Laboratory Compliance With Syphilis Reporting Laws: The New York City Experience 1972–77

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LAWS REQUIRING REPORTING to public health officials of all cases of certain communicable diseases are mandatory for the control of communicable diseases. The information is needed for the development of programs, or the initiation of strategies, and for the epidemiologic investigations that are at the core of public health efforts aimed at disease control (*1*).

The underreporting of cases of sexually transmitted diseases has been of continuing concern to public health officials. Private physicians diagnose and treat most of these cases, and they are responsible for filing a report on each case. It has been estimated that in the United States approximately four of five cases of venereal disease are treated by physicians in private practice (*2*). However, in surveys by Curtis in 1962 (*3*) and Fleming and associates in 1964 (*4*), it was found that private physicians reported only a small percentage of venereal disease cases to public health authorities. In 1976, of 24,933 cases of primary and secondary syphilis reported (*5*), only 6,950, or 28 percent, were reported by private physicians; the remaining 72 percent of the reports came from public sources, such as venereal disease clinics of health departments. Due to underreporting and underdiagnosing, the true incidence of primary and secondary syphilis in 1976 was estimated to be about 79,000 cases (*5*).

Although the average physician may see only one or two patients with infectious syphilis a year, it is the sum total of these cases that is significant from the standpoint of public health. In New York City alone, 17,000 physicians are licensed to practice medicine. Physicians obtain specimens for serologic tests for syphilis from patients whom they suspect of being infected, for premarital purposes, or as part of a series of routine screening tests. Serologic confirmation is also obtained routinely for all patients with signs and symptoms of early infectious syphilis, and followup serologic tests are performed to assess the efficacy of therapy. In New York City, all serologic tests for syphilis are processed by laboratories licensed by the State.

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Because of the poor reporting practices of physicians, the number of positive serologic tests for syphilis reported by laboratories is considered to be a good indicator of the actual incidence of the disease. Since there are far fewer laboratories than physicians—and each laboratory processes hundreds, possibly thousands, of specimens annually—public health officials devote considerable effort to encouraging laboratories to improve their reporting practices.

New York City has health codes mandating that all licensed laboratories, as well as all physicians, performing serologic tests for syphilis must report positive findings to local or State health departments within 24 hours; 44 other States have similar reporting laws. In New York City, violations of the health codes (article II, sections 11.27, 13.27, 13.29) are class A misdemeanors; violators can be fined up to $1,000 or imprisoned up to 1 year, or both. A maximum fine of $5,000 can be levied against a corporate offender. In addition, a nonreporting laboratory can have its license suspended.

The Venereal Disease Division of the Center for Disease Control in Atlanta requires local venereal disease control programs to monitor the reporting practices of all licensed laboratories under their jurisdiction. The number of positive serologies processed is compared with the number reported to the local health department, and these numbers are used to assess laboratory reporting practices and the incidence of the disease.

To make a similar assessment, personnel of the Bureau of Venereal Disease Control of the New York City Department of Health examined the pattern of reporting by laboratories licensed to perform serologic tests for syphilis in the city. We present the results of a 5-year survey of the reporting practices of these laboratories.

Source of Data and Methods

All laboratories licensed to perform syphilis serologies in New York City from 1972 to 1977 were surveyed. Laboratory permits are issued by the New York City Bureau of Laboratories, which updates information on the opening and closing of licensed laboratories monthly.

Until 1975, the Bureau of Venereal Disease Control conducted onsite visits to all licensed laboratories to collect data on the number of serologic tests for syphilis performed. In 1976, reductions in the number of field staff because of budgetary reasons led to an administrative decision to suspend the onsite visits.

The 1976 laboratory survey was conducted by mail. A letter was sent to all laboratories licensed to perform syphilis serologies asking the number of serologies processed and the number of positive results. The letter also cited the New York City health code's mandate for reporting positive tests, as well as the legal penalties for noncompliance. Laboratories that did not respond to the letter were contacted by telephone. The numbers obtained by mail and telephone were compared with the number of reports of positive tests received by the bureau throughout the year.

After the results of the 1976 survey were tabulated, a strategy was implemented to uncover and to correct trouble spots in reporting practices. The volume of serologies processed, the rate of positive results, and the reporting rate varied from laboratory to laboratory. A determination as to what constituted a significant discrepancy was made for each laboratory, and 160

Table 1. Serologic tests for syphilis processed and reactive results reported by laboratories to the New York City Bureau of Disease Control, 1972–77

Year	Number laboratories [1]	Number tests processed	Number reactive test results [2]	Reactive results reported	
				Number	Percent
1972	267	1,779,581	51,402	24,697	48.0
1973	264	2,001,125	82,277	39,662	48.2
1974	265	1,907,605	73,211	36,804	50.2
1975	246	1,872,143	89,997	23,830	26.5
1976	230	2,215,364	66,969	20,979	31.3
1977	222	2,461,903	62,129	49,598	83.4

[1] Include all private, public, State, and Federal laboratories licensed to process syphilis serologies in New York City. Excludes data from the New York City Health Department Bureau of Laboratories, which reports directly to Central Registry, Bureau of Venereal Disease Control.
[2] A reactive result is defined as a serology in which one or more tests were reactive or weakly reactive.

laboratories were found to have a reporting problem. The persons in the position of highest authority, usually the laboratory director or the chief microbiologist, were telephoned by bureau personnel.

The following issues were covered in the telephone conversations:

- Discrepancies between the number of positive serologies processed and the number reported to the bureau were cited.
- Penalties for noncompliance with the reporting codes were reiterated.
- Errors and deficiencies in reporting, such as incomplete case reports or nonreporting of repeat positive serologies, were discussed and clarified.
- Key personnel and individuals responsible for completing the reporting forms were identified.
- Laboratory personnel using outdated reporting forms were told that they would be sent new ones.

The calls were followed up by a letter which reviewed and reinforced the recommendations for improved reporting that had been discussed.

Results

Large discrepancies were seen between the number of reports of positive test results received annually by the bureau and the actual number of positive serologies processed by the laboratories (table 1). From 1972 to 1974, the onsite inspections revealed that an average of 49 percent of all positive results were reported. When the percentage dropped to 26.5 in 1975, the bureau reassessed the laboratory reporting procedures.

Tabulations of the results of the 1976 mail survey revealed that although 66,969 positive serologies were processed, only 20,979 (31.3 percent) were reported to the bureau. To illustrate the magnitude and seriousness of underreporting, a sample of reasons for non-

Table 2. Sample of laboratories' reasons for not reporting all positive serologic tests for syphilis, by type of laboratory

Type of laboratory	Number tests processed	Positive tests			Reasons for not reporting all positive tests
		Number	Percent	Number reported	
Hospital	12,878	100	0.8	7	Age or address of patient not available.
Hospital	10,800	2,145	19.9	1	Reported only for patients whose FTA-ABS treponemal tests were also positive. (A record check in Central Registry revealed that 2 highly positive specimens were not reported).
Hospital	4,270	94	2.2	0	Claimed to report all positive serologies. Authors requested names of 2 patients with high titers to verify this claim. Laboratory said it does not enter patients' names in its logbook.
Health center	9,964	450	4.5	1	Case reports were being held for review by liaison from health department. Facility had not been notified that liaison activity had been suspended.
Health center	2,457	280	11.4	5	Unaware of reporting procedures. Assumed physicians were reporting. Only names and chart numbers were recorded in laboratory's logbook.
Health center	7,442	1,425	19.2	8	New employee unaware of reporting procedures.
Private commercial	[1] 16,500	[1] 520	3.2	1	Claimed to have been told by someone in New York City Health Department that private physicians are responsible for submitting reports. Positive serologies that were reported were sent to State Health Department in Albany rather than New York City Health Department. State department refused reports.
Private commercial					Physician-director refused to divulge information.

[1] All of New York State including New York City.
NOTE: Wide range of percentages of positive results due to locations of laboratories in various sections of New York City in which diverse segments of the population reside.

reporting offered by personnel of the laboratories whose reporting was seriously delinquent when they were telephoned is presented in table 2. The table also shows the wide ranges in the volume of serologies processed and the numbers and percentages of positive results reported.

Other serious inadequacies in reporting practices were discovered. The laboratories that submitted reports often neglected to include significant information. Frequently, a laboratory reported only the initial positive results but not the results of followup tests. Another common violation was the omission of a patient's age, address, and sometimes even the name, making followup of the patient difficult or impossible. Knowledge of a patient's age is important because low-titer biologic false positive results are not uncommon in older persons, and even true positive results in patients of very advanced age may not require treatment.

After the mail and telephone surveys were completed, the number of reports of positive tests sent to the bureau increased overall by more than 50 percent from 1976 to 1977 (table 3).

Discussion and Conclusion

The reason for the sharp decline in laboratory reporting of positive serologies from 49 percent in 1972–74 to 26.5 percent in 1975 is not clear; however, the decline may have been due partly to the laxity of the onsite inspections—the field visits were made only once a year. Another factor possibly contributing to the decline was the turnover in personnel in the central registry unit of the bureau. This unit collects the reporting data and enforces the reporting codes. We learned that in the years before 1976 information was not being collected properly. When laboratories did not submit reports or when an onsite visit could not be made, personnel of the unit estimated the number of positive serologies based on data from previous years.

Although reporting became more complete after the 1977 survey, further inadequacies in the collection of reporting data were uncovered. The laboratories reporting correctly were those that reported all positive test results, including screening, confirmatory, and repeat serologic tests for patients with initially positive specimens. However, in completing the yearly survey report, some laboratories counted positive screening, confirmatory, and repeat tests on the same patient as one positive test. For instance, State laboratories reported 913 positive tests during 1977, but in the yearly laboratory survey report they showed only 518 positive tests; the figure of 518 was actually the number of persons who had 1 or more positive test results. Consequently, in the 1978 survey letter, the State laboratories were requested to distinguish between screening and confirmatory tests.

Unfortunately, we were not so successful with Federal laboratories in improving compliance with reporting codes. Personnel of these laboratories cited bureaucratic obstacles and what they believed to be inconsistent reporting requirements by the New York City Health Department as reasons for poor compliance.

As our data on laboratory reporting practices become more complete, additional trouble spots and areas for improvement become apparent. However, we believe that the increased reporting by laboratories in 1977 over 1976 can be attributed partly to the fact that the survey letter, the telephone encouragement cam-

Table 3. Positive serologic tests for syphilis reported in New York City in 1976 and 1977, by type of laboratory

Type of laboratory	Number of specimens processed		Number of reactive specimens		Reactive specimens reported			
					1976		1977	
	1976	1977	1976	1977	Number	Percent	Number	Percent
Private:								
Hospital	768,480	672,285	30,799	24,878	8,867	29.0	23,408	94.0
Blood bank	504,401	546,983	1,798	1,578	313	17.4	710	45.2
Commercial	601,864	626,872	18,525	16,268	8,335	45.0	9,524	58.5
Public:								
City hospital	262,200	244,290	11,677	15,417	3,199	27.4	13,735	89.0
State	18,881	19,718	743	518	90	12.0	[1] 913	176.0
Federal	80,538	70,919	3,427	3,470	175	5.0	1,308	37.7
Total	2,215,364	2,461,903	66,969	62,129	20,979	31.3	49,598	83.4

[1] Number includes screening tests, confirmatory tests, and repeat tests on positive specimens.

paign, and the followup letter cited the legal penalty for noncompliance with the reporting codes. The onsite inspectors did not cite this penalty.

It has also become clear to us that careful monitoring of the reporting practices of laboratories has an impact on the laboratories' compliance with the reporting laws. The bureau is currently implementing a computerized system that will enable us to monitor reporting on a quarterly basis. In this way, any deficiencies detected can be adjusted before the yearly survey. The bureau will also accept computerized reports from laboratories, thereby simplifying the reporting procedure for them. Computerized reports are especially convenient for large commercial laboratories.

The serologic test for syphilis is an effective case-finding method. Reports of new cases of syphilis usually emanate from one of three sources: self referrals, screening tests, and contact tracing. A person may suspect that he or she has syphilis and seek medical attention voluntarily. Syphilis may also be discovered in routine screening tests performed during yearly physical examinations or in hospital admission procedures. Contacts named by persons treated for syphilis can also be examined and tested. In each of these situations, the serologic test for syphilis is processed by a licensed laboratory, commercial or otherwise. The bureau has no direct control over the reporting of positive serologic tests by commercial laboratories. Roughly half of all reported and probably much more than half of all persons with diagnosed early infectious primary or secondary syphilis are treated by physicians, most of whom use outside commercial laboratories.

Although some physicians may perform rapid detection screening tests on patients whom they suspect of being infected, laboratory confirmation of the results must be obtained because (*a*) these screening tests are highly sensitive but not highly specific, yielding a high percentage of false positive results and (*b*) the results of these tests are not quantitative. Quantitative titers of positive syphilis serologies are important in enabling the physicians to diagnose the stage of the infection accurately. Also, the documentation of positive results from a licensed syphilis serology laboratory offers the physician legal protection.

It is well known that a physician who does not report a case of infectious syphilis is liable to prosecution, but it is also common knowledge that not all cases are reported. Although the power to enforce the health codes exists, the use of legal sanctions may increase reporting at the expense of alienating the medical community to public health control efforts (*1*). Many private physicians are reluctant to report the names of patients with syphilis because it is still considered a socially stigmatizing disease. In a survey of physicians' attitudes toward reporting cases of sexually transmitted diseases, it was found that considerations such as privileged information and the confidentiality of the physician-patient relationship tend to further obfuscate the issue (*6*). Barriers to reporting will continue until the social stigma of sexually transmitted diseases is removed.

The early reporting of positive serologies allows health departments to promptly investigate contacts of persons with infectious syphilis. Interviewing infected persons for the purpose of locating, testing, and treating their contacts is central to a syphilis control program. Without preventive treatment, an estimated 30 percent of all recent (30 days or less) sexual contacts of patients with infectious syphilis will also become infected (*7*). Serologic testing is also the only way to diagnose asymptomatic early latent syphilis, which accounts for at least half of all cases of infectious syphilis.

The discovery that reporting by private laboratories in the nation's largest city is unreliable as an indicator of the incidence and prevalence of infectious syphilis is disturbing. In light of the New York City experience, we recommend that all State and municipal control programs carefully examine their local laboratory reporting practices. Adherence to the syphilis reporting laws, whether accomplished by legal means or by gentle persuasion, is of major public health importance and should be continuously monitored.

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