



# SURVEILLANCE FOR DIARRHEAL DISEASE IN NEW YORK CITY

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**ABSTRACT** In an effort to document the occurrence of diarrheal disease more fully and to hasten recognition of a diarrheal disease outbreak in New York City, three special surveillance programs monitor nonspecific indicators of diarrheal disease. Twenty-six months of data from the clinical laboratory surveillance system are summarized to illustrate the type of data generated by these special surveillance programs.

Diarrheal disease may be caused by foodborne or waterborne communicable diseases; timely recognition of a diarrheal disease outbreak can enable enhanced diagnostic and environmental investigation, as well as earlier preventive intervention. However, in a recent survey, less than 10% of people who experience diarrhea seek medical care,<sup>1</sup> and even when a stool is submitted for laboratory testing, an etiologic diagnosis is often not made, especially when the disease is caused by a viral agent.<sup>2</sup> As part of an effort to monitor diarrheal disease occurrence in New York City more fully, the New York City Department of Health (DOH) tracks daily the number of stools submitted for bacterial culture and sensitivity (C&S) and ova and parasite (O&P) testing to three clinical laboratories. To illustrate the type of data generated by this surveillance method, data are presented below for one component of the clinical laboratory surveillance program: the number of stool specimens submitted for C&S to one clinical laboratory.

## METHODS

Each day, excluding Sundays and holidays when the laboratory is closed, the laboratory determines the total number of stool specimens received that day for bacterial C&S and faxes this information to DOH. DOH enters the data in a

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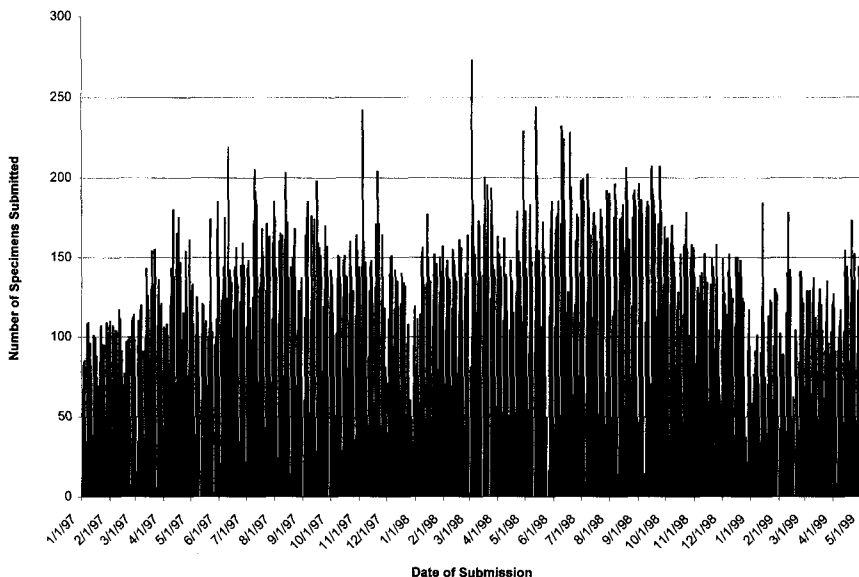
computerized database and generates a chart that shows the number of stool specimens submitted that day in comparison with previous days.

### RESULTS

During 1997, 304 daily reports were received, with a median number of 119 stools submitted (range 5–242). During 1998, 298 daily reports were received, with a median number of 140 stools submitted (range 2–273). From January 1, 1999, to May 4, 1999, there were 99 daily reports received, with a median number of 104 stools submitted (range 8–184). The daily numbers of stools submitted from January 1, 1997, to May 4, 1999, are shown in the Figure.

### DISCUSSION

Seasonal trends in the submission of stool specimens for bacterial culture and sensitivity are suggested. An overall increasing trend occurs each year from approximately January 1 to April 1, followed by a 4–6-week period of overall decline. Stool submissions increase again by June 1 and remain elevated until approximately October 1, when an overall decline begins and continues until about January 1. These trends may represent a composite of different seasonalities of underlying disease entities. Viral agents may account for the increasing trend from January to April, while bacterial etiologies may account for the sustained increase during the summer months. Rotavirus activity peaks each year in the



**FIGURE** Daily Numbers of Stool Specimens Submitted for Bacterial Culture and Sensitivity, January 1, 1997–May 4, 1999.

New York City area during March and April,<sup>3</sup> and bacterial agents of foodborne disease are reported nationwide more often during the summer.<sup>4</sup>

Monitoring the total number of stools submitted provides a full picture of the number of persons ill enough for a stool test to be ordered. In addition, an increase in stool submissions can be observed 1–3 days before definitive diagnostic information could become available. Multiyear baseline data provide a context to help interpret future reports.

Daily stool submission data are compared with data from two other special surveillance programs. One program tracks the weekly sales volume of various over-the-counter antidiarrheal medications, and the other program monitors the daily number of new cases of gastrointestinal illness among the residents of 12 nursing homes. These special surveillance data are now used in combination with traditional disease-specific communicable disease reporting by physicians and laboratories to monitor diarrheal disease in New York City.

Data from the clinical laboratory surveillance program have several limitations. Changes in the number of stools submitted to a clinical laboratory may reflect a change in the number of physicians and/or institutions utilizing that laboratory and may not be due to a change in diarrheal disease in the community. Laboratories currently submit the total number of tests ordered for C&S and O&P. A total number has the advantage of simplifying the task of reporting for laboratory staff, but a total number does not provide information regarding the location in the community from which the specimens are coming. The three special surveillance programs are nonspecific as regards the underlying cause of disease, but their data provide additional tools to determine when additional investigation regarding diarrheal disease occurrence is warranted.

#### REFERENCES

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