The Case-Finding Effectiveness Of a Self-Referral System for Gonorrhea: A Preliminary Report

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Introduction

Gonorrhea has emerged recently as an epidemic disease of major proportions in the United States, with more than one million cases reported to state and local health departments in 1975.[1] True incidence is unknown, but significant under-reporting is likely.

A control program facing over a million cases per year must choose the general focus and specific techniques that best utilize its limited resources. Except in some special geographic areas, interviewing and contact investigation of a significant proportion of the infected population appears to be an insurmountable task.

Our purpose was to examine the efficacy of an alternative to the standard case interview and investigation. Although we recognized from the outset that a short-term evaluation could not provide data on disease control, we were able to evaluate the ability of the alternative to detect new cases, and on that basis we developed a sense of its comparative effectiveness and cost.

Materials and Methods

During the period February-September 1975, we assigned all heterosexual male patients with gonorrhea diagnosed at the El Paso City-County Health Department (Colorado) alternately to a Study or Control group. For the Control group, we performed a standard interview (about 15-20 minutes) and elicited names and identifying data on contacts. We asked the patient to refer his contacts for treatment (unless he specifically requested the Program's help in finding an individual) and informed him that the Program would seek named contacts who did not appear in seven to ten days. We held a much shorter interview (3-5 minutes) with the Study group discussing the nature and implications of the disease and the importance of self-referral of contacts. We then handed the patient contact slips to give to his sex partners without eliciting names and identifying data or informing the patient of further follow-up. We reinterviewed the patient seven to ten days later, however, to elicit identifying information on contacts. (91 of the 93 patients in the Study group were reinterviewed.) We sought the contacts to learn their subsequent clinical course and the fate of the slips; where necessary, we referred them for treatment. After data were compiled, and keypunched we analyzed them by using a packaged tab file program on an IBM 370/145 computer.

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Results

Comparability of Groups

Alternating assignment to Study and Control groups produced populations which were similar with respect to age and race distribution, number and type of contact elicited, age and race distribution of contacts, frequency of sexual activity, previous history of gonorrhea, and presenting signs and symptoms for this episode.

Comparison of Effectiveness

The results in Study and Control groups were virtually identical. Slightly more than two contacts per case were elicited in each group. More contacts were initiated in the Study group (i.e., slips given) than in the Control group, but similar numbers of contacts eventually sought medical care and were treated. In the Study group, 79 contacts were infected, 40 per cent of those examined, as opposed to 67 (35 per cent) in the Control group. Nine of these 79, however, were found because of subsequent field efforts to learn the fate of the slips. Thus, the same proportion of "elicited" contacts (35 per cent) was brought to medical attention, found to have gonorrhea, and treated by each case-finding method. These results are summarized in Figure 1.

The average time required for contacts to come to treatment was similar in the two groups. Approximately 75 per cent of contacts ultimately evaluated were seen within two weeks of the time the original patient was treated.

Use of Referral Slips

Contacts in the Study Group received only 34 slips (19 per cent of slips given) and returned only 12 of them (7 per cent) to the health department.

Type and Cost of Follow-up Required

Because of the structure of the investigation, far fewer field investigations were required for the Study group. Although given equal opportunity to refer contacts in seven to ten days, the groups behaved differently. The original patients in the Control group referred in only 69 of 119 contacts examined (58 per cent) whereas the Study group re-

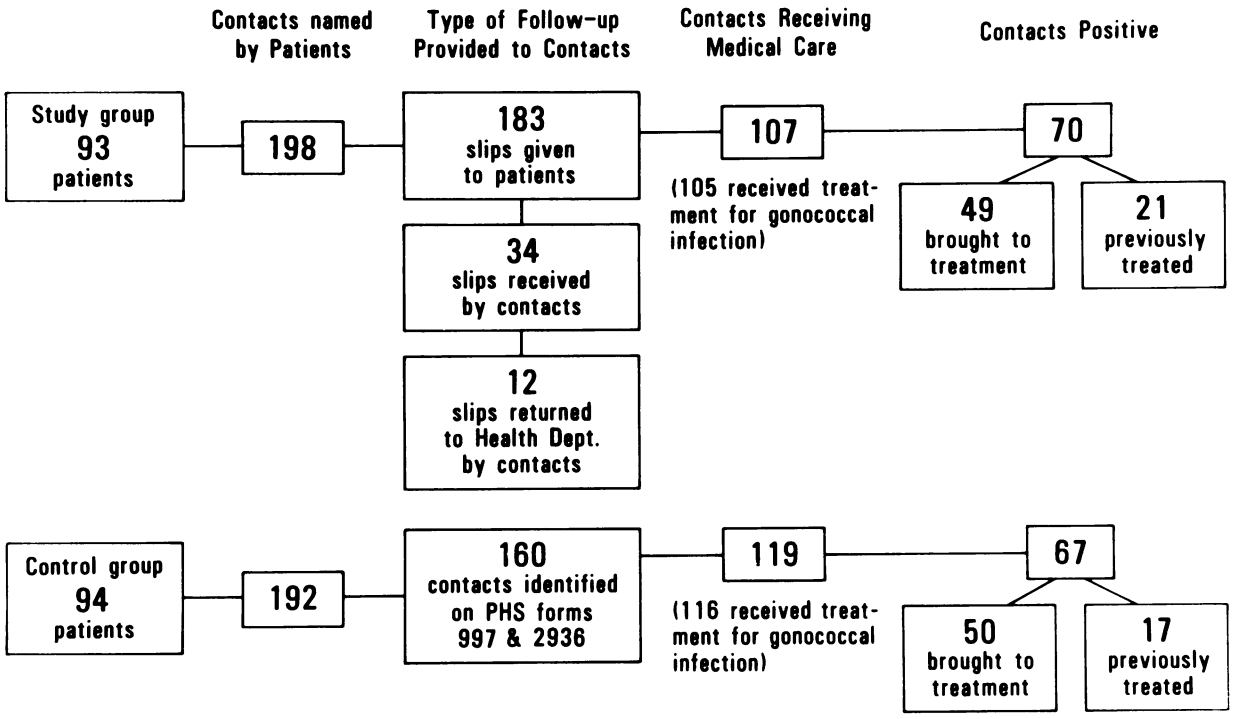

FIGURE 1—Results of Contact Investigation Procedures

a. **The 70 positive contacts in the Study Group do not include the nine positive patients brought to treatment by subsequent field effort (see text).**

b. **"Brought to treatment" refers to new, previously undiagnosed cases of gonorrhea found as a result of contact tracing procedures.**

c. **"Previously treated" refers to cases of gonorrhea diagnosed and treated prior to discovery of disease in the original patient.**

ferred in 86 of 116* (73 per cent). In all, 14 field investigations were performed as part of the follow up in the Study group, in contrast to 34 in the Control group (Table 1). We spent an estimated 23 hours in performing the standard contact interviews, and an additional 38 hours in field investigations, in contrast to eight interviewing hours for the Study group. The excess cost, in dealing with approximately 100 male gonorrhea cases, is about 50 hours of personnel time, not counting associated paper work and bookkeeping.

TABLE 1—Disposition of Examined Contacts

Referral Source or Status	Study Group	Control Group
	N=116	N=119
Self-referred	86	69
Field Investigation	14	34
Previously treated	15	15
Out-of-state referral	1	1

Special characteristics

The self-referral system did not tend to be more or less effective within an age-race category for patients. The number of contacts named by a patient did not affect his willingness to refer them for treatment. Individuals in both groups with a previous history of gonorrhea at any time in their lives had more sex contacts, but tended to self-refer contacts less often. The delay between onset of symptoms and the seeking of medical care was similar for those with and without a past history of gonorrhea. Patients with a past history did not tend to encourage their contacts to use the public clinic services, compared to those with no past history.

*The disposition of 9 of 116 was discovered on subsequent field effort. These 9 are not shown in Figure 1, but are shown in Table 1.

Discussion

In the absence of a tool for eradicating gonorrhea, we must evaluate procedures for discovering and treating infected individuals. A number of studies have documented the efficacy of interviewing and case-finding procedures.[2-4] The use of a self-referral system is not new,[5] but its case-finding effectiveness has not been previously evaluated.

Our data suggest that in this setting, the self-referral system is as effective as the standard interview in bringing infected partners of male heterosexual patients to treatment. In fact, by all parameters examined—contacts elicited, contacts initiated, contacts seeking medical care, contacts infected, and cost—the self-referral system did as well or better.

Unfortunately, in prior experience with self-referral, emphasis has been on the referral slip, rather than on the self-referral process itself. The return of slips in this study was

actually a poor indicator of the efficacy of the system. Through discussions with patients, the clinic staff learned that the slip *per se* was often irrelevant and at times a detriment. Contacts often refused the slip, but sought care. The "process" motivated 86 of the 116 contacts in the Study group, although only 12 slips were actually returned to the clinic. The referral slip may have been important in establishing a "contract" between the original patient and the health department, but it was not important to the patient's referral of contacts.

The sociodemographic characteristics of El Paso County, Colorado, and its major city, Colorado Springs, are certainly different from those of a large inner city metropolitan area. Patient attitudes and expectations, as well as those of the staff, may differ widely in a variety of geographic areas. We cannot assert that the self-referral technique would work in all settings, but our results suggest that more definitive study is needed in our area and that pilot evaluations are indicated in other settings.

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A Method of Estimating Risk for Occupational Factors Using Multiple Data Sources: The Newfoundland Lip Cancer Study

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Introduction

The significance of occupational hazards in chronic disease has received increased attention as the process of identifying and examining putative causal factors expands beyond personal habits such as smoking, diet, and alcohol consumption. In cancer research, the availability of patient data on occupation in most instances is dependent on clinical reports and registries. The completeness of the occupational information quite often determines the feasibility of investigations attempting to link cancer with specific occupations.

This paper describes how national census data, a provincial cancer registry, hospital patient charts, and the results of a household questionnaire survey in turn were used in attempting to estimate the risk of cancer for a specific occupation (see Table 1).

A case-control study was done in the Province of Newfoundland during the summer and fall of 1973 to assess the role of the occupation of fishing as a risk factor in cancer of the lip. Preliminary methods and results have been published elsewhere[1] and only selected methodologic information will be repeated here.

Data Sources and Occupational Risk Estimation

National Census

After observing that Newfoundland had a disproportionately high incidence of lip cancer compared to other Provinces in Canada and the world,[2] national census data was used to attempt to tease out possible occupational factors which would possibly explain the Newfoundland finding. Table 2 shows that within Canada the lip cancer incidence rates in males correlate well with the percentage of men listed as occupied in fishing in the 1961 census. The correlation is better for fishermen than for farmers.

This initial finding was based on aggregate level data from two separate sources—the national census and provincial cancer registries including the Newfoundland cancer tumor registry. The question then arose as to whether this finding could be supported. The national census does not concurrently gather morbidity data.

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