

GONORRHOEA IN TEENAGERS*

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An increasing incidence of gonorrhoea among teenagers has been reported from several countries, the reports from the United States of America, England, and Sweden being the most alarming (A.S.H.A., 1960; Keighley, 1960; Tottie, 1960).

In Denmark, a series of newspaper interviews has appeared in which medical officers have reported an increasing incidence of gonorrhoea among young girls. The reports have mainly come from the provincial towns, but the general impression among venereologists in Copenhagen has also been that there, too, cases in teenagers are increasing. Nexmand (1959) published some data on teenage gonorrhoea for the years 1951 to 1957; among 829 female patients with gonorrhoea, 29.8 per cent. were teenagers. In a similar series from 1943 girls had comprised only 16.1 per cent. (Genner and Lindhardt, 1943).

In Denmark, the birth rate was unusually high from 1942 to 1948; until 1942 it was about 18 per thousand, in 1945 it was 23.5 per thousand, and in 1951 17.8 per thousand. These children have now grown to be from 12 to 18 years old, and are ready to start their sexual experience. Hence, it may be expected that the *absolute* number of cases should show a rise in the teenage group and especially in the girls.

Whether the incidence *within* the teenage group has actually risen is another question. In this connexion it is necessary to take into account the age distribution of the population. The gonococcus or *Neisseria* Department of the Statens Seruminstitut in Copenhagen serves as a centre for the entire country, which has a population of about 4.5 million. About 100,000 specimens per year are received, and about from 10 to 12 per cent. result in positive cultures, 80 per cent. from women and 20 per cent. from men.

When the department was started (1938–1939), only about 10 per cent. of the specimens were from men, but the culture method is now used more often in male cases of gonorrhoea. Expressed as numbers of patients, the specimens correspond to 66 per cent. women and 33 per cent. men. The female/male ratio of cases notified to the National Health Service, however, is one to two. In Copenhagen we receive specimens from all the notified female cases (or more), but only from about half of the male cases.

Since January 1, 1944, all cases with at least one positive culture have been recorded at the Statens Seruminstitut; the subsequent positive or negative cultures have been recorded on the patient's card, and we have been able to check the extent to which hospitals and practitioners use the culture method as a test of cure. The figures obtained are most valuable in the female cases, because the culture method is used for nearly all female patients. In 1947 about 30 per cent. were not tested after the first positive culture, but by 1958 this had fallen to 16 per cent. The venereologists and venereal hospitals test their patients better than the general practitioners and the other hospitals, but the difference is not great.

The data from the files has been compared with the number of cases notified to the National Health Service for female patients only.

In 1944, the agreement between the number of notified and recorded cases was not too good, but later on when communications were improved, the agreement for Copenhagen and the other big cities was very good, though for some of the rural districts it was less satisfactory. The relation between the recorded and the notified cases depends both on the extent to which the culture method is used and on the efficiency of the method. It is quite natural, then, that the agreement is less satisfactory for the rural districts from which the transportation time is

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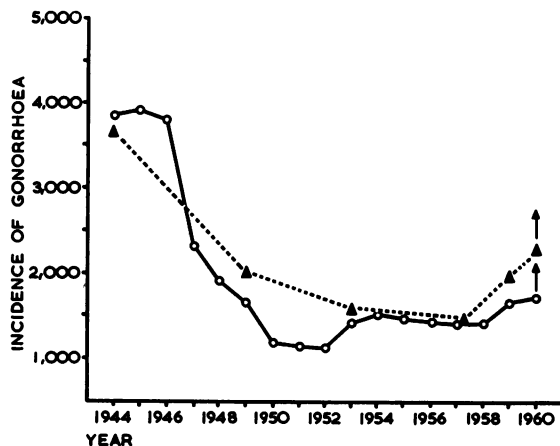


FIG. 1.—Comparison between notified and registered cases of female gonorrhoea. Copenhagen, 1944-60.

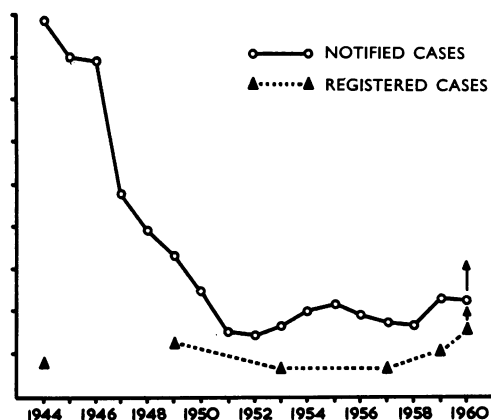


FIG. 2.—Comparison between notified and registered cases of female gonorrhoea. Rest of Denmark, 1944-60.

relatively long. In 1959 and 1960 the recorded numbers corresponded to about 135 per cent. of the number of the notified cases in Copenhagen and to about 80 per cent. for the rest of the country.

Fig. 1 shows the agreement between the recorded and notified cases in Copenhagen; the two curves are of nearly the same shape. The fact that the number of recorded cases from 1944 is lower than that of the notified cases depends presumably on the transportation difficulties during the war. Later the recorded exceed the notified cases.

Fig. 2 shows that from 1949 the shape of the curves for recorded and notified cases from the rest of the country agrees fairly well. The 1944 total of recorded cases is low because of the small number of specimens received from places other than Copenhagen.

These figures are included in order to justify the use of these records, as they give a total for the incidence of female gonorrhoea which is just as valid as that gained from the notification lists sent in from the physicians to the National Health Service. The Health Service figures give no detailed information on age groups, and this is what we need in order to find out whether the present incidence of gonorrhoea in female teenagers is higher than would be expected from the change in the age distribution.

Since 1952 the total morbidity of gonorrhoea has been about 175 per 100,000; from 1958 to 1959 there was a 10 per cent. increase, and in the first 3 months of 1960 a 23 per cent. increase was observed.

Table I shows the absolute numbers for all ages and for teenagers alone, the percentages of gonorrhoea in female teenagers as from 1944 to 1960 and,

in the last column, the rates per 100,000 in the corresponding age groups.

TABLE I

FEMALE CASES OF GONORRHOEA IN DENMARK
DATA FROM THE STATENS SERUMINSTITUT RECORDS,
1944-1960

Year	Total	The 15 to 19 year Age Group		
		Number	Percentage	Rate per 100,000
1944	4,378	854	19.5	569
1949	3,099	818	26.4	566
1953	2,383	686	28.8	456
1957	2,276	727	31.9	428
1959*	3,060	1,000	32.7	589
1960*	3,488	1,384	39.7	815

* Figures from the first 3 months of the year multiplied by four; probably underestimated by about 25 per cent.

The data are derived from the filed records and they correspond to whole years; however, for 1959 and 1960, they are definitely underestimated. The January quarters were used for the calculation of the total numbers and we know that in the first 3 months of the year the incidence of gonorrhoea is low.

Table I shows that the total morbidity of female gonorrhoea falls until 1957 and then increases in 1959 and 1960. It is also evident that the absolute number of teenagers decreases from 1944 to 1957; in 1959 and 1960 it rises again. The percentages increase from 19.5 in 1944 to 39.7 per cent. in 1960; after the rise from 19.5 to 26.4 between 1944 and 1949, the percentages are nearly constant until 1957 and perhaps also until 1959, but there is a definite rise in 1960.

The rates per 100,000 were calculated mainly in

order to be able to compare the Danish data with the Swedish data, which are shown in Table II. The rates fall until 1959; from 1959 to 1960 a significant increase is seen.

Table II shows that in 1949 the teenage rate was higher in Denmark than in Sweden; in 1959 the opposite was the case, but the rates for Denmark and Sweden are about the same.

TABLE II

INCIDENCE OF FEMALE CASES OF GONORRHOEA PER 100,000 IN THE 15 TO 19-YR AGE GROUP, 1949 AND 1959

Year	Denmark*	Sweden†
1949	566	370
1959	≥ 815	1,005

* Data from register at Statens Seruminstitut.

† Notified cases.

Table III shows the percentage age distribution and the corresponding rates of female gonorrhoea in Denmark for 1960. The data are obtained by multiplication of the data from the January quarter and are thus about 25 per cent. too low. Patients 14 years old and less and 40 years old and more have been excluded, but they comprise only about 5 per cent. of all the cases.

TABLE III

FEMALE CASES OF GONORRHOEA IN 1960
(ESTIMATED FROM THE JANUARY QUARTER)
DATA FROM THE STATENS SERUMINSTITUT REGISTER

Age Group (yrs)	Whole of Denmark		
	No.	Percentage	Rate per 100,000†
15-19	1,384	40.8	815
20-24	1,184	34.9	810
25-29	460	13.6	329
30-34	228	6.7	153
35-39	136	4.0	86
Total	3,392*	100.0	

* 0-14 and 40 years and over excluded.

† Corresponding to the age groups in particular.

The teenage group and the 20-24 year group comprise 75 per cent. of all the cases; the teenage group is greater than the 20-24 year group which formerly used to be the greatest. This indicates that the relative gonorrhoea morbidity has increased more for the teenagers than for the other groups.

In order to study the age distribution in the years from 1944 to 1960 more closely, the population in

1953 was chosen as a "standard population".* The procedure was as follows:

(1) For each of the years: 1944, 1949, 1953, 1957, 1959,† and 1960†, the gonorrhoea morbidity per thousand was calculated for 5-year age groups.

(2) By means of these values per thousand it was calculated to how many cases each of the 5-year groups would correspond in the standard population. This was done for 1944, 1949, and so on.

(3) These *calculated* numbers of cases were expressed in percentages and compared with the *observed* percentages.

In this way the effects of changes in the age distribution from 1944 to 1960 as well as the effect of epidemics distributed evenly in all the age groups were eliminated.

The calculations were made for Copenhagen alone and for the rest of the country.

Fig. 3 (opposite) shows only the teenagers in Copenhagen. The years are plotted on the abscissa and the percentages on the ordinate. The hatched columns show the distribution of the observed cases which have been recorded in the files at the Statens Seruminstitut, and the black columns show the percentages calculated in relation to the standard population. It should be remembered that the values for 1959 and 1960 are somewhat underestimated.

From 1944 to 1949 the *calculated* values show a significant rise; they are fairly constant until the period from 1959 to 1960, for which there is again a significant rise; the *observed* values show an increasing tendency throughout the whole period with a sharp rise from 1959 to 1960. This apparent discrepancy between the two sets of values is due to years of high birth rate between 1942 and 1948.

Fig. 4 (opposite) shows the corresponding figures for the rest of Denmark; both the *observed* and the *calculated* values show an increase from 1944 to 1960; but the increase from 1959 to 1960 is not so sharp as for the Copenhagen figures.

Summary

The final conclusion of this investigation must then be that the total incidence of female gonorrhoea in Denmark has increased during 1959 and especially during 1960, all age groups <25 years being involved. The increase has been most pronounced for the teenagers in Copenhagen and this group shows the greatest

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† Calculated as four times the January quarter.

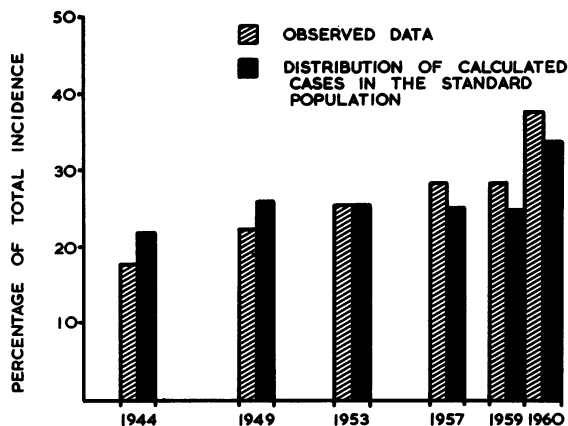


FIG. 3.—Comparison between observed cases and cases calculated in the standard population (1953) for the years 1944, 1949, 1953, 1957, 1959, and 1960. Copenhagen.

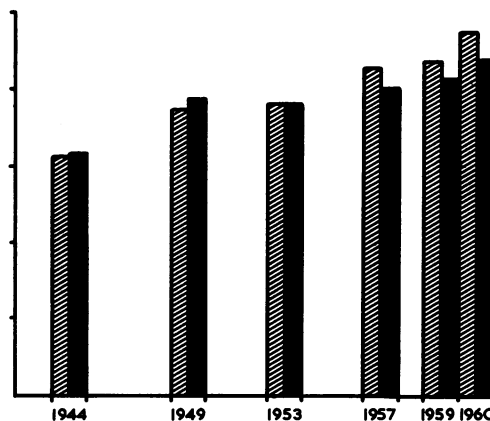


FIG. 4.—Comparison between observed cases and cases calculated in the standard population (1953) for the years 1944, 1949, 1953, 1957, 1959, and 1960. The rest of Denmark.

incidence of disease both in Copenhagen and in the rest of Denmark.

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La blennorragie chez les jeunes gens de moins de 20 ans

Résumé

La conclusion qui se dégage de cette étude est que la morbidité blennorragique totale chez les sujets du sexe féminin, au Danemark, a augmenté de 1944 à 1959 et tout particulièrement en 1960; cette observation vaut pour tous les groupes d'âge <25 ans. L'augmentation maxima a été enregistrée pour les moins de vingt ans de Copenhague et c'est dans le groupe des jeunes gens de moins de vingt ans que les cas sont actuellement le plus nombreux tant à Copenhague que dans le reste du Danemark.