardised attendances of gay men with gonorrhoea at 3 STD clinics in the UK and two (aggregated) in Amsterdam (16,17,18,19) The number of attendances in each period is displayed as a proportion of the number of attendances for the particular clinics in 1989.

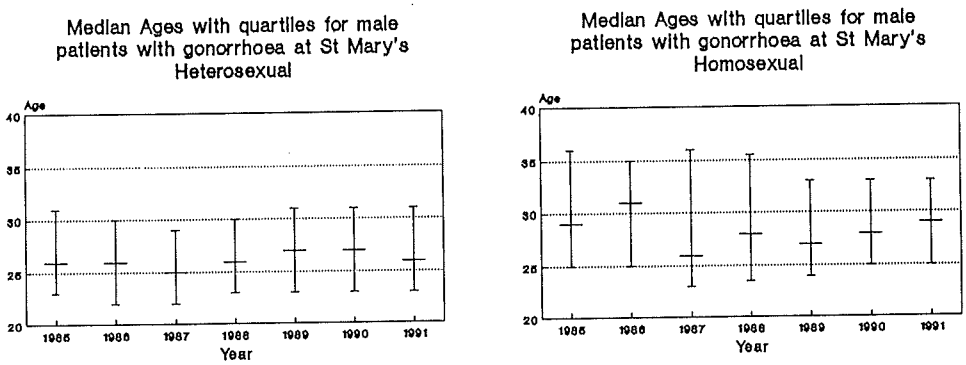
Figure 13



Source: see references in text

These data show consistent trends in the frequency of diagnosis of gonorrhoea in homosexual men attending STD clinics in the diverse geographical locations. A period of decline reaching a minimum in 1988, is followed by an increase in both 1989 and 1990. The recent upturn has been interpreted as evidence for a parallel increase in the frequency of sexual acts which might permit the transmission of HIV often couched in terms such as 'return to unsafe sexual practices', and 'relapse into high risk sexual behaviour'. The impression created is that of a group of homosexual men, who having made appropriate changes towards safer sex, are reverting to their previous unsafe practices. To assess whether this impression is justified we have compiled data on homosexual men attending the Praed St Clinic, St Mary's Hospital Paddington with gonorrhoea during the first two week of February, May, August and November in the years 1985-1988. The median and range for the ages of these men is presented in the following figure.

Figure 14



The median age of attenders does not appear to be increasing. It seems improbable that gonorrhoea diagnoses reported from STD clinics over a period of several years represent cases incident in the same age cohort. It is likely that many of the cases diagnosed towards the end of a period of years will occur among people who have become more sexually active since the beginning of the period.The lessons to be drawn from these data, as for the national data discussed above, may be that a focus on adoption rather than maintenance of safer sex practices may be appropriate.

An alternative explanation might be that the increase in occurrence represents a change in contact patterns in the populations of homosexual men in the catchment areas of the clinics. Using the core non-core model described above it seems possible that the recent increase in occurrence might be explained by a concentration of sexual activity within the core group.

C. Other STDs

Reliable data on the trends in occurrence of other important STDs are available for England and Wales. The problems of interpretation posed by observed increases in some STDs while others are declining have been discussed above.

12. HOW MIGHT WE ENHANCE THE VALUE OF STD SURVEILLANCE DATA FOR MONITORING AIDS PREVENTION ?

The factors which limit the extent to which STD surveillance data can be used to assess trends in sexual behaviour arise both from our lack of a quantitative measure of the relationship between sexual behaviour and STD risk, and from the inaccuracy and questionable validity of our measures of STD occurrence. An expansion of basic research into sexual behaviour and STD risk, carried out in parallel to the improvement of the surveillance systems themselves is therefore required.

A. Basic Research

For trends in estimates of STD incidence to be reliably used as measures of changes in sexual behaviour we need to know far more about quantitative aspects of the relationship between the occurrence of the various STDs and sexual behaviour. While the collection of more information on parameters of the sexual behaviour of STD cases through the development sentinel networks will provide new information about the distribution of the STDs in relation to these parameters, there remains a pressing need for a programme of both empirical and theoretical research directed towards the further elucidation of the relationship. This might include :

i. Empirical Work

- Transmission Parameters of Organisms

Attempts should be made to measure infectivity, incubation period, duration of infectiousness, immunity and individual non-sexual risk factors for acquisition of infection with the STD pathogens, through both clinical and epidemiological studies of individuals with STDs, and their sexual partners.

- Relationship between sexual lifestyle and risk of STD

There is need to extend and refine the ways in which we define and measure sexual behaviour for this purpose. It is then of central importance to identify the parameters of sexual behaviour which determine risk of acquisition of the STDs and to describe their effects quantitatively. This may be achieved through case-control, follow-up studies, and intervention studies in suitable populations. In addition it will be necessary to characterise the distributions of these parameters of sexual behaviour through special surveys in the general population and in groups of particular interest.

ii. Theoretical Work

Stochastic and deterministic mathematical models of STD dynamics provide formal specifications of the intuitions and assumptions which we use throughout our work on STD epidemiology. For this reason their elaboration allows us to bring greater clarity to our thinking on the subject. Virtually all the recent STD epidemiological modelling work has been concerned with HIV infection. Models

incorporating sophisticated population mixing assumptions have now been developed. The construction of similar models for other STDs will assist us in two principle ways. Firstly, it will inform empirical work through the a priori identification of aspects of sexual behaviour likely to be important in determining risk of acquisition of STDs. Secondly it will provide us with a framework within which we can achieve a quantitative appreciation of the relationship between trends in STD occurrence and underlying changes in sexual behaviour which explain these trends.

B. Improvements to Surveillance Systems

In our previous discussion we noted that the generation of information of use in monitoring sexual behaviour is only one among the several objectives of STD surveillance. Improving the quality of the data will however serve all of these objectives. It is not possible, to identify any combination of the approaches to surveillance outlined above which will provide optimum results in all countries. What is appropriate for future development will depend on the nature of existing systems and a number of wider factors. The nature of the relevant legislation, the structure of health care delivery and laboratory services, the nature and extent of the Public Health 'culture' among clinicians and laboratories, and the particular epidemiological and clinical profile of STDs which is found within a particular country must all be taken into consideration. The evolution of STD surveillance in Western Europe has therefore been, and is likely to remain incremental and pragmatic, in the face of rapidly shifting objectives, resourcing, and political and cultural imperatives. Notwithstanding this, certain objectives can be defined towards which surveillance systems might develop:

i. Extend the range of diseases covered by surveillance.

This will allow both a wider characterisation of trends in STD and the identification of new markers for sexual behaviour in various populations.

ii. Extend range of epidemiological variables to be attached to cases.

The availability through surveillance systems of information concerning the socio-demographic and sexual behavioural characteristics, and STD histories of patients, together with an increase in the number of diseases covered, will enable a clearer picture to emerge of trends in STD occurrence within different groups in the population. In addition it will provide useful information on the relationship between reported characteristics and the risk of acquisition of STDs, particularly where population based information on the distribution of such characteristics over representative population samples is known.

iii. Measurement of HIV prevalence among STD attenders

Availability of information concerning HIV prevalence among people with STDs will make possible analysis of the influence of STDs on susceptibility to HIV infection, and a direct estimates of the relationship between STD risk and HIV risk.

iv. Upwards Compatibility

As countries develop their surveillance systems it is crucial that useful elements in existing systems should be preserved. As we suggested above, the analysis of secular trends in STDs requires a time-frame of many years. Because new surveillance systems will only generate data prospectively, it is essential that this new data should be comparable with that which has been generated by the old systems

v. Patterns of service utilisation

Where surveillance systems based upon sentinel clinical or laboratory networks are developed, information on the size, characteristics and service utilisation patterns of catchment populations should be collected in parallel through special studies. This will facilitate the interpretation of the data and identify new options for surveillance in the future.

To achieve these goals and to allow comparison between countries of the frequency of STD occurrence in the future, the WHO Regional Office for Europe (22) has provided a broad framework within which the surveillance of STDs might be developed. The proposals are summarized in the following table.

Table 6

Disease/ Syndrome	Reporting Categories	Surveillance System: Indiv Clin	Sent Clin	Lab	STD Clin	Scrn CF	Surv
SYPHILIS	Total Syphilis	+	*	*	*	a/b/c/d	
	Early symptomatic				*		
	Latent				*		
	Congenital	*	(*)				
	Age/Sex	*	*	*	*		
	Sexual preference		*		*		
	Travel associated		*		*		
GONORRHEA	Total gonorrhoea	*	*	*	*	d	f
	Post-pubertal				*		
	Neonatal	*	(*)				
	Age/Sex	*	*	*	*		
	Sexual preference		*		*		
	Travel associated		*		*		
	Site of infection		*	*	*		
	Anitibiotic resist			*	+		h
NON GON GENITAL INFECT'N	Total NGGI	*	*		*		
	Chlamydia			+	*	e	
	Age/Sex	*	*	+	*		
	Sexual preference		*		*		
	Travel associated		*		*		
HEP B	Total Hepatitis B	*	(*)	*		b	
	Age/Sex	*	(*)	*			
	Sexual preference		(*)				
	Inject drug use		(*)				
	Ab neg carrier				*	b	

1 = Surveillance system not appropriate for very low incidence STDs, unless sentinel clinicians diagnose/treat majority of cases

* = collection of data item appropriate to surveillance system

(*) = collection of data item appropriate if suitable sentinel clinicians can be identified

\+ = collection of data item appropriate if relevant diagnostic facilities available

a= ante-natal testing
b= blood donor screening
c= military / prisoners
d= prostitutes
e= family planning clinics
e= family planning/contraceptive clinics
f= pharmacy surveys
g= prevalance surveys
h= aetiological/antimicrobial studies

C. Practical Considerations

A number of wider issues must be taken into account in attempting to develop new and better STD surveillance systems. Legal problems may be encountered within individual countries where development of STD surveillance is attempted. There may be a need for changes in the law where modifications to statutory notification systems are proposed. In addition the disclosure of information obtained by a physician from his patient raises legal and ethical difficulties, especially where the information is disclosed in a form which might allow the identification of the patient. Where surveillance systems entail performing tests on people purely for surveillance purposes or without their consent, extremely complex legal and ethical problems are likely to be encountered.

The cultural acceptability of health surveillance and Public Health, both to health professionals and to the general public, varies considerably between countries. The extent to which State authorities can legitimately require access to detailed information about the affairs of citizens, is in general an issue which arouses strong feelings. This may be particularly true in countries which have recently experienced centralised authoritarian government (31). Attempts to enhance STD surveillance systems by collecting more extensive and detailed information about disease occurrence, and the characteristics of cases may therefore meet with resistance from both the public and health professionals.

13. SUMMARY

AIDS prevention activity has focussed on attempts to bring about changes in behaviour relating to the various modes of HIV transmission, through health education programmes. Attempts to assess the effect of such interventions through 'Knowledge-Attitude-Behaviour' studies or serial estimation of HIV seroprevalence face major problems. Against this background the possibility of using STD occurrence as a measure of programme impact becomes attractive.

STD occurrence might be used as an indicator of the effect of AIDS prevention programmes in two ways: directly as an indicator of HIV incidence, and indirectly as an indicator of sexual behaviour. Because HIV infection in contrast to some other STDs is in an epidemic phase, it is very difficult to envisage a consistent and interpretable relationship between HIV incidence and that of any STD. An indirect approach therefore seems more promising.

Simple transmission models suggest that gonorrhoea infection might provide a rapid and sensitive indicator of changes in sexual behaviour within populations. The disease also has the advantage that historical data on its occurrence are available in many countries. A major drawback is the dependence of the incidence of the disease on how early in the infection treatment is carried out. The models also suggest that changes in gonorrhoea incidence are likely principally to reflect changes in behaviour among a small number of highly sexually active individuals. Furthermore types of sexual act which permit the transmission of gonorrhoea do not necessarily permit the transmission of HIV. We cannot assume that changes in sexual behaviour which lead to a decline in gonorrhoea incidence remove the conditions which permit the continued dissemination of HIV in the population or vice versa.

The occurrence of gonorrhoea and syphilis appears to have been decreasing while that of several other STDs has been increasing. This may be partly explained by more timely treatment of gonorrhoea and syphilis index cases and contacts, and increased ascertainment of cases of other STDs. However the possibility that some of these latter diseases are, like HIV, in an epidemic phase should be considered. At present insufficient is known about the descriptive epidemiology of these diseases, their biologically determined transmission parameters or the quantitative nature of the relationship between their incidence and patterns of sexual behaviour for them to be reliably used as direct or indirect indicators.

STD surveillance systems have been in operation in many countries for several years, and analysis of the estimates of STD occurrence which can be derived from them represents an attractive approach to assessing the impact of AIDS prevention programmes on sexual behaviour. Interpreting surveillance data in this way requires a proper understanding both of the limitations of the data themselves, and the factors which might confound the relationship between sexual behaviour and STD incidence.

In many countries, STD surveillance systems were set up before the advent of modern antimicrobial therapy, for the purpose of control and containment of venereal disease. Data derived from the clinician based notification systems appropriate to this purpose do not readily lend themselves to the calculation of STD incidence, and the proportion of cases notified is frequently less than 50%. Furthermore the diseases usually selected for surveillance; syphilis, gonorrhoea, chancroid and lymphgranuloma venereum, have become less common, while others such as genital warts and herpes have increased in importance.

Other influences which may affect reported STD occurrence, but are unrelated to sexual behaviour, should be born in mind when considering trends in STD surveillance data. These include improved treatment and contact tracing programmes, the widespread use of antibiotics, changes in the biological properties of the STD pathogens and demographic changes. The availability of data for long enough periods to allow the analysis of trends also needs to be considered. Perhaps the greatest shortcoming of existing data is the lack of information generally available on the sociodemographic and sexual behavioural characteristics of cases, and the proportion of cases that are reinfections.

Major and consistent decreases in the occurrence of these diseases over recent years probably reflect at least in part changes in sexual behaviour in the countries concerned. The lack of sociodemographic and sexual lifestyle data on cases restricts our ability to infer the nature of or extent of such changes.

Because of the constancy of the age distribution of cases of gonorrhoea and syphilis over time , trends in occurrence measured by existing surveillance are more likely to reflect disease occurring in successive age cohorts, rather than in a single age cohort over time. Thus the decline in gonorrhoea and syphilis, if interpreted as caused by changes in sexual behaviour, should be interpreted in terms of successive cohorts of young people successfully adopting and maintaining sexual behaviour which puts them at low risk for acquiring these diseases rather than as a single age cohort switching and maintaining their switch towards lower risk sex.

In order that STD surveillance systems should provide information which will be of use in monitoring AIDS prevention in the future, these systems must themselves be improved, in parallel to an expansion of research effort directed towards achieving a greater understanding of sexual behaviour, and the relationship between such behaviour and STD transmission and incidence.

Our ability to infer trends in sexual behaviour from trends in STD incidence would be enhanced if we were better able to define those parameters of sexual behaviour which are important in determining STD risk, and to quantify their effect. This would be best achieved through appropriately designed longitudinal studies. In addition the distribution of these parameters among the general population and groups of particular epidemiological relevance should be determined through surveys of sexual behaviour. Such a programme of research might be developed in parallel and perhaps in conjunction with programmes directed to the elucidation of the epidemiology of HIV infection.

Efforts to improve coverage, accuracy, validity and timeliness of data produced by existing surveillance systems are being supplemented in many countries with new schemes, using a variety of approaches, and targeted at various population. Among the most promising of these approaches is the development of networks of sentinel STD clinics which allow surveillance of a wide range of STDs, and the collection of detailed information regarding sexual lifestyle and previous history of sexually transmitted disease. The linkage of such data with HIV serostatus of ascertained cases may prove particularly valuable. The main drawback of these networks lies in the uncertainty over the extent to which their catchment populations are representative of the population at large, and the lack of denominator information. Interpretation of data may be further limited by our ignorance of the distribution of the epidemiological parameters measured, within the wider population. There is therefore a requirement whenever sentinel approaches to surveillance are used, to carry out special studies, both of the distribution of these parameters in the population at large, and of the patterns of attendance of people with STDs at the various health care facilities.

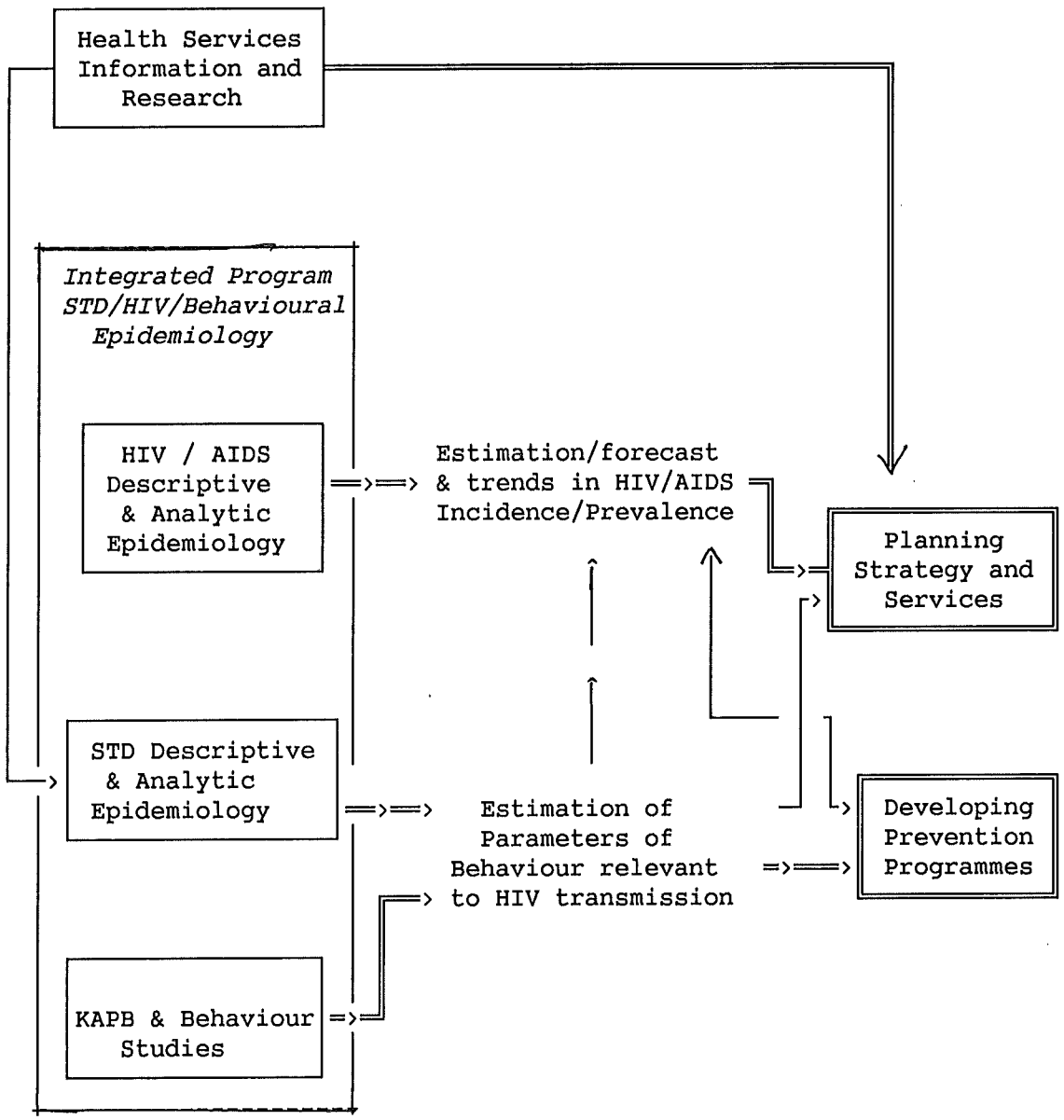
In addition any changes to surveillance systems should ensure that new data can be analysed together with that which has been collected in the past.

It must be further recognised that the problems of using STD occurrence as an indirect indicator of the success or otherwise of HIV/AIDS prevention programmes are not purely technical or scientific. In particular any changes in statutory notification systems require change in the law. In addition, there may be marked differences in perception of the public health importance of STDs between governments, the public and those scientists and doctors working in the field. Attention must therefore be given to channels of communication between epidemiologists, public health physicians and Health Ministries. In addition persuasive arguments to support our perception of the importance of the STDs could be developed by using Health Economic and Health Services Research analyses of the burden which these diseases place on scarce health service resources. Ethical problems arising from the disclosure by physicians of information on their patients, and consent of patients to testing when screening or special surveys are being carried out require special attention.

Despite all the problems, the frequency of occurrence of STDs may prove to be the most objective, reliable and timely indicator of sexual behaviour, and thus of the effectiveness of our HIV prevention programmes, which is available to us in the developed world. In order for the full potential of the approach to be realized there is a need for individual countries to develop appropriate structures within which to develop STD surveillance systems and epidemiological research programs. A schematic representation of such an integrated information system is shown in the final diagram . In addition, the experience of individuals responsible for such systems and programmes should continue to be shared at a supra national level.

Figure 15

PUBLIC HEALTH INFORMATION BASE FOR STD



14. RECOMMENDATIONS TO THE EUROPEAN COMMUNITY

It is recommended that

a. Data from all participating countries should be collected at a central clearing house annually.

b. The EC should provide full technical support to member states in their attempts to develop improved systems for STD surveillance, and financial support for a continuation of the existing Concerted Action which allows the sharing of the experiences of different countries.

c. The standard case definitions and attached items of information for STD surveillance as published by the WHO (21) should be adopted by all countries.

d. The AIDS Epidemiology Programme Management Group of the EC should incorporate into its remit the development of a programme of basic epidemiological research into STD, including theoretical empirical and analytic studies.

Mechanisms for Implementation

The mechanisms by which the recommendations of the report might be implemented are as follows.

a. National and international agencies to whom the report is circulated to adopt the recommendations in the development of their existing programmes or the creation of new ones.

b. The EC Working Party on AIDS to extend the work of the Concerted Action into a new phase which might address the coordination of the development of strategies for STD surveillance within Western Europe.

c. The publication of the report in the scientific literature to stimulate research along the lines described

15. REFERENCES

1. Coyle SL, Boruch RF, Turner CF (eds). *Evaluating AIDS prevention programmes* pp 43-47. National Academy Press. Washington DC 1989.

2. Hicks C, Spurgeon P, Stubbington J. The importance of psycho-social variables in changing attitudes and behaviour. *Health Education Journal 1988*; **47**: 15-17.

3. Gill ON, Adler MW, Day NE. Monitoring the prevalence of HIV: Foundations for a programme on unlinked anonymous testing in England and Wales. *BMJ* 1989;**299**:1295-1298.

4. Kreiss J, Carael M, Meheus A. Role of sexually transmitted diseases in transmitting human immunodeficiency virus. *Genitourinary Medicine* 1988; **64**: 1-2.

5. Weber JN Wadsworth J, Rodgers LA, Moshtael O, Scott K, McManus T Berrie E, Jeffries D, Harris JRW, Pinching AJ. Three year prospectivie study of HTLV-III infection in homosexual men. *The Lancet* 1986; i: 1179-1182.

6. Anderson RM. Directly transmitted viral and bacterial infections in man. In: Anderson RM (ed). *Population Dynamics of Infectous Diseases; Theory and Applications.* London: Chapman Hall, 1982: 1-37.

7. Rein MF. Epidemiology of gonococcal infection. In: Roberts RB (ed). *The Gonococcus*. New York: John Wiley & Sons, 1977: 1-31.

8. Hethcote HW, Yorke JA, *Lecture Notes in Biomathematics* 1984; 56:1-105.

9. Tomlinson DR, French PD, Harris JRW, Mercey DE. Does rectal gonorrhoea reflect unsafe sex ? *Lancet* 1991;337:501.

10. Hessol NA, O'Malley P, Lifson A, Cannon L, Kohn R, Barnhart L, Harrison J, Bolan G, Doll L, Rutherford G. Incidence and prevalence of HIV infection among homosexual and bisexual men, 1978-1988. *V International Conference on AIDS, Montreal*, June 1989 (abstract M.A.O.27).

11. Renton AM, Whitaker L. Preventing the spread of HIV infection. *BMJ* 1991;**302**:1207-1208.

12. New cases seen at genitourinary medicine clinics in England 1976-1986. Bulletin 2/7/88. Department of Health and Social Security 1988.

13. New cases seen at genitourinary Medicine Clinics - 1987: summary information from form SBH 60: 1987 England. Department of Health 1989.

14. New cases seen at genitourinary medicine clinics in England : 1988 annual and december quarter figures. Summary information from form KC60. Department of Health 1990.

15. Nahmias AJ, Lee FK, Beckman-Nahmias S. Seroepidemiological and sociological patterns of herpes simplex virus infection in the world. *Scand J Infect Dis, Supp* 1990;69:19-36.

16. van den Hoek JAR, van Griensven GJP, Coutinho RA. Increase in unsafe homosexual behaviour. *Lancet* 1990;**336**:180.

17. Riley VC. Resurgent gonorrhoea in homosexual men. *Lancet* 1991;**337**:183. (19 January).

18. Singaratnam AE, Boag F, Barton SE, Hawkins DA, Lawrence AG. Preventing the spread of HIV infection. *BMJ* 1991;**302**:469. (23 February).

19. Waugh MA. Resurgent gonorrhoea in homosexual men. *Lancet* 1991;**337**:375.

20. van den Hoek JAR, van der Linden MMD, Coutinho RA. Increase of infectious syphilis among heterosexuals in Amsterdam. Its relationship to drugs and prostitution. *Genitourinary Med* 1990;**66**:31-2.

21. Rothman KJ. *Modern Epidemiology*. Little, Brown and Co. Boston/Toronto 1986:51-76.

22. Surveillance and monitoring of sexually transmitted diseases. *Report on a meeting: Rome, Italy 1989*. World Health Organisation Regional Office for Europe EUR/ICP/VDT 011. Copenhagen, Denmark 1989.

23. Renton AM, Whitaker L. Assessing the impact of prevention through monitoring STDs. *International Conference on Monitoring AIDS Prevention*. Montreux, Switzerland 1990.

24. European Community Concerted Action on Monitoring HIV Seroprevalence in a Sentinel Population of STD Patients. Results of the Pilot Study. Institute of Hygiene and Epidemiology. Brussels. Belgium. June 1990.

25. Banatvala JE, Chrystie IL, Palmer SJ, Sumner D, Kennedy J, Kenny A. HIV screening in pregnancy. *Lancet* 1991;337:1218.

26. Piot P, Meheus A. Epidemiologishe gegevens over seksueel overragbare aandoeningen in Belgie. In Eylenbosch WJ, Vuylsteek K, Depoorter A, Meheus A (Eds): *Topics uit de Sociale Geneeskunde*. Leuven 1984:181-186.

27. Annual reports to the Board of Health and the epidemiological department of the National Bacteriological Laboratory, Sweden. *Verbal Communication: prof Margarita Bottiger*, Dept of Epidemiology, National Bacteriological Laboratory, Sweden. 1991.

28. Gellan MCA, Ison CA. Declining incidence of gonorrhoea in London. *Lancet* 1986:ii:920.

29. Annual returns to DHSS from Praed St clinic, St Mary's Hospital, Paddington. New cases seen 1976-1986. DHSS Form SBH 60.

30. *Verbal Communication. Anneke van den Hoek.*

31. *Verbal Communication. Margareta Bottiger.*

32. *Verbal Communication: Dr Wolfgang Heckman*, AIDS-Zentrum im Bundesgesundheitsamt, Berlin FRG.

APPENDICES

FOREWORD

This document comprises reports on existing STD surveillance in the majority of countries in the European Community and COST countries. In most cases the information has been obtained by visiting the country concerned and interviewing key individuals. In some cases text has been extracted verbatim from the written reports from such key individuals. Some heterogeneity of style will therefore be apparent. There will therefore be apparent These reports have been commented upon by our main informants in the countries concerned. There will still however be inaccuracies, the responsibility for which must be my own.

The completeness and quality of the information received has varied considerably and this fact is reflected in the reports themselves. I have however attempted to use a similar structure and layout for each report.

CONTENTS

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

BELGIUM

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I INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in Belgium. The report is compiled from information obtained during a recent visit to Brussels by Dr Adrian Renton. A brief review of the system for delivering health care to people with sexually transmitted diseases in Belgium is attempted. The various approaches to surveillance which currently exist are described, together with proposals for change, and developments in process. Such data as are available are summarized.

The Belgian Health System is organized as a mixture of public and private sector provision. Overall responsibility for the policy developments, standards and licensing lies with central government. The situation is complicated however by the administrative organisation of the country into French and Flemish communities, with a considerable degree of autonomy from the central authority. Responsibility for curative, palliative and rehabilitation services lie with central government, whereas for preventive services, it lies with the Community administrations.

I.1 Health care delivery for STDs

Health care and preventive services for the sexually transmitted diseases in Belgium are provided through a variety of medical specialties and at a variety of clinical sites. Most patients will see either their GP, a gynaecologist or a dermatovenereologist, or attend the small number of STD clinics. No systematic information is available on patterns of attendance, although it is believed that the majority of patients (especially men in urban areas) attend dermatovenereologists. Patients normally pay one quarter of the cost of treatment and consultation.

I.2 The Law on Sexually Transmitted Disease

The law concerning the notification of venereal diseases is contained in the 1945 "Arrete-Loi Relatif a la Prophylaxis des Maladies Veneriennes". This law made it compulsory for individuals with venereal diseases to seek and comply with treatment. It is obligatory for physicians to report cases of syphilis, gonorrhoea, chancroid and LGV on the day of seeing the case. Notification is made to the local public health doctor on a standard form. Notification is anonymous, but includes diagnosis, administrative district, age, sex and occupation of patient. Notifications should also include the name and address of the person from whom it is presumed that the infection was acquired. The law has remained substantially the same since 1945.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

As mentioned above, a system of compulsory notification for syphilis, gonorrhoea, chancroid and LGV was set up in 1945. It should be noted that the purpose of notification was primarily the containment and control of infection rather that the generation of data for descriptive epidemiological purposes. Because of this, multiple notification of a single case has been considered acceptable. Until 1986 aggregate figures were reported to the Health ministry by the local public health doctors. Reports have been made to the Health Ministries of the Flemish and French Communities separately.

It has been estimated that no more than 5% all STD cases occurring in Belgium are notified. It is felt that one of the primary reasons for the low levels of reporting is the fact that doctors are required to identify the presumed source of the infection by name. Other problems include the lack of feedback of data to those who notify, and possibly some financial disincentives.

II.2 Sentinel Network Of General Practitioners

A voluntary sentinel network of 100 general practitioners in 27 districts of the country has been in operation since the late 1970s. Diseases are nominated for inclusion in the system on an annual basis. Gonorrhoea was included in 1979, and urethritis in 1982 (1) and 1990. overall incidence was 66.8/10,000 men. Presumed viral Hepatitis (not differentiated by type) has been included each year since 1982. Data from this source was however unavailable at the time of writing. There are no current proposals for further inclusion of STDs in this system.

II.3 Sentinel Laboratory Network

In 1983 a voluntary laboratory network covering the whole geographical area of Belgium was set up for the purpose of infectious disease surveillance. In 1989 139 laboratories participated. Laboratories report identification of a wide range of infectious agents anonymously and on a weekly basis. Information accompanying notifications includes age and sex of patient, diagnostic technique, and anatomical site of infection. Forms are filled in by the laboratory and sent, even if no identifications of designated agents have been made during a particular week. Chlamydia trachomatis and neisseria gonorrhoea have been included on the forms since the outset.

II.4 National Inquiry into HIV Seroprevalence in Patients Consulting for STD

A network of clinicians has been set up in Belgium to monitor HIV seroprevalence in patients with STDs. Participants include GPs, Dermatovenereologists, Gynaecologists, Family Planning doctors, College Health doctors, Urologists and doctors working in STD clinics. Either a total or a random sample of patients in whom an STD is diagnosed are tested for HIV in this scheme. While data is currently only available for 1989/90, the scheme is ongoing, and will provide a useful indicator of trend in STD occurrence in the populations served. The data will be of particular interest, as it includes detailed information on sexual orientation and behaviour for included cases, and numbers of total attendances to the clinicians.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

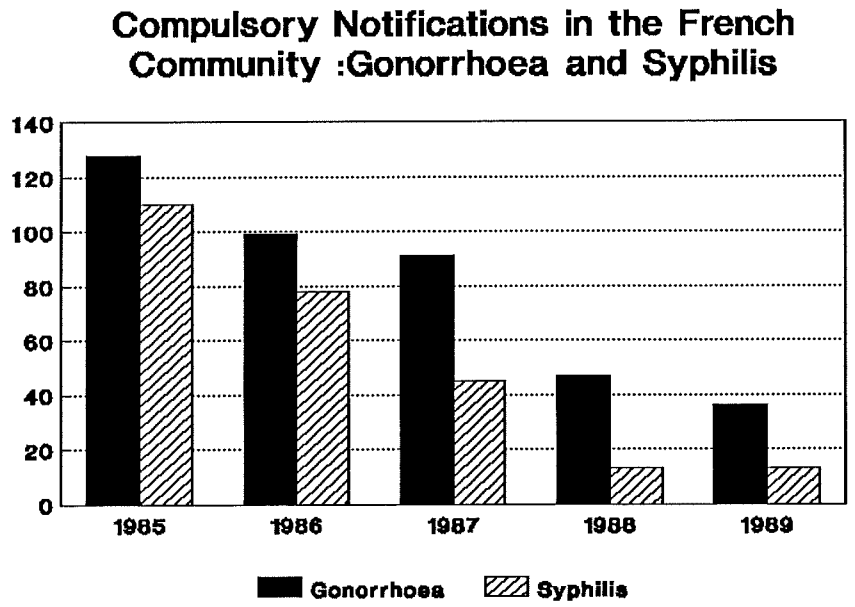
The only useful estimate of incidence or prevalence which these systems currently provide is that for male urethritis in 1982 mentioned in II.2 above.

III.2 Secular Trends in STD Incidence / Prevalence

Both the Compulsory notification data and that from the laboratory network give at best only a broad hint at the secular trends in STDs covered.

III.2 a) Compulsory Notification

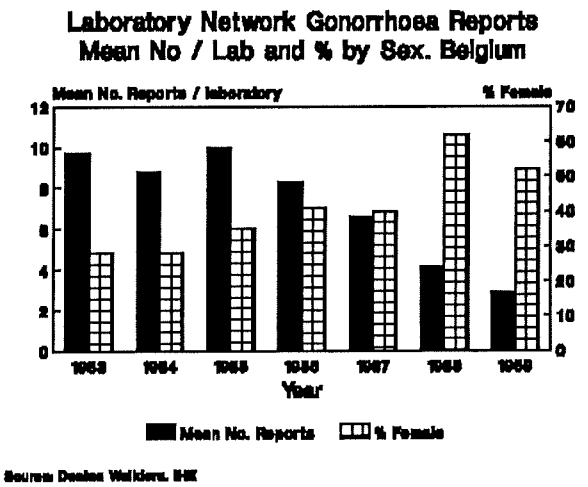
The following figure shows cases of syphilis and gonorrhoea notified in the years 1986-1989. All cases are reported and the figure therefore include the small proportions of cases of congenital syphilis and opthalmia neonatorum. At the time of writing data from the Flemish community are not in my possession.

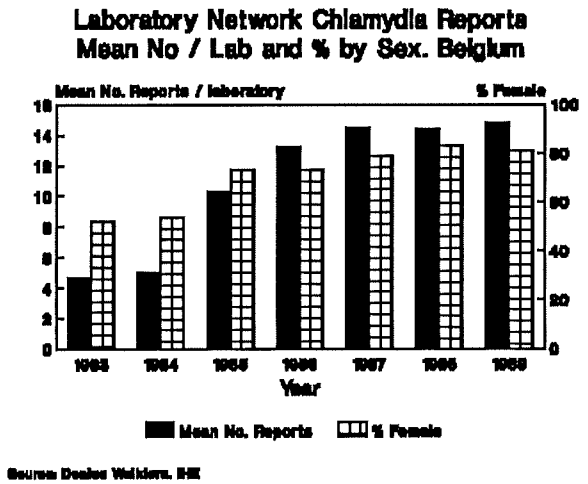


While the data appear to show a considerable decline in both gonorrhoea and syphilis, they must be viewed with extreme caution. It is by no means clear that the very low levels of reporting have remained constant over the period in question.

iii.2 b) Laboratory Notification

The following figure shows the mean (per laboratory) annual number of identifications of chlamydia trachomatis and neisseria gonorrhoea between 1983 and 1989 together with the proportion of positive specimens which came from women. The average number of isolates per laboratory is shown because the number of laboratories participating has changed over the period.





The data for gonorrhoea show a marked fall in the average number of isolates, reaching around 30% of the 1983 level by 1989. In addition the proportion of positive specimens which came from women increased substantially. The data for chlamydia show a 3 fold increase in the average number of isolates over the period with an increasing proportion of positive specimens coming from women.

The following points need to be considered in interpreting this data. Firstly, while the averaging process may partially remove the bias due to the expanding number of participating clinics, it will only do so if the number of positive identifications is distributed evenly across these clinics. Secondly, the data to the end of the first quarter of 1985 represent culture positives only. After that time both culture and ELISA positives where included in the figures. Thirdly, it is not clear that the test prescribing practices of the clinicians served by these laboratories have remained similar. Any change in these could have a major influence on the figures. It is likely in the case of chlamydia that such changes have been substantial in recent years. Information on the total number of tests performed for the two organisms might throw some light on this latter problem.

V PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

The recognised limitations of the STD surveillance systems in the context of the HIV pandemic led to the setting up of a working group on STD and AIDS in 1985 by the Conseil Consultatif de Prevention pour la Sante, of the French Community. The objectives of the group were to evaluate the epidemiology of STDs, to make recommendations to the Minister and to provide technical advice to individuals and groups working in the area. The group recognised that there was a need for better information on STD occurrence and recommended that a sentinel network of clinicians should be set up.
The work of this group was not however taken forward.

A new initiative is currently being set up which will transcend the division into the French and Flemish communities in the Public Health field in Belgium. A new body called the "Centre de Recherche Operationelle en Sante Publique". The main remit of the Centre will be to coordinate and interpret Public Health Information and to make recommendations to policy makers. The body represents a collaboration between the Health Ministries of the two Communities and will be placed within the Institute of Hygiene and Epidemiology. It is hoped that STD information will be incorporated into the 1992 programme of work.

V.3 PROPOSITIONS FOR NEW SYSTEMS

We are unaware at the time of writing of any new proposals or plans for new STD surveillance systems in Belgium.

V . CONCLUSIONS

The current system of STD surveillance in Belgium is based on a compulsory clinical notification system and a laboratory network. Many of the STDs which are currently of considerable public health importance are not covered by either of these two systems. For reasons outlined above neither of these two sources of data allow reliable estimation of either incidence / prevalence or trends over time in occurrence of the diseases which are covered.

The responsible authorities are acutely aware of the need to develop improved systems for STD surveillance. The work of the of National Inquiry into HIV Seroprevalence in Patients Consulting for STD should provide valuable information on trends in many STDs in the future, and has the peculiar advantage of generating highly sophisticated epidemiological datasets attached to case reports.

The new Centre de Recherche Operationelle en Sante Publique promises to provide an appropriate structure within which STD surveillance systems can be developed in the future.

1. Uretrites chez l'homme. Reseau d'enregistrement des medecins vigies. Institut d'Hygen et d'Epidemiologie. Brussels May 1985.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

DENMARK

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I. INTRODUCTION

The existing surveillance of sexually transmitted diseases consists of two parts: a compulsory notification system, which is defined y the law on infectious diseases, and a voluntary reporting system from a laboratory network. Before 1988, the combating of sexually transmitted diseases was in addition managed by a Venereal Disease Act.

The National Health Board has the responsibility for the organization of the surveillance system.

I.1 Health care delivery for STDs

Health care for STDs is provided within a mixed private and public health care system. In 1970 the responsibility for the organisation of STD clinics and other associated facilities (e g family planning clinics) was decentralized to local health authorities. The result is today that the health care services provided for sexually transmitted diseases vary from one region to another. It is estimated that 80% of the patients with STDs are seen by general or private practitioners (dermato-venerologists or gynaecologists) and 20% in settings within hospitals.

I.2 The Law on Sexually Transmitted Disease

I.2 a) Historical Overview

In 1672 a law demanding general practitioners to report four times a year on communicable diseases was introduced. In 1846 a more standardized surveillance system was established, and in 1888, weekly notification of a series of communicable diseases was introduced. This system existed until 1980. At that time the directions for notification were simplified and the number of diseases

included in the compulsory notification system was restricted. Notifiable communicable diseases were divided into two categories; those which required notification of each individual case together with information about exposure to infection, contacts etc. (AIDS and hepatitis B virus infection belong to this category today), and those which required only that the doctor or clinic in charge notify the number of cases seen weekly, by sex and age group of patient (gonorrhoea, syphilis, chancroid and lympho-granuloma venereum belong to this category).

I.2 b) The Venereal Disease Acts

In Denmark legislation concerned with venereal or sexually transmitted disease goes back to 1773, when a Royal Rescript resolved that the cost of the treatment of venereal and other contagious diseases in the Island of Funen was to be defrayed by the county or the provincial towns.

The background for the petition to the king was an epidemic of syphilis that had ravaged a parish in the island of Funen for years. The Rescript, probably the first in the world to provide free treatment for venereal diseases, was followed by several others, and in 1790 the regulations were put into force over the whole of Denmark. The Rescript of 1790 granted all citizens free treatment of venereal diseases, and at the same time made it compulsory for those infected to submit themselves to that treatment. This duty has been confirmed by all decrees and acts ever since.

A series of Rescripts, Laws and Paragraphs of the Penal Code concerning the combating of venereal diseases were passed during the subsequent 100 years . At the beginning of this century the need for a total revision was perceived, partly in response to public sentiment demanding the abolition of professional prostitution. In 1906 a Law regarding the "combating of public immorality and venereal infection" was enacted by the King. Under this law prostitution was no longer regarded as a legitimate occupation, but legal proceedings could (and can still) only be taken against a person who deliberately passes on a sexually transmissible disease to another person, or who, for the sake of profit, exploits or promotes promiscuity in others Eg. pimping, procuring.

The Venereal Diseases Act of 1947 and the revised act of 1973 was concerned with the epidemiological control of syphilis, gonorrhoea, chancroid and lymphgranuloma venereum in their infectious stages. The Act laid down the rights and duties of patients, and the duties of physicians, and governmental and local authorities. Guidelines to local authorities and of physicians were supplied in governmental circulars. The rights and duties of the patients were in principle the same as in 1790, namely the right to free treatment, irrespective of residence, economic status and nationality, and the duty to submit to treatment and to inform contacts.

In 1988 the Venereal Disease Act was abolished; it was, however, considered a prerequisite that the contact tracing was maintained at the same level as previously.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

There has been no clinical compulsory notification system in Denmark since 1988. Prior to this time syphilis, gonorrhoea, chancroid and LGV were notified anonymously in aggregate by age and sex.

II.2 Sentinel Network Of General Practitioners

No sentinel network of GPs is involved in collecting information on STD occurrence at present.

II.3 STD Clinic Data

Individual STD clinics publish activity statistics describing numbers of cases attending by diagnosis.

II.4 Laboratory Networks

Central registration of serologically confirmed cases of syphilis has existed since 1910, and of bacteriologically confirmed cases of gonorrhoea since 1957. Surveillance of bacteriologically confirmed cases on oculo-genital chlamydia trachomatis infection was initiated in 1988, and of confirmed cases of HIV infection in 1990. It should be noted that Denmark benefits from a well-functioning postal system, short distances and a temperate climate. these conditions made it possible to include in the Venereal Disease Act that a standardized laboratory diagnostic service should be provided to hospitals, clinics and practitioners all over the country at one central laboratory: the State Serum Institute.

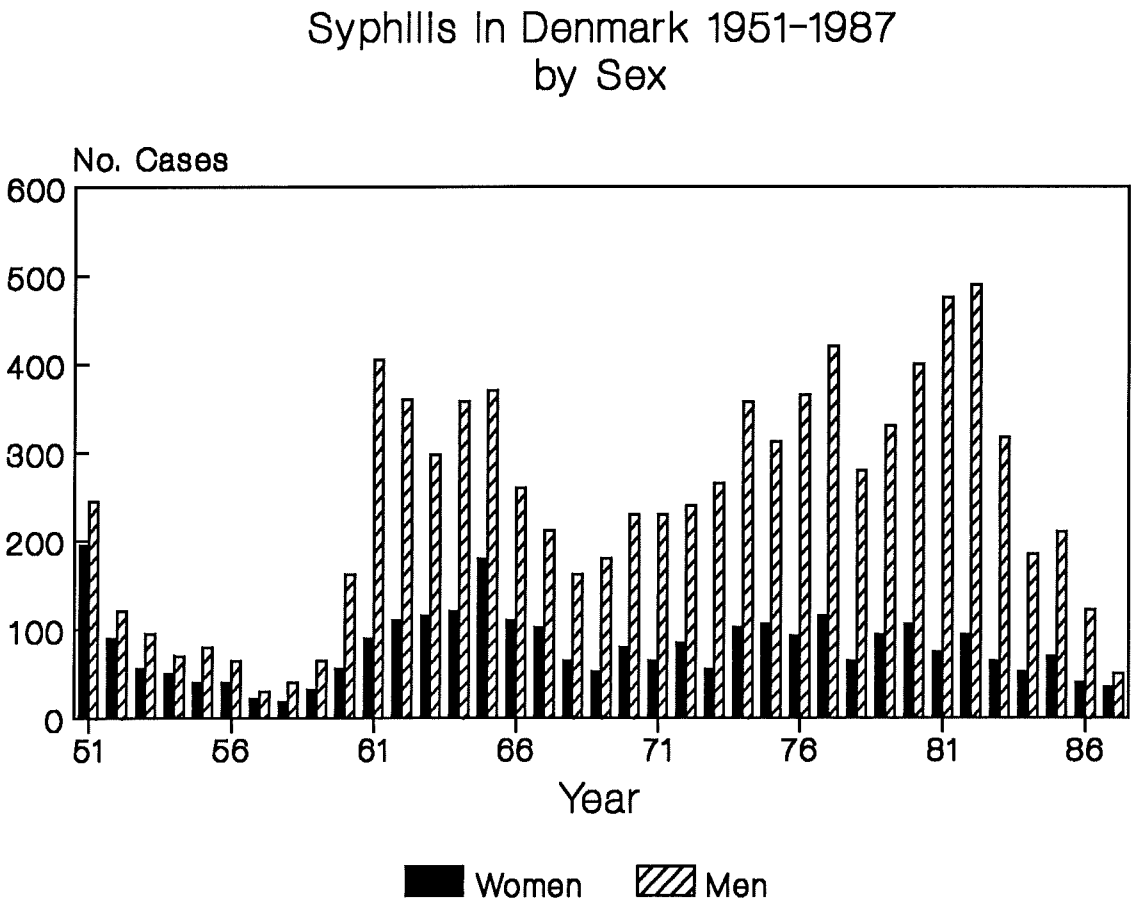
III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Secular Trends in STD Incidence / Prevalence

III.1 a) Syphilis

The epidemiology of syphilis acquisita recens is monitored in two ways; on the basis of the compulsory weekly summary reports from clinicians and by means of central registration of serologically confirmed cases.

The number of cases diagnosed in the period 1950-1988 are shown in the figure below:



Source: Else Smith / Inge Lind

After the second world war, the number of syphilis cases declined and reached a minimum in the late 1950s. In the early 1960s there was an increase in both male and female cases assumed partly to be due to liberalisation of sexual mores occurring at that time. The increase in male cases was mainly due to an increasing number of infected homosexual men. In 1982 a maximum was reached, and since then the annual number of cases has decreased. In 1989 a slight increase in the diagnosed number of cases was noted (not shown), while in 1990 the number decreased to the lowest since the mid 50s. The male to female ratio has been changing over the last 40 years. In the 1950s the ratio was close to 1.0, but during the 60s and 70s it increased, reaching a maximum of 4.4 in 1982. In 1990 it was 2.7. The percentage of cases being acquired abroad has changed over time. In 1963, 30% of male cases were acquired abroad, while in 1982 and 1988 the percentages were 15 and 39 respectively. For female cases the percentages were 8,15 and 50 in 1963, 1982 and 1988, respectively. In 1990 68% of male cases and 57% of female cases were acquired abroad. The actual number of cases acquired abroad has been stable.

Among men reinfections occurred frequently, and during the 1960s and 1970s the proportion of cases being reinfections increased to reach a maximum in 1982. The increase was particularly pronounced in the Copenhagen area: in 1962 12% and in 1982 43% of male syphilis cases were reinfections. In 1988 the proportion of

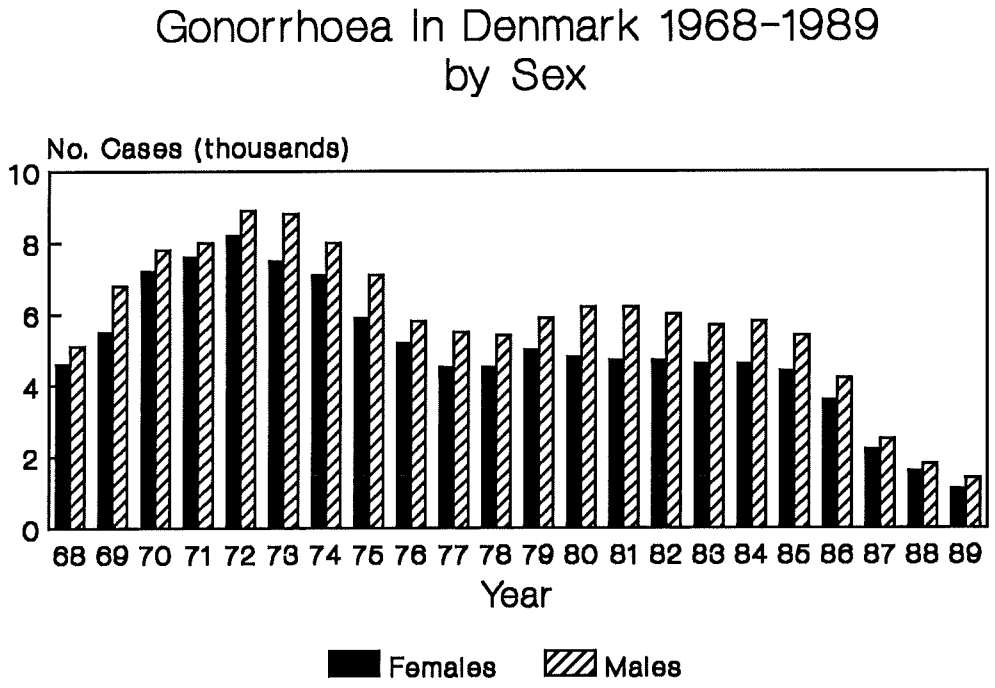
reinfections among men in Copenhagen had decreased to 27%. In 1990 only 4 of 54 male cases were reinfections.

III.2 b) Gonorrhoea

As mentioned above. We have two sources of information on the epidemiology of gonorrhoea in Denmark:

- A clinical notification system that goes back to 1867
- A laboratory notification system that goes back to 1957

The following figure shows the number of cases of gonorrhoea in men and women notified to the authorities between 1968 and 1989.



Source: Else Smith / Inge Lind
1968-1986 (Clinical)
1987-1989 (Laboratory)

After peaking in the early 1970s, the numbers of reported cases for both men and women declined sharply to 1978, followed by a small increase to 1982. Numbers then remained relatively stable until 1984 when a further sharp decline is seen.

What factors were responsible for the increase observed up to 1972 ? Traditionally these have been identified as:

1) the availability of oral contraceptives
2) the change in the family pattern continues in the direction of more and more women working outside home town.
3) an economy that allows young people to travel and to live on their own

It should however be noted that these factors were unchanged when the decline started around 1973/4.

Why did the prevalence of gonorrhoea then decrease from 1973 until 1978 ? The discussion of that question will be based on an analysis of cases registered on the basis of a positive culture for gonococci, since the laboratory records allow a more detailed analysis regarding age of patients and anatomical site of infection.

During the past 30 years changes in rates per 100,000 men in the age groups 15-19, 20-24 and 25-29 years have run in parallel. the changes in rates per 100,000 women 15-19 years of age have been more pronounced than for any other group, but roughly they are in parallel with the other age groups and with those seen for men.
Around 1972 a number of relevant things happened:

1) the standard treatment regimen was changed from penicillin G given i.m. to pivampicillin given by mouth (both together with probenecid)
2) all specimens for culture of gonococci were inoculated onto selective as well as non-selective medium.
3) the gonococcal throat infection was re-discovered

IN 1977, the percentage of patients with gonorrhoea in whom a throat specimen was taken had increased to 30% and the recovery rate was 9%. During 1978-1980 the percentages of patients being examined were the same, but the recovery rate increased from 9 to 14%; since then it remained stable at 15-18%. If the percentage of positive cultures is the same in the remaining two thirds of the patients, then about one thousand patients each year would have an unrecognized throat infection. The throat was the only culture positive site in one third of patients with pharyngeal gonorrhoea.

The increase in recovery rate of gonococci from throat specimens coincides with a change in the composition of the medium made selective for pathogenic Neisseria. Furthermore since 1979 vancomycin has been replaced by lincomycin. This finding underlines the fact that the quality and the composition of the medium used for primary isolation of gonococci is a crucial factor in the laboratory diagnosis of gonorrhoea. A high and increasing number of unrecognized throat infections means an increasing number of patients in whom the standard treatment will fail or who do not receive treatment at all. If one accepts that patients with throat infection are transmitters of disease, the result will be an increase in the pool of patients from whom infection is contracted. Therefore, it would also be possible to interpret observed trends as follows: In 1972 we discovered a group of patients with asymptomatic infection, and a reduction of this pool resulted in a decline in the prevalence of gonorrhoea.

The halt of the decline 1977-84 requires comment on. It is tempting to associate this with the emergence of penicillinase-producing gonococci in Denmark in March

1977. In May the same year a surveillance system which allows the detection of all penicillin resistant strains was established. The total number of annual infections with penicillin-resistant strains has been fairly constant during the past 10 years. It is therefore unlikely to be the cause of the halt of the decline. It is interesting that the percentage all isolations that are PPNG has increased from 10% to 75%. The only group in which significant changes in occurrence were observed during this period recently is that of the male patients in the city of Copenhagen. From other figures - and in agreement with information from our clinical colleagues - we assume that one third of these patients are male homosexuals and therefore the pronounced drop in incidence from 1981 to 1983 could be a result of the fear of AIDS.

Since 1981, we have registered the prevalence of rectal gonorrhoea in men. The prevalence decreased from 11-13% (1982-1984) to 3% in 1988. It should be noted that the percentage of patients from whom a rectal specimen was taken fell from 39% to 29% ($p<0.01$). In 1989 and 1990 an increase in the prevalence of rectal gonorrhoea was seen (Table 3). In Copenhagen the majority of patients visit outpatient VD clinics at which rectal specimens are taken routinely from all men, i.e. 70-80% of all men with gonorrhoea are tested (Table 4); within this group of patients a similar decrease and subsequent increase in the occurrence of male rectal gonorrhoea was registered.

This beginning of the latest decline in 1984/5 coincided with the beginning of an official AIDS/HIV information and education programme in the country. However there should be caution in interpretation. It is important to consider when assessing trends based on routine reporting, the extent to which under-reporting has remained consistent over time. The following table shows the annual number of cases of gonorrhoea reported to the National Health Service, and the number of patients in whom the diagnosis was registered on the basis of a positive culture for Neisseria gonorrhea, during the period 1980-1990 .

Gonorrhoea in Denmark 1980-1990

Year	Reported Cases	Registered Cases	Numerical Difference	% Difference
1980	10796	11040	244	2.3
1981	10527	10982	455	4.3
1982	10079	10674	595	5.9
1983	9290	10383	1093	11.8
1984	8180	10395	2215	27.1
1985	7842	9798	1956	24.9
1986	6101	7771	1670	27.4
1987	3671	4786	1115	30.4
1988	2472	3178	706	28.6
1989	1693	2510	817	48.3
1990	1229	1990	761	61.9

This comparison of clinician notified cases with laboratory reports suggests that the extent of undereporting has changed significantly in recent years. In women (not shown) under-reporting has occurred since the beginning of the 60s, whereas underreporting of gonorrhoea in men has been of a significant size only during the last six-seven years.

In 1981, when the numbers of notified and registered cases were about the same, we carried out a detailed comparison of the laboratory and clinician based notification systems was carried out. The analysis showed that 1/3 of cases were only reported and 1/3 were only registered . This suggests that the true number of cases occurring may be up to double that reported through either system

The only group in which significant changes in incidence have been observed recently is that of the male patients in the city of Copenhagen (Fig 2). From other figures - and in agreement with information from our clinical colleagues - we assume that one third of these patients are male homosexuals and therefore the pronounced drop in incidence from 1981 to 1983 could be a result of the fear of AIDS.

Since 1981, the numbers of rectal swabs taken from men with gonorrhoea and the proportions of these that were positive have been registered. These data are shown for the whole of Denmark in the following table:

Rectal Gonorrhoea in Male Patients in Denmark 1984-1990

Year	Ann No. Reg Cases Male GC.	Patients With GC From Whom A Rectal Specimen Was Taken		Positive Culture For Gonorrhea From Rectal Specimens	
		Number	% Of Total	No of Patients	% Out Of Patients Examined
1984	5796	2289	39	272	12
1985	5401	1753	32	140	8
1986	4221	1272	30	81	6
1987	2580	772	30	43	6
1988	1711	499	29	17	3
1989	1443	352	24	18	5
1990	1133	299	26	32	11

The proportion of rectal swabs that were positive decreased from 11-13% (1982-1984) to 3% in 1988. It should be noted that the percentage of all men with gonorrhoea from whom rectal specimen was taken fell from 39% in 1984 to 29% in 1988. In 1989 and 1990 an increase in the proportion of positive rectal swabs was noted.

In Copenhagen the majority of patients visit outpatient STD clinics at which rectal specimens are taken routinely from all men, i.e. 70-80% of all men with gonorrhoea are tested (Table 4); within this group of patients a similar decrease and subsequent increase in the numbers and proportions of GC positive rectal swabs was observed. These data are shown in the table below.

Rectal Gonorrhoea In Male Patients In Copenhagen 1984-1990

Year	Ann No. Reg Cases Male GC.	Patients With GC From Whom A Rectal Specimen Was Taken		Positive Culture For Gonorrhea From Rectal Specimens	
		Number	% Of Total	No of Patients	% Out Of Patients Examined
1984	1949	1531	79	204	13
1985	1471	1130	77	93	8
1986	1080	764	71	45	6
1987	647	482	74	24	5
1988	426	305	72	4	1
1989	370	241	65	14	6
1990	309	218	71	23	11

III.2 c) Chlamydial trachomatis infections

Concurrently with the establishment of regional departments of clinical microbiology in Denmark during the 1980s, laboratory facilities for the diagnosis of chlamydial infections were set up. In 1989 departments of clinical microbiology were found in 11 out of 14 counties, with 10 of these having a chlamydia diagnostic facility. In the municipalities of Copenhagen and Frederiksberg, 5 departments of clinical microbiology perform chlamydia tests, including the Neisseria Department at Statens Serumistitut, which received specimens from all over the country. In addition some pathologists and at least one private laboratory carry our chlamydia tests.

In 1988 the departments of clinical microbiology were requested to report findings of Chlamydia trachomatis in order to review the prevalence of oculogenital chlamydial infection in Denmark.

Laboratory reports were received from 6 departments in 1988 and from 10 in 1989. The number of notified cases of chlamydia trachomatis infection increased from 3,735 in 1988 to 8,653 in 1989.

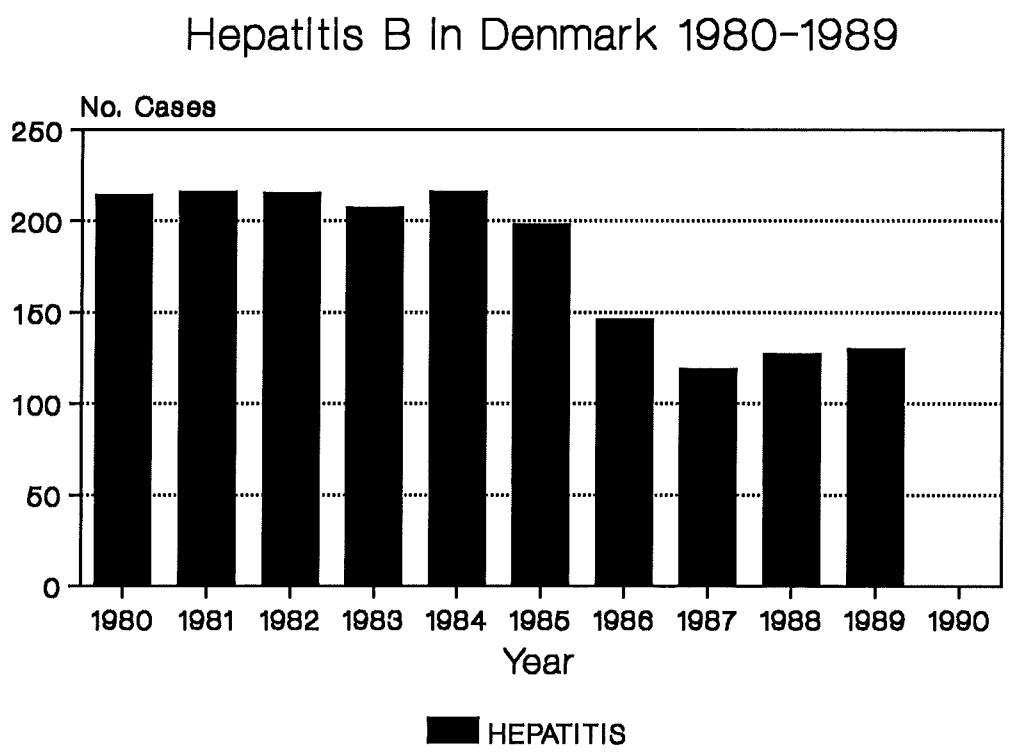
For both sexes the largest percentage of cases were found in the age group 20-24 years; 43 percent of men (with a peak at 23 years) and 42 per cent of women (with a peak around 21 years). Sixty-eight per cent of the cases in men were 20-29 years of age, whereas 68 per cent of women were 15-24 years of age. Overall, 80% of men and 86% of women with chlamydial infection were in the age group 15-29 years. The ratios between the percentages of men and women with chlamydial infections belonging to the age groups 15-19, 20-24 and 25-29 years were 0.5, 1.0 and 1.4 respectively.

For 8,290 patients information was given as to whether the infection was diagnosed by a private practitioner or at a hospital, 6,826 (82%) of the patients had been seen by private practitioners, and 1464 (18%) of the patients at hospital departments. Of the 6826 patients in whom the diagnosis was made in practice 6066 (89%) were seen by general practitioner and 650 (10%) by specialists. For 110 (2%) patients such information was not given.

Since the laboratory service as well as the reporting system are still under development, the data cannot be used to determine the levels or trends in the incidence of chlamydial infection. It is, however, our hope that this will be possible as the system becomes more established.

III.2 d) Hepatitis B

Individual cases of hepatitis B virus infection are notifiable in law. The number of cases reported 1980-1989 are shown in the following figure:



Source: Else Smith / Inge Lind

In the early 1980s the annual number of cases declined, but since 1986 the annual number has been stable (about 130 cases per year). the median age of the patients has not changed over time ; in both sexes the majority of cases occurred in persons 20-30 years of age.

In the last decade about 1/3 of the number of cases reported each year have been injecting drug users. The proportion of cases being homosexual men has decreased. In 1981-85, 11% and in 1989 only 2% of the hepatitis B cases were in homosexual men. The percentage of cases estimated to be heterosexually transmitted has been about 10 each year in the last decade. The male to female ratio has changed over time, showing a maximum in 1987 of 2.7 , declining to 1.4 in 1988 and then rising again to 2.2 in 1989. The proportion of number of hepatitis B patients who had acquired the infection abroad has constantly been 6-8%.

IV. PROPOSALS FOR FUTURE DEVELOPMENT

We are not aware of any specific proposals for the development or enhancement of the system at present.

V. CONCLUSIONS

Denmark has a long history of STD surveillance based on notification of cases by clinicians. These data allow one to obtain a long term view of secular trends for notified diseases, especially syphilis and gonorrhoea. Over the last decades this

system of clinician based reporting has been supported by notifications from laboratories on a voluntary basis. This system is particularly useful as the small size of the country has meant that the majority of tests for gonorrhoea and syphilis are carried out in one central laboratory at the State Serum Institute in Copenhagen. The availability of two sources of data pertaining to the same diseases allows both a 'triangulation' of incidence estimates, and the assessment of the completeness of reporting. In recent years the discrepancies between cases of gonorrhoea reported by clinicians and those reported by laboratories have increased, raising problems in the interpretation of trends. Furthermore, the law making clinician based reporting compulsory has now been abolished.

Despite this problem it seems likely that both gonorrhoea and syphilis have declined in Denmark over recent years. While both clinical technical and sexual behavioural factors have been proposed to explain this, it is difficult to disentangle these influences and their effects on the trends observed in available data. In particular the recent decline in the prevalence of gonorrhoea is popularly believed to result from changes in the sexual lifestyle of groups at risk for HIV infections in response to health educational programmes. However, it should be born in mind that the observed decrease coincides with a decrease in the number of patients that are examined properly and an increase in under-reporting. Such interpretations should therefore be viewed with caution.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

FINLAND

Section 3 FINLAND

This report is based largely based on information kindly provided by:

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Adrian Renton 27 March, 1991

I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in Finland. The report is compiled from information obtained by post from Finnish informants. Such data as are available to us are summarized.

I.1 Health care delivery for STDs

Health care for STDs in rural areas is obtained from general health centres, outpatient departments and private practice. In cities about 50% of cases are seen in dedicated STD clinics.

I.2 The Law on Sexually Transmitted Disease

The post-war 'Lex Veneris' made provision for the treatment of specific STDs and their surveillance. This law was amended in 1987, expanding the list of notifiable diseases.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

A national system of clinician based compulsory notification has been operating in Finland since world war 2. Gonorrhoea and Syphilis have been notifiable since that time. Age, sex, place of residence and profession of cases is notified. All cases are reported to the National Board of Health. Chlamydia trachomatis infection, HIV infection and HBV infection were made notifiable on the same basis in January 1987.

II.2 Sentinel Network Of General Practitioners

We are not aware of any sentinel GP networks providing surveillance information on STDs in Finland.

II.3 STD Clinic Data

STD clinics in Finland provide some attendance based data.

II.4 Laboratory Networks

Figures on isolates of STD pathogens are available from Orion Laboratories. This group covers about 70% of such tests in Finland.

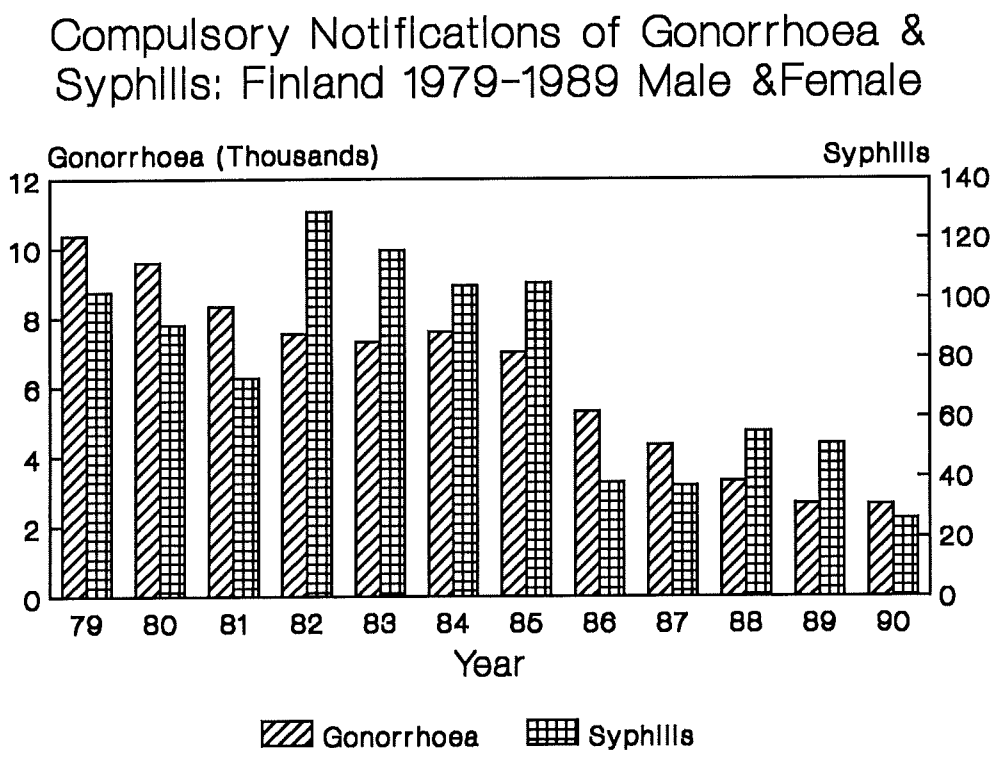
III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

Because the completeness of the compulsory notification data is uncertain it is difficult to estimate the incidence of notified STDs within Finland.

III.2 Secular Trends in STD Incidence / Prevalence

Numbers of notified cases of gonorrhoea and syphilis between 1979-1989 are shown in the figure below:

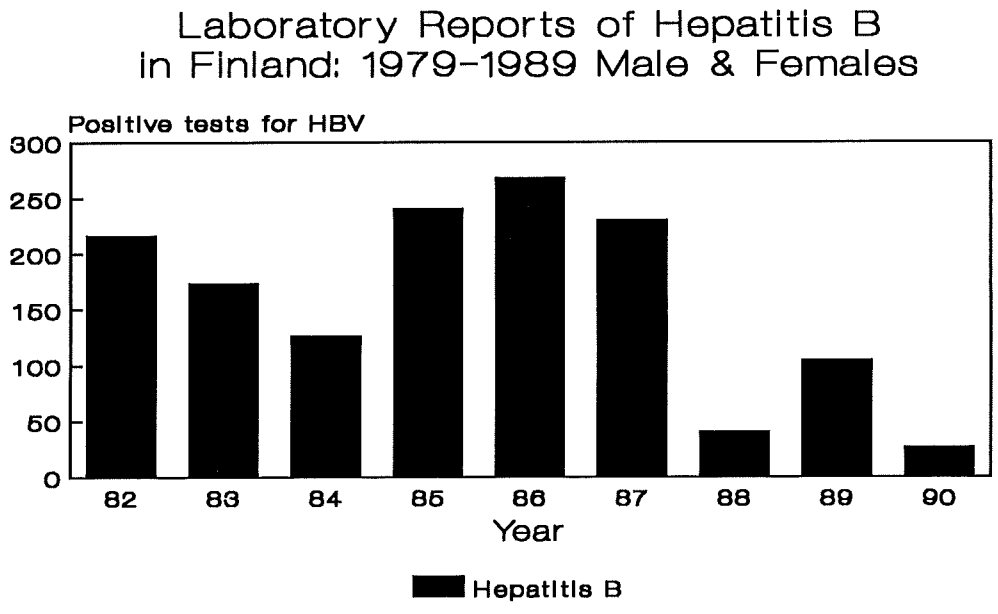


Source: Timo Rostila

The data show a significant decline in both diseases after 1984/85.

Because of the recent introduction of Chlamydia and HBV infections among the notifiable diseases, no national figures are available prior to 1987. However, a record has been kept of the laboratory diagnoses by Orion Diagnostica for more

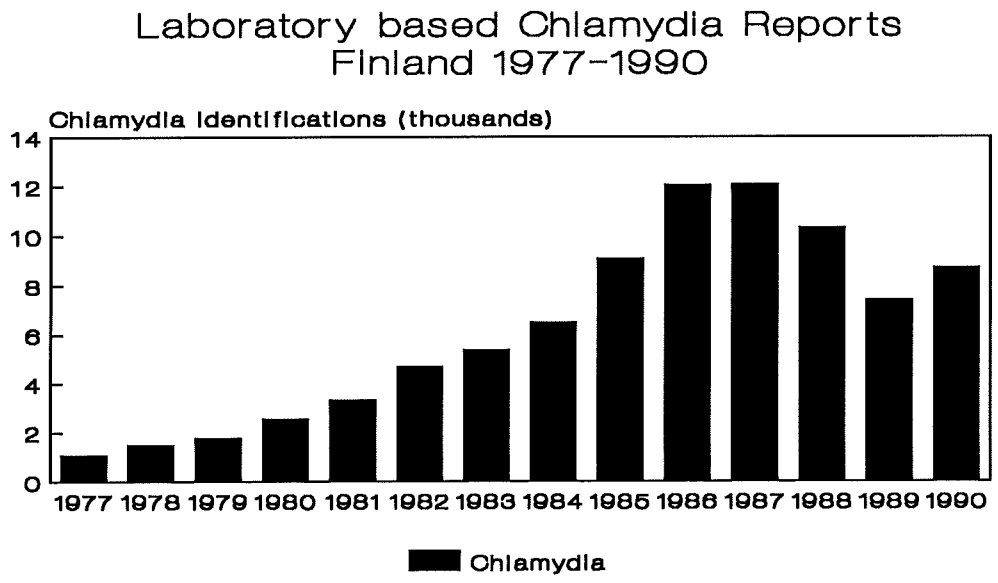
than 10 years. This laboratory group covers more than 70% of all laboratory diagnoses that are made in Finland. The data for Hepatitis B are shown in the following figure. Data up to 1987 are from Orion, and after that from the new notification system:



Source: Timo Rostila

The data are difficult to interpret for two reasons. Firstly the change in system in 1987 may have exerted a major influence. Secondly, old carriers are included in the data. Furthermore a considerable proportion of recently reported cases are thought to be occurring among the large number of new immigrants from endemic areas.

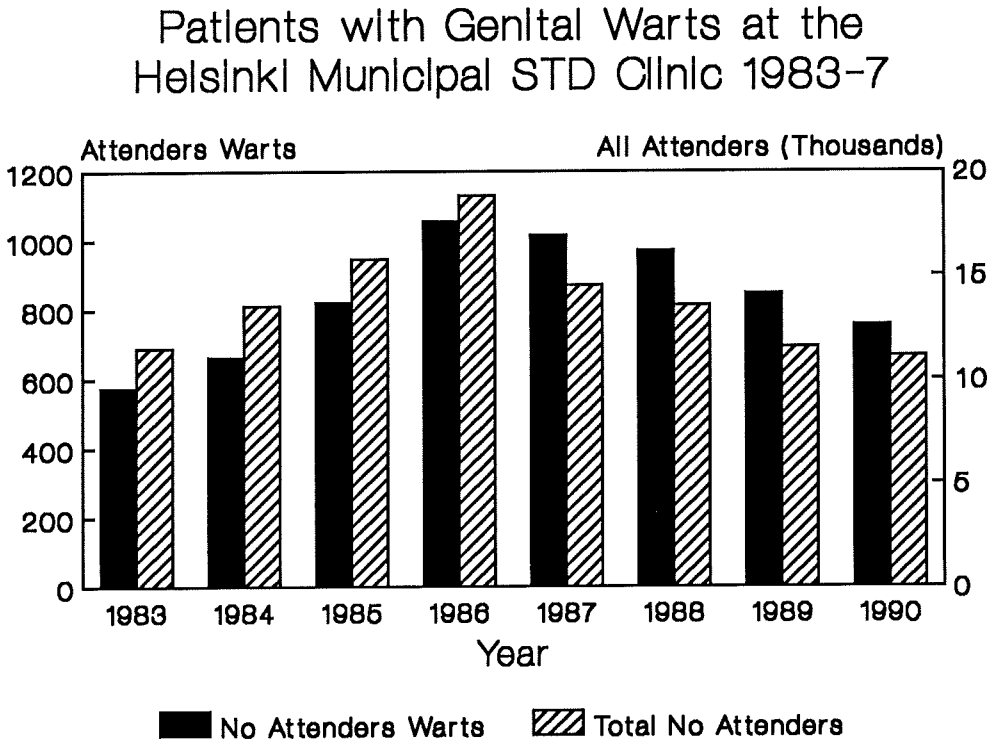
The Orion data for laboratory chlamydia diagnoses are shown in the figure below.



Source: Timo Rostila

It seems likely that the upward trend to 1987 is at least partially explained by increased numbers of tests being performed. The subsequent fall off can be attributed to the introduction of ELISA testing in smaller laboratories around this time.

Some data on genital warts are available from the Helsinki Municipal STD Clinic. The following figure shows the number of new attendances at the clinic at which a diagnosis of genital warts was made, together with the total number of attendances for the years 1983-1987:



Source : Timo Rostila

The extent to which the increase in diagnosis is attributable to increased ascertainment, or to real changes in incidence is unknown.

IV PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

It is proposed to develop a computerised laboratory reporting system under the auspices of the National Public Health Institute in Helsinki.

V . CONCLUSIONS

The STD surveillance system in Finland comprises a compulsory clinical notification system for syphilis and gonorrhoea. More recently chlamydia, HBV and HIV infection have been included in the system. In addition data is available from a private laboratory network on numbers of laboratory diagnoses of STDs carried out. In addition at least one STD clinic can provide data on attendances by diagnosis.

The available data suggest a decline in occurrence of both syphilis and gonorrhoea since the mid 1980s. We are currently unclear as to the exact nature of health care provision for the STDs in Finland. Certainly sentinel networks of clinicians and or clinics might enhance one's insight in to the trends in STD occurrence in Finland.

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COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

FRANCE

Section 4 FRANCE

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I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in France. The report is compiled from information obtained during a recent visit to Paris by Dr Adrian Renton. A brief review of the system for delivering health care to people with sexually transmitted diseases in France is attempted. The various approaches to surveillance which currently exist are placed in a broadly historical context. The objectives of STD surveillance within France are discussed together with proposals for change and developments in process. Such data as are available are summarized, and contact details of key individuals are noted.

I.1 Health care delivery for STDs in France

Health care and preventive services for the sexually transmitted diseases in France are provided through a variety of medical specialties and at a variety of clinical sites, both publicly funded and private. It has been estimated that less than 20% of STD cases are seen in public establishments. It has also been estimated that nearly 80% of STD cases are seen by private practitioners and of these 80% are seen by general practitioners, the remaining 20% being seen by private gynaecologists, obstetricians and dermato-venerologists.

There are around 100 specialist STD clinics (Dispensaire Anti-Venerien) in France. These clinics are mandated by law to provide free and anonymous diagnosis and treatment restricted to a specified list of STDs. The clientele attending these clinics is however probably highly unrepresentative of patients diagnosed as having STDs in the country as a whole. In particular they are located principally in urban areas and see a high proportion of homosexual men and people from lower socioeconomic classes. The clinics also perform statutory screening of the prison populations for STDs.

The fragmentation of the health care delivery system for STDs has been further accentuated by the administrative and political decentralisation initiated in 1982. With decentralisation, statutory responsibility for the STD service passed to the Departmental authorities.

I.2 The Law on Sexually Transmitted Disease

The law on sexually transmitted disease and particularly its surveillance dates to 1942: Livre III Titre II articles L.254 to L.311 du code de la Sante Publique, titled "Lutte contre les maladies venerienne". The law defines 4 of the currently accepted STDs: syphilis, gonorrhoea, chancroid and LGV as 'venereal diseases' and describes a compulsory system of notification for cases of these diseases.

Proposals to bring about changes to this law are currently under consideration by the French government.

II SURVEILLANCE SYSTEMS

The system for the surveillance of STDs has been constructed pragmatically in France. It comprises a compulsory notification system together with clinical case reporting from a voluntary general practitioner network and pathology test reporting from voluntary laboratory networks. Different parts of the system were initiated at different times. In addition various cross sectional prevalence surveys have been performed.

II.1 Compulsory Notification

As mentioned above, a system of compulsory notification for syphilis, gonorrhoea, chancroid and LGV was set up in 1942. It should be noted that the purpose of notification was primarily the containment and control of infection rather that the generation of data for descriptive epidemiological purposes. Because of this, multiple notification of a single case has been considered acceptable. The age, sex and area of residence of the individual is noted, but the individual is named only if he or she refuses treatment. While the patterns of incidence of the STDs has changed considerably since 1942, with a notable increase in the incidence of both chlamydia infection and NGU and a decline in chancroid and LGV, there has been no change in the diseases for which notification is required.

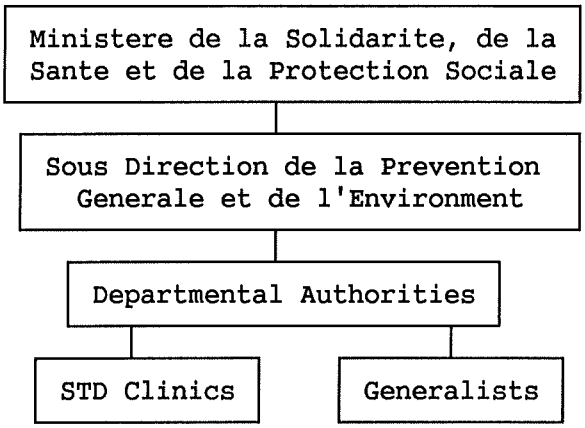
The system was last evaluated in 1978 when was estimated that while around 80 % of cases of gonorrhoea and syphilis were seen by private practitioners (64% by GPs), only 0.7 % of registered notifications were made by this group. The data suggest that less than one in ten STD cases seen by private practitioners were actually being notified at that time. There is little reason to believe that the situation has improved since that time. Indeed since the decentralisation in 1982 several departments have not filed any aggregate figures based on notification.

There has been no formal assessment of the reasons for the low level of notification among private practitioners. It has been suggested on a priori grounds that this may be due to a number of factors including:

- the repressive nature of the legislation
- a reluctance to embark on the necessary paperwork
- a lack of appreciation of the purpose of the notification system
- a perception of the system as a useless historical relic.

Notifications from STD clinics are thought to be relatively completealthough it was not possible until 1991 to separate those cases identified through prison screening and those identified in the general population.

The current route through which notifications reach the body with central responsibility is shown below.



II.2 Sentinel Network Of General Practitioners

This network was set up by INSERM and the Direction General de la Sante in 1985, with 100 GPs participating in a voluntary notification scheme. The current functional size of the network is 450 GPs. Among other diseases, the network reports numbers of cases of male urethritis, and hepatitis presumed to be of viral origin. Trends in incidence for the reported diseases are estimated by the average number of cases seen per doctor per week.

II.2 a) Male Urethritis

Reporting in this category includes both gonococcal and non-gonococcal urethritis. Age and details of discharge are requested in each case and sexual orientation is now recorded.

II.2 a) Presumed Viral Hepatitis

Presumed viral hepatitis must be recent, accompanied by two abnormal transaminases. Chronic hepatitis is excluded. Age and sex are demanded in each case.

II.2 b) STD Clinic Data

The STD Clinic data are collected annually from the departments by SESI (Service Statistique des Etudes et des systems d'information) (Ministere de la Sante) since the introduction of the 1985 law on decentralisation. Each STD clinic completes a standard form specifying the number of cases seen at the clinic by diagnosis, and also the total number of clinic attenders. The data are aggregated over STD clinics by the departmental authorities and then forwarded to SESI. Unfortunately the data are not notified by age, sex or sexual orientation, and cases and examinations arising from statutory work in penal establishments cannot be separated from cases among the general public. Furthermore STD diagnoses are actually reports on the total number of diseases diagnosed or the number of medical consultations, including follow up visits or visits for other reasons. The system has now been ammended to allow analysis by age, sex, and type of establishment (from 1991).

II.2 c) Laboratory Networks

Two main laboratory networks currently in operation in France generate data of use for STD surveillance.

II.2 c) i. Reseau Nationale du Gonocoque (RENAGO)

This laboratory network was set up in 1985 for the surveillance of gonococcal infection and antibiotic resistant strains. It is made up of private and public laboratories participating throughout the country on an entirely voluntary basis. The network is coordinated by the Laboratoire National de la Sante (LNS). Positive cultures are sent to the national reference laboratory to assess B-lactamase production by the techniques of minimal Inhibitory concentration and auxotype. The epidemiological variables (age/sex, probable country of contamination) are reported by the laboratory carrying out the test together with the code of the laboratory, the anatomical site from which the specimen was obtained and the presence or absence of symptoms. Laboratories report the total number of genital specimens processed, by sex. In 1988 107 laboratories participated in the network, representing 2.6% of all microbiology laboratories in France. A study carried out in 1987 by the Caisse Nationale d'Assurance Maladie et des Travailleurs Salaries (CNAMTS) suggested that the activity of private laboratories represented in the network represented 7.7% of all genital specimens processed in France.

II.2 c) ii. Reseau National du Chlamydia (RENACHLA)

This network was set up at the end of 1988 on the same model as RENAGO to monitor Chlamydia trachomatis infections diagnosed by participating laboratories. Considerable efforts were made at the time to recruit all laboratories already participating in RENAGO. Of 50 laboratories participating regularly in 1989, 40 were also participating in RENAGO. The data collected include age and sex of infected individuals, the presence of clinical signs and symptoms, the reason for the test, the technique of identification used, and the nature of any intercurrent STD. The total number of tests by sex is reported by laboratories.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD IN FRANCE

The surveillance system might provide information of several types:

1. The incidence or prevalence of the STDs in populations of interest.
2. Trends in incidence or prevalence of the STDs in populations of interest.
3. Changes in the biological characteristics of the STD organisms.

III.1 Incidence / Prevalence of STDs

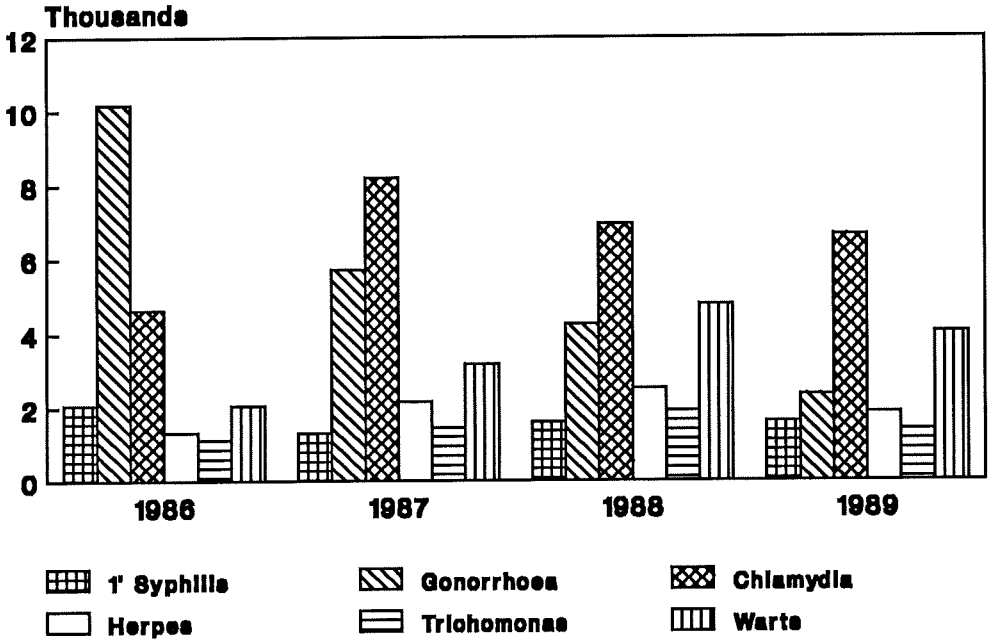
Neither compulsory notifications, laboratory networks or the GP network allow the estimation with any precision of the incidence of STDs. In order to achieve this within the existing framework one would need to know the proportion of cases attending the different types of health care establishments which treat STDs, and the differential, demographic characteristics of attenders.

If one supposes that GP's participating in the GP network are representative of all such doctors in France, and that men with urethritis only consult GP's one can estimate an annual incidence of urethritis in France. Such calculations suggest incidences of 9.3 per 1000 men in 1985, 4.16 per 1000 in 1986 and 2.8 1000 in 1987. .

III.2 Long Term Secular Trends in STD Incidence / Prevalence

Although the compulsory notification system dates back to the early 1940s it is not possible to identify trends in incidence / prevalence from the data generated due to the incompleteness and inconsistency in reporting among private practitioners. While the interpretation of reports from STD clinics do not suffer from this problem to the same extent the figures for statutory prison based cases are completely confounded with those for other attenders. Furthermore attenders at STD clinics are completely untypical of STD cases in the country as a whole. Data from these clinics for 1986-1989 are shown in the figure below.

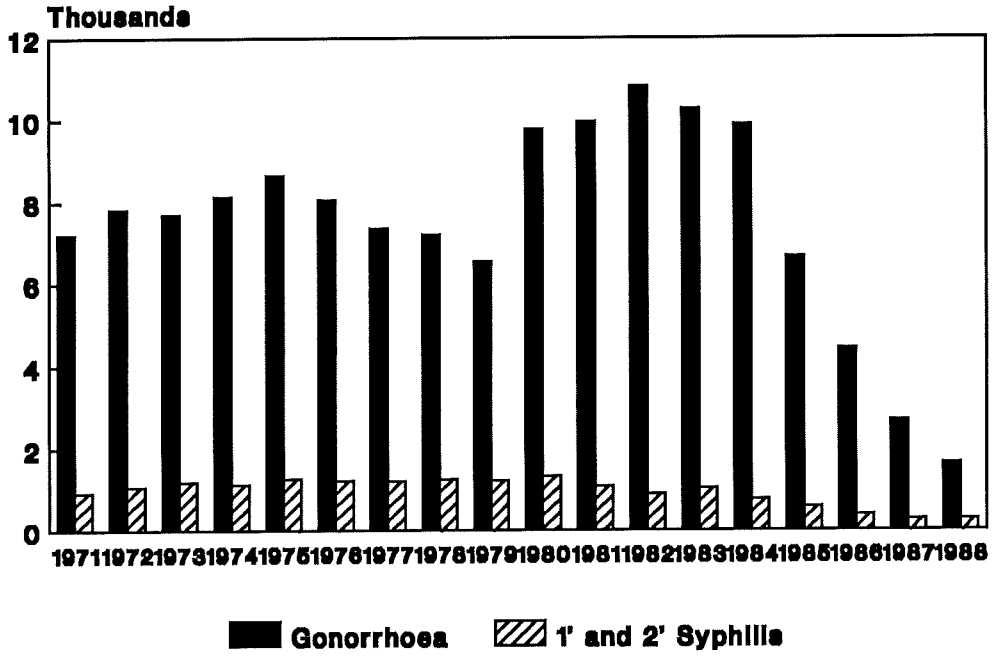
Diagnoses at STD and prison clinics in France 1986-1989



Source: Ministere des affaires sociales

Data from the Paris STD clinics show a sharp increase in notification of cases between 1978 and 1979, attributable to an increase in the number of cases of gonorrhoea. A fall in reported cases of gonorrhoea which started between 1982 and 1983, became more marked from 1985 (but it should be noted that year saw a change in the notification system which accompanied the shift of responsibility to the departments which accompanied decentralisation). The decline continues to be perceptible until the end of 1987.

Diagnoses at STD and prison clinics in Paris 1971-1988



Source: Ministere des affaires sociales

The number of primary and secondary syphilis notifications has also declined. This decrease in number of STD cases diagnosed in STD clinics was accompanied by a decline in overall attendance at the clinics, but cannot be wholly attributed to it.
The RENAGO data are shown for the 33 clinics who participated throughout in the following figure:

The (age/sex) analysis of STD clinic notifications indicates an overall preponderance of males; In 1986, the sex ratio was 7.2 for diagnoses of GC, 5.25 for early Infections Syphilis. This sex ratio is more marked than that shown in the laboratory data from RENAGO, suggesting that men are more likely to attend GUM clinics for management of STD, and that, at least in Paris, this may to a considerable extent may be explained by attendance patterns of homosexual men.

It is possible that the trends seen in reported cases has resulted largely from modification of sexual lifestyle by homosexual men.

III.3 Recent Secular Trends in STD Incidence / Prevalence

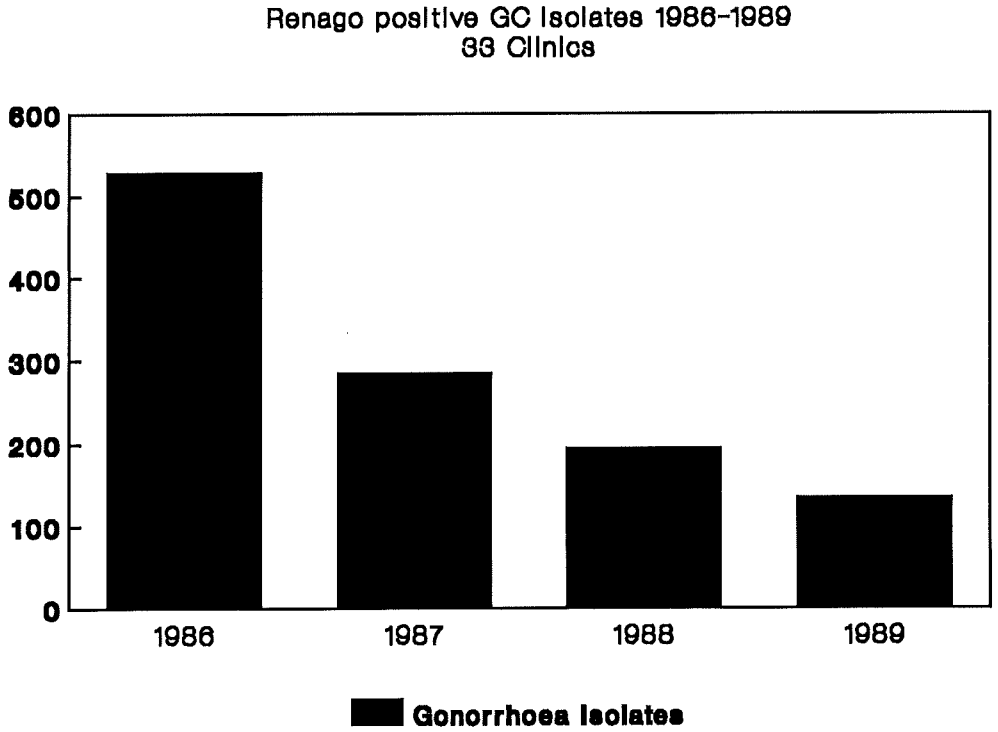
The more recently established surveillance systems allow confirmation of the decline of certain STDs in France.

III.3 a) GP Network

The GP network shows a decline in the average number of cases of male urethritis seen weekly by each GP. 0.18/wk in 1985 to 0.11 in 1986 to 0.08 in 1987 to 0.05 in 1988. This decline would not seem to be attributable to a change in notification on the part of the GP's in the network or to a change in catchment.

III.3 b) RENAGO

In parallel, the RENAGO data suggests a decline in the number of gonococcal isolates made in participating laboratories between 1986 and 1989, and is not attributable to a change in the number of participating laboratories because it is calculated on the basis of the 33 who participated consistently since the outset. Neither is it attributable to a change in the number of cultures performed by these laboratories as the number of specimens has remained relatively stable over the period. In 1988/9 the downwards trend in GC isolations persisted although less steeply. The classical peak of GC during summer months reappeared in 1988, where it had been absent in the two preceding years.



Source: Bulletin Epidemiologique Hebdomanaire. 1990:52.

The sex ratio for these predominantly urban patients is less marked than that observed in the Paris STD Clinics, but varies with age. The crude male to female ratio was 2 in 1988, but almost 1 for the under 20s increasing to 2.5 for the over 35s. The sex ratio also show trends over time, ranging from 2.5 in 1986 to 2

in 1988. It is possible that this trend might be attributable to a change in sexual behaviour among homosexual men who would be less likely to become infected now. Unfortunately RENAGO does not provide data on sexual orientation.

III.3 c) RENACHLA

RENACHLA was set up too recently to provide information on trends in chlamydia infection. A preliminary analysis of the last 2 months of 1988 does however provide some interesting insights. The sex ratio is 0.36 completely different from that for GC reported from RENAGO, the size of the imbalance particularly great in the under 30s. One may not however conclude that women are more frequently infected than men.

III.3 c) Special Studies

A survey carried out in 1986 on a sample of GPs and private gynaecologists in 6 departments recorded the characteristics and place of treatment of patients presenting with genital discharge. The study estimates that 450 cases of GC and 850 Chlamydias (150 GC and 500 Chlamydia in women) were diagnosed in 1 month in the 6 departments by these private practitioners. These estimates of course only provide an indication of the order of magnitude, but one can observe nonetheless a marked excess of chlamydia over gonorrhoea.

The great majority of male GC diagnoses were made by the GP's (96%) If one ignores female diagnoses, 87% of GC was diagnosed by GP's but only 45% of Chlamydia, the other 55% being made by gynaecologists. This predominance of gynaecologists in diagnosing Chlamydia is not explained by a greater frequency of prescribing the test. Whatever the explanation for this, it illustrates well the differences in patient by location, and the problems of estimating incidence from existing data.

IV USE AND LIMITATIONS OF EXISTING SURVEILLANCE DATA

The data generated by existing surveillance provide interesting insights into the STD situation in France. It seem probable that there has been a real decline in the occurrence of certain STDs in France since 1985. The number of diagnoses has declined both in the STD clinics and in the RENAGO laboratories and has been accompanied by a decrease in urethritis reported from the GP network. Given this there remain many questions to which the existing systems provide no answers.

While there is a general agreement that the incidence of syphilis and gonorrhoea are currently at low levels in France it is very difficult to say anything meaningful about trends in other "newer infections" such as Chlamydia and Human papillomavirus. This problem is not specific to France and results in part from the fact that the development and diffusion of techniques for identifying these organisms has been relatively recent. The situation is almost as uncertain for genital herpes infections and for hepatitis B. The GP network gives information on viral hepatitis but makes no distinction between different causative organisms.

A question of considerable importance in the context of the HIV epidemic is whether the decline of certain STDs in France is occurring in all sections of the population or in subgroups, such as heterosexuals homosexuals, women or in men. The data on urethritis provided by the GP network concerns by definition, only men, and gives no information on sexual orientation. The STD clinic data are

aggregated and are mixed with prison consultations. Only RENAGO gives information by sex for GC. Nevertheless, on its own, it is an inadequate data source, given that not all cases of GC are confirmed microbiologically. This question is even more important if, as has reported in certain countries, a global decline in certain STDs attributable in fact to a decline among homosexual men, can mask a stagnation or an increase in women.

How representative are the participating units in the various networks of the country as a whole ? The people who attend STD clinics are not representative of the people who attend all doctors with an STD. The same is also true although to a lesser extent of patients consulting the doctors participating in the GP network. Finally the RENAGO and RENACHLA networks are completely unrepresentative of France. Certain regions are under or not at all represented. No easy solutions to these problems present themselves. A key to the completeness and consistency of the data generated by existing networks lies in the voluntary nature of participation. All efforts to improve representativeness will probably prejudice the voluntary nature of the scheme and therefore the quality of the information obtained.

While the attendance at STD clinics and GP's (for men) is relatively well covered by existing systems, one has only scant information on STDs in women attending private GP's and gynaecologists. Of existing systems only RENACHLA will eventually in part make up this deficit. Nevertheless as with RENAGO, and more so given the poor symptomatology associated with chlamydia infection, it is crucial to combine this form of surveillance with surveys of testing habits among relevant clinicians.

IV PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

IV.1 Guiding considerations in the future development of STD surveillance in France

A rational development of STD surveillance in France requires choices to be made about which organisms / diseases are to be surveyed and in which populations.

A large number of sexually transmitted organisms have been identified. The selection of candidates diseases / organisms for surveillance depends on associated symptomatology, particular complications, or on the ability of surveillance data to contribute to the surveillance of other problems. The extent to which they are entirely sexually transmitted must also be considered. Certain STDs pose immediate health problems, in terms of mortality, or serious illness, particularly syphilis, whose decline should not persuade one to abandon surveillance given the recrudescence observed in at least one other country. With other STDs we are particularly concerned with complications, e.g. Infertility due to Chlamydia or GC, Viral hepatitis with its hepatic sequelae, Herpes Simplex for associated problems of neonatal infection, and HPV given its probable role in cervix cancer. Certain of these infections and/or their complications are good candidates for screening because effective approaches to their prevention and treatment are available. Examples include screening for Chlamydia, vaccination and/or screening of pregnant women for hepatitis B, virological and clinical screening of pregnant women at risk of HSV, screening for cervical dysplasia by smear and/or colposcopy. Surveillance, in this context can also provide useful information on trends in prevalence of these diseases. Furthermore if surveillance of these diseases includes the information on characteristics of patients, results will inform the development and targeting of programmes. Surveillance of certain STD, especially when they are of short incubation or

florid symptomatology (Eg GC, syphilis), despite their decreased occurrence over recent years, may provide a useful indicators of sexual behaviour.

Another important aspect of the discussion is to decide in which populations to carry out surveillance. Should look at a group as nearly representative of the general population as possible? Or should one, on the contrary, choose to focus on specific or more easily accessible groups, at the risk of seeing their composition change over time. There can be no single answer to this question. What is appropriate and feasible varies by disease. Representative samples are above all of interest for the estimation of the incidence / prevalence of STDs and their complications but these may be very difficult to achieve since sampling must be based on the health care delivery structure, and the differential usage of the various parts of this structure by people with sexually transmitted diseases is largely unknown.

One solution would be to make an exhaustive study in selected departments of all doctors likely to diagnose or treat STDs including, demographic details such as age, social class and sexual lifestyle. A quicker and less expensive alternative might be to conduct a survey in one representative sample about diagnostic and treatment habits with regard to STDs.

IV.2 SPECIFIC PROPOSALS FOR THE DEVELOPMENT OF EXISTING SYSTEMS

IV.2 a) GP Network - Urethritis

The surveillance of male urethritis should be continued because it is based on a clinical syndrome with a simple case definition, it is likely to show trends over time. Sexual orientation should now be included. This information should be relatively easy to obtain as it is a part of the standard history which the clinician should take in such cases.

It will also be desirable to be able to relate data obtained from this network to those generated by the laboratories to facilitate interpretation of data from these latter. In this respect the creation of permanent or occasional surveys among sentinel clinicians to determine proportions sending specimens for microbiology in cases of urethritis and if possible results of such tests.

Finally and ideally studies concerning the attitude of doctors to prescribing an HIV test for men with urethritis would contribute useful information.

IV.2 b) GP Network - Hepatitis

In the case of viral hepatitis, linkage to laboratory testing is vital to enable distinction to be made between different viral causes. In fact GP's frequently have more detailed serological information on cases of presumed viral hepatitis than would be required for surveillance. It seems justified to recommend a report of data differentiated at least by type A, type B or type non A non B. Having established this improvement, it would be possible at a later date to collect either intermittently or continuously information on presumptive mode of transmission.

IV.2 c) STD Clinic Data

While STD clinic attenders with represent only a fraction of all patients with STDs, it will be very important to continue to collect these data for two reasons. Firstly individuals attending these clinics are of particular interest owing to their demographic characteristics and sexual habits, and secondly diagnoses made in these clinics are potentially the most systematic and complete.

A review of the annual STD clinic questionnaire administered by SESI is in hand. The new questionnaire will allow the separation of cases identified in the systematic screening of prison populations from those identified among the population at large from 1991. Denominator information should include the number of attenders in whom a new diagnosis was made, and the number who had a diagnostic test together with the overall number of attendances. Finally it is extremely important that the data should be broken down by sex. The question of reporting diagnoses of chlamydia infection is complicated by the fact that chlamydial disease is not officially on the list of diagnoses which can be treated by STD clinics. In some departments chlamydia testing is routinely done, whereas in others the best indicator of chlamydia infection is the number of NGU diagnoses in men. However NGU is not currently included in the SESI questionnaire. Hopefully with a forthcoming modification in the law on venereal diseases, chlamydia diagnostic and treatment facilities will be made available to all STD clinics on condition that they provide surveillance data and preventative services.

In addition to improvements in reporting by STD clinics in general, a restricted network of clinics providing more detailed information on characteristics of patients should be set up. This network would enable the purpose of tracking STD incidence in HIV risk groups. A questionnaire schedule to achieve this has already been piloted in Paris. Based on the pilot experience the study will be undertaken by important STD clinics in the provinces. In the longer term one might envisage the creation of panels of STD clinics, where data could be reported at different times of year to achieve representativeness.

IV.2 c) Laboratory Networks

RENAGO provides extremely important information on the epidemiology of gonococcal penicillin resistance. This surveillance system should continue, particularly as the increase in tetracycline prescribing for genital infections might increase antibiotic resistance. Information regarding sexual lifestyle of patients may however prove impossible to obtain.

RENACHLA provides the only systematic information available in France on chlamydia infection. It will be particularly useful because the laboratories included are drawn mainly from those already participating in RENAGO. For these laboratories it is reasonable to assume that denominator populations are similar. Comparisons of the incidence of the infections should therefore be possible. Nonetheless trends in numbers of possible isolations will be difficult without parallel information on testing habits of clinicians. One might expect to see more frequent testing in the coming years, which will tend to increase the number of isolations without any real increase in incidence or prevalence.

Within the laboratory networks, various ad hoc surveys could be carried out which would enhance ones ability to interpret the data they generate. Of particular interest would be information on the source of specimens.

IV.2 d) Obligatory Notification

A modification of the list of STD which are notifiable in law is overdue. It is proposed to abandon compulsory notification of gonorrhoea, Chlamydia and LGV. It is proposed to maintain the obligatory notification of syphilis because of the serious associated morbidity. Notification is made easier by the fact that it is compulsory to screen for the disease at both prenuptial and prenatal medical examinations. Furthermore it is diagnosed more often in GU clinics, probably because of the particular risk profile of attenders. Returns will of course include cases of congenital syphilis. Furthermore, given the state of decay into which the system has fallen, it will be necessary to initiate a campaign to inform health professionals and administrative personnel of the new regime

IV.3 PROPOSITIONS FOR NEW SYSTEMS

Existing systems of surveillance will be inadequate even with the improvements described above. For some important infections there is little or no information. Furthermore, there is a need for further information on sub-populations who are at particular risk for STD. In this context new approaches may be of value.

IV.3 a) Surveillance of Chlamydia Infections

In conjunction with systematic studies within the health care delivery structure and diagnostic laboratories it would seem desirable to mount studies in sentinel groups. In women this would seem the only reliable way to follow trends in the

frequency of Chlamydia infection given the frequently asymptomatic nature of the infection. Since chlamydia infection is probably implicated in the majority of cases of tubal infertility in developed countries, adequate surveillance is of considerable importance. One approach might be to set up cross-sectional prevalence studies on genital specimens obtained repeatedly during the reproductive years in defined populations of women who attend medical facilities for reasons other that STD (Eg IVF, antenatal care or family planning). A less costly alternative would be to organise seroprevalence studies. These would provide information on cumulative exposure, but would be of less direct value to the patient. This type of study has actually been carried out in the Rhone Ages region among students consulting the university health clinic. These approaches would provide essentially complementary data and provide the only means of assessing whether the trends in the RENCHLA data represent true changes in incidence or merely increased ascertainment. Of course these modes of surveillance must be accompanied by specific efforts to control the infection; better financing, better diagnostics, professional education, treatment of contacts.

A similar approach is ruled out among men because individuals only rarely seroconvert following chlamydial urethritis. The only useful test in men is the urethral swab which it is probably impractical to inflict on large numbers of asymptomatic men. This does not however pose a huge problem if one can achieve adequate surveillance of urethritis with microbiological diagnosis.

IV.3 b) Hepatitis B

Hepatitis B although not exclusively transmitted sexually, merits a particular attention because there exists a specific means of prevention; vaccination. Most authors now recommend the screening for HBsAg in pregnant women before confinement with the object of preventing hepatitis and its complications in the newborn. One estimates that the prevalence of HBsAg in pregnant women in France is about 1% (for the most part asymptomatic carriers). If serological screening is officially sanctioned, it will be possible estimate prevalence in sentinel maternity clinics by presumptive mode of infection This information combined with improved surveillance of viral hepatitis in the GP network will allow one to better describe the epidemiology of this infection in France.

IV.3 b) Surveillance In Specific Populations

IV.3 b) i. Prostitute Women

Attempts to assess the incidence and prevalence of STD and the trends in these should continue to be attempted despite problems in recruitment to research studies. New approaches to outreach need to be developed.

IV.3 b) ii. The Military

This group comprises a population young population of men who are either single or separated from their partners for long periods, and who are traditionally sexually active. In mainland France soldiers with STDs may consult either civilian or military doctors, while overseas, because of the infrastructure, all infected persons attend military doctors. Some data are already reported by the military authorities. Official permission is necessary to obtain access to these data or to establish a prospective surveillance. The populations of certain regions of the overseas territories require particular attention because of the

high prevalence of HIV infection. STD clinic data for these places could be systematically reported in a sentinel network similar to that piloted in Paris, and supplemented by either laboratory or clinical networks, as the local situation dictates.

IV.3 b) iii. Minors

Individuals under 18 years of age pose a particular problem in terms of practical and legal difficulties they may encounter in gaining access to health care for STD related problems. Although , many under 18s are undoubtedly sexually active, information on the occurrence of STDs in this group is very sparse. Family planning clinics are mandated through law to provide a free and anonymous contraception service and are used particularly by minors for this purpose. It appears that some young people have got the habit of making these centres their particular place of consultation for STD. Untill January 1991, the clinics were not authorised to treat these diseases. The law has now been changed to allow them to do so, and a surveillance system put in place.

IV.3 b) iv. Pregnant women

The vast majority of pregnant women in France receive antenatal care. As described above, a systematic surveillance of chlamydia and Hepatitis B could be developed for 3rd trimester women in sentinel obstetric clinics.

IV.3 b) v. Prison Populations

As mentioned previously, one of the duties of the STD clinics is to carry out systematic STD checks in prisons. The data from these checks have been actually mixed with data from non prison consultations. Although the population has a high representation of drug addicts and/or prostitutes, these data are separate in the annual SESI questionnaire from 1991.

IV.3 b) vi. Women Consulting Private GPs or Gynaecologist

This group is very poorly covered by existing surveillance systems with the exception of RENAGO and RENACHLA. The group is probably composed very differently from that consulting STD clinics. The paucity of symptoms among women with STDs makes it particularly difficult to interpret the laboratory data because of changing testing habits among clinicians. Information about the testing habits of private practitioners, which could be obtained through specific studies, would help the interpretation of the laboratory data.

Another disease which could be monitored in women through private practitioners is vaginal trichomoniasis infection. The infection is not very serious of itself, but may be transmitted by sexual contact, and has a relatively short incubation. Symptomatology is well described, although some infections may be asymptomatic. Furthermore, diagnosis is easily made through direct microscopy, for which an increasing number of gynaecologists are now equipped. Such surveillance could constitute an indicator of sexual behaviour as a risk for HIV infection.

IV.3 c) Surveillance of complications

Surveillance of the complications of sexually transmitted diseases is extremely poor at the national level in France. Certain diseases merit special attention.

IV.3 c) i. Genital Herpes Simplex Virus

This infection can be monitored in two ways: Neonatal herpes can be surveyed because it is rare and well defined, while the survey of genital herpes simplex is complicated by frequent occurrences and frequent asymptomatic carriage. Certain states in the U.S. survey first visit to the doctor with an episode of genital herpes.

Cases diagnosed by clinicians could be reported either directly by the paediatrician and intensive care units, or reported on the basis of standard discharge summaries, whose development is expected, together with that of Programme de Medicalisation des Systemes d'information (PMSI). Such Surveillance would not so much provide information on trends in herpetic genital infection, as the on ability of the health care system to prevent vertical transmission of the virus, for example, by repeated virological tests in women at risk of infection after 36 week of gestation. Complementary data from chosen maternity units on the numbers of women having caesarian section deliveries because of suspicion of active genital lesions could be obtained.

IV.3 c) ii. Extra Uterine Pregnancy

The value of a register of extrauterine pregnancies is currently being studied. Extrauterine pregnancies are important for STD Surveillance in that a proportion of them are sequelae of infectious pathology of the fallopian tubes. An increase in the incidence of extrauterine pregnancy could be used as an indicator of an increase in the proportion attributable to genital infections if probable aetiology is reported with the data.

IV.3 c) iii. Pelvic Inflammatory Disease

Approaches to establishing a diagnosis of pelvic inflammatory disease (PID) are still far from perfect, requiring laparoscopy, which is not always practical. Surveillance of the disease, if it is desirable, will therefore pose considerable methodological problems. Furthermore, not all cases of PID are hospitalized, some being better managed as out-patients. The determinants of management, either as out-patient or in-patient are not only determined by the severity of the case, but also, probably, by the socio-economic circumstances and age of patients. Nevertheless, most of the country provides information on the number of hospitalised cases of PID. Such data could be interpreted if complementary cross-sectional studies among private gynaecologists showed that the tendency to treat cases as out-patients remains stable over time. A relatively cheaper approach would be to institute a Surveillance system based on information from discharge summaries as suggested for neonatal herpes.

IV.3 c) iv. HPV and Cervix Cancer

Epidemiological evidence suggests strongly that cervix cancer is a complication of sexually transmitted disease. Specific genetic types of human papillomavirus (HPV) are strongly suspected of being the causal agents, although this has not yet been proven. In France data are available on mortality from cervix cancer. Because this cancer has low lethality, especially if it is discovered in the stage of carcinoma in situ (CIS), the mortality data informs us as much about the effectiveness of the screening system than about the real incidence of these cancers. A further difficulty arises because of the inconsistent quality of death certification, which doesn't always differentiate cervix cancer from cancer of the body of the ueterus. In France there also exist special cancer registers. The register in the area of Bas-Rhin has been generating data on registered cervix

cancer cases since 1975 and differentiates in-situ and invasive cancers. A global decline in the number of cases of cancer has been demonstrated. A decline in the number of cases of invasive cancer has been also noted, together with an increase in the number of in-situ carcinomas in all age groups between 1975 and 1984. These data suggest that the screening programme has been effective, at least insofar as it is being implemented in that region. The continuation of funding of such registers will provide the information necessary to detect any increase of in-situ carcinomas in the future. Presently there is no notification system for other pathologies associated with HPV. To the extent that this agent is not easily identified and that the diagnostic methods are not widely available, it would be premature to recommend specific surveillance of cervical HPV infections.

V . CONCLUSIONS

In conclusion while one might wish that STD Surveillance systems in France were better, they already provide fundamental information on the recent decline of certain sexually transmitted diseases. The fact that trends are concordant using a variety of data sources provides one with some confidence that they are real, despite the unrepresentativeness of existing networks. In order better to understand the attendance patterns of the population atdifferent types of health care facility and to inform future development of Surveillance, a study of attendance and STD management practice in a representative sample of doctors would be valuable.

It is in any case imperative to refine the existing Surveillance system among clinicians (STD clinics and GP's) by expanding information about the of socio-demographic and sexual behavioural characteristics of patients who attend. Moreover, some organisms and client groups are little, or not at all covered by existing Surveillance systems. For example, one has very little information about women attending gynaecologists or GP's for sexually transmitted diseases. With the exception of RENACHLA, one has little information on chlamydia infection and the characteristics of infected patients. Systematic prevalence or sero-epidemiological studies of chlamydia could be set up among specified populations of women and could be repeated sequentially.

The epidemiology of other sexually transmitted diseases in France is not well known. It would seem essential to refine the Surveillance of hepatitis B in the GP network and to develop Surveillance of this disease in other populations, for example pregnant women. Such a scheme would also help reduce the risk of vertical transmission.

Genital herpes could be surveyed on the basis of neonatal complications. There is little data on incidence of complications of sexually transmitted disease in France at present, apart from certain cross-sectional studies. The prevalence of salpingitis and extrauterine pregnancy could in the first place be assessed on the basis of hospital discharge summaries. The value of a register for extrauterine pregnancies is currently being studied. If such a register was created, it would permit one to track the time trends in certain risk factors, in particular antecedent infections.

Finally the Surveillance of papilloma infections could be set up in the first instance both through STD clinic returns of diagnoses of genital warts and through cancer registries, if these latter can include information on the presence of HPV. It would be premature to attempt to set up specific HPV

Surveillance until the role of the virus in the aetiology of cervix cancer is established beyond doubt.

Of course, these proposals to improve STD Surveillance in France make no sense unless one has the political will to develop systems for prevention of these infections and their complications.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

GERMANY

Section 5 FEDERAL REPUBLIC OF GERMANY

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

I.1 Health care delivery for STDs in FRG

Health care and preventive services for the sexually transmitted diseases (STD) are provided through a variety of medical specialties and at a variety of sites both publicly and privately funded. No 'stand-alone' STD clinics exist in the FRG although there are dermatovenereology departments in major hospitals. People with STDs are also likely to consult their general practitioners or gynaecologists. The service is free to the vast majority patients , as nearly all people in FRG have either private, mutual or state-supported social health insurance. While no reliable description of patterns of attendance are available for the various sources of health care, anecdotal evidence suggests a pattern. In cities and large conurbations men will attend hospital dermatovenereology or their general practitioners. In rural areas they will attend their GPs. Woman in both urban and rural areas will attend either their GPs or their gynaecologists.

I.2 Political and Administrative Dimensions

1.2 a) Health Service Structure

The federal structure of the country entails a considerable degree of devolution of responsibility for health services from the central Federal authorities to the Lander and from the Lander to the Communes. This devolution has important consequences for the design and implementation of any health information system which attempts to provide information over the whole country, for the setting of health priorities, or initiation and development of new initiatives for health care delivery. Three broad components can be usefully identified in the health system in the FRG:

- Administrative and scientific ministries
- Health insurance organisations
- Health care deliverers

I.2 a) i. Administrative and Scientific Structures

At the Federal level the health ministry is divided into administrative/policy-making and arms with formal managerial and consultative links. This structure is reflected within individual Health ministries in the Lander. Each Commune will also have a bureau responsible for health.

1.2 a) ii. Health insurance organisations

Such organisations are numerous in the FRG and may be privately or publicly owned. Nearly all citizens will have membership of such an organisation. Health care is paid for by the these organisations on a fee for service basis, and the patient is not involved in financial transactions with a doctor.

1.2 a) iii. Health care deliverers

These can be broadly divided into private generalists (GPs), Commune funded hospitals and private specialists.

1.2 b) Public Health in Germany

The Public Health system in the FRG was largely dismantled after 1945. Public attitude has generally been negative towards central collection of aggregate data on health related events, with a general feeling that such information is best kept within the consulting room. Consequently health information, undergraduate teaching of Public Health and the professionalisation of epidemiologists and specialists in the discipline are poorly developed. This situation is however currently changing, and a new Institute of Public Health is currently being established .

1.2 c) Reunification

The process of incorporation of the Eastern Lander into the FRG has raised a number of new public health related issues, including the problem of STDs. It is unclear at the present time what information is available from these Lander or to what extent centralised public health information systems exist. It is to be hoped that the process of unification will enable the best elements of both systems to survive.

I.2 The Law on Sexually Transmitted Disease

Physicians have been required by law to notify all cases of Syphilis, Gonorrhoea, Chancroid and Lymphgranuloma Venereum since 1953. Hepatitis B has become notifiable recently, with partial information on presumptive mode of transmission. Notification is an integral part of the general infectious disease notification system. A review of the law concerning sexually transmitted diseases has been initiated by the infectious disease section of the Federal Health Ministry, and is to commence in April 1991.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

The present physician based system of compulsory notification has been in operation since 1953. Notification includes age, sex and area of residence but does not include name or details of presumptive mode of transmission. Physician notifications are made to district (commune) level public health officers, thence to the Health Ministries of the Lander and then to the Federal Statistical Agency (Bundesamt fur Statistik). The Statistical Agency then reports aggregate data to the infectious disease unit of the Health Ministry who publish them in regular reports.

The scientific branch of the Health Ministry (Bundesgesundheitsamt) recently carried out a study of sales of the drug Spectinomycin which is used exclusively for the treatment of gonorrhoea. The results suggested that the proportion of cases of gonorrhoea which are actually notified is around 10%.

II.2 Sentinel Network Of General Practitioners

No broad-based sentinel network of General Practitioners exists in Germany. There is a however a recently instituted GP network providing data on HIV seropositive cases and AIDS. In this network GPs are paid to participate. It is generally felt that a similar network for STDs would be very difficult to set up on a voluntary basis. It is felt that GPs would be very reluctant to notify cases even anonymously in what remains an area with considerable associated stigma. Secondly it would be expensive to implement, probably requiring substantial remuneration to participating physicians.

II.3 Dermatovenereology Clinic Data

There is no formal STD clinic notification data available. There are however several physicians who collect information on STD in their own practice.

II.4 Laboratory Networks

The Medical Laboratory Network in Germany is a mixture of public and privately owned facilities. At present there is aggregate data reporting from laboratories for some infectious diseases. The National Reference Laboratory produces data on Hepatitis B. The data are not broken down by age, sex or presumptive mode of transmission. Again, it is generally felt that either sentinel or national laboratory networks STDs surveillance would be very difficult to set up on a voluntary basis.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

Almost the only source of data concerning STDs in FRG is that provided by the compulsory notification system.

III.1 Incidence / Prevalence of STDs

The compulsory notification does not allow any sensible estimate of the incidence or prevalence of the STDs in Germany. As mentioned the study of Spectinomycin

prescribing suggested 90% of gonorrhoea cases were unreported, although this figure is likely to vary considerably from area to area.

III.2 Long Term Secular Trends in STD Incidence / Prevalence

If one assumes that the level of under-reporting has remained constant over time then one might draw a very tentative notion of the secular trends from the compulsory notification data. The data were not however available at the time of writing.

IV PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

At present no specific proposals for the development of STD surveillance exist in FRG. Two encouraging developments are to be noted however.

V.1 Review of Law on STDs

A Review of the law on STD and in particular the compulsory notification system is scheduled for April 1991.

V.2 AIDS-Zentrum im Bundesgesundhetsamt

This unit is hoping to extend its work on HIV surveillance into the wider field of STD surveillance.

V . CONCLUSIONS

STD surveillance systems in FRG are not well developed for a number of reasons. The historical connotations of population based monitoring of disease, together with the devolution of responsibility inherent in the federal political structure combine with a lack of popular perception of STDs as a significant problem to militate against a rapid development of STD surveillance systems in FRG. On the other hand the process of unification will of necessity require a restructuring of infectious disease surveillance systems in general. This should provide an ideal opportunity to put in place an adequate system of STD surveillance. In this context more information is needed on existing systems within the Eastern Lander.

As mentioned it is generally felt that no substantial system of STD surveillance could be put in place at present because STDs are not considered to be a Public Health problem either by the public or by politicians. To some extent this is a 'chicken and egg' problem in that without adequate data on occurrence it is difficult to demonstrate their importance and the consequent need for surveillance.

It is clear that there are a number of interested and concerned individuals in the FRG. It is hoped that the report of this working group will prove of value to them in their work.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

GREECE

Section 6 GREECE

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

This report outlines the existing state of the surveillance of sexually transmitted disease (STD) in the Greece. The report is compiled from information obtained from the Ministry of Health Welfare and Social Security in Athens. A brief review of the system for delivering health care to people with sexually transmitted diseases in Greece is attempted. The various approaches to surveillance which currently exist are described.

I.1 Health care delivery for STDs

Health care for the STDs is delivered by general practitioners, and hospital outpatient consultants. In theory all suspected cases of STDs are referred to dermato-venereology or bacteriology outpatient departments. Consultation and laboratory investigation is free. A proportion of patients are managed by private practitioners using private laboratories. No information is available on the proportions of patients with STDs who obtain care from the various sources.

I.2 The Law on Sexually Transmitted Disease

STDs in Greece are notifiable under Rule no. 1193/1981 (Edited on the State Journal No. 220/20-8-81.) entitled: Prevention of Venereal Diseases and Similar Conditions.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

Syphilis, gonorrhoea and Hepatitis B are notifiable in law by the clinician treating the patient and the laboratory making a positive diagnostic test. Age, sex, occupation, contacts, and place of permanent and temporary abode of the patient are also notified. For Hepatitis B, presumptive mode of transmission is also notified. No payment is made. It is estimated that a high proportion of cases diagnosed by public sector doctors and laboratories are notified, in contrast to those diagnosed in the private sector. Standard case definitions are used. Notification is made to the local branches of the ministry of Health, who pass notifications on to the centre.

II.2 Sentinel Networks

Sentinel Networks including local hospital clinics and some private physicians and bacteriologists exist in Greece. Information notified is very similar to that for the compulsory system.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

Data from the surveillance sytem in Greece was not available at the time of writing.

V PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

There are currently no plans to further develop the system for the surveillance of STDs in Greece.

V . CONCLUSIONS

It is difficult to say in the absence of the data whether surveillance of STDs in Greece is can currently provide an adequate view of the descriptive epidemiology of STDs in the country. Useful data may be available from individual health facilities, but these were not available to us at the time of writing.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

ITALY

Section 7 ITALY

This report is based largely based on information kindly provided by:

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Adrian Renton 2 April, 1991

I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in the Italy. The report is compiled from information obtained in interviews and from published documents. A brief review of the system for delivering health care to people with sexually transmitted diseases in Italy is attempted. The various approaches to surveillance which currently exist are placed in a broadly historical context. Existing STD surveillance within Italy is discussed together with proposals for change and developments in process. Such data as are available are summarized.

I.1 Health care delivery for STDs

Since the establishment of the country's comprehensive National Health Service, health care for the STDs in Italy has been delivered largely the many specialist Dermatovenereology clinics in major urban centres. In addition individuals with sexually transmitted diseases consult general practitioners, gynaecologists of other hospital specialists. No reliable information is currently available on patterns of attendance at these various clinical settings.

I.2 The Law on Sexually Transmitted Disease

The law concerning the infectious diseases in Italy dates to the late 19th century and has included a compulsory clinician based notification system since that time. Active surveillance of the sexually transmitted diseases has been carried out since 1891 in an attempt to contain and control infection in an era without antibiotics. Reflecting this objective, the notification system was administered by the Interior Ministry (Home Office) until 1901, when responsibility was transferred to the Health Authorities. STD surveillance is an integral part of the general infectious disease surveillance system. Syphilis, gonorrhoea, chancroid and LGV have been notifiable by law since 1923. A new compulsory notification system came into operation in April 1991. The system receives notifications of syphilis, gonorrhoea and hepatitis B. Accompanying information includes among other: age, sex, profession, and place of birth and residence.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

As mentioned above a system of compulsory notification by clinicians for currently syphilis, gonorrhoea, chancroid and LGV is currently in operation. In addition notification of hepatitis B has been occurring since 1985. Age, sex and district of residence of clinically diagnosed cases are reported to local health officers, thence to the regional authorities, and finally to the National institute of Statistics. In addition information on presumed route of transmission is included with Hepatitis B notifications. Aggregate figures are published in a six-monthly epidemiological bulletin. Age and sex analyses could not however be made until three years after the year of notification. Under the new system, syphilis, gonorrhoea, HIV infection, hepatitis B, pediculosis pubis and scabies will be notifiable. The new system will require laboratory confirmation for some diseases. It is unclear to us from the documentation currently in our possession what items of epidemiological information will accompany notification. Accompanying information includes among other: age, sex, profession, and place of birth and residence.

II.2 Sentinel Network Of General Practitioners

No sentinel network of general practitioners is currently operating in Italy.

II.3 STD Clinic Data

The last two years have seen he development of a sophisticated STD surveillance system based on the activity of STD clinics in Italy. The project started as formal survey designed to assess the completeness of the notification of STD cases under the compulsory system and was set up by the Operational Centre for AIDS f the Istituto Superiore di Sanita (ISS) in close collaboration with the National Dermatovenereological Association (1) . The study suggested that the compulsory notification system was recording at best 50% of incident cases of gonorrhea and syphilis and that completeness of coverage was declining with time. This problem, taken in the context of the HIV epidemic, and the acknowledgement of a need to include 'newer' STDs such as chlamydia infection, genital herpes etc

in surveillance has led to the development of this study into a formal prospective surveillance network.

The principal objective is to achieve quickly an accurate picture of STD epidemiology by the identification of trends in disease occurrence, and risk factors for individual diseases, and to monitor occurrence over time by geographical and socio-cultural area. It is envisaged that an accurate picture of STD epidemiology in Italy will inform attempts both to improve clinical interventions and treatment, and to put in place control and prevention programmes.

Centres where patients with STDs attend throughout the country have been chosen with regard to the functional autonomy of the centre, the size of the catchment population, the availability of laboratory services and the centre's geographical representativeness.

So far the 46 dermatovenereology centres throughout Italy have been recruited to the network. All cases of the following STDs are recorded and notified to the ISS notified:

- Non Gonococcal Urethritis
- Genital warts
- Pelvic Inflammatory disease
- PID
- Pediculosis
- Chlamydia
- LGV
- Cervico-vaginitis
- Syphilis
- Trichomoniasis
- Herpes simplex
- Molluscum
- Chancroid
- Gonorrhoea

Information on individual cases includes

- Reference Number
- Sex
- Sexual Orientation
- Place of infection
- Injecting Drug use
- Age
- Place of birth and residence
- No. partners in last 6 months
- Contraceptive/condom use
- Previous STD

In addition patients are invited to take an HIV antibody test, which may be anonymous, or linked to their registration number. A pilot study as been completed, and the system has been fully operational since January 1991.

II.4 Laboratory Networks

No laboratory network exists for the surveillance of STDs other than HIV infection exists in Italy. Although regional public laboratories exist, the current Health service reorganisation, with an increasing emphasis on privatisation and decentralisation of facilities, will make it difficult to realise such a system in the country.

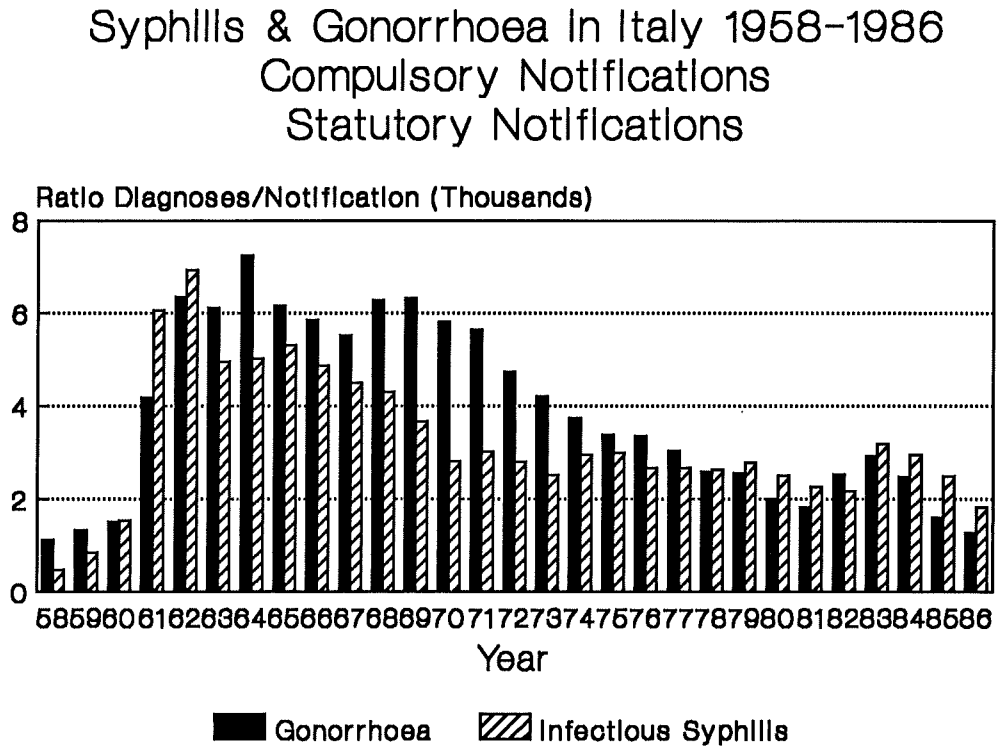
II.5 Other Approaches

The possibility of using surveys of sales or prescriptions for drugs used specifically for the STDs as a marker for incidence is being explored.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Compulsory Notification Data

Compulsory notification data are shown in the following figure.



Source: S. Squarcione

III.1 a) Gonorrhoea

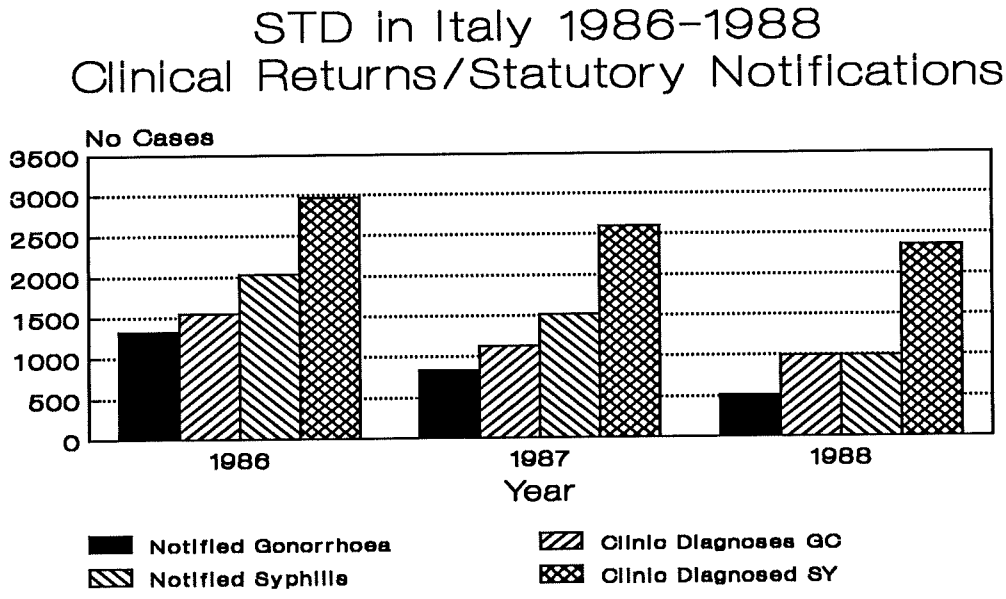
The crude annual cumulative incidence of gonorrhoea calculated from the compulsory notification data is shown in the figure above. Rates appear to have declined gradually throughout the 1970s to reach a minimum in 1981. A brief resurgence is then noted followed by a steep decline between 1983 and 1986.

III.1 b) Syphilis

The crude annual cumulative incidence of syphilis calculated from the compulsory notification data is shown in the figure above. The rate appeared to have declined during the 60s, remained stable throughout the 1970s, to rise slightly in the early 1980s and decline gradually between 1983/84 and 1988.

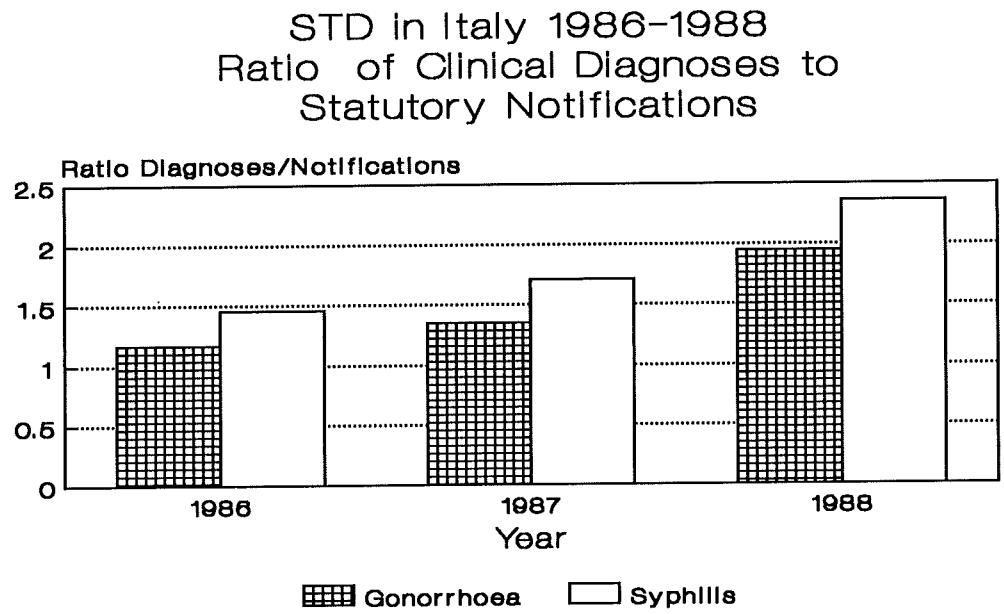
III.1 c) Comparison with STD Clinic Diagnoses

The interpretation of these data is highly problematic. Comparisons with numbers of diagnoses made in 85 STD clinics have been carried out for the years 1986-1988 as mentioned in II.3 above. Numbers of cases of gonorrhoea and syphilis identified from these two sources are shown in the following figure.



Source: Donato Greco

Both the STD clinic data and the statutory notification data show a decline for the two diseases over the period, the decline is sharper in the notification data. The ratio number of cases diagnosed in the STD clinics to those notified through the statutory system for the three years is shown in the following figure:



Source: Donato Greco

The ratio is increasing with time for both gonorrhoea and syphilis. It should be noted in this context that not all STD clinics are included, and that in any case many people will seek care from other source. The combination of the incompleteness of the compulsory notification data and the instability of this completeness over time make it extremely difficult to identify trends over time with any confidence.

III.2 STD Clinic Data

The STD clinic data as they become available prospectively will allow an accurate picture of secular trends in the frequency of occurrence of all the important STDs to be obtained.

IV. PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

A network of sentinel general practitioners is currently being considered for STDs, to run alongside the STD clinic network. We are not currently aware of any new plans for the development of STD surveillance in Italy.

V . CONCLUSIONS

Historical data on STD occurrence in Italy derive soley from a compulsory clinician based notification system operating as part of a general infectious disease surveillance system. Although attempts are being made to improve the quality and completeness of notification, and although new STDs have been added to the list is difficult to envisage that these enhancements will enable meaningful assessment of either the incidence of STD or trends in incidence in the near future.

The establishment of an STD clinic network however holds great promise for the future. The notification of a wide range of diseases, with good quality epidemiological information on cases, and the linkage with HIV antibody testing will provide extremely useful information in a prospective basis in the future.

STD clinic data can however only reflect occurrence of STD in those likely to attend these clinics for their care. Some attempt to establish patterns of attendance at the different facilities providing care for STDs would be extremely useful.

1. D Greco, MGulani, B Sugoli et al. Sexually transmitted diseases in Italy: clinical returns versus statutory notifications. Genitourin Med 1990;66:383-386.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

NETHERLANDS

Section 8 THE NETHERLANDS

This report is based largely based on information kindly provided by:

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NETHERLANDS

I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in the Netherlands. The report is compiled from information obtained in interviews and from published documents. A brief review of the system for delivering health care to people with sexually transmitted diseases in the Netherlands is attempted. The objectives of STD surveillance within the Netherlands are discussed together with proposals for change and developments in process. Such data as are available are summarized.

I.1 Health care delivery for STDs

In the Netherlands the general practitioner plays a central role in the health care system. As a rule, in order to get specialized medical treatment of any kind, a referral letter from a general practitioner is essential. Patients are frequently unwilling to consult their general practitioner with an STD problem, even for referral.

In 1976 the Government installed the so-called 'low threshold treatment clinics', in an attempt to improve use of treatment and control programmes for STD. The principal aim of these special clinics for STD continues to be the elimination of barriers between the patient and diagnosis and treatment facilities. The 'low threshold treatment clinics' are open to the general public, without referral and at no cost. The clinics offer an anonymous walk-in service, and comprehensive facilities for investigation, diagnosis, treatment and contact tracing are provided. Seven of these clinics are established in the major cities: Amsterdam, Rotterdam, The Hague and Utrecht. In addition to these clinics one can obtain referral for free diagnosis and treatment by specialists by consulting community nurses at various Municipal Health Services in the country.

Today there are four ways an individual may receive care:

a) consult a general practitioner, with subsequent referral to an STD specialist (Dermatovenereologist) if needed.
b) visit a 'low threshold treatment clinic
c) consult a community nurse, with subsequent referral to an STD specialist
d) consult a family planning clinic.

I.2 The Law on Sexually Transmitted Disease

Gonorrhoea, early syphilis, chancroid, LGV and granuloma inguinale have been notifiable in law since 1976.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

All clinicians seeing cases of the above-mentioned diseases are required in law to make a formal notification. The name of the patient is not notified. Date and place of reporting are notified, together with age and sex of the patient. Notification data are collected by the Bureau of the Chief Medical Officer of the Ministry of Health and published regularly. Amsterdam and Rotterdam, the two major cities, contribute the majority of national cases. The overall under-notification of gonorrhoea and syphilis is estimated to be ca. 60%.

II.2 Sentinel Network Of General Practitioners

Most major cities have a GP sentinel network, but the STDs reported vary between the cities and over the years.

II.3 STD Clinic Data

STD service data on gonorrhoea and syphilis are available from 1939. Since 1983 data on chlamydia infections and non gonococcal urethritis (NGU) are also available from this source. Both involvement in prostitution and the person's sexual preference have been registered since 1983.

Detailed data on attendance have been collected from the STD clinics of the Municipal Health Service in Amsterdam since 1981. Information regarding a persons sex, age, town of residence, sexual preference, involvement in prostitution, addiction to hard drugs and STD history are available from this source. The STD clinics in Amsterdam are estimated to treat about 40% of all gonorrhoea infections in Amsterdam and about 50% of all syphilis cases (1).

II.4 Laboratory Networks

No formal laboratory based notification system exists in the Netherlands. Some important data on antibiotic resistance are however available. Resistance in gonococci has been monitored in the Netherlands since the first reports on penicillinase-producing strains in 1976. Almost all PPNG isolates are sent to the National Institute of Public Health and Environmental Protection for susceptibility testing, auxotyping, serotyping, and plasmid characterisation. These data are available in aggregate form.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

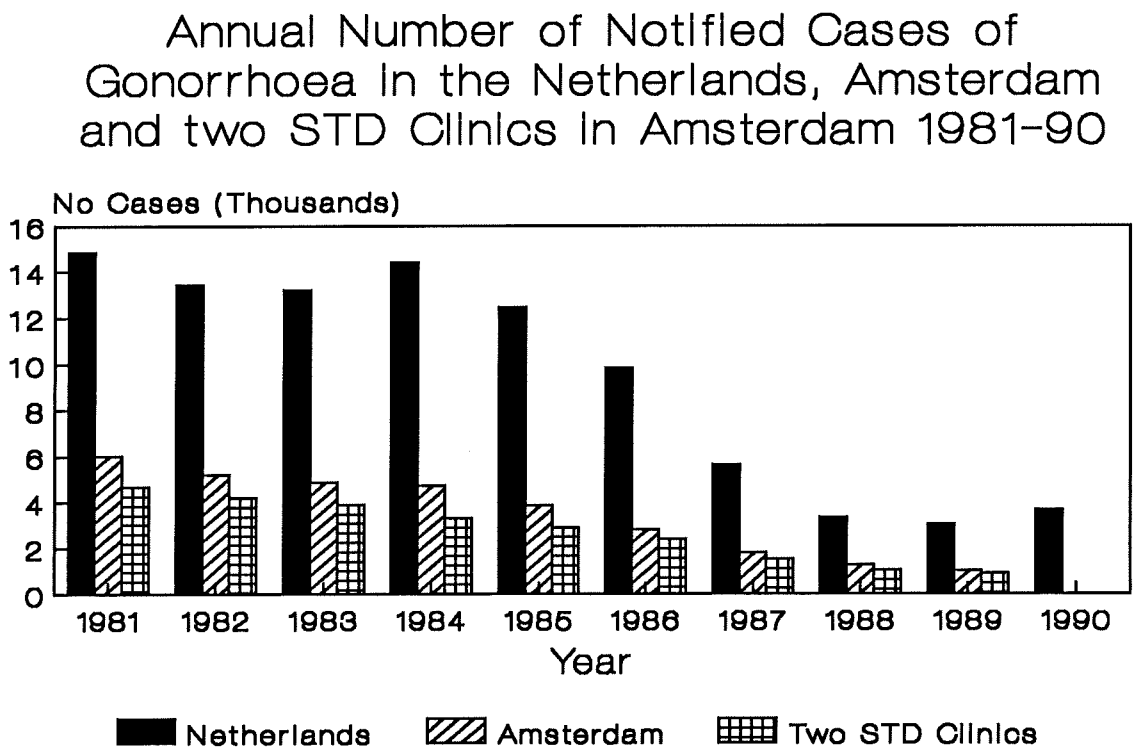
Although they have been estimated, the high levels of undereporting in the compulsory notification system complicate attempts to establish incidence estimates for the STDs covered. Reasonable estimates of the incidence of gonorrhoea and syphilis can be obtained from the Amsterdam STD clinic data.

III.3 Recent Secular Trends in STD Incidence / Prevalence

Trends in the incidence of gonorrhoea and syphilis can be tentatively described in data from both the compulsory notification system and the STD clinics. In order for interpretation to be possible it must be assumed in the former case that the completeness of reporting has remained consistent over the period described. For the STD clinic data, it is also necessary to assume that catchment populations have remained relatively stable.

III.3 a) Gonorrhoea

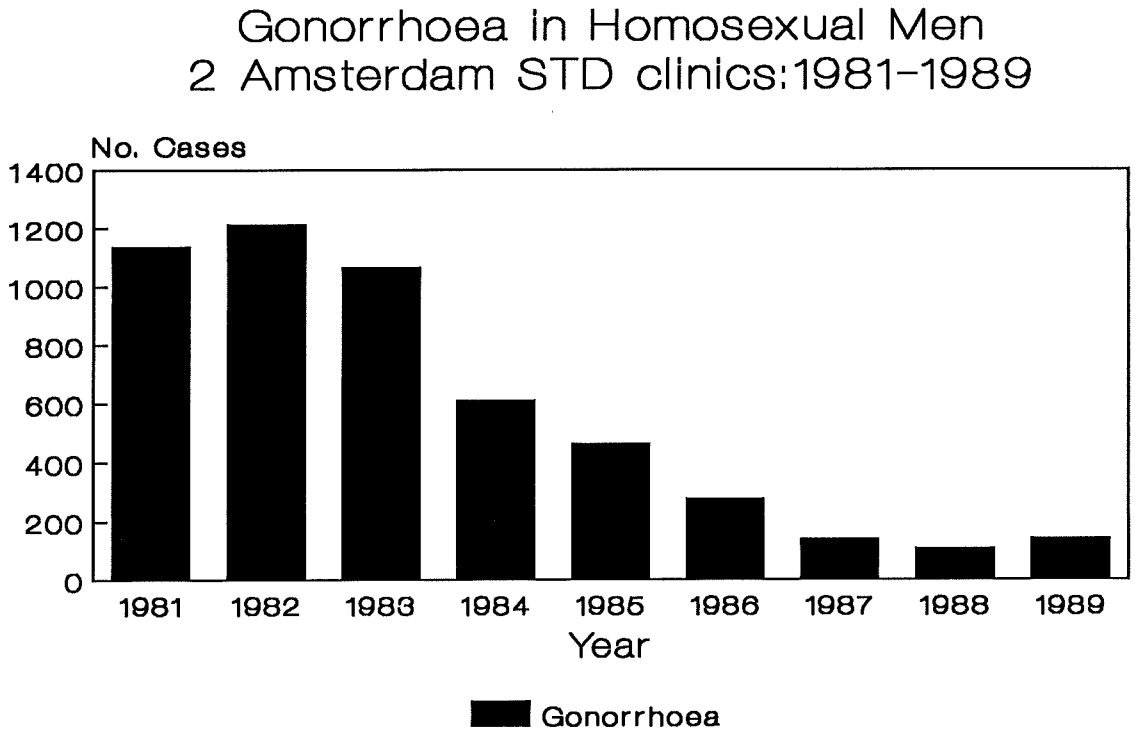
Gonorrhoea notifications for both the whole country and for Amsterdam are shown in the following figure, together with number of cases seen at two Amsterdam STD clinics.



All three sources show very similar trends. Between 1981 and 1984 the number of cases remains relatively stable. There follows a sharp decline, with numbers of cases reaching at about one fifth of their 1984 level by 1989. There is a

suggestion of an upturn in the national notifications in 1990. Because information on sexual orientation is not included with compulsory notifications, no breakdown by this variable can be made.

The following figure shows numbers of gay men attending the two Amsterdam clinics with gonorrhea over a similar period.

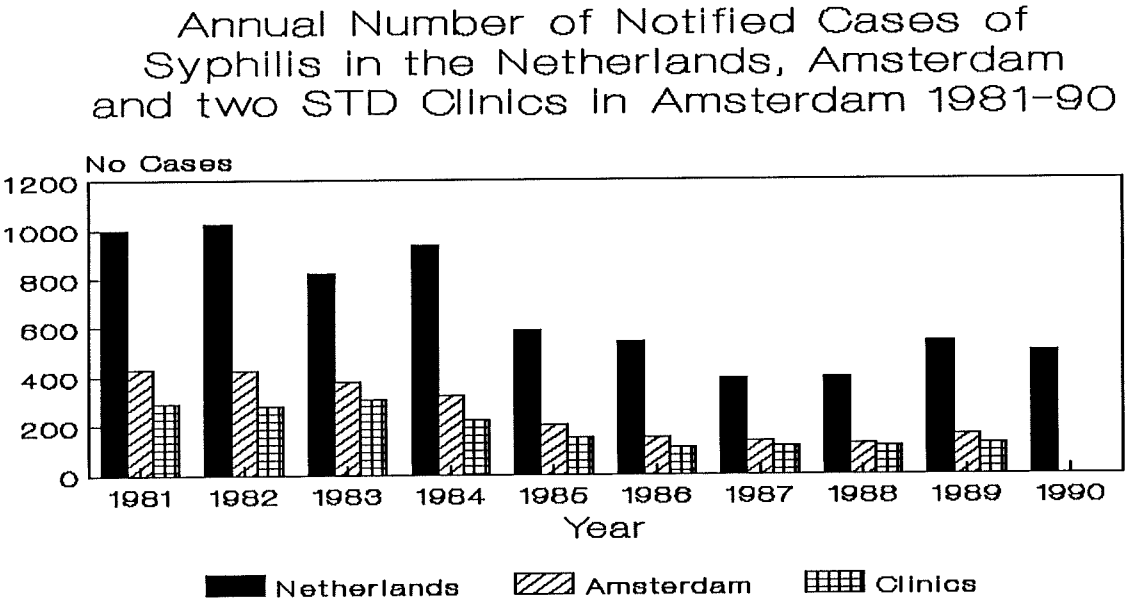


Source: Anneke van den Hoek

The data show a similar trend, with the suggestion of an upturn in 1989.

III.3 b) Syphilis

Syphilis notifications for both the whole country and for Amsterdam are shown in the following figure, together with number of cases seen at two Amsterdam STD clinics.



All three sources show very similar trends. There is a decline between 1984 and 1988 in all three sets. in 1989 there is an upturn more or less maintained in 1990 in the national data.

Although information on sexual orientation is now included with compulsory notifications, no breakdown by these variables was available at the time of writing.

III.3 c) Detailed STD Clinic Data

Detailed data of the STD clinics in Amsterdam give insight into the trends among different populations. The decline of gonorrhoea and syphilis has been most apparent among homo and bisexual men, presumably as a result of behavioural changes because of AIDS (2,3,4,5). In 1989, among homo- and bisexual men an increase in both early syphilis and in gonorrhoea was seen. The latter was even more remarkable as the total number of diagnosed gonorrhoea in the clinics (and in the Netherlands) remained stable (6). Since 1986, an increase in heterosexually acquired syphilis has been seen, although the total number of syphilis cases diagnosed at the clinics remained stable. The proportion of syphilis patients who reported using hard drugs increased from 7% in 1985 to 22% in 1989, which was mainly due to increased numbers of prostitute women with syphilis (7).

III.3 d) Laboratory Data

Although the incidence of Neisseria gonorrhoea has fallen sharply since 1985, the prevalence of PPNG among gonococcal isolates increased from 9% in 1986 to 14% in 1988. In Amsterdam, where about 40% of all Dutch cases of gonorrhoea are diagnosed, the prevalence of PPNG has been about 20% since the end of 1986. A sharp increase of tetracycline resistant isolates is seen over the years among as well PPNG as among non-PPNG.

III.3 e) Amsterdam GP Sentinel Network

The Amsterdam GP sentinel network Pelvic inflammatory disease (PID) has been registered since 1983 (8) in the Amsterdam GP sentinel network . In 1983 the incidence of PID per 10,000 women was 41.5. In 1984 the incidence slightly increased to 48.7 and remained stable afterwards untill 1987, in which year the incidence declined to 34.8. In 1988 it declined till 25.5, while in 1989 a slight increase was seen again to 32.5. This trend is in agreement with data from the STD clinics in Amsterdam (9). Urethritis (gonococcal and non gonococcal urethritis) has been registered since 1986. The incidence per 10,000 men was 152. This incidence continuously declined and was 129 in 1987, 108 in 1988 and 92 in 1989.

V PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

We are not aware of any specific proposals for new developments of the STD surveillance system in the Netherlands at present.

V . CONCLUSIONS

The STD surveillance system in the Netherlands provides useful insight into recent trends in the incidence of gonorrhea and syphilis in the country. While it is likely that the decline in syphilis and gonorrhoea seen in recent years has resulted at least in part from changes in sexual behaviour within the population, improved treatment availability and contact tracing may have also contributed significantly.

The STD clinic data is extremely valuable in that it carries a considerable amount of associated epidemiological information. The suggestion of an upturn in both gonorrhoea and syphilis over the last two years, notably among homosexual men will be watched with interest. It would be useful if all STD clinics in the country were to publish similar data from that obtained from the Amsterdam clinics. The availability of data from these sources on STDs other than gonorrhoea and syphilis will make it easier to interpret observed trends.

References

1. Van der Laar MJW, van de Water HPA. Gonorroe en syfilis in de regio Amsterdam. Nederlands Instituut voor Praeventieve Gezondheidszorg - TNO, Leiden 1987.

2. Annual reports of the STD clinics, Municipal Health Service, Amsterdam, 1981-1989.

3. Fennema JSA, van den Hoek JAR, Rijsdijk AJ, van der Linden,MMD, Coutinho RA. Het vóórkomen van sexueel overdraagbare aandoeningen bij bezoekers van twee geslachtsziektenpolikliniekeń in Amsterdam, 1981-1987. Ned Tijdschr Geneesk 1989;133:886-890.

4. Van Griensven GJP, van den Hoek JAR, Leentvaar A, Coutinho RA. Surrogate markers for HIV incidence among homosexual men. J Infect Dis 1989;159:1157-1158.

5. Van der Laar MJW, Pickering J, van den Hoek JAR, van Grienven GJP, Coutinho RA , van der Water HPA. Declining Gonorrhoea rates in the Netherlands 1976-1988. Consequences for the AIDS epidemic. Genitourin Med 1990;66:148-155.

6. Van den Hoek JAR, van Griensven GJP, Coutinho RA. Increase in unsafe homosexual behaviour. The Lancet 1990;336:179-180.

7. Van den Hoek JAR, van der Linden MMD, Coutinho RA. Increase of infectious syphilis among heterosexuals in Amsterdam; its relationship to drugs and prostitution. Genitourin Med 1990;66:31-32.

8. Annual reports of GP sentinal network. Municipal Health Service, Amsterdam, 1983-1989.

9. Van Haastrecht HJA, van den Hoek JAR, Coutinho RA. Evidence for a change in behaviour among heterosexuals in Amsterdam under the influence of AIDS. Genitourin Med 1991; in press.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

NORWAY

Section 9 NORWAY

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

This report outlines the existing state of the surveillance of sexually transmitted disease (STD) in Norway. The report is compiled from information obtained from the National Institute of Public Health in Oslo. A brief review of the system for delivering health care to people with sexually transmitted diseases in Norway is attempted. The various objectives and approaches to surveillance which currently exist are described. Such data as are available are summarized, and contact details of key individuals are noted.

I.1 Health care delivery for STDs

Health care for STDs is obtained from a variety of sources. Dedicated STD clinics are found in the larger cities such as Oslo and Bergen. Consultation and treatment are free of charge for gonorrhoea, syphilis and chancroid, but not for genital chlamydia infection, herpes or hepatitis B.

I.2 The Law on Sexually Transmitted Disease

Syphilis, chancroid, gonorrhoea and LGV have been notifiable in Norway since the early part of this century. The Sexually Transmitted Diseases Act of 1947, enhanced this notification system and age, sex and district of residence of the cases became notifiable.

II SURVEILLANCE SYSTEMS

II.1 National Infectious Disease Notification System

The existing notification system for infectious diseases in Norway including notification of STDs, was implemented on a nationwide scale in 1975. The system is known as Meldesystem for Infeksjonssykdommer (MSIS), and combines clinician based notification with information derived from laboratories carrying out diagnostic testing. The purpose of the system is to provide the basis for the improvement of public health with regard to infectious disease. The objectives of the system include:

- making responsible officials at all levels aware of significant changes in the epidemiological status of important infectious diseases.

- to keep the authorities and the laboratories informed about the epidemiological situation at the local, county, national and international levels.
- to give physicians advice on actual cases.

These are achieved through:

- collection of notifications
- production and distribution of feedback reports
- detection of significant changes in incidence
- specific initiation of planning, research and intervention
- education of health personnel and the public.

Sexually transmitted diseases notified through this system include syphilis , gonococcal disease, lymphgranuloma venereum, chancroid. Genital herpes simplex virus infection has been notified since 1983, and genital chlamydia infection since 1988. Congenital cases of syphilis are identified separately, as are cases of gonococcal infection occurring in people under the age of 18 years. These diseases are notified weekly in aggregate to the National Institute of Public Health. Diseases notified to the Institute by name, age and sex have included opthalmia neonatorum since 1984, hepatitis B infection since 1975, and AIDS since 1983. Cases of HIV infection are also individually notified, but anonymously.

The completeness of notification is believed to be high although no formal attempts to assess this have been made.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

Crude estimates of incidence can be obtained from the notification data as they are believed to be relatively complete.

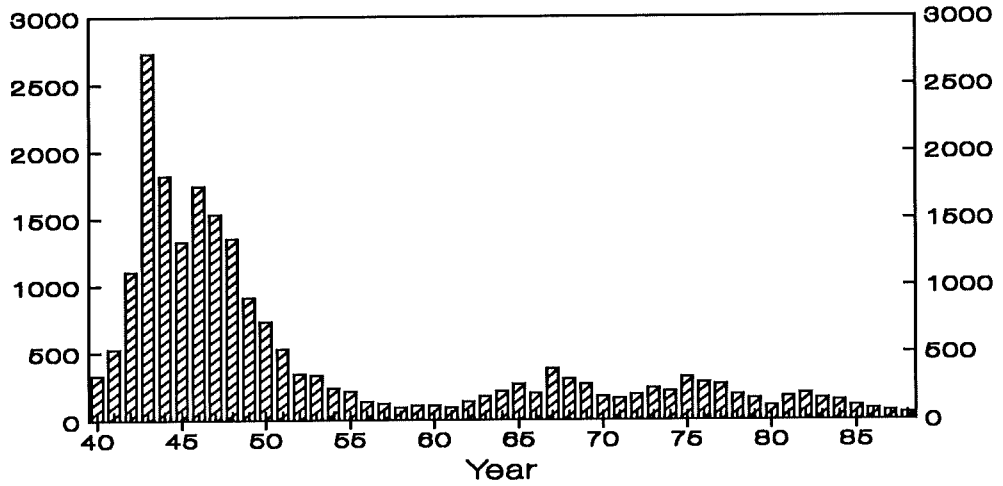
III.2 Long Term Secular Trends in STD Incidence / Prevalence

The availability of data on the occurrence of syphilis and gonorrhoea from the 1940s allow us to make tentative description of the secular trends in the occurrence of these diseases.

III.2 a) Syphilis

Syphilis notifications during the period 1940-1988 are shown in the figure below.

Compulsory Notifications of Syphilis in Norway 1940-1988



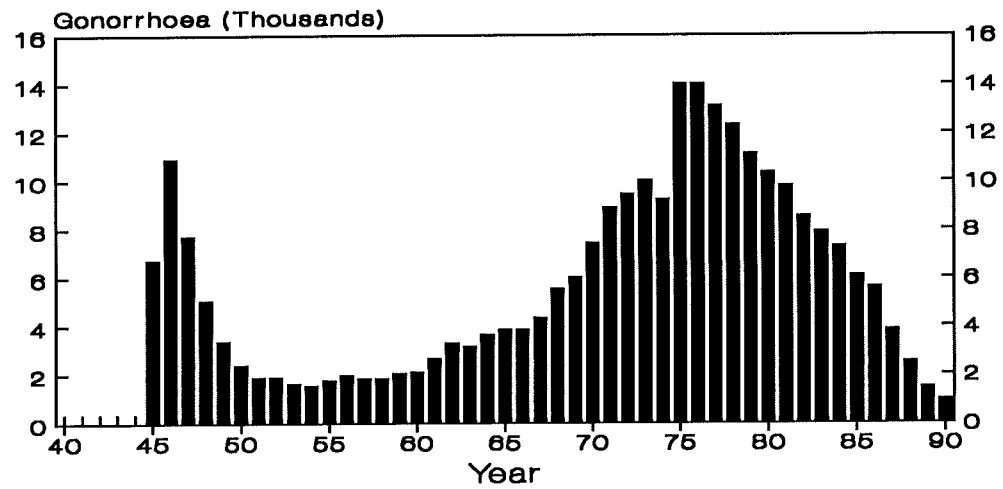
Source: Arve Lystad, Statens Institutt for Folkehelse, Oslo

The data show a major peak around the time of the second world war, tailing off rapidly to reach a low trough in the late 1950s. A plateau is seen throughout the 1970s. There is a steady decline from 1983 reaching, by 1986 a lower level than that recorded at any time during the preceding 45 years.

III.2 b) Gonorrhoea

The numbers of cases of gonorrhoea notified annually are shown for the period 1945-1990 in the figure below.

Compulsory Notifications of Gonorrhoea in Norway 1945-1990



Source: S Aasen, Institutt for Folkehelse, Oslo

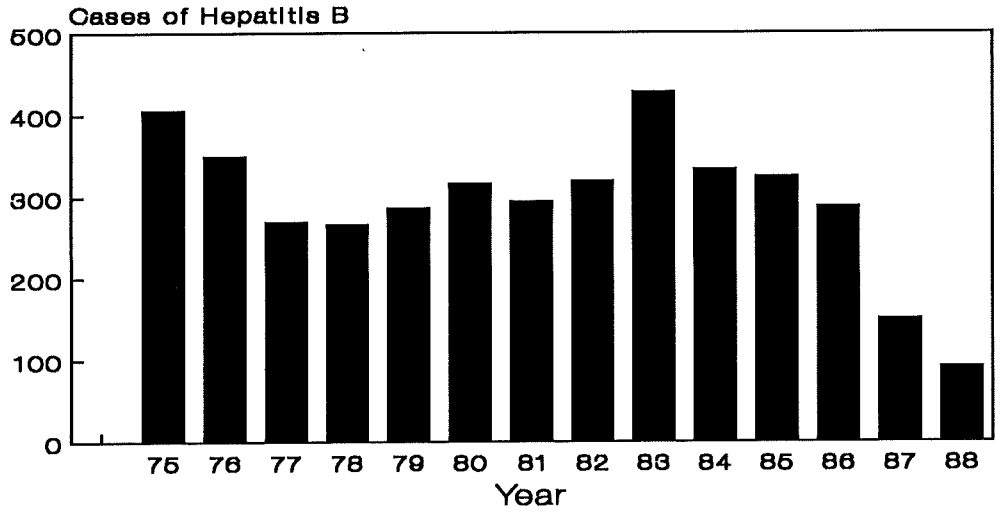
The occurrence of gonorrhoea also shows a peak around the second world war declining to a low in the mid 1950s. Thereafter the occurrence increases steadily to reach a new peak in 1975/76. This is followed by a decline which perhaps

accelerates in 1986. By 1989 gonorrhea notification had reached its lowest level at any time in the last 45 years.

III.2 c) Hepatitis B

The numbers of cases of Hepatitis B notified annually are shown for the period 1975-1988 in the figure below.

Notified cases of Hepatitis B
Norway 1975-1988



Source: S Aasen,
Statens Institutt for Folkehelse

The data show a decline in occurrence since 1985/86.

IV. PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

New Communicable Diseases legislation is currently being drawn up. This will make only minor modifications to the existing STD surveillance systems.

V . CONCLUSIONS

Existing STD surveillance systems in Norway suggest that both syphilis and gonorrhoea have been declining in Norway since the mid 1970s. There is also the suggestion of a decline in hepatitis B from around 1986.

The existing MSIS surveillance system combines laboratory and clinical data, and is thought to be relatively complete in its representation of the true rates of occurrence. However the system of aggregate reporting does not easily lend itself to the inclusion of detailed sociodemographic and sexual behaviour data on cases which would make the analysis of secular trends more meaningful.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

PORTUGAL

Section 10 PORTUGAL

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in Portugal. The report is compiled from information obtained during a recent visit to Lisbon by Dr Adrian Renton. A brief review of the system for delivering health care to people with sexually transmitted diseases in Portugal is attempted. Approaches to surveillance which currently exist are placed in a broadly historical context. The objectives of STD surveillance within Portugal are discussed together with proposals for change and developments in process. Such data as are available are summarized.

I.1 Health care delivery for STDs

There has been a comprehensive National Health Service in Portugal since 1975. Health Centres are provided in all towns and communities, and every person has his/her own GP. There are central hospitals in the main cities, and a any provincial hospitals serving towns and rural populations. Each hospital runs a walk in accident and emergency service. In parallel to this system of public provision there is are available large numbers of doctors who provide a private service in all the medical specialties. Doctors will frequently work for the public service while maintaining a private practice. There are also a number of dedicated sexually transmitted disease clinics in the country: four in Lisbon, two in Oporto and one in Coeimbra. No reliable information exists on patterns of consultation among individuals with STDs in Portugal. It seems probable that people attend both public and private doctors specialising in gynaecology, dermatovenereology and urology, as well as the STD clinics accident and emergency services and their own GPs. Interestingly it is believed that significant numbers of patients with STDs seek treatment direct from pharmacists and that treatment is frequently given.

The system of laboratory provision in Portugal is dominated by private establishments often owned by doctors, and running in parallel to public facilities. Government has little control over private laboratories at present.

I.2 The Law on Sexually Transmitted Disease

Physician notification of cases of syphilis, gonorrhoea, chancroid LGV and Hepatitis have been obligatory in law since 1943. Minor modifications to this law were made in 1960. A major revision of the notification of STDs was undertaken in 1986.

II SURVEILLANCE SYSTEMS

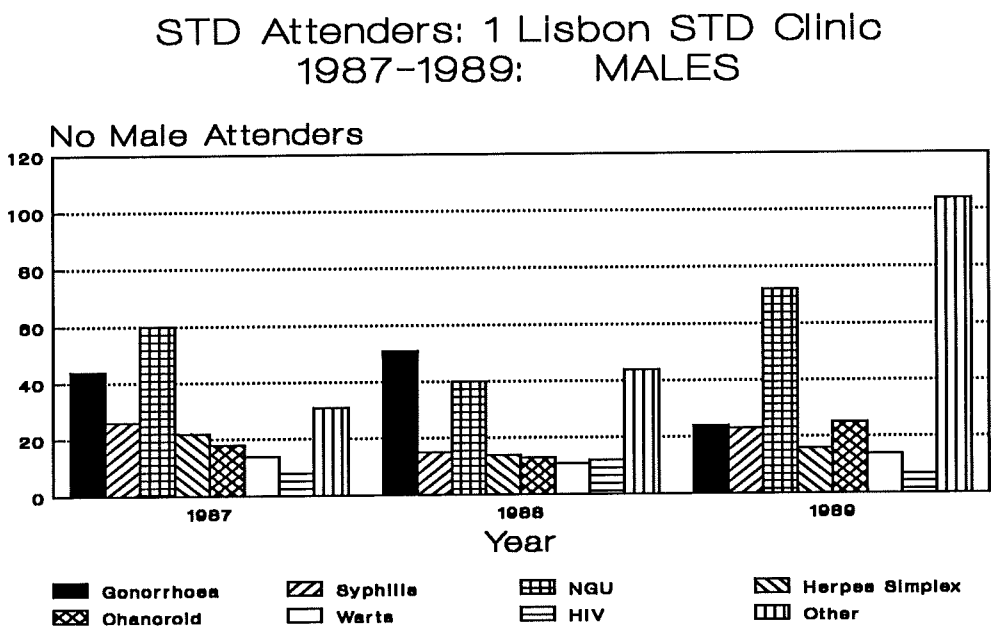
Currently the only existing surveillance for STDs in Portugal is the compulsory physician notification system, although some data are available from the urban STD clinics.

II.1 Compulsory Notification

Aggregate data for notifiable diseases are only available since 1985. In 1986 the notification of syphilis and gonorrhoea was given a major overhaul. All doctors were circulated with a new guide to the process and informed of the high level of importance which the Health Ministry would attach to returns in the future. Since 1986 sex, date of birth, first three letters of name, nationality, district and road of residence, profession, marital status and sexual orientation each of case has been notifiable. Diagnosis, coexistant STD, details of investigations performed and treatment given are also notifiable. In addition sex, date of birth, initials, diagnosis and laboratory tests are also notifiable for up to four contacts. No information is available on proportions of cases which are actually reported. Since 1986 all physicians are circulated regularly with the aggregated figures produced by the system to encourage improved compliance.

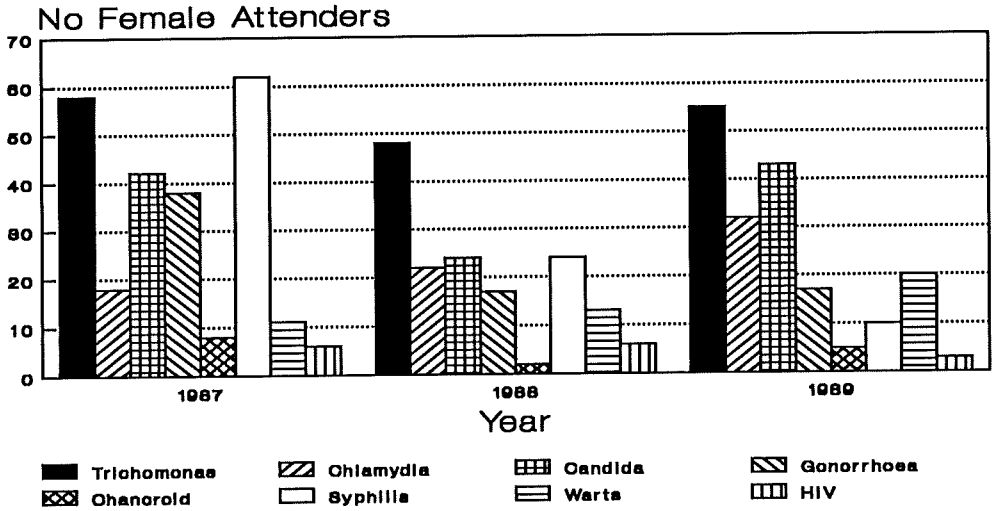
II.3 STD Clinic Data

Recent data are available from the Centro de Salud de Lapa STD clinic in Lisbon. The numbers of cases of various STDs diagnosed in men are shown in the following figure.



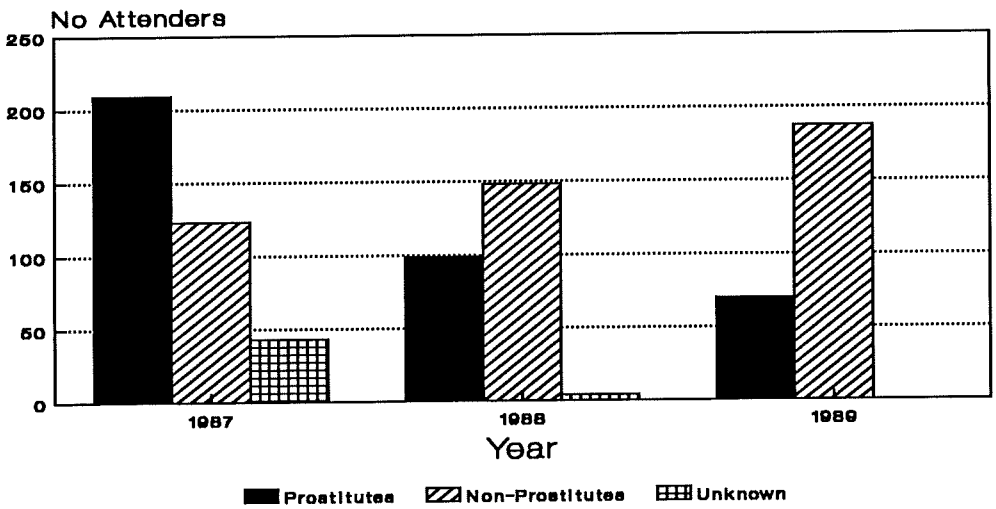
No trends can easily be seen other than an increase in attendances for 'other diagnoses'.The numbers of cases of various STDs diagnosed in men are shown in the following figure.

STD Attenders: 1 Lisbon STD Clinic
1987-1989: FEMALES



The apparent increase in chlamydia probably reflects trends in testing practice. There appears to have been some decrease in number of cases of chancroid and syphilis diagnosed, and the suggestion of an increase in wart diagnoses. An interesting shift in the proportions of female attenders who are involved in prostitution seems to have occurred over the same period.

Prostitute Women Attenders
1 STD Clinic: Lisbon



Source Dr J Cardoso

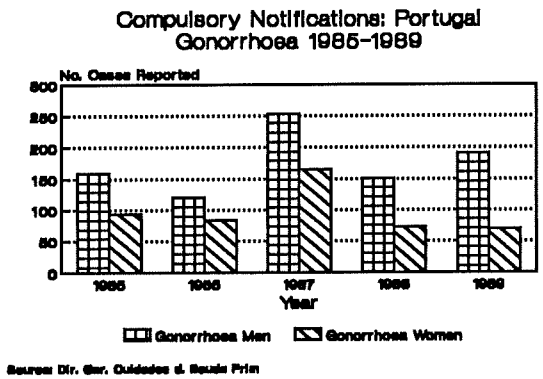
III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

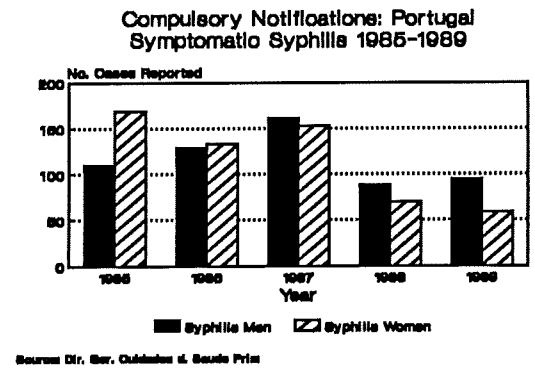
III.1 Incidence / Prevalence of STDs

The existing surveillance systems provide little information on the incidence or prevalence of STDs in Portugal. Compulsory notifications suggest a crude annual incidence of less than 5 /100,000 for both syphilis and gonorrhoea in 1988. If we compare this with the gonococcal incidence rates of the order of 100-200/100,000 observed in European countries where we have more reliable estimates, we are forced to conclude that the level completeness of reporting in Portugal is less than 5% .

III.2 Trends in Incidence / Prevalence

The compulsory notification data for syphilis and gonorrhoea are shown in the figure below:





The data show no clear trends for either disease in either sex. In any case interpretation is very difficult as a major revision of the notification format took place in the middle or the period shown.

V PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

While existing STD surveillance data in Portugal casts little light on levels of or trends in disease occurrence, plans are currently being implemented which will

put in place a multi-faceted and highly sophisticated system covering a wide range of STDs. The system was proposed by Faculdade de Ciencias Medicas, Universidade Nova de Lisboa, in association with the Instituto Nacional de Saude and the Comissao Nacional de Luta Contra a SIDA. The project is funded by the Ministerio de Saude. Its aims are:

- To monitor and systematize information from hospital and other clinical services who treat STD patients.
- To create networks of Epidemiological Surveillance based in public and private bacteriology and virology laboratories.
- To obtain cross-sectional data from surveys among GPs, dermatovenereologists, obstetricians/gynaecologists and urologists.
- To establish a sentinel network based on pharmacists and their assistants.
- To obtain data from the pharmaceutical industry concerning sales of certain drugs.
- To encourage and sponsor other epidemiological and laboratory studies in such a manner that they can be integrated into the overall surveillance system.

In order to achieve these objectives the following programme of work has commenced:

1) Establish an STD declaration form common to all dermatovenereology doctors and services allowing the generation of standard statistics and the use of this data for epidemiological purposes. Establish case definitions, list epidemiological variables to be collected. Communicate with the Medical STD Society of Portugal to set up a joint working group on STD surveillance. Collect data on all diagnosed STDs from dermatovenereologists.

2) Organise a system through which all laboratories in Portugal will collect and report data on isolations of STD pathogens. The lab results will permit regular reports including epidemiological profile of agents, antimicrobial sensitivities, development of therapeutic regimes, and knowledge of the frequency of complications. Collect all STD data from these sources.

3) Develop a standard declaration form for obstetricians/gynaecologists for STDs. Circulate case definitions, requirements for laboratory confirmation of cases and the minimum epidemiological dataset. Collect all STD data from this source.

4) Organise a sentinel network of bacteriology and virology laboratories. Organise survey public and private laboratories. Inform public laboratories and invite them to participate. Invite a sample of private laboratories to participate. Collect data on all STD agents isolated and diagnostic methods used.

5) Organise a cross-sectional postal survey in a structured sample of Dermatologists, gynaecologists / obstetricians and urologists regarding the number of cases they see with syphilis, gonorrhoea NGU and hepatitis B within a fixed time period.

6) Organise a postal survey of GPs as above.

7) Organise a sentinel pharmacy network to provide information on treatment of STDs by pharmacists and their assistants.

8) Canvass pharmaceutical companies for information regarding their sales of drugs used in STDs.

9) Synthesize data sources and produce scientific publications on
   - methodologies used
   - uses of data for public health policy development
   - use of data for improving care.

   Publish a report synthesizing results and assessing the success of the system in providing the basis of an ongoing STD surveillance system.

10) The existing AIDS surveillance programme will be an integral part of the system.

It is aimed to have the system up and running by mid 1993.

V . CONCLUSIONS

The existing compulsory notification system provides very little insight into the extent or trends in STD occurrence in Portugal. The system currently being put in place will, in contrast, provide extensive, detailed and epidemiologically tractable information on incidence and prevalence STDs and the trends in these over time. The simultaneous use of diverse methods of surveillance will permit a triangulation of the desired objective measures. The project should perhaps also be regarded as a pilot scheme, evaluating the strengths and weaknesses of several approaches which seem sensible a priori, but which to date have been little tried.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

REPUBLIC OF IRELAND

Section 11 REPUBLIC OF IRELAND

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

This report outlines the existing state of the surveillance of sexually transmitted disease (STD) in the Republic of Ireland. The report is compiled from information obtained from the Ministry of Health in Dublin. A brief review of the system for delivering health care to people with sexually transmitted diseases in the Republic is attempted. The various objectives and approaches to surveillance which currently exist are described. Contact details of key individuals are noted.

I.1 Health care delivery for STDs

Health care for the STDs is delivered by general practitioners, and hospital outpatient consultants. Diagnostic services are provided by hospital laboratories and supported by the Regional laboratory system. No information is available on the proportions of patients with STDs who obtain care from the various specialties. There are dedicated GUM clinics attached to some major hospitals.

I.2 The Law on Sexually Transmitted Disease

STDs in the Republic of Ireland are notifiable under the general infectious disease legislation. There has been no specific legislation to date.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

Both syphilis and gonorrhoea are notifiable by the clinician treating the patient in law. Age and sex of the patient in law are also notified, and payment is made to the notifying clinician. It is estimated that only a very small proportion of diagnosed cases are actually notified. No standard case definitions are used.

II.2 Sentinel Networks

No sentinel networks for STD surveillance are currently in operation in the Republic of Ireland.

II.3 STD Clinic Data

Data on numbers of diagnosed cases are available from St James Hospital Dublin.

II.4 Laboratory Networks

A voluntary laboratory based notification scheme is currently in operation in the Republic of Ireland. The scheme covers gonorrhoea, syphilis and hepatitis B. Notification is by the laboratory consultant and includes age, sex and, for hepatitis B, "risk group".

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

It is felt that the available data are of very little value in estimating the level or trends of the incidence and prevalence of STDs in the Republic of Ireland.

V PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

There are currently no plans to further develop the system for the surveillance of STDs in the Republic of Ireland.

V . CONCLUSIONS

Surveillance of STDs in the Republic of Ireland is cannot currently provide an adequate view of the descriptive epidemiology of STDs in the country. Useful data may be available from individual health facilities, but these were not available to us at the time of writing.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

SPAIN

SPAIN

This Report is based on information kindly provided by:

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I. INTRODUCTION

This report seeks to outline existing STD surveillance systems in Spain. The report is compiled from information obtained during a recent visit to Madrid by Dr Adrian Renton.

I.1 Health care delivery for STDs

Health care and preventive services for the sexually transmitted diseases in Spain are provided through a variety of clinical specialties and at a variety of sites. During the 1970s there existed an extensive network of STD clinics in Spain. Although some of these still operate, the reorganisation of the health service in the late 1970s and early 1980s has meant that the majority of people with STDs are now seen by general practitioners, gynaecologists and dermatologists, or in family planning clinics. No systematic information is available on patterns of attendance. In general, while consultation is free, patients will pay a portion of the cost of treatment.

I.2 The Law on Sexually Transmitted Disease

Although a notification system for infectious diseases was set up in Spain in the 1930s, STDs have only been included in the system since 1982. when notification of cases of syphilis, gonorrhoea by clinicians became compulsory. Information accompanying notifications includes age, sex, region of residence and site of isolation for gonorrhoea.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

Reports of compulsorily notifiable disease are made to the Centro Nacional de Epidemiologia by all doctors on a weekly basis. Doctors must complete a standard form which covers all notifiable diseases, even if they they have seen no cases of the diseases covered. It is believed by those reponsible for the administration of the system that this long tradition of reporting of infectious diseases means that the completeness of notification is around 70%. However no formal estimation of completeness has been perfomed. Figures are published

regularly in the 'Boletin Epidemiologico Semanal' (BES) published by the Centro Nacional de Epidemiologia. In addition, some local authorities have expanded systems of notification which include non gonococcal urethritis and other STDs.

II.2 Sentinal Network Of General Practitioners

No sentinel network of general practitioners exists in Spain which routinely reports STD cases.

II.3 STD Clinic Data

STD clinic data are published in the medical journals as special reports.

II.4 Laboratory Networks

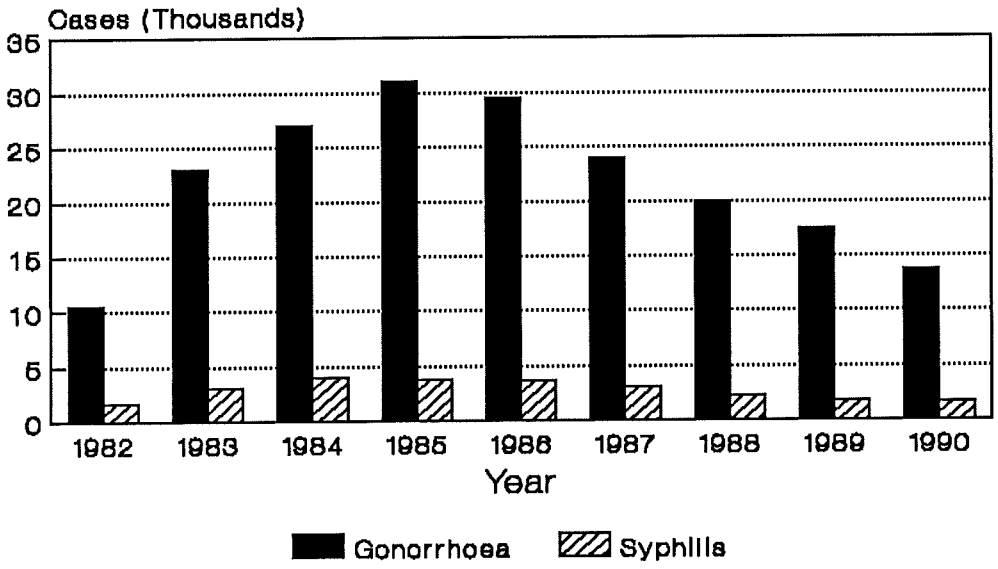
A sentinel laboratory network for STD reporting has been operating in Spain since 186. Reporting includes Neisseria Gonorrhoea isolation, Treponema Pallidum positive serology, chlamydia trachomatis, genitourinary mycoses, ureaplasmas, mycoplasmas and gardenerella vaginalis.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Long Term Secular Trends in STD Incidence / Prevalence

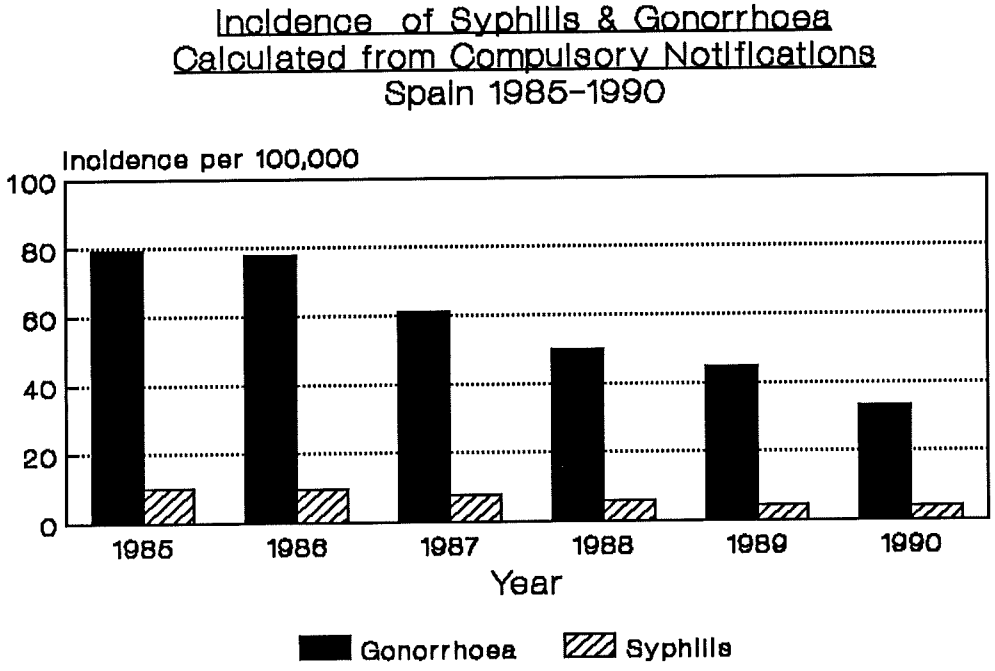
Numbers of reported cases of gonorrhoea and syphilis are available since 1982, and are published in the BES. These are shown in the figure below.

Compulsory Notifications of Syphilis & Gonorrhoea, Spain 1982-1990



Source: Boletin Epidemiologico Semanal
Nos 1854 & 1888; 1990

The data show a steep rise in the occurrence of gonorrhoea in the early 1980s, peaking in 1985 and declining thereafter. Incidence rates for gonorrhoea and syphilis between 1985 and 1989 are shown in the following figure.

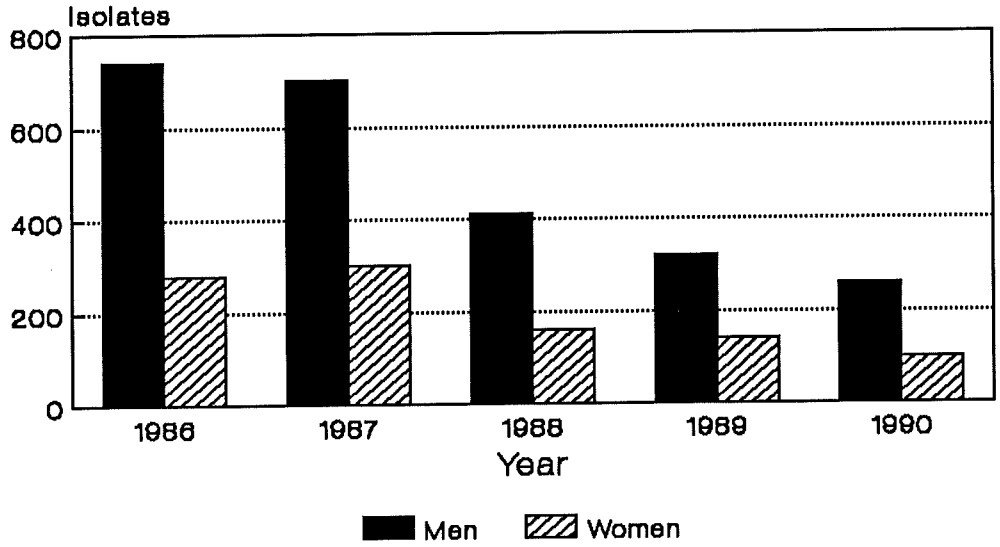


Source: Boletin Epidemiologico Semanal
No 1864 & 1888 : 1990

III.2 Laboratory Notification Data

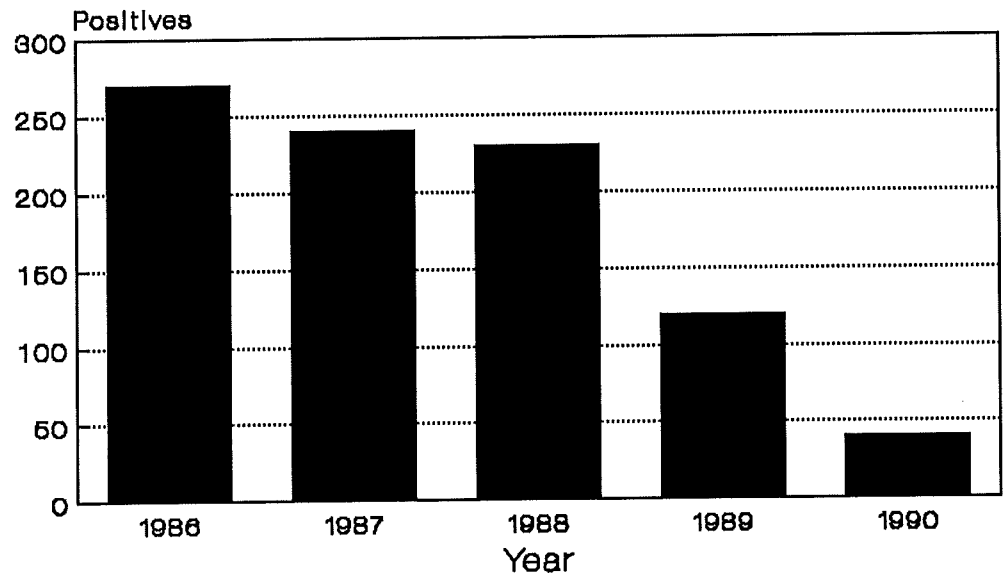
Numbers of positive tests for gonorrhoea and syphilis from sentinel laboratories are available since 1986. These data are shown in the figures below.

Laboratory Notifications of Gonorrhoea
Spain 1986-1990



Source: Boletin Epidemiologico Semanal
No 1888; 1990

Laboratory Notifications of Primary &
Secondary Syphilis in Spain 1986-1990



Source: Boletin Epidemiologico Semanal
No 1888; 1990

IV PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

The completeness of the compulsory notifications systems in Spain ios believed to be better than 70% for both the clinician and the laboratory notification

systems. No specific plans for the development of ST surveillance are being drawn up.

V CONCLUSIONS

The current system of STD surveillance in Spain comprises a clinician based compulsory notification system and a laboratory based system. Both these are administered by the Centro Nacional de Epidemiologia. The long tradition of infectious disease reporting in Spain provides a degree of confidence in the completeness of the data. Some formal attempts to evaluate completeness, and also to describe patterns of service utilisation would enhance our ability to interpret the data.

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SWEDEN

Section 12 SWEDEN

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in the Sweden. The report is compiled from information obtained in interviews and from published documents. A brief review of the system for delivering health care to people with sexually transmitted diseases in Sweden is attempted. The various approaches to surveillance which currently exist are placed in a broadly historical context. The objectives of STD surveillance within Sweden are discussed together with proposals for change and developments in process. Such data as are available are summarized, and contact details of key individuals are noted.

I.1 Health care delivery for STDs

The provision of a free and confidential service for sexually transmitted disease in Sweden dates back to the beginning of the century. Provision of STD services is today almost entirely carried out by state funded doctors in various hospitals, clinics and health centres. Each county has its own specialised clinic for STD. Patients may also attend their gynaecologists, the district health officers or special clinics providing services to young people. All treatment and care of STDs that are included in the law of communicable diseases is free of charge.

I.2 The Law on Sexually Transmitted Disease

The Swedish Law provides for free treatment and care of STDs and a compulsory system of clinician based notification. The following diseases are currently notifiable:

Syphilis
Gonorrhoea
Chlamydia (since July 1989)
Chancroid
HIV

Counselling and contact tracing are also stipulated.

II SURVEILLANCE SYSTEMS

II.1 Compulsory Notification

The system of compulsory notification by clinician has been in operation since the second decade of this century. Age and sex have always been included in the notification. Sexual orientation is now also notified. Name of the patient is not included.

Hepatitis B is also notifiable in law, but is not classified as a venereal disease for this purpose. Full name and identifying details are therefore reported.

II.2 Sentinel Network Of General Practitioners

There is no sentinel network of general practitioners notifying STDs.

II.3 STD Clinic Data

All STD clinics compile and report data concerning number of patients attending with the various STD diagnoses. Clinics also report HIV tests carried out and number of positive results.

II.4 Laboratory Networks

All laboratories participate in a voluntary reporting system for diagnostic testing for STDs amongst others. Both number of positive test results and the total number of tests performed are notified on a monthly basis.

II.5 Special Studies

II.5 a) Prevalence Surveys among Teenagers

Prevalence surveys for both gonorrhoea and chlamydia infection have been carried out among samples of Swedish teenagers. Recent data suggest 8-13% of female teenagers infected with chlamydia. Gonococcal infection appears to be very uncommon.

II.5 b) Prevalence Surveys among Recruits

Samples of male recruits have been screened by urethral swab and urine testing for chlamydia infection. Results from the two methods show a high degree of concordance and suggest a prevalence of around 8%.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

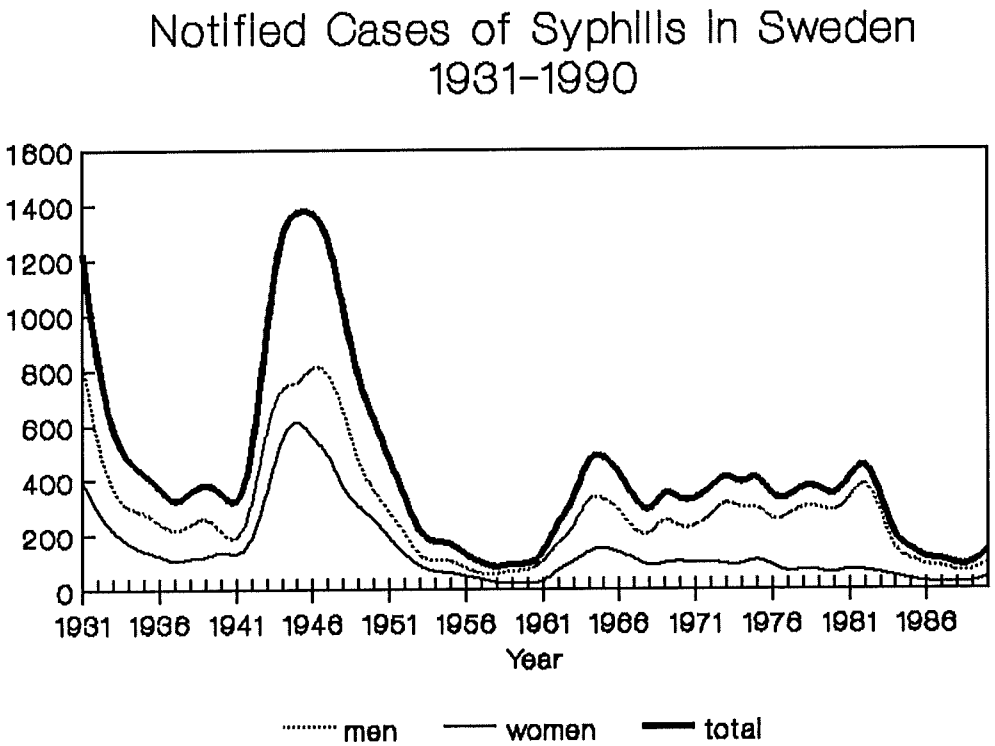
The parallel operation of both nationwide clinical and laboratory reporting systems allows some cross-validation of reporting. Between 80% and 90% of cases occurring are thought to be reported. Annual incidence of reported diseases can therefore be easily calculated for a range of age strata.

III.2 Long Term Secular Trends in STD Incidence / Prevalence

Long term trends for notified diseases can be described in the data from Sweden. The assumption is, of course, that the completeness of reporting has been consistent over the periods for which such trends are described.

III.2 a) Syphilis

The numbers of cases of syphilis reported by clinicians in each year since 1931 are shown in the figure below:

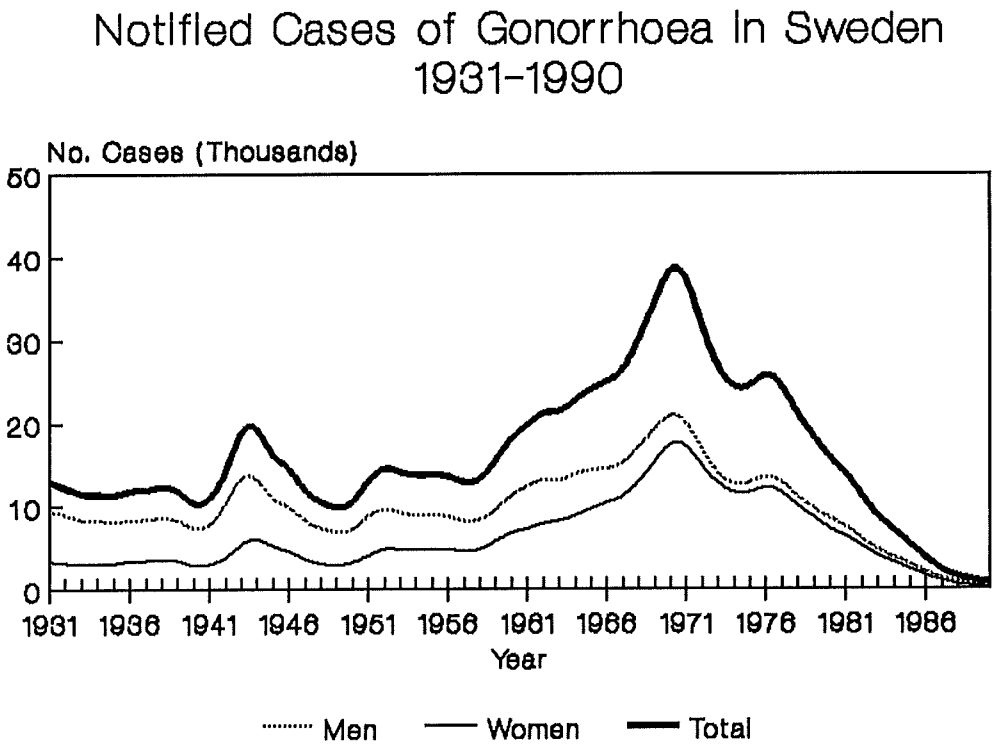


Source: M Bottiger

An high plateau occurred during the 1970s mainly due to the introduction of the diseases among homosexual men. The level peaked in 1982-3 after which time a sharp decline occurred reaching one fifth of the 1982 level by 1989. A slight increase was seen again in 1990. This is wholly attributable to cases among immigrants from high endemic areas. In table 1 Swedes and foreigners are shown separately from 1986. In 1990 76% of the cases were foreigners. If only the indigenous population is counted, the cases declined from 73 in 1986 to 35 in 1990.

III.2 b) Gonorrhoea

The numbers of cases of gonorrhoea reported by clinicians in each year since 1931 are shown in the figure below:



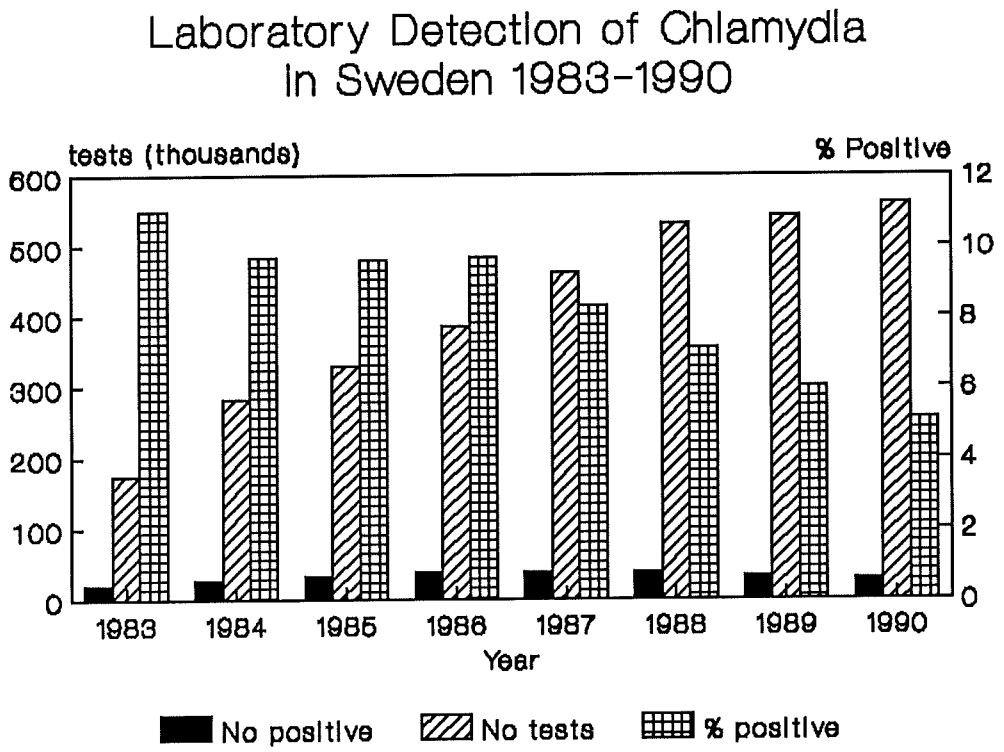
Source: M Bottiger

A steep increase was noted during the 1960s. From the beginning of the 1970s a continuous decrease has been seen in spite of a maintenance of a high number of tests. Notified cases reached less than two percent of their 1969 level by 1990.

A similar decline was seen in other Scandinavian countries but a little later on. Effective treatment, in conjunction with preventive measures such as contact tracing and treatment, and perhaps widespread prescribing of penicillin for non STD indications have been proposed as possible reasons for this decline. Clearly changes in sexual behaviour may also have contributed.

III.2 c) Chlamydia

The number of diagnostic tests for chlamydia carried out in Sweden between 1983 and 1989, together with numbers positive, and the proportion positive are shown in the following figure.

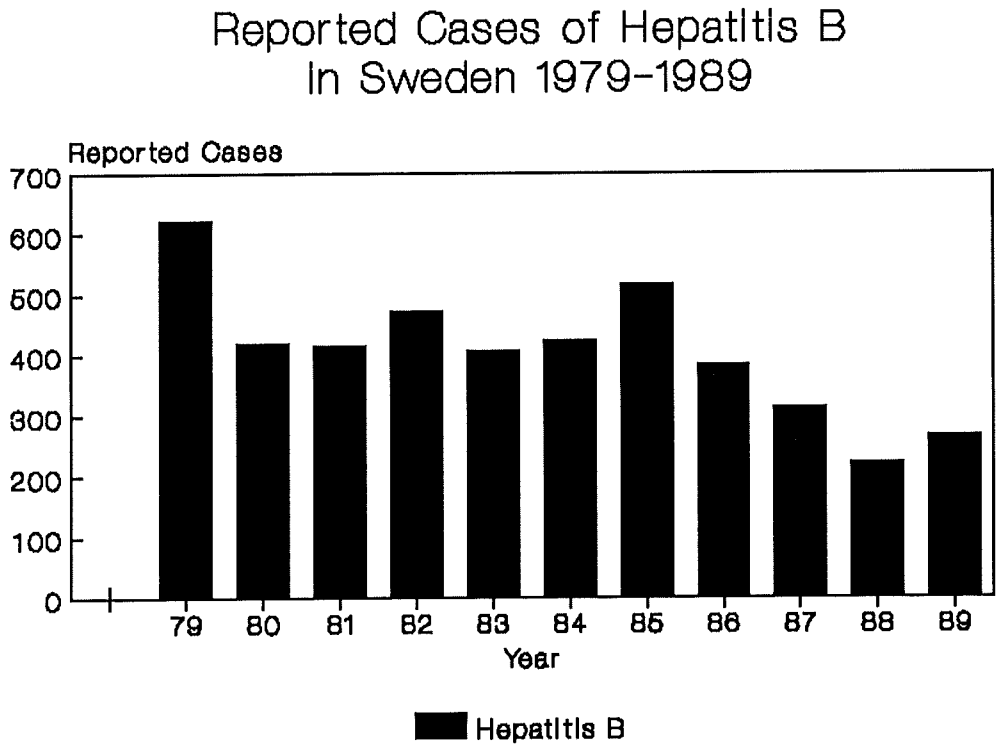


Source: M Bottiger

A build up of diagnostic facilities for chlamydia took place during the 1980s, with total tests performed more than doubling over the period. The number of positive tests increased from ca 19,000 to ca 28,000 over the period. The proportions of tests performed declined from 11% to 5%. which naturally resulted in an increase of diagnosed cases. In 1989 the whole country had access to the testing. Although it is very difficult to identify trends since the diagnostic practices of clinicians clearly changed over the period, observers feel that the decrease in positive tests in 1989 probably represents a real decline in incidence of the infection.

III.2 c) Hepatitis B

The numbers of cases of hepatitis B notified in Sweden between 1979 and 1989 are shown in the following figure.



Source: M Bottiger

The figure shows a decline over the period.

V PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

There are at present no specific proposals for the future development of the STD surveillance system in Sweden. Data on sexual orientation are now being included in case reports.

V . CONCLUSIONS

Sweden has long tradition of following and periodically also combating STD. The liberal view on premarital sexual contacts, the availablility of oral contraceptives, and good financial possibilities to travel to other parts of the world are factors that, especially during the 60s and 70s, may have facilitated the spread of STDs. With the advent of of AIDS the problem of STDs once again came into focus, and health information and education were re-emphasised. Both HIV infection and chlamydia infection were included in the law (in 1985 and 1989 respectively). 200 million Swedish crowns (about £18 million) per year have been allocated to combat HIV and STD, in the last years.

The clinical notification system appears to function fairly well. Up to 90% of verified cases of gonorrhoea and chlamydia are reported, and for syphilis the figure is even higher. The problem with syphilis reports is that early infectious disease cannot be separated from the later stages.

According to the results of the surveillance syphilis and gonorrhoea are declining in the Swedish populations as well as chlamydia. For the two first diseases the impact of imported cases is now apparent, ie, 76% of the syphilis and 26% of the gonorrhoea cases. The assessment of preventive strategies in Sweden requires that the indigenous and the immigrating population is evaluated separately.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

SWITZERLAND

Section 13 SWITZERLAND

This report is based largely on information kindly provided by:

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I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in Switzerland. The report is compiled from information obtained during a recent visit to Bern by Dr Adrian Renton. A brief review of the system for delivering health care to people with sexually transmitted diseases in Switzerland is attempted. The various approaches to surveillance which currently exist are placed in a broadly historical context. The objectives of STD surveillance within Switzerland are discussed together with proposals for change and developments in process. Such data as are available are summarized.

I.1 Health care delivery for STDs

Health care and some preventive services for STDs are provided in Switzerland by private generalists, university clinics, gynaecologists and six specialist dermatovenereology clinics. In addition, most of the larger hospitals have a consultant dermatovenereologist on staff. No substantial information exists on the differential utilisation of these various facilities by people with STD. Anecdotal evidence suggests that the specialist dermatovenereology clinics are used primarily by males in urban areas. Sex ratios for attenders at two clinics are available for 1989. In this year females comprised 20% of total attenders in Zurich and 8% in Basel.

I.2 Public Health Structure

The Public Health structure in Switzerland reflects the Federal political organisation with 26 independent Cantons. The Federal office of Public Health is responsible at the National level, while each Canton has its own office of Public Health whose size is variable.

I.3 The Law on Sexually Transmitted Disease

The law concerning STDs in Switzerland is contained within the general laws relating to infectious diseases in the country. The legislation is contained in the "Loi federale du 18 decembre 1970 sur la lutte contre les maladies transmissibles de l'homme" and the "Ordonnance du 21 septembre 1987 concernant a declaration des maladies transmissibles de l'homme". Although provision was made in the 1970 law for compulsory notification by both physicians and laboratories, this was not demanded until the introduction of the ordinance in 1987. At this time AIDS became notifiable compulsorily by physicians. Gonorrhoea, chancroid,

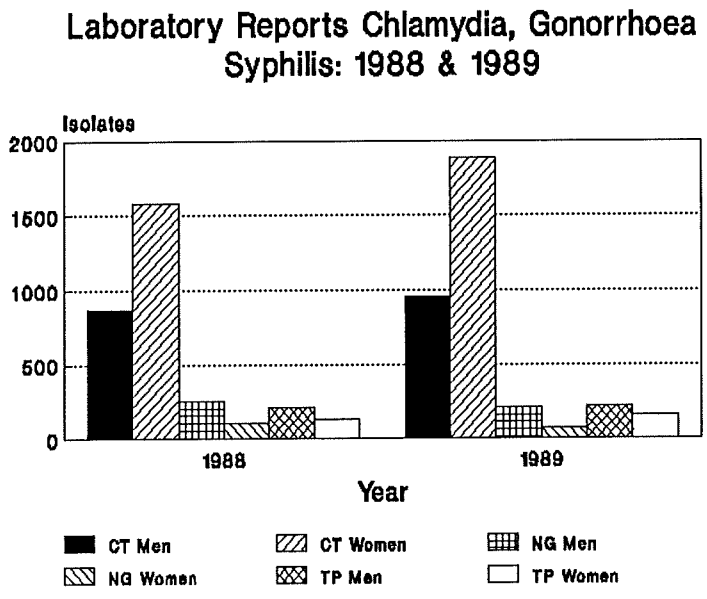
LGV, lymphgranuloma inguinale and syphilis became notifiable by physicians only where the patient refused or interrupted treatment. In addition in 1987 laboratories acquired a duty to notify named cases of Hepatitis B virus detection and positive tests for neisseria gonorrhoea, chlamydia trachomatis, treponema pallidum, and HIV.

II SURVEILLANCE SYSTEMS

Surveillance of STDs in Switzerland comprises a laboratory based compulsory notification system together with a sentinel network of five university dermatovenereology clinics. Future developments and refinements are currently being planned.

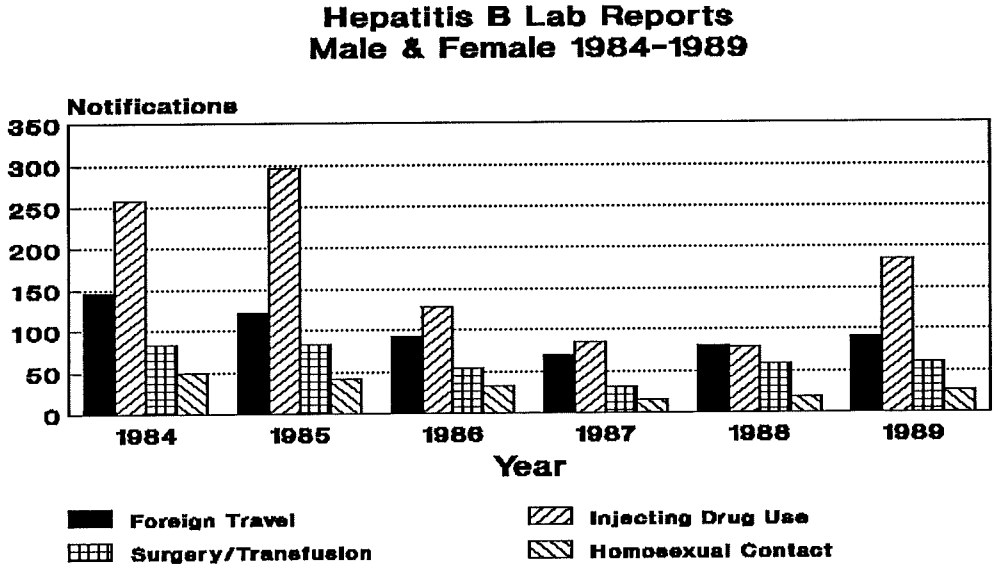
II.1 Compulsory Notification

The compulsory notification system is comparatively recent in Switzerland. Laboratory notifications for Hepatitis B must be made within 24 hours to the Cantonal Physician who in turn notifies Federal Offices of Public Health. The Cantonal Physician then requests an additional report from the treating physician which contains name, sex and date of birth of the patient together with address of the notifying laboratory and other risk factor information. Laboratory identifications of gonorrhoea, syphilis, chlamydia and HIV are notified weekly, together with sex, year of birth and place of residence of the infected individual. These notifications are made to the Cantonal Public Health authorities who then pass them on to the Federal Office. Data for Chlamydia Trachomatis, N. Gonorrhoea and T Pallidum are available for 1988 and 1989, and are shown in the following figure:



Source N Billo, OFSP 1991

Hepatitis B has been notified by laboratories on the day of the test result since 1984. The data aggregated over age and sex are shown in the following figure.



Bulletin des Bundesamtes fur Gesundheitwesen No 46 1990.

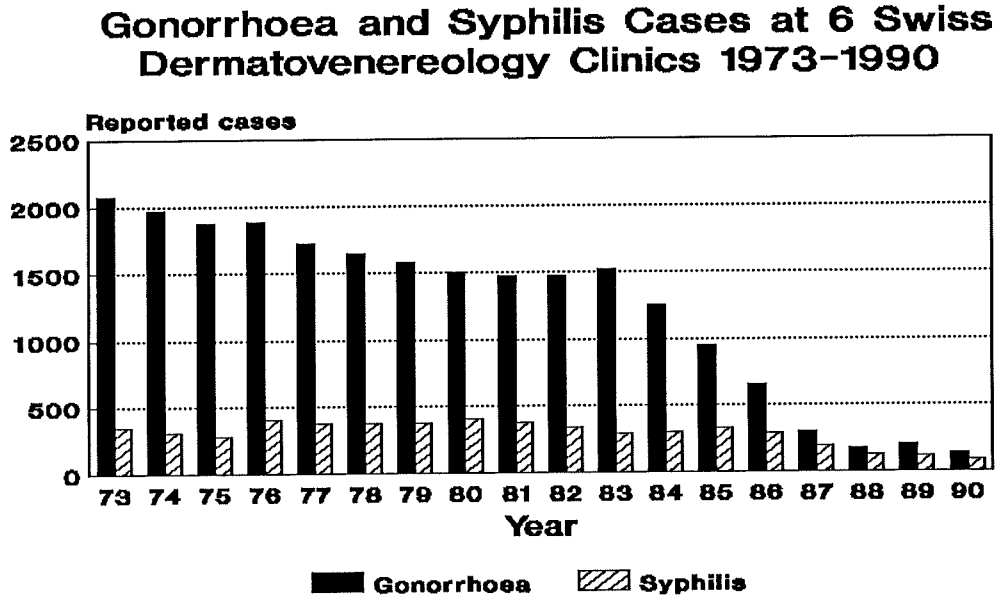
Although laboratories are obliged to notify cases by law, it seems clear that reporting is less than 100%. A further major shortcoming of the laboratory data is the unavailability of either denominator population size or the overall numbers of tests carried out.

II.2 Sentinel Network Of Clinicians: Sentinella

A voluntary sentinel surveillance network comprising general practitioners, paediatricians, and physicians has been operating in Switzerland since 1986. In 1988/89 male cases with symptoms of urethritis were reported from this network on a weekly basis. 259 cases were reported in all and numbers showed a gradual decline over the 52 weeks included. In 133 of these case gram stain for Neisseria Gonorrhoea was carried out and in 45 the result was positive. It is estimated that doctors participating in the network carry out 2.5% of all such consultations in Switzerland. From June 1981 a range of STDs are notified through Sentinella as a permanent feature of the system.

II.3 Dermatovenereology Clinic Data

Since 1973 six dermatovenereology clinics in urban districts of the country have collected data on diagnosed cases of syphilis and gonorrhoea. In addition since 1989 further information is available on country of origin of the patient, country of exposure, male homosexual contact, current prostitution, and use of prostitutes. Data aggregated over age and sex are shown in the figure below:



Source: Nils Billo, OFSP 1991

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

Neither the compulsory notifications from laboratories nor the sentinel dermatovenereology clinic networks data allow the estimation with any precision of the incidence of STDs owing to the absence of denominator populations. To derive incidence measures from these data would require details of differential clinic attendance and laboratory coverage.

The cases of urethritis reported in men through Sentinella in 1987/88 have been used to estimate that the total number of cases of seen by GPs, general physicians and paediatricians in this year was around 10,600 [1]. The data also suggest that of these around 2,000 would be expected to be Neisseria Gonorrhoea infections.

III.2 Secular Trends in STD Incidence / Prevalence

The data reported from the dermatovenereology clinics suggest allow one to develop an impression of trends in gonorrhea and syphilis since 1973, if one assumes that patterns and threshold for attendance have not changed since that time.

Gonorrhoea appears to have declined gradually between 1973 and 1983. A rapid decline is then seen between 1984 and 1988, reaching a fairly stable low level at around 5% of the 1973 figure. Syphilis shows a gradual decline from 1980, reaching 25% of its 1980 level by 1990. It seems unlikely that these trends can be entirely explained by changes in attendance patterns or clinical practice. The extent to which these trends have occurred across all groups relevant to HIV transmission (homosexual men, heterosexuals, prostitute men and women etc) or have been concentrated in specific groups cannot be commented upon at this time. Because several additional variables (sexual orientation, prostitute or contact of prostitute, and number of sexual partners) accompany notifications from this source since 1989, interpretation of future trends will prove considerably easier. Furthermore the commencement of reporting of a new disease of the "newer infections" such as Chlamydia and Human papillomavirus infection will provide the basis for the monitoring and interpretation of trends in the incidence of these diseases in the future.

Laboratory notifications of Hepatitis B transmitted by homosexual contact shows a 60% decrease between 1984 and 1987, followed by an increase in both 1988 and 1989 to reach 50% of its 1984 level in 1989. One should remember however that the system was only introduced in 1985 and might therefore be suffering from teething problems.

IV PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

IV.1 SPECIFIC PROPOSALS FOR THE DEVELOPMENT OF EXISTING SYSTEMS

IV.2 a) Compulsory Notification

The new system of weekly laboratory notifications of Treponema Pallidum, Neisseria Gonorrhoea and Chlamydia with age and sex of patient will continue. Efforts will be made to increase completeness of reporting especially from those few laboratories which carry out the vast majority of tests. Efforts will be made to obtain on a routine basis, information on the total numbers of tests performed.

Interpretation of the laboratory data would be further facilitated by studies of physicians' test prescribing practice, and by information on population coverage by the individual laboratories which notify. Although it is not considered feasible for a national laboratory based notification system in Switzerland to report information such as sexual orientation on a routine basis, this may be possible for one or two large national laboratories. It may be possible to extend the organisms covered as routine diagnostic testing for "new" STDs becomes commonplace.

IV.2 b) Dermatovenereology Clinics

As mentioned previously, these clinics are reporting a much expanded range of STDs and epidemiological variables since 1989. This will continue for the foreseeable future. The information generated would be more easily interpreted if better information were available on the sociodemographic characteristic of clientele.

IV.2 c) Sentinel Network of Clinicians

The medical epidemiology section of the Federal Office of Public Health have proposed that PID, urethritis, cervicitis, non-candidal vulvovaginitis, genital

ulcer disease, scabies and pediculosis, should be incorporated into the Sentinella system for 1991/92. Age and sex of patents will be recorded.

V.3 PROPOSITIONS FOR NEW SYSTEMS

Proposals to monitor STD diagnoses in a sentinel network of Gynaecologists are currently being developed by the medical epidemiology section of the FOPH.

VI . CONCLUSIONS

Existing STD surveillance systems in Switzerland suggest that both syphilis and gonorrhoea declined up to the late 1980s, and in the latter case from the mid 1970s. The main source of information on recent trends are the urban dermatovenereology clinic data. There is some evidence that the Male:Female ratio for attendance at these clinic is heavily biased towards men , and urban clinics might be expected to see a higher proportion of homosexual men than would be found in patients with STDs in the country as a whole. Generalisation to the whole country should then be attempted only with caution until more is known about the clientele of these establishments. Despite these reservations this source of information will continue to be invaluable to the monitoring of the STD situation in Switzerland, particularly with the 1989 expansion of diseases and risk factors reported.

The longitudinal monitoring of STDs in Sentinella would prove a valuable adjunct to existing information, particularly if accompanied by studies of the testing and management practices of participating doctors. Similarly the development of a similar network among gynaecologists would allow a better assessment of trends in STD occurrence among women, a group probably considerably unrepresented at dermatovenereology clinics.

Further options which might be considered are the ascertainment of chlamydia prevalence in representative samples of women (repeated over time), surveillance of neonatal herpes simplex infection, and of extra uterine pregnancies.

Clearly any proposals for the development of surveillance must be seen within the context of improvement of existing approaches to treatment and prevention of the STDs and their complications.

1. Sentinella, le systeme de declaration Sentinella en Suisse: resultats d'enquete de juin 1987 a mai 1988. Rapport du groupe de travail. OFSP Bern 1989.

ASSESSING AIDS PREVENTION

EC-CONCERTED ACTION ON ASSESSMENT OF AIDS/HIV PREVENTION STRATEGIES

COORDINATED BY THE UNIVERSITY INSTITUTE OF SOCIAL AND PREVENTIVE MEDECINE, LAUSANNE, SWITZERLAND

UNITED KINGDOM

Section 14 UNITED KINGDOM

This report is based largely based on information kindly provided by:

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I. INTRODUCTION

This report seeks to outline the existing state of the surveillance of sexually transmitted disease (STD) in the UK. The report is compiled from information obtained in interviews and from published documents. A brief review of the system for delivering health care to people with sexually transmitted diseases in the United Kingdom is attempted. The various approaches to surveillance which currently exist are placed in a broadly historical context. The objectives of STD surveillance within the UK are discussed together with proposals for change and developments in process. Such data as are available are summarized.

I.1 Health care delivery for STDs

The provision of free and confidential services for the treatment of venereal disease by Local Authorities was established in Britain in 1916 with the introduction of the Venereal Disease Regulations. Only syphilis, gonorrhoea and chancroid were defined as venereal diseases although the list has expanded considerably since that time. With the introduction of the National Health Service in the 1940s, responsibility for service provision passed to the health authorities.

Today health care for people with sexually transmitted disease in the UK is delivered primarily in specially designated Genitourinary Medicine Clinics throughout both urban and rural areas of the country. Mode of patient access varies, with some clinics running appointment systems, and others a walk-in service. Clinical management of patients is overseen by doctors trained in the specialty of Genitourinary Medicine. Recently these clinics have had over half a million attendances each year, probably representing over 90% of all patients

with STD in the country. Consultation, investigation, and most treatment remains free.

I.2 The Law on Sexually Transmitted Disease

The law on sexually transmitted diseases has remained substantially the same since the introduction of the 1916 Venereal Disease Regulations. No sexually transmitted disease is compulsorily notifiable under law on either an anonymous or named basis. From 1916 however STD services were obliged to report, annually aggregate numbers of cases of venereal disease seen.

II SURVEILLANCE SYSTEMS

II.1 STD Clinic Data

II.1 a) Data Recorded

Reporting of numbers of new cases of sexual transmitted disease seen at STD clinics in the UK has been taking place since 1916. Initially syphilis, chancroid and gonorrhoea were reported on a form VD(R). Non specific urethritis was added in 1951, and trichomoniasis in 1968. In 1971 the VD(R) form was replaced by the SBH60 form providing information on a much expanded list of diseases. This form was returned on a quarterly basis to the Chief Medical Officers of England, Wales, Scotland and Northern Ireland. Diseases included were syphilis, gonorrhoea, chancroid, lymphgranuloma venereum, granuloma inguinale, non specific genital infection, trichomoniasis, candidiasis, scabies, pediculosis pubis, herpes simplex, condylomata acuminata, moluscum contagiosum, non syphilitic treponemal disease. In addition three non diagnostic categories were included: Other (than the above) conditions requiring treatment, other conditions not requiring treatment, and conditions referred elsewhere. Age and sex breakdown of cases and contact tracing of early infectious syphilis and gonorrhoea were also reported by clinics on this form. Tables based on these data at various aggregate levels were published annually by the Department of Health.

In 1988 the SBH60 form was replaced by KC60 form, returned by STD clinics to the Department of Health. The new form includes additional categories for epidemiologically treated suspected syphilis and gonorrhoea, several categories of chlamydia trachomatis infection, and categories for pelvic infection and epididymitis of either gonococcal, chlamydial or unknown origin. Completely new categories on hepatitis B and HIV infection have also been included. The KC60 distinguishes first attack from recurrences for both genital warts and herpes simplex. Numbers of cases in which the infection was homosexually acquired are recorded separately for syphilis, gonorrhoea, NGU, chlamydial infection, herpes simplex, warts and viral hepatitis. Age and sex breakdown is recorded for an expanded group of diseases.

II.1 b) Limitations on Interpretation

The fact that the STD Clinic data returns were and remain primarily designed to generate clinical activity data places constraints on its interpretation for epidemiological purposes.

The SBH60 form specified that 'new' cases should be reported. These were defined as cases in whom a new diagnosis had been made, and not those attending for follow up or continuation of treatment. The KC60 uses essentially the same

definition but refers to 'initial episodes' and suggests that 'completely new courses of treatment for the same disease should be recorded as such. The data for the chronic and relapsing diseases may therefore count the same patient with the same disease more than once.

The policy of routine screening of patients for STDs when they come for 'check-ups' of HIV antibody testing complicated the interpretation of data for conditions which are in some, or the majority of cases, asymptomatic. For example both non gonococcal urethritis and genital warts are commonly diagnosed in patients who had no idea that anything was wrong. Thus any situation which leads to an increase in clinic attendance of the 'worried well' is likely to inflate the numbers of cases of these diseases diagnosed. The data are usually coded onto the returns by clinic clerical staff. This task must of necessity compete with others more pressing. The accuracy of the data is therefore uncertain.

Very often the data are not published by the DOH until two years after their time of collection. This delay makes them of very limited value for early warning of changes or emerging problems. This shortcoming is partially compensated by individual clinics publishing more timely data in scientific journals.

Finally, the absence of denominator data is important. The age structure of the population has changed sufficiently over recent years to undermine the assumption that the denominator population remains fairly constant. Furthermore the lack of certainty over the proportion of cases of STD who attend STD clinics, and the changes in this proportion over time undermine our ability to interpret to the figures.

II.4 Laboratory Networks

II.4 a) Centre for Disease Surveillance and Control (CDSC) : Laboratory Network

This voluntary network collects data from 52 Public Health Laboratories and approximately 400 hospital laboratories each week. PPNG isolates, extragenital gonorrhoea infections and sexually transmitted chlamydia infections are reported among a wide range of other infections since 1977. Figures are published by the CDSC on a regular basis. An assessment of the completeness of the PPNG data has been attempted for PPNG in 1981. It suggests approximately 25% underreporting in for these isolates. Completeness for other STDs is unknown.

II.5 Monitoring HIV seroprevalence in sentinel STD Patients

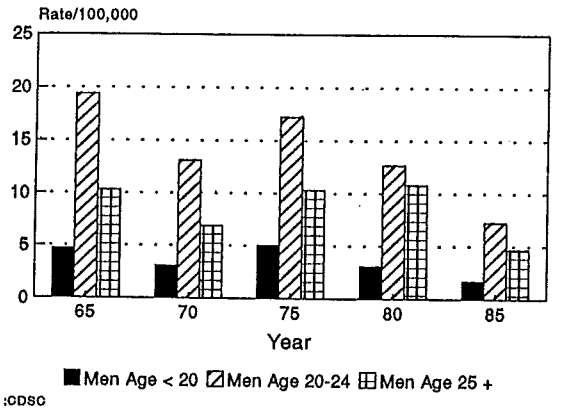
UK clinics are currently participating in this concerted action. The level of detail available on diagnosis and risk factors for acquisition, together with linkage to HIV testing will provide valuable information on STD occurrence and its relation to HIV infection in the future. Clinics have not however been chosen to be representative of the country as a whole, and generalisablity of results will therefore be limited.

III WHAT THE DATA TELL US ABOUT THE PREVALENCE OR INCIDENCE OF STD

III.1 Incidence / Prevalence of STDs

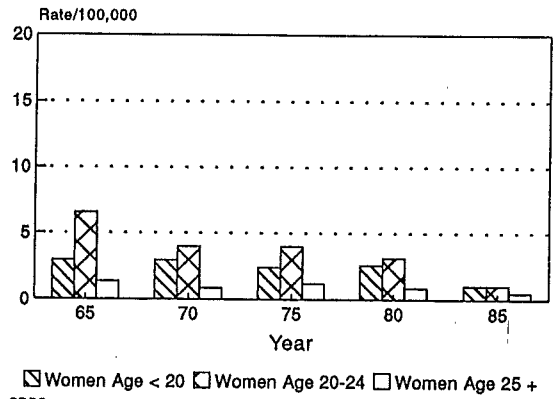
If one assumes that 90% of all STD cases in the UK are seen in GU clinics then one can estimate the crude incidence of the STDs included in the clinic returns. For gonorrhoea and syphilis age stratified incidences can be estimated. These are shown in the figures below for UK males and females for years 1965 1970, 1975, 1980 and 1985.

Incidence of Syphilis UK
MEN



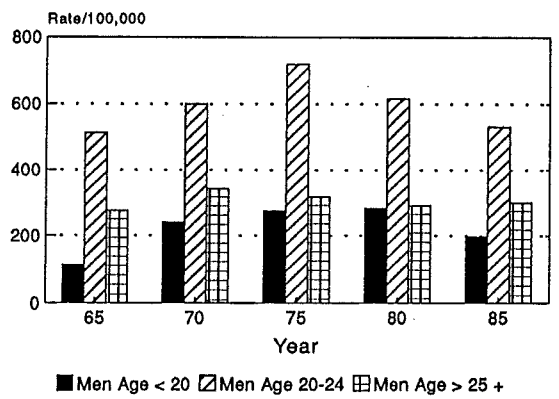
Source :CDSC

Incidence of Syphilis UK
WOMEN



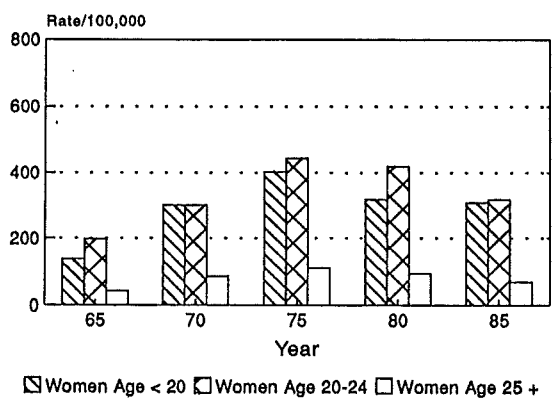
Source :CDSC

Gonorrhoea Incidence UK
MEN



Source:CDSC

Gonorrhoea Incidence UK
WOMEN

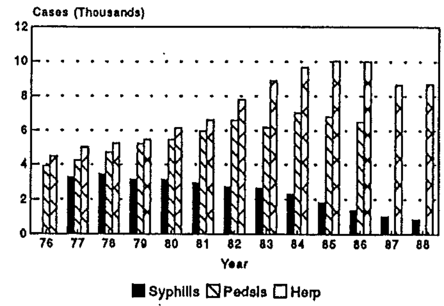


Source:CDSC

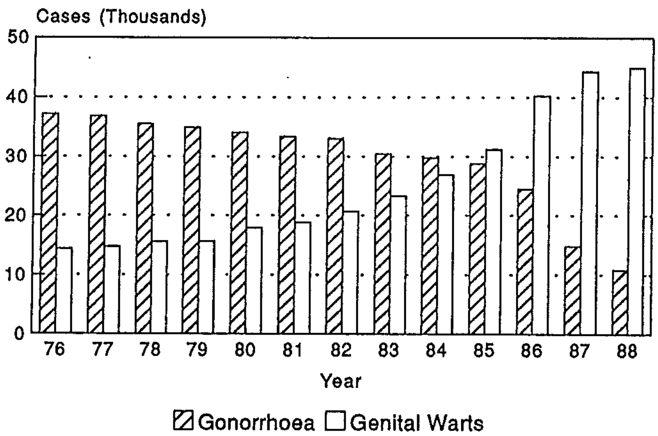
III.2 Recent Trends in GU clinic returns in England and Wales.

The following figures provide a basic idea of the trends in STD diagnoses from these clinics over the period 1976 to 1988. The number of male and female cases seen are shown separately.

England and Wales STD Clinic Attenders
Syphilis Pediculosis and Herpes
MALES

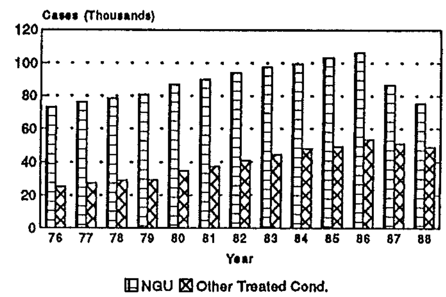


England and Wales STD Clinic Attenders
Gonorrhoea and Warts
MALES



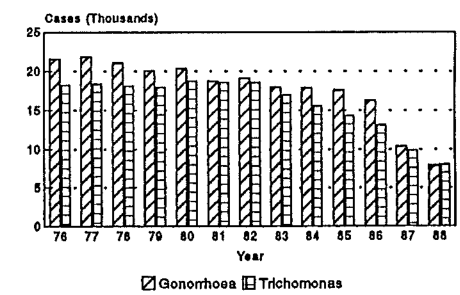
Source : UK Department of Health

England and Wales STD Clinic Attenders
NGU and Other Treated Conditions
MALES



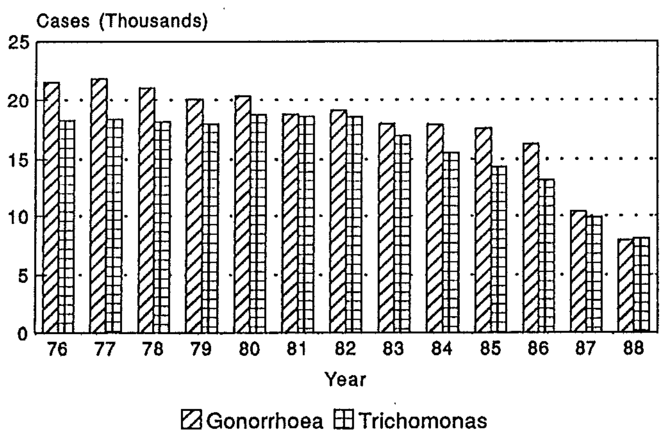
Source : UK Department of Health

England and Wales STD Clinic Attenders
Gonorrhoea and Trichomonas
FEMALES



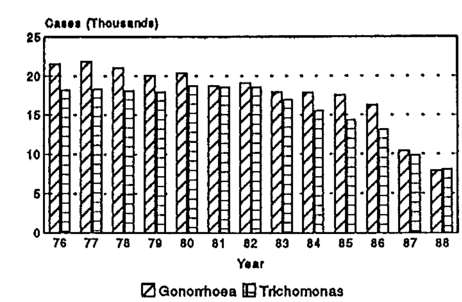
Source : UK Department of Health

England and Wales STD Clinic Attenders
Gonorrhoea and Trichomonas
FEMALES



Source : UK Department of Health

England and Wales STD Clinic Attenders
Gonorrhoea and Trichomonas
FEMALES



Source : UK Department of Health

III.2 a) Gonorrhoea

The figure shows a gradual decline in male gonorrhoea cases since 1976 accelerating around 1985 reaching 25% of the 1976 level by 1988. The figure shows a similar though less marked decline in female cases reaching 50% of the 1976 level by 1988. It is not clear to what extent these trends might be attributed to earlier treatment, and better contact tracing.

III.2 b) Genital Warts

Genital warts in men show a continuous increase after 1983 reaching, by 1986 a level four times that observed in 1976. In women the increase is even more marked, with 1988 levels five times those observed in 1976.

III.2 c) Syphilis

Syphilis in men starts to decline around 1983 reaching 30% of its 1976 level by 1988. In women the decline is similar though less marked.

III.2.d) Herpes Simplex

In men there is a gradual increase from 1976 peaking in 1985/6 at around two and a half times the 1976 level. There is a suggestion of a slight decline in 1987/8. In women the pattern is similar.

III.2 e) Pediculosis Pubis

In men there is a slow rise, representing a 50% increase over 1976 levels by 1984 with a suggestion of a small subsequent decrease. In women the increase is slightly more marked.

III.2 f) Non Gonococcal Urethritis

There is a steady rise to 1986 followed by quite a sharp fall.

III.2 g) Other Treated Conditions

This category represents non sexually transmitted disease seen in the clinics and treated. There is a marked parallel with the trend for Non Gonococcal Urethritis. In women the trend is similar but less marked.

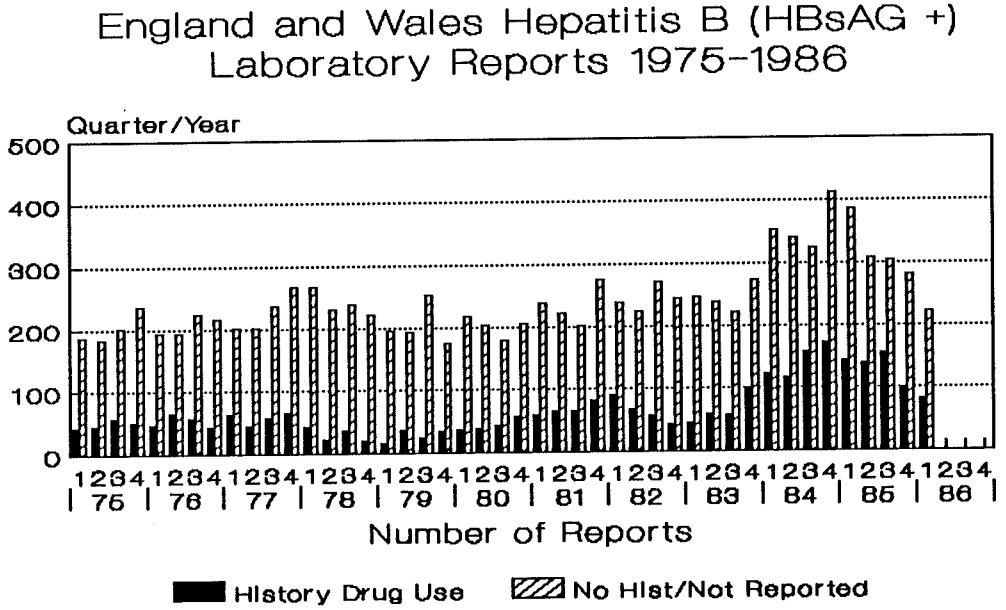
III.2 e) Discussion

The data show two distinct patterns. Firstly there appears to be a genuine decline in attendances at which gonorrhoea and syphilis were diagnosed in both sexes. It seem unlikely that these can be wholly explained by earlier treatment, improved contact tracing or epidemiological treatment. Warts, herpes and pediculosis in both sexes show a significant increase to the mid 1980s followed by a suggestion of decline. Treated non-STD cases show a similar pattern, suggesting that at least in some cases the increase might be accounted for by incidental ascertainment of asymptomatic disease among the increasing overall number of attenders. The numbers of attenders in whom no disease was found (other conditions not requiring treatment : see II.1 a] above) show very similar trends with increases of around 50% over the period. One might argue that an increase in overall attendance of the order of 50-75% would be unlikely to account for the 4-5 fold increase in genital warts or the rise in genital herpes seen over the

period. One should however remember that these a considerable proportion of these diseases may have occurred as multiple infections. These observation remain intriguing and largely unexplained.

III.3 Laboratory Notifications of Hepatitis B

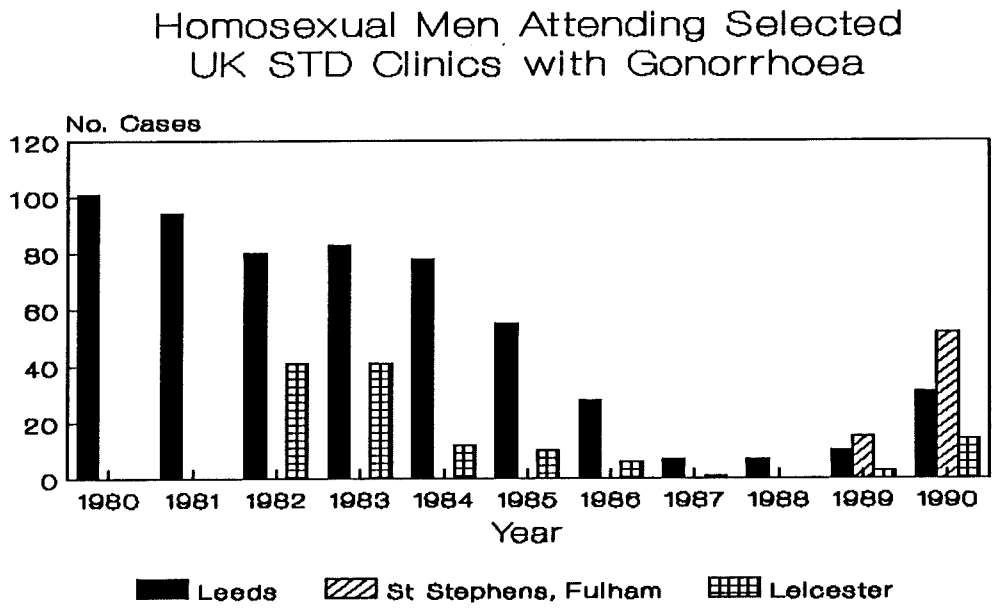
The following figure shows a suggestion of a slight increase in positive HBsAG tests in patients with acute hepatitis from the CDSC network in the early 1980s. It is however very difficult to interpret these data in any meaningful way. No figures are available demonstrating consistency population coverage or completeness over the period. Furthermore positives tests from patients who are reported as having acquired their infection through homosexual contact show parallel trends with those in whom this has not been reported as the presumptive mode of transmission. These parallel trends in what one might expect to be epidemiologically unrelated cases suggest that reporting/testing artefacts may be responsible.



Source : Public Health Laboratory Service

III.4 Ad Hoc STD clinic data

Various STD clinics in the UK have published data on gonorrhoea diagnoses for homosexual men since the beginning of the decade. These are shown for the clinics in Leeds, Leicester and St Stephens Hospital Fulham in the figure below.



IV PLANS AND PROPOSALS FOR FUTURE DEVELOPMENT OF STD SURVEILLANCE

A recent report from Centre for Disease Surveillance and Control crystallizes the feeling that the present workload returns from GU clinics, although extremely valuable are unlikely to enable the resolution of the complex epidemiological questions surrounding the sexually transmitted disease. The Centre have made preliminary proposals to the Department of Health to set up a funded sentinel GU clinic surveillance network with a parallel network of the laboratories which support the clinics.

IV.1 PROPOSITIONS FOR NEW SYSTEMS

IV.1 a) Sentinel GU Clinic Surveillance Network

The proposed network would comprise a representative group of GU clinics in the UK. The clinics would report a much enhanced data set with diagnoses, including presence of multiple infections, site of infection, investigations performed, age, sex, sexual orientation, new or recurrent problem, presumed mode of transmission, details of sexual behaviour, history of STD and drug resistance.

IV.1 b) Sentinel network of GU clinic associated laboratories.

This would run in parallel to the clinic network.

IV.1 c) Law to make laboratory notification of STD isolates compulsory

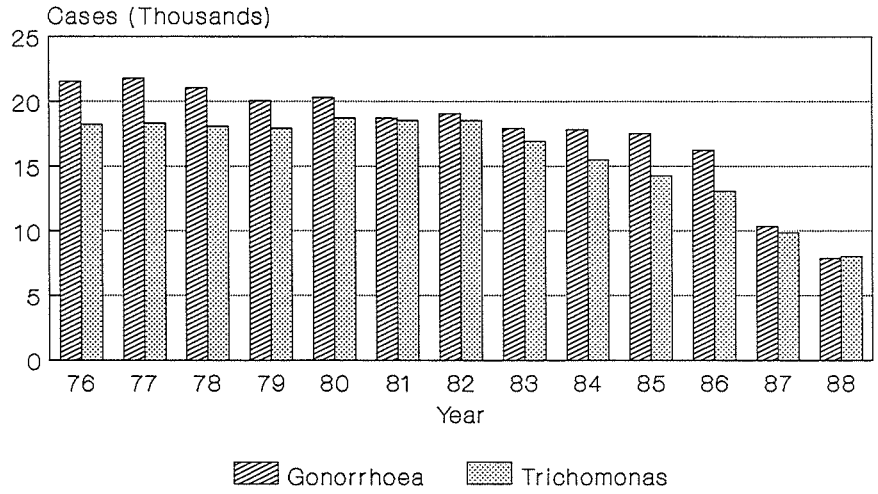
The CDSC has proposed to the Department of Health that all laboratories should be required by law to report anonymously any identifications of sexually transmitted pathogens.

V. CONCLUSIONS

A long history of free provision of clinical and preventive STD services in the UK combined with the post 1948 health service structure has provided an extremely useful approach to the surveillance of these diseases through STD clinic returns. These data suggest a decline in new cases of both gonorrhoea and syphilis since the mid 1970s, accompanied by a rise in other STDs, notably genital warts, and herpes simplex. The problems of interpretation of trends for chronic and relapsing diseases are however serious, and arise from the limited breakdown by relevant categories notified in the aggregate data. The value of the data is further undermined by the time delay of two years before it becomes available. The primary purpose of the system was and remains the generation of data on clinic workload. The recent change from SBH60 to KC60 form based reporting has improved the use of these data for epidemiological interpretation, but still does not provide an adequate basis for unravelling the complex epidemiological problems which confront us, particularly in using the data to assess AIDS prevention strategies. Information from available laboratory notification suffers from the inherent problems of voluntary networks: incompleteness, limited attached epidemiological information, and uncertain extent of population coverage.

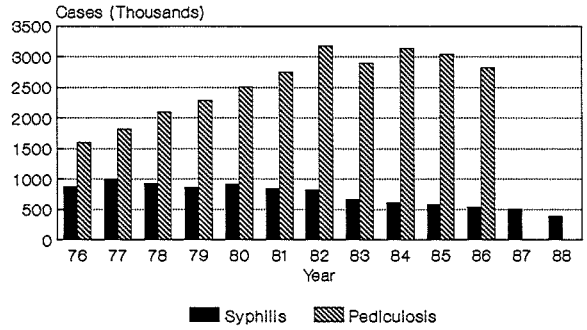
In this context proposals to set up a voluntary sentinel GU clinic surveillance network nationwide has been proposed as more likely to provide higher quality epidemiological information than further development of the clinic returns system. The parallel development of a network of laboratories servicing participating clinics, providing linkage of record will enhance its value. It has also been proposed that reporting by all laboratories of identified STD pathogens should become compulsory by law. If implemented, this proposal would create a valuable new source of population based information on STD occurrence.

England and Wales STD Clinic Attenders
Gonorrhoea and Trichomonas
FEMALES



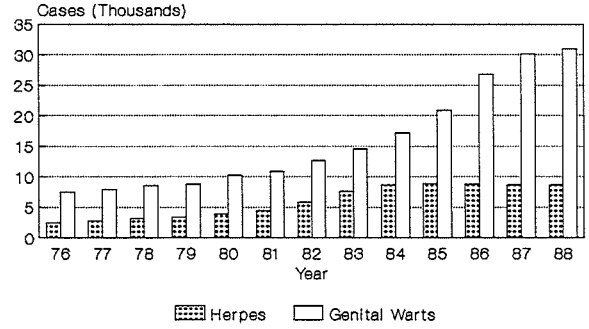
Source : UK Department of Health

England and Wales STD Clinic Attenders
Syphilis and Pediculosis
FEMALES



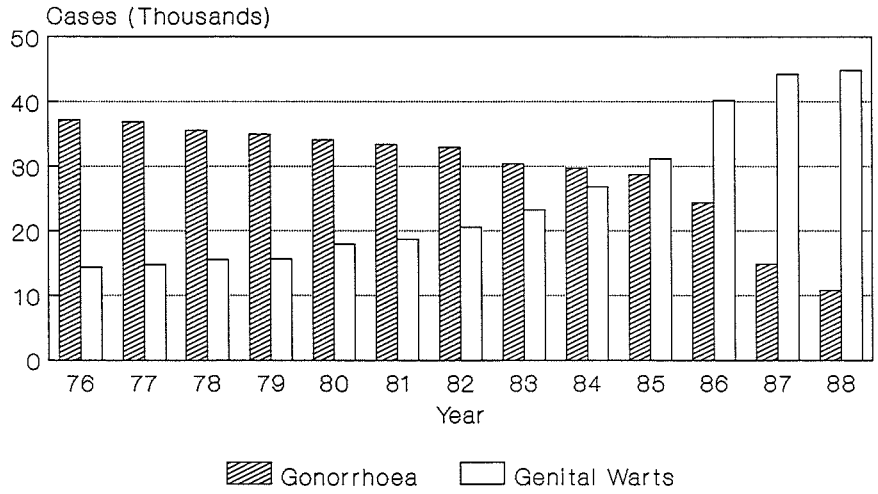
Source : UK Department of Health

England and Wales STD Clinic Attenders
Warts and Herpes
FEMALES



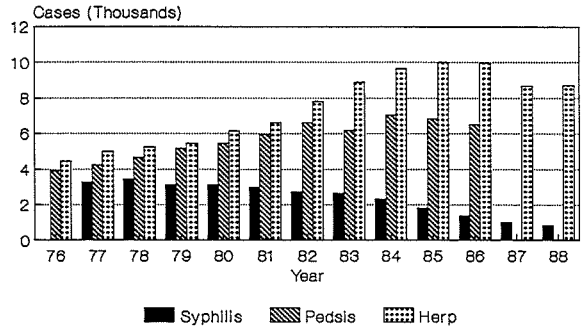
Source : UK Department of Health

England and Wales STD Clinic Attenders
Gonorrhoea and Warts
MALES

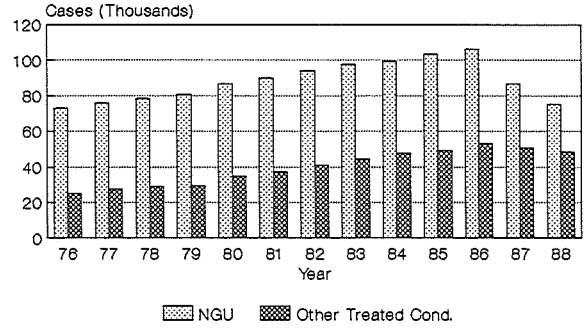


Source : UK Department of Health

England and Wales STD Clinic Attenders
Syphilis Pediculosis and Herpes
MALES

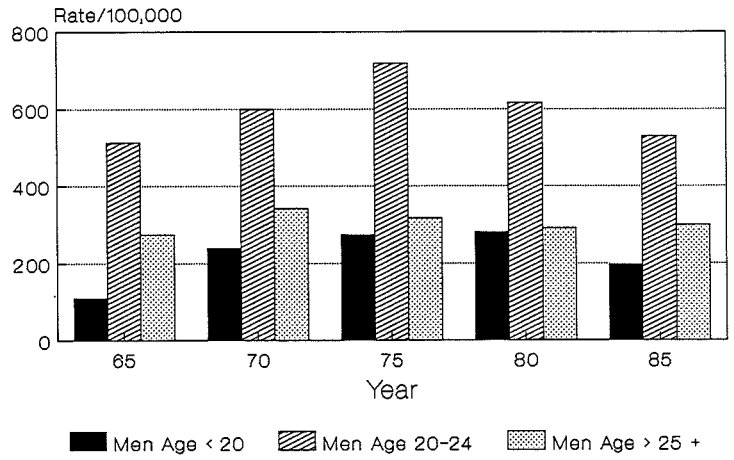


England and Wales STD Clinic Attenders
NGU and Other Treated Conditions
MALES



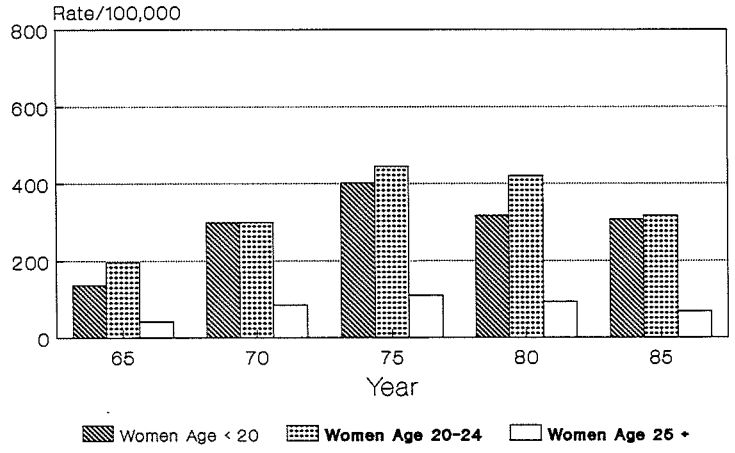
Source : UK Department of Health

Gonorrhoea Incidence UK
MEN

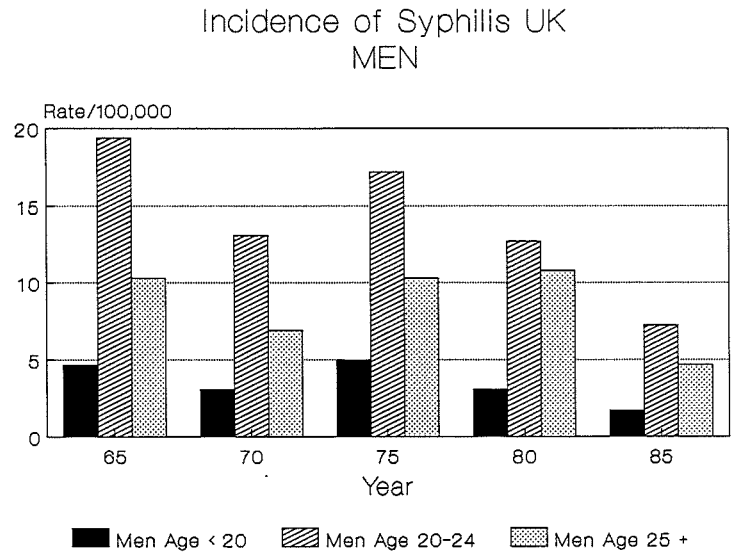


Source:CDSC

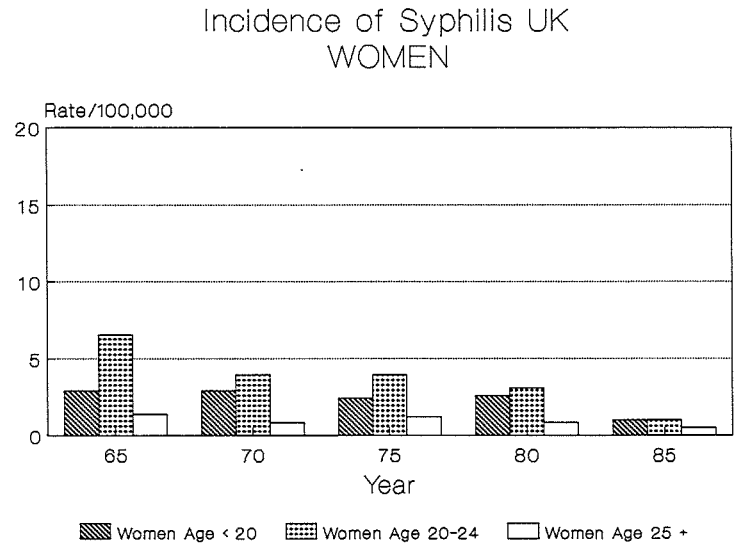
Gonorrhoea Incidence UK
WOMEN



Source:CDSC



Source :CDSC



Source :CDSC