

Case Finding Techniques in Venereal Disease

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"In their hearts, all men are alike in this one thing—their yearning for better health for themselves and for their families. Why, then, when there are techniques and procedures to protect and heal, must half the world's people live under the shadow of infectious disease?"

CDC Report of Activities.

First I would like to give some history of Venereal Disease to try to give some understanding of the problem of our forebearers, and to try to give some continuity to our present thoughts.

Throughout this presentation venereal disease, history control, etc. will refer to syphilis and gonorrhea as these are more important in our lives than the remainder of venereal diseases.

There are indications that syphilis may have existed in Europe before the Middle Ages, but it seems to have appeared first in epidemic form in 1495. At the Siege of Naples during that year, it is said to have been communicated to the French invaders by Spanish mercenaries who, according to incompletely substantiated reports, acquired from Columbus's sailors' a "visitation" from the New World. As it spread through Europe during the period immediately following, syphilis was manifested in a form much more virulent than is known today, suggesting that the disease fell upon virgin soil. It ranked with plague as the great scourge of the period. If the disease existed before this time, it was only after it assumed pandemic proportions that its venereal nature was clearly recognized. Fracastor in his "De Contagione" recognized this. Fracastor also originated the name syphilis in a Latin poem published at Verona in 1521, and applied it to the hero Syphilus or Syp-hylus, a shepherd, who is represented as the first to have been smitten with the disease, for disrespect shown the gods.

Syphilis was not clearly differentiated from the venereal disease until relatively recent times. John Hunter, in 1767, after

inoculating himself with the disease, distinguished between the hard (Hunterian) chancre of syphilis and soft chancre of chancroid, but confused syphilis with gonorrhea. Ricord, in 1832, first differentiated clearly between syphilis and gonorrhea, divided the disease into its primary, secondary and tertiary stages and noted the rarity of reinfection. Though various attempts had been made to isolate the causative organism it was not until 1905 that Schavdinn and Hoffman found *T. pallidum* in chancres and inguinal glands of syphilitic humans.

Gonorrhea is a disease of antiquity. Although it is not known in what country or at what time the malady first made its appearance, references to a condition symptomatologically similar to it are present in the earliest writings (Crabtree). The papyri of the Egyptians (3400 B.C. to 150 B.C.) mention the symptomatology and treatment of a disease which appears to have been gonorrhea. Likewise the Chinese Emperor, Hoang Ty, in 2637 B.C. probably referred to this malady when he wrote, "among the external diseases is one that is different from all others, the symptoms of which are easy to recognize. They are: (1) Affection of the urethra and vagina at the same time as the bladder; (2) drainage of corrupt materials, white or red, by the urethra or vagina."

The contagiousness of the disease was recognized by the early Hebrews and Hindus, while the Greeks looked upon the affliction as a punishment from the gods, and the Romans, perhaps for the first time, emphasized its "shameful nature." Galen is credited with having given the name gonorrhea to this malady since he thought the purulent discharge was an involuntary emission of semen. Unlike syphilis, which today exists in a form milder than in centuries past, gonorrhea, as shown by its clinical picture, has apparently lost none of its pristine malevolence.

John Hunter, in 1818, acquired syphilis

and gonorrhea after inoculating himself deliberately with pus from a case of gonorrhea and concluded that the two diseases were merely different manifestations of the same malady. His deductions passed unchallenged until Ricord, in 1832, proved experimentally that the two diseases were really separate entities. However, he maintained that gonorrhea, in contrast to syphilis, was of non-specific origin. It remained for Albert Neisser, in 1879, to terminate this long period of uncertainty by describing a diplococcus present in the pus of gonorrhea as the causative agent. He found the coccus in a number of cases of urethral gonorrhea, vaginitis, ophthalmia neonatorum, and ophthalmia of adults in the absence of other microorganisms and therefore concluded that it was specific cause of the disease. Since then, *Neisseria gonorrhea* has been generally accepted as the causative agent of this malady, although it was not until a few years later, when the organism had been grown in vitro and the disease had been produced experimentally in man by means of pure cultures of coccus, that its etiology was definitely established.

Control and case findings are particularly synonymous in the problem of venereal disease and a discussion of case finding would be incomplete without some mention of its history and present controls.

The first really effective measures to deal with syphilis as a public health problem were those inaugurated in 1912 by Dr. Herman M. Biggs, at that time General Medical Officer of the City of New York Department of Health. In fact, the program initiated and put into operation was so well planned that it is practically the same as the one now being followed. Biggs' program embraced the following pioneer steps.

1. Including syphilis and gonorrhea among the diseases which must be reported to the health department by private physicians, hospitals and clinics.
2. Offering the services of the health department diagnostic laboratory for making

Wassermann tests free of charge. (Microscopic Examinations of smears from suspected cases of gonorrhea had long been a routine service given by the laboratory.)

3. Advocating the establishment by the Health Department of special clinics where modern methods of diagnosis and treatment of the venereal diseases would be followed. Special emphasis was placed on facilities for early diagnosis by means of dark field microscope examinations, the use of salvarsan for treatment of syphilis.
4. Providing special hospital facilities where if necessary, certain types of patients would be forcibly detained until no longer infectious.
5. Carrying on an educational campaign against patent nostrums and quackery in the field of venereal diseases.

Biggs' guiding principle in developing this program was to deal with the venereal diseases purely as a public health problem. To use his words, "as health officials, we have nothing to do with the moral and social problems presented by prostitution."

That Biggs was mindful of the private physician in the campaign against venereal diseases is indicated by the appointment of a specially trained physician to serve as medical advisor in the diagnostic clinics. The duties of this physician consisted of advising patients as to the nature of the diseases, the necessity for proper medical care, the danger of self-treatment, and the importance of obeying the orders of their physicians. The work of this medical adviser, therefore, in no way interfered with the legitimate activities of private physicians; on the contrary, it helped the practitioners materially in treating their patients successfully.

In his campaign against medical quacks who advertise, Biggs fought this group on their own ground by having the Department of Health run a paid advertisement in those newspapers publishing the advertisements of quacks. The department's announcement, published daily over a long period, offered free advice regarding ven-

ereal diseases at its headquarters and emphasized the fact that all consultations were strictly confidential. In addition to this, the Department of Health posted signs bearing similar announcements and warning against quacks. In the toilet rooms of saloons and public comfort stations. Later, Biggs secured the enactment of legislation prohibiting advertising for treatment of venereal diseases.

That Biggs did not regard the program inaugurated in 1912 as complete is indicated by the reference which he made to follow-up of patients in the home. He pointed to the great value of such work in tuberculosis and, although he foresaw many practical difficulties, he felt "no doubt that some form of individual supervision of the venereally infected will gradually be evolved by sanitary authorities." In other words, he foresaw the application of epidemiological methods to the control of the venereal disease.

In 1918 the U. S. Congress enacted the Chamberlain Kahn Legislation under the stimulus of wartime realization of the need of physical fitness. Funds were made available to the United States Public Health Service by Congress for distribution to the various states. After two years, however, with the immobilization of the Armed Forces and consequent lack of interest in venereal disease control, funds for this work were not reappropriated. Public interest in venereal disease control entered the doldrums, for fifteen years there was no evidence of Federal participation until the Social Security Act became a law in August, 1935. Title VI of this Act provided \$8,000,000 to be made available annually for grants-in-aid to the states for their public health services, individual grants to be made on the basis of population, special health problems and need.

Three years later, in 1938, the Federal Venereal Disease Control Act was passed.

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This Act, known as the La Follette-Bulwinkle Bill, authorized the expenditure of Federal funds for venereal disease control activity for a three year period beginning July 1, 1938. The appropriation for the year ending June 30, 1939 was \$7,000,000; for the year ending June 30, 1940, \$5,000,000; and for the year ending June 30, 1941, \$7,000,000; with such sums annually thereafter as were considered necessary. Appropriations to the states were made by the Surgeon-General on the basis of (1) population, (2) the extent of the venereal disease problems, and (3) the financial needs of the respective states. These sums were authorized in addition to the amounts already being expended for the purpose, from the Public Health Service's existing fund of the Social Security Board's Grants-in-aid.

Modern venereal disease control thus received an enormous impetus, beginning with 1935. The Federal funds from the Social Security Act, and later from the La Follette-Bulwinkle Bill, supplemented local funds and made it possible to expand activities to include all necessary phases of a proper and complete venereal disease control program, such as health education, information to physicians, free drug distribution, intensive epidemiology, and an increase in the number of clinics and clinic sessions.

At approximately the same time (1935) specific chemotherapy was introduced for the treatment of gonorrhea by the advent of the sulfonamide drugs. For centuries physicians had treated gonorrhea empirically. Now, for the first time a specific chemotherapeutic weapon was available for the control of gonococcal infection.

The discovery, by Mahoney, of the effectiveness of penicillin in the treatment of syphilis heralded a new era in venereology. As adequate supplies of the drug became available in the last years of World War II the problem of the treatment of both syphilis and gonorrhea was greatly simplified. Case holding was no longer the bugbear of every venereal disease clinic. The potential and actual toxicity of arsen-

ical drugs and heavy metals was no longer a factor in the proper and non-hazardous treatment of the patient.

Why then are we concerned about venereal disease control today? Is this a current communicable disease problem? Let us reflect for a moment on some of the statistics. The use of penicillin in the treatment of syphilis started in 1943 as previously mentioned. In 1946, when the drug became generally available a whole new pattern of control, including vastly improved case-finding procedures, was under way. The peak of the Nation-Wide epidemic was reached in 1946-47. Thereafter the decline in syphilis case rates was steady and rapid. This downward trend was comparatively steep and consistent over the entire eight-year span between 1947 and 1955, then became less pronounced and levelled off during 1955. The case rates of new syphilitic infection declined 94.6 per cent between 1947 and 1955.

At first glance the statistics would lead one to assume that this denotes overwhelming success and that syphilis could be added to the list of communicable diseases which are no longer considered to be a public health problem. However when we look at the trends over the past five years the number of cases reported seems to be more or less static. A plateau appears to have been reached. In 1958, reported cases of primary and secondary syphilis showed a slight increase in the United States while early latent and total syphilis showed a decline.

Twenty-three states showed increased primary and secondary syphilis cases in 1958 and 19 states showed increases in late latent syphilis. Cases of latent syphilis represent case finding more than four years after the primary and secondary stages of the disease. This means a failure of case finding in the past. To prevent the spread of a communicable disease it is essential that the case be found early, while in the infectious stage. The trend of reported cases of venereal diseases must be interpreted with caution since fluctuations in the number of reported cases may be

due to fluctuations in case-finding activities. Decreasing case-finding efforts are reflected in the reported morbidity data as well as changes in incidence and prevalence. If cases are not found and reported there is no apparent problem.

What are the economics involved in syphilis and gonorrhea? The exact figures are not obtainable but a rough estimate is enough to show the magnitude of the problem.

The annual loss to the Nation is 68,850 man-years of life expectancy due to deaths from syphilis, and the latest figures show an additional loss of 32,000 man-years through hospitalization for syphilitic insanity, at a cost of more than \$47,555,000. Loss of income by males with syphilis psychoses is estimated to be over \$90,000,000.

Let us now consider the source of the scourge. In addition to the reported incidence of cases of syphilis and gonorrhea each year, public health workers are also concerned with finding and bringing to treatment the estimated 1.8 million persons in the United States with undiscovered or inadequately treated syphilis. These individuals, besides being potential candidates for chronic illness and premature death, are important in the maintenance and transmission of the disease. Studies have shown that untreated syphilis reduces life expectancy by approximately 17 per cent.

Semi-annually, the State Health Departments submit tabulations by race, sex and age of gonorrhea and primary and secondary syphilis patients. These are then analyzed for any significant changes in the age of the infected persons. During 1956, over 49,000 cases were reported among persons under 20 years of age—21 per cent of total cases reported. During 1957, 34 states reported increases over 1956 in the proportion of teenagers who had acquired venereal disease. Each day, 136 cases are reported among persons under 20; 1 case every 11 minutes.

The year 1958 was another year for teenagers. Nearly half the persons involved in venereal disease epidemics were

of this age group. In all, young persons, 15 to 24 years of age, accounted for 53 per cent of the 221,072 infectious venereal disease cases reported in the United States.

That old bugbear promiscuity, perennial antagonizer of religious and venereal disease workers, must not be forgotten. Evidence that we have not changed our sexual mores, hence the propensity to propagate venereal disease, can be seen by the following:

1. The illegitimate birth rate is said to be 4 per cent of our total live births. If 4 percent of the mothers admitted they were single, how many more of the population were illegitimately pregnant?
2. It has been reported that 35-50 per cent of the married men in the United States have had extra-marital relations while they were married.
3. The national divorce statistics continue to augment and perpetuate the cycle of promiscuity. The basic causes for divorce are found in immaturity, incompatibility, and infidelity. One of the factors promoting promiscuity in our teenagers and adults is the broken home.
4. In the field of juvenile delinquency, the third most common cause of arrest in females is "sexual activities."
5. If we take a leaf from economics and reflect on the law of supply and demand, we may ask, why has prostitution decreased in the United States? Law enforcement and organized public opinion are partial answers. More important is the competition from increasing, non-commercialized promiscuity. The prostitute is no longer a major factor in the venereal disease control problem. She is replaced by the amateur.

Recently there has come to light a hitherto unsuspected source of venereal disease, the homosexual. Until 1948 not many cases had been reported along these lines. Since that time there has been an increasing incidence of infected cases admitting

contacts of the same sex. All these cases were not solely homosexual, some admitted "heterosexual relations," i.e. having had relations with the opposite sex at the same time. Conceivably they could have acquired the disease from the heterosexual partner. This potential reservoir is easily missed for a variety of reasons. Among these are: Atypicality in location of the lesion, reluctance of the infected to admit homosexual contacts, and inexperience of contact of venereal disease workers in eliciting a history of this nature from the infected.

The entire control program states fundamentally that early diagnosis and treatment are essential, case finding being more important and more elusive than treatment. Treatment today is simple and effective with the antibiotic armamentarium available.

Case finding may take the form of selective blood testing. In this method one tests certain groups of the population suspected of having high incidence of venereal disease, especially syphilis. Blood samples may be obtained by setting up public testing stations in high prevalence neighbourhoods, by door-to-door solicitation of volunteers or by testing certain selected industries and institutions. In 1958, 35 states reported testing over 777,000 persons of whom 8.7 per cent were found to be reactive. As expected, the highest rates were found in the lower socio-economic population groups.

In this sphere come the premarital blood testing service. Because of diversity of opinion in V.D. circles a spotcheck was run in some of the Southern States. On 26,000 blood samples tested in 6 months a reactive rate of 3 per cent was found. This is a high enough percentage to justify the 42 states who, now have compulsory premarital testing. The amount of money that is spent by having these cases diagnosed and treated is considerably less than that amount necessary to treat late manifestation of syphilis. Granted this technique may help in syphilis and not gonorrhoea, but the gonorrhoea problem may be

taken care of by other methods of case-finding.

A second method of case-finding is through education, with the aim of motivating individuals who have exposed themselves to seek early medical care. Health education as a case-finding tool will work better in males than in females, principally because the signs and symptoms of gonorrhoea and primary syphilis are not so apparent to the female patient.

Education may be a preventive measure also. Sex education, or education for family living, offers a hope of reducing sexual promiscuity, but it will not eradicate it. Eradication would require coordinated effort on the part of the home, church, school and community in character training and formation of our youth.

Contact investigation represents the third and probably, the most effective method for case-finding. Here, one begins with an infected patient. By skillful, tactful and persuasive interviewing, one attempts to elicit the names of those contacts to whom the patient was exposed during the time period covered by the maximum incubation period of his disease, and those whom the patient has exposed since the onset of his disease.

An example of contact investigation at work can be drawn from our Public Health brethren in a northeast Massachusetts town. In 1957 there was an epidemic of gonorrhoea in this town, in which 20 times the number of cases of gonorrhoea for 1952-1956 were reported in the space of 2 months. The reason for the number of cases was a good contact investigation. Each contact revealed an average of 2.9 contacts (the contact-patient index), obviously not all the contacts were named, which is an uncontrollable fallacy of the method.

Nevertheless, this epidemic shows what can be done when clinical and public health medicine join forces. This group, particularly the female members, might never have been discovered without the interview for contacts of the original and each subsequent diagnosed case. What is more to the point, this outbreak reminds us that

sexual promiscuity is basic to the spread of venereal disease.

To illustrate a point mentioned previously let us look at the circumstances of this outbreak. The patients examined all frequented the same tavern or club in the town. They were from the low socio-economic group and there were a few representatives of the low middle group. Those who worked could be classified as unskilled or semi-skilled. Their schooling averaged 8.5 years for patients and 8.9 years for contacts.

This clearly illustrates that there is a "Venereal Disease Class" in our population. Granted all our cases may not come from this "Class," but the greatest majority can be shown to be derived from its core. It seems evident that our biggest effort to stamp out or reduce venereal disease should be directed toward this segment.

A development of great importance in this respect is a new method of case-finding cluster testing.

Cluster testing is a technique which increases the yield of infectious syphilis discovered and brought to treatment. This technique was developed by analyzing infections discovered among the contacts suspects and associates linked to patients with syphilitic lesions.

The new method is an extension of the standard contact investigation process. Patients with infectious syphilis are interviewed for sex contacts as usual, and are also asked to name other persons (designated as "named suspects") of either sex who move in the same socio-sexual environment. In addition, "associates" of patients, contacts and suspects are examined. Associates include neighbours, fellow employees, and others who have not been specifically named as contacts or suspects.

An example of its efficacy may be shown by the results of Cluster testing a group of 36 persons with infectious syphilis. There was a total of 640 persons examined, of this group 16 infectious cases were brought to treatment, 17 other syphilis cases

brought to treatment, and 15 cases returned to treatment. This appears to be a respectable return.

The foregoing may sound good to some people who may say—"Fine, this work is demonstrative of how the Public Health Department works but what about the private physician? Just where does he fit into this? The only answer to that is, "Everywhere!" One of the most important cogs in the machinery of control of venereal disease is the private physician.

A larger and larger proportion of patients having early syphilis are going to private physicians. This fact taken in consideration of itself is not bad, but the most important part of venereal disease treatment and control, which is the finding of contacts, is not being pursued. One can sit back and say that the private physician is at fault and leave it there. In actual fact he is not solely to blame, since his practice keeps him too busy to do much contact interviewing.

However, most states in the United States and most Provinces in Canada now have realized this conflict and have taken steps to remedy it. (A closer relationship is aimed at, and forms are available to list names of contacts for the Public Health Department to follow up.) Here I think is the essence of a good venereal disease program.

Advantages of a solid alliance between health department and private physician in venereal disease case finding is illustrated dramatically by a recent event in a southern coastal state as reported in "The Southern Medical Journal" of February, 1955. Late in August a private physician in a rural community in the South was visited by a representative of his state Health Department on matters unrelated to venereal disease. In the course of their conversation, the physician remarked that within a week or two he had had two cases of early syphilis, which considering the sharp drop of cases in the community, was rather disturbing. The Health Department representative offered to advise the venereal

disease control people of this situation and, with the physician's consent, did so. Contact interview and investigation was initiated at once with the result that to date 36 persons have been traced in this infectious chain and 11 cases of early syphilis detected. A few of the contacts were located as far away as Washington, D. C.

The second illustrative epidemic of syphilis began in November, 1953 when a 16 year old white male high school student with primary syphilis was referred by a private physician for a contact interview to a venereal disease clinic in a mid-southern city. The student named as his only contact a 29 year-old negro male who was examined and found to have secondary lesions with mucous patches in the mouth. It was later established that his contacts were exceptionally numerous, that they represented a cross section of the student body of the high school attended by the 16 year old student, and that the relationship between the homosexual and the student had existed for at least 4 years. Realizing that the situation called for something different than a routine contact investigation, the officers of the Health Department decided to use the "birds of a feather" technique and recalled the original patient who revealed that his 18 year old brother also had a penile lesion and had been with the same homosexual. He also gave the names of five other boys from the same high school with similar experience. The brother was diagnosed as having primary syphilis, but would give no additional contact or suspect information.

Recognizing the serious consequences which might develop, it was decided in cooperation with the Superintendent of Schools and the high school Principal that all of the boys named to date should be questioned to obtain additional suspects, and that these boys and others named by them should be used as vehicles for a word of mouth message to all the boys in the high school that everyone who had been with the man should come in for examination. Thirty-two boys were named as suspects during interviews, and an addi-

tional 20 came in voluntarily: others may have reported to their private physicians. Three additional cases of primary syphilis were then found.

It is important to bear in mind that the source of the Negro's infection was never found and that no female contacts were reported who may have introduced syphilis into this group or who may have further transmitted the infection. The chain of infection may therefore, still be spreading through the high school and the community even though the man has left town. Nevertheless, the acceptance of the community responsibility by one private physician who referred the original case to the Health department for contact interviewing broke at least five potential chains of infection in a fairly circumscribed population group.

In a study conducted between July, 1953 and March, 1954, physicians and health departments worked together to arrange interviews of patients for whom the state paid a fee to the physician for the diagnosis and treatment of venereal disease. In addition, the public health personnel were permitted to interview some of the private patients for whom the state paid no fee.

During the period of study, private physicians presented more than six-tenths of all cases of early syphilis reported. One sixth of these were made available for interview with the result that for every patient interviewed the names of two additional persons exposed to venereal infections were obtained. This demonstrates that where both the private physician and the health department view the physician's venereal disease patients as case-finding opportunities, the chance of more rapidly reducing the number of infectious hosts in the community and in the nation is materially increased.

The illustrations cited and sufficient thought given to the problem should convince everyone of the importance of close cooperation between private physicians and the Public Health Department in contact investigating. In yet another sphere the

private physician is important—education. We have shown how much of a problem venereal disease is among the young, even the very young. Every educational skill and opportunity to prevent venereal disease should be organized and sharply focused upon our younger citizens, including those at the threshold of the teens. In his role as health counselor to patients and

their children, the family doctor has an excellent opportunity to initiate and encourage this educational process.

I would like to close with a quotation from Sir Alexander Fleming—"As the world becomes more complicated, so we are less and less able to carry through anything to a successful conclusion without the collaboration of others."

1. W. J. Brown: E. J. Sinkes—A Recent Study of Premartial Serological Tests in a Southern State: *Southern Medical Journal*—52(6): 107: 1959.
2. A. E. Clark—Venereal Disease Control—*American Journal of Public Health*: 49(7): 865: 1959.
3. Editorial—Compulsory Premartial Blood Testing: *Journal of American Medical Association*: 168(3): 289: 1958.
4. N. J. Fiumara—Venereal Disease—Present and Future: *American Journal of Public Health*: 43: 1443: 1953.
5. N. J. Fiumara, B. P. Todd, H. D. Young, J. G. Wilson—Outbreak of Gonorrhoea in Massachusetts: *American Journal of Public Health*: 49(7): 924: 1959.
6. A. A. Larsen—The Transmission of Venereal Disease Through Homosexual Practices: *Canadian Medical Association Journal*: 80(1): 22: 1959.
7. Report of Activities of Communicable Disease Center Venereal Disease Program, 1958.
8. Theo. Rosenthal—Venereal Disease Control in New York City: *New York State Journal of Medicine*: 59(3): 445: 1959.
9. C. A. Smith—The Private Physician in Venereal Disease Control: *Southern Medical Journal*: 48: 169: 1955.

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