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The Underreporting of Disease and Physicians' Knowledge of Reporting Requirements

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SYNOPSIS

Previous studies of underreporting of disease have mainly addressed the attitudes of physicians toward reporting of communicable disease to public health

agencies and have not examined adequately the physicians' knowledge of the reporting system as a cause of underreporting. To investigate, the authors designed a questionnaire and distributed it to 345 physicians at two hospitals. One hundred and sixty-nine questionnaires, which examined knowledge of reporting requirements and reasons for not complying with those requirements during 1978–81, were returned (a 49 percent response rate).

Most of the respondents knew that reporting is required, but their knowledge in specific areas, such as which diseases are reportable, varied greatly. The number of physicians who knew which diseases they are required to report ranged from a low of 63 physicians (37 percent) for trachoma to 163 (96 percent) for syphilis. Of the 169 physicians, only 50 believed they knew how to report reportable diseases, and only 40 of them knew the correct procedures. Thirty-six percent of the 169 physicians indicated that they had not reported any cases at all during 1978–81. On the average, physicians recalled reporting 28 percent of their reportable cases.

When they indicated why they had not complied with reporting requirements, the physicians chose reasons that reflected a lack of knowledge of the reporting system. The most common reasons were "did not know how to report" and "did not know it was a reportable disease." The results suggest that a major factor in physician underreporting is a lack of knowledge of the morbidity reporting system.

UNDERREPORTING OF COMMUNICABLE DISEASE continues despite the proven benefits of active disease surveillance. Local health departments may receive reports of only 35 percent of the cases of some communicable disease (*1*); such underreporting hinders public health efforts to decrease morbidity and mortality. Information from morbidity reporting is used in the development of disease control programs, in determining patterns of disease, and in conducting epidemiologic investigations, all of which may directly affect the public's health (*2*).

Physicians do not comply with reporting requirements for reasons ranging from the view that reporting is unimportant to the belief that it violates the privacy implicit in the doctor-patient relationship (*3*). However, previous studies of underreporting by physicians have focused primarily on characterizing their attitudes toward the reporting of venereal diseases (*4,5*). Little has been written about the underreporting of other reportable diseases. Few studies have attempted to define the influence of knowledge of the reporting system as a factor in reporting practices.

Our study was designed to determine how much physicians know about the reporting process and the full range of reportable diseases and why physicians do not comply with these requirements.

Methods

A self-administered questionnaire was distributed in March 1982 to 345 physicians attending conferences at Mount Sinai Medical Center and its affiliate, Beth Israel Medical Center, in New York, N.Y. Physicians who attended specialty grand rounds (medicine, obstetrics-gynecology, pediatrics, and surgery) and subspecialty division conferences (pulmonary diseases and infectious diseases) were surveyed. One hundred sixty-nine physicians returned the questionnaire, a 49 percent response rate. Among the responding physicians were 32 full-time attending physicians (19 percent), 47 voluntary attending physicians—attending physicians in private practice with admitting privileges to a hospital (28 percent), and 90 house officers—interns, residents, and subspecialty fellows (53 percent). These proportions were similar in each specialty, subspecialty, and hospital.

The questionnaire consisted of three sections:

1. *Knowledge of reportable diseases.* We tested the physicians for their knowledge of diseases that the New York City Health Code requires to be reported (*6*). Respondents were asked to designate whether a disease was reportable from a list of 20 communicable diseases, 10 of which were reportable.
2. *Knowledge of reporting requirements.* Physicians were asked if they knew how to report a reportable disease and when a report must be made, the methods of written and telephone reporting in New York City, and the legal requirements and possible penalties for nonreporting.
3. *Reasons for noncompliance with reporting requirements.* Questions about reporting practices focused on the years 1978–81. Physicians were asked whether they recalled caring for patients with

any of the reportable diseases listed on an attached tear-off sheet at the end of the questionnaire and, if so, what percentage of cases they actually reported. They were then asked to choose from 12 suggested answers their reasons for not complying with reporting requirements.

Results

Knowledge of reportable diseases. The 169 physicians who designated reportable diseases in the list of 20 communicable diseases had a mean (± 2 standard error of the mean) score (number of correct choices) of 15.6 ± 0.4 out of a perfect score of 20.0. Infectious disease specialists had higher scores than other specialists (by analysis of variance); otherwise there were no differences between specialists or between physicians at different levels of training.

Knowledge of the diseases that must be reported varied significantly according to the disease (table 1). Of the 169 physicians, 163 (96 percent) knew that syphilis was reportable, but only 63 (37 percent) knew that trachoma was reportable. Of the 85 internists who responded, 42 (49 percent) knew that hepatitis was reportable, 62 (72 percent) knew that meningococcemia was reportable, and 69 (80 percent) knew that tuberculosis was reportable. Twenty-eight of 40 (70 percent) pediatricians knew that rubella was reportable, and 34 (85 percent) knew that meningococcemia was reportable. Of 25 surgeons, 11 (44 percent) knew that hepatitis was reportable. Fourteen of 16 obstetrician-gynecologists (88 percent) knew that gonorrhea was reportable.

Most physicians correctly identified the 10 nonreportable diseases: cat-scratch disease, giardiasis, herpes simplex infection, infectious mononucleosis, influenza, leishmaniasis, molluscum contagiosum, *Mycoplasma pneumonia* infection, scabies, and toxoplasmosis. Correct responses for this group ranged from 125 (74 percent) for leishmaniasis to 163 (96 percent) for *Mycoplasma pneumonia* infection.

Table 1. Number of physicians among 169 who correctly identified diseases as requiring reporting

Reportable disease	*Number*	*Percent*
Syphilis	163	96
Rabies	156	92
Gonorrhea	152	90
Tuberculosis	139	82
Typhoid fever	133	79
Meningococcemia	122	72
Hepatitis	95	56
Rubella	79	47
Trichinosis	71	42
Trachoma	63	37

Knowledge of reporting requirements. Fifty of the physicians who responded (30 percent) believed that they knew how to report a reportable disease (table 2); only 40 of the 50 physicians actually knew the correct procedures.

Most physicians questioned knew that reporting is required. However, only 47 percent of the physicians knew that the New York City Health Code requires reporting within 24 hours of diagnosis, and the remainder believed it was voluntary or required within 1 week of diagnosis.

Compliance with requirements. After consulting the list of reportable diseases that was attached to the questionnaire, 129 physicians (76 percent) recalled having had at least one patient with a reportable disease between 1979 and 1981. When asked to estimate the percentage of the cases that they had reported, 46 physicians (36 percent) responded that they had not reported any cases, and 19 (15 percent) claimed they had reported more than 90 percent of their cases. On the average, physicians recalled reporting 28 percent of their reportable cases.

Reasons for not complying with reporting requirements. From the 12 suggested answers, the physi-

Table 2. Knowledge of reporting requirements among 169 physicians

Question	*Yes*		*No*		*No response*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Do you know how to report a reportable disease?	50	30	110	65	9	5
Reporting is required within 24 hours of diagnosis	80	47	86	51	3	2

cians were asked to choose their first, second, and third most important reasons for not reporting. The first choice of each physician was given three points, each second choice given two points, and each third choice given one point. The physicians could also write in reasons that were different than the suggested ones. We have grouped the 12 suggested reasons for nonreporting into 3 categories:

1. *Negative attitude toward reporting:* "reporting was too time consuming," "reportable disease list was too extensive," and "health department was too inefficient."
2. *Misconceptions that may result from a lack of knowledge of the reporting system or negative attitudes toward reporting or both:* "reporting violated doctor-patient confidentiality," "patient refused permission to report," "patient already began treatment," and "no treatment existed for certain diseases."

In fact, in New York City reports are confidential, patient permission is not required for a physician to report, and cases must be reported even if treatment has already begun or if there is no known treatment.

3. *Lack of knowledge of the reporting requirements:* "did not know how (to report)," "did not know I had to report," "did not have the form or phone number," "did not know it was reportable disease," and "thought case would be reported by another source (for example, the microbiology laboratory)."

The majority of reasons (469 out of a total of 664 points) chosen for not reporting primarily reflect a lack of knowledge of the reporting requirements. The two most common reasons were "did not know how to report" and "did not know it was a reportable disease." Of the six most frequently chosen reasons for not reporting (table 3), five reflect a lack of knowledge of the reporting process. The other common reason, "reporting was too time consuming," reflects a negative attitude toward reporting.

Table 3. Reasons for not reporting during 1978–81

Reasons [1]	Points [2]
Did not know how (to report)	147
Did not know it was a reportable disease	129
Reporting was too time consuming	95
Did not know I had to report	84
Thought case would be reported by another source, for example, microbiology laboratory	69
Did not have the form or telephone number	40
Reporting violated doctor-patient confidentiality	27
Patient refused permission to report	24
Reportable disease list was too extensive	20
Health department was too inefficient	15
Patient already began treatment	10
No treatment existed for certain diseases	1
Other	3

[1] 125 respondents selected at least 1 reason.
[2] Each first most important reason is weighted 3 points, each second most important reason is weighted 2 points, each third most important reason is weighted 1 point.

Discussion

In agreement with other studies (*1,7,8*), our results indicate that physicians report only a small number of their cases of communicable diseases. Only a small proportion of the physicians in our study reported a majority of their reportable cases. Our study indicates that many physicians do not know the requirements and methods of reporting.

Lack of knowledge seems to be a major factor in underreporting. Although negative attitudes may contribute to this failure, our survey respondents indicated that attitudinal problems were secondary to a lack of knowledge as their reason for nonreporting. These results concur with those of a survey of Ohio physicians; Edwards found that more than half of the respondents were not familiar with the reporting rules. Among those familiar with reporting rules, half found the rules confusing and unclear (*9*). In a survey of physicians in Nassau County, N.Y., 17 percent of internists and 21 percent of pediatricians did not know which diseases were reportable (*10*).

Although underreporting is recognized as a general problem of great importance, the two most extensive studies on this topic have dealt exclusively with the reporting of venereal diseases. Cleere and coworkers found that the physicians' desire to protect their patient from "possible harassment and shame and embarrassment" was the most important reason cited for noncompliance with venereal disease reporting (*4*). Their results may be explained by a combination of two factors: (*a*) an increased awareness among physicians that venereal diseases require reporting, also shown in our study, and (*b*) a more negative attitude specifically toward the reporting of venereal diseases, because of the social stigma associated with these diseases that has yet to be studied. In addition, Cleere and coworkers stated that a major problem in reporting venereal diseases is that physicians "lack complete understanding of reporting as the basis of contact tracing," concurring with our findings.

'Our study was designed to determine how much physicians know about the reporting process and the full range of reportable diseases and why physicians do not comply with these requirements.'

In a study of physician reporting behavior, Rothenberg and coworkers (*5*) found that "administrative obstacles" were a major cause of nonreporting. When reporting by telephone was initiated by the Colorado State Health Department, the number of reported gonorrhea cases doubled. We suggest that the increases in reporting may have resulted from correcting physicians' knowledge deficiencies as well as by eliminating "administrative obstacles."

Our study has important methodological shortcomings—a low response rate, a nonrandom sample drawn only from New York City, and an emphasis on academic physicians. Nevertheless, our general conclusion, that physicians are largely unaware of reporting requirements, seems valid. It is not evident that New York physicians ignore this public health information because it is not provided by the State agencies upon licensure of physicians. The New York City Department of Health only recently began distribution of a weekly newsletter of local communicable disease information.

The importance of these findings lies in their implications for improving reporting. Successful methods have included establishing "physician-consultants" who are paid to report regularly (*11, 12*), sending stamped reporting cards weekly to physicians in private offices, county clinics, and the emergency room of an academic medical center (*13*), actively soliciting reports by telephoning the private offices of physicians (*5*), and "rewarding" physicians who report disease by sending them a newsletter (*14*).

Many of these methods emphasize health department feedback as an element necessary for success. Although we recognize that improving knowledge may not necessarily improve reporting, education must be considered in the solution to this problem. We recommend a multifaceted approach that includes education and feedback. The methods and requirements of the reporting system as well as physicians' social and legal responsibility to report must be addressed in medical school, during residency training, and in postgraduate courses. State and county health departments must take a more active role in disseminating information about the reporting process by using various means of feedback, such as a newsletter to physicians. We hope that these approaches, focusing on reporting methods and requirements, will not only increase physician motivation, but create a more supportive environment to comply with this important public health responsibility.

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