

Venereal disease control in the United States of America

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During the 1940s, infectious syphilis began to increase steadily in the United States and the incidence reached a peak in 1947. Historically, such increases have always been associated with wars and major social disturbances. The rapid decrease in incidence which occurred between 1947 and 1957 appeared to be related to the cessation of the war, and to the introduction of penicillin in the treatment of syphilis. Similar declines in the incidence of this disease were almost global. The attitude was taken by government officials, physicians, and the general public, that syphilis was a disappearing disease and no longer a problem. Budgets for its control were drastically cut, the teaching of venereal disease control in medical schools was reduced to a minimum, and public health clinics were closed. However, in 1956, the incidence of infectious syphilis began to rise, and this rise has continued, with little variation, to the present time.

Historically, there are a number of factors which must be taken into account when considering the incidence of infectious syphilis in the United States. Until 1945, this disease was treated almost entirely in special clinics, either provided by the state or connected with a university. Treatment was complicated and needed specialist supervision, but the advent of penicillin enabled every doctor to administer treatment with ease and safety. The management of venereal diseases gradually passed from the specialist to the general practitioner, and a survey conducted by the American Social Health Association (1969) indicated that 82.8 per cent. of all cases of primary and secondary syphilis in the United States were treated by a private physician. Similar developments are being reported from the Netherlands, Denmark, and other European countries. Although the reporting to government health agencies of such cases is required by law in the United States, the law is rarely enforced. A survey of 135,000 physicians

indicated that only 12 per cent. of their estimated 62,000 cases of infectious syphilis were reported to the government authorities (ASHA, 1969). This would indicate that there were approximately 75,000 cases of infectious syphilis rather than the 20,182 cases officially reported from all sources in 1968. There is another factor to be considered here. The average busy general practitioner does not have at his disposal bacteriological or other laboratory facilities for making an exact diagnosis in the venereal diseases. He knows that the majority of cases will respond to antibiotic therapy, and he therefore often treats without making a firm diagnosis. This may account for a still greater number of cases which remain unreported. As far as we can determine, self-treatment or treatment by druggists is at a minimum in the United States.

It is thus apparent that infectious syphilis is epidemic in the United States at the present time (Figs 1 and 2). It is second only to streptococcal sore throat, and far exceeds tuberculosis, poliomyelitis, and the other diseases which were commonly regarded as threats to mankind.

Syphilis, at other than the infectious stage, reached a peak of incidence in 1943 and then began a general decline until 1955; the incidence levelled off between 1955 and 1963 and has since again declined. With these cases, mostly of latent disease, the reporting by general practitioners has been more complete, in that one out of three cases were notified. This is because most of these cases are detected by serological screening processes, carried out mainly in government laboratories, and also because private laboratories are required by law to report positive cases to the authorities. The estimated total of screening tests for syphilis in the United States is about 38 million annually, yielding approximately 1,100,000 reactive specimens.

Cases of cardiovascular and central nervous system syphilis have decreased markedly in the United States. New admissions to hospitals of cases of central nervous system syphilis have declined steadily since 1940, when 7,694 cases were admitted; in 1965 only

Received for publication November 24, 1969

Given at the Second World Congress of the International Society of Tropical Dermatology, Kyoto, Japan, August 15-20, 1969
Address for reprints: 449 East 68th Street, New York 21, N.Y., U.S.A.

FIG. 1 (right) *Primary-secondary and early latent syphilis reported in the U.S.A. (1954-1969) (ASHA, 1970, p. 51)*

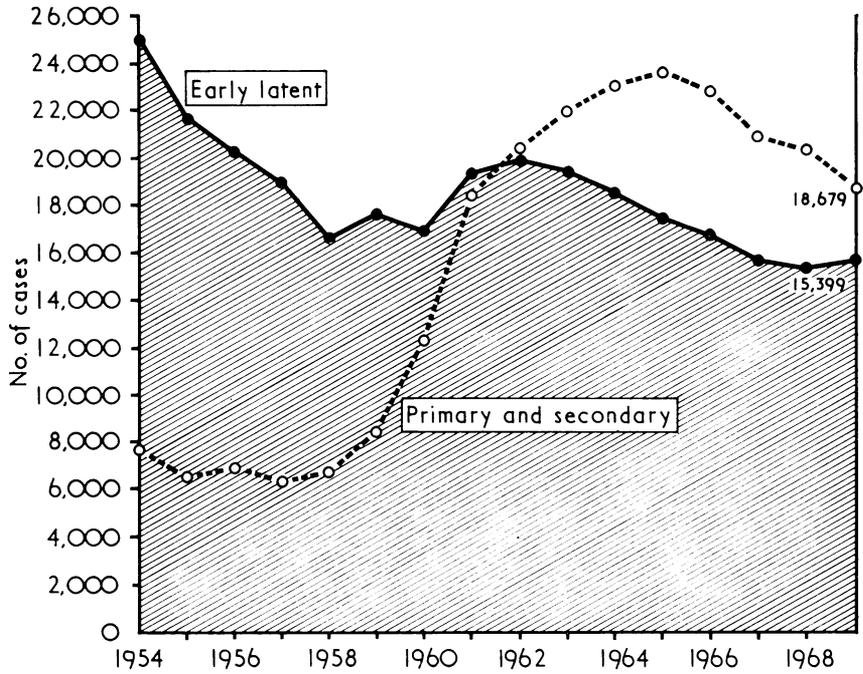
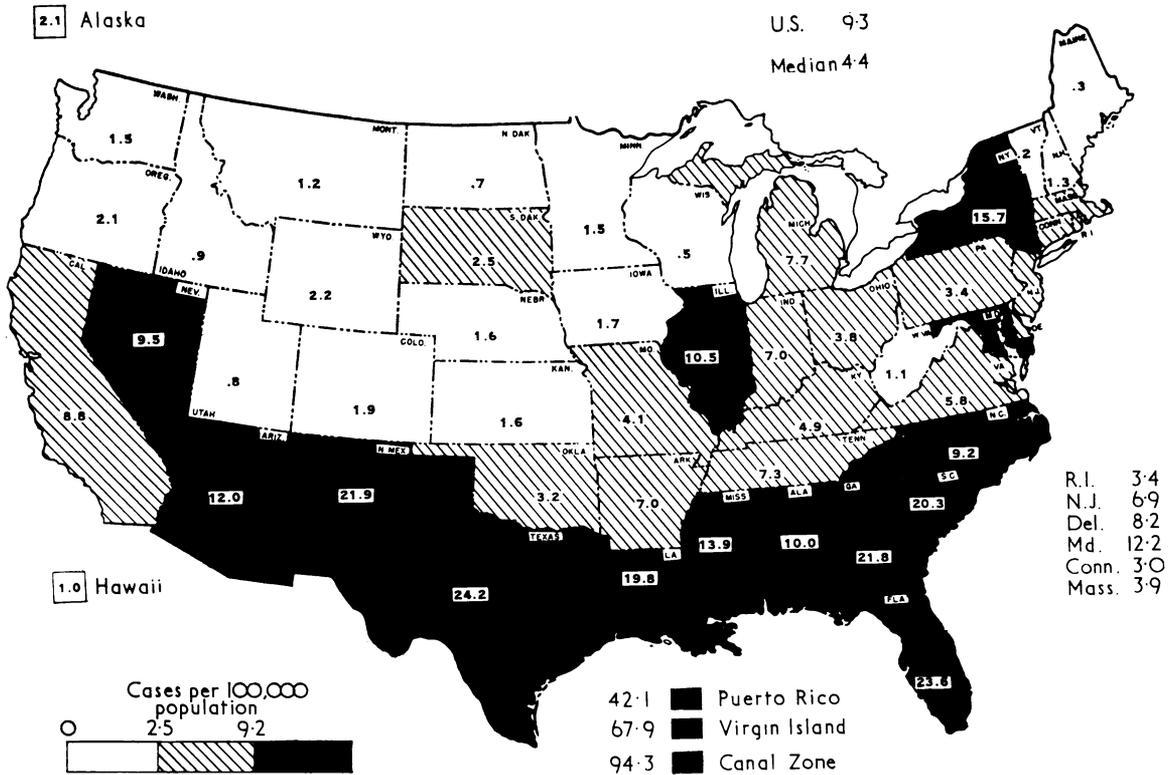


FIG. 2 (below) *Primary and secondary syphilis. Case rates per 100,000 population. Reported cases only. Fiscal year 1969 (ASHA, 1970, p. 53)*



SOURCE: PUBLIC HEALTH SERVICE

232 new admissions were recorded. Two factors are involved here. One is the seeking out of cases of primary, secondary, and latent syphilis, and the other is the co-incidental use of treponemicidal antibiotics for a wide variety of other conditions.

Congenital syphilis remains a problem in the United States (Fig. 3), and although it has declined since 1950, the incidence is still higher than it ought to be. This is primarily because many women do not seek antenatal care, and are not seen at the hospital until the time of delivery.

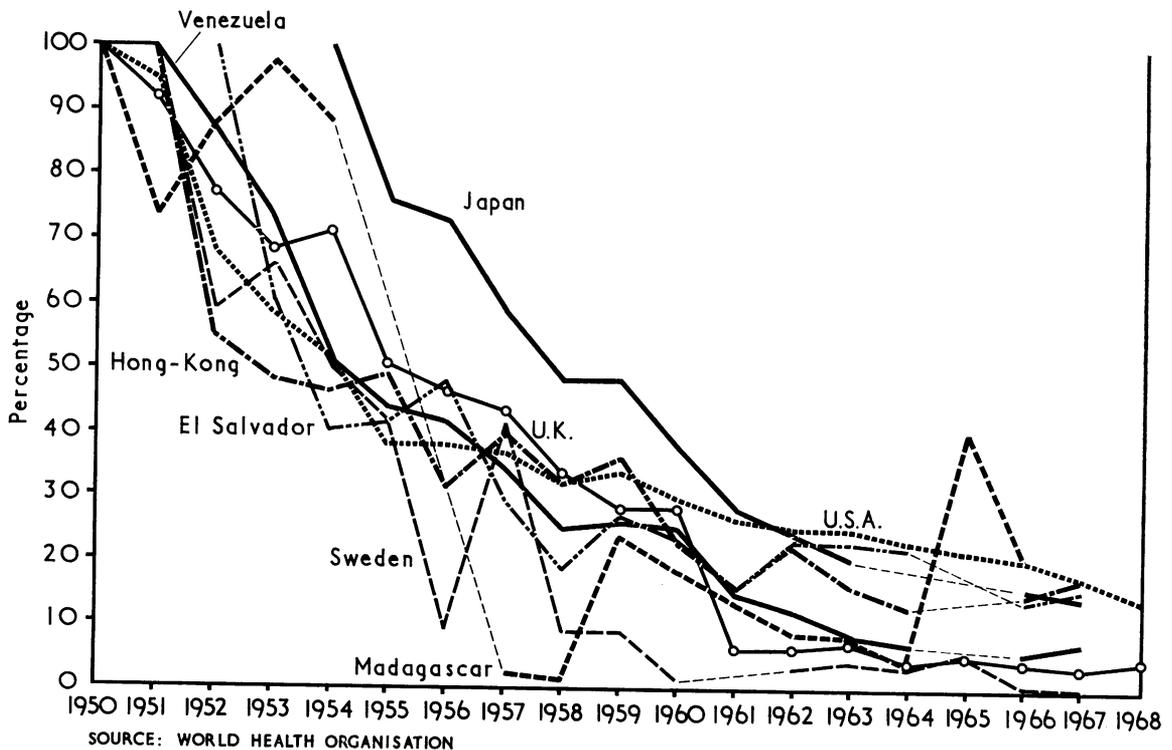
Of the numerous factors which influence syphilis control, the most significant is undoubtedly the moral stigma attaching to its mode of transmission, which renders difficult a completely open attack on the disease. This characteristic of the venereal diseases—their dependence upon sexual exposure for spread—is the major handicap in their control.

Epidemiological control

The United States has pioneered the epidemiological approach, as a means of controlling the spread of venereal disease. Investigators specially trained in the technique of epidemiological control are assigned to

local, city, and state health departments. As soon as a case of infectious syphilis is reported, these investigators seek out the individual and attempt to learn where he was infected and the persons he has since exposed to risk of infection. Before this mechanism can be set in motion, the case must be reported to the health authority, and for the investigation to be effective, the case must be reported *early*. These control efforts are designed to reduce the rate of spread which would normally occur in the uncontrolled situation. The population of the United States is extremely mobile, and there has been a high rate of interstate transmission of these diseases. In 1968, over 20,000 contact investigations were forwarded from one state to another.

For the past decade, emphasis has been placed on the prophylactic treatment of reported contacts of cases of infectious syphilis. Thus, if an individual is known to have been exposed to a case of infectious syphilis, he is given prophylactic treatment with 2.4 million units of benzathine penicillin. During 1968, 58 per cent. of all syphilis contacts investigated were so treated, and the attempt was made to follow them serologically for a 3-month period.



SOURCE: WORLD HEALTH ORGANISATION

FIG. 3 Reported congenital syphilis in eight countries (1950-1968)
Yearly percentage of incidence rates, using 1950 as reference (100 per cent.) (ASHA, 1970, p. 48)

When a private practitioner reports a case of primary or secondary syphilis, he is contacted by the state health department and the investigator then attempts to obtain his cooperation in locating the patient and contacts.

High risk populations

The study of reported cases reveals that the person most likely to acquire syphilis in the United States is the non-white male in the 20 to 24-year age group. Almost half of all primary and secondary syphilis is reported among teenagers and young adults (18 to 24-year age group). In general, the venereal disease rates in teenagers tend to increase each year in the United States.

Although prostitution is illegal in the United States, it is of common occurrence (ASHA, 1969, p. 18). In eighteen states, 8.8 per cent. of persons with infectious syphilis named prostitutes as the source; in 77 urban areas, 13.7 per cent. of such patients named prostitutes, who thus form a high-risk group, as far as the spread of early syphilis is concerned.

Homosexual behaviour plays an important role in the spread of venereal diseases, and in 1968 male-to-male contacts comprised 25.4 per cent. of cases in males. Female-to-female contacts comprised only 1.6 per cent. of cases in females. It is thus apparent that in the United States the high-risk groups are the younger Negro males, teenagers, male homosexuals, and prostitutes.

In 1968, in the United States, venereal disease education was included in the curriculum of 62 per cent. of junior and senior high schools. Serious attempts are being made by health departments to establish working relationships with departments of education at the state, city, and rural area level. More and more state education departments are approving sex education in the schools, and suitable manuals have been prepared by the Venereal Disease Control Branch of the United States Public Health Service.

The education of the general public has been sponsored by both government and voluntary agencies throughout the United States and magazine articles, newspaper items, television time, and radio time, are all utilized in an attempt to make the general public aware of the venereal disease problem.

Since over 80 per cent. of the venereal infections in the United States are treated by practising physicians, it is apparent that great importance must be attached to the education of general practitioners in the management of these cases. The American Medical Association, the National Medical Association, and the American Osteopathic Association have united with the various specialty boards and the general practitioners themselves in an effort to formu-

late plans to control the rising rate of venereal disease in the United States. These groups, in cooperation with the Venereal Disease Branch of the United States Public Health Service, are organizing a task force to plan new approaches to this problem. It is hoped that such an arrangement will attack the problem through the practising physician, who is responsible for the success or failure of any plan of control.

Undergraduate teaching of venereal disease

A recent survey carried out by the World Health Organization (Webster, 1965) indicated that the undergraduate teaching of venereology in medical schools throughout the world had fallen off rapidly, despite the worldwide increase in venereal diseases. This organization is trying to promote and improve the teaching of venereal disease control in its medical, social, and public health aspects in all medical schools throughout the world.

'The Joint Statement'

Discussion of the problem of venereal disease control in the United States would be incomplete without some reference to an annual publication known as 'The Joint Statement' (ASHA, 1969, 1970). This statement of 'Today's Venereal Disease Control' problem is issued annually by the American Public Health Association, an organization comprised largely of public health administrators, the American Social Health Association, a voluntary organization devoted to all aspects of venereal disease control, and the American Venereal Disease Association. Cooperating in this study are the American Medical Association, the American Osteopathic Association, the National Medical Association, and the State and Territorial Health Organization. In this yearly volume, the status of the various aspects of the venereal disease control programme is evaluated, the best available statistics are included, and recommendations for governmental control are made. Through the years, this study has become increasingly important in the evaluation of progress.

Research

Why, in the face of all these apparently coordinated efforts, are we not making more progress in the control of the venereal diseases in the United States? It is a sound epidemiological principle that no infectious disease is ever controlled by treating cases alone. Research into the fundamental aspects of the venereal diseases has lagged far behind our other efforts. Our knowledge of immunology in syphilis is woefully inadequate and has progressed very little during the past few decades. Our diagnostic methods for the detection of gonorrhoea still tend to be

complicated and cumbersome. In recent years, there has been increasing awareness that newer methods of control must be sought out. The world's leading immunologists, who have found vaccines for poliomyelitis, measles, and many other important infectious diseases, must be convinced that syphilis and gonorrhoea present equally urgent problems. A few months ago a group of immunologists assembled at the Communicable Disease Centre in Atlanta, Georgia, and problems of research in syphilis and gonorrhoea were presented. Plans were formulated to train young men in immunology and have them return to this Communicable Disease Centre to do research. Federal aid to private universities must be made available in order to encourage such research. Unfortunately, at the present time, fundamental research in the venereal diseases in the United States is perhaps limited to a total of three laboratories: two private universities and the Communicable Disease Centre.

Immunological research in chimpanzees infected with *T. carateum* (Pinta) is being carried on at the Venereal Disease Research Centre, and it is hoped to challenge these animals with *T. pallidum*. Two private universities are carrying on research in immunology in syphilis in rabbits using attenuated strains of *T. pallidum* and later challenging these animals with active strains. This work is aimed at producing a vaccine against syphilis.

Progress has been made in the automation of serological tests for syphilis. Flocculation tests have been automated in the form of the Automated Reagin Tests. The instrumentation necessary for carrying out such testing costs approximately \$3,000. Similar automation has been accomplished with the Fluorescent Treponemal Antibody (FTA) tests.

Extensive research is being carried out on the subject of serological testing for gonorrhoea. The successful outcome of such research could play a major role in the detection of the great reservoir of this disease.

It is apparent that research into the fundamental nature of syphilis and gonorrhoea must be greatly extended if we are to match what has been done to combat poliomyelitis and other infectious diseases. An all-out attack must be made by the best minds in immunology. Further research in the behavioural science aspects of the venereal diseases is necessary, in order that we may learn about the high-risk groups. For instance, we know very little about the individuals who acquire repeated infections. Denmark is pioneering this type of investigation, but each geographical area probably has its own variation of this problem.

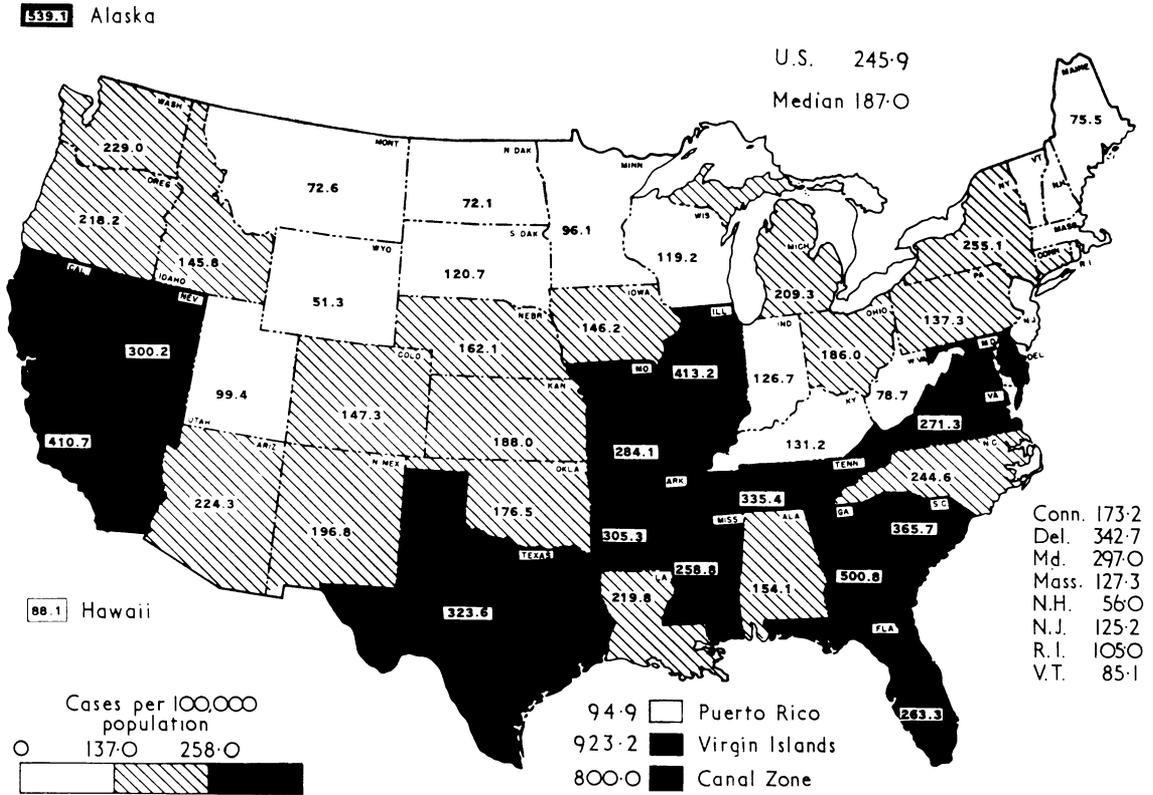
It is obvious that the venereal diseases have reached epidemic proportions. The recent publication of the World Health Organization entitled 'The Rise

and Fall of the Treponematoses' (WHO, 1967) indicates that the increase is global. That changes in ethical, moral, and behavioural codes are taking place would appear to be unquestionable. Urbanization, the facility of world travel, and improved economic conditions are factors. Attitudes towards and patterns of prostitution are changing. At the Directing Council of the Pan-American Health Organization (The Regional Office of the World Health Organization), a resolution put forward the idea that all the medical and social indications suggest that the incidence of the sexually-transmitted diseases will continue to increase from the present serious situation. Governments were urged to review their venereal disease services, and the financial provision for them, as a matter of great urgency. It was recognized that each country has its own control problems. It was recommended that the national governmental and non-governmental bodies should elect panels of experts to evaluate control programmes. They should take into consideration the changing social customs and the experience of the newer methods of disease control.

At the same time, attention was drawn to the fact that gonorrhoea is now in an epidemic state, not only in the United States, but throughout the world (Fig. 4). Active and immediate steps, which will help to achieve better control of the disease, were urged. That the incidence of gonorrhoea is increasing rapidly throughout the world is indisputable. This is due to inadequate diagnostic methods, lack of personnel and funds for contact investigation in cases of gonorrhoea, and a number of other causes. The true incidence of gonorrhoea in the United States is not known, but it is apparent that it is rising rapidly, and salpingitis is being encountered with increasing frequency. The need for faster and more accurate diagnostic tests is apparent; a suitable serological screening mechanism would be ideal. In the meantime, the examination, by available methods, of all females attending cancer detection, prenatal, birth control, and all other such clinics would aid in the discovery of female carriers. The increasing resistance of certain strains of the gonococcus to penicillin and other antibiotics is a cause for concern.

Prophylaxis

Renewed attention has been directed toward the subject of prophylaxis. In the United States the prophylactic treatment with antibiotics of individuals exposed to infectious syphilis is an accepted practice. Scattered experiments have been carried on in various parts of the world on the prophylactic treatment of prostitutes, but few, if any, controlled studies of the value of such prophylaxis are available. Consideration should be directed toward further investigation of these methods in both males and



SOURCE: PUBLIC HEALTH SERVICE
 FIG. 4 *Gonorrhoea. Case rates per 100,000 population. Reported cases only. Fiscal year 1969 (ASHA, 1970, p. 55)*

females. At the present time, a well-planned study of vaginal penicillin prophylaxis in prostitutes is being carried out in Taipei under the sponsorship of the World Health Organization.

Summary

The venereal diseases pose a major problem of rising incidence and failure of control, not only in the United States but in most parts of the world. It would appear that sustained efforts at the Federal, State, and local practising physician level will be required to bring them under control in the United States. New approaches and new diagnostic techniques are urgently needed. Research into the basic nature of these diseases must be carried on more vigorously, and the education of the general public, especially of the high risk groups, is a necessity. Education of the practising physician and the undergraduate medical student must be re-instituted. This education should include the clinical, behavioural, and public health aspects of these diseases.

There is an urgent need for each country in the world to review its venereal disease control programme, not only to incorporate the newest methods of approach, but also to foster research, and provide more effective means of control.

References

AMERICAN SOCIAL HEALTH ASSOCIATION (1969) 'Today's V.D. Control Problem', p. 51, p. 18

(1970) *Idem.*, Fig. 1 (see p. 51); Fig. 2 (see p. 53); Fig. 3 (see p. 48); Fig. 4 (see p. 55)
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La lutte contre les maladies vénériennes aux États-Unis d'Amérique

SOMMAIRE

L'augmentation de l'incidence des maladies vénériennes et l'échec de leur contrôle posent un problème majeur non seulement aux USA mais dans la plus grande partie du monde.

Il apparaît que des efforts soutenus, sur le plan fédéral, sur celui des États et sur celui des praticiens locaux, seront nécessaires pour arriver à les maîtriser aux États-Unis. De nouvelles recherches et de nouvelles techniques diagnostiques sont nécessaires d'une manière urgente. Des recherches fondamentales sur la nature de ces maladies doivent être conduites avec plus d'énergie; l'éducation du public en général, et en particulier dans les groupes hautement exposés, est une nécessité. L'éducation des praticiens et des étudiants en médecine doit être de nouveau instituée; cette éducation doit porter sur la clinique, le comportement et l'aspect de santé publique de ces maladies.

Il y a besoin urgent pour tous les pays du monde de reviser leur programme de lutte contre les maladies vénériennes, non seulement en y comprenant les nouvelles méthodes d'approche, mais aussi en encourageant la recherche afin d'obtenir une meilleure efficacité.

Br J Vener Dis: first published as 10.1136/sti.46.5.406 on 1 October 1970. Downloaded from http://sti.bmj.com/ on September 22, 2023 by guest. Protected by copyright.