VENEREAL DISEASES

Technical Discussions of the XVIII Pan American Sanitary Conference

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION

1971

VENEREAL DISEASES AS A NATIONAL AND INTERNATIONAL HEALTH PROBLEM

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XVIII Pan American
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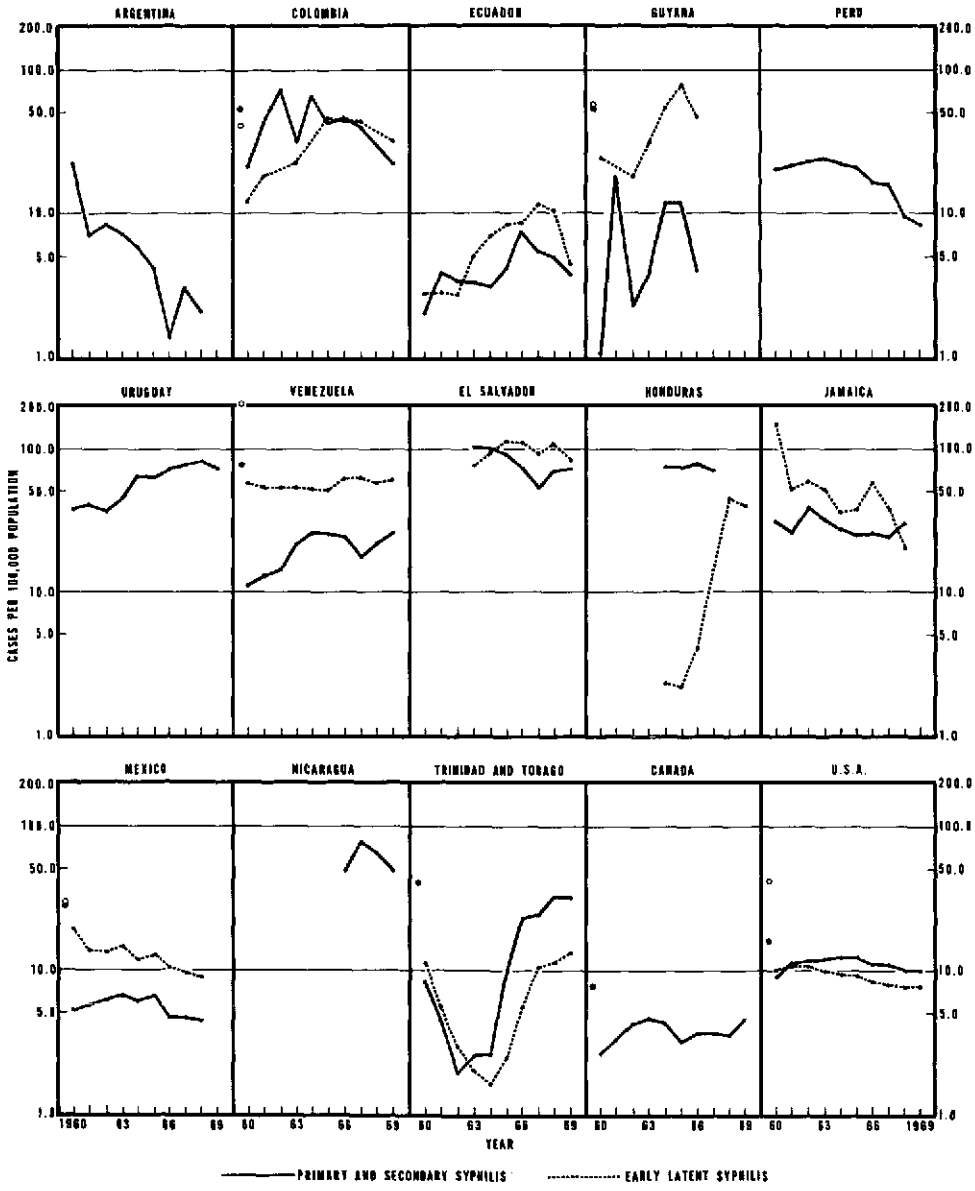

NOTE: ● Level of rate in 1959 for primary and secondary.
○ Level of rate in 1950 for early latent.

FINAL REPORT

The Technical Discussions of the XVIII Pan American Sanitary Conference were held on 2 October 1970 in the Headquarters building of the Pan American Health Organization in Washington, D.C. The subject of the Discussions was: "Venereal Diseases as a National and International Health Problem."

In accordance with the Rules for Technical Discussions, Dr. Alfredo N. Bica (Brazil) was elected Moderator and Dr. Mervyn U. Henry (Trinidad and Tobago), Rapporteur. Dr. Alvaro Llopis (Pan American Sanitary Bureau) served as Technical Secretary.

In accordance with the Rules, the Technical Discussions opened with presentation of seven working documents prepared by the experts designated for that purpose.

The participants were then divided in two working parties, which elected the following officers:

Working Party I:

Moderator: Dr. Robert de Caires (U.S.A.)
Rapporteur: Dr. Pedro Guédez Lima (Venezuela)

Working Party II:

Moderator: Dr. Bogoslav Juricic Turina (Chile)
Rapporteur: Dr. Alfredo Rabinovich (Argentina)

Sixty-four participants registered for the Technical Discussions, including representatives of international, governmental, and intergovernmental agencies.

The working parties studied and discussed the topic in morning and afternoon sessions (totaling six and a half hours). The views put forward and the conclusions reached by each group were summarized by the rapporteurs concerned and were subsequently consolidated in this Final Report by the General Rapporteur with the assistance of the Moderator and of the working party rapporteurs.

CONCLUSIONS

It was generally agreed that, in the decade beginning in 1960, the incidence of venereal diseases, in particular gonorrhea, had increased significantly, and that this trend was a source of great concern to health authorities. It was also agreed that the technical progress achieved and the methods applied had not been sufficient to control these diseases.

In this connection the participants expressed the wish that the health agencies in the countries, both public and private, should:

1. Examine the status of the venereal disease problem, and especially the control programs, with a view to obtaining maximum efficiency and output from the resources available.

2. Increase efforts to ascertain the extent of the venereal disease problem, the behavior of the diseases, and the factors conditioning them in different communities, and thus obtain the

data necessary for designing and carrying out effective control programs.

3. Establish or improve case registration systems for the purpose of determining and continuing to assess the epidemiological behavior of venereal diseases, their frequency, distribution, and trends in different population groups, so as to identify the groups most exposed to risk and those constituting reservoirs of infection. Supplement these case registration and reporting systems with good arrangements for the tabulation, analysis, and interpretation of data relating to stages of the diseases, their epidemiological importance, and their significance as indicators of the evolution of the disease.

4. Endeavor to elucidate both the visible and the non-visible aspects of the venereal disease problem. The non-visible aspect is of the utmost importance, since it is considered to include the unknown reservoir and source of new cases and multiple reinfections.

5. Make use of all available sources of information to improve the registration system and expand its coverage so as to gain a better knowledge of the visible aspect of the problem.

6. Improve venereal disease control programs in general, converting them into permanent programs and effectively incorporating them into the work of the health services so as to ensure their continuity. Make optimum use of both laboratory networks and the services of public health agencies so as to identify, by etiologic diagnosis, the various responsible organisms, in particular the gonococcus; and promote, for this purpose, the use of cultures in selective antibiotic media prepared in regional laboratories, making this service available to physicians in private practice. Take measures to ensure that gonorrhea patients can easily obtain diagnostic care and treatment, and provide such services free of charge, in both public health agencies and any other institutions furnishing medical services to the population, including charity hospitals and social security institutes.

7. Improve existing agencies that are nationwide in scope, or establish a central agency to direct or carry out a venereal disease control program and to be responsible for the setting of technical standards and for supervision and evaluation of activities.

8. Stimulate the interest and enlist the cooperation of the community and of public and private organizations, especially those concerned with community development and the care of marginal groups.

9. Include in control programs the necessary activities for improving the general state of health as well as providing specific protection against and limiting the consequences of venereal diseases. Incorporate into the programs the following essential elements for control of venereal diseases: reporting of cases and of persons giving positive results in serologic tests for syphilis; registration, and free diagnosis and treatment; intensification of case-finding and contact-tracing through better exchange of epidemiological information at the national and international levels; strengthening of health education activities; and education and training of health personnel.

10. Allot the necessary funds for carrying out programs, in the understanding that the economic impact of venereal diseases and the benefits derived from their control justify the financial investments required. In this connection, it would be sufficient, at the outset, to redeploy the resources at present available to the public health services with the aim of obtaining a greater return from the venereal disease control activities; subsequently, the need for additional resources can be examined.

11. Provide the necessary support for developing more effective gonorrhea control methods, and especially for research on simple and rapid diagnostic procedures that can be applied at any level. Establish diagnostic standards, both clinical and laboratory, and the most suitable therapeutic schedules so as to render the treatment of sources of infection and of contacts more effective.

12. Investigate the factors conditioning venereal diseases, in particular psychological, social, and cultural factors, in order to:

a) Identify the highly susceptible groups likely to contract the disease because of their behavior;

b) Ascertain why patients refuse to give information about their contacts, do not seek medical care, or resort to self-medication;

c) Ascertain why private physicians do not report the cases they treat; and

d) Learn more about the attitudes and types of behavior that need to be changed by means of health education programs.

13. Explore new methods of health education designed to elicit the necessary response from the community, its opinion makers, and professional personnel, who should use their influence to make the control program a success.

Medical inspection—even the periodic and routine inspection of prostitutes—is completely ineffective and only creates a false sense of security. This fact, which is well established, must be impressed upon those who consort with prostitutes.

14. Promote the teaching of venereal diseases in medical schools, adopting a comprehensive approach that encompasses the clinical, epidemiological, and social aspects of the disease and enables future physicians to identify the infection and prescribe the necessary measures. Encourage the education and training of auxiliary and technical personnel with the aim of covering population groups that physicians find it difficult to reach.

If wider use is to be made of paramedical personnel, it will be necessary to standardize diagnostic and treatment procedures that can be continuously supervised by physicians.

15. Promote the organization of continuing education programs and of clinical and epidemiological and refresher courses for practicing physicians, and give the physicians the necessary support to enable them to fulfill their essential role in detecting new cases, tracing contacts, and eliminating foci of venereal diseases; to this end, PAHO should study the possibility of preparing an up-to-date manual containing the essential elements of venereal disease diagnosis, treatment, and control.

16. Study the most appropriate procedures for limiting the spread of venereal diseases through ports and across frontiers, which is facilitated by the rapidity of modern transportation facilities.

17. Enact health and social legislation for dealing more effectively with venereal diseases and limiting the factors that encourage their spread.

WORLDWIDE EPIDEMIOLOGICAL TRENDS IN SYPHILIS AND GONORRHEA

Dr. Thorstein Guthe[1]

FALL AND RISE IN INCIDENCE OF VENEREAL INFECTIONS

A major recurrence of *early infectious syphilis* took place in most parts of the world during the Second World War, lasting into the immediate postwar period. This phase was followed by a rapid decline, which reached an all-time nadir during 1956-1958 in most countries. Then came a new period of recrudescence, which still continues, although with minor variations in reported cases in some countries in the last two to three years (Figures 1 and 2). Although cases of serious late syphilis are by no means rare, a decline of *late syphilis,* including cardiovascular and neurological manifestations, has been reported since the mid 1940's in most countries where statistics are available. This decline has occurred despite the traditional belief that increases in late complications might be expected 10 to 20 years after high incidence periods of early syphilis. The effect of penicillin treatment of early syphilis, in preventing such a serious development, has been one of the great achievements of the antibiotic era. A general decrease in *congenital syphilis* since 1950 has also taken place, although in several countries the incidence has remained stationary at a relatively low level, with occasional upswings (Robinson, 1969), suggesting that control of syphilis of the newborn could be strengthened, notably in the maternal and child health part of public health programs.

Little information is forthcoming from developing countries in Africa and Asia, although WHO data show that early syphilis is also becoming more frequent in parts of Africa (e.g., Dahomey, Niger, Nigeria, Senegal) and in countries in the Far East (South Vietnam, Japan); and that it is epidemic in some urban areas in countries in Southeast Asia (e.g., Bombay, India). In Africa, as in Asia, this situation is the result of extensive migration, the enormous growth of the towns, and the breaking up of the traditional tribal and family structures.

Although the incidence trend of *gonorrhea* apparently has followed to some extent the pattern of early syphilis, the disease is reported to be from three to 50 times more frequent than early syphilis. We have selected data from several countries for the purpose of illustrating reported recent trends (Figure 3 and Table 1). There is a marked increase in most countries. The increase appears to be worldwide, and already seven years ago was reported to affect 60 to 65 million people (WHO, 1963). Increasing incidence of gonorrheal complications, particularly in women, has also been observed (Rees and Annels, 1969; Loughlin, 1969). In some areas of developing countries, prevalence studies have shown gonorrhea and other urethritis to be endemic, e.g., in parts of Africa and the Far East (reports to WHO, 1960-1968). In several developed countries, reported gon-

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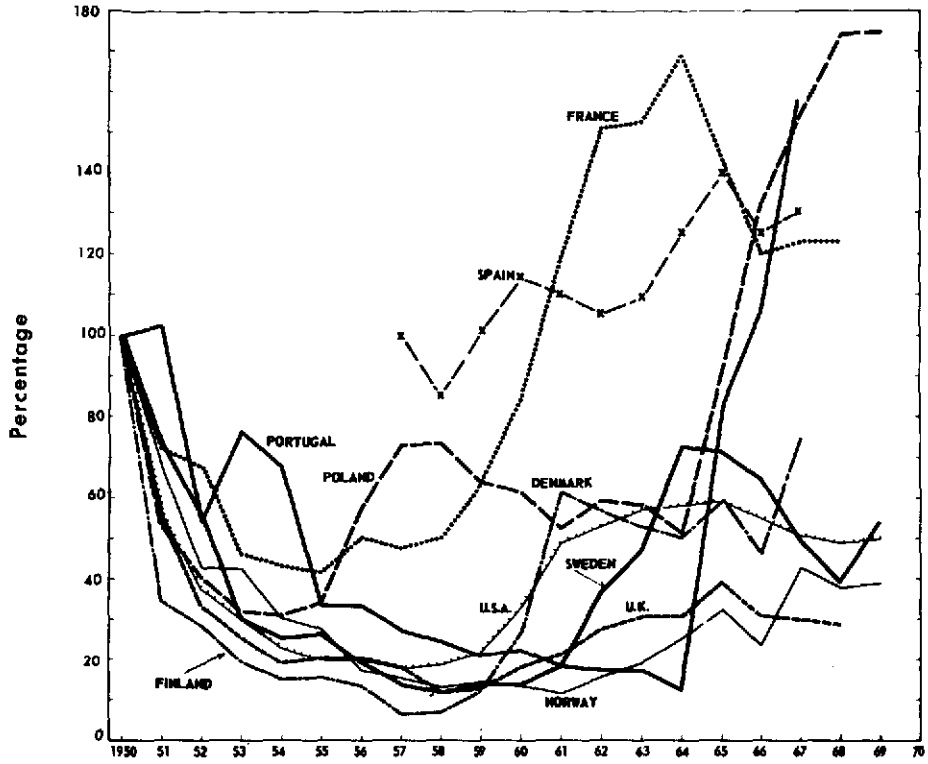
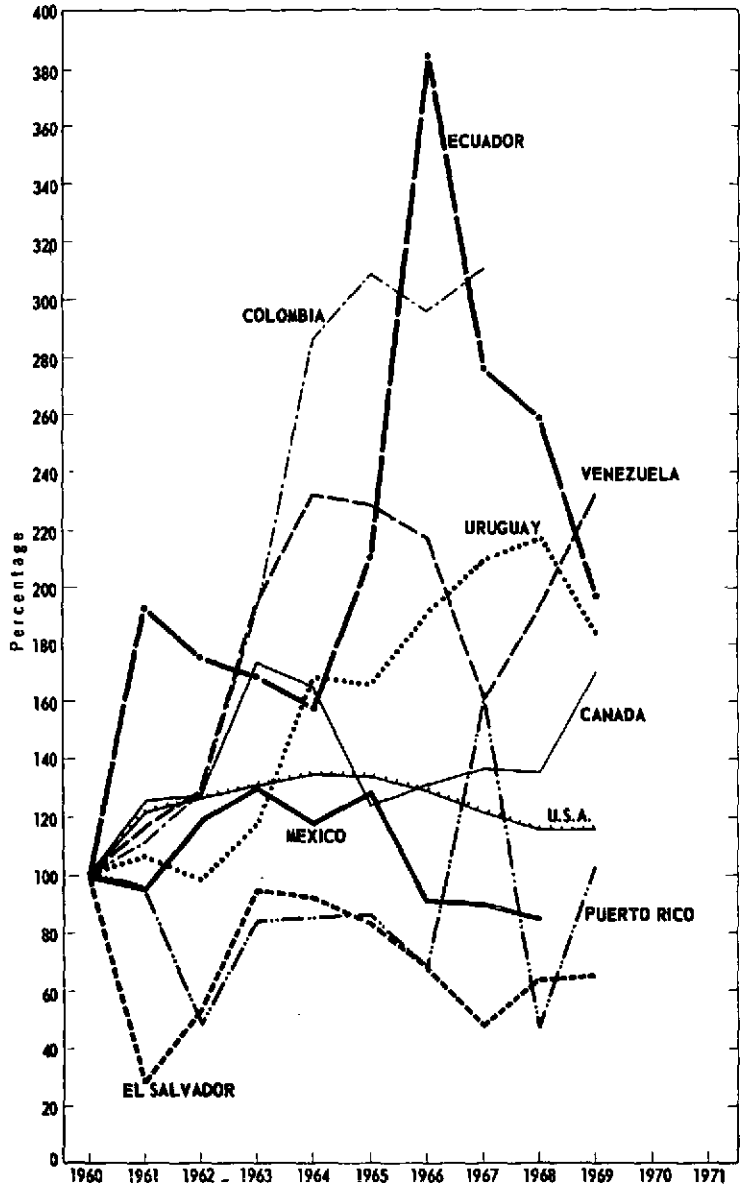
FIGURE 1—Reported primary and secondary syphilis 1950-1969. Yearly percentage variations of incidence rates using 1950 as reference (100%) if not otherwise indicated.



orrhea is among the three most prevalent of the communicable diseases, e.g., in the Scandinavian countries, in England and Wales, and in France; and it is probably number one in the United States of America (O'Rourke, 1969). In some urban areas of India, venereal disease is second only to parasitic diseases in frequency (Desai, 1969). *Nongonococcal urethritis* has also become of increasing epidemiological as well as diagnostic and therapeutic importance in several countries, e.g., Britain (Willcox, 1958a; King, 1970), France (Siboulet and Egger, 1967), and the Federal Republic of Germany (Meyer-Rohn, 1968). *Trichomoniasis* and *candidiasis* are widespread, particularly in patients with venereal disease, and conditions such as genital herpes have received increased attention. Finally, *chancroid, lymphogranuloma venereum,* and *granuloma inguinale* are now reportedly rare in developed countries while remaining a problem in some developing areas.

There are recognized limitations of morbidity reporting of venereal diseases, and these reflect underreporting rather than overreporting of new cases by physicians and/or clinics to health authorities. Thus, in the United States of America national surveys undertaken in 1963 and 1968 obtained the participation of more than 130,000, or 71 per cent, of private physicians. The surveys showed that possibly one-third of the cases of syphilis and one-tenth of the gonorrhea cases they treated were being reported (Cleere *et al.*, 1967). The inadequacy of reporting can also be gleaned from current statistics in some countries where surveys were not undertaken. Thus, in Hungary in 1962 only two cases of syphilis were reported in the morbidity statistics; but during the same period 0.67 per cent seroreactors were diagnosed by mass screening, through 634,508 serologic tests. This is

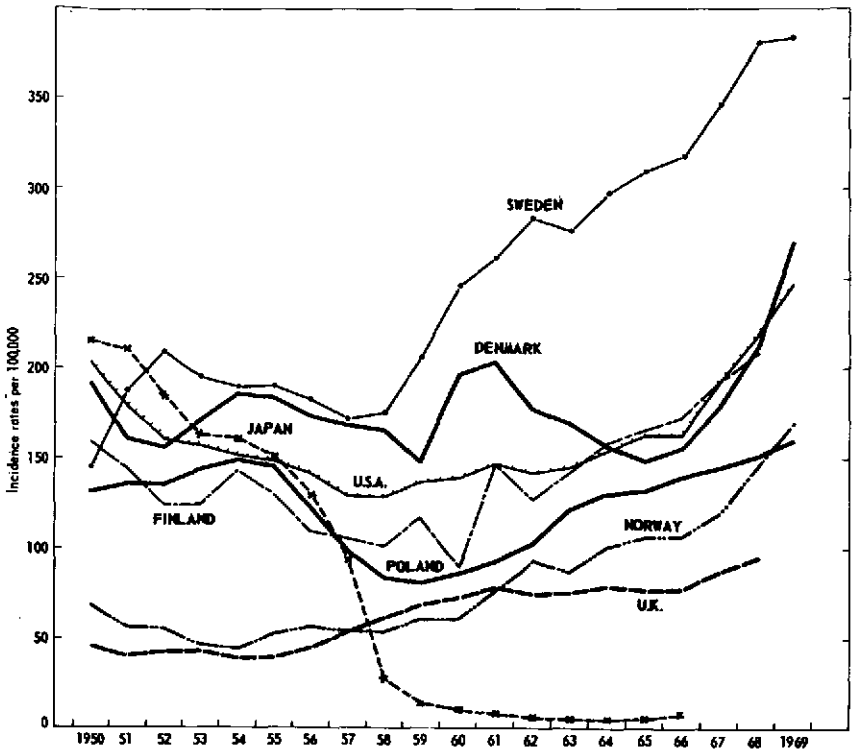
FIGURE 2–Reported primary and secondary syphilis, 1960-1969. Yearly percentage variations in incidence rates using 1960 as reference (100%).



reported to correspond to an estimated 4,250 cases of syphilis (Foldvari and Karoli, 1964).

Notwithstanding these limitations, the demonstrated fall and rise of syphilis and gonorrhea during the last several decades is believed to reflect, at a lower level, current true epidemiological trends. On the whole, there can be little doubt that syphilis is on the rebound and that gonorrhea is rapidly increasing in many areas, reaching epidemic proportions in some developed and developing countries.

FIGURE 3–Reported gonorrhea 1950-1969, incidence rates per 100,000 population.



THE CHANGING ENVIRONMENT

This rise in incidence of early syphilis and notably in gonorrhea in recent years paradoxically has occurred during a period when important medical and public health progress has taken place. But we must keep in mind that during this period demographic, economic, behavioral, and other perspectives of society have been greatly altered. A climate of opinion has developed favoring sexual activities, facilitating spread of sexually acquired infections, and changing the ecology of these infections as a whole. The environmental changes that have taken place have also affected collateral social problems, such as addiction to drugs and alcohol.

More than in any other group of diseases, the intensity of the epidemiological processes in infection acquired by sexual activity depends on the balance between the complex human and environmental forces that facilitate or restrain the spread of disease. We have attempted to visualize these multiple interdependent forces (Figure 4). Their shifting aggregate weight in one period may drive the epidemiological pendulum in the direction that facilitates spread and high incidence, and in another period, in the direction favoring control and possible "eradication." In the following pages we have attempted to analyze some of these forces in detail in relation to demographic developments, socioeconomic and behavioral changes, and medical and public health aspects.

TABLE 1–Reported cases of gonorrhea per 100,000 population, by country, 1966-1969: Northern, Middle, and South America.

Country	1966	1967	1968	1969[a]
Canada	107.1	109.3	108.4	128.2
Colombia	200.4	243.3	218.3	148.6
Costa Rica	94.7	150.9[a]	153.1	201.7
Dominican Republic	–	–	297.2[a]	340.7
El Salvador[b]	150.0	137.0	206.9	202.7
Guatemala	76.7	80.8[a]	77.3[a]	94.8
Jamaica	1,956.1	2,109.2	1,937.8[a]	1,779.5
Nicaragua	126.9	54.4	92.5[a]	116.0
Panama	46.6	71.1	15.8[a]	32.7
Paraguay[b]	35.0	43.5	50.0	63.3
Peru[b]	92.4	82.5	128.0[a]	–
Trinidad and Tobago[c]	735.5	475.4	896.0	883.9
United States of America	178.6	203.3	230.9	–
Venezuela[b]	397.5	429.1	466.4	–
Bahamas	8.6	62.7	35.0	58.4
Bermuda	302.0	456.0	472.0	490.4
Canal Zone	119.6	135.7	144.6	89.3
French Guiana	262.2[a]	360.5[a]	490.0[a]	666.7
Puerto Rico	108.2	94.9	94.0	104.5
St. Lucia	774.8	444.8	193.5	405.4

[a]Provisional or incomplete data.
[b]Reporting area.
[c]Not notifiable.

Demographic Developments

As a result of rapid population growth, increasing numbers of susceptible individuals are exposed to the risk of infection.

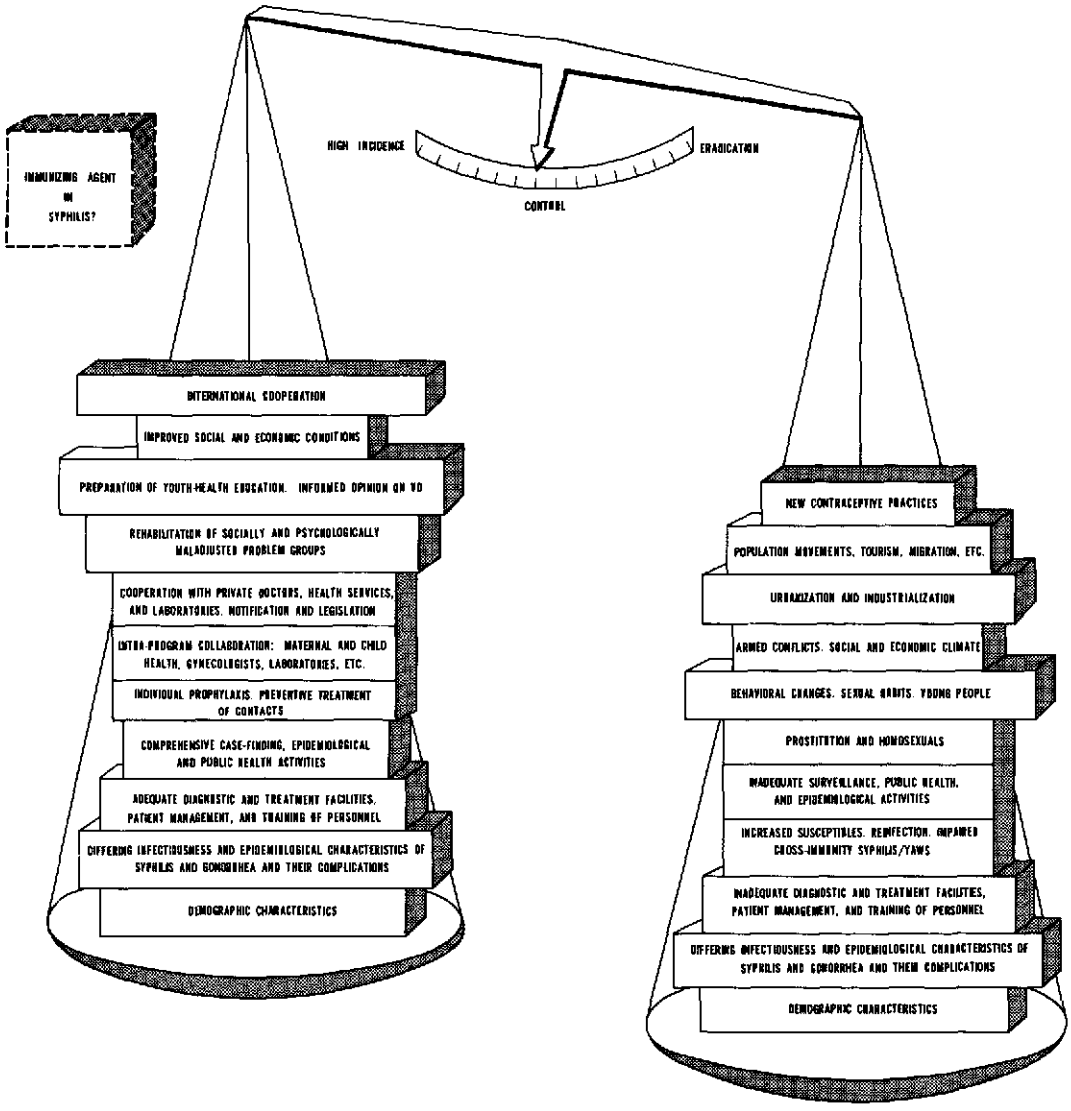
The world population increased by approximately 225 million during each of the decades 1930-1940 and 1940-1950; the rise was 500 million between 1950 and 1960; and a further rise of 600 million will have taken place by the end of 1970 (United Nations, 1967). Furthermore, the young sexually active age groups now represent a much larger proportion of the population. At the same time there is a longer sexual life-span due to earlier maturity–e.g., the age of the menarche in Great Britain has fallen at a rate of 4.6 months a decade for the past 100 years (Wilson and Sutherland, 1960)–and possibly to the delay of the menopause by gestogens and to increased longevity in both sexes. This increased number of susceptibles that have become available is only one of many factors concerned in the ecology of venereal diseases, as will be discussed later.

The adverse influence of these demographic factors on the prevalence and spread of venereal disease is likely to increase in the future. The only possible brakes have been considered to be family limitation and the prevention, and possibly also termination, of illegitimate pregnancies (Willcox, 1969).

Socioeconomic and Behavioral Developments

The factors concerned can be grouped under three headings: (a) those leading to the breaking of previously "closed" sexual circles, resulting from increased population mobility, and to greater opportunities for casual sexual encounter; (b) increased promiscuity; and (c) ignorance. All are interwoven.

FIGURE 4–Ecological Forces Affecting the Balance of Host/Agent Relationship in Syphilis and Gonorrhea.



a) Increased Population Mobility

Industrialization and urbanization. Few factors have changed our environment and affected conditions of life as much as has the immense technological progress, with rapid industrialization and urbanization, characteristic of the past decade. Industrial activity increased by 50 per cent between 1956-1966 in some developed countries, and by as much as 200 per cent in some developing countries of the Americas in the same period (United Nations, 1966). The majority of those who have moved into urban areas are young people (Loeb, 1960), and there is more female employment than formerly. Thus, in the United States of America the percentage of the total population below 20 years of age living in cities increased from 50 to 75 during the years 1950-1969 (Shiloh, 1969). New physical, mental health, and social situations have arisen

in urban, and to some extent also in rural, areas, tending to facilitate sexual activity. The greater frequency of venereal disease is now more often referable to easy casual encounters, promiscuous behavior, prostitution, and homosexual practice in agglomerations of people in rapidly growing urban centers (Hooker, 1962; Asiyo, 1968) with influx from rural areas.

All occupational groups are now represented among venereal disease patients in some countries (*Oslo Helseraad*, 1968). In industrial societies well-paid workers prevail (Schofield, 1965; Juhlin, 1968a; Smithurst, 1969; Loughlin, 1969), a fact indicating that affluence facilitates spread of these diseases. This is in contrast to other countries where more venereal disease is reported in deteriorated urban areas or slums among socially disorganized groups with low socioeconomic standards (Desai, 1969; USPHS, 1967). It is clear that more systematic health education efforts by health administrations, with emphasis on prevention of disease, are needed both in relation to city planning (Capiński, 1966; Ragon, 1966; *Amer J Public Health*, 1968) and to expanding urban agglomerations, as well as socioeconomic groups of low standards in the Americas and in other regions.

Itinerant populations. Migrating labor groups have become characteristic of our times, both within countries and within continents (Vinikoff, 1964) as a result of urbanization, industrialization, and economic development. It has been shown in Europe that British, French, and Swiss immigrants rarely import venereal disease directly, but once they have settled in the host country higher venereal disease rates are found among immigrants than in the home population (Lundt, 1963; Switzerland, 1966; Martin-Bouyer, 1967; Willcox, 1966; Bijkerk, 1969). Problems of housing, loneliness, language adjustment, race, and so on, are involved. In other regions, venereal diseases among migrating labor groups have caused more immediate epidemiological concern, e.g., the Mexico-United States border problem to which a great deal of attention has been paid in recent decades (American Social Health Association, 1968).

Among the so-called "chronic" itinerants like seafarers, venereal disease has been shown to be 16 to 20 times more common than in land populations (Eng and Jensen, 1960; Guthe and Idsøe, 1964). Not unexpectedly, infections are frequently acquired abroad, in some instances more than half, e.g., in Britain (Schofield, 1965) and France (1967). The approximately one million men employed in the overseas shipping industry and the additional five million in deep water shipping (Graz, 1968) suggest the increasing need for international cooperation concerning the health of seafarers in these relatively small groups which are of such economic importance in all regions of the world, not the least in the Americas. In particular, improvements are necessary in the practices set forth the International Agreement of Brussels under the administration of the World Health Organization. A recent study among 100 ocean-going ships showed that only one carried the World Directory of VD Treatment Centers at Ports (CIRM/WHO, 1970).

Other high-risk groups, also occupationally engaged in international travel, are drivers on international routes, flight crews, journalists, and commercial travellers (Bijkerk, 1969). As a result of widespread improvements in living standards, great numbers of people are involved. Tourism and international travel, for reasons of business or national and international conferences, exhibitions, etc., have reached unprecedented proportions, by all media—whether by land, sea, or air—creating a new atmosphere with increased opportunities for sexual contact and increased probability of acquiring venereal disease. Data from several countries indicate the extent of this problem. For example, there is evidence that in 1966 in Sweden more than 20 per cent (*Sveriges Officiella Statistikk*, 1967) and in the Netherlands more than 25 per cent (Bijkerk, 1968) of the new cases of syphilis were acquired abroad, exclusive of the import by seafarers. In 1968 in

the United States of America contact information forms originated from, or were sent to, 60 other countries around the world (American Social Health Association, 1969).

As international travel further expands in the era of the "jumbo jet," its adverse influence on venereal disease control can also be expected to increase. For this reason, the need for more intensified and more rapid international contact-tracing machinery will become increasingly felt.

Finally, among mobile populations inherently exposed to changing environments, mention must be made of the armed forces. An eightfold increase in seroreactivity to syphilis was recently found in soldiers in a country in the Americas, as compared to the rate found on preinduction examination (Scarpari and Zamperlin, 1965), which suggests that epidemiological case-finding in venereal disease control can only succeed by better cooperation between military and civilian health authorities (Arya and Bennett, 1967; American Social Health Association, 1969). The likelihood that venereal disease rates will rise and epidemics occur during actual war conditions is historical (Gjessing, 1956). This has recently been confirmed in several "disturbed areas" of the world. Under service conditions in the Far East (Vietnam), venereal disease rates of some 280 per 1,000 annual strength have been reported (*Navy Times,* 1967) and even higher rates over shorter periods of time. In one military unit in Korea, for example, a gonorrhea rate representing no less than 700 per 1,000 per year has been experienced (WHO, 1970). Moreover, such situations facilitate the development of the resistance of the gonococcus to antibiotics (WHO, 1970) and thereby may pose a threat to other countries geographically remote.

b) Widening of Sexual Circles by Increased Promiscuity

During the postwar years, changing moral and behavioral codes, the social, economic and psychological emancipation of women, and general economic affluence have increased sexual promiscuity and contributed to what some have called the "sexual revolution" (*Time,* 1966; British Medical Association, 1964; *The Observer,* 1968; Shiloh, 1969).

Change of attitudes. In many countries the Victorian outlook on sexual comportment and the "double standard" of the past have undergone changes in recent years. Social attitudes to sex have become overtly permissive, and a decisive shift has occurred in behavioral and moral codes in countries previously considered to have a paternalistic family pattern (*Time,* 1966, 1969; British Medical Association, 1964). Although reportedly there are exceptions, e.g., continental China (Hai-Teh, 1966), such attitudes have led to more indiscriminate behavior, both heterosexual and homosexual, with consequent added difficulties of contact-tracing and with more extramarital intercourse. For example, in a study in India the percentage of married males among cases of early syphilis varied between 17.0 and 68.5 (Desai, 1969), while in another in the Netherlands at least 28 per cent were married men infected by the married partner (Bijkerk, 1969).

Promoted by these changing attitudes, promiscuity has received further direct encouragement from increased emphasis on sex in the ever more influential mass media and in advertising (Gagnon, 1964; Bowle, 1968).

Removal of restraining influences. At the same time there has been a diminution of the restraining influences of religion, family, and public opinion—the latter being influenced by more divorces, broken homes, and high illegitimacy rates, and by a lessening fear of venereal disease (with the availability of simple effective treatments) as well as of pregnancy (with the introduction of oral contraceptives and intrauterine devices). Moreover, there is the added risk from lessened use of the condom which, unlike the "pill" and the IUD, offers protection against venereal disease. Finally, there is the more tolerant attitude

toward regulated abortion in some countries, although this may vary somewhat from country to country and from region to region.

Thus, in sexual life—be it for personal contentment or for family planning purposes—the avoidance of having children has become the responsibility of the female, while previously the use of less reliable methods was most often a male responsibility (Gagnon, 1969). It should be noted that there is evidence that the removal of fear of pregnancy may encourage sexual activity, promote multiple sexual contacts, and lead to more venereal disease (Huxley, 1968; Cohen, 1970; Hewitt, 1970), particularly among the young (Juhlin, 1968b; Juhlin and Liden, 1969). There is also evidence of more direct side-effects of the use of modern contraceptives. For instance, the use of IUD's may lead to acute pelvic disease from salpingitis in females infected with gonococci (Morton, 1968), and steroid pills foster *C. albicans* vaginitis (Catterall, 1966). An estimated 17.5 million women in Western societies are now "on the pill" (Population Council, 1969)—1.5 million in Britain alone.

More than half of today's world population was born after the Second World War and has, to a varying degree, been exposed to the removal of many restraining influences on sexual behavior. Many say that health education should affect significantly at least the number willing to risk infection in the new circumstances. We know, however, that health education may not markedly change established norms of behavior. For instance, the increasing tobacco consumption in many countries bears witness to education's limited direct effect on the prevention of pulmonary cancer by reduction of cigarette smoking. We also know that promiscuous persons, when informed of the dangers of venereal disease and of side-effects of treatment, continue to expose themselves. This is indicated by the high incidence of repeated infections in the same persons. On the other hand, it is recognized that by dispelling ignorance it is possible to induce many patients to seek treatment earlier than would otherwise be the case. It is less certain that we can impress some with the value of discrimination in choice of partners and of available prophylactic measures. In this context it is relevant to note that very high venereal disease rates are sometimes observed among the best educated (Arya and Bennett, 1967).

High Risk Groups

a) Young People

The rising venereal disease rates in young people of both sexes have attracted attention in recent years. The relative increases in this group have sometimes been significantly greater than for the population as a whole (Rosenblatt and Kabasakalian, 1966). A WHO study in nine different countries, among all age groups, showed that gonorrhea and acquired syphilis in the group 15-19 years had—almost without exception—an equal distribution of reported disease among young females and males, in contrast to older age groups. Studies indicate that there is extensive promiscuity, but the young people concerned often have educational and social problems (Laird, 1963; Beigel, 1964; Ekström, 1964; Lourie, 1966; Juhlin, 1968a, 1968b). Other studies have shown a certain correlation in special groups between venereal disease and other social pathology, such as delinquency, illegitimacy, and drug taking (British Medical Association, 1964; Nicol, 1964; Inghe and Inghe, 1967; Rawlins, 1969), a fact indicating that venereal disease is a symptom of "social disease" in problem groups (Serise *et al.*, 1964) of urbanized societies in both developing and developed industrial areas (Asiyo, 1968) and that the route of infection is from one group to another (Karolyi, 1969). For example, primary and secondary syphilis in a 14-year-old girl in a county of the United States of America led to the discovery of early syphilis in 17 individuals of an average age of 10.1 years (USA, 1970). In Brisbane, Australia, out of a small group of 11 females with early syphilis, eight were teenagers (Smithurst, 1969) of lower socio-economic status. Repeated infections are

particularly common in such groups (Karolyi, 1969).

A companion phenomenon of today is the high rate of venereal disease among some university students. In developing countries, e.g., in Africa and the Americas, some 25 to 30 per cent have been reported to be infected each year (Arya and Bennett, 1967; Willcox, 1967). But high rates also are reported in some European welfare states, such as Sweden, where 34 per cent of female student patients attending a university student clinic had gonorrhea (Juhlin, 1969). In Britain, settlement problems of foreign students have been found to be involved (Morton, 1966). It stands to reason that during the "student explosion" of recent years in several regions of the world, climates are created that favor spread of venereal infections (Juhlin, 1968b). This has been described *inter alia* during the student manifestations in France in recent years (*Le Monde*, 1968).

Despite the contemporary emphasis on sex, the level of knowledge of venereal infection in the young is remarkably incomplete (Sweden, 1969; Dalzell-Ward, 1970), as shown in studies in Britain (Schofield, 1965), in Sweden (Juhlin, 1968b), in France (Many *et al.*, 1967), in Hungary (Farago, 1969), and in some countries in the Americas (e.g., United States of America) (Josephson, 1969). Up to 50 per cent of those involved in these studies had little or no knowledge of venereal disease. It would seem that more attention should be focused on effective health education as well as family life education (American Social Health Association, 1968) and that both parental and school responsibilities should be more extensively engaged (Brown, 1967). The first step is to equip the teacher and to educate the parents as to their duties in this respect (WHO, 1970). Particular attention should be paid to risk groups (Brown, 1967), where stress should be put on behavior aspects rather than on moral problems (Dalzell-Ward, 1969). The role of the public health nurse and social worker in cooperation with doctors, teachers, and youth organizations in such educational programs is of obvious importance (Szasz, 1969; Novotny, 1969). Finally—and surprisingly to some—there is need for health education among the medical profession concerning the control methods for venereal diseases, as recently pointed out (Webster, 1966). A close cooperation between serologists and public health authorities has thus shown some results in New Zealand (Platts, 1969).

b) Patterns of Prostitution

In our current preoccupation with new behavioral and environmental influences we should, however, not overlook the need also to appraise the more classical patterns of prostitution and their role in the spread of venereal diseases in modern times.

The United Nations Convention of 1959 for the Suppression of the Traffic in Persons and Exploitation of the Prostitution of Others (the so-called Eleanor Roosevelt Convention), to which most countries have subscribed, led to the official suppression of brothels and prostitution in the classical sense. But this effort did not put an end to the "oldest profession," although the classical patterns have to some extent altered. First, sale of sex by women now often aims at obtaining extra luxuries and consumer goods (French, 1966; Hartmann, 1967), although some "bread and butter" prostitution remains in both developed and developing countries (WHO, 1968a). Secondly, there has been a shift of methods: motels, hotels, camps, bars, restaurants, caravans, holiday beaches, exhibits, fairs, etc., are now active operation fields for sexual encounter; and call-girls and car-prowling girls have become established features of today's metropolitan life (Weyer, 1969). Thirdly, demi-prostitutes, "luxury prostitutes," and "good-time" girls engaged in normal jobs now compete with the professionals in the sex market (Nicol, 1964). While periodic medical examination and control of prostitutes continues to be attempted in some developed countries (e.g., Germany), this can apply to only a fraction of those of epidemiological

interest. The prevalence of venereal disease in prostitutes, demi-prostitutes, and good-time girls is therefore estimated to be relatively high, with the estimates varying from 10 per cent to as much as 90 per cent in different material published (Willcox, 1958b; Wren, 1967). More than 30 per cent of males named prostitutes as contacts in studies in Thailand (Suthisomboon, 1965), 48 per cent in Holland (Bijkerk, 1969), and up to 90 per cent in some countries in the Western Pacific (WHO, 1968b). It is obvious that epidemiological tracing of contacts and sources of venereal diseases is complicated under the circumstances and has not been crowned with any great success nationally or internationally.

A reorientation of outlook concerning prostitution is being attempted in some countries (Sacotte, 1969; Weyer, 1969). Thus the Street Offences Act of 1959 in Great Britain actually accepts prostitution in its widest sense, if not causing a public nuisance. In the Federal Republic of Germany, so-called "Eros" centers (for example in Hamburg) permit sexual encounter without exploitation of the women. Attempts to "get prostitution off the streets" have also been discussed in other countries, e.g., Switzerland (*Journal de Genève*, 1968). It is possible that the changing social attitude to sex and the prevailing climate of opinion concerning sexual behavior may lead also to a reorientation in regard to recognition of establishments for sexual encounter as part of the ever-expanding "pleasure trade."

c) Male Homosexuals

The increasing role of male homosexuals in the spread of syphilis has been much discussed in recent years in Sweden, Denmark, France, and Britain (Laird, 1962; Jefferiss and Willcox, 1963; Schmidt *et al.*, 1964; Durel and Pellerat, 1966; *British Medical Journal*, 1967; Racz, 1969; Neser and Parrish, 1969), while they are less commonly identified in gonorrhea (Nicol, 1960; American Social Health Association, 1968). Homosexual contacts named by infected persons may range from 10 to 90 per cent, as reported in selected material (Price, 1969). A survey in Holland showed that almost half the patients with early syphilis were homosexuals (Bijkerk, 1969). Each homosexual can be extremely promiscuous in different social strata, and in addition some have heterosexual contacts; as a risk group, therefore, they pose difficult epidemiological problems (Racz, 1969). Some studies have shown that homosexuals have five times higher rates of reinfections than heterosexual patients (Racz, 1969). It has been contended that the recent legalization in some countries (in Britain, for example, following the Wolfenden Report of 1957) permitting homosexuality between consenting adults may possibly facilitate contact-finding (Bloch, 1964).

Medical and Public Health Aspects

It has been recognized that penicillin therapy was an important cause in reducing the incidence of early syphilis in the first decade after the Second World War. But this could not prevent the recrudescence of the disease, despite the fact that penicillin has not lost its treponemicidal power, that serologic diagnosis has been improved (e.g., TPI, FTA), and that new and more effective epidemiological methods have come into use, such as re-interview by trained investigators (Capiński and Urbańczyk, 1970), cluster-testing, preventive treatment of contacts, etc. In the postwar decade there was a widening use of penicillin for a multiplicity of medical conditions apart from syphilis. There was also an increasing misuse of this antibiotic in the population at large. This is believed to have prevented many syphilitic infections from arising in individuals actually exposed to *T. pallidum*, because of antitreponemal penicillin levels in their blood and tissues at the time of exposure, or to have cured unsuspected early diseases—*T. pallidum* being one of the most penicillin-sensitive microorganisms known.

This "happenstance" preventive effect of penicillin has been quantitatively estimated to have contributed to the sharp decline in the incidence of early syphilis (Schamberg, 1963;

Danehower and Schamberg, 1963) after 1950. Conversely, during the recrudescence period of syphilis after 1957-1958, there has been a significant diminishing of this preventive effect, resulting from its more prudent use because of the allergic side-reactions observed, and from the availability of other antibiotics less treponemicidal than penicillin.

Previous chronic suppressive metal therapy in syphilis patients often resulted in prolonged infection-immunity and long-standing sero-reactivity. In contrast, adequate penicillin therapy, with apparent cure of early syphilis, usually rapidly suppresses the immunity-producing mechanism in the individual. As a consequence, resistance to reinfection becomes of relatively short duration and "ping-pong" and "repeater" syphilis have been observed much more frequently in the penicillin era than after metal therapy. Reinfection rates in clinic patients now range from 1.6 to 8.2 per cent (Degos and Ebrard, 1957; Jefferiss and Willcox, 1963; American Social Health Association, 1968). These factors have contributed to the recrudescence of early syphilis in the present decade.

It has been suggested that acquired immunity resulting from untreated or inadequately treated infection in one generation and absent in the next may affect the number of susceptibles available and that this may play a role in the "cyclic" variations observed in the incidence of syphilis (Haustein, 1927). From a world standpoint, however, it is probably more important that the extensive WHO-assisted mass penicillin campaigns against childhood yaws throughout the tropics in the last 20 years have created millions of new susceptibles to syphilis, due to the loss of protective cross-immunity from yaws possessed by the previous generation (Guthe and Idsøe, 1968).

Concerning gonorrhea, penicillin (and possibly streptomycin) therapy contributed to the somewhat reduced incidence of this disease during the first postwar decade, but not to the same extent as in the case of early syphilis. The substantial reduction of complications in male gonococcal infections was, however, conspicuous. In this period the unknown "penicillin fall-out" may have had a less preventive effect in the population at large than in the case of syphilis, since the gonococcus is less sensitive to penicillin than is the treponeme, and gonorrhea has a much shorter incubation period than syphilis. The subsequent development of resistance to penicillin and some other antibiotics of circulating strains of *Neisseria gonorrhoeae* in several areas of the world is another factor in the increased incidence of the disease, particularly in high promiscuity areas (e.g., parts of the Far East), where one in three cases may fail to respond to large doses of penicillin (WHO, 1970).

Questions are also being posed as to whether both syphilis and gonorrhea are becoming "milder," less obvious diseases under antibiotic impact (Willcox, 1969). But the easy, rapid, effective, and relatively safe individual antibiotic therapy both in syphilis and gonorrhea contributed to the changing climate of opinion concerning sexual behavior and venereal diseases. Previous fear of syphilis and gonorrhea as dangerous diseases (Kinsey *et al.*, 1948, 1953) waned (Catterall, 1964; British Medical Association, 1964; Juhlin, 1968a); the public assumed an attitude of unconcernedness (King, 1970); and doctors and health administrations were lured into indifference concerning the need to maintain adequate control facilities in view of the falling incidence a decade earlier (Rozina and Chaica, 1969; WHO, 1953, 1954, 1963). Only recently is there indication of renewed interest in the venereal disease problem (WHO, 1968a, 1968b). The selection of venereal diseases as a discussion at this Conference concerning the Americas is an encouraging sign in this respect.

Ambulant treatment of venereal diseases is now undertaken in many countries, not only by recognized specialists and in clinics, but also by general practitioners. Failure by the latter (and by laboratories) to cooperate with the health authorities concerning epidemiological efforts is yet another cause of the upsurge of

infectious syphilis and gonorrhea (Degos and Delzant, 1963; Curtis, 1963; Adams, 1967). Thus in Sydney, Australia, in 1965 it was estimated (Adams, 1967) that only 9.1 per cent of the total cases of venereal disease treated by private doctors were reported to the health authorities. In 1967, in the United States of America, 37.8 per cent of all cases of syphilis reported to the Public Health Service originated from private doctors. A similar situation is encountered in Central and South America.

In many countries public health legislation has in the past provided for special activities against venereal disease. However, conditions considered to be "venereal" often differ, and stages of disease are differently defined in different countries; moreover, free examination and treatment facilities are not always provided to the same extent, and official provision for epidemiological contact-finding to assist private doctors varies widely. But with or without special legislation, the upward or downward epidemiological trends of syphilis and gonorrhea are apparently affected in a similar way in different countries at about the same time (Willcox, 1964).

SUMMARY AND CONCLUSIONS

We have attempted in this symposium to appraise the climate of opinion in which a rising trend of syphilis and gonorrhea--and possibly also of other infections acquired sexually--has taken place in the past decade and apparently continues to take place in spite of the national and international measures that have been applied. We have endeavored to assess the major interlocking forces concerned in the spread of infection in rapidly changing environments in developed and developing countries. We must conclude that these rapid changes have created new behavioral and social attitudes with consequent risks of more disease being acquired by sexual activity. Although important medical and public health developments have taken place in the same period, these have been outbalanced by other multiple environmental forces which facilitate the spread of venereal disease, the adverse effects of which, being beyond the control of the physician, are likely to continue in the future.

Medical and public health services have to a varying degree failed to meet the present disturbing situation. The adequacy, or rather inadequacy, of these services in the future must be considered in relation to the needs anticipated. To curb the rising incidence, health administrations must provide more trained personnel and facilities not only for free diagnosis and treatment but also for applying existing and improved techniques of case-finding (including epidemiological contact-tracing) and "risk-group" screening much more actively than now. Intensified health education and family life education need to be provided for the young with a view to prevention, and to ensure that those infected can quickly obtain treatment.

Above all, intensified research is required on many problems, particularly in the biochemical and immunological fields. It can now be hoped that this might lead not only to a simplified serologic screening test for gonorrhea--the absence of which in a large part accounts for the runaway rise in its incidence as compared to syphilis--but also perhaps ultimately to an immunizing procedure against treponemal diseases such as syphilis. Research in these areas is now advancing along rational lines in the United Kingdom, the United States of America, and Poland.

Progress cannot be made against these diseases without interdisciplinary cooperation: cooperation of the venereologist with those in other fields of medicine (e.g., obstetricians, gynecologists) and with the general practitioner; cooperation of these with the public health workers and epidemiologists; cooperation with the research worker; cooperation of all of these with the teacher, health educator, and social worker; and cooperation with voluntary agencies concerned with the young. Such cooperation must be forthcoming, not only at the patient and institution level,

but also on an interstate and national basis. One may also ask if an improved climate of opinion favoring such cooperation internationally may also gradually develop, in recognition of the fact that epidemiological communications and investigations are now required between countries in approximately half of the reported cases of syphilis and in many more of gonorrhea.

The supreme importance of transfrontier cooperation is illustrated by a recent report of a Californina prostitute with secondary syphilis who kept a diary. It was found that among some 310 males who were involved as contacts, 168—all long-distance truck drivers—were traced. This threat of spread of disease extended over 34 U.S. states, Canada, and Mexico. This epic of epidemiology was written by a staff reporter and improbably appeared in a periodical seldom seen by physicians, namely *The Wall Street Journal* (1970)—presumably because it concerned interstate commerce!

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THE PROBLEM OF VENEREAL DISEASES IN THE AMERICAS

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INTRODUCTION

After the decrease in venereal disease incidence observed in the years following World War II, the recrudescence that commenced toward the end of 1950 in all regions of the world again focused the attention of public health authorities in most countries on the health problems posed by syphilis and gonorrhea.

Reflecting this general concern, in October 1965 the Pan American Health Organization, in cooperation with the United States Public Health Service, organized a seminar for 40 experts from 25 countries and territories of the Hemisphere, most of them directors and chiefs of departments in the health ministries. The purpose was to exchange ideas and experience in regard to the venereal disease problem, to discuss methods of control, and to direct the attention of Governments to the prevailing situation and the need to develop control programs.

Since that time the countries' interest in the problem has grown, as evidenced by their requests for PAHO assistance in the form of fellowships for study of laboratory techniques and control methods abroad, national courses and projects at the country level, and advisory services and program evaluation.

Another indication of the renewed interest is the increasing number of countries participating in the evaluation of the proficiency of laboratory tests which is conducted each year by the WHO International Reference Center for the Serology of Treponematoses, at the U.S. Center for Disease Control in Atlanta, Georgia. Seven countries participated in 1963, while 18 took part in 1969.

The selection of the topic "Venereal Diseases as a National and International Health Problem" for the Technical Discussions at the XVIII Pan American Sanitary Conference clearly reflects the Governments' great concern over the problem and their desire to ascertain the facts and to find solutions.

Venereal diseases are widespread in all countries of the world, and while it is generally recognized that they constitute a major problem, their true magnitude is not known. The various attempts made to study them in different regions point up the gaps in our knowledge of their extent and importance.

The main difficulties stem from incomplete and deficient case-reporting and lack of uniformity in the reporting and registration systems in the different countries and even within the same country.

The obtaining of comparable statistical data on incidence and prevalence is thus a problem in itself, and authorities have been obliged to resort to estimates to gain an idea of the situation.

Guthe and Hume, in 1948, estimated that each year there were at least 2 million new cases of syphilis acquired by venereal contact, and that the annual prevalence was as high as

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20 million in the world population over 15 years of age.

Taking into account population growth since 1948, the changes in factors influencing the spread of the disease, and the pattern of increasing incidence observed in all parts of the world since the late 1950's, the annual incidence of new cases of syphilis in the 1960's can be estimated at not less than 3 million, and the prevalence at 30 million cases.

Using the same type of calculation, it can conservatively be estimated that we are entering the 1970's with an annual incidence of 4 million cases of early syphilis, of which 370,000 will occur in the Americas.

Annual gonorrhea incidence can be calculated by using as a basis the world incidence of syphilis and the ratio of cases of syphilis and gonorrhea that seek medical treatment, which shows that for each case of syphilis there are four of gonorrhea. Accordingly, the annual incidence of gonorrhea would have been 12 million in the 1960's, and we can expect 16 million at the beginning of the present decade, with 1.5 million cases in the Americas.

A study of the problem based on reported cases of venereal disease since 1950 shows that infectious syphilis has increased in many countries, has remained at about the same level in others, and diminished in some.

The increase in gonorrhea has been much more widespread, with the disease reaching epidemic proportions in some countries.

Chancroid, lymphogranuloma venereum, and granuloma inguinale appear to be less important, while nongonococcal urethritis, in those countries in which it is distinguished from gonorrhea, is more prevalent.

A world survey made by WHO in 1962 showed that 76 of the 106 countries (72 per cent) reported a steady increase in the incidence of early syphilis. Of the 106 countries, 21 were in the Western Hemisphere and 15 of them reported an increase.

The situation revealed by this survey has continued; and even though around the mid-1960's some countries (France, Italy, the United Kingdom, and the United States of America) reported a new decrease, this trend did not continue in most of them and the curve has tended to level off.

In the Americas, nine out of 12 countries responding to a PAHO questionnaire in early 1970 reported either an increase or no significant change for the period from 1960 to 1967, 1968, or 1969.

Gonorrhea has increased even more markedly than early syphilis. A similar survey conducted by WHO in 1961 showed that 53 out of 111 countries (48 per cent) reported a steady increase from 1950 to 1960. In the Americas, in 11 out of the 21 countries (52 per cent) the same trend was observed and it has not been reversed since then.

In the 1970 survey, 13 of 24 countries in the Americas reported an increase.

There can be no doubt that we are witnessing an upswing of syphilis and gonorrhea in an important number of the countries that have adequate reporting systems, and it can be assumed that the same is occurring in countries where the reporting is deficient.

THE VENEREAL DISEASE PROBLEM IN THE AMERICAS

In order to gain an over-all picture of the venereal disease problem in the Hemisphere, all countries and territories were asked to complete a questionnaire. The information obtained formed the basis for the present study. In some cases, however, it was necessary to complete this information with data derived from the countries' regular reports to the PAHO/WHO, or to estimate rates using population estimates of the United Nations.

All countries and some territories replied to the questionnaire, but since the data from most of the latter were incomplete, the study is limited to the 26 countries.

There are, of course, gaps in the information provided; it is not always comparable; and in some cases the questionnaire replies do not agree with data previously reported to PAHO.

Because of these deficiencies in the basic information, the over-all description must be

viewed with caution and no definitive conclusions can be drawn. Despite these inadequacies, however, the data collected can be used to give a general idea of the situation.

Information from Brazil for the period 1965-1969, appearing in Table 1, is only for municipalities of state capitals.

Recorded Morbidity for Syphilis–All Stages

Tables 2 and 3 show cases of syphilis, all stages, and the rates per 100,000 population in 25 countries, for 1950 and 1960 to 1969.

The rates for all stages of syphilis are in general much higher than those for early syphilis, and in many countries the great difference results from the fact that many of the reported cases are discovered and diagnosed through serologic tests.

In 1969 the over-all rate for syphilis per 100,000 population was 11.0 in Canada and 45.4 in the United States of America; in Middle America, the highest rate was 242.2 in El Salvador, and lowest, 13.7 in Panama. The Dominican Republic had the highest rate (330.3) for both the Caribbean islands and the Hemisphere, and Cuba had the lowest (7.2). In South America the rate varied from 98.8 in Venezuela to 8.0 in Bolivia.

Data are available for 1950 from 18 out of 25 countries (Bolivia, Canada, Colombia, Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, United States of America, Uruguay, and Venezuela), and from 16 countries for the period 1950-1960. The drop in the rates ranged from 97 per cent in Panama to 20 per cent in Haiti. Only those for Trinidad and Tobago and Uruguay rose, by 203 per cent and 12 per cent, respectively, in that period.

Although the downward trend continued between 1960 and 1969, it was not so generalized. Of the 25 countries, 17 (Argentina, Barbados, Canada, Chile, Costa Rica, Cuba, Dominican Republic, El Salvador, Haiti, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, United States of America, and Venezuela) reported lower rates. The greatest decrease was in Jamaica (80 per cent) and the smallest in Venezuela (6 per cent). In eight countries (Bolivia, Colombia, Ecuador, Guyana, Guatemala, Nicaragua, Trinidad and Tobago, and Uruguay) there was an increase, varying from 1 per cent in Nicaragua to 82 per cent in Uruguay. In Costa Rica, where data are available only from 1962, a decrease of 16 per cent was recorded between that year and 1969.

The foregoing data–with all their limitations as to reliability and the variations in efficiency of case-finding and detection of early cases–would indicate that even though the decline observed between 1950 and 1960 continued

TABLE 1–Brazil: Cases of venereal disease in the municipalities of state capitals, reported to the health authorities, 1965-1969.

Disease	Year				
	1965	1966	1967	1968	1969
Syphilis, all forms	11,718	8,603	...	6,759	...
Syphilis, primary and secondary	2,123	2,847	2,469	2,798	1,881
Syphilis, early latent	804	284	250	691	197
Syphilis, late	1,344	909	751	1,062	461
Syphilis, congenital	283	181	82	556	55
Gonorrhea	13,337	13,254	9,707	13,849	6,176
Chancroid	2,811	2,856	2,409	3,483	2,119
Lymphogranuloma venereum	793	624	606	590	483
Granuloma inguinale	190	128	25	32	14

... Data not available.

TABLE 2–Cases of syphilis, all stages, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Argentina		7,310	4,397	5,143		6,195	4,113	5,711	7,456	5,719	4,814[a]
Barbados		1,523	926	966	702	572	555	358	322	463	357
Bolivia	2,786	215	117	80	85	124	202	82	103	586	382
Canada	6,098	2,168	2,311	2,432	2,785	2,771	2,560	1,969	2,385	2,233	2,327
Chile		3,374[a]	3,705	3,106[a]	3,046	3,502	4,479	3,603	3,990	4,300	3,193
Colombia	14,289	7,214	12,746	13,868	11,250	13,004	17,749	18,658	17,901	15,037	12,264
Costa Rica				1,033	776	913	634	639	1,142	677	1,090
Cuba		566	508	1,131	1,691	1,863	2,322	2,049	1,055	543	59
Dominican Republic	27,502	14,116	12,040[a]	10,494	8,595	12,839	10,559	9,540	8,555	12,362	13,787
Ecuador		674	928	820	1,012	1,203	1,287	1,482	1,290	1,266	997
El Salvador	14,088	6,359	5,984	6,600	7,862	8,634	9,192	8,675	7,118	9,152	8,209
Guatemala	2,148[a]	855	1,273	1,197	840	1,186	1,852	1,755	1,429	1,429	1,174
Guyana	814[b]	467	438	920	800	1,809	1,730	954	251		
Haiti	4,849	4,944	5,201	3,759	3,481	2,907	3,272	2,710	2,591	1,898	1,455[a]
Honduras		1,728	2,561	2,263	1,578	2,003	2,158	2,588	2,844	2,024	2,015
Jamaica	9,049[a]	4,341	1,914	2,776	2,298	1,774	1,875	2,048	1,505	1,066	
Mexico	29,178	23,817	20,456	19,443	20,066	17,697	16,323	12,907	14,717	14,322	9,782[a]
Nicaragua	1,414[a]	1,019[a]	1,514[a]	1,537[a]	3,100[a]	1,029[a]	2,309[a]	1,745	1,911	1,717	1,399
Panama	3,737[c]	168	151	310	200	239	351	308	163	179[a]	194[a]
Paraguay	7,657[a]	1,844	1,722	1,835	1,616	2,008	1,951	1,836	2,078	1,644	1,833
Peru	5,654	3,804	3,620	3,953	3,938	3,397	3,744	3,235	3,386	2,202	2,439
Trinidad and Tobago	1,479	589	408	327	385	367	382	598	601	722	782
U.S.A.	217,558	122,538	124,658	126,245	124,137	114,325	112,842	105,159	102,581	96,271	92,162
Uruguay	1,280[a]	1,515	1,525	1,711	1,787	2,674	2,683	3,356	3,526	3,495	3,135
Venezuela	17,149	7,745	7,131	7,013	7,448	7,786	7,569	9,045	8,881	8,836	9,915

*Data from questionnaire prepared specially for this study.
[a]Official country reports to PAHO.
[b]1953.
[c]Average for 1948-1952.

TABLE 3–Morbidity rates for syphilis, all stages, per 100,000 population, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Argentina		35.0	20.7	23.9	...	27.9	18.2	24.9	32.1	24.2	20.1[a]
Barbados		653.6	397.4	412.8	296.2	237.3	227.4	144.9	129.3	183.0	140.6
Bolivia	92.3	5.6	3.0	2.0	2.1	2.9	4.7	1.8	2.3	12.5	8.0
Canada	44.5	12.1	12.6	13.1	14.7	14.4	13.1	9.8	11.7	10.8	11.0
Chile		43.9[a]	47.0	38.4[a]	36.7	41.2	51.4	40.4	43.7	46.0	33.4
Colombia	126.1	46.9	80.2	84.6	66.5	74.5	98.5	100.3	93.3	75.8	59.9
Costa Rica				76.9	55.8	63.4	42.6	41.5	71.8	41.4	64.3
Cuba		8.3[a]	7.3[a]	16.0[a]	23.4[a]	25.1[a]	30.4[a]	26.3[a]	13.3[a]	6.7[a]	7.2[a]
Dominican Republic	1,290.6	465.0	382.7[a]	322.0	254.6	367.0	291.4	254.1	220.0	306.8	330.3
Ecuador		15.5	20.6	17.6	21.0	24.2	25.0	27.8	23.4	22.2	16.9
El Salvador	754.2	259.1	236.8	251.2	288.9	305.7	313.9	285.6	225.9	280.2	242.2
Guatemala	76.6[a]	22.4	32.4	29.5	20.1	27.5	41.7	38.4	30.3	29.4	23.4
Guyana	177.3	82.7	75.1	153.1	129.2	284.0	265.5	140.9	36.0		
Haiti	155.8	123.9	127.9	90.7	82.4	67.4	74.4	60.4	56.6	40.6	30.5[a]
Honduras		93.5	134.1	114.7	77.4	95.0	98.9	114.7	121.9	83.9	80.8
Jamaica	645.0[a]	266.5	116.3	167.1	135.3	101.8	104.7	111.4	80.2	55.7	
Mexico	113.0	66.1	54.9	50.4	50.3	42.9	38.2	29.2	32.2	30.3	20.0[a]
Nicaragua	133.4[a]	72.2[a]	104.2[a]	102.7[a]	201.2[a]	64.4[a]	139.5[a]	101.5	107.2	93.2	73.1
Panama	468.9	15.8	13.8	27.4	17.1	19.8	28.1	23.9	12.3	13.0[a]	13.7[a]
Paraguay	548.1[a]	105.3	95.6	99.2	84.6	102.0	96.1	87.7	96.2	73.7	79.6
Peru	66.4	37.9	35.1	37.2	35.9	30.1	32.1	26.9	27.3	17.2	18.5
Trinidad and Tobago	234.0	70.9	47.0	36.3	41.7	38.6	39.2	60.1	59.5	70.7	75.2
United States of America	142.9	67.8	67.8	67.6	65.5	59.5	58.0	53.4	51.5	47.9	45.4
Uruguay	53.2[a]	59.6	59.2	65.5	67.5	99.7	98.8	122.1	126.7	124.0	109.9
Venezuela	344.8	105.4	93.7	89.1	91.4	92.4	86.8	100.2	95.0	91.2	98.8

*Data from questionnaire prepared specially for this study.
[a]Official country reports to PAHO.

over the next decade, it was not as general or as marked.

Recorded Morbidity for Early Syphilis

Early syphilis (primary and secondary), in addition to representing the infectious stages of the disease, also constitutes recently acquired syphilis. Hence the rate for early syphilis is the best indicator of incidence, even though it is subject to the effects of variations in number of cases diagnosed and reported.

Seventeen countries had data available for 1968 or 1969 (Table 4). In Northern America the rate per 100,000 population was 4.4 in Canada and 9.4 in the United States of America. In Middle America, the highest rate (70.2) was recorded in El Salvador and the lowest (3.5) in Guatemala. In the Caribbean area, Jamaica and Trinidad and Tobago had similar rates (29.4 and 31.8, respectively) and Cuba recorded 2.7. In South America the rates ranged from 2.1 in Argentina to 72.5 in Uruguay.

Figures for 1950 were available from only seven countries (Canada, Colombia, Guyana, Mexico, Trinidad and Tobago, United States of America, and Venezuela). From 1950 to 1960, all showed a decrease, ranging from 43 per cent in the United States to 98 per cent in Guyana.

In contrast, in the 13 countries for which the rates for 1960 and 1969 can be compared, the decrease was not generalized. Eight countries (Canada, Colombia, Ecuador, Guyana, Trinidad and Tobago, United States of America, Uruguay, and Venezuela) recorded marked increases ranging from 28.8 per cent in Trinidad and Tobago to 5 per cent in Colombia. In the five countries in which there was a decrease (Argentina, El Salvador, Jamaica, Mexico and Peru), the sharpest drop was in Argentina (90 per cent) and the smallest in Jamaica (3 per cent) (see frontispiece in this volume).

The change in the trend for early syphilis from 1950 to 1960, and from 1960 to 1969, and the predominance of countries in which the rates showed an increase, support the assumption that we are witnessing a recrudescence of the syphilis problem, due to a rise in incidence.

Despite the increase shown in a comparison of rates for 1960 and 1969 in the United States of America, the upward trend that began in 1959 reversed direction in 1965. In 1969 the reversal continued, the rate for that year being 7.4 per cent under that for 1968. No other country in the Hemisphere shows this phenomenon so clearly, and it could be attributed to the renewal or intensification of the control programs in that country.

Recorded Morbidity for Early Latent Syphilis

The rates for early latent syphilis in 1968 or 1969 varied from 0.8 in Cuba to 84.2 in El Salvador (Table 4).

In five countries (Colombia, Guyana, Mexico, United States of America, and Venezuela) the information for 1950 and 1960 reveals a decrease in the rates, ranging from 74 per cent in the United States to 34 per cent in Guyana, while between 1960 and 1969 only Jamaica, Mexico, and the United States had a decrease, amounting to 55, 87, and 24 per cent, respectively. All other countries with data for those years (Colombia, Ecuador, El Salvador, Trinidad and Tobago, and Venezuela) showed increases, ranging from 8 per cent in Venezuela to 166 per cent in Colombia. This change in the trend in the two periods seems to confirm the increase in recently acquired syphilis.

Identification of early latent syphilis is made almost entirely as a result of serologic tests, and the rate therefore depends on the tests that are made. Despite this fact, the trend in the rates of early latent syphilis is an indicator of the prevalence of the first period of latency of the disease, which is the result of the incidence of two to four years earlier. For this reason, it also reflects failure to detect cases in the early stages.

The ratio between early syphilis and early latent syphilis, expressed in terms of the average number of early syphilis cases for each case of latent syphilis, constitutes an index of efficiency in the detection of infectious cases.

TABLE 4—Morbidity rates for venereal diseases, per 100,000 population, by country, 1968 or 1969.*

Country	Syphilis all stages	Early syphilis	Early latent syphilis	Late syphilis and late latent syphilis	Congenital syphilis	Gonorrhea	Chancroid
Northern America							
Canada	11.0	4.4			0.2	128.6	–
U.S.A.	45.4	9.4	7.6	26.9	1.0	263.2	0.5
Middle America							
Costa Rica	64.3					199.2	3.1
El Salvador	242.2	70.2	84.2	59.3	1.6	148.4	45.4
Guatemala	23.4	3.5	1.3	10.0	0.2	94.8	12.0
Honduras	80.8	69.6	39.2	41.4	0.1	180.9	75.1
Mexico	20.0	4.3	8.9		0.1	20.2	0.8
Nicaragua	73.1	49.7	3.5	29.4	0.2	171.4	6.8
Panama	13.7				1.5	32.7	
Caribbean Islands							
Barbados	140.6					845.3	
Cuba	7.2	2.7	0.8	1.3	0.2	2.9	0.1
Dominican Republic	330.3					403.2	42.5
Haiti	30.5					58.1	7.3
Jamaica	55.7	29.4	20.1	5.7	0.5	2,147.2	2.4
Trinidad and Tobago	75.2	31.8	12.9	30.2	0.3	840.5	3.8
South America							
Argentina	20.1	2.1			0.0	33.6	0.6
Bolivia	8.0					5.0	0.1
Chile	33.4						
Colombia	59.9	22.1	31.9	5.1	0.8	215.8	8.3
Ecuador	16.9	3.8	4.4	8.4	0.3	31.7	0.2
Guyana							7.9
Paraguay	79.6	17.2	27.4	11.7	2.0	33.1	2.3
Peru	18.5	8.3		9.4		50.8	7.0
Uruguay	109.9	72.5			1.4	156.2	0.1
Venezuela	98.8	25.6	60.5	11.0	1.6	269.5	12.6

*Data from questionnaire prepared specially for this study.

Recorded Morbidity for Late Syphilis and Late Latent Syphilis

The rate per 100,000 population for late and late latent syphilis is an indicator of the prevalence resulting from infections occurring five to 20 years earlier; and in general, because of the lack of notification of symptomatic late syphilis, the majority of the cases included are due to late latency and, accordingly, are much affected by the number of serologic examinations carried out.

Data are available for 1968 or 1969 for 13 countries (Table 4). The highest rate was recorded by El Salvador (59.3) and the lowest by Cuba (1.3).

From 1950 to 1960 the rates dropped in all countries for which data are available (Colombia, Guyana, Mexico, Trinidad and Tobago, United States of America, and Venezuela), with the sharpest decrease in Trinidad and Tobago (69 per cent) and the smallest in Guyana (12 per cent).

From 1960 to 1969 the rates rose in Ecuador (180 per cent) and declined in Colombia (50 per cent), Mexico (58 per cent), Trinidad and Tobago (40 per cent), United States of America (41 per cent), and Venezuela (68 per cent) (Table 5).

Recorded Morbidity for Congenital Syphilis

In Northern America the rates for congenital syphilis per 100,000 population were 0.2 in Canada and 1.0 in the United States of America (Table 4).

In the Caribbean area, the rates were 0.2 for Cuba and 0.5 and 0.3, respectively, for Jamaica and Trinidad and Tobago.

In Middle America the highest rate was recorded in El Salvador (1.6) and the lowest in Honduras and Mexico (0.1).

In South America, the rate in Argentina was less than 0.1; in Ecuador it was 0.3; in Colombia, 0.8; in Uruguay, 1.4; in Venezuela, 1.6; and the highest was in Paraguay, 2.0.

Five countries (Canada, Colombia, Trinidad and Tobago, United States of America, and Venezuela) submitted data permitting comparison of the 1960 rates with those in 1950, and all recorded decreases, ranging from 87.0 per cent in Canada to 39 per cent in Venezuela.

The decrease in congenital syphilis rates appeared to be continuing between 1960 and 1968 or 1969, even though the prevalence remained relatively high in some countries, especially taking into account the fact that the reported cases most probably reflect only a part of the problem.

Five countries furnished age-specific morbidity rates for congenital syphilis (Colombia, El Salvador, Jamaica, United States of America, and Venezuela). Colombia's rate for the age group under one year decreased from 8.8 to 7.0 from 1963 to 1967; while in the United States it rose from 5.0 to 8.8, even though in both countries the rate for all age groups decreased. The increase may be attributed to improved diagnosis, or to an increase of the disease in pregnant women or deficiencies in the maternal and child health programs.

The rates for the age groups 10 years and over dropped 55.2 per cent in the United States of America over the period 1960 to 1968 or 1969, and since cases in persons over one year of age reflect incidence 10 or more years earlier, the observed decrease is an indicator of the changes in the situation before 1950 and from 1950 to 1960.

Syphilis Mortality

Death rates from syphilis depend on the prevalence of the disease, the promptness of treatment of early cases, and the diagnosis of syphilis as the cause of death. Table 6 shows the death rates for 1950 and for 1960-1969.

Mortality figures are not available for Guyana, Haiti, and Panama, and comparable data for 1950 are lacking for Cuba, Honduras, and Peru.

A comparison of the rates for the most recent year (1967, 1968, or 1969) for which mortality data are available shows that in Northern America, Canada reported a rate of 0.4 and the United States of America, 1.2. In Middle America, Mexico and El Salvador

TABLE 5–Morbidity rates for late syphilis and late latent syphilis per 100,000 population, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Colombia	24.8	10.2	16.4	8.7	9.9	7.2	8.1	7.0	7.4		5.1
Ecuador		3.0	12.9	10.2	10.7	11.6	10.5	11.1	5.2	6.0	8.4
El Salvador					79.6	85.3	79.1	65.6	60.7	62.4	59.3
Guyana	64.9	57.0	57.3	132.8	94.3	212.2	172.4	88.6			
Honduras						16.7	23.1	31.9	51.7	38.7	41.4
Jamaica		79.8	31.1	67.1	49.8	37.8	41.5	28.4	19.1	5.7	
Mexico	51.4	38.5	32.6	28.8	27.5	23.8	18.3	13.8	17.1	16.1	
Peru		17.9	14.0	14.2	12.2	7.9	11.5	10.6	11.6	6.8	9.4
Trinidad and Tobago	160.9	50.4	36.4	31.0	37.0	34.0	26.8	32.2	24.6	26.3	30.2
U.S.A.	74.6	45.3	43.2	42.6	41.2	35.7	34.6	32.3	31.1	29.1	26.9
Venezuela	61.7	34.4	26.4	19.5	15.1	14.3	9.9	13.4	13.2	10.4	11.0

*Data from questionnaire prepared specially for this study.

TABLE 6–Death rates for syphilis, all stages, per 100,000 population, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Argentina[a]	2.6[b]	1.3	1.4	1.6	1.4	1.6	1.4	1.6	1.5		
Barbados[c]	61.0	10.3	10.7	12.5	11.4	10.4	5.3	5.3	9.3	2.8	
Canada	2.7[b]	1.0	0.9	0.7	0.6	0.5	0.5	0.4	0.3	0.4	
Chile	6.6[b]	2.3[b]	2.5[b]	1.9[b]	1.5	1.8	2.0	1.6	1.5	0.9	
Colombia	5.0[b]	1.5[a]	1.3[b]	1.2	1.1	1.1	1.2	1.2	1.1		
Costa Rica	6.0[b]	1.0	1.1	0.6	0.9	1.3	1.3	0.8	0.4	0.4	
Cuba		1.4	1.9	1.6	1.6	1.5	1.5		0.5[b]		
Dominican Republic	6.8[a]			1.1	1.3	0.5	1.2	1.6	2.6	2.4	2.0
Ecuador[d]	2.0[b]	1.1	1.0	1.0	1.0	0.6	0.4	0.6	0.7		
El Salvador	16.5[b]	3.0	3.0	3.0	0.8	0.8	0.5	0.2	0.6	0.4	0.5
Guatemala	1.8[b]	0.1	0.2	0.1	0.1	0.4	0.2	0.2	0.1		
Guyana		1.8[b]			0.2[b]						
Haiti											
Honduras		0.2	0.2	0.3	0.4	0.2	0.1	0.3	0.4		
Jamaica	34.9[b]	7.5	8.2	7.6	6.0	5.7	5.1	4.4	5.6	3.2	
Mexico	7.3[b]	1.9	1.4	1.3	1.1	1.2	0.7	0.6	0.6	0.5	
Nicaragua[e]	0.2[b]	0.1	0.4		0.3		0.1	0.1	0.1		
Panama[a]	3.9[b]										
Paraguay	20.1[b]	2.9	3.1	2.7	3.1	3.8	3.5	3.2	1.6	3.5	
Peru		0.5	0.4	0.3	0.5	0.4	0.3	0.3			
Trinidad and Tobago	7.8[b]	5.2	5.0	4.6	4.3	4.2	3.3	2.5	2.3		
United States of America	5.0	1.6	1.6	1.5	1.4	1.4	1.3	1.1	1.2		
Uruguay	13.4[b]		3.7[b]		2.7[b]	2.8[b]	3.0[b]	2.8[b]	2.5[b]	2.0[b]	
Venezuela	14.8	2.6	2.0	2.3	1.8	1.6	1.6	1.3	1.1	0.9	

*Data from questionnaire prepared specially for this study.
[a] 1952.
[b] Official country reports to PAHO.
[c] 1951.
[d] 1954.
[e] 1955.

reported the highest rates (0.5 in both) and Guatemala and Nicaragua, the lowest (0.1). In the Caribbean area, the rate varied from 3.2 in Jamaica to 0.5 in Cuba. In South America, Paraguay reported the higest rate (3.5) and Ecuador the lowest (0.7).

In most countries the decrease in syphilis mortality from 1950 to 1960 continued between 1960 and 1969.

Figure 1 shows the trend in death rates for the three regions of the Hemisphere, 1956-1967.

Infant Mortality from Syphilis

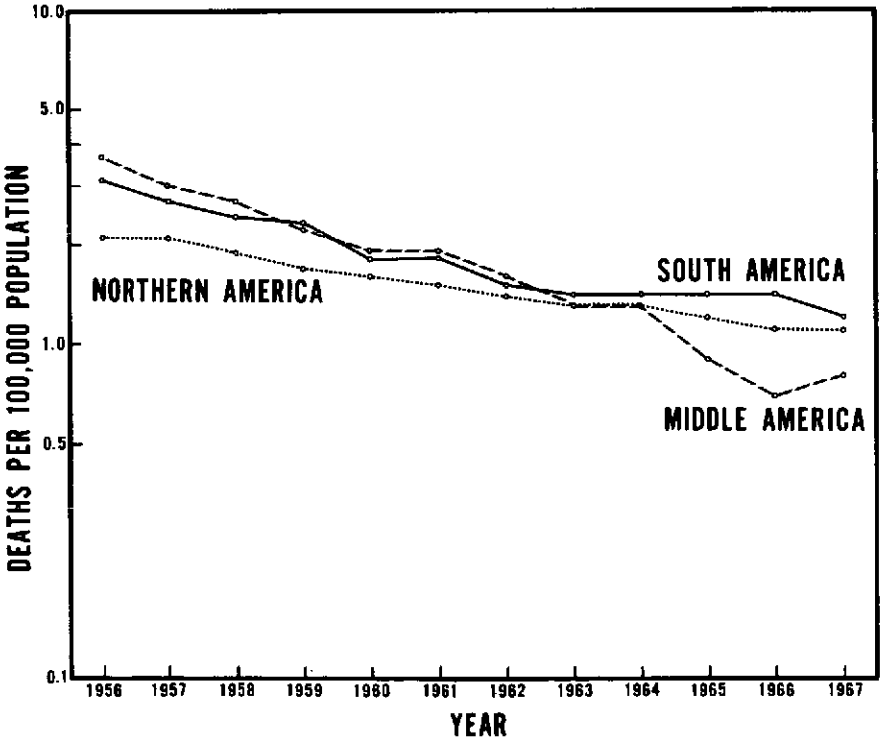
Mortality rates from syphilis per 100,000 live births, for 1969 or the most recent year for which data are available, show that Paraguay recorded the highest (97.0) in 1968. No infant deaths from syphilis were reported in Barbados, Canada, Costa Rica, and Trinidad and Tobago in the last year for which data were reported.

Only Barbados and the United States of America presented data comparable for 1950 or 1951 and 1960. Both countries showed a decrease, 95 per cent in Barbados and 88 per cent in the United States.

For the period 1960-1969, five countries recorded a rise in infant mortality from syphilis, with the greatest increase recorded in the Dominican Republic (173 per cent) and the smallest in Colombia (66 per cent). The sharpest decline was in Mexico (70 per cent).

The foregoing data suggest that, despite the downward trend, infant mortality from syphilis continues to be a problem in many countries, reflecting the deficiencies in maternal and child care programs.

FIGURE 1—Deaths from syphilis per 100,000 population in the three regions of the Americas, 1956-1967.



Recorded Morbidity for Gonorrhea

Gonorrhea continues to increase in incidence, reaching epidemic proportions in some countries and constituting the principal venereal disease problem in many areas.

In 1969, or the most recent year reported, for each reported case of early syphilis there were 73 cases of gonorrhea in Jamaica, 29 in Canada, 23 in the United States of America, 16 in Argentina, 10 in Colombia and Mexico, 8 in Ecuador, 6 in Peru, 3 in Nicaragua, and 2 each in El Salvador, Honduras, and Uruguay.

The rates per 100,000 population in Northern America were 128.6 in Canada and 263.2 in the United States. In Middle America, they ranged from 199.2 in Costa Rica to 20.2 in Mexico. In the Caribbean area the highest rate (2,147.2) was recorded in Jamaica, and the lowest (2.9) in Cuba. In South America, the range was 269.5 in Venezuela to 5.0 in Bolivia (Tables 4 and 7, Figures 2 and 3).

The trend from 1950 to 1960 was downward in 10 countries (Bolivia, Canada, Costa Rica, El Salvador, Haiti, Mexico, Panama, Trinidad and Tobago, United States of America, and Venezuela). The sharpest decline was in Bolivia (94 per cent) and the smallest in Haiti (20 per cent). In five countries (Colombia, Dominican Republic, Guyana, Peru, and Uruguay) increases in the rates ranged from 161 per cent in the Dominican Republic to 16 per cent in Peru.

In 11 countries (Argentina, Barbados, Dominican Republic, Guyana, Haiti, Honduras, Jamaica, Mexico, Panama, Peru, and Uruguay), the rates for gonorrhea in 1969 were less than in 1960. The decrease ranged from 62 per cent in Mexico to 0.4 per cent in Uruguay.

In the same period, 12 countries (Bolivia, Canada, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Nicaragua, Paraguay, Trinidad and Tobago, United States of America, and Venezuela) recorded an increase. The greatest increase was observed in Ecuador and the lowest in El Salvador.

These figures indicate that the problem of gonorrhea is out of control and that a concerted effort must be made to find solutions.

Other Venereal Diseases

Tables 8, 9, and 10 show the reported cases of granuloma inguinale, lymphogranuloma venereum, and chancroid in 1950 and 1960-1969.

Granuloma inguinale is relatively rare and in general is on the decrease. In 1969 the largest number of cases (168) was reported by Colombia.

The same trend is observed in regard to lymphogranuloma venereum, even though the total number of cases is somewhat higher. Reported cases were highest in the Dominican Republic (722).

Chancroid, on the other hand, still constitutes a problem. In 1969 the rates ranged from 75.1 in Honduras to 0.1 in Bolivia and Uruguay.

In 1969 the highest ratio of chancroid cases to each reported case of early syphilis (0.5) was recorded in Venezuela and in El Salvador. The ratio in Honduras in 1967 was 1.2.

CONTRIBUTORY FACTORS IN THE RECRUDESCENCE OF VENEREAL DISEASES

The worldwide recrudescence of venereal diseases has occurred despite the efficacy of modern control techniques and the availability of treatment that is both effective and easily administered.

It is essential to identify the causes of this apparent paradox so as to organize, or accelerate, national control programs based on the elimination or reduction of the factors responsible for or contributing to the incidence of venereal diseases. In view of the importance of these diseases as a health problem and their impact on society, such programs should be developed on a systematic and continuing basis.

The present paradox—involving an increase instead of a decrease in incidence, in spite of the effective treatment available—has come about in a changing environment characterized by:

TABLE 7–Morbidity rates for gonorrhea, per 100,000 population, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Argentina		72.4	36.5	43.6	47.1	49.8	23.6	26.5	36.4	30.3	33.6[a]
Barbados		1,344.6	930.0	1,008.5	992.8	1,108.3	867.2	775.7	900.4	1,026.5	845.3
Bolivia	52.8	2.9	3.3	0.9	1.6	1.8	6.9	4.1	3.1	3.0	5.0
Canada	117.4	87.4	90.1	95.1	102.6	107.0	104.3	107.1	110.6	108.5	128.6
Chile			52.0	20.2	16.8[a]	10.6[a]					
Colombia	91.5	182.3	218.2	212.8	192.9	191.6	194.0	178.5	178.4	215.2	215.8
Costa Rica	267.9	107.2	156.5	156.4	150.2	160.9	120.0	116.9	150.9	153.0	199.2
Cuba		0.2	3.1	12.7	10.9	11.6	9.1	8.5	4.6	3.0	2.9
Dominican Republic	283.2	740.0	. . .	578.3	491.3	466.0	386.0	355.6	296.2	399.2	403.2
Ecuador		0.5	2.4	10.4	8.8	8.4	9.0	7.0	9.0	19.1	31.7
El Salvador	266.0	137.9	118.9	142.9	160.0	106.5	114.4	116.6	108.1	160.3	148.4
Guatemala		54.8	90.1	111.8	79.3	76.0	73.0	76.7	80.8	77.4	94.8
Guyana	276.7	518.8	408.6	995.1	954.8	1,136.9	1,163.2	1,208.1	333.1		
Haiti	155.8	124.5	124.7	92.8	94.7	84.5	87.3	68.2	79.0	58.1	
Honduras		245.2	277.4	233.8	153.8	383.0	233.3	225.4	214.6	198.4	180.9
Jamaica		2,436.0	2,384.0	2,125.6	1,830.5	1,756.5	1,826.5	1,871.4	2,088.0	2,147.2	
Mexico	89.0	53.0	52.4	51.5	47.1	44.5	38.7	25.8	29.5	25.9	20.2[a]
Nicaragua		52.7[a]	70.6[a]	52.6[a]	40.8[a]	121.6[a]	90.9[a]	126.9	171.6	119.8	171.4
Panama	496.5	58.2	44.1	43.1	55.6	51.9	32.2	51.8	34.8	36.7[a]	32.7[a]
Paraguay			28.7	35.4	24.8	20.1	16.2	18.3	22.8	21.1	33.1
Peru	62.5	72.6	64.7	73.2	78.4	70.6	71.6	51.8	50.2	51.3	50.8
Trinidad and Tobago	959.8	561.0	573.2	692.2	863.4	834.1	873.2	735.5	842.6	854.1	840.5
United States of America	188.3	143.3	143.8	141.3	146.9	156.5	167.0	178.6	203.3	230.9	263.2
Uruguay	126.2[a]	156.9	149.1	146.5	160.6	179.2	154.3	155.1	150.1	200.4	156.2
Venezuela	198.6	108.1	179.7	182.1	176.5	182.5	186.3	218.4	246.8	269.5	269.5

*Data from questionnaire prepared specially for this study.
[a]Official country reports to PAHO.

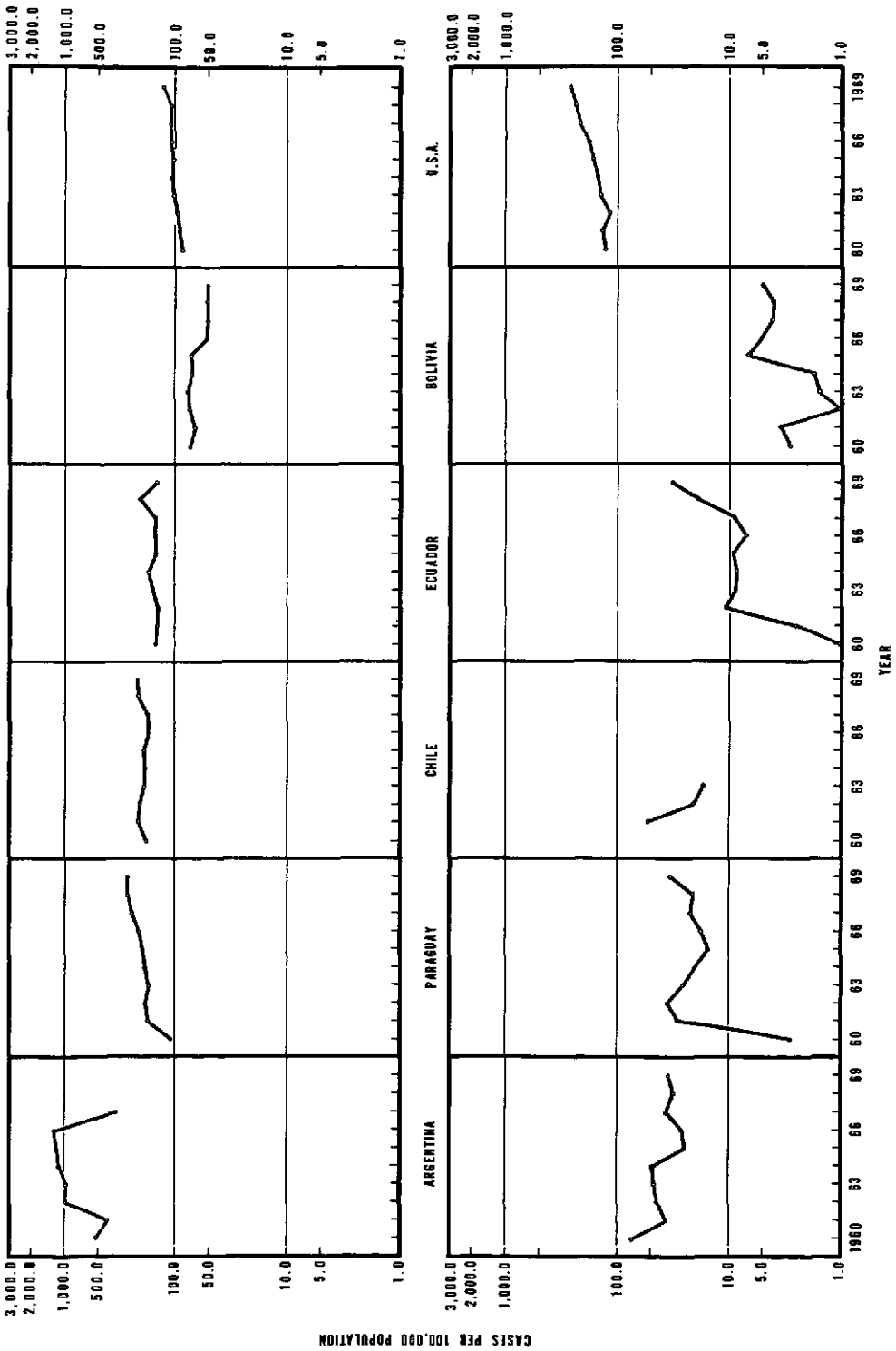


FIGURE 2–Reported cases of gonorrhea per 100,000 population in South America and Northern America, by country, 1960-1969.

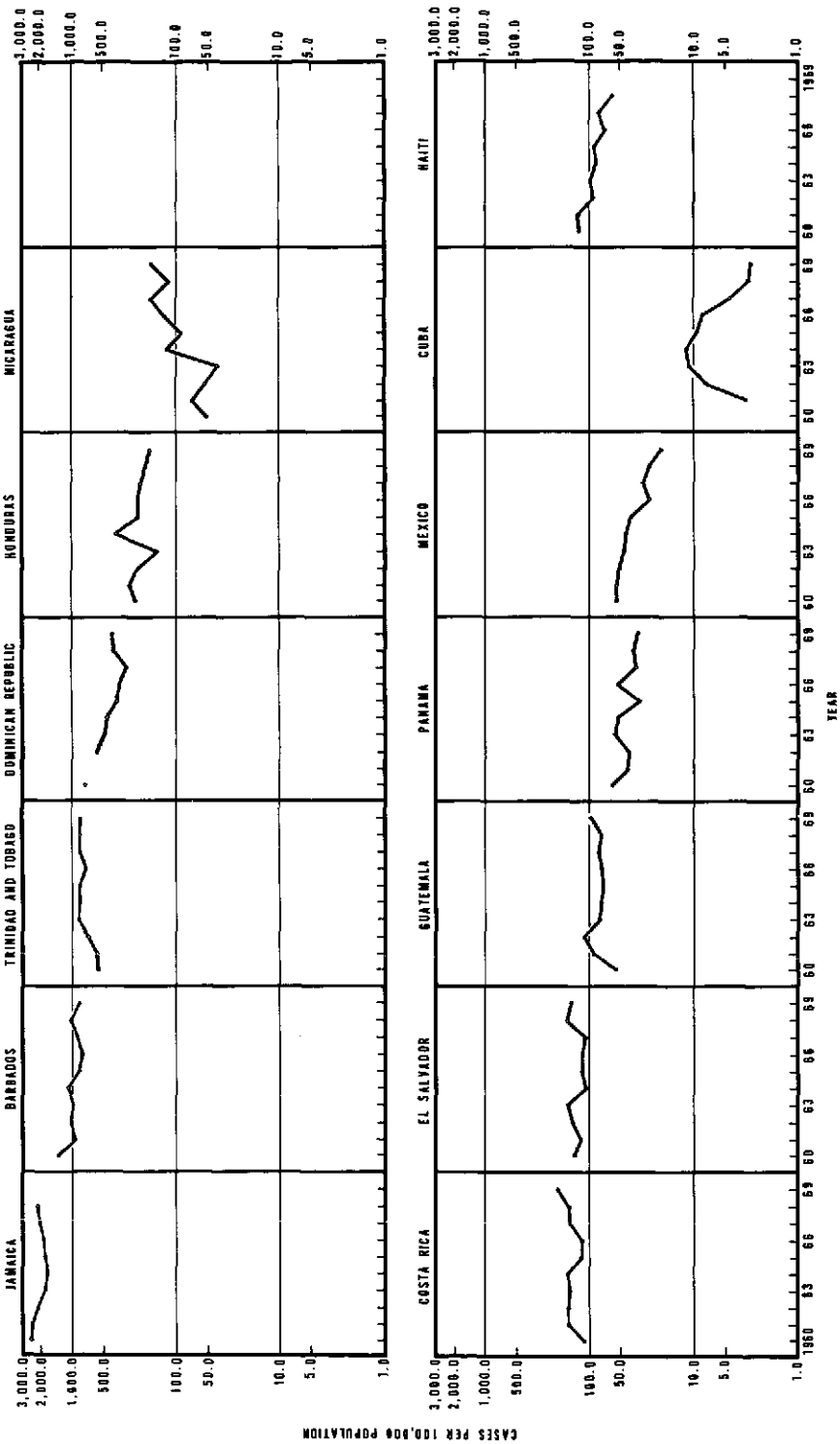


FIGURE 3—Reported cases of gonorrhea per 100,000 population in Middle America, by country, 1960-1969.

TABLE 8–Cases of granuloma inguinale, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Canada	0	0	0	0	0	0	0	0	1	0	0
Colombia	253	317	191	129	274	85	92	72	139	144	168
Costa Rica		0	0	0	0	0	0	0	0	0	0
Cuba										1	
Dominican Republic	0	0		0	0	0	0	0	0	0	0
Ecuador		0	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	9	32	126	0	0	0	0	0
Guatemala		2	0	0	0	3	9	4	2	24	10
Guyana	48	135	321	108	39	325	456	309	367		
Honduras		3	2	16	5	10	7	21	26	24	11
Jamaica		143	137	133	89	55	65	69	51	57	
Mexico		0	0	0	0	0	0	0	0	0	0
Nicaragua								13			22
Paraguay			1	3	1	2	2	5	3	0	0
Trinidad and Tobago	39	2	4	6	3	2	2	0	1	7	2
United States of America	1,783	296	241	207	173	135	155	148	154	156	154
Venezuela	84	72	55	42	29	31	30	31	45	22	26

*Data from questionnaire prepared specially for this study.

TABLE 9–Cases of lymphogranuloma venereum, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Argentina		59	37	29	51	56	60	107	212	91	
Bolivia		1		1	1	1	1	26			1
Canada	3	2	0	0	0	0	1	0	1	2	0
Colombia	722	837	571	749	743	762	863	731	764	653	544
Costa Rica		0	0	1	1	1	0	0	0	0	0
Cuba					1	3	1			1	
Dominican Republic	101	952		901	817	732	750	766	288	679	722
Ecuador		0	0	0	0	0	0	0	0	0	0
El Salvador		181	76	181	168	169	120	169	59	70	53
Guatemala		1	20	9	0	5	4	7	23	64	9
Guyana	3	36	59	15	1	47	51	19	30		
Honduras		60	23	34		34	19	33	45	45	29
Jamaica		481	435	531	376	251	164	48	67	68	
Mexico		19	24	19	17	11	15	16	6	9	
Nicaragua								13	82	23	25
Paraguay			6	4	9	11	0	2	5	6	5
Peru		186	294	306	275	175	669	314	190	172	153
Trinidad and Tobago	64	23	15	12	21	9	18	36	53	35	3
United States of America	1,427	835	787	590	586	732	878	308	371	485	520
Venezuela	253	481	348	288	258	261	210	226	118	118	102

*Data from questionnaire prepared specially for this study.

TABLE 10–Cases of chancroid, by country, 1950, 1960-1969.*

Country	1950	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Argentina		172	79	111	195	145	144	152	184	135	
Bolivia		5	15	5	7	10	58	9	4	4	4
Canada	13	3	3	4	3	2	2	6	1	1	4
Colombia	3,081	3,965	2,472	2,800	2,911	2,542	2,243	1,899	2,377	2,114	1,696
Cuba		20		76	27	6	7	5		2	5
Dominican Republic	1,248	4,484		3,480	2,400	3,446	3,200	3,112	2,385	2,518	1,773
Ecuador		4	21	200	278	165	90	48	105	117	10
El Salvador	1,227	770	1,093	1,425	1,961	2,070	1,899	2,069	1,740	1,865	1,538
Guatemala		1,536	1,980	1,760	1,651	886	1,154	1,245	914	1,052	603
Guyana	64	166		170	664	227	124	52	57		
Haiti		120	328	306	346	427	413	368	439	341	
Honduras		2,068	2,292	2,367	1,119	1,927	1,900	1,749	1,996	1,758	1,874
Jamaica		163	171	198	116	63	75	69	39	46	
Mexico	1,272	869	573	466	318	336	228	471	333	381	
Nicaragua		14[a]						122	114	477	131
Paraguay			42	72	32	38	21	37	38	24	53
Peru		1,234	1,729	1,880	1,642	1,395	2,168	1,565	749	792	919
Trinidad and Tobago	95	66	29	35	81	51	100	79	59	65	39
United States of America	4,977	1,680	1,438	1,344	1,220	1,247	982	838	784	845	1,104
Uruguay	6[a]	3	0	1	67	9	12	0	12	84	4
Venezuela	3,038	2,474	2,110	1,357	1,469	2,181	1,841	1,771	1,551	1,464	1,270

*Data from questionnaire prepared specially for this study.
[a]Official country reports to PAHO.

- The growth and greater rapidity of communications both between and within countries, with more frequent travel for cultural, commercial, and tourist purposes, which has favored the spread of contacts and venereal diseases, these being no longer confined to limited areas;
- Increased urbanization and industrialization, in both the developed and the developing countries, with the consequent mobility of population groups attracted by urban life and new sources of employment within one country and between different countries;
- High birth rates with a great increase in the young population, this being limited in some countries by family planning and population control;
- High population density in certain areas, resulting in overcrowding and a process of homogenization of ideas and cultures, especially among the young, who change traditional ideas and values without fully replacing them, which in turn gives rise to the coexistence of different groups governed by different values and cultural standards within the same community.

In this changing scene, epidemiological and social factors favoring the spread of venereal diseases are intensified, while at the same time the effectiveness of medical action has lessened the fear of these diseases as well as reduced immunity to reinfection, thus further contributing to their spread.

On the other hand, the rise in incidence has brought about an increased demand for control services which is not being adequately met by the health authorities.

In this general framework, various factors influencing the present situation stand out. These may be grouped into behavioral factors and medical and public health factors.

1. Factors Related to Changing Behavior Patterns

Venereal diseases are typical of the so-called behavioral diseases; they continue to spread, despite the adequate control methods and treatment available, because they are rooted in individual and community behavior.

With human conduct playing a predominant role in these diseases, they are closely interrelated with intellectual, emotional, economic, and sociocultural patterns. Although the effects of these influences on the disease incidence and spread have long been known, few studies have been made to pinpoint the relative importance of each of them, and even fewer to point out ways of controlling venereal diseases by bringing about modifications in behavior.

The changing environment that characterizes the present situation constitutes the ecological background to venereal diseases, in which one or more of the factors influences the balance that can inhibit or facilitate transmission.

The elements most frequently cited as contributing to changes in sexual behavior are increased promiscuity, varying sexual habits, increased sexual activity in the younger age groups, and increased sexual contacts resulting from the increased migration and interchange between population groups and areas.

Promiscuity

Promiscuity is not basically a sexual problem, but rather a manifestation of profound psychic changes. A study made by the U.S. Public Health Service on sexual life in urban and rural environments brought out clearly the common factors in promiscuity which cut across the boundaries of social, educational, and age groups, and those related to ignorance.

Changes in ethical, moral, and behavioral standards resulting from accelerated social, economic, and technological changes have been diffused with great rapidity and have, in turn, led to increased sexual activity. The transition from rural to urban life produces emotionally maladjusted adolescents and destroys basic social institutions, such as the family. It also encourages a promiscuous life among adolescents, subjecting them to an environment in which a large number and variety of social ills can flourish, thereby creating foci of venereal diseases in the large urban centers.

Traditionally, the problem of female promiscuity has been identified with prostitution. Even today, when the type of prostitution that originated in poverty and the need to make a

living has been made illegal or been abolished in principle by international action, it still plays a large part in the spread of venereal diseases, particularly gonorrhea, in many countries. In the region of the Western Pacific, a great many countries reported that more than 80 per cent of the infection in males can be traced to this source.

According to the questionnaire replies, prostitution in the Americas is regulated in five countries and two territories (Ecuador, Guatemala, Honduras, Panama, Uruguay, and the Bahamas and the Netherlands Antilles). It has been eradicated in Cuba, and in seven countries it is illegal (Canada, El Salvador, Guyana, Mexico, Paraguay, Trinidad and Tobago, and the United States of America). In the remainder it is tolerated, whatever may be its legal status. Nevertheless, of the seven countries that reported prostitution to be illegal, one (Guyana) commented that it exists in fact, while in Mexico there appears to be a provision under which the municipalities may tolerate it; and in Trinidad and Tobago, although it has been outlawed, it is reported to play a major role in the spread of venereal diseases.

Nine countries (Colombia, Costa Rica, Dominican Republic, El Salvador, Honduras, Nicaragua, Peru, Trinidad and Tobago, and Venezuela) consider prostitution to be an important factor in the spread of these diseases, and Costa Rica holds it responsible for 80 per cent of the problem.

Only Cuba, Jamaica, and the United States of America reported that prostitution plays little if any part in the venereal disease problem.

These data suggest that in general prostitution is in itself still a problem, as well as an important factor in the spread of venereal diseases, and that it is probably being overlaid with new aspects of clandestine sexual traffic within a changing social ecology.

Following the postwar period, prostitution reappeared in the developed countries, as well as in many of the developing ones, with changed characteristics attributable to improved social and economic conditions, industrialization, and emancipation of women, and stimulated by the search for pleasure and the benefits and luxuries of a more prosperous society. Hence, this intensification of hidden sexual traffic is a reflection of higher income and an increasingly complacent attitude toward sexual freedom. It is stimulated by communications media and consumer-oriented advertising and has its roots in mental aberrations, hereditary factors, traits of ethnic and other minority groups, and family and educational background which give rise to social dislocations and impair the individual's ability to face the complexities of modern life.

Whether it is a question of commercialized promiscuity or of promiscuity stimulated by sexual behavior changes stemming from the other causes discussed, it has been suggested that the introduction and use of contraceptives —especially oral contraceptives—has contributed to increased sexual activity and the consequent spread of venereal diseases.

Few studies have been made to explore this problem, and most of the opinions offered are subjective. However, one study made in Upsala, Sweden, in 1967-1968 revealed that among gonorrhea patients and their contacts, 70 per cent of the female students and 51 per cent of the female non-students were using contraceptive pills, while the corresponding percentages in 1966 were 48 and 18, thus evidencing a considerable increase in use of the pill. What is even more significant, the average number of sexual partners was 36 per cent higher among the group using the pill than in the one not using it. Also, the average frequency of sexual contact in the first-named group was 47 per cent higher than in the second. After beginning to use oral contraceptives, 36 per cent of the women increased the frequency of sexual relations and 25 per cent increased the number of partners.

If the results of this study were generalized, we would have to accept the fact that the use of oral contraceptives has led to increased promiscuity and greater risk of contracting venereal disease, with the frequent change of partners multiplying the risk even further.

In the replies to the PAHO questionnaire, only two countries indicated that use of contraceptives might cause the promiscuous woman to expose herself more frequently. The lack of replies on this point indicates the scarcity of precise information that can be generally applied to factors relating to behavioral changes. In effect, 14 countries responded in one way or another to the question: What role is played in the dissemination of venereal diseases by changes in standards of conduct observed in the last decade? Not one country was able to describe such effects or to supply objective data.

Increased Sexual Activity and Venereal Diseases in Younger Age Groups

It is evident that the increase in sexual activity among younger groups and in the number of contacts is influenced by psychological, educational, and sociocultural factors that encourage greater promiscuity.

While in some countries there is still the belief that venereal diseases are not a problem among the young, in most regions of the world they appear to be increasing among adolescents and the under-20 age group, and in many instances this increase has been held responsible for the recrudescence of these diseases. Reports from the different countries do not agree in their conclusions. If we consider that the number of persons now seeking treatment has increased and that only the conduct of those who do seek treatment is known, it is difficult to affirm that the current situation is due to changes in the sexual behavior of the young.

Nevertheless, in countries where this increase in the under-20 age group has been observed, the contributing factors seem to be: early maturity; industrialization and urbanization—with young people attracted to the cities where they are free of family control, and live in crowded housing; youth's rebellion against the authoritarian ideas of their parents and teachers; and society's greater complacency toward sexual relations.

An increase in venereal diseases in the under-20 age group has been observed in the United States of America, where rates for early syphilis in that group rose from 10.1 to 24.2 per 100,000 population between 1956 and 1965. Increases have also been recorded in Canada, the Federal Republic of Germany, France, Italy, and the Scandinavian countries.

Five countries of the Americas (Ecuador, Mexico, Peru, United States of America, and Venezuela) submitted comparable data for 1960 and 1968 or 1969 on early syphilis incidence in the age groups 10-19 and 15-19 years.

Comparing the percentage differences in the rates for these groups and those for all ages in the same years, we find that in Mexico, where the decrease was general, the rates for males and females in the 15-19 group declined less (9.3 and 18.7 per cent) than those for all ages (28.4 and 30.0 per cent).

In Peru the decrease in rates for all ages was 17.9 per cent, and in the 10-19 age group only 3.7 per cent.

In the United States of America, despite the aforementioned increase between 1956 and 1965, a comparison of the figures for 1960 and 1968 also shows that there was a decrease of 10.3 per cent in the 15-19 age group for males, while for females there was an increase of 5.7 per cent. The rates for all ages decreased 2.4 per cent in males and increased 27.2 per cent in females.

In Venezuela the increase for males in the 10-19 group was 53.1 per cent, while that for all ages was 10 per cent. In females, where an increase was also recorded, it was greater for all ages (351.7 per cent) than for the 10-19 group (192.3 per cent).

In Ecuador, in the same age group, there was an increase of 66.2 per cent in males and 61.2 per cent in females.

The foregoing data are not consistent, since in the countries where there was a decrease this was in general smaller among the young groups of both sexes, and in Venezuela, where there was a very marked increase in both sexes (and especially in women of all ages), the increase observed among the young was smaller.

Only two countries, the United States of America and Venezuela, can be used to study the trends of gonorrhea infection in the younger groups. In both countries the rates for both sexes and all age groups increased. The United States reported increases of 74.2 per cent for males and 35.1 per cent for females, while the corresponding figures for Venezuela were 160.8 and 161.8 per cent. But the increase in the 15-19 group in the United States was lower, 62.9 per cent in males and 26.7 per cent in females; while in Venezuela the increase of 160 per cent in males and 161 per cent in females for the 10-19 group is virtually the same as that observed for all age groups.

The available data, therefore, are not such as to permit general conclusions about the increase in sexual activity and venereal diseases among the younger age groups.

Influence of Homosexuality

In recent years male homosexuality has gained in importance in the transmission of infectious syphilis in many of the developed countries, where a large proportion of primary infections occur in this group. This is in contrast to the traditional belief, still prevalent in many of the developing countries, that homosexuality plays a very small part in the spread of venereal disease.

Data available from some studies made in European countries, the United States of America, Canada, and Ceylon indicate that different groups of patients who have contracted infectious syphilis identify male contacts in percentages ranging from 8.4 to 93.5. The average shown in these studies is around 20-25 per cent, and this includes the data from a survey conducted by the American Social Health Association in 1965-1966. There are no figures of this kind for other parts of the Americas, and the questionnaire replies indicate that no country in the Hemisphere could supply any objective information.

It is significant to note that homosexual prostitution results more from the desire for money and from immorality than from intersexuality, and that homosexuals also have heterosexual contacts, and thus play a significant role in the spread of venereal disease to other groups.

Population Mobility

Increased population mobility—with the greater number and frequency of contacts between groups in different countries and in different areas of the same country—is another of the factors contributing to the venereal disease recrudescence.

The increase in business travel, tourism, workers' migration, and cultural exchange, as well as the attraction exerted by urban, industrialized centers, multiply human contacts and the opportunities for sexual contact, and thus play a significant role in the spread of venereal disease.

Indicative of the importance of the problem is the fact that in Sweden 24 per cent of recent syphilis cases acquired the infection abroad, while in the United Kingdom 40 per cent of infected males and 60 per cent of the seamen treated at English ports contracted the disease outside the country.

2. Medical and Public Health Factors

The introduction of penicillin in the treatment of venereal diseases, its widespread use, and the results initially obtained changed the public attitude toward this group of diseases. Fear of their consequences was replaced by a certain lack of concern on the part of the public, and led to a false sense of security among health authorities.

Government interest in control programs began to decline, and in almost every part of the world the majority of venereal disease patients came to be treated by private physicians. The simple, rapid treatment thereby passed out of the hands of trained venereologists to the general practitioners, and the idea was lost that the latter required any special preparation for the new task. Accordingly, their training for the new responsibility is largely deficient because the changing image of these

diseases was reflected in the medical schools, where instruction in this field either deteriorated or was neglected.

Nevertheless, the private physician's role in the diagnosis and treatment of venereal diseases is extremely important, and must continue to be so, if the work of investigating contacts and educating the patient and the community in prophylaxis is to be carried on.

The proportion of patients who resort to private physicians and receive treatment from them depends on social and economic conditions, the availability of public services, and the attitudes of the public.

The percentage treated by private physicians varies in the different countries according to the organization of the health services and the coverage they provide. In the United Kingdom, where there is a single health service, more than 75 per cent of the patients receive treatment in public clinics. In Scotland, 90 per cent of the gonorrhea patients are treated in public services.

In contrast, in the United States of America private physicians treat 10 times more cases than the number actually reported.

The availability and ease of administration of the treatment encourages self-medication as well as treatment by nonmedical people of all types (pharmacists, healers, amateurs, etc.). Unrestricted dispensing of antibiotics, which is the practice in many countries, contributes to this situation.

Antibiotics can be obtained without medical prescription in 15 countries of the Americas (Bolivia, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela).

Although there is no evidence that the treponemicidal efficacy of penicillin has diminished, the maximum that may be expected from individual therapy seems to have been reached. At the same time, it is known that many strains of *Neisseria gonorrhoeae* in various parts of the world are showing increasing resistance to penicillin and other antibiotics, and for this reason its treatment is becoming more complex, requiring specialized and up-to-date knowledge in the selection of drugs and treatment schedules.

Preventive effects that might have been derived from use and overuse of antibiotics in the first decade after their introduction–if in fact this was the case–seem to have disappeared. In the case of syphilis, the prescribed treatment eliminates relative immunity, leads to reinfection of individuals in highly exposed groups, and causes changes in the total number of susceptibles.

Eradication or control of yaws in countries where that disease was once prevalent may also have contributed to the increase in the susceptible population.

The initial optimism created by penicillin also led to a de-emphasis of the attention given to control programs. Measures earlier in effect were not continued, or at least new procedures were not developed, nor were adequate funds assigned to the work, since it was no longer viewed as requiring high priority.

With the present recrudescense of the diseases, however, many countries have introduced new programs and have renewed their interest in the control and study of the problem.

STATUS OF VENEREAL DISEASE CONTROL IN THE AMERICAS

Although the complex ecological forces affecting the spread of venereal diseases do not lie within the control of traditional public health measures, and behavioral factors play a central role that makes it essential to promote social and educational techniques based on multidisciplinary studies, it is nevertheless a fact that venereal diseases continue to be communicable diseases to which the control procedures appropriate to their specific epidemiological behavior can and must be applied.

The methods for the control of gonorrhea and syphilis are well known and easily defined. They consist primarily in early detection and prompt treatment of cases.

In the absence of an immunizing agent, and because of the mode of transmission (venereal contact between infected and noninfected individuals), control depends on the prompt locating of infected persons, especially those in the infectious stages, and their treatment before they become foci of infection.

Control activities must therefore include diagnosis and treatment, case-finding, contact-tracing, and prophylactic measures. For this purpose, it is essential to have a well-organized and dynamic health service, working for the benefit of society.

The successful establishment and operation of control programs depend on a great many factors, and in particular on the attitude of the medical profession, of the authorities and workers in the health services, and of the general community toward those diseases—which will determine the priority accorded to the work and the funds made available for it.

1. Control Programs

Nineteen countries of the Americas (Bolivia, Brazil, Canada, Chile, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Trinidad and Tobago, United States of America, Uruguay, and Venezuela) report that they have officially organized control programs. Twelve of this group (Brazil, Canada, Chile, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Nicaragua, Trinidad and Tobago, United States of America, and Venezuela) could identify all or a part of the financial resources allocated for venereal disease control activities. Two countries (Argentina and Honduras), although having no officially organized programs, were also able to report the funds assigned to combat these diseases.

Except for Cuba and Guatemala, all countries with venereal disease programs indicated they had programs for gonorrhea control, and three (Barbados, Guyana, and Honduras) had gonorrhea programs even though they did not report official venereal disease control programs.

All countries except Colombia and Panama reported that they furnished free treatment for syphilis and gonorrhea.

2. Venereal Disease Reporting

The increase in venereal diseases that can be observed in countries with the more highly developed data reporting systems seems to indicate that the problem is universal.

It has frequently been shown that syphilis and gonorrhea are more prevalent than is indicated by available statistics, even in countries having the best notification procedures. Apart from the fact that case notification from all possible sources should be obligatory, every effort should be made to promote timely and efficient reporting.

It is essential to encourage regular notification of all cases diagnosed and treated by private physicians and by private as well as public institutions, both for gonorrhea and for syphilis in each one of its stages.

The lack of information on venereal diseases derives from a series of factors. In many cases patients resort to self-treatment, or to the amateur practitioner, the healer, or to nonmedical professionals who do not report the cases they treat. At the same time, the medical profession reports only a small proportion, if they do so at all, of the cases among their patients.

Furthermore, variations in the forms and standards used for classification of syphilis, even within the same country, often make it difficult to compare early syphilis cases reported by one country with the figures for another.

A national survey on venereal disease incidence in the United States of America in 1968 showed that private doctors reported to the health service only about 11 per cent of the infectious syphilis cases, 38 per cent of the cases in other stages, and 11 per cent of the gonorrhea cases. Nevertheless, four out of every five cases reported were treated by private physicians.

Because of the poor reporting, the data on

gonorrhea have little validity; and even though the data for syphilis are more reliable, notification of these cases is also very deficient. In the world survey conducted by WHO, out of 126 countries only 57.2 per cent reported that notification was obligatory.

Complete data on early syphilis since 1950 were available in only 12 countries, eight in Europe and four in the Americas (Canada, El Salvador, United States of America, and Venezuela).

In the replies to the PAHO questionnaire in 1970, 21 countries (Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Trinidad and Tobago, United States of America, Uruguay, and Venezuela) reported that case notification of venereal diseases to the health authorities is obligatory.

Moreover, notification of positive serologic reactions is obligatory in 11 countries (Argentina, Bolivia, Brazil, Canada, Cuba, Dominican Republic, Honduras, Mexico, Panama, United States of America (all but 12 states), and Venezuela).

Although this picture appears encouraging, examination of the data supplied reveals substantial deficiencies in both quantity and quality, which makes it difficult to describe and interpret the situation.

3. Serologic Examinations

Serologic tests are an important tool in the diagnosis of syphilis and in the search for cases by screening:

Screening procedures tend to lose their value and their cost increases as the incidence of the disease declines. At the same time, they are very useful in highly vulnerable population groups, and most public health authorities and workers consider that they should be used for premarital testing, for pregnant women, as a routine test in hospitals, in health examinations, and in any other groups particularly exposed to syphilis.

The serologic tests most often recommended and considered to be perfectly feasible in a well-organized program are: VDRL as a nontreponemal test for routine use, primarily as a screening technique; and a treponemal test which, being more specific, should be used whenever the diagnosis must be based on the serologic result. The VDRL test is already being employed as a nontreponemal test in all countries of the Hemisphere; Cuba reported that it is using the Kahn test, and Chile and Haiti use both VDRL and Kahn.

Ten countries (Canada, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Trinidad and Tobago, United States of America, Uruguay, and Venezuela) reported at least one laboratory in the country that performs serologic tests for treponema.

Eleven countries (Argentina, four provinces in Canada, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, and all but five states in the United States of America) have laws or provisions requiring premarital serologic tests, and in five of the remaining countries (Cuba, Dominican Republic, Ecuador, Haiti, and Venezuela) it is customarily performed.

Serologic tests for pregnant women are required by law or regulation in 14 countries (Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Haiti, Honduras, Mexico, Panama, Paraguay, Peru, United States of America, and Venezuela), and such testing is customary in 10 (Argentina, Barbados, Canada, Cuba, Dominican Republic, Guatemala, Guyana, Jamaica, Trinidad and Tobago, and Uruguay).

In Brazil, the tests are made in both premarital and prenatal groups in the maternity hospitals.

In the serologic tests made in 1969 the lowest percentage of positive reactions (2.1) was recorded in the United States and the highest (45) in the Dominican Republic, followed by Jamaica (22.2).

Five countries submitted data on the number of cases treated in 1969 as a result of serologic tests (Bolivia, Ecuador, Jamaica, Mexico, and the United States of America).

4. Diagnosis of Gonorrhea

To date no satisfactory serologic technique is available for detecting cases of gonorrhea. The Gram stain and culture methods are relied upon for diagnosis and detection.

In women, and in particular the asymptomatic cases that constitute the principal reservoir of infection, culture is the basic technique.

The Gram stain is used in all countries of the Americas, but it is applied in all clinics in only 12 countries (Brazil, Canada, Costa Rica, Ecuador, Guatemala, Jamaica, Nicaragua, Peru, Trinidad and Tobago, United States of America, Uruguay, and Venezuela). Thirteen countries have facilities for culture (Brazil, Canada, Costa Rica, Dominican Republic, El Salvador, Guatemala, Nicaragua, Paraguay, Peru, Trinidad and Tobago, United States of America, Uruguay, and Venezuela).

5. Investigation of Contacts

Identification of contacts, their location, examination, and treatment are essential if the spread of the disease is to be halted.

In recent years, particularly in the United States of America, techniques and procedures have been developed and highly encouraging results have been obtained through their application in syphilis control. In contrast, it is much more difficult to trace the infection source and halt transmission of gonorrhea, because of its very short incubation period. Experience shows that control methods must take into account the differences in behavior of the two diseases, and that new methods specifically applicable to gonorrhea must be found.

Whatever the method used or the level of training of the contact-tracing staff, the information collected shows that contact investigation is performed throughout the entire country in 10 countries (Argentina, Barbados, Canada, Costa Rica, El Salvador, Panama, Trinidad and Tobago, Uruguay, United States of America, and Venezuela). In 12 countries it is practiced only in the large cities (Bolivia, Chile, Colombia, Cuba, the Dominican Republic, Ecuador, Guyana, Jamaica, Mexico, Nicaragua, Paraguay, and Peru).

Nevertheless, only five of the first-named 10 countries (Costa Rica, El Salvador, Trinidad and Tobago, United States of America, and Venezuela) have data available for 1967 and 1968 on the number of primary and secondary syphilis cases interviewed. In the group where interviews are conducted only in large cities, data were submitted by only six countries (Bolivia, Chile, Dominican Republic, Ecuador, Jamaica, and Mexico).

Of the 11 countries that reported the number of primary and secondary syphilis cases interviewed, five also had data for 1960 (Costa Rica, El Salvador, Mexico, United States of America, and Venezuela).

The *contact index,* i.e., the average number of sexual contacts reported for each case of infectious syphilis interviewed, ranged in 1968 from 0.47 in El Salvador to 4.35 in Venezuela.

Comparison of the 1968 contact index with that for 1960 revealed a decrease from 4.11 to 2.58 in Costa Rica, from 0.92 to 0.47 in El Salvador, and from 3.39 to 2.95 in the United States of America. In Mexico and Venezuela it increased from 1.17 and 1.23 to 1.72 and 4.35, respectively. These differences can be interpreted in terms of changes in the number of sexual partners, or in the techniques and ability of the investigators in obtaining names of contacts from the persons interviewed.

The *percentage of contacts interviewed* reflects the ability of the staff to locate them as well as the availability of funds for the work. It varied from 17 per cent in Ecuador to 90 per cent in Costa Rica. A comparison between 1960 and 1968 shows that in Costa Rica there was an increase from 20 to 80 per cent, and in El Salvador from 32 to 84 per cent, while no change occurred in the United States of America. Mexico and Venezuela showed decreases from 50 to 47 per cent and from 75 to 53 per cent, respectively.

The *index of syphilis cases treated,* which is the average number of cases discovered and treated as a result of investigation of contacts

of each infectious syphilis case interviewed, is known only for El Salvador, the United States of America, and Venezuela. It was 0.43 for the United States in 1960 and 0.43 in 1968. Venezuela showed indices of 0.43 and 2.11 in the same years, and El Salvador 0.17 in 1969.

The *index of early syphilis cases treated* (lesion-to-lesion) represents the average number of infectious syphilis cases for each early syphilis case interviewed. In 1968 it ranged from 0.16 in Mexico to 0.72 in Chile. Between 1960 and 1968 it rose in Venezuela from 0.1 to 0.66, and in El Salvador from 0.13 to 0.28; it remained stationary in Mexico, and decreased from 0.27 to 0.22 in the United States of America.

6. International Control Measures

To control the spread of venereal diseases from one country to another, which has always been a concern of the Governments and of international organizations, attention has centered on the epidemiological control of emigrants and tourists, in the venereal disease control centers of the maritime health authorities as recommended by the Brussels Agreement, and on international exchange of epidemiological information. In 1961 there were 387 venereal disease control centers in the Americas.

As to the exchange of epidemiological information, the country replies indicated that in 1969 only Mexico, the United States of America, and Venezuela notified other countries in the Hemisphere of the traced contacts that had their domicile in the country notified. The number of notification forms sent by Mexico was 147, by the United States, 441, and by Venezuela, 22. Mexico sent one notification to countries in other continents, and the United States sent 396.

THE COST OF VENEREAL DISEASES

Even though only in general terms, it is important to have an idea of the burden imposed by these diseases on the community, so as to arrive at an estimate of the benefit that can be obtained through their control or eradication—a benefit that in turn justifies, in economic terms, the health programs and the resources assigned to carry them out.

The cost of venereal diseases in terms of morbidity was reflected in the estimates given above for new cases of early syphilis and gonorrhea. But in addition to the magnitude of the problem of the acquired infection and its worldwide recrudescence, it is also important to estimate the disability and premature death that may be expected among patients who are not treated.

Considering the present status of technical knowledge and the fact that effective drugs are available for treatment of the diseases, it is difficult, if not impossible on ethical grounds, to conduct studies to measure the varying degrees of disability and death in the treated and untreated groups. Probably the only source of information that could be used for this purpose, either today or in the future, would be the type of classic material collected by Boeck and Bruusgaard in Oslo and the study made in Tuskegee, Alabama.

It has been estimated on the basis of those studies that for every 200 patients not receiving treatment, one will become blind; four will develop dementia; eight, tabes; and seven, cardiovascular syphilis. Untreated syphilis also reduces life expectancy by 17 per cent, and in 30 per cent of the deaths autopsy revealed that the principal cause of death was syphilitic involvement of the cardiovascular or central nervous system.

Apart from the emotional and social problems caused by the disease and measured in terms of human suffering, untreated syphilis results in enormous economic losses because of the expense required to treat the condition and its complications and disabilities, and the diminution of productivity resulting from man-hours of work lost through absenteeism or reduced years of useful life.

It has been estimated that in the United States of America 24,000 patients with syphilitic psychoses interned in mental

hospitals, represent an expense of $49 million annually. The cost of maintaining 12,200 persons incapacitated by blindness amounts to $5 million each year, and the loss of man-years due to lowered life expectancy can be calculated as a loss in productivity equivalent to $48 million annually.

This total of $102 million, although a substantial sum, represents only a part of the problem; it does, however, serve as an indicator to assess the economic impact of venereal diseases and as a yardstick to measure the benefits obtained by their control.

FUTURE OUTLOOK AND REQUIREMENTS

In the decade of the 1960's venereal diseases, and gonorrhea in particular, have increased to a significant extent and the progress made in controlling them has not been adequate. Medical and public health efforts have been neutralized and outweighed by ecological influences and rapid changes in the physical and social environment that have favored, and are continuing to favor, the spread of these diseases.

All that can be expected of individual therapy for gonorrhea and syphilis seems to have been achieved, and there is little hope that new advances in treatment will effect any change in the situation.

Since these diseases are so intimately related to individual and group behavior, the psychological, educational, and sociocultural factors affecting their spread must be taken closely into account in the control programs. But unfortunately we know only too little about these factors and even less about the processes by which they may be changed.

It is probable that, as a consequence of this situation, venereal diseases will continue to be a national and international problem of importance, unless vaccines are developed and preventive methods or technical measures are found that can offset the effects of the individual and environmental factors now contributing to their incidence. Both aspects need to be studied, and the necessary attention and funds must be devoted to this purpose.

Health education programs have not so far offered great promise, and new techniques must be designed to produce the required impact on the individuals and groups most at risk. Social and behavioral studies together with epidemiological research are essential if we are to determine with some precision the identity and characteristics of those who are most exposed to risk. Even though epidemiology is showing increasing interest in the psychological and sociocultural factors affecting patients, and some social scientists are becoming concerned in turn with epidemiology, much still remains to be done and very few studies have so far been made to clarify the problem.

The need for coordinated research is imperative, and the importance of behavior in the venereal disease problem is obvious. However, this should not serve as an excuse for neglecting control activities. In the present state of knowledge, these are essential and they must be intensified since, at least in the case of syphilis, they have demonstrated their effectiveness when properly applied.

Accordingly, each country should perfect and develop its control programs, giving them a permanent basis by effectively incorporating them into the health services so as to assure their continuity.

The programs must be based on an assessment of the situation and of the epidemiological behavior of the disease in different communities and sectors of the communities. There must be adequate registration of cases, supplemented by a system of data analysis and interpretation that facilitates surveillance of the disease trends in different areas and different population groups. This is not possible without obligatory notification that is properly enforced, and it is essential that efforts be redoubled to improve the existing conditions.

A program, to be effective, must include the activities necessary to improve the general state of health, to provide specific protection, and to limit the consequences of the disease.

Health education and sex education are fundamental requirements for improving the

general health situation in relation to venereal diseases. Despite the limitations of the available techniques, efforts must be made to extract the best possible advantage from them, to perfect them, and to explore new methods.

Provision of specific protection requires individual and collective prophylaxis, diagnosis and early treatment of cases, and identification of contacts so as to close off the reservoirs and halt or limit spread of the disease.

Research in preventive methods now in progress must be expanded and intensified with the goal of finding a satisfactory syphilis vaccine and immunizing agents or other types of preventive measures for gonorrhea. The study of preventive techniques could be incorporated into programs for family planning and maternal and child care, which at the same time could be used for epidemiological research into behavioral aspects that encourage the spread of the diseases and impede preventive programs.

General health services must be given the necessary facilities for detection, diagnosis, and treatment of patients.

Case-finding is a basic activity that in turn requires epidemiological surveys of cases, investigation of their sexual contacts and their social contacts within the circle of their activities, and serologic studies. Despite difficulties of an economic and cultural order that may arise in many countries, contact-tracing is an indispensable weapon in the fight against syphilis, and no effort should be spared to develop its use. Case-detection through serologic tests has also demonstrated its effectiveness and should be intensified in those population groups that are especially exposed. A combination and coordination of both procedures, using an epidemiological approach, can bring about improved results, with savings in effort and funds. Research must also be intensified in the field of case-detection by serologic testing in order to find a method of screening applicable to gonorrhea.

The combination of clinical examination and laboratory methods now available is satisfactory for the diagnosis of syphilis, but not for diagnosis of gonorrhea. Research must be stepped up in this field to find a diagnostic method that is simple, rapid, and applicable at any level. The use of *N. gonorrhoeae* cultures in selective media should be generalized as a means of detecting the infection in asymptomatic female reservoirs, and this should be done systematically in prenatal clinics, gynecological wards, and family planning programs.

In many countries private physicians examine and treat the majority of venereal disease patients, and it is therefore most important to bring them into the control programs. Health authorities should enlist the cooperation of medical schools and professional societies in the effort to combat the venereal disease problem. For the same reason, instruction in venereology should be encouraged in medical schools, with comprehensive instruction in clinical, epidemiological, and social aspects, and with the emphasis on the problem warranted by its seriousness and magnitude. It is most urgent to foster continuing education for practicing physicians and to give them the necessary support in performing their vital role in detecting new cases and eliminating foci of infection.

It is also essential to elicit community interest and cooperation in the fight against venereal diseases. The importance of community participation to the success of any control program demands that health authorities make every effort to encourage it. Similarly, the help of private organizations in fostering public support is particularly needed. In countries that have social and community development programs directed toward marginal groups, venereal disease control activites should be made a part of that work.

Epidemiological problems resulting from increased interchange among population groups in the different countries demand a corresponding reinforcement of international cooperation in venereal disease control and the appropriate steps on the part of Governments to make it effective.

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THE ESSENTIAL ELEMENTS OF A SYPHILIS CONTROL PROGRAM

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Before considering specific components of an effective syphilis control program in a country, it would be well to introduce the subject by making two points very clear. The first is that adequate funds, on a continuing basis, are needed to support any control program designed to do the job. This is basic. It may seem obvious, but as a famous man once said: "It would be trite to state the obvious if it were not for the universal neglect thereto."

The second introductory point is that dedicated leadership at the national level is essential. Health officials at top level must have the desire to do something about the syphilis problem and must lend their support to program directors in their control endeavors.

Having made these two points, discussion of the essential elements of a syphilis control program can proceed. First, it is necessary to define the problem, this being the first step in the process of building an effective control mechanism.

Definition of the Problem

The syphilis problem has been likened to an iceberg–that is, only part of it is visible. The visible part of the syphilis problem is that which is being seen and recognized by the medical community. The invisible part comprises those cases that exist in the community but do not come to medical attention.

To determine the full extent of the problem requires that quantitative information be gathered on both the visible and the invisible parts.

The visible aspect can generally be documented by a survey of existing medical facilities to determine how much syphilis is being seen. Among the facilities that can be queried and the kinds of information that can be gathered are:

1) *Mental institutions:* the number of first admissions due to syphilitic psychoses and the number of resident patients with syphilitic psychoses.

2) *Laboratories:* volume of serologic testing for syphilis and percentage of specimens with evidence of syphilis.

3) *Government and private clinics and hospitals:* the number of infectious and noninfectious syphilis cases diagnosed, and the extent of and policy for serologic testing.

4) *Health department vital statistics records:* the number of deaths attributed to syphilis.

5) *Private physicians or a representative sample of physicians:* the number of infectious and noninfectious cases diagnosed and the extent of and policy for serologic testing of patients.

6) *Military medical facilities:* the amount of syphilis diagnosed among the military personnel.

7) *Pharmacies:* the number of persons requesting drugs for what appears to be primary or secondary syphilis.

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The extent of the hidden part of the syphilis problem is somewhat more difficult to assess than the visual part, since this will require the initiation of blood-testing surveys among various population groups to determine prevalence of disease. It is important in these surveys to pinpoint population segments of very high and very low prevalence because any control program with fixed but limited resources designed to find hidden disease will concentrate on the population segments that have the greatest amount of disease. It is also important to determine if there are geographic or regional differences in the prevalence of syphilis.

Among the likely groups that should be tested on a sample basis in order to pinpoint the problem are military personnel, various occupation groups ranging from the unskilled to professionals, hospital inpatient and outpatient admissions, patients of private physicians, applicants for marriage, pregnant women, prostitutes, and different ethnic groups. Each survey should show the prevalence of positive tests and untreated cases by age and sex.

It is noted that although testing in selected groups will adequately identify groups of higher and lower prevalence, such data will not usually suffice to make over-all prevalence estimates for the total population. An over-all and accurate prevalence estimate for the whole population would require selection of a representative sample of the universe (city or nation, or adults, etc.) for which the estimate is to be made. A sample of as few as 2,000 persons, properly drawn by an experienced statistician, could give a fairly precise over-all estimate of prevalence.

Other Essential Elements of the Program

Having defined the problem, consideration should next be given to other essential elements in a syphilis control program. These are:

1) Case-reporting.
2) Free diagnostic and treatment services.
3) Laboratories.
4) Records.
5) Case-finding through blood-testing.
6) Education.
7) Laboratory reporting of positive serologic tests.
8) Program evaluation.
9) Epidemiology, including patient interviewing, contact-tracing, case-prevention, and exchange of epidemiologic information.

First, it is necessary to have good case-reporting. After the control program is under way, case-reporting will be one of the most valuable tools for the ongoing evaluation of disease trends. But of all the control elements, good case-reporting has been the most difficult to achieve in the United States of America. To ensure case-reporting, a law or health department regulation should be passed requiring practicing physicians and clinicians to report every diagnosed case. The law should perhaps contain a penalty for failure to report cases.

Second, it is important to operate free public diagnostic and treatment clinics with locations and hours of operation most convenient to the public. Evening hours should be scheduled if possible for those patients who work during the day. These clinics should be staffed with physicians *trained* in the diagnosis and management of syphilis. And there should be an adequate staff of nurses, laboratory personnel, and clerical workers to assure a smooth and efficient clinic operation. Clinics should naturally be located in the most populous urban areas of the country. Part-time clinics can be conducted in the less populous towns and villages. Mobile clinics may be used to occasionally cover the more remote and inaccessible areas.

In connection with venereal disease clinics, one additional important point should be made, and that is the *attitude* of all clinic personnel toward patients. The patients may be infected with syphilis and they may be poor and unable to pay a private physician, but they are sensitive human beings entitled to dignified treatment. From the admission clerk to the clinic director, attitudes toward the patients can make the difference between a good clinic and a bad one.

It goes without saying that adequate drugs should be available. And good records should be maintained. A medical record should be kept for each patient, containing the diagnosis by stage, history of laboratory tests, medical history, dates and amounts of treatment, and any follow-up medical and laboratory examinations.

A final note about the effect of treatment should be made here. Treatment in itself is a degree of control but it must be administered early in the course of primary syphilis to prevent any spread of infection. Otherwise, treatment is just a service to patients and contributes little to real control of the disease.

Laboratories should be considered next. They are an integral part of any syphilis control program, and laboratory service should be free. There should be serologic laboratories located in different parts of the country where each can provide the best service to public clinics and private physicians. A few good-quality laboratories are better than a greater number with lower quality performance. It is recommended that a single, standard non-treponemal test, such as the VDRL slide test, be performed in each laboratory. Darkfield microscopes should be provided in all clinics and persons should be trained to perform this test. The central laboratory of the country should offer the fluorescent treponemal antibody absorption test (FTA-ABS) to clinics and physicians for problem cases only.

In connection with laboratories, it is important that private laboratories performing serologic tests for syphilis be registered with the health department and given periodic performance evaluations to assure that serologic tests for syphilis are performed accurately.

Case-finding—that is, blood-testing programs—have to be developed. In order to achieve maximum efficiency with fixed but limited resources, blood-testing should be oriented toward the highest prevalence groups. The ability to do this will depend to a large extent upon how sharply the distribution of the problem was delineated in the study of the extent of the problem. Laws requiring blood-testing of persons upon certain occasions, for example, at time of application for marriage, are extremely effective in bringing this about. In some instances, one may have to depend upon the voluntary cooperation of medical facilities to secure blood-testing of their patients, or even to contract with them on a reimbursable basis to blood-test patients or certain segments of their patients.

In any case, there should be extensive blood-testing in any group that has higher than average prevalence of syphilis. Among the groups to be considered are admissions to any hospital or physician's office serving patients with a high prevalence of syphilis; military personnel; industries that have workers with a high prevalence of syphilis, or occupation groups with high prevalence; applicants for marriage; pregnant women; prostitutes; persons living in high-prevalence parts of cities or high-prevalence regions of the country; and ethnic groups with a high prevalence of disease.

The success of any blood-testing program, even those that may be required by law, will depend largely on the knowledge and support of both the public and the medical community. This leads to the next essential element of a control program.

Any well-balanced syphilis control program should certainly have a dynamic program of public education. In addition to the use of mass media, such as newspapers, radio, television, motion pictures, magazines, etc., the health educator should work closely with parent-teacher associations, church groups, school principals, and other civic organizations to assure that the venereal disease message gets across to the public, including schoolchildren.

In addition to the public education program, the health department should maintain a continuous effort to ensure that professional education is provided to private physicians, medical students, nurses, laboratory personnel, venereal disease investigators, and clinic workers. Through such a professional program, the medical and public health professions can be kept abreast of the latest methods and techniques recommended for syphilis diagnosis

and treatment.

As previously noted, case-reporting poses one of the biggest problems in syphilis control in the United States. To improve the situation, most of the states have passed laws requiring laboratories to report reactive test results to the health department, which in turn follows up with the attending physicians to ensure that final diagnoses are performed and case reports made to the department. Almost half the cases reported in the United States now come to health department attention because a laboratory first reported a positive (reactive) test. Although it has not totally solved the problem of underreporting, notification of positive tests by laboratories is a necessary component of the country's syphilis control program. Where one finds a problem of underregistration of cases, one may also find a laboratory reporting program to be needed.

Records and reports are most essential to a definition of the problem. Furthermore, a good record system is of great assistance to the director and other personnel of the venereal disease service in carrying out an efficient case-finding program. It also provides data for continuous evaluation of various program activities. A good record system can be quite basic and does not require a computer or other complex data-processing facilities. In addition to case reports and clinic records, it should include what is called in the United States a Venereal Disease Central Registry, which consists essentially of:

1) A 3 x 5" index card containing the name and address of each person in the community with syphilis.

2) A file of all sex contacts being investigated in the process of syphilis epidemiology.

3) A file of syphilis suspects, including persons on whom a reactive serologic test for syphilis has been reported.

The control program should be evaluated continuously at regional and national levels. Changes in the extent of the problem should be under continuous observation and the productivity of each program element studied. The least efficient or effective components should be modified or discarded, and more effective ones added.

As resources become more available in a country, a good program of syphilis epidemiology should be planned and executed. In some ways, epidemiology is not as fundamental as blood-testing or clinic operations, but if one hopes to attain any degree of *prevention,* syphilis epidemiology is essential. In order to truly control the spread of the disease, each person diagnosed with infectious syphilis or early latent syphilis under one year's duration should be interviewed for his or her sex contacts from whom the disease may have been contracted or to whom it may have been transmitted. The named contacts should immediately be located and brought to examination. Speed in syphilis epidemiology is most important to achieve the best control and prevention. Well-rounded control programs certainly need well-trained interviewer-investigators who have the proper attitude toward the disease and its control. And the need for confidentiality in the whole process of eliciting names of sex partners cannot be over-emphasized, since it is imperative to ensure that the reputations of patients and alleged contacts will in no way be damaged. In connection with the epidemiology program, it is recommended that use be made of a standard epidemiology report form such as Form 202 of the Pan American Health Organization (Figure 1). Such a form provides for the efficient exchange of epidemiological information between different health jurisdictions.

A further refinement and extension of the interviewing process is known in the United States as the cluster procedure, but time does not allow adequate discussion of this procedure. It is mentioned only for the sake of completeness. Epidemiological (preventive) treatment of sex contacts who are serologically and clinically negative on first examination is also recommended.

FIGURE 1—Inter-American Notification of a Venereal Disease Contact (Form PAHO-202)

CONTACT'S LAST NAME | GIVEN NAMES | (And Nicknames)

CONTACT'S COMPLETE ADDRESS (Include State or its equivalent and Country)

DATE REPORTED | AGE | COLOR OR RACE | SEX M ☐ F ☐ | MARITAL STATUS S ☐ M ☐ W ☐ D ☐ Sep. ☐ Unk. ☐

OTHER IDENTIFYING AND LOCATING INFORMATION (As Speech, Teeth, Physical defects, Place and hours of employment, Hang-outs, Friends, Relatives, etc., be Specific)

HEIGHT | SIZE | HAIR (Color, Style) | COMPLEXION (Skin color) | OCCUPATION

DATE OF LAST EXPOSURE | PLACE OF EXPOSURE (Establishment Name and Address)

PLACE (And Hour) OF ENCOUNTER

CONTACT REPORTED BY PATIENT WITH:
Gonorrhea ☐ Syphilis ☐ Stage_____ Other VD ☐ Specify_____

PATIENT No.

CONTACT'S RELATION TO PATIENT
☐ Husband Wife or ☐ Friend ☐ Other Specify_____

INTERVIEWER'S NAME

USE REVERSE SIDE OF FIRST COPY FOR DRAWING A MAP IF HELPFUL

REPORTING AGENCY (Complete Name)

(Mailing Address to Which Completed Disposition is to be Sent)

INVESTIGATING AGENCY_____ **DISPOSITION** DATE OF DISPOSITON_____ INVESTIGATOR:_____

IF **INFECTED** ENTER DISEASE AND STAGE IN APPROPRIATE BOXES BELOW

ACTION TAKEN	DISEASE	STAGE
BROUGHT TO TREATMENT (Previously Untreated This Infection)		
RETURNED TO TREATMENT (Previously Treated This Infection)		
UNDER TREATMENT		
ALREADY TREATED		
REFUSED TREATMENT		
OTHER (Specify)		

IF **NOT INFECTED** OR DIAGNOSIS NOT ESTABLISHED, CHECK BELOW

- ☐ LOCATED—UNCOOPERATIVE—NOT EXAMINED
- ☐ NOT INFECTED
- ☐ CANNOT LOCATE—REASON:
- ☐ MOVED (If Known Enter New Address On Reverse Side)
- ☐ INSUFFICIENT INFORMATION TO BEGIN INVESTIGATION
- ☐ EPIDEMIOLOGIC TREATMENT—SYPHILIS
- ☐ EPIDEMIOLOGIC TREATMENT—GONORRHEA
- ☐ OTHER (Specify)

General Comments

In closing, a few general observations should be made.

1) If prostitution is a problem in syphilis control, it is recommended that control of prostitution be a function of the police department rather than of the health department.

2) Training of physicians, laboratory technicians, nurses, interviewers, and clerical personnel must be an intensive and continuous process.

3) National leadership and financial support must be maintained for a successful syphilis control program.

4) Stress should be laid on the *fundamentals* of control where one's budget does not permit other worthwhile but more costly procedures.

5) Program data should be continually analyzed so as to evaluate successes and failures and revise assessments of the extent and distribution of the syphilis problem.

6) Professional education should be aimed at private physicians, stressing the need for complete case-reporting.

GONORRHEA CONTROL PROBLEMS

Dr. Antonio Campos Salas[1]

PRINCIPAL CHARACTERISTICS OF THE DISEASE IN RELATION TO ITS CONTROL

Gonorrhea is the most prevalent of the venereal diseases and one of the most common bacterial infections in adolescents and adults, occupying, together with syphilis, a very prominent place among the 10 chief causes of morbidity. A pronounced upward trend is evident from the statistics available in countries that maintain reliable records; there is also a growing divergence between the curves representing the incidence of syphilis and of gonorrhea, with a greater rise in the latter.

Gonorrhea attacks only humans and is transmitted almost exclusively by sexual contact. It is prevalent among promiscuous persons and occurs with greatest frequency in large cities (*1, 2*), where numerous factors combine to reduce the stability of sexual relationships. The national statistics on the disease reflect primarily the situation in the larger population centers and thus provide an incomplete and far from representative picture of the situation in the various regions of a country.

There is no natural immunity to the disease, nor do previous attacks confer immunity, and all persons harboring *Neisseria gonorrhoeae* in the genital tract or anorectal canal are contagious, whether they themselves are symptomatic or asymptomatic. The short incubation period means that very soon after exposure, usually three days, there are additional persons carrying the disease; in fact, it could be stated that the spread of gonorrhea is by geometric progression, compared with arithmetic progression in the case of syphilis.

The infectious agent, *N. gonorrhoeae,* has recently been cultured in special media and occurs in four morphologically distinct clonal types, only two of which have been found to be virulent (*3*).

Gram's method is the one recommended method for investigating the gonococcus in males infected with acute gonorrhea (*4, 5*), since it gives satisfactory results in the great majority of cases. The method is not successful with infected women, for whom the culture method has to be used. Since the standard cultures do not reveal the gonococcus in a large percentage of the women harboring it, even when carried out under ideal conditions (*6*), it is essential to use a special selective antibiotic medium—fortunately developed a few years ago by Thayer and Martin—which is the one advised at present.

It is a medium in which only the pathogenic *Neisseria—N. gonorrhoeae* and *N. meningitidis* —will grow and which can be used to eliminate the saprophytes and bacterial microorganisms that contaminate specimens taken from the vagina, cervix, and rectum (*5, 7, 8*), the most suitable ones for bacterioscopy. Culture in this medium permits presumptive diagnosis of gonorrhea when colonies of a typical morphology

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develop, which are in addition positive to oxidase and made up of Gram-negative intracellular *Neisseria* (*4, 9*). This diagnosis is virtually equivalent to the definitive one, which requires the sugar fermentation test. Moreover, this culture technique in a selective antibiotic medium does not require highly trained personnel, costly equipment, or special installations, and can be applied at relatively low cost.

Gonorrhea produces in men acute symptomatic urethritis that is easily diagnosed, and at times rectitis that is often asymptomatic. In contrast, the asymptomatic form is the most usual in women (*1, 9, 10*), profuse leukorrhea being infrequently of gonococcal origin; diagnosis must accordingly be based on bacteriological evidence and a history of sexual contact with an infected man (*9*).

Some points regarding the treatments at present employed as the chief means of controlling gonococcal infections should be mentioned, from the viewpoint of epidemiological considerations and the preferred drugs currently in use.

Epidemiological Treatments

Since the usual state of infected women is asymptomatic, treatment based solely on epidemiological data is amply justified, for example, in the case of a woman who has had recent sexual contact with a man suffering from urogenital gonorrhea. This is so because of the practical difficulties of obtaining bacteriological proof of the presence of the disease, coupled with the need to eliminate infection sources as quickly as possible (*1*).

Preferred Drugs

Numerous researchers in various countries have isolated, both *in vivo* and *in vitro*, strains of *N. gonorrhoeae* with increased resistance to penicillin and other antibiotics (*5, 7, 9, 11, 13*), and the result has been a higher treatment failure rate when these drugs are applied in doses that were previously effective. At the same time, it has been shown that the resistance to penicillin is relative, not absolute, so that penicillin continues to be the preferred drug (*13, 15*), provided it is used in optimum dosages in order not to favor the continuation of infection foci and the development of new strains of the gonococcus less susceptible to the drug.

Penicillin preparations with long-lasting effect, such as procaine with aluminum monostearate and benzatine, which in the past had proved their effectiveness in the treatment of gonorrhea, are today the ones being chiefly blamed for the change in susceptibility. This is because they produce prolonged penicillin levels in the blood which are below the minimum concentrations lethal to certain gonococcus strains, with the results that only those most sensitive to the drug are killed while the more highly resistant ones survive (*7*). Reports have been received from various places of males with the most highly resistant gonococcal infections who were infected by prostitutes who had been periodically injected with long-acting penicillin to prevent venereal diseases. Prophylactic treatments of this type for prostitutes, which appear to be effective in preventing syphilis, are not advisable as far as gonorrhea is concerned (*9*), since they favor the development of gonococcus strains with higher penicillin resistance, and may also change a symptomatic infection into an asymptomatic one without making it less communicable. At the present time, therefore, penicillins with short-term action—i.e., those producing higher concentrations in the blood—should be used instead of the long-acting types (*4*), but always taking into account the drawbacks involved in applying doses smaller than those recommended.

ESSENTIAL COMPONENTS OF CONTROL PROGRAMS

Programs for the control of venereal diseases, including gonorrhea, comprise a series of activities intended basically to break the chains of transmission and eliminate the sources of infection, that is, to prevent the appearance of new cases and to cure existing ones. How-

ever, as only a proportion of those infected see a doctor of their own accord (either at his private practice or at clinics and similar institutions), those who do not come for treatment have to be sought out.

The directors of public health services, keeping the primary objectives constantly in view and using the available information on extent of the problem and existing resources, draw up the control program and plans for its implementation that will involve the efforts of civil, military, and social security institutions providing medical services, the medical profession (particularly private physicians), key persons in communities, and the public in general.

The basic activities, which are closely interconnected, are directed toward the treatment and the detection of cases.

Those related to treatment are concerned principally with: (a) encouraging infected persons to report to physicians of their own accord, by means of appropriate health education and the improvement of the care provided by medical services; and (b) obtaining the active and effective participation of private medical practitioners.

Promotion of Treatment on Patient's Initiative

The proportion of infected persons seeking medical care of their own accord should be increased in order to reduce the number that have to be sought out, this number being far greater for gonorrhea than for syphilis. Therefore, in the control programs particular attention is paid to furnishing information on venereal diseases as part of health education, and to having the public health services and, as far as possible, private clinics, provide accesible and acceptable medical care to persons requesting it.

a) *Educational Work*

Venereal disease education in the community, and particularly among the most exposed groups, is highly important for encouraging infected persons to come forward of their own initiative, insofar as it promotes personal and collective attitudes favorable to the prompt seeking of medical care. Whether many of the persons exposed to the risk of infection actually become infected, and if so, whether they avoid infecting others and go promptly and of their own accord to a doctor for diagnosis and treatment until fully cured, will depend on the degree of venereal disease education achieved in the community. The results, of course, will depend on the emphasis that is placed on such questions as how the diseases are caught, how they show up and are transmitted; their importance for the individual, the family, and society as a whole; and what should be done at the least suspicion of infection. The defense against venereal diseases lies in the individual, and all the types of prevention to avoid infection or its complications are subject in the last analysis to the decision of the person concerned. The understanding each person has of the disease, and the suitability of the medical services available to him, will be of considerable influence in such decisions (*16*).

Unfortunately, however, such health education has a major limitation as regards gonorrhea, and this limitation applies to the very group that makes up the largest reservoir of infection, i.e., the many asymptomatic women who cannot be expected to seek treatment since they lack the stimulus of symptoms.

Education and information for persons suffering from gonorrhea may be provided by the physician during consultation and oriented mainly toward preventing reinfection or the infecting of others, and also toward obtaining the patients' cooperation in the tracing of his contacts. The impact that a doctor's advice has undoubtedly makes it the best opportunity for instructing patients in the basic facts of the matter. Education for the most exposed groups can be provided under the general programs carried out by the responsible personnel. The sex education of adolescents and young adults, which is admitted to be of great value in the control of venereal diseases, should be carried

out with the participation of the family, the school, and community organizations.

Education and information work therefore not only helps but is in fact essential for making possible the treatment of infected persons—the central objective of control programs.

b) *Effective and Acceptable Venereal Disease Services*

A favorable attitude on the part of those infected, and sometimes even their decision to seek medical attention, will be of little avail if the care and treatment available do not combine the necessary conditions to be acceptable, or the services involved do not possess the minimum resources they need to provide the most precise diagnosis and correct treatment. There can be no doubt that venereal disease services that fail to show proper tact and respect for the modesty, personality, and cherished interests of those with whom they deal only drive patients away from treatment. Typical examples of tactlessness and lack of discretion are services that are used both for individual patients and for group medical examinations of prostitutes. Moreover, diagnosis and treatment are often based exclusively on clinical findings, without the normally indispensable bacteriological confirmation, either because no laboratory services are available or because those on hand are inadequate, so that the physician cannot be absolutely certain he is applying the correct treatment. Therefore, the services concerned should not only meet the requirements mentioned but should also have the trained personnel and facilities needed for identifying *N. gonorrhoeae,* with the appropriate culture techniques, as well as adequate supplies of drugs approved by the health authorities for venereal disease treatment.

c) *Effective Participation by Private Medical Practitioners*

Despite all the value of having infected persons seek medical care, it will not contribute much to gonorrhea control unless the physicians fully play their part in each and every case. Their particular role is viewed as comprising an "indivisible whole" made up of: establishing correct diagnoses based on clinical and laboratory findings; starting treatments that utilize the best drugs in the optimum doses; investigating contacts for the detection and treatment of new cases, including epidemiological treatment; instructing patients on how to avoid both reinfection and infecting others; and reporting the case to the appropriate health authorities.

It is estimated that in many countries private practitioners treat the majority of venereal infections, even in cities where the sale of antibiotics without prescriptions and treatment by pharmacists are commonplace. For this reason, the cooperation of the private practitioner is basic in all the activities carried out under a gonorrhea control program, since without it no institution or group of institutions, however well organized or equipped, can hope to operate such a program successfully.

The extent to which the private practitioners' participation in the handling of their gonorrhea cases is correct or erroneous, complete or insufficient, depends not only on their basic professional training, but also on their having kept their knowledge of the subject up to date, on their having available reliable laboratory services for identification of the gonococcus as well as other facilities for the full accomplishment of their task, and also, finally, on the extent to which they consider themselves important partners in the control programs. The furnishing of information on medical advances in this field, and the arousing of the practitioners' awareness of their own role, are of course responsibilities of the public health administrators.

Three main means have proved effective in obtaining the practitioners' cooperation: offering them opportunities to bring their knowledge of venereal disease diagnosis and treatment up to date; providing them with facilities for the handling of their cases; and assisting them in every way possible in dissemi-

nating information they wish to make known, either to professional groups or to the population as a whole. Fortunately, physicians individually and collectively readily accept specific information regarding recent advances in venereology, including data on the extent of the problem locally and nationally, on control programs and activities in progress, on results obtained, and on the form in which their cooperation is most effective. As regards other assistance, patients' laboratory and advisory services for diagnosis and treatment, under a system that does not jeopardize either their reputations or their financial interests, are of particular value to them.

Detection of Cases

However many infected persons are led to seek treatment through improved health education and medical facilities, there is always a large group who do not. And these are the very ones who have to be sought out since it is they who are the most dangerous in spreading the disease, which they continue to pass on while very often being unaware that they are themselves infected. Consequently, the detection of unwitting cases and ones unknown to the medical authorities is one of the most important stages in control programs.

For a variety of reasons, infected women make up the greater proportion of the persons who fail to seek treatment. To begin with, since the disease generally occurs in them in its asymptomatic form, they are virtually unaware there is anything amiss, except for those who notice a vaginal discharge of gonococcal origin and do not know the reason for it. In addition, modesty, shame, and fear of what may happen if other persons learn of their trouble also cause women to be less likely to request medical care. There are therefore good reasons why the number of cases to be sought out includes more women than men. The statistical data available confirm this, since they show a larger number of men with the disease than women, which seems out of line with reality in view of the way in which it is communicated.

The infectiousness of women with the asymptomatic form has been demonstrated experimentally in a conclusive fashion (*17*). The problem presented by asymptomatic cases is complicated by the fact that men have also been found harboring gonococci in the urogenital tract without showing clinical evidence of the disease; the epidemiological importance of this is under study.

The fact that so very many female cases are both asymptomatic and infectious is a major difficulty for the control of gonorrhea. The bacteriological means for diagnosing it are neither quick, simple, nor absolutely certain, and there is no specific serologic reaction. Hence the position is different from that with syphilis, where identification of the treponema is straightforward and immediate, a large percentage of infected persons are asymptomatic but not infectious, and there are specific serologic tests for detecting them.

The following procedures are the only ones that can be applied for case-detection at present: venereal disease education stressing each and every one of the activities and measures against the disease; study of both the sexual contacts admitted by the patient and the persons in his social circle whom he considers would benefit from a medical examination; and for the latter purpose, the seeking out of cases in selected groups in areas where there is a high incidence of the disease.

a) *Investigation of Contacts*

A serious matter in gonorrhea control is that the investigation of contacts has many more limitations than is the case with syphilis, and it has not been possible to develop other epidemiological methods effective in checking the rapid spread of the disease (*1, 11, 13*). Contact-tracing, of little enough effect for gonorrhea in general, is virtually useless in the case of promiscuous infected women, particularly prostitutes, who are rarely able to provide information that can serve to identify and locate their contacts. The difficulties of using this method are compounded by the tremendous number of persons with gonorrhea who have to be seen (four or more times the number

with infectious syphilis), the number of visits to be made, and the physical examinations to be carried out. The volume is such that the public health services simply cannot cope with it in addition to the investigations required for infectious syphilis, which is considered to have the greater priority. However, under the working conditions prevailing in the majority of venereal disease services, some investigation can be done with the cooperation of the patients themselves, apart from that conducted by the available field personnel.

The best way to carry out an investigation is to use only properly trained, full-time personnel. If this is not possible, official medical and paramedical personnel, with informal training, can do the job with the obvious limitations. In such cases, the physician obtains from patients the necessary information on their contacts and directions on how best to locate them; arrangements are then made for the contacts to be medically examined by visiting nurses or social workers, who do this as part of their regular work. To facilitate and speed up this work, some services ask the patients themselves to help in tracing their contacts, when they know them well and are prepared to cooperate. This system is more effective if the patients are given referral cards which their contacts can hand in to the health service of their choice, or to a private practitioner who knows the key and can give the appropriate examination.

b) *Case-Finding*

Case-finding is carried out among adolescents and young adults who attend clinics located in areas with a high incidence of venereal disease. Study of the occurrence of asymptomatic gonorrhea in certain groups most exposed to venereal risks (*18*) has shown that the greatest number of cases is found, in descending order of frequency, in: women who have been in contact with known cases; women who enter prisons; men attending venereal disease clinics for reasons other than gonorrhea; and finally, women attending obstetrical clinics. In this way it has been observed that proportionally more cases of asymptomatic gonococcal infection are found among women than men in similar groups. Consequently, it is advisable that case-finding activities be undertaken in prenatal, gynecological, early cancer detection, and family planning clinics, as well as by prison medical services and venereal disease clinics.

Treatment of Cases and Contacts

This is one of the fundamental activities in the control of gonococcal infections, since it leads to the prevention of new cases and the curing of existing ones.

The difficulties of treating gonorrhea have been steadily increasing. A growing number of failures have been reported from all quarters, due mainly to the circulation of gonococcus strains which, having become less susceptible to drugs that used to be effective, can be eliminated only by the use of increased doses.

It is essential that physicians be kept up to date as regards treatment, so that they may apply it correctly. For example, they should know that the penicillin resistance shown by numerous gonococcus strains is relative (*15*), and that penicillin is still the preferred drug provided it is given in the proper doses, i.e., large enough to produce sufficiently high blood concentrations to eliminate the more resistant strains, since in doses below the optimum it may favor the appearance of resistance, lead to more treatment failures, and waste opportunities to eliminate sources of infection. Physicians should thus know that at present penicillin should be used except in cases of intolerance to this drug; they should be made to understand that to select the drug and the dose for treating gonorrhea, they should rely on the information provided by the public health authorities, who can tell them which ones have been clearly shown to be the most effective.

The limitations of gonorrhea control activities and the adverse effects of many factors influencing the spread of the disease are evident. However, there are various possible ways of increasing the effectiveness of measures aimed at prevention and treatment, and of

making better use of present and future resources. Important advances have already been made in the methods for identifying the gonococcus and for transferring specimens to central laboratories so that the microorganism will survive until it can be cultured. Much more has been learned also about *N. gonorrhoeae* and the disease. For example, the previously mentioned discovery of four morphologically distinct clonal types (*15, 19*), only two of which are virulent, has provided a solid base for valuable research on new techniques and methods that will speed up the development of new means of combating the disease, or strengthen or supplement those already available. Another example is the recent transmission of gonorrhea to five chimpanzees at the U.S. Public Health Services's Venereal Disease Research Laboratory in Atlanta, Georgia. The essentially practical studies that are being centered around these cases, on the course followed by the infection, the production of antibodies, possible clonal changes in the gonococcus, tissue changes in the urogenital tract, etc., are for the first time opening up new prospects for experimenting with other species of animals and for obtaining a specific serologic test and a reliable vaccine.

There is renewed interest in the development of perfecting of bacteriological methods and means of transporting specimens, antigens for cutaneous tests, better medications proved by the responses of virulent strains of the gonococcus to different drugs and dosages, and of course, an immunizing agent conferring specific protection, together with reliable serologic tests for detecting asymptomatic cases.

In the meantime, there are numerous and highly promising measures than can be taken in the present situation. For example:

a) If ignorance of the nature of the disease is the reason why many people become infected, fail to seek treatment, and continue to act as foci of infection, then it is logical to intensify educational work, especially among the groups that are the most exposed.

b) If because of insufficient participation by private practitioners numerous opportunities are missed for making correct diagnoses and prescribe the right treatment, contacts are not investigated or epidemiological treatments not applied, health education is not given to patients and the reporting of cases is not improved, then every possible effort must be made to update the physicians' knowledge of venereal disease treatment and to involve them in the control program as active allies in a joint effort. The participation of pharmacists should also be enlisted in instances in which their cooperation is considered desirable.

c) If because of a lack of tact and discretion on the part of the consultation services some infected persons fail to seek treatment, it is obvious that steps should be taken to remove these real obstacles, which tend to nullify the most important activity in control.

d) If the shortage of venereal disease services is such that there are infected persons without access to medical care, as a first step full use should be made of the laboratory networks and medical services provided by the public health agencies. This implies, on the one hand, that the laboratories should be equipped (at least in the major cities) to identify the gonococcus by culture in selective antibiotic media, and to offer this service to private practitioners; and on the other, that no person suffering from gonorrhea who reports to a public medical service should fail to receive immediate, adequate, and free treatment.

e) If through inadequate investigation of contacts many of them are not located and examined, it is advisable to seek the cooperation of the patients by means of appropriate health education given by the physician during consultation, in order to have them help with this important work.

f) If, as commonly occurs in places where there are controlled systems of prostitution, large numbers of men are infected by women who are subject to regular medical examinations, treated when deemed infected, and occasionally given prophylactic treatments almost always comprising long-acting penicillin preparations, it is common sense to ensure that the men who consort with these prostitutes

should be made clearly aware of the false security which these women offer as regards risk of infection.

g) If the shortcomings in the gonorrhea control system are largely due to inconsistencies in the implementation of activities considered basic, it is essential that these be strengthened and integrated with the general working programs, above all in the major cities where the need is greatest.

h) If the growing scale of international movements of population contributes to the increase in gonococcal infections, it is a duty of the American nations involved to join forces under the auspices of the Pan American Health Organization in order to establish or strengthen measures to reverse this trend. In particular, it is necessary to speed up the standardization of normal and basic procedures, including the regularity and promptness of exchange of epidemiological information on cases and contacts; to intensify gonorrhea control within the venereal disease programs; to pursue epidemiological investigations in the field, seeking better means of locating gonorrhea in the community; and to make it possible for physicians, in both their private and their institutional practice, to base their clinical diagnoses and treatments on data furnished by international public health laboratories, and to participate with those laboratories in determining the susceptibility of circulating gonococcus strains to various drugs, especially penicillin and tetracycline. Moreover, the operation of integrated binational venereal disease services in border regions, as done by the U.S.-Mexico Border Public Health Association in recent years, has been of great value in strengthening local venereal disease programs in various "twin" border cities. At the periodic meetings of these "binational local health councils," the persons concerned with venereal diseases have been able to exchange valuable information on the extent and development of the problem and on the program's successes and failures, contributing ideas and experience and promoting mutual assistance in improving the reporting of cases and contacts, epidemiological investigations, health education, and joint utilization of laboratory resources. All of this naturally helps to foster friendship, understanding, and cooperation between the countries concerned.

GONORRHEA CONTROL PROBLEMS

The problems standing in the way of gonorrhea control are both highly complex and varied and closely interrelated. In the following summarization, only the most significant aspects are touched upon, and the order of their presentation is not intended to imply any specific order of importance.

Problem No. 1. The number of persons suffering from gonorrhea is very large and the disease is continuing to spread very rapidly, as a result of a wide variety of factors.

Reflecting this situation is the greater prevalence of gonorrhea among the venereal diseases —which rank among the 10 principal causes of morbidity—and the sharper upward trend of gonorrhea, as compared with syphilis in different countries.

Its rapid spread is favored by the large numbers of persons suffering from infectious forms and of susceptible persons in every community of any size, and also by many other circumstances deriving mainly from the natural history of the disease, human behavior, and economic and social development.

Besides the short incubation period, which helps the rapid multiplication of cases, other significant factors are: (a) the possibility that the "transmission-exposure" index may be very high, since during the sexual act the gonococci are located directly in sites ideal for their survival and multiplication (male urethra, cervix of the woman, and the rectum in both); (b) increased extramarital sexual contacts resulting from the relaxation of traditional morals in certain social groups in various countries, and the freer relationships among adolescents and young adults; (c) the incentive created both by the growing use of contraceptives (*8, 20*), and by the false belief in safeguards against infection, as is the case with prostitutes who operate

with written or verbal medical authorization.

Other contributing factors are: the asymptomatic state of most infected women, who go without treatment because they are unaware of their condition; the maintenance of infection foci owing to treatment failures and apparent cures; and the growing mobility of certain population groups and the overcrowding in economically and socially depressed areas of large cities (*20*).

Problem No. 2. For the moment, gonorrhea control consists basically in treatment to cure and prevent infection. In practice, however, it is very difficult to detect infected persons and hence to cure a sufficient number of cases and contacts to check the rapidity of the disease's spread.

The difficulties in seeking out those who do not spontaneously come for treatment stem mainly from the inadequacy of the procedures used for this purpose, the incomplete understanding of when, where, and how cases occur, and the lack of funds for this work. As regards gonorrhea this inability to track down cases and bring them to treatment is a serious matter, because practically all such persons will be sources of infection who will continue spreading the disease; and the situation is aggravated by the fact that asymptomatic women predominate among the undetected cases. Venereal disease education has little effect in encouraging these women to seek treatment, while contact-tracing on the basis of known male patients (which must be done quickly if it is to be of any use) is usually beyond the capabilities of the public health services because of the large numbers of patients involved. Moreover, these cases can be diagnosed only by the identification of *N. gonorrhoeae* through culture in selective antibiotic media, and this technique—at present practically the only one advisable and feasible—is not yet applied in the majority of the laboratories used for venereal disease work.

Problem No. 3. Because of insufficient participation by private practitioners, who are estimated to attend to the majority of cases, many opportunities to correctly diagnose and treat cases and contacts are being missed, as are opportunities to educate patients concerning venereal diseases, investigate contacts, and obtain case reports.

It has been pointed out how frequently private practitioners treat men with urethritis and women with vaginal discharges without arranging for the laboratory tests required for confirmation of the etiologic diagnosis and cure. The antibiotics they select and the dosages they prescribe are not always the most appropriate ones; and they play a very small part in the investigation of contacts and application of epidemiological treatments. As regards records and reports, their statistics are very scanty or nonexistent, and many professionals report few if any of their cases (*21*). The effective cooperation of private physicians depends principally on the updating of their knowledge on the subject, on their having available reliable laboratory services for determining the presence or absence of gonococcus by the most certain techniques, and on their feeling that they are real partners in the control work. As regards etiologic diagnosis, there are serious practical obstacles to this in most localities, even the large cities, so that diagnosis is frequently based solely on clinical data and treatments are determined in the same way. Obviously, the active and effective cooperation of private practitioners depends to a large extent on the efforts made to achieve it.

Problem No. 4. There is a need for practical instruments for the prevention of infections; for the prompt and accurate etiologic diagnosis of cases, and for large-scale examination of selected population groups; i.e., a vaccine for specific protection is needed, together with more easily applied laboratory methods for the immediate and precise identification of the gonococcus and a serologic test specifically for the detection of infected persons.

The lack of an immunizing agent means that prevention of new cases has to be made subject, basically, to: (a) the conduct of individuals

likely to be exposed, which has not so far helped in preventing infection and reinfection in persons from different social, economic, and cultural strata; and (b) the rapidity with which infection sources in the community are eliminated by treatment, an objective which has not yet been achieved to any acceptable degree. It will in any case be obvious that infectious diseases cannot be eliminated by means of drugs alone (*11, 13*), however effective they may be; this is particularly true of a disease such as gonorrhea, because of the mode of its transmission, its highly contagious nature, and the speed with which it spreads. Vaccination, together with specific treatment, would supplement the basic methods for combating these communicable diseases and open up new prospects for an adequate control program.

The lack of suitable techniques for detecting the presence of *N. gonorrhoeae* with the ease and speed required to establish correct diagnoses and effective cures introduces an element of uncertainty and an obstacle to both the treatment of those who need it, the investigation of the contacts of persons diagnosed as infected, and the discharge of patients who are actually cured. Finally, the lack of a specific serologic test, which would help overcome the barriers to control of the infection, becomes all the more serious if it is borne in mind that the vast reservoir of infection sources is made up of asymptomatic women who cannot be detected by the present measures and who cannot be expected to seek medical treatment without the incentive of symptoms.

Problem No. 5. Gonorrhea control is assigned a very secondary place in venereal disease programs, even in large cities where the disease is a major public health problem.

The activities carried out to interrupt the transmission chain and cut down the infection sources are in fact incomplete and inadequate, at times only symbolic and occasionally erroneous. Such is the case with periodic medical examinations of prostitutes, with or without the application of prophylactic treatments, which in such cases are not only valueless as preventive measures but even harmful, for a number of reasons. Moreover, because of the inadequate attention given to control of the disease, many public health laboratories in important cities are not equipped to identify the gonococcus by the most accurate laboratory methods, or to offer this service to physicians so that they may confirm bacteriologically their diagnoses of gonorrhea and the cures effected by treatment (*9*).

SUMMARY

The seriousness of the problems affecting gonorrhea control and the undeniable fact of its recrudescence are factors to be reckoned with. In view of the advances achieved with laboratory methods for identifying the gonococcus and penicillin's continuing effectiveness in treating the disease, we do not share the pessimistic view that new drugs and new methods must be found before action is taken to cope with the situation. What must be done is to review our present activities, assess the results obtained, weigh the main obstacles to control, measure the resources available and assess their limitations and possibilities, compare experience—and, on the basis of all these considerations, draw up better plans for imparting fresh momentum to the fight against this disease. As has often been said, by merely starting on a task one has already gone a good way toward its completion. The campaign to control gonorrhea must be started up afresh, with new and greater enthusiasm, better organization, and all the national and international resources it is feasible to combine. The growing consensus that gonococcal infections must be overcome, the efforts being made by the Pan American Health Organization to bring this point home in the Americas, and the results that may be expected from these Technical Discussions on "Venereal Diseases as a National and International Problem" are clear signs that this new undertaking has already been set in motion.

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PSYCHOLOGICAL, SOCIAL, AND CULTURAL ASPECTS OF VENEREAL DISEASES

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Among members of the various health professions there is general agreement as to the influence exerted by social factors on the distribution and control of venereal diseases. However, there has been little systematic research into this relationship, although hypothetical propositions colored by subjective judgments abound. Among the reasons for this lack of research are methodological difficulties and the absence of a framework of psychosociological theory. Moreover, because venereal diseases are directly linked to sex, the study of the subject brings us into a highly emotional area, making objective analysis of the problem difficult.

The basic objectives sought in the present study are: (a) to systematically outline the existing information on the psychological, social, and cultural factors influencing the distribution and control of venereal diseases; (b) to indicate the gaps in this information; and (c) to suggest lines of research that will help shed light on the role played by these factors in venereal diseases.

EXISTING KNOWLEDGE OF PSYCHO-SOCIO-CULTURAL FACTORS AFFECTING THE NATURAL HISTORY OF VENEREAL DISEASES

Disease, viewed as a process, implies a number of successive phases, which can be divided into two major categories, prepathogenic and pathogenic (*1, 2*). The prepathogenic phase comprises the preliminary interaction between the potential agent of disease, the host, and environmental factors. The pathogenic phase begins with changes in the structure and function of the organism, generated by the disease agent, and ends with recovery, disablement, or death.

In the case of the venereal diseases, there is an imbalance between the advanced state of our knowledge of biological factors and the little information available on psycho-socio-cultural factors, the latter being of basic importance during the prepathogenic stage because they affect the interaction between agent and host.

Since venereal diseases are transmitted mainly through sexual contact, the question arises as to what type of sexual relationship entails the highest risks, and subsequently, what factors are conducive to the type of relationship identified as the most dangerous. The three characteristics of sexual relationship which the literature on the subject commonly associates with the transmission of venereal diseases are: frequency of sexual relations, choice of partner, and number of persons with whom sexual contact takes place.

The greater frequency of sexual relations has been cited as a factor responsible for the increase in venereal diseases in recent years (*3*). Some writers attribute the increase to the availability of new and more effective contraceptives and to the use of antibiotics, since these lessen the fear of pregnancy and of venereal diseases (*4-6*). The evidence afforded

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by research studies, however, does not bear out the existence of a direct correlation between greater sexual activity and the increase in these diseases.

The widespread belief that sexual activity and promiscuity have increased in recent years has been called in question by several writers. According to Gagnon and Simon (*7*), there is evidence that sexual behavior had altered very little in the United States of America in the past four decades. The false impression of change may be due to a real change in the approach to sexual problems, discussion of which is no longer a private but a public matter.

It has also been held that the probability of infection and disease propagation increases with the rise in the number of sex partners and the number of persons with whom the partner of a specific individual has sexual relations. But as in the case of the characteristic discussed above, the important factor would seem to be the indiscriminate choice of partner rather than the number of partners, because it brings the individual concerned into contact with the highest-incidence groups.

Methodological problems such as ambiguity in definitions, variations in indicators, and the "ecological fallacy," as it is called, make it difficult to draw conclusions from research on sexual relations with reference to venereal diseases. An approach designed to pinpoint the elements in sexual relations relevant to the venereal disease problem is that suggested by Loeb (*8, 9*), who takes into account two of the aforementioned characteristics: number of persons with whom a given individual has sexual relations over a specified period of time, and degree of care exercised in the choice of partner. By combining these two variables, one can arrive at a typology useful for classifying sexual contacts in accordance with the degree of risk of infection and disease propagation. Table 1 presents a simplified adaptation of Loeb's system.

The A-type of relation is the one involving least risk of infection and propagation, because the persons concerned do not come into contact with groups in which the disease incidence is high; it is the type found in stable relationships, such as marriage and consensual unions. Case D is at the opposite extreme, and may be termed a promiscuous relationship, with or without profit-seeking motives. Promiscuity will therefore be defined as sexual relations with several persons indiscriminately or casually chosen. Of the four types, D involves the highest risk and is the most conducive to increased spread of venereal diseases.

TABLE 1–Typology of sexual relations.

Care in the choice of partner	Number of persons	
	One	More than one
Careful selection	A	B
Indiscriminate selection	C	D

The C-type relation exposes the individual concerned to a high risk of infection, although it does not necessarily entail the spread of venereal disease.

This typology takes into account the sexual relations of one member of each pair, and when those of the other partner are considered, a combination of types may result. For example, situations involving little risk, as in type A, may become dangerous if one of the partners maintains indiscriminate sexual relations with other people. A case in point is supplied by Celia S. Deschin (*10*): A girl attending the university and living with her parents had occasional sexual relations with her fiancé. He transmitted the disease to her after he had had relations with a prostitute, to whom a quarrel with his fiancé had driven him. In this case the relation maintained by the female partner was characterized by little risk of venereal infection, but the position became dangerous when the male partner indulged in a casual type of relation.

To be able to assert that the highest risk attaches to promiscuous behavior or a casual sexual contact, it is necessary to show that a large proportion of infected persons or members of high-incidence groups have sexual relations of this type. Although no research on

the sexual behavior of infected persons not under medical treatment is at hand, it can be inferred from various studies that a high proportion of untreated cases maintain indiscriminate sex relations.

Accepting the fact that promiscuous sexual relations, especially those of a casual type, facilitate the spread of venereal diseases, published research must be examined to see what factors have been detected as important in determining this type of sexual behavior.

Promiscuity and indiscriminate sexual relations have cultural, social, and psychological facets. From the cultural standpoint, it is important to ascertain the prevailing values in relation to sexual behavior, and their variations within countries and from one country to another. The sociologist is interested in identifying the social factors that inhibit or encourage this behavior, and the psychologist is concerned with the motives that induce the individual to defy the prevailing codes of values and to take risks, despite what he knows about venereal infection.

Cultural Considerations

Several writers (*11-13*) agree that in the Western world the prevailing values are in favor of sexual behavior based on love, i.e., on intimate acquaintance accompanied by a measure of stability. Block (*14*) notes the emergence of an attitude consisting in the belief that sexual relations are "right" if there is evidence of affection and fidelity; in the attaching of importance to sex experience in itself, irrespective of its reproductive function; in the recognition that sexual feelings are not "wrong"; and in increased acceptance of a single standard of morality. This new set of norms is commonest among young people, and particularly among those whose educational level is highest (*15*). Such findings would appear to contravene the opinion of some writers who interpret youth's adoption of more permissive sex standards as an attitude favorable to promiscuity.

Variations exist, however, in sexual norms from one country to another and within each society. Subgroups in a given social system may differ so widely as regards prevailing standards and behavior patterns that they constitute clearly differentiated subcultures (*13*).

One of the subcultures to which most study has been devoted, owing to the emphasis placed on promiscuous sexual behavior, is composed of men in the lower socioeconomic classes and young men in general. A typical feature of these groups is the so-called "virility complex" or "tenderness taboo" (*16*). Their tendency to show off their "manliness" leads them to prize such standards as acts of courage, endurance of pain, displays of physical strength, cultivation of a virile appearance, and casual and promiscuous sexual relations (*16-19*). For them, the contraction of venereal disease may also constitute a badge of membership in the category of "real men." The explanation would seem to be that the youths and men belonging to underprivileged social strata do not have accessible and approved means of social mobility, so that manifestations of manliness are among the few things that give them a chance to acquire prestige in their group (*16*).

It is maintained that the high indices of premarital relations formerly found among men in the lower socioeconomic classes seem to be moving downward toward the level of middle-class patterns. The middle-class values that put a premium on the restriction and postponement of gratifications would appear to be permeating other social classes, in consequence of rising income levels and of the number of young people from different backgrounds that now enter secondary and higher education (*7*).

Sociological Considerations

From the sociological angle, it is useful to know what factors produce or increase the types of sexual contacts involving the highest risks of infection and disease propagation: promiscuous relations and those in which the choice of partner is indiscriminate.

Circumstances that remove people from their primary group—such as family, friends, and neighborhood—will facilitate an increase in casual or indiscriminate relations, since the primary group exerts some control over behavior, in line with its accepted standards. Among the middle classes, these standards and values repudiate the indiscriminate or casual type of relationship. Furthermore, people who have left their primary group have more free time, especially in transitional situations such as migration unaccompanied by the family, and this is conducive to casual contacts.

According to the theory set forth, the groups most exposed to risk would seem to be students newly arrived in a large city, recent immigrants without families, tourists, soldiers stationed away from their permanent place of residence, sailors, and participants in conventions, international fairs, or sporting events. A high proportion of those who consort with prostitutes belong to these groups, and are to be found in greatest numbers in large cities.

Immigrants are a high-risk group, and in several countries account for a large proportion of the venereal disease cases. In England and Wales, half the cases of gonorrhea and four out of every 10 cases of primary and secondary syphilis receiving hospital treatment are immigrants (*20*). Their main source of infection is made up of promiscuous women in the locality. Willcox (*20*) states that immigrants have a greater propensity to contract venereal diseases, because in a foreign country they have difficulty—at least during the years they take to adapt themselves to a new way of life—in establishing stable sexual relations. They are often young and sexually active men who are out of reach of the influence of parents, family, and other groups that might exert an inhibiting influence on them. Their sexual needs are met by the few immigrant women available and by promiscuous local women who generally have high indices of venereal infection. The same is true of internal migrations. In a study of migrants to an urban area in the south of the United States, Butler (*21*) found that these people had a greater number of casual sexual contacts than when they lived in rural areas. These two authors conclude that it is the type of sexual contact, rather than the number of partners with whom relations take place, that determines the probability of contracting a venereal disease.

A great many students are also in a stop-gap situation, especially during the first years of their studies, which places them among the high-risk groups. Arya and Bennett (*15*), in a study carried out at the University of East Africa, noted that students from other parts of Africa behaved like immigrants and were exposed to a high degree of risk because they were away from their wives and other relatives who had a regulatory influence on their behavior. As a general rule, according to these authors, students who did not contract venereal diseases were more careful in choosing their sexual partners than those who did become infected. The increase in infection which seems to be observable among adolescents may be due to an increase in indiscriminate relations, owing to the fact that a larger number of young people live away from their families and travel more often than was customary in the past. Control of this factor reduces the significance of others, such as the number of partners and frequency of contacts. Various studies seem to bear out this hypothesis. In a study in Copenhagen of 100 adolescents infected with gonorrhea, Knud Ekstrøm (*22*) showed that only half the patients lived at home.

Psychological Considerations

Knobel (*11*) remarks that in almost all societies the immigrant is blamed for the transmission of venereal disease, and he ascribes this fact to the social necessity of blaming someone who does not belong to the community. Knobel's hypothesis, which is of a psychological nature and would be worth testing, is not at variance with the well-substantiated proposition that circumstances which remove the individual from his primary group may lead him into indiscriminate sexual relations and,

consequently, into contracting a venereal disease.

Obviously, purely sociological or anthropological explanations cannot account for the whole of the phenomenon in question. For example, not all the women emigrating from rural to urban areas end up as prostitutes, nor do all individuals cut off from their primary group indulge in indiscriminate relations; neither do all youths in the lower socioeconomic groups take to sexual promiscuity. Accordingly, what is needed is to introduce personality variables to complete the explanation of the variations in sexual behavior with which we are concerned. Three of these variables should be discussed: (a) the relation between personality and certain sexual behavior patterns considered to entail high risks; (b) the relation between the home environment and certain types of personality; and (c) the interrelationship of personality and social conditions permitting indiscriminate relations.

There are a great many studies on the personality of promiscuous individuals and patients suffering from venereal diseases. Most of them are based on clinical case studies, lacking systematic treatment of the available information, and abounding in interpretations dictated by different schools of psychological thought. A review of the research in this area (*23-25*) reveals that the promiscuous, whether healthy or diseased, are people with manifest psychological conflicts, low levels of self-esteem, and underdeveloped inner controls which incapacitate them for stable sexual relations. They generally come from broken or conflict-ridden homes where an irresponsible father and an unloving mother prevent them from assimilating certain values and standards which enable individuals to restrain impulses that would violate the norms of society (*10*).

This lack of inner control means that the individual is completely at a loss when he moves away from the external control of his primary group, as happens in cases of emigration from rural to urban areas. Rapid cultural changes may lead to delinquency and prostitution, because the newcomer to the city ceases to comply with the standards learned in the rural environment and does not assimilate urban norms. This disorientation, the product of a certain type of personality in combination with a rapid change of environment, makes such people easy victims of economic exploitation. Herein lies one possible explanation of the fact that many city prostitutes originally come from rural areas.

EXISTING KNOWLEDGE OF PSYCHO-SOCIO-CULTURAL FACTORS AFFECTING THE APPLICATION OF PREVENTIVE MEASURES

It seems beyond a doubt that when the factors intervening in the natural history of venereal diseases are better known, new preventive measures will be suggested, in addition to those already in use. Many of the preventive steps recommended today, however, are not fully effective, owing to the influence of psycho-socio-cultural factors.

Preventive measures have been classified by Leavell and Clark (*1*) at different levels which are closely related to the aforementioned phases in the natural history of the diseases. The primary level of prevention corresponds to the prepathogenic phase and the secondary and tertiary levels to the pathogenic phase.

Preventive Behavior in Health

Among the preventive measures suggested at the primary level are sex education, hygiene, prenatal serologic examinations, and the avoidance of sexual promiscuity. How far can health or sex education change behavioral patterns that represent risks for the individual and for the community?

Ignorance with respect to sexual questions and venereal disease transmission is responsible for the contraction of disease in many individual cases, and for such people sex education will undoubtedly help to reduce the risks (*26, 27*). Nevertheless, several studies have shown the inefficacy of health education programs (*27, 28*). Arya and Bennett (*29*) discovered in the course of their research on students that the

advice and group discussions which accompany the treatment of venereal disease patients do not reduce the probability of reinfection. Ekstrøm (*22*) made a similar observation with respect to other types of patients.

These studies appear to suggest that the mere possession of knowledge is not enough to determine rational behavior in regard to disease. Unquestionably, emotional elements are involved which are hard to change because they are rooted at such deep levels of the personality.

Preventive Behavior in Disease

Early diagnosis and prompt treatment are the basic principles of venereal disease control at the secondary preventive level. One of the procedures required is the tracing and treatment of contacts (*30*). King (*31*) asserted in a recent article that properly organized contact-tracing by a sufficient number of capable and devoted workers under hospital direction affords the best hope of first reducing and then eliminating syphilis and gonorrhea. Contact-tracing, even when suitable organization and staff are available, presents difficulties resulting from psychosocial factors which can be classified as follows: (a) insufficient cooperation on the patient's part; (b) negative attitude of health personnel toward patients with venereal diseases; and (c) incomplete case-reporting by physicians.

a) *Insufficient Cooperation from the Patient*

Only a few of the people exposed to infection seek immediate medical treatment (*31*). This state of affairs is not peculiar to venereal diseases, although it would seem that the percentage of those failing to seek medical assistance is much higher than in other types of ailment. The following are factors that were found to be closely related to application for medical assistance in the case of several diseases: the severity of symptoms, and their interpretation as indicators of disease, so that the more serious the early symptoms, the more likely it was that the patient would consider consulting a physician and would in fact do so immediately. In cases where the symptoms were felt to be less acute, self-treatment such as the use of homemade remedies or patent medicines was resorted to (*32*). Again, if the symptoms were interpreted as indicators of disease, it was more likely that the affected person would consider consulting a physician and would actually do so.

Carlson (*33*), in research on factors connected with immediate recourse to medical assistance, finds four explanations for failure to seek medical attention voluntarily: (1) unawareness of early symptoms of venereal disease, especially in women; (2) the patient's idea that a stigma is attached to venereal disease; (3) lack of sufficient information on the course and possible consequences of venereal infection; and (4) fear of treatment and general mistrust of physicians and of specialized treatment centers. As in the case of other diseases, Carlson found that the influence of the primary group carried great weight in the decision to seek medical assistance. Identification with the primary group and close dependence on it—described by other writers as forms of localism—deterred the patient from seeking medical advice and were conducive to treatment at home or by other acquaintances.

Lack of information on the symptoms, causes, and consequences of venereal diseases is very common, as has been shown in various studies (*27*). This finding becomes important if it is borne in mind that the initial diagnosis is made by the infected or probably infected person and that his subsequent line of conduct will depend upon the diagnosis he arrives at. This is why, once a contact has been traced and a diagnosis made by a physician, the patient will have to be persuaded to cooperate in the treatment. A high proportion of the contacts located do not follow the treatment prescribed because they have not defined the disease for themselves and are unaware of its consequences.

In another study, Morsell (*28*) finds that awareness of symptoms is of basic importance in the decision to seek treatment, but that 15

per cent of those who voluntarily sought medical advice had not observed any symptoms, and that 29 per cent of nonvoluntary patients had noted definite symptoms, but had ignored them.

In Morsell's study, the sense of personal vulnerability--awareness of venereal disease as a personal anxiety--constituted an important factor in the seeking of medical assistance when no symptoms were present. Generally speaking, there was a positive relationship between the level of information and the suspicion of infection and application for treatment. Among young men, however, there was a negative correlation between a higher level of knowledge and the speed with which medical advice was sought. Perhaps the explanation is that the knowledge possessed by members of this group may lead them to suppose that they are "in control of the situation," mitigating their fear of disease and therefore inducing them to defer consulting a physician.

The findings of Carlson and Morsell on the determinants of different behavioral patterns with respect to the seeking of medical assistance have also been corroborated by studies of other diseases. This suggests that the psychological and social barriers that prevent people from consulting a physician are much the same for all diseases, but are more marked in the case of venereal infections.

b) *Negative Attitude of Health Personnel Toward Venereal Disease Patients*

The public's view of venereal diseases as a social stigma is shared also by professional health workers (*10*). This negative attitude may be reflected in the treatment which some professionals give to patients, thereby creating in them an uncomfortable feeling possibly leading to rejection of diagnosis or treatment. The iatrogenic effects of mistaken diagnoses (*34*) of venereal diseases have been reported and reveal the impact which a diagnosis of these diseases may have on certain persons who regard them as synonymous with sin and personal debasement.

c) *Incomplete Case-Reporting by Physicians*

Another aspect of the effect which health professionals may have on venereal disease control is the failure to report cases, even in countries where such reporting is compulsory by law. In a study made by the American Social Health Association in 1963 (*35*), it was found that in the United States of America private physicians reported only a small percentage of the cases they treated.

According to a study made by the National Opinion Research Center of the University of Chicago in 1965, the problem did not lie in the fact that some physicians reported such cases and others did not, but that all physicians practiced selective reporting (*36*). The physicians interviewed were more conscious of their role in the physician-patient relationship than of their role as protectors of the community.

The physician faced with the dilemma of protecting either his client or the community solves the problem by reporting some cases and not others (*37*). One explanation of this attitude may be a defect in professional training, which puts more emphasis on the protection of the patient as an individual.

RESEARCH ON PSYCHO-SOCIO-CULTURAL ASPECTS OF VENEREAL DISEASES

A survey of the scientific literature available to us on the psychological, social, and cultural aspects of venereal diseases shows:

a) A limited number of confirmed scientific propositions and an abundance of untested explanations.

b) Very imprecise definitions and variations in the use of indicators for measuring relevant concepts such as sexual promiscuity, frequency of sexual intercourse, and degree of care in the selection of a partner.

c) Existence of "ecological fallacies" in many of the interpretations of research findings.

d) Almost complete lack of research on these aspects of venereal diseases in Latin America.

e) Lack of interdisciplinary studies, resulting in a partial understanding of the problem.

f) Lack of comparative studies designed to test very general hypotheses.

It would therefore appear necessary and urgent to encourage research studies in Latin America on the psychological, social, and cultural aspects of venereal diseases, with the dual purpose of helping to discover more effective means of controlling these diseases and of contributing new knowledge in the field of the behavioral sciences.

The most relevant and urgent problems requiring investigation, especially as far as Latin America is concerned, fall into two groups: (a) psychological, social, and cultural aspects of the natural history of venereal diseases; and (b) preventive behavior factors in health and in sickness.

Psychological, Social, and Cultural Aspects of the Natural History of Venereal Diseases

These aspects of the natural history of venereal diseases are related to factors which, in the prepathogenic stage, discourage or encourage contact between the agent producing the disease and the host. Although research has been done on this point the results are not conclusive, and since the studies were made in other cultural contexts, new studies should be undertaken in Latin America.

If suitably designed, studies of the problem should be able (Figure 1):

a) To identify the types of sexual relations involving the greatest risk of contagion and spread of venereal diseases, through a detailed analysis of characteristics of the sexual relationship that facilitated the contagion in some persons and endangered others (noninfected "contacts").

b) To describe the sexual behavior of sick individuals during the period of infection, thus making it possible to identify foci or sources of infection in a given society. This type of study should also provide information about the psychosociological mechanisms that lead many of these sick individuals to continue their sexual activities even when they know or suspect they are endangering other persons.

c) To ascertain the distribution of relations identified as being of high risk in different

FIGURE 1—Research on psychological, social, and cultural aspects of venereal diseases.

A. Psychological, social, and cultural aspects of the natural history of the diseases.

Prepathogenic period → *Pathogenic period* →

FACTORS THAT DISCOURAGE OR ENCOURAGE CONTACT BETWEEN THE AGENT PRODUCING THE DISEASE AND THE HOST

1. Identification of types of sexual relations involving the greatest risks of contagion and spread of venereal diseases.
2. Description of the sexual behavior of individuals with a venereal disease in the infectious stage.
3. Ascertainment of the distribution and degree of institutionalization of the sexual relationships identified as major-risk relationships in different countries and in different strata and groups in each society.
4. Determination of the psychological, social, and cultural factors influencing the type of sexual behavior regarded as high-risk behavior.

groups and strata of a given society. By means of sociometric techniques and starting from diagnosed cases, the highest-risk groups in a given society could be discovered. Knowing that sick persons come from or are in contact with promiscuous groups, these could be traced by obtaining from sick persons the identity of the members of those primary groups with which they maintain relations of any kind: friendly, work, recreational, or sexual. This method has been used successfully by several research workers (*38*).

d) To determine the psychological, sociological, and cultural factors that influence high-risk behavior. These include prevailing values and standards concerning sexual relations and venereal diseases; personality traits such as "propensity to expose oneself to the risk of contagion"; situations that place the individual outside the primary group temporarily, such as geographic mobility, family breakup, and financial situation.

Psychological, Social, and Cultural Factors Involved in Preventive Behavior in Health and in Sickness

These factors in preventive behavior may be classified according to whether the individual is in a state of health (primary prevention) or of sickness (secondary and tertiary prevention).

a) *Preventive Behavior in Health*

Many of the preventive measures recommended at the primary level presuppose appropriate behavior on the part of individuals, who should take care not to expose themselves to situations of risk and should use measures to protect themselves against venereal diseases. We know for certain that such is not the case and that, on the contrary, many persons act irrationally in the face of the danger of venereal diseases.

Finding out why some persons take preventive measures and others do not would facilitate the discovery of new preventive measures and the improvement of existing ones (Figure 2).

One of the simplest theories in this area is that which postulates a relationship between beliefs, attitudes, or knowledge and the adoption of preventive measures. Health education and sex education are based on this type of proposition. However, behavioral sciences have shown that this association is not always present, since in regard to venereal diseases some individuals do not behave in accordance with their knowledge and beliefs, owing in part to social pressures and for psychological reasons.

Among the psychological factors that affect rational conduct, two should be studied more thoroughly: (1) the degree of concern about

FIGURE 2—Research on psychological, social, and cultural aspects of venereal diseases.

B. Psychological, social, and cultural factors involved in preventive behavior in health.

---------- *Primary prevention* ----------

FACTORS THAT LEAD INDIVIDUALS TO TAKE PREVENTIVE MEASURES

1. Influence on the adoption of preventive measures of:
   a) Opinions, attitudes, beliefs;
   b) Personality characteristics, such as "personal vulnerability"; and
   c) Social pressures arising from primary groups.
2. Evaluation of the degree of effectiveness of different information media, and study of the route followed by communications about venereal diseases, with special reference to the role of opinion makers.

the possibility of contagion; and (2) personal vulnerability, or the belief that one may contract the disease. When these two factors are associated with knowledge about means of prevention, it is possible to predict appropriate behavior. To what extent these sociological factors are an expression of a type of personality and how this personality is shaped are questions to which we do not yet have precise answers. However, we can state with a fair degree of certainty that changes in attitude and behavior are difficult to bring about and that they do not occur as a result of mere exposure to information media.

Dr. Theodore J. Bauer (*39*) some years ago reported that the results of his initial efforts to evaluate the effect of information given through the press, radio, and motion pictures were inexplicably discouraging; only a small percentage of the patients coming to the clinic for diagnosis of their disease had seen a film, read a booklet, or heard a radio program on the subject. The reason they most frequently gave for coming to the clinic was that a friend or acquaintance had mentioned it to them. The most curious thing was that the friend or acquaintance had given them correct information.

The findings described by Bauer have been confirmed in other areas and are in accordance with regular patterns of behavior which may be stated as follows (*40*): Mass communication media exert an indirect influence through opinion makers. Opinion makers are individuals who read and listen to communication media, and subsequently transmit information to relatives, friends, and acquaintances. This process is described as a two-stage communication flow. Consequently, communications will be more effective if they are directed at the opinion makers of the group rather than at all the members of the group.

Except for a few isolated observations, we have very little knowledge of how opinion makers act with respect to information about venereal diseases.

The discussion above reaffirms the importance of the primary group in shaping and changing the attitudes and behavior of its members. However, despite the amount of knowledge accumulated by the behavioral sciences in this field, little or nothing has been applied in the area of diseases in general and of venereal diseases in particular.

The influence of the primary group is probably fundamental in behavior concerned with venereal diseases, since we know that these ailments are discussed only with intimate friends.

b) *Preventive Behavior in Sickness*

The behavior of a sick person or a person exposed to contagion has consequences for the individual and for society insofar as he constitutes a focus of infection. The behavior of the patient, the sexual contact, and the physician, and their interrelationship (Figure 3), are discussed under the following headings.

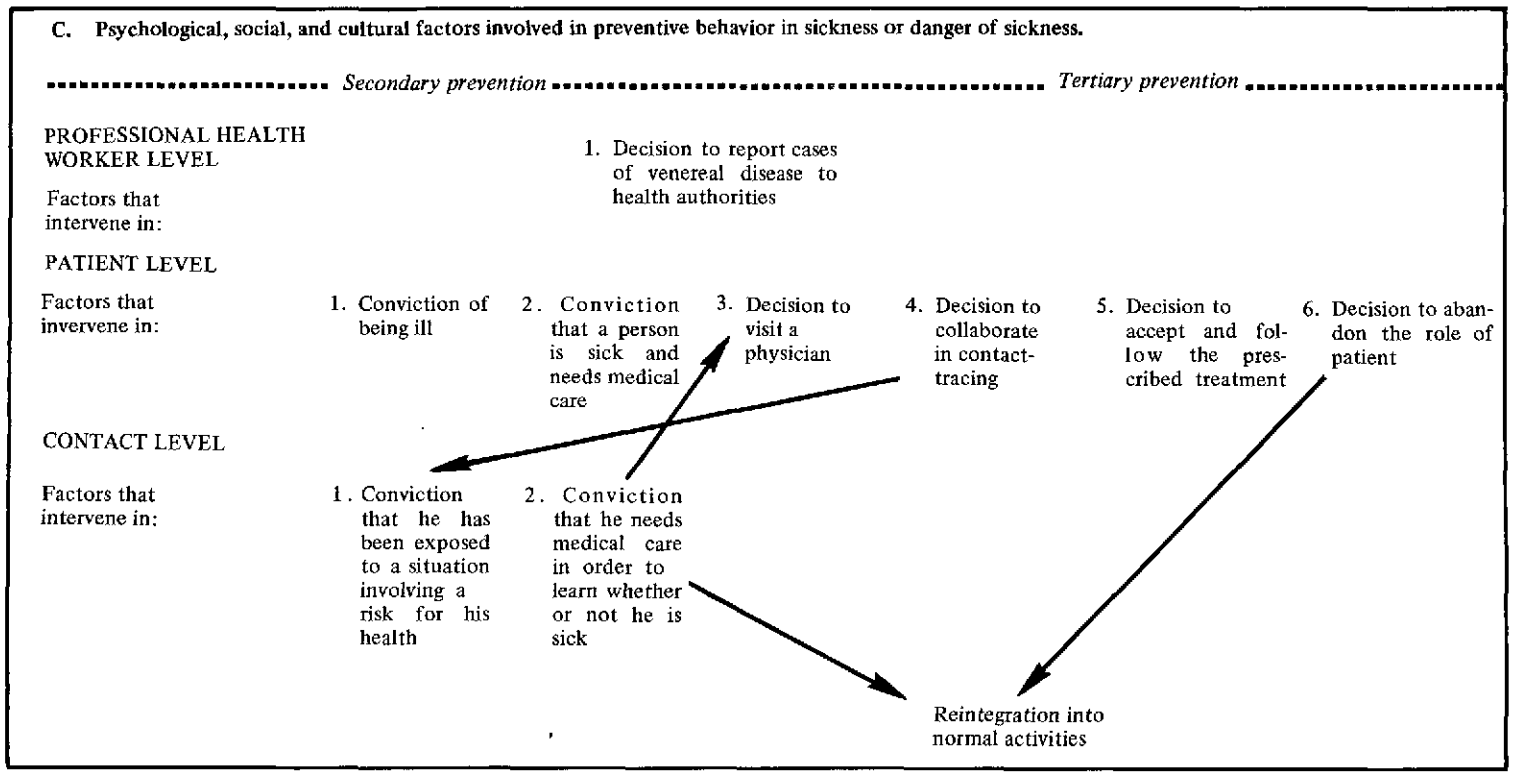
• *Preventive Behavior of the Sick Person*

The sick person goes through a number of stages, in each of which he will have to take decisions that will have repercussions on the development of his affliction and the spread of the disease. These decisions have been described by Shuchman (*41*) for diseases in general and can be applied, with some modifications, to persons suffering from venereal diseases. The goal of the investigator is to discover the psychological, social, and cultural factors determining each of these decisions.

Conviction that he is ill. The awareness of symptoms and their interpretation are basic elements in initiating the process of medical care. So far we do not know what type of symptoms are considered by the healthy and the sick as being most serious in venereal diseases, nor the extent to which they influence the decision to obtain medical attention.

Conviction that he is sick and needs medical care. During this phase the presumptive patient tries to alleviate the symptoms, to obtain information and advice as well as temporary acceptance of his condition by family members and friends. Because of the social stigma

FIGURE 3—Research on the psychological, social, and cultural aspects of venereal diseases.



attached in many societies to venereal diseases, we must ask ourselves which group the presumptive patient consults and which measures he takes to alleviate his symptoms.

Decision to visit the doctor. In this phase the patient tries to obtain a medical diagnosis and a prescribed course of treatment. In the case of venereal diseases many persons resort unwillingly to a physician and may refuse the initial diagnosis or treatment and begin to look for other sources of care, generally "lay" persons who are better suited to their needs and preconceptions. In this phase it is important to study the influence of the attitude and behavior of health personnel on the rejection of medical diagnosis or treatment.

Decision to collaborate in contact-tracing. The reporting of sexual contacts, as we said earlier, is one of the most important elements in venereal disease control. At the same time, it is, for the individual concerned, one of the most difficult decisions to make. To overcome this resistance some physicians have suggested various approaches, but the truth is that we do not know what conflicts the patient must resolve in arriving at a decision and what factors determine it (*42*). Since the role of informer is viewed in our societies as highly reprehensible, implying disloyalty, we may assume that reporting of contacts involves a conflict of the same type. Knowledge, social pressures, and personality may be brought to bear to induce an individual to furnish the names of the persons with whom he has had sexual relations.

Decision to give the address to a physician and to accept and follow the prescribed treatment. It is in this phase that the sick person becomes a patient. However, visiting a physician does not necessarily mean that the person is prepared to accept his recommendations. There are a number of psychological, social, and cultural factors that may interfere with the course of treatment and that should be studied, such as different conceptions of the disease, administrative obstacles, and the physician's attitude toward the patient.

Decision to give up being a patient. In the convalescence phase the former patient must again learn how to live among the healthy. We do not know what problems of adjustment face persons suffering from venereal diseases, but it seems probable that concealment of the disease plays an important role in the process of readaptation.

- *Preventive Behavior of Traced Sexual Contacts*

The sexual contact who has been traced, like the patient, goes through a series of decisions that may lead him to adopt the role of patient or to readapt to normal life:

Conviction that he has been exposed to a situation of risk. The contact, once traced, must be convinced that he should attend a specialized clinic. The absence of symptoms makes it very difficult for him to make this decision.

Conviction that he may be sick and needs medical care. In this decision, as in the others, the primary group should play a very important role.

Decision to visit a physician. In this phase, the individual will try to obtain a diagnosis which may turn him into a patient or return him to his activities.

- *Preventive Behavior of Professional Health Workers and of Physicians in Particular*

The most important decision for this group is to report diagnosed cases. From other studies we know that physicians usually make a selective notification, but we do not know the criteria they use in reporting some persons and not others. Professional education will have to be studied, as will attitudes toward specialized clinics, since in the latter case it might happen that the lack of confidence in these clinics would determine the decision not to report.

SUMMARY

An examination has been made of the available scientific literature on the psychological, social, and cultural aspects of venereal diseases, and attention has been drawn to some of the knowledge accumulated by the behavioral sciences.

The study of the literature has shown: (a) the limited number of confirmed scientific propositions and an abundance of untested explanations; (b) imprecise definitions and variations in the use of indicators for measuring relevant concepts; (c) lack of comparative

studies designed to test very general hypotheses; and (d) "ecological fallacies" in many of the interpretations of findings of research studies. Thus, positive correlations by countries, cities, or regions between indices of the frequency of sexual activity and the frequency of venereal diseases may not support the hypothesis that the individuals who are most sexually active are those who are most exposed to the risk of contracting these diseases. In other words, the analysis of social groups is often inappropriate when the hypothesis relates to individuals.

In view of the findings of this survey of research on the subject, it is recommended that new research studies be undertaken in Latin America without delay. Examples of possible areas of research have been described, under the two major headings: (1) psychological, social, and cultural aspects of the natural history of the disease; and (2) factors involved in preventive behavior in health and in sickness.

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ECONOMIC IMPACT OF VENEREAL DISEASE

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Probably no other disease, communicable or chronic, has been as widely studied as syphilis. Yet, although the etiologic agent is known and an effective form of therapy and proven epidemiological methodology are available, syphilis appears to be increasing throughout the world. Despite all the efforts made to combat it, syphilis continues to be a major health problem in most countries today.

Many health officials consider that gonorrhea is now out of control and has reached epidemic porportions in many parts of the world. In some countries it is now the most prevalent communicable disease. Development of resistance to penicillin and to some other antibiotics by circulating strains of the gonococcus is a cause for concern in some countries.

The International Union Against the Venereal Diseases and the Treponematoses, at its 26th General Assembly in 1969, discussed the global epidemic of venereal diseases and passed resolutions urging nations throughout the world to give increasing attention to their control. But today, the problems involved in venereal disease control are increasingly complex and thus are economically more costly to solve. Yet the economic impact of controlling the venereal diseases shows that it is a profitable public investment. Failure to control them creates a significant, nonrecoverable economic drain or loss of resources for the individual as well as for society.

In the United States of America the national venereal disease control program has had a significant impact on the national economy. Although it is not possible to estimate the total savings, some economic benefits can be determined.

Elements of a Control Program

Before discussing economic benefits, it is useful first to outline certain elements of a venereal disease control program. Such a program is directed toward detection and treatment of existing cases in order to prevent the spread of the disease from infected to noninfected persons as well as its progression into disability and death. For the purpose of brevity, only the elements of a syphilis control program will be outlined, as follows:

1) Syphilis control begins when free treatment facilities and laboratory services for both darkfield and serologic examinations are made available to the public.

2) A control program must have adequate and effective records and reports to provide the information required to measure progress and plan for future needs.

3) Methods for case-finding and prevention are essential. They include:

a) *Serologic screening tests,* to detect cases of untreated syphilis.

b) *Epidemiology*—the prompt interviewing of all reported infectious cases—which is needed in order to determine the source and possible spread of infections, and to secure treatment, if necessary.

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c) *Educational programs,* to increase the public's awareness of the signs and symptoms of syphilis and encourage those infected and those who may have been exposed to infection to seek medical attention early and voluntarily.

Through serologic screening and epidemiology, *infection* can be prevented by treatment of persons in the infectious stage before they spread the disease. Through epidemiology, *disease* can be prevented by treatment of spread cases that are in the incubation stage. And finally, through epidemiology, but mainly through serologic screening, the *late crippling manifestations and deaths* due to syphilis can be prevented by treatment of the disease during the latent stage. Thus, control efforts may be directed toward the detection and treatment of existing cases to prevent the spread from infected to noninfected persons and/or progression into disability and death.

In general, lack of a control program, or inadequacies in program elements designed to detect syphilis infections during the infectious stages, would contribute to further spread of the disease in the population and to an increase in the number of cases entering the latent stages. Inadequacies in the elements designed to detect and treat infections during the latent stages would lead to an increase in the number progressing into disability and death. Infant deaths due to syphilis and the number of infants born with congenital syphilis would also be expected to increase.

Economic Costs and Benefits

Economic costs are related to the place where and the degree to which the elements of a syphilis control program are implemented. Consequently, the costs of an inadequate syphilis control program would be those associated with an increasing number of new cases occurring, and with an increasing number progressing into disability and death. The extent of these costs would depend on the particular control elements involved, as well as the operational level for each element. Since syphilis is a communicable disease, a rise or decline in the number of infections occurring during one time period has an effect on the amount of illness, incapacitation, and deaths due to syphilis, as well as on economic costs, in the next and subsequent time periods.

The idea of measuring the economic benefits of a program against the economic costs of engaging in that program is far from new. For those who control public funds, one of the most persuasive arguments for the granting of money for health services is that society (city, state, or nation) will realize a substantial return in terms of savings through prevention of first admissions to mental institutions and in costs of hospitalization, through prevention of deaths due to a disease, and in physician-time spent in treating a preventable disease.

For example, if the syphilis death rates were still at the level of 1939—when our control program began—some 22,000[2] persons would have died from the disease during 1968 (most recent year for which data are available), instead of 2,381. In other words, it is estimated that about 19,600 individuals were saved from premature death in a single year as a result of the improvement in syphilis mortality conditions since 1939.

Statisticians in the United States have estimated that after reported syphilis deaths have been adjusted for labor force participation, by age and sex, the lifetime earnings lost amount to $26,455 per syphilis death. Applying this figure against the 19,600 lives saved from premature death, we can estimate the benefits or savings to the nation at more than *one-half billion dollars annually.*

Another example of benefits derived from past expenditures for syphilis control is the saving in hospital maintenance costs for patients with syphilitic psychoses. For example, if the rate of first admissions to mental institutions due to syphilitic psychoses was still at the 1939 level of 6.6 per 100,000 population, some 13,000 persons with neurosyphilis would have

[2]The expected number of deaths due to syphilis was adjusted downward according to the comparability ratios for the Fifth, Sixth, and Seventh Revisions of the *International Classification of Diseases.*

been admitted to mental hospitals during 1967 (most recent year for which data are available), instead of 162. The difference represents the estimated number of first admissions saved or prevented in a single year (1967), namely some 12,800. It has been estimated that such patients will require maintenance in a mental hospital for about five years. Thus, the savings of hospital maintenance costs during just one year are estimated at 64,000 hospital-years. Since the hospital maintenance of patients with syphilitic psychoses currently costs $3,226 per patient per year, the benefits or savings derived from preventing these persons from developing neurosyphilis amounted to more than $206 million per year. If the same assumptions were applied over the 28-year period from 1940 to 1967, the benefits to the taxpayer in institutional care alone would amount to a multi-billion dollar savings.

In addition to the above savings, many other benefits of an indeterminate value were achieved by reducing the loss of productivity and income for persons prevented from working by the disabling and crippling effects of cardiovascular and neurosyphilis, and for those absent from work for diagnostic and treatment purposes; and by reducing welfare payments needed to support families when the head of a household was disabled by cardiovascular syphilis or incapacitated by syphilitic psychoses. Using the results obtained from a unique study on the development of late manifestations of untreated syphilis carried out in Norway by Professor E. Bruusgaard,[3] it has been estimated that through operation of the syphilis control program since 1940, some 234,000 persons have been saved from developing cardiovascular syphilis and that some 15,000 have been saved from developing syphilitic blindness. The extent of such benefits has not been determined.

Also, venereal disease was once a major cause of blindness. Ophthalmia neonatorum—blindness in babies resulting from infection (usually with gonorrhea) by the mother during birth—was reported as causing 28.2 per cent of blindness in a sample group of children in schools for the blind in 1907. By 1954-1955, the percentage of ophthalmia neonatorum cases among new pupils entering schools for the blind had dropped to 0.1 per cent. This reduction was brought about largely through legislative measures requiring the use of prophylactic drops in the eyes of newborn babies to prevent this disease.

During 1940, syphilis (interstitial keratitis) was responsible for an estimated 7.9 per cent of all legal blindness in the United States. By 1957, the percentage was down to 3.8. Syphilis as a cause of blindness in school-age children accounted for 5.2 per cent of all cases in 1933-1934 and for 1.4 per cent in 1954-1955. In the latter period syphilis as a cause of blindness among new pupils accounted for only 0.6 per cent of the total cases. Further reductions of blindness caused by venereal disease are expected in the future.

Preventive public health procedures combined with legislative backing have almost eliminated gonorrhea and syphilis as causes of blindness. Legislation requiring the use of prophylactic drops in the eyes of newborn babies was important in reducing the number blinded by gonorrhea. Legislation in many states requiring premarital and prenatal examinations for venereal diseases, especially syphilis, helped greatly in reducing syphilis infections as a cause of blindness and as a cause of death among infants.

Reducing the prevalence of blindness brought on by venereal disease greatly reduces sociological and economic losses, both to the individual and to society. Benefits derived from a reduction of such blindness would include increased earning power for the individual, increased manpower for industry, decreased cost of educating the blind, and a decrease in economic aid for the blind. The extent of such benefits is unknown.

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Although their economic values have not been determined, we point out these additional benefits to emphasize the fact that the estimated savings presented above are incomplete and represent only a part of the potential economic impact of syphilis. Even so, we need take just the two examples cited earlier—benefits from the prevention of premature deaths and psychoses due to syphilis—to demonstrate that the economic impact of past syphilis control programs amounts to savings in excess of $700 million annually. Since 1940, the cumulative savings from these two items alone would amount to a multibillion dollar benefit. Clearly, large economic gains can be achieved by preventing the spread of disease and reducing the number of cases that potentially might progress into disability or death.

Investment in syphilis control has shown a profit over the years in the United States, as can be seen by the great reduction in disabilities and deaths. Yet the fight against the *Treponema pallidum* continues. Soon, it is hoped, syphilis will be forced into the ranks of smallpox and typhoid, diseases brought under control, with surveillance programs to prevent their return to the category of a major public health problem.

At present, however, syphilis is still a serious health problem in the United States, where about 540,000 persons are estimated to require treatment for that disease. These persons must be found and brought to treatment as soon as possible. If they are not treated, the economic loss to the nation in terms of mental hospital care and revenue loss will be quite large.

From the results of the Bruusgaard study on untreated syphilis, it has been determined that if the present reservoir of 540,000 syphilis cases is not treated, the late manifestations that would develop could be expected to include:

23,800 (4.4 per cent) with diffuse meningovascular syphilis or general paresis;
41,000 (7.6 per cent) with complicated cardiovascular syphilis; and
2,700 (0.5 per cent) with optic atrophy due to syphilis.

The expected incidence of other late but generally less serious complications of syphilis has not been estimated.

Over-all, it is estimated that about 124,000 (23 per cent)[4] of the untreated syphilis population will die primarily as a result of syphilitic disease.

Using the above estimates of expected late manifestations, anticipated losses can be calculated in terms of institutional maintenance costs and of lifetime earnings that will be lost if the present reservoir of syphilis cases is not found and treated. For example, the maintenance in tax-supported mental institutions of persons with syphilitic psychoses is estimated at $3,226 per person per year. The 23,800 neurosyphilis cases developing from the untreated reservoir would have an average stay of five years, which would result in 119,000 years spent in these institutions, at a maintenance cost of $384 million. The lifetime earnings that will be lost from the estimated 124,000 premature deaths due to syphilis are estimated at more than $3.2 billion. The additional economic impact of lost earnings during the years of incapacitation for the 41,000 persons developing cardiovascular disability and the 2,700 disabled by syphilitic blindness is unknown. The potential losses to the nation, just in terms of hospital care and lifetime earnings, come to more than $3.5 billion.

Because of the magnitude of these potential economic costs, it would appear wise to make a substantial investment now in a control program to eliminate the syphilis reservoir at a fast rate and thus avoid the impact of such losses.

As in most countries, resources in the United States are limited. Therefore, each element of our control program is continually assessed to assure the maximum effect on the problem with the resources available. In fact, it is estimated that for every dollar expected to be invested for syphilis control during the next five-year period, very definite benefits will

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[4]Brown, William J. *et al. Syphilis and Other Venereal Diseases.* Cambridge: Harvard University Press, p. 105, 1970.

accrue through the consequent reduction in economic costs.

Further decrease in the late manifestations of untreated syphilis will depend upon detection of the reservoir of unknown syphilis infections in the population. From the public health viewpoint, a large proportion of the reservoir must be found immediately after onset of the disease when the individuals are actually infectious. From the economic standpoint, cases must be found before the late manifestations of untreated syphilis become evident through destruction of blood vessels, nerve cells, or bones. Thus, to effectively prevent the spread of and reduce the reservoir of unknown infections, there must be an epidemiological surveillance program designed to provide an early interception of source and spread infections. Public education, designed to inform the population of the signs and symptoms of syphilis infections and to motivate infected persons to seek medical attention immediately, will also help reduce dissemination in the community. In addition, there must be serologic screening programs to detect the reservoir of unknown infections and case-finding leading to effective treatment, before the late manifestations occur.

The current methods of syphilis control, combined with the available effective therapy, appear to be sufficient to completely eliminate syphilis as a crippler and a cause of death in the United States. Elimination of the disease requires adequate resources and personnel, active support of the public, and active cooperation and participation by the medical forces of the community. The degree to which these elements are present in a community's syphilis control program will determine how quickly the disease will be eliminated.

Comments on Gonorrhea

Before closing, we should briefly review the problem of gonorrhea, the economic impact of which is assuming a greater magnitude in the United States. Currently, about 570,000 cases are reported annually, and the number is increasing at a rate of about 15 per cent per year. Furthermore, the number of cases actually treated each year is estimated at 1.8 million. While there are no definitive figures, certain liabilities or losses may be associated with these 1.8 million cases. For example, there are the costs associated with laboratory tests, with the physician-time needed for diagnosis and treatment, and the losses through reduced productivity and time lost from work while seeking medical attention. Even conservative estimates on such items for this number of cases indicate that gonorrhea is a multimillion dollar liability to the country.

Currently, resources allocated to gonorrhea control are being directed to studies designed to answer questions and fill in technical gaps in our knowledge of the disease. Such studies have been undertaken on the clinical course and how this relates to the spread of the disease, methods of testing large numbers of people, manpower requirements for interviewing and contact-tracing, effective methods for screening only high-risk groups, and levels of activity required to bring about a decline in incidence. These studies should provide answers to some of the basic questions about therapy and about various components of control programs. Future investments of resources for gonorrhea control will be based on the findings of such studies, and in this way we hope to assure the maximum impact on the problem with the resources available.

Final Remarks

Aside from the economic benefits discussed, it should be emphasized that human beings saved from the ravages of venereal disease will be able to live happy productive lives instead of suffering disability or death. Thus, the human values of venereal disease control are beyond the realm of cost estimates, but they should not be overlooked when evaluating the benefits of control programs.

Investments in venereal disease control have produced multibillion dollar economic benefits in the United States of America. The benefits

described here are mainly the savings from costs eliminated through prevention of mental disability and premature deaths due to syphilis. There are other types of disabilities for which data are not available, and other types of economic losses that have been prevented.

Current estimates indicate there is still a large number of persons who might potentially develop disability or die prematurely from syphilis. These persons must be found and brought to treatment. Otherwise, the economic costs to the nation in terms of hospital care and revenue loss may well total in the billions of dollars. This liability must not be allowed to occur. Resources should be assigned to the fight against venereal diseases so that, as in the past, the economic impact on the nation will be a profit rather than a loss.

TEACHING OF VENEREAL DISEASES IN MEDICAL SCHOOLS

Dr. Carlos J. Alarcón[1]

GENERAL CONSIDERATIONS

The discovery of penicillin and its subsequent extensive use in the treatment of venereal diseases, especially syphilis and gonorrhea, led to a substantial decline in the incidence of these diseases. It was not long, however, before there was an upward swing in the incidence, which became progressively more marked until the present situation was reached. This situation, which is a cause for concern throughout the world, can be described as truly alarming, as these diseases have undoubtedly become a serious public health problem at both local and international levels.

The unquestionable initial success of penicillin treatment created a false sense of victory, and as a result medical schools and health services in most countries of the world came to regard the problem as solved. The systematic and mandatory teaching of venereology disappeared from the curricula of most medical schools, to a point where the little that is still taught is incidental to the teaching of dermatology. The same happened to the venereal disease clinics, most of which ceased to exist as separate services. In Latin America, only two countries (Mexico and Venezuela) maintained, as part of their central health organization, units and divisions specifically concerned with the technical supervision and coordination of venereal disease control at the national level. In other countries, these activities were absorbed by divisions or sections concerned generally with the epidemiology of communicable diseases. Moreover, venereal diseases were regarded primarily as a problem of control of prostitution, and epidemiological methods of venereal disease contact-tracing and health education were neglected. As a result, the position today is that there are some countries that do not have any effective national program to combat the venereal diseases.

It is therefore not surprising that most of the students of medicine of the past two decades who are now general practitioners, or engaged in fields closely related to venereology, failed to receive sufficient training to enable them to give proper treatment to venereal disease patients of various types and at various stages. This is all the more a matter of concern since today such patients do not usually go first to see a specialist in dermatology or venereology, as they would have in the 1930's, '40's, or '50's, but rather seek the advice of a general practitioner.

For this reason, it is of vital importance that both the general practitioner and the specialist have a sufficient knowledge of the clinical aspects, epidemiology, and therapeutics of venereal diseases. With the appearance of the antibiotics, substantial changes have occurred in the symptomatology of syphilis, to a point

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where cases arise that even specialists with extensive experience find it hard to diagnose clinically without the aid of the two basic laboratory tests: the darkfield test for *Treponema pallidum* and the routine serologic tests, or in some cases, specialized tests of this kind.

As a result of the almost complete lack of understanding of symptomatology and of venereological methods, many cases of syphilis at the contagious stage—both primary and secondary—go unnoticed or are incorrectly diagnosed and treated, so that they pass on to the latest phases and subsequently to the stage of serious and irreversible cardiovascular or nervous complications, becoming chronic hospital cases and finally a burden on the state.

Another consequence is that the magnitude of the venereal disease problem is not even partly known. The fact that there are no classification standards or uniform statistical data hampers all efforts to plan a control program.

If really effective programs to control these diseases are to be carried out, the teaching of venereology should be expanded at both the undergraduate and the graduate levels. Particular attention should be paid to the teaching of this specialty in schools of public health, whether they form part of universities or come directly under ministries of health, and also to the content of courses for students of other health professions and related disciplines, since the problem is one of equal concern to all.

STATUS OF THE TEACHING OF VENEREOLOGY IN SOME LATIN AMERICAN COUNTRIES

To obtain an over-all picture of the status of venereal disease teaching in a number of medical schools in Latin American countries, we consulted both the Department of Human Resources Development of the Pan American Health Organization in Washington, D.C., and a group of distinguished experts in the educational field in several countries.

The information furnished by PAHO for a relatively recent period (1967-1968) was obtained as part of a survey on the teaching of preventive medicine undertaken by that Organization. It is presented in Table 1.

It is clear from this table that although practically three-quarters of the schools surveyed provide instruction in the epidemiology of venereal diseases, the time actually given to this subject is relatively very small, the average being less that three hours a year, and in seven of the 19 countries, two hours or less.

With regard to clinical instruction, data were obtained for 28 schools, through the cooperation generously provided by a large number of the specialists consulted. This information is summarized in Table 2.

The table gives only a partial indication of the present situation, as it covers only a small portion of the total number of schools in operation. Nevertheless, it is clear that the instruction varies from one country to another and probably from one school to another within the same country. In other words, there is a lack of uniformity in the approach to the teaching of this subject.

Moreover, the data show that such instruction has no separate identity, as in all the schools from which information was obtained it forms part of the teaching of dermatology. It is therefore not unreasonable to assume that it is not a mandatory subject.

It is also to be noted that within the range of time devoted to clinical instruction (in the final years of training) very few schools provide a sufficient number of classroom hours to furnish each physician leaving medical school with an adequate training.

It is also interesting to observe how little importance, if any, is attached to venereal diseases as an integral part of graduate courses, both in the area of general medicine and in such related fields as urology, gynecology, obstetrics, and pediatrics.

The above information leaves no room for doubt as to the current deficiencies in the teaching of venereal diseases in the Hemisphere and the need to take urgent measures, consistent with the seriousness of the problem, to remedy the situation.

TABLE 1–Teaching of the epidemiology of venereal diseases in departments of social and preventive medicine of medical schools in Latin America and the West Indies.[a]

Country	No. of medical schools with full courses[b]	No. of schools teaching the course	Percentage of schools in which course is taught	Hours of instruction	Average no. of instruction hours per year	Range (hours)
Argentina	9	6	67	8.75	1.45	0.25–3.00
Bolivia	3	2	67	2.50	1.25	1.00–1.50
Brazil[c]	31	21	68	42.25	2.01	1.00–6.00
Chile	3	3	100	9.50	3.16	2.50–3.00
Colombia	7	7	100	25.50	3.64	0.50–8.00
Costa Rica	1	1	100	3.00	3.00	–
Dominican Republic	1	0	0	0.00	–	–
Ecuador	3	3	100	8.00	2.66	1.00–4.00
El Salvador	1	1	100	1.50	1.50	–
Guatemala	1	1	100	5.00	5.00	–
Haiti	1	0	0	0.00		–
Honduras	1	1	100	4.00	4.00	–
Mexico	21	12	57	42.33	3.52	1.00–8.00
Nicaragua	1	1	100	6.00	6.00	–
Panama	1	1	100	2.00	2.00	–
Peru	4	3	75	8.00	2.66	1.00–6.00
Uruguay	1	1	100	2.00	2.00	–
Venezuela	6	6	100	35.00	5.83	1.00–10.00
West Indies	1	1	100	1.00	1.00	–
Total	97	71	73.1	206.33	2.90	

[a]Data obtained in a survey made by the Department of Human Resources Development of PAHO (1967-1968). In some schools the instruction is given in other departments, but the data were included whenever provided.

[b]Total number of medical schools with full courses is 100, but no data are available for one school in Paraguay and two in Cuba.

[c]In many of the schools in Brazil the number of hours given includes instruction in trachoma.

TABLE 2–Instruction in the clinical treatment of venereal diseases in certain medical schools in Latin America.

Name of institution	Country	Undergraduate year in which course is taken	Time devoted to instruction at undergraduate stage	Subject in which such instruction is included at undergraduate stage	Graduate courses
National University of Buenos Aires	Argentina	Penultimate	4 hours during 3 weeks	Dermatology	Yes, one a year
University of Salvador, Buenos Aires	Argentina	5th and 6th	9 hours	Dermatology, Public Health and Infectious Diseases	Yes, in Dermatology, and Public Health and Infectious Diseases, 3 hours ea.
National University of La Plata	Argentina	4th to 6th	10 hours	Dermatology	Yes, occasionally for public health physicians
San Simón University, Cochabamba	Bolivia	5th	1 hour	Dermatology	No
School of Medicine of the University of São Paulo	Brazil	4th	3 hours	Dermatology	Yes
State University of Campinas, São Paulo	Brazil	5th	6 hours	Dermatology and Preventive Medicine	Yes, about 20 hours
School of Medicine and Surgery of Rio de Janeiro	Brazil	5th	6 hours	Syphilis: Dermatology Urethritis: Urology	No

TABLE 2 *(cont.).*

School of Medicine, Fluminense Federal University, Niterói, Rio de Janeiro	Brazil	4th	4 hours	Dermatology	No
National University	Chile	4th and 5th	2-3 hours	Dermatology	No
Javeriana Catholic University	Colombia	4th, 5th, and 6th	Unspecified	Dermatology	Yes, but extra-curricula
Autonomous University	Dominican Republic	3rd, 4th, 5th and 6th	18 hours	Dermatology, Preventive Medicine, Infectious Diseases, etc.	Yes, Dermatology: 12 hours
Pedro Henríquez Ureña National University	Dominican Republic	3rd	14 hours	Dermatology, Preventive Medicine, and Microbiology	No
University of Guayaquil	Ecuador	6th	4 hours a week over 8 months	Dermatology	No
San Carlos University	Guatemala	7th	72 hours over 3 months	Dermatology	No
Autonomous University of Guadalajara	Mexico	4th	6 hours	Dermatology	No
National Autonomous University of Mexico	Mexico	In some cases 3rd, in others 4th	3-4 hours	Syphilis: Dermatology Urethritis: Urology	No
University of Guadalajara	Mexico	Penultimate and last	15-20 hours	Dermatology	Yes, 30 hours devoted to Venereology

TABLE 2 *(cont.).*

National University	Nicaragua	5th	1 hour a week	Dermatology	No
National University	Panama	Penultimate	8 hours	Dermatology	Yes, occasionally
National University of Asunción	Paraguay	5th	1 hour a week	Dermatology and Internal Medicine	Yes, but no regular instruction
Greater National University of San Marcos	Peru	4th	30 student-hours	Dermatology	No
Peruvian University of Medical Sciences, Cayetano Heredia School	Peru	4th and 5th	Syphilis, 22 hours; others, 2 or 3 hours	Syphilis: Dermatology Urethritis: Urology	Yes, only for Syphilis: 6 hours
Luis Razetti Medical School, Central University of Venezuela	Venezuela	3rd and 6th	24 hours	Dermatology, Bacteriology, Preventive and Social Medicine	Yes, Dermatology, Gynecology, Pediatrics, Public Health
José M. Vargas Medical School, Central University of Venezuela	Venezuela	3rd and 6th	18 hours	Microbiology and Dermatology	Yes, Dermatology
Zulia University, Maracaibo	Venezuela	4th and 6th	20 hours	Bacteriology and Clinical Medicine	No
Carabobo University Valencia	Venezuela	3rd and 6th	12 hours	Bacteriology and Clinical Medicine	No
University of the Andes, Mérida	Venezuela	3rd, 5th, and 6th	29 hours	Bacteriology and Clinical Medicine	No
Oriente University, Barcelona	Venezuela	3rd, 4th, and 5th	18 hours	Bacteriology and Clinical Medicine	No

RECOMMENDATIONS

From the foregoing, it is clear that what is needed is a joint effort on the part of health authorities, medical educators, and other interested bodies to obtain proper recognition of the urgency of the health problem presented by venereal diseases. In this, the education of the physician and of other members of the health team has an important role to play. The following recommendations are therefore made:

1) Medical schools, schools of public health, and other similar institutions in all the countries should include in both their undergraduate and graduate programs mandatory instruction in venereal diseases. Not only the academic authorities directly concerned but also teachers of disciplines related to venereology, such as dermatology, pediatrics, gynecology and obstetrics, urology, preventive medicine, etc., should be associated with efforts to achieve this objective.

2) A minimum program of subjects relating to these diseases, especially syphilis and gonorrhea, should be introduced and should cover:

a) The problem of venereal diseases in its local and international aspects.

b) Classification, clinical study, diagnosis, and treatment of venereal diseases.

c) Control of venereal diseases, particularly with respect to epidemiological methods, health education, and serologic surveys.

d) Laboratory techniques used in the diagnosis of venereal diseases.

e) Training and utilization of medical and paramedical personnel in programs for the control of these diseases.

f) Advances in venereological research.

3) All official and private institutions in contact with the problem, such as social security agencies, medical services of the armed forces, institutions for medical care, both public and private, etc., should be encouraged to take an interest in the teaching of venereology and in research into venereal diseases.

4) Consideration should be given to the possibility of preparing an adequately illustrated manual on the venereal diseases which would include a full description of the proposed program and should be issued in the various languages used in the Hemisphere.

5) Steps should be taken to make use of international financial and technical resources in order to encourage effective programs to combat venereal diseases and, in particular, to promote the exchange of visits by educational experts in these diseases between medical schools in various countries.

6) International courses on the epidemiology of venereal diseases and on programs for their control should be held for professionals from various countries of the Region.

7) Committees should be formed in each country to plan and program instruction in venereal diseases at the level of medical schools. Such instruction should embrace two major fields: the microbiological and epidemiological aspects of these diseases at the preclinical stage; and the clinical and therapeutic aspects, and administration of programs, to be taken toward the end of medical training.

8) Annual meetings should be arranged to study and evaluate educational programs, with the participation of representatives of all the countries of Latin America and of the agencies concerned with venereal disease control.

9) The various medical schools should be provided with the educational materials essential to instruction, such as films, slides, etc.

10) Training should be provided for members of other disciplines who will participate in instruction on venereal diseases in the medical schools.

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