TRENDS IN SYPHILIS IN THE UNITED STATES[1]

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On the whole, syphilis has been increasing recently in the United States of America. The article presented below discusses the nature of this trend and Government measures taken to counteract it.

Introduction

Much has been accomplished since continuing measures for the control of syphilis were implemented throughout the United States of America more than three decades ago. While the trend of reported syphilis has been generally downward, a graph of this trend shows a series of peaks and valleys declining in magnitude over time. As of mid-1972 reported numbers of syphilis cases in all stages were rising toward a new peak. This paper discusses, first, the areas where the increases have been occurring, and second, the reasons behind these increases.

Syphilis ranks fourth among reportable communicable diseases in the United States, exceeded only by gonorrhea, mumps, and streptococcal infections and scarlet fever. More than 94,300 cases of syphilis in all stages were treated and reported during fiscal year 1971 (July 1970-June 1971); this was the first fiscal year since 1963 in which the number of cases (all stages) did not fall below the number reported the preceding year.

Because the infectious (primary and secondary) stages of syphilis appear shortly after the disease is acquired, cases reported in these stages are generally considered to be the best indicator of incidence trends and distribution. The smallest annual total of infectious cases ever reported in the United States was 6,251, reported in 1957. A small increase was reported in 1958, followed by sharp increases of about 50 per cent a year in 1959, 1960, and 1961. In 1962 resources were increased to intensify detection and prevention efforts, and the rate of increase slowed gradually, reaching a peak of 23,250 cases in 1965.

During the four-year period 1965-1969, infectious syphilis cases declined 20 per cent; but in fiscal year 1970 an increase of 8 per cent was reported, followed by a supplementary increase of 15.6 per cent in 1971. For the first eight months of fiscal 1972, reported infectious cases showed an increase of 2.5 per cent with respect to the same eight-month period of fiscal 1971. Even though most areas continued to report an increase in the number of cases in fiscal 1972, the overall rate of increase was less because several large problem areas (Florida, New Jersey, New York City, and Texas) apparently reached a plateau or reported a decline in their number of cases. However, it is too early to predict whether or not the declining rate of increase is more apparent than real.

Analysis of available information—including the results of a multiphasic health examination survey (*1*) using a sample of persons in the continental United States, studies on the extent of cases treated and reported by private physicians (*2, 3, 4, 5*), and nationwide data (collected by the Venereal Disease Branch of the CDC) on the results of reactor follow-up in conjunction with trends of reported syphilis cases—suggests that the actual number of syphilis cases occurring in 1971 was on the order of

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80,000-85,000 cases. However, because large numbers have escaped detection over the years, it is estimated that if every person in the United States could be tested for syphilis today about 500,000 previously untreated cases would be found. With the recent rise in infectious syphilis cases, the number of untreated latent cases will undoubtedly increase as well. This prediction is perhaps best supported by the fact that early latent syphilis cases numbered over 17,800 in 1971, an increase of more than 15 per cent over the number reported the year before.

Congenital syphilis has declined rather remarkably over the years. Some 17,600 cases were reported in 1941, while in 1971 there were only 2,047. However, the number of congenital syphilitics under one year of age in 1971 increased for the second straight year, rising from 277 in 1969 to 300 in 1970 and 400 in 1971. The increase in the number of infants with syphilis is especially unfortunate, since congenital syphilis can clearly be prevented. Nevertheless, since the incidence of congenital syphilis appears directly related to that of infectious syphilis, there will doubtless be more and more syphilitic infants as the incidence of infectious syphilis rises.

Even though we are experiencing a resurgence of syphilis in the United States, I would like to point out that we have made tremendous progress in reducing the late manifestations of the disease ever since inception of the nationwide control program in the late 1930's. In 1940 a total of 14,064 deaths were reported to have been caused by syphilis, compared to 2,381 deaths in 1967–a reduction of 83 per cent over the 27-year period. During the same period, reported infant deaths from syphilis were reduced 99 per cent, from 1,251 deaths reported in 1940 to 15 in 1967. New admissions of patients with syphilitic psychoses to mental hospitals were reduced 98 per cent, from 7,694 reported in 1940 to 162 in 1967.

Although rather dramatic reductions in the late manifestations of syphilis have been achieved over the past three decades, 8,500 resident patients with syphilitic psychoses are still in mental institutions, a holdover from the higher incidence of syphilitic psychoses in the past. Maintaining these patients costs U.S. taxpayers $42.5 million per year.

As indicated earlier, there are still roughly 500,000 untreated syphilitics who might potentially develop disability or die prematurely from the disease. These persons must be found and their condition treated. Otherwise, the costs to the nation, just in terms of hospital care, will add up to billions of dollars, and there will be an indeterminate amount of sociological and behavioral damage in families and communities where these unfortunate cases live. Therefore, such disability must not be allowed to occur.

Distribution of Infectious Syphilis

Where are the infectious syphilis cases coming from? The answer is practically everywhere, but the problem is relatively more prominent in certain geographic regions. For example, the national rate of primary and secondary syphilis cases per 100,000 population was 11.5 in 1971. However, the geographic distribution varied considerably, ranging from a low of less than one per 100,000 for Idaho, Iowa, Montana, New Hampshire, and Vermont to rates in excess of 20 per 100,000 for Florida, Georgia, Louisiana, Nevada, New York, and Texas.

In terms of total cases, Idaho, Maine, Montana, New Hampshire, North and South Dakota, Vermont, and Wyoming each reported 10 infectious syphilis cases or less in fiscal year 1971, while California, Florida, Georgia, New Jersey, New York, and Texas reported over 1,000 cases each. The problem is generally less serious in the New England and Midwest states with low population densities, and more severe in states with higher population densities along the east and west coasts and in the southern parts of the United States.

Concentration of the problem in densely populated areas is demonstrated by the fact that case rates reported for 1971 (per 100,000 population) were several times higher than the national average in large cities such as Dallas,

Texas (67.7); Washington, D.C. (77.0); San Francisco, California (81.4); Atlanta, Georgia (87.6); and Newark, New Jersey (124.0).

In terms of urban-rural distribution, the largest cities (those with over 200,000 inhabitants) experienced an average syphilis rate of 24.5 per 100,000 for primary and secondary syphilis, a rate almost six times higher than the average rate of 4.1 per 100,000 experienced by small towns and rural areas. The rates for cities with between 50,000 and 200,000 inhabitants tended to be between the rates for larger cities and those for small towns and rural areas. The migration of young people to urban centers in recent years may have contributed to the greater disease problem in urban areas.

In the two infectious stages, particularly that of primary syphilis, reported male cases exceeded reported female cases in mid-1972 by almost two to one. However, this difference is believed to be largely due to greater frequency of hidden primary lesions in the female than to greater incidence of disease in the male. Surveys using serologic tests have detected nearly equal rates of infection among males and females. Even so, reported primary and secondary syphilis cases among males are increasing much faster than among females. For example, the number of male cases was reported 17.7 per cent greater in 1971 than in 1970, while the number of female cases was only 11.8 per cent greater.

The 20-24 year age group had the highest reported rate of primary and secondary syphilis in 1970 (41.9 per 100,000), followed by the 25-29 age group (34.0) and the 15-19 age group (20.0). Persons 20-24 years of age accounted for almost three of every 10 cases. Eighty-seven per cent of all reported cases occurred between the ages of 15 and 40.

The rate of increase in reported syphilis cases varies somewhat, depending on where the patient receives treatment. For example, the number of infectious syphilis cases reported by public clinics in fiscal year 1971 increased 16.9 per cent over the number reported in fiscal year 1970, while cases reported and treated by private physicians increased only 13.4 per cent.

While primary and secondary syphilis cases are on the rise practically everywhere, the largest increases and the major part of the problem are concentrated in states and large cities with a high population density. They are also concentrated among males more than among females, among teenagers and young adults, and among public clinic patients more than among patients seeking medical attention from private physicians.

Why is syphilis increasing? One reason is that physicians in private practice are not reporting their infectious cases for epidemiologic follow-up, which means that many sources of infection are not coming in for treatment. Also, financial support available from federal, state, and local sources did not keep pace with increasing inflation during the four fiscal years 1968 through 1971. Inflation greatly reduced purchasing power, and this in turn caused a drop in the number of case-detection and case-prevention workers employed, as well as limiting their mobility. These factors have severely hampered efforts to check the spread of syphilis.

When resources decline significantly, the application of epidemiologic measures (interview-contact tracing) is often adversely affected. For example, because of a shortage of trained interviewers in fiscal year 1971, almost 12 per cent of the reported cases of primary and secondary syphilis were either not interviewed or named no contacts during the interview. Thus, no case detection was possible for more than 2,700 reported cases of infectious syphilis because there were no contacts to investigate. Case prevention with respect to these cases was also blocked. Even for the interviewed cases that produced contacts, there was a decline in the average number of new contacts per case, the percentage of contacts examined, and the number of suspects and associates examined. A shortage of personnel trained in the interview-contact tracing procedure thus brought about a decline in national epidemiologic efficiency. The consequent decrease in detection and prevention activities contributed to the increase in syphilis cases.

The rise noted in congenital syphilis among

infants under one year of age, and the increases noted for early latent syphilis cases, tend to confirm that decreased application and efficiency of the case detection and case prevention procedures left large gaps in the syphilis surveillance network. These gaps permitted such cases to escape early detection, contributing to further spread of the disease.

One important area of epidemiology showed significant improvement between fiscal years 1969 and 1971. The percentage of primary and secondary syphilis contacts receiving preventive treatment whose last exposure occurred within 30 days of the examination increased from 83.8 per cent to 90.4 per cent. Studies have shown that the disease will be in the incubation stage in some 30 per cent of the apparently uninfected contacts exposed to syphilis within 30 days of the time they are examined (*6*).

An alternative to preventive treatment upon initial examination of the contacts is re-examination at periodic intervals to determine those infected. However, experience has shown that many such contacts will develop disease between examination and contribute to the spread of infection before the next examination. Others will be lost to examination and will turn up later as sources of syphilis epidemics. Unfortunately, the extent of case prevention from this alternative approach has not been sufficient to counteract the overall decrease in epidemiologic efficiency, so that the net effect has been to increase the number of syphilis cases.

Government Control Efforts

To meet increased needs, the United States Congress has more than doubled the annual federal appropriation for venereal disease control. This appropriation provided the additional resources needed for the Venereal Disease Branch of the U.S. Center for Disease Control to spearhead a nationally coordinated attack on venereal diseases by federal, state, and local agencies. This venereal disease control effort is being directed toward the massive gonorrhea problem as well as the recently resurgent incidence of syphilis. It is expected that by April or May 1972 the additional appropriation made by the Congress will be used to fund approximately 60 venereal disease control projects with state and local health agencies. These projects will all be focused primarily on gonorrhea control, but the funds in question will be used to support a total venereal disease control effort, including case detection, case prevention, and educational aspects of the campaign.[4]

The Venereal Disease Branch (CDC) encourages and actively participates in the implementation of uniform syphilis control measures among the states by grants of money and assignment of personnel. It also provides training for field epidemiologists and laboratory personnel at all levels of government; conducts and coordinates research in therapy and immunology; conducts evaluations of proficiency in serologic testing among state health department laboratories; and in general collects, evaluates, and disseminates information on control activities and the extent and trends of the disease. Since federal grants are traditionally devoted to case detection measures, they are used mostly to support the salaries and travel of case detectors and case prevention workers.

State and local governments have traditionally funded laboratory and clinical services (including physician, nursing, and clerical personnel), and have provided the physical facilities for free diagnostic and treatment clinics. State and local health departments have provided varying proportions of the case detection resources; during 1971 they increased their commitments in this regard.

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[4] A nationwide gonorrhea detection program was launched in 1972. Preliminary data for the first 8 months of fiscal year 1973 indicate that over 2,506,000 women were cultured for gonorrhea by all types of health care providers. The overall positivity rate was 4.4 per cent.

SUMMARY

At the present time the incidence of syphilis is increasing in the United States, partly because fewer resources are available to combat it. Program achievements in the past demonstrate that enough knowledge exists to eliminate syphilis as a public health problem in the country provided sufficient resources are made available, and provided these resources are devoted to activities and areas where they will have maximum impact. With the implementation of a nationwide gonorrhea detection and prevention program in 1972, long-run syphilis control will be bolstered significantly. It is expected that some patients with gonorrhea will be treated for concomitant syphilis; that many patients who are tested for gonorrhea will also be serologically screened and found to have syphilis; and that the administration of penicillin to large numbers of persons with gonorrhea (who are also at high risk to syphilis) will reduce the spread of both diseases. These activities, plus a more efficient and intensive application of the interview-contact tracing procedure to detect and treat existing cases and to prevent spread of the disease from infected to non-infected persons will impede the normal transmission of syphilis to a point where disease reduction will occur.

We stand on the verge of a double victory: conquest of the *Treponema pallidum* as well as conquest of the gonococcus. The necessary technology and resources have been made available; it is now up to us to use them effectively and efficiently in this major effort to rid the country of these dread diseases.

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