GONORRHEA

by N. A. NELSON, M. D.[1]

TWO movements in the United States, opposite in direction, once more raise the question of what is to be done about gonorrhea. One owes its direction to the deliberate decision of some health officials to push the program for the control of syphilis to the neglect of that for the control of gonorrhea. This movement is carrying with it many of the voluntary health agencies which have become interested in the programs for the control of the genito-infectious diseases.[2] The other depends upon the equally deliberate decision of the medical profession to do something about this "step-child" of medicine, the most neglected of all communicable diseases.

In 1934, the American Neisserian Medical Society was organized as a result of the wide interest aroused by the activities of the then four-year-old Neisserian Medical Society of Massachusetts. This new medical society has stirred the imagination of physicians. Only two years old, it has increased its membership from an original twenty-one to three hundred and twenty-one, from thirty-eight states, Canada, Cuba, and Puerto Rico. The quality of its membership and leadership is attested to by the fact that its first three presidents have been Doctors J. Dellinger Barney of Boston; P. S. Pelouze of Philadelphia; and Thomas Parran, Surgeon General of the United States Public Health Service. Dr. Edward L. Keyes is its life-time Honorary President. Such champions of the better management of gonorrhea as Doctors R. D. Herrold of Chicago, C. C. Norris of Philadelphia, C. M. Carpenter and S. L. Warren of Rochester, and Oscar F. Cox, Jr., of Boston, have served or are serving as members of its executive committee.

It is unfortunate, since the Cinderella of Medicine seems, at last,

[1] From the Massachusetts Department of Public Health.

[2] Proposed as a substitute for the term "venereal disease." Nelson, N. A.: Editorial. *American Journal of Syphilis, Gonorrhea and Venereal Diseases,* July, 1936.

to have found a Godmother, that so many health agencies should now lose interest in the control of gonorrhea.

Gonorrhea is closely related to syphilis epidemiologically. Although the therapeutic armamentarium lacks the specificity of the arsphenamines, there is no reason why better use should not be made of it, such as it is, nor why the public should not be as well informed concerning gonorrhea as concerning syphilis.

Interest breeds interest. Serious research for better drugs and better procedures will be encouraged by the universal demand for results which would be created by general knowledge of the problem.

Syphilis has been dramatized. Paresis, tabes, interstitial keratitis, congenital syphilis, and other well-known forms of the disease, have led to its characterization as the Great Imitator, the Crippler, the Killer, and the Abortionist. There is little of the dramatic in a urethral discharge or a leucorrhea. Few women realize, and the public does not know at all, that pus tubes, pelvic inflammation, the majority of major operations involving the contents of the female pelvis, much of the morbidity known as "female trouble," and altogether too much sterility, are the result of unsuspected and undiagnosed gonococcal infections. There is enough of drama and tragedy to be found in gonorrhea if the world will but see the obvious. A fleeting but effective interest in the disease was created by its dramatization as gonococcal ophthalmia neonatorum, witness the laws in every state for its prophylaxis!

Pelouze[3] exclaims with justification, "It would seem that by the sheer weight of the misery it produces throughout the world, gonorrhea would force itself upon public notice." Old as history, it was described, and methods for its control prescribed by Moses. Its trail may be followed through the medical records of all the ages of mankind. In spite of the nuisance it has been and the damage it

3 Pelouze, P. S.: GONORRHEA IN THE MALE AND FEMALE. Philadelphia, W. B. Saunders, Co., 1931.

has done since the beginning of time, so little has been accomplished in the direction of its control that it remains, as it has always been, among the most prevalent of all communicable diseases.

Ignored by the medical profession, it became the pot of gold at the end of the rainbow of Quackery, whether of the blatant, advertising kind, or of the drug store, or of the more "refined" therapeutic house concoction. The ethical physician became fearful of endangering his own reputation by accepting the infected for treatment. Those who dared to assume the responsibility found not only that their training as to how to manage the disease had been sadly neglected, but that the drug-house salesman was the only source of therapeutic information. The result was failure to make the diagnosis (or fear of the patient's wrath if it was made), treatment of symptoms without knowledge of the true nature and pathology of the disease, and dependence upon the newest short-cut "cure-all" to the neglect of even the most obvious and most elementary principles of procedure.

The urologist, in whose field of genito-urinary medicine and surgery the management of gonorrhea rightly belongs, has been too busy with cystoscopy, prostatectomy, and what not, to permit more than the occasional discussion of the gonococcus and what it does to the genito-urinary system, at his meetings. He has wanted nothing to do with this business of the "clap doctor" nor with the "immoral scum" who have the "nasty" disease. Thus innocent wives and girl children and babies continue to pay the Piper because the world has been so busy looking down its nose at the guilty that it has been unable to focus its attention upon the unfortunates in the background.

Those who do see the problem in its true perspective know that although the therapeutic armamentarium is elementary and nonspecific, and effective only when accompanied by strict control of the patient's behavior, much can be done to shorten the course of the disease and prevent the spread of infection. They know that if

they could but reach the infected at the beginning rather than after months of futile, often damaging, unintelligent treatment, they could accomplish the solution of a great part of the problem. There is nothing very complicated nor difficult about the management of an acute anterior urethritis, nor even of an acute anterior-posterior infection if it is undertaken sensibly, with the cooperation of the patient, and it has not been complicated by previous injudicious meddling.

The medical profession and the public are fortunate in that there are at hand specific remedies for a few diseases. The physician does not throw up his hands, however, because he does not have specific therapies for most of them. The treatment of tuberculosis and cancer must be far more discouraging than the treatment of gonorrhea ever could be, yet the management of those diseases is regularly undertaken with a hundred-fold more enthusiasm. The difference lies in the fact that tuberculosis and cancer have been so dramatized that both public and physician are conscious of their seriousness, while gonorrhea is thought of primarily as a nuisance, more or less the just reward of prostitutes and their consorts.

It is quite impossible to determine, or even to estimate the prevalence of gonorrhea. Studies made in a few large cities indicate that from a half to two-thirds of the infected seek treatment first at a drug store. Many of these, unless complications supervene, never reach medical attention. Furthermore, the diagnosis is so often missed in the female, particularly in the married female, that thousands of infections never become recorded as such. It is probable, also, that no reportable communicable disease is so poorly reported.

The United States Public Health Service recently published a valuable analysis of data collected over a number of years by means of "one-day prevalence studies."[4] The information thus acquired

4 Usilton, Lida J.: The Trend of Syphilis and Gonorrhea in the United States. *Venereal Disease Information.* (United States Public Health Service.) May, 1935, 16, No. 5, pp. 147-164.

for some twenty-nine millions of the country's population was then applied to the total population. Prominent among the conclusions were these:

> That 1,037,000 fresh infections with gonorrhea and 518,000 fresh infections with syphilis reach medical attention annually.
>
> That a second million persons with gonorrhea or syphilis in later stages also seek medical attention annually.
>
> That on any given day, nearly 650,000 persons with syphilis and nearly 500,000 persons with gonorrhea are under treatment or observation.
>
> That the number of fresh infections with gonorrhea which actually reach medical attention outnumber those reported to health departments nearly seven to one.
>
> That gonorrhea is more prevalent in rural than in urban communities, thus confirming United States Army findings among draftees during the war.
>
> That the ratio of fresh infections with gonorrhea under medical care to fresh infections with syphilis under medical care is as two to one.
>
> That the ratio of male to female infections with gonorrhea under medical care is nearly three to one, while that for syphilis is three to two.

The Massachusetts Department of Public Health has collected reports of gonorrhea and syphilis since March 1, 1918. By the close of 1935 it had received 108,560 reports of gonorrhea and 55,289 of syphilis. The following analysis of these reports may have some value, not as a measure of the actual prevalence of gonorrhea, but as an analysis of a large sample.

From 1918 to near the end of 1925, all forms of both diseases were reportable directly to the State Department of Public Health. Some detailed information is available from the reports of that period. From 1926 to 1929, inclusive, reports were made to local boards of health, which forwarded a part of the data to the Department. For those years only the most elementary facts are available. From 1930 to date, reports have been made directly to the Department and full analysis of the data therein is possible.

Study of the reporting during these three periods is enlightening.

(Table 1). The year 1919 was the first full year of reporting. It was the first year after the war when war-time enthusiasm for the control of gonorrhea and syphilis still made itself felt. Reports reached a peak of 9,435 cases of gonorrhea and 4,127 of syphilis. Public interest then declined and reporting reached its ebb in 1929 when only 4,410 cases of gonorrhea and 1,531 of syphilis were reported.

Since the beginning of 1930, the reporting system has been revised and simplified. Postage is paid and a steady program of service to physicians has been maintained. In 1935 there were reported 6,193 cases of gonorrhea and 5,317 of syphilis. From 1924 to 1928 the Department maintained no active program. Since 1928 an extensive program has been developed thus restimulating interest, especially among physicians and allied professions. It is obvious that health department activity reflects itself in reporting. It has also been determined, both from the improvement in reporting and from personal conferences with physicians that the medical profession prefers to report directly to the state health department. Doctors dislike, especially in small communities, to identify themselves to local boards of health as treaters of gonorrhea and syphilis.

Further analysis of the reports according to sex reveals that, with declining interest, the reporting of female infections falls off much

Table 1. Reported gonorrhea and syphilis in Massachusetts, 1919-1935.

Period	Gonorrhea		Syphilis	
	Total Cases	Annual Average	Total Cases	Annual Average
1919	9,435	9,435	4,127	4,127
1920	7,225	7,225	2,987	2,987
1921	5,563	5,563	2,497	2,497
1922-1925	20,291	5,058	8,296	2,074
1926-1928[1]	13,720	4,573	5,139	1,713
1929[1]	4,410	4,410	1,531	1,531
1930	6,974	6,974	4,197	4,197
1931-1934	27,068	6,767	17,914	4,478
1935	6,193	6,193	5,317	5,317

[1]Reports to local boards of health, 1926-1929, inclusive. Reports to State Department of Public Health in other years.

Note: 1918 omitted. Data available for only ten months.

Period	Gonorrhea				Syphilis			
	Annual Average		Per Cent of 1919 Total		Annual Average		Per Cent of 1919 Total	
	Male	Female	Male	Female	Male	Female	Male	Female
1919	7,331	2,104	100.0	100.0	2,423	1,704	100.0	100.0
1920	6,120	1,105	83.4	52.5	1,912	1,075	78.9	63.1
1921-1925	4,423	748	60.3	35.6	1,462	677	60.3	39.7
1926-1929	3,679	853	50.2	40.6	1,035	633	42.7	37.1
1930-1935	5,046	1,660	68.9	78.9	2,661	1,911	109.9	112.2

Note: 1918 omitted. Data available for only ten months.

Table 2. Reported gonorrhea and syphilis, according to sex, Massachusetts, 1919-1935.

more rapidly than the reporting of male infections. Eventually, however, the two tend to resume a relationship to each other in the ratio of approximately 3 male infections to 1 female infection in the case of gonorrhea, and 3 male infections to 2 female infections in the case of syphilis. (Tables 2 and 3). If the reports for 1919 are used as a base line, reports of gonorrhea in 1920 fell 16.6 per cent for the male and 47.5 per cent for the female. Thereafter, by the end of 1929 (ten years later) reports of gonorrhea in the male had fallen to 47.2 per cent of the 1919 figure, and in the female, to 45.6 per cent. The male-female ratio was 3.48 in 1919, rose to 5.85 in the

Table 3. Ratio of male to female infections with gonorrhea and syphilis, as reported in Massachusetts, 1918-1935.

Period	Gonorrhea		Syphilis	
	Annual Average	Male/Female	Annual Average	Male/Female
1918	7,681	2.72	3,284	1.45
1919	9,435	3.48	4,127	1.42
1920	7,225	5.54	2,987	1.78
1921-1925	5,171	5.85	2,139	2.16
1926-1928	4,573	4.59	1,713	1.65
1929	4,410	3.59	1,531	1.60
1930	6,974	3.02	4,197	1.43
1931-1934	6,767	3.04	4,478	1.39
1935	6,193	3.03	5,317	1.38
United States Public Health Service Census	–	2.81	–	1.57

period 1921 to 1925, and returned to 3.59 in 1929. Since then, with improvement in reporting, reports of female infections increased only slightly faster than those of male infections, and a ratio of 3 to 1 has been maintained.

Exactly the same phenomenon occurred in syphilis reporting. From 1919 to 1920, reports of male infections declined 21.1 per cent and of female infections, 38.9 per cent. By 1929, reports of male infections had fallen to 38.9 per cent of the 1919 figure and of female infections, to 34.5 per cent. The male-female ratio was 1.45 in 1919, rose to 2.16 in the period from 1921 to 1925 and returned to 1.60 in 1929. Since then the ratio has been maintained at about 1.40 to 1. The ratios established by the United States Public Health Service Census agree very closely with those for Massachusetts. They are 2.81 for gonorrhea and 1.57 for syphilis. The population of Massachusetts in 1930 was 51.3 per cent female. That studied in the Census was 49.2 per cent female. It would seem reasonable to conclude that with stabilized interest, whether good or poor, the reported ratio of male to female gonorrhea is approximately 3 to 1 and that for syphilis approximately 3 to 2. With declining interest, reporting of female infections declines more rapidly than reporting of male infections, but with recovery of interest, both sexes are affected almost equally, since the male-female ratio is approximately maintained. It would seem reasonable to conclude, further, that a stable ratio of 3 to 1 in gonorrhea and 3 to 2 in syphilis fairly well represents the ratio in which these diseases are diagnosed, although it may not truly represent the actual ratio of their prevalence in the two sexes.

These ratios deserve further consideration in that they vary for the two diseases. It would appear that for every two females with gonorrhea or syphilis, there are six males with gonorrhea and three with syphilis. For every three males with either gonorrhea or syphilis there will be one female with gonorrhea and two with syphilis. Thus there would seem to exist the paradoxical situation that gonor-

rhea is spread by females twice as frequently as syphilis, but that syphilis is spread by males twice as frequently as gonorrhea. The ratio of male gonorrhea to male syphilis is 1.90 to 1. The ratio of female gonorrhea to female syphilis is 0.87 to 1. Can it be possible that a female with gonorrhea is almost twice as promiscuous as one with syphilis, while a male with syphilis is more than twice as promiscuous as one with gonorrhea? Or is gonorrhea in the female almost twice as communicable as syphilis in the female, while syphilis in the male is more than twice as communicable as gonorrhea in the male? Or is there some factor which prevents the diagnosis and reporting of gonorrhea in the female?

This paradoxical situation exists in each subdivision according to marital status. (Table 4). Although the male-female ratio for either disease varies according to marital status, that for gonorrhea is invariably nearly twice that for syphilis. Single males have gonorrhea four times as frequently as single females; married males have a little more than twice as much gonorrhea as married females and among the widowed, divorced, and separated, the reported prevalence is almost equal in the two sexes. The variation is proportionately the same in syphilis, but the male-female ratio is only half as great as that for gonorrhea, and, except in single females, syphilis is regularly more prevalent in females (according to reports) than gonorrhea.

It is true that Table 4 compares gonorrhea with syphilis in all

Table 4. Ratio of male to female infections with gonorrhea and syphilis, according to marital status, Massachusetts, 1930-1935.

TOTAL CASES: Gonorrhea, 40,235; Syphilis 27,428.

MARITAL STATUS	MALE/FEMALE		GONORRHEA/SYPHILIS	
	Gonorrhea	Syphilis	Male	Female
TOTAL	3.04 over 1.39 = 2.2		1.90 over 0.87 = 2.2	
Single	4.02 over 2.07 = 1.9		3.01 over 1.55 = 1.9	
Married	2.29 over 1.29 = 1.8		1.15 over 0.64 = 1.8	
Widowed, divorced, separated	1.18 over 0.68 = 1.7		0.81 over 0.47 = 1.7	
Not stated	2.80 over 1.63 = 1.7		1.45 over 0.85 = 1.7	

stages, but if only early (primary and secondary) syphilis is considered, the result, so far as ratios are concerned, is the same. (Table 5). The male-female ratio corresponds with that for total syphilis and the ratio for gonorrhea is about twice that for early syphilis. It appears that early syphilis is reported in the same ratio among the two sexes as late syphilis.

The ratio of male gonorrhea to male early syphilis and that of female gonorrhea to female early syphilis cannot be compared with those in Table 4 which includes all syphilis, since most of the late syphilis is reported in the later age groups and over-weights the distribution among married, widowed, and divorced, and under-weights the distribution among single persons.

It is well known that gonorrhea is hard to diagnose in the female. Syphilis is usually detected serologically and serological procedures are equally available to both sexes, and are used routinely in many clinics and by an increasing number of physicians. Whether the prevalence of syphilis is nearer equality in the two sexes than the ratio of reported infections indicates might be determined by learning whether females present themselves for medical attention (and therefore subject themselves to serological examination) in the same proportion of the general population as males. Two large out-patient services in Boston report new admissions of 6,818 and 29,060 persons respectively. Males accounted for 52.4 per cent and

Table 5. Ratio of male to female infections with gonorrhea and early syphilis, according to marital status, Massachusetts, 1930-1935.

TOTAL CASES: Gonorrhea, 40,235; Early Syphilis[1] 7,861.

MARITAL STATUS	MALE/FEMALE		GONORRHEA/EARLY SYPHILIS	
	Gonorrhea	Early Syphilis	Male	Female
TOTAL	3.04 over	1.49 = 2.0	6.44 over	3.15 = 2.0
Single	4.02 over	2.31 = 1.7	7.62 over	4.38 = 1.7
Married	2.29 over	1.15 = 2.0	5.27 over	2.65 = 2.0
Widowed, divorced, separated	1.18 over	0.61 = 1.9	3.85 over	2.00 = 1.9
Not stated	2.80 over	1.56 = 1.8	4.64 over	2.58 = 1.8

[1]Primary and secondary.

51.1 per cent of the totals respectively. Males make up only 48.7 per cent of the population of the State. Thus, in two hospitals, the male admission rate is somewhat higher than that for females. However, admissions to prenatal clinics and maternity services may well make up the difference, since neither of the two hospitals reporting has such services.

There is no diagnostic procedure for gonorrhea equal to serological tests for syphilis. Clinically, gonorrhea is far more obvious in the male than in the female, and therefore more readily suspected. Smears are easier to collect properly from the male urethral meatus than from the cervix and Skene's glands. Since diagnosis of gonorrhea is rarely made unless it is supported by "positive" smears, it is safe to conclude that only a small proportion of the gonococcal infections in the female are ever diagnosed or reported.

There is nothing in the epidemiology of gonorrhea which can account for the high male-female ratio as compared with the lower ratio for syphilis. As a matter of fact, it is probable that gonorrhea is communicable longer than syphilis because there is no effective sterilizing agent for that disease as there is for syphilis. Further, syphilis becomes less communicable with time, owing to the healing of the open early lesions, while gonorrhea is communicable as long as the gonococcus persists in the secretions and discharges of the genito-urinary tract. If the facts were known, it is likely that the prevalence of gonorrhea in the female would be found to have the same relationship to its prevalence in the male as female syphilis has to male syphilis. If that is so, there is room for progress in the detection of gonorrhea in the female.

This apparent deficiency in the reporting of gonorrhea in the female must affect analysis of the reports in other directions to some extent, if failure to make the diagnosis, or to report, is more likely to occur in case of infections in the married than in the single, or in the older than in the younger age groups, for instance. It is probable that leucorrheas or other genito-urinary symptomatology

in the older, married women are more frequently ascribed to nonspecific conditions than in younger, single women, when a correct diagnosis would be gonorrhea. In that case, the following analyses will be conservative so far as they point to the innocent infection of married women, but will overemphasize the prevalence of the disease among the younger, single women. It is also possible that some of the infections in divorced and separated women were acquired in marriage. Gonococcal vulvovaginitis in girl children is very likely overemphasized because most vulvovaginitis is diagnosed as gonococcal although, on careful study, much of it proves to be nonspecific.

The distribution of gonorrhea according to sex and age is presented in six three-year periods. (Table 6). It is remarkably similar in all of them, whether reporting was good or poor, except that

Table 6. Reported gonorrhea, according to sex and age, Massachusetts, 1918-1935.

Period	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-44 Years	45+ Years	Total
	PER CENT OF TOTAL MALE									
Total	0.2	0.1	0.3	9.0	34.1	25.3	14.0	12.4	4.6	100.0
1918-1920	0.2	0.2	0.3	9.9	36.3	24.9	13.2	11.0	4.0	100.0
1921-1923	0.1	0.1	0.1	9.1	36.4	26.5	13.6	10.5	3.6	100.0
1924-1926	0.05	0.1	0.3	9.1	35.7	26.1	13.3	11.3	4.05	100.0
1927-1929	0.1	0.1	0.5	10.3	33.4	24.2	14.0	12.5	4.9	100.0
1930-1932	0.5	0.1	0.3	8.1	32.2	24.7	14.4	14.3	5.4	100.0
1933-1935	0.3	0.1	0.2	7.9	30.4	25.0	15.3	14.7	6.1	100.0
	PER CENT OF TOTAL FEMALE									
Total	3.5	4.6	2.7	20.5	30.2	17.2	9.4	8.2	3.7	100.0
1918-1920	2.9	3.6	3.3	22.3	31.9	16.4	8.6	7.8	3.2	100.0
1921-1923	4.1	4.7	3.6	20.4	32.6	18.5	7.5	6.0	2.6	100.0
1924-1926	2.6	4.1	2.2	24.2	30.5	16.1	9.9	7.2	3.2	100.0
1927-1929	3.8	5.0	3.1	21.4	28.4	16.9	9.6	8.1	3.7	100.0
1930-1932	4.0	5.3	2.1	19.3	29.2	17.5	10.1	8.5	4.0	100.0
1933-1935	3.4	4.6	2.3	17.6	29.1	18.0	10.1	9.9	5.0	100.0
1930 Male Population	4.18	4.65	4.58	4.26	3.83	3.61	3.62	7.32	12.69	48.7
1930 Female Population	4.05	4.54	4.53	4.36	4.29	4.02	3.94	7.55	13.98	51.3

there appears to be a progressive decrease in the 15 to 24 year age group in both sexes, with scattered increases in the later age groups. There has been no corresponding shift in population, in fact in some of the age groups the shift of population has been opposite to that in the distribution of gonorrhea. Are young people avoiding infection? Are they becoming more inclined to neglect medical attention? Or are proportionately more infections being diagnosed in the later age groups?

The peak of reported prevalence in the male is in the 20-24 year age group, at 34.1 per cent, and in the female is in the same age group at 30.2 per cent. In the 15-19 year group, the male 9.0 per cent is less than half the female 20.5 per cent. In the group under 15 years of age, males account for only 0.6 per cent of male infections while females in that group account for 10.8 per cent of all female infections. Apparently the epidemiologic factor which operates in the spread of gonorrhea in girls under 15 years of age does not operate to the infection of males in that age group. It would seem that these infections in young girls are not the result of exposures between the sexes of that age group, but must occur as a result of exposure to adult infections and perhaps, in part, to exposures within their own sex and age group.

Nearly 44 per cent of the infections in males are in the group under 25 years of age and 69 per cent in those under 30 years of age. The female acquires gonorrhea earlier than the male, for over 61 per cent of the infections are in women under 25 years of age and nearly 79 per cent are in those under 30. If the "innocent" infections in young girls are excluded entirely from consideration, these figures become 56.8 per cent and 76.1 per cent, respectively, and the peak, between 20 and 24 years of age, becomes 33.9 per cent.

Compared with the distribution of early syphilis (Table 7) that of gonorrhea has an earlier peak. The influence of the greater prevalence of gonorrhea is noted in these higher peaks in the younger age groups. The sex life of a person who is to be infected must be

longer on the basis of chance, to acquire the less prevalent syphilis than to acquire the more prevalent gonorrhea. The closer agreement between female gonorrhea and female syphilis in these age groups may be due to the fact that both diseases are so frequently acquired by the female immediately after marriage, or it may be more apparent than real due to the failure to diagnose (or report) gonorrhea in that sex.

The curve for primary syphilis follows that for gonorrhea more closely than does that for total early syphilis. Secondary syphilis, being diagnosed several weeks or months later than primary syphilis, affects the distribution according to age.

It is interesting to compare Tables 7 and 8. The curve of first marriages has its peak in the same age group as those of gonorrhea and primary syphilis, in both male and female. When these tables are compared with Table 9 it becomes apparent that both diseases are frequently carried into marriage by the male. The distribution of gonorrhea in females over 14 years of age is almost the same as that of primary syphilis, according to marital status. In the male,

Table 7. Reported early syphilis,[1] according to sex and age, Massachusetts, 1930-1935.[2]

Total Cases: Male, 4,700; Female, 3,160. Primary Syphilis Only: Male, 2,135; Female, 574.

Age Groups	Early Syphilis Per Cent of Total		Primary Syphilis Only Per Cent of Total	
	Male	Female	Male	Female
Total	100.0	100.0	100.0	100.0
0- 4	0.09	0.3	0.05	0.17
5- 9	0.06	0.3	0.05	0.9
10-14	0.3	0.6	0.1	0.5
15-19	3.8	12.5	4.6	14.1
20-24	22.2	29.2	23.2	33.8
25-29	23.2	21.9	24.4	21.1
30-34	17.0	14.5	17.1	12.9
35-44	22.2	14.1	20.6	11.1
45+	11.4	6.6	9.9	5.4

[1]Primary and secondary.

[2]Not reported by stage prior to 1930.

Year	First Marriage	Under 20 Years	20-24 Years	25-29 Years	30-34 Years	35-44 Years	45+ Years	Total
	PER CENT OF TOTAL MALE							
1919	27,539	3.5	39.2	35.2	13.8	6.9	1.3	100.0
1925	25,643	3.7	40.2	34.7	13.4	6.8	1.2	100.0
1931	21,757	3.5	41.2	34.2	13.4	6.5	1.3	100.0
	PER CENT OF TOTAL FEMALE							
1919	27,539	19.2	46.4	23.4	7.2	3.4	0.4	100.0
1925	25,643	22.1	45.4	22.2	6.7	3.0	0.5	100.0
1931	21,757	21.6	47.3	21.6	6.5	2.6	0.4	100.0

Table 8. Age at first marriage, Massachusetts, 1919-1931.

also, the curves are reasonably similar. As reported, between 60 and 70 per cent of infections in the male are in single men whereas only from 40 to 50 per cent of those in the female are in single females. The high proportion of infected widowed, divorced, and separated women probably is partly accounted for by infections which occurred in marriage. Undoubtedly many infections in the male first come to medical attention after marriage and are reported as in married men. Undoubtedly, also, many infections in recently married women are never diagnosed for what they really are nor reported as such. Probably the percentage of single males and of married females should be higher than the reports indicate, although actual statistical proof that this is so is lacking.

Table 9. Reported gonorrhea and syphilis according to sex and marital status (per cent). Massachusetts, 1930-1935.

Marital Status	Gonorrhea				Early Syphilis[1]		Primary Syphilis	
	Male		Female		Male	Female	Male	Female
	Total	Over 14 Years	Total	Over 14 Years				
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single	65.8	65.5	49.8	43.8	55.7	35.9	60.8	43.8
Married	26.7	26.9	35.5	39.8	32.7	42.3	27.6	38.4
Widowed, divorced, separated	4.3	4.4	11.2	12.5	7.2	17.6	6.6	13.3
Not stated	3.2	3.2	3.5	3.9	4.4	4.2	5.0	4.5

[1]Primary and secondary.

SUMMARY

Health officials and agencies are urged not to continue in the present tendency to lose interest in the control of gonorrhea. Although it has not been dramatized as syphilis has, there is enough of drama and tragedy in gonorrhea to make its control of the utmost importance to the public health. It is far more prevalent than syphilis. Now that the American Neisserian Medical Society has been organized for the study of and improvement of the management of gonorrhea, it is important that health official and physician combine to work for its control.

Since March 1, 1918, the Massachusetts Department of Public Health has collected 108,560 reports of gonorrhea and 55,289 of syphilis. These reports are analysed and show:

That whether reporting is good or poor depends directly upon the extent to which the medical profession is interested in the problem. Reporting was good under the stimulus of war-time enthusiasm, was poor during the early post-war period when the Department maintained no active program, and has since improved under the stimulus of an active program. It is also indicated that reporting is better when reports are made directly to the Department than when they are made to local boards of health.

That with declining interest, reports of female infections fall off very rapidly, whether of gonorrhea or syphilis, but that eventually reports of male infections also fall off until a male-female ratio of approximately 3 to 1 for gonorrhea and of 3 to 2 for syphilis is maintained. These ratios are approximated when reporting is good and when poor reporting has become stabilized. Almost the same ratios are reported in the United States Public Health Service Census of gonorrhea and syphilis. It is concluded that these ratios represent approximately those in which the two diseases are diagnosed as between male and female. Since this makes it appear that syphilis is spread by males twice as frequently as gonorrhea while gonorrhea is spread by females twice as frequently as syphilis, it is concluded

that gonorrhea is more often missed than diagnosed in the female. This paradoxical situation is discovered to exist when the reports are studied according to marital status as well or when gonorrhea is compared to early or to late syphilis.

The distribution of gonorrhea according to sex and age over six three-year periods is remarkably similar whether reporting was good or poor, except that there appears to be a progressive decrease in the 15-24 year age group which is taken up by the older age groups. The peak of reported prevalence in the male is in the 20-24 year age group, at 34.1 per cent and in the same age group in the female at 30.2 per cent. Females under 15 years of age account for 10.8 per cent of all female infections, but males of that age group account for only 0.6 per cent of male infections. Males under 30 account for 69 per cent of male infections and females under 30 account for 79 per cent of female infections.

Gonorrhea reaches an earlier and higher peak in percentage distribution by age than syphilis. On the basis of chance, the sex life of a person must be longer to acquire the less prevalent syphilis than the more prevalent gonorrhea. The peaks are closer in the female than in the male, which may be due to the fact that both diseases are acquired by many females immediately after marriage, or to the failure to diagnose most infections with gonorrhea in that sex.

The curve of first marriages has its peak in the same age group as gonorrhea and syphilis in both sexes. This is significant in view of the fact that, as reported, between 60 and 70 per cent of infections in the male are in single men and only from 40 to 50 per cent of infections in the female are in single females. Some of the large number of infections reported in widowed, divorced, and separated females are probably acquired in marriage. Undoubtedly many male infections first come to medical attention after marriage and many infections in newly married females are never diagnosed as gonococcal. It is probable that the percentage of single males and married females should be higher than the reports indicate.