# **Followup of Male and Female Contacts** of Patients with Gonorrhea

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THOUGH syphilis and gonorrhea have a L common mode of spread, they do not yield to epidemiologic control measures in similar fashion. Lucas and associates (1) have pointed out several obstacles to satisfactory control of gonorrhea in women. We believe the most important of these is our inability to readily identify the asymptomatic female carrier of the disease.

There are two principal ways in which such infected women may be located and brought to treatment. They can be named by men with recently diagnosed gonorrhea or they can be "accidentally" identified through routine screening programs. In either instance, is it of epidemiologic value to trace the chain of infection further by interviewing such patients? How would casefinding compare with the results obtained from interviewing male gonorrhea patients? The opportunity to obtain such sta-

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tistical data presented itself in a program to screen women for gonorrhea, which was conducted in Seattle-King County, Wash., between June 16, 1968, and June 16, 1969.

# **Methods and Procedures**

The screening project was carried out in cooperation with 14 different clinics and hospitals within the Seattle metropolitan area. All women who came for medical care requiring a pelvic examination were subjected to a singlesite cervical culture test on Thaver-Martin media (2). Several of the participating clinics requested that those with positive results be treated by the venereal disease clinic of the Seattle-King County Department of Public Health. These women were located and brought to this clinic by our epidemiologic investigators for interviews about their sexual contacts and for treatment, as well as for recheck cultures 1 week after treatment. A similar routine was followed for the women who had been initially screened in the venereal disease clinic. A total of 770 infected women were interviewed. During the same 1-year interval, a nearly equal number (897) of male patients from the venereal disease clinic who had positive gonorrheal cultures were also interviewed for their sexual contacts.

Both male and female patients were asked in the interviews about their sexual exposures in the 30 days or more preceding the date of diagnosis. Similar recordkeeping and interviewing techniques were attempted with all patients to minimize bias in the resulting data.

All contacts who were named in the interviews, regardless of their treatment history, were subjected to a single-site Thayer-Martin culture. Urethral cultures from the men and cervical cultures from the women were obtained with a sterile, cotton-tipped applicator stick. Previously untreated contacts whose culture reports were interpreted as negative by our laboratory were categorized as having received epidemiologic treatment.

If the contact named by a patient revealed that he or she had received treatment for diagnosed or suspected gonorrhea within the previous 30 days, this report was verified by telephoning the named physician or clinic. If the physician reported that the person was infected with gonorrhea, we accepted the diagnosis regardless of bacteriological confirmation. If the contact had no signs or symptoms, but had been treated on the basis of reported exposure to a diseased partner, he or she was classified as having received previous epidemiologic treatment. All contacts who had not received adequate antibiotic therapy were given such treatment on their initial visit to the venereal disease clinic. The treatment schedules for infected and noninfected contacts were the same.

#### Results

A total of 1,667 patients were interviewed. These patients named more than 2,000 contacts. Sixty-six percent of the named contacts were located for examination or interview, or both.

Table 1 shows the significant differences in casefinding from interviews with male as compared with female patients. A surprisingly high proportion (88.5 percent) of the male contacts named by female patients were infected, but 86 percent of these male contacts whom we examined had already sought medical care before being located. Of 662 infected male contacts, 643 (97.1 percent) had already received treatment. Of the total male contacts examined, 4.2 percent had previously received adequate preventive treatment. Less than 10 percent were in need of further antibiotic therapy. In contrast, interviews with male patients for their female contacts produced a much more rewarding yield in terms of new cases brought to treat-

## Table 1. Results of interviews with 897 male and 770 female patients with gonorrhea to elicit contacts, Seattle-King County, Wash., June 16, 1968-June 16, 1969

Status of contacts	959 ma tacts i by w	le con- named omen	1,074 female contacts named by men		
	Num- ber	Per- cent	Num- ber	Per- cent	
Located and examined	748	100. 0	583	100. Ù	
Infected Previously treated at clinic of private physician or at venereal disease	662	88. 5	436	74. 7	
clinic Brought to treat- ment at venereal	643	86. 0	214	36. 7	
disease clinic Not infected Previous epidemio- logic treatment	19 86	2.5 11.5	222 147	38. 0 25. 3	
physician Epidemiologic treat-	31	4.2			
disease clinic	55	7.3	147	25. 3	

ment. Of the female contacts located, 63.3 percent were in need of treatment (table 1), either because they had diagnosed cases of gonorrhea or on the basis of the epidemiologic criteria previously described.

The length of time between a patient's sexual exposure and the date of the interview about his or her sexual contacts is a significant factor in casefinding among both men and women. The longer the interval between exposure and interview, the less likely it is that the named contact can be located and examined. In table 2, the epidemiologic followup of contacts is shown in relation to the length of time between the patient's exposure and the interview. Nevertheless, the percentage of contacts who are infected appears to be approximately the same regardless of delays in interviewing.

Of the 19 men who were brought to treatment as contacts, five could be classified as asymptomatic; they had no dysuria or visible urethral discharge. Three of these five contacts had been exposed less than 7 days before the examination; two were exposed 8 to 14 days before. The remaining 14 infected contacts had dysuria, frequency of urination, or a discharge and were becoming concerned about their need for medical care.

If however, the contact was a woman, it was more difficult to determine, on the basis of the collected data, whether she had symptomatic or asymptomatic disease. In general, those women who sought care before being seen by us had either been aware of their exposure to disease or had sufficient symptoms to warrant examination by their own physicians. The infected female contacts who were examined in the health department clinic were predominantly asymptomatic.

#### Discussion

Many trained epidemiologic investigators consider that interviewing women infected with gonorrhea to elicit their sexual contacts is futile. We know of no published data, however, to substantiate this empirical experience. We believe that physicians and other health workers need guidance on when it is useful to interview female gonorrhea patients for contacts.

The female patient with a spouse or commonlaw partner should be counseled that both she and her partner must be treated simultaneously to avoid re-infection. If young children or infants become infected with gonorrhea, family members and persons caring for them must be interviewed and examined in an attempt to find the source of infection. The infected woman who fails to respond satisfactorily to repeated treatment should be interviewed to make certain that every one of her sexual contacts has been adequately treated. Not all cases that appear to be treatment failures can be attributed to antibiotic resistant strains of *Neisseria gonorrhoeae*.

Interviewing infected men for their contacts gives a decidedly different epidemiologic result. Although only 50 percent of the named female contacts could be located, a high rate of positive cultures was obtained (73 percent). If multiple-site cultures had been done, this yield could probably have been increased, as Schmale and associates have reported (3).

All female contacts who can be located and examined should be given epidemiologic treatment as if they were infected. This examination and treatment should be done on their initial clinic visit even if the women have no symptoms or bacteriological evidence of infec-

Status of contacts	Number of contacts, by number of days between patient's last exposure and contact interview				<b>T</b> ( )	
	1–7	8-14	15–30	31 or more	Total contacts	
					Number	Percent
Male contacts						
Total located and examined	330	245	138	35	748	100. 0
Infected	291	220	119	32	662	88. 5
Previously treated	279	215	118	31	643	86. 0
Brought to treatment	12	5	1	1	19	2.5
Not infected	39	<b>25</b>	19	3	86	11. 5
Previously treated <sup>1</sup>	9	12	7	3	31	4.2
Epidemiologic treatment	30	13	12	0	55	7. 3
Female contacts						
Total located and examined	431	116	30	6	583	100. 0
Infected	327	83	22	4	436	74.7
Previously treated	157	43	12	2	214	36. 7
Brought to treatment	170	40	10	2	222	38. 0
Not infected—epidemiologic treatment	104	33	8	<b>2</b>	147	25. 3

Table 2. Results of epidemiologic followup of 897 male and 770 female contacts of patients with gonorrhea, Seattle-King County, Wash., June 16, 1968-June 16, 1969

<sup>1</sup> Had either received previous epidemiologic treatment for gonorrhea or adequate antibiotic therapy for another illness.

tion. A post-treatment culture is warranted on all women who have a positive test on their initial visit.

### Summary

A current screening program in Seattle-King County, Wash., was used to gather epidemiologic data on men and women infected with gonorrhea. The number of new cases found from interviewing the sexual contacts of 770 such women was compared with the results of interviewing the contacts of 897 infected men.

Of the 748 male contacts examined, 88.5 percent were found to have contracted gonorrhea following exposure. All but 19 of these men (2.5 percent), however, had previously sought medical attention and had been adequately treated. This outcome contrasts significantly with the results obtained from examining female contacts. Of 583 female contacts examined, 222 (38 percent) had undiagnosed cases and had not been treated for gonorrhea. Singlesite cervical cultures on Thayer-Martin media were used to establish the diagnosis.

The data demonstrate that interviewing in-

fected women for their contacts has little value. On the other hand, continuation of epidemiologic efforts to locate the female contacts named by male patients is justified. Because infection cannot be definitely ruled out by present culture methods, all named female contacts of patients with gonorrhea should be given adequate treatment if they have not already received it.

#### REFERENCES

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#### Tearsheet Requests

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