Irregular Reporting of Tuberculosis Cases by Laboratories in Nassau County, N.Y.

RAYMOND J. MURRAY, MD, CHRISTOPHER H. HAYDEN, AND FRANK ZAHN

NASSAU COUNTY, a diverse and growing county in New York State, has a population of approximately 1,500,000. Until recently, the county was considered to be a bedroom area for New York City because most of its residents commuted to work in the city.

In recent years, however, industrial developments have accelerated, and new job openings have attracted workers from the city. Among this influx of workers are minority groups from low socioeconomic backgrounds who moved from crowded housing in high-tuberculosis-incidence areas in New York City to crowded housing in the county where they formed high-tuberculosis-incidence pockets. However, the trend in Nassau County is toward a slow but continued decreasing tuberculosis morbidity. For example, in 1972, 103 new cases of active tuberculosis were reported—a case rate of 7.2 per 100,000 population, which represents a decrease of 57 cases or 35.8 percent from the 159 cases reported in 1971.

Part of the decrease in reported cases is more apparent than real. Of the 159 cases in 1971, 34 were reported as activity undetermined, probably active. All of the cases were counted as active, but 17 were later determined to be inactive tuberculosis. If these corrections had been incorporated into the 1971 morbidity data, Nassau County would have reported 142 new active cases rather than 159. In 1972, 9 reported cases were later determined to be inactive, and these cases were not tallied in the final count of 103 cases for that year. In actuality, therefore, Nassau County reported 39 (27.4 percent) fewer cases in 1972 than in 1971. Nevertheless, this decrease is somewhat startling in view of the consistent tuberculosis morbidity pattern over the previous 4 years: 160 cases in 1969, 157 in 1970, and 159 in 1971.

The critical question then is whether this decrease is real or whether it represents underreporting by private medical groups. As more cases are diagnosed and more patients are treated by private physicians and general hospitals, there will be an increased tendency—whether intentional or not—for these groups not to report cases of tuberculosis to the health department.

It should be noted that during 1971 private physicians and general hospitals reported 33 percent of the tuberculosis cases in Nassau County,

Dr. Murray is deputy commissioner and director of personal health services and tuberculosis control, Mr. Hayden is a public health advisor, and Mr. Zahn is coordinator of the Tuberculosis Control Program, Nassau County Department of Health. Tearsheet requests to Frank Zahn, Nassau County Department of Health, 240 Old Country Road, Mineola, N. Y. 11501.

21 percent of the cases in upstate New York, and only 4 percent of the cases in neighboring Suffolk County. While the percentage of private physicians in Nassau County reporting and treating tuberculosis patients appears high compared with other areas, the county has many accessible medical care facilities. The percentage is expected to grow in the future when the county's only tuberculosis hospital is closed.

Faults in Laboratory Reporting

On reviewing the history of a patient with reported tuberculosis, the staff of the Tuberculosis Control Program of the Nassau County Department of Health often learned that the patient had had a positive bacteriological finding while in a general hospital. Yet, the hospital laboratory had not reported this finding to the health department.

The New York State Public Health Law, "Control of Acute Communicable Diseases," title 1, article 21, section 2102, clearly states that laboratories must report all evidence of communicable disease (for example, tuberculosis) to a health department, as follows:

> Communicable Diseases: Laboratory Reports and Records:
> I. Whenever any laboratory examination discloses evidence of communicable disease, the results of such examination together with all required pertinent facts shall be immediately reported by the person in charge of the laboratory, or the person making such examination, to the local or state health official to whom the attending physician is required to report such case.

Despite this law, we discovered that many laboratory directors were laboring under the misconception that they had fulfilled their reporting obligation when they reported the positive finding to the patient's physician. Our survey, described subsequently, showed that the requirements for reporting have been ignored. We also noted that the law was never forcibly enforced and probably never will be, because it is a law that is subverted primarily by ignorance of its existence rather than by a true intent to conceal.

By checking the records of reported positive tuberculosis findings, personnel of the Tuberculosis Control Program learned that almost as many different procedures were used for reporting as there were laboratories. Some reported by telephone, some by mail. Some immediately reported microscopic findings, and others reported only after obtaining the confirmatory culture results. When laboratories waited for culture results before reporting, the health department would often experience a 4- to 8-week delay before obtaining a case report and providing contact followup.

In the survey it was found that some laboratory directors avoided reporting positive microscopic findings, since the acid-fast bacteria noted are not always conclusive evidence that true tuberculosis exists. While this is understandable, it is safer to assume that the patient should be closely supervised until proof, one way or the other, is established. Indeed, patients have been known to leave the hospital and to have positive culture findings 6 to 8 weeks later. When the health department is brought into the case early, it can establish treatment and arrange for supervision quickly if the culture becomes positive.

Survey of Laboratories

To help to more accurately define and eventually resolve the foregoing problems, we suggested that the Tuberculosis Control Program conduct a survey of the laboratories in the county that perform mycobacteriology. With permission from the health commissioner, personnel of the program established the following objectives for the survey

- to define the current reporting procedures of each laboratory performing mycobacteriology,
- to institute a simple, standardized procedure by which laboratories could report positive findings to the department of health, and
- to assess the capabilities of the laboratories in the county to perform the various studies (smear, culture, drug sensitivity, and so forth) in tuberculosis mycobacteriology.

From the New York State Division of Laboratories in Albany, we obtained a list of the 20 laboratories in the county with permits to perform mycobacteriology. A questionnaire was mailed to each laboratory requesting information about the types of tests performed, current reporting procedures, the volume of tests performed, and positive results obtained in 1972. The responses from this questionnaire unexpectedly resulted in retroactive case reports on a few patients not reported previously to the health department.

When the questionnaire was returned, the surveyors visited the laboratory to (*a*) clarify responses given on the questionnaire, (*b*) obtain the names and identifying information on each of the

patients with positive tuberculosis findings, and (*c*) introduce the laboratory personnel to a new laboratory reporting card which the Tuberculosis Control Program had recently developed for reporting all positive tuberculosis findings. The card was devised as a quick, easy way for laboratories to report tuberculosis findings. It provides the following

- check boxes for categories of reported findings,
- specimen types and microscopic and cultural results,
- mailing instructions (all cards are mailed to the health department),
- patient's name and address, and
- name and address of treating physician (this assures that the patient can be followed after discharge).

Using the lists of patients with positive laboratory findings during 1972, the program personnel checked the records file to identify those patients not reported to the health department by the laboratories.

Preliminary Results

All 20 laboratories responded to the questionnaire. Two of these laboratories no longer process specimens for tuberculosis. Another two are county laboratories which processed almost 50 percent of the specimens in the county in 1972. Since the Tuberculosis Control Program works closely with the two county laboratories, and since their reporting has always been prompt and complete, we did not include these laboratories in the following analysis.

Of the 16 remaining laboratories, 6 are in proprietary hospitals, 7 are in voluntary hospitals, and 3 are privately owned. These 16 laboratories processed 5,108 specimens for tuberculosis during 1972. Each laboratory indicated that it performed culture examinations on almost all specimens submitted, which was evidenced by the fact that of the 5,108 specimens processed, 5,055 (99 percent) were processed by culture.

Only two of the laboratories immediately report positive microscopic results to the health department. Eight laboratories report only when culture findings are positive, even though the microscopic results may have been positive. Two laboratories report positive findings to their hospitals' admitting or nursing offices and assume that these offices will forward the reports to the health department. We discovered, however, that the admitting or nursing offices actually report to the health department only if they can obtain a tuberculosis case report from the patient's physician.

Four laboratories have no procedure for direct or indirect reporting of positive findings to the health department. One of these laboratories sent its positive culture findings to a county laboratory for drug sensitivity studies and incorrectly assumed that the county laboratory would report the findings to the department. The other three laboratories claimed that they did not know they were required to report positive findings to the health department.

On visiting each of these 16 laboratories, the surveyors reviewed the laboratories' books and identified the names of the persons with positive tuberculosis findings during 1972. They then checked the Tuberculosis Control Program records to see if information had been received on these persons and to determine how long it took for the information to be received.

Of the 49 persons with positive bacteriological findings, the health department had records on 32. For the remaining 17 persons (34.7 percent) identified by the surveyors in the books of 7 separate laboratories, the department had no records or reports from any source. All but one of these laboratories had stated that they had some means of notifying the department of positive findings. In fact, the department had records on other patients with positive findings from six of these laboratories.

Of the 32 persons with positive findings reported to the health department, 24 were positive on microscopic examination. The Tuberculosis Control Program records for these 24 persons were carefully reviewed to determine how long it took the health department to receive a notification on them and if the first notification was by a positive laboratory report. The results of this review were as follows:

Number of days to receive notification	*1st notification by—*		*Total*	
	Laboratory report	*Other*	*Number*	*Percent*
1–5	5	8	13	54.2
6–20	0	7	7	29.2
21 or more ...	1	3	4	16.6

Only 13 of the 24 persons with positive microscopic findings were reported within 5 days, and for only 5 of the 13 the health department re-

ceived first notification by a laboratory report. For most of the other 8 persons, the department was first notified when the patient was referred to a county facility for treatment of tuberculosis. Of all the 24 persons with positive findings, only 6 were reported to the health department by a positive laboratory report.

Discussion

The preliminary results indicate that a significant number of patients with positive tuberculosis findings are not being reported to the department of health. Indeed, the department received no notification on 17 (34.7 percent) of the 49 patients with positive findings during 1972. These may well represent 17 persons with active tuberculosis for whom the health department has no information regarding adequacy of treatment or contact followup. The reason why these persons were not reported by seven laboratories has not yet been determined. The staff of six of these laboratories had stated that they had some means of notifying the department of possible findings, and furthermore, the department had records from all six on other patients with positive findings. Rather than a conscious effort not to report, this situation seems to indicate confusion on the part of the laboratory personnel as to when and where to report positive findings.

The Tuberculosis Control Program is now communicating with the physicians of each of these 17 persons to obtain a definitive diagnosis or disposition.

The current inconsistencies in the reporting procedures of the various laboratories have important implications for effective tuberculosis control. Only 2 of the 16 laboratories surveyed report to the health department immediately upon obtaining positive microscopic findings; the other laboratories report only upon obtaining positive culture results. Therefore, several weeks could elapse before the health department is notified of a potentially infectious case of active tuberculosis. This is valuable time lost, when the department could be providing such services as consultation, treatment, and contact followup.

If the laboratories had been reporting to the health department immediately upon obtaining microscopic results, one would have expected that (*a*) the health department would have received reports within 5 days and (*b*) a positive laboratory report would have been the health department's first notification on a patient. Yet, of the 24 persons with positive microscopic findings during 1972, only 5 (20.8 percent) were reported to the health department within 5 days, and their laboratory reports were the first source of health department notification.

To help resolve the inconsistencies in reporting, the Tuberculosis Control Program devised a report card on which laboratories were asked to report all positive tuberculosis findings, and the staff visited each laboratory to introduce the card to the laboratory director and personnel. The following three features of the card, should expedite and simplify future reporting:

Patient's address. Previous reports often failed to include the patient's address, and the Tuberculosis Control Program staff had to contact the laboratory for this information. Also, many laboratories asked where they should report positive findings on persons outside the county. They were instructed to report all positive results to the Nassau County Department of Health, and the department would forward reports on noncounty residents to the appropriate agency.

Patient's physician and address. Previous reports also failed to include this information. The name and address of the physician will help to expedite the department's followup activities in obtaining a diagnosis or disposition.

Reporting positive findings. Each laboratory is being asked to complete a card on every positive microscopic or culture examination, or both, for tuberculosis. If the specimen is positive on microscopic examination, the laboratory will complete a card and check either "culture pending" or "culture not done." The laboratory will complete a second card if the specimen is subsequently positive by culture examination.

In conclusion, the data indicate that a laboratory survey and visit program of the kind described can be valuable as a tuberculosis case-finding tool and as a means of expediting the followup of patients with positive reports.

ADDENDUM

Nassau County was one of the few localities in New York State which reported an increase in reportable cases of tuberculosis in 1973 (103 cases in 1972 and 137 cases in 1973). Through the laboratory reporting system, 20 new cases among county residents were documented, and 4 out-of-county residents with positive cultures were reported to other health departments.