

In May, 1965, a community reporting system for communicable diseases was set up in the Greater Atlanta area to provide current information on these conditions. Methods for obtaining data are described and the findings over a period of five months are presented. The values and problems of the system are discussed.

A COMMUNITY SURVEILLANCE SYSTEM OF INFECTIOUS DISEASES IN THE GREATER ATLANTA AREA

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"Medicine is faced with another baffling new disease. It's called 'Something.' I don't know the Latin name for it. It occurs in the winter mostly, and when you telephone the doctor to describe it to him, he says, 'Oh yes, there's Something going around. Take two aspirins and phone me again in the morning.'" JEROME BEATTY, JR.¹

THE reporting of communicable diseases is an established procedure in the USA which has more recently been put on a global basis.² The major usefulness of such reporting systems is the assistance they may provide in the recognition of a disease situation requiring public health action. The chief drawback of the system of reporting in this country is that the initial reporter is usually the busy practitioner for whom the requested detailed notification procedures represent a tedious task. In addition, the time lag between his report and the feedback of the pooled data is too long for the information to be of much value in his daily practice. There have also been notable failures³ in the present system of reporting due to the prolonged interval between the occurrence of multiple cases and the realization by health agencies that an epidemic is in progress. Another type of reporting, which would provide more

current information, might then have certain advantages.

The above considerations led us to establish a community reporting system in May, 1965.* The aims and purposes of this reporting system, TW₃ID—Atlanta (That Was the Week That Was in Infectious Diseases—Atlanta) are:

A. To pool clinical, laboratory, and epidemiological information on infectious diseases affecting the Greater Atlanta community from interested practitioners, hospitals, clinics, research laboratories, and public health agencies.

B. To feed back the summarized information *weekly* to participants and other interested individuals and agencies, and *monthly* to the medical society (via its monthly bulletin) so as to provide to:

1. Clinicians—Current information as to "what is going around" and results of laboratory and epidemiological studies.

2. Laboratories and Public Health Agencies—Possible materials for laboratory investigations or epidemiological studies at the onset of epidemics with

* The experience of Pickles in his *Epidemiology in County Practice*⁴ was helpful in lending support to the potential value of the system we contemplated establishing.

the potential value of taking rapid measures to prevent the spread of certain types of outbreaks.

C. To serve as an educational tool for the teaching of infectious diseases and preventive medicine.

Methods

The procedures for obtaining the information and feeding it back to the participants and other interested persons and agencies are outlined in Figure 1.

A. Source of Reports—Personal contact and a conference at a pediatric meeting were the means used to recruit physicians interested in participating in this project. Information on infections in hospitalized patients was obtained from physicians reporting from nine Atlanta hospitals. Information on infections in outpatients was obtained from the outpatient departments (if any) of these hospitals, from three clinics, and from 27 practitioners, primarily pediatricians. It was estimated that in this manner about two-thirds of infections in hospitalized patients and

one-third of infections in outpatients would be reported.

B. Method of Reporting—A letter was sent out in April, 1965, to acquaint the participants with the procedures to be used, as follows: A simple self-addressed and stamped card was to be filled out by the participants and mailed by Wednesday afternoon of each week. Categories to be reported are detailed in Appendix A, but in essence can be listed as follows:

1. Common Infectious Diseases of Unusual Prevalence (e.g., measles)—The participants were requested to note an increase in these infections from the previous week, also reporting the number of cases, if of low frequency. This category primarily serves to aid the practitioner and the public health agencies to learn “what is going around in the community.”

2. Unusual Syndromes, Possibly Infectious (e.g., rash with conjunctivitis)—This category is intended to obtain information on unusual conditions which might have an infectious origin. With

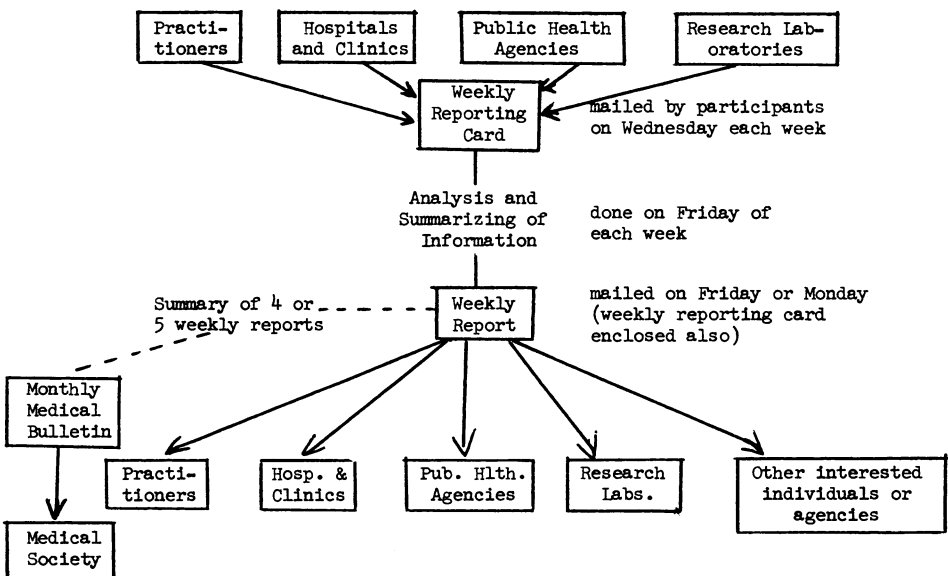


Figure 1—Method of retrieving and feeding back information.

the available laboratory resources in the Atlanta area, these would provide potential material for laboratory investigation.

3. Infectious Diseases with Unusual Manifestations (e.g., varicella encephalitis)—This category is of particular value to those clinicians interested in the varied manifestations of infectious diseases.

4. Relatively Uncommon Infections—This arbitrary category differentiating this group of infections from those listed in Category 1 is intended to bring to the attention of the practitioner the fact that such uncommon infections as diphtheria, typhoid, or Rocky Mountain spotted fever are present in the community at a particular time. Many of the infections listed in this category are also of primary concern to public health groups.

C. Compilation of Data—The information from the cards is compiled usually on the Friday of the week the cards are mailed. A summary weekly report is prepared, mimeographed, and mailed out to the participants and other interested persons or agencies. These reports are usually in their hands by the following Monday or Tuesday. The time lag between the physician's report and their receipt of the compiled data is thus less than one week.

In addition, a monthly report is prepared from the information of four or five weekly reports for publication in the monthly Fulton County Medical Bulletin. The purpose of this is to inform the medical society at large of the infections reported in their community over the previous month.

Results

A. Response of Participants—From May 5 to October 6, 1965, the response for any one week was 65 per cent on the average with a range from 53 per cent to 89 per cent. The response for any one participant was 65 per cent on the average with a range from 10 per cent to 95 per cent.

B. Types of Information Elicited Over a Five-month Period of TW₃ID—Atlanta.

1. Common Infectious Diseases of Unusual Prevalence:

(a) Exanthems: Figure 2 presents a relative prevalence of the clinically recognizable exanthems. It will be noted that measles and varicella were reported more frequently in May with a low reported incidence thereafter. Scarlet fever was reported almost every week. Roseola and rubella were reported infrequently. Of particular interest was an outbreak of herpangina, occasionally associated with an exanthem, which began in early May and lasted 13 weeks. This syndrome was reported by almost all participants who saw hospital outpatients or private patients.

(b) Diarrhea: Laboratory identifications of salmonellae and shigellae are done at the state health laboratory and identification by fluorescent antibody of enteropathogenic *Escherichia coli* is done in a research laboratory in Atlanta. This information is compiled and reported back to the participants. It has been noted that over the five-month period all forms of nonspecific and specific gastroenteritis were reported at a low frequency in May, with a peak in September. It was of particular interest to have ten participants report cases of *Salmonella enteritidis* in September. Through its laboratory the state health department had noted an increase in isolations of this organism around the same time. The TW₃ID reports were further evidence of an existing problem, which was traced to contaminated food eaten at cafeterias of the same chain supplied by one caterer.

An example of the value of TW₃ID in the teaching of infectious diseases and epidemiological concepts occurred when one of us (A. N.) was presented a case of "bloody diarrhea" to discuss at a children's hospital conference. The medical student who presented the case gave an extensive differential diagnosis of causes of blood in the stool, but did

not consider salmonellosis a too likely possibility. A. N. predicted that *S. enteritidis* would be isolated from this patient on the basis of TW₃ID reports which made the epidemiological associations more obvious. The salmonella was indeed isolated from that patient. The student called A. N. several days later with a well worked-out epidemiological report of three cases in one family of suspect salmonellosis.

(c) Respiratory infections: Studies of viral causes of respiratory infections have been conducted in Atlanta since October, 1964. Such laboratory reports are thus available to TW₃ID. Since May, 1965, respiratory infections have been of low frequency. However, in the last two weeks of September all forms of respiratory illnesses have been reported more frequently, particularly croup and pharyngitis.

(d) Meningitis: We have noted that aseptic meningitis was sporadically reported since May. Cases of bacterial meningitis have been infrequently reported. However, there were 17 cases of meningococemia with or without meningitis reported. This number equals the 17 reported by other methods for

the whole state of Georgia over the same period. Of interest were two instances of more than one case of meningococemia occurring in members of the same family. In one of these instances, where three such cases occurred, an epidemiological and laboratory investigation of the family members and close contacts was undertaken (40 studied). Also important in connection with meningococcal infections is to apprise physicians of the sulfa-resistance of meningococci recovered from patients in Atlanta. About one-third of such strains have been found to be highly resistant to sulfadiazine.

(e) Mumps: Initially, in May, mumps was reported in relatively large numbers. Since June, only a few cases have been reported every week.

(f) Hepatitis: Of interest were four cases of serum hepatitis noted in one week in August; no common source was found. Also, TW₃ID picked up a small outbreak of infectious hepatitis that occurred in a housing project which led to an epidemiological investigation.

(g) Impetigo: This was reported infrequently in May, with peaks in July and August. Since mid-August, several

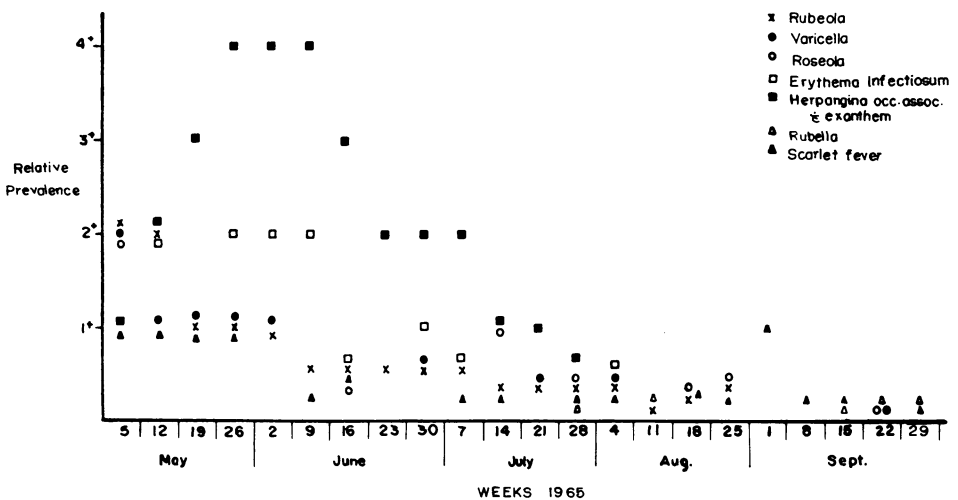
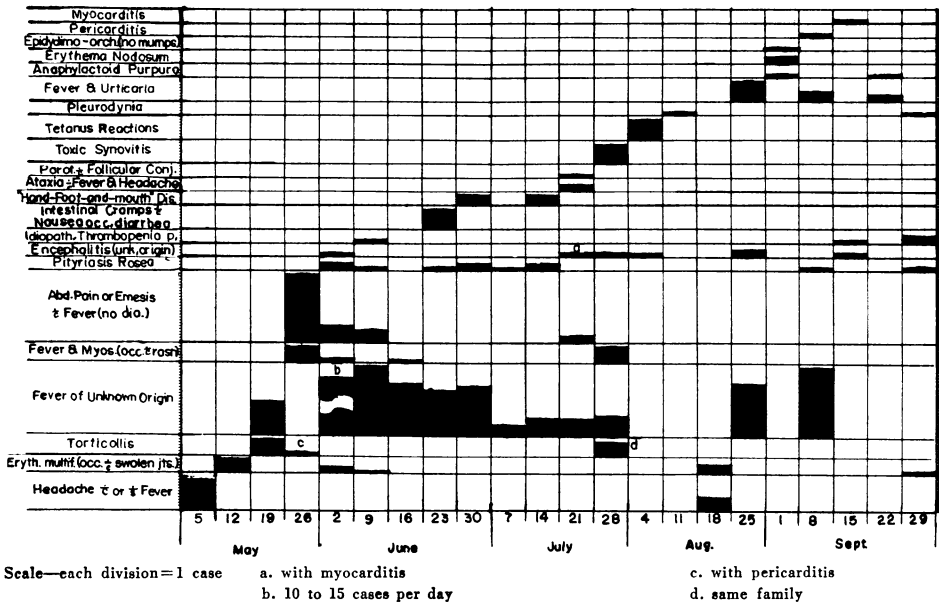


Figure 2—Exanthems.

Figure 3—Unusual syndromes possibly infectious.



cases of glomerulonephritis associated with impetigo have been noted.

(h) Herpes Simplex: Herpetic gingivostomatitis was reported frequently from May to August, with fewer cases reported since that time. Of particular interest are cases of genital herpes which have been followed epidemiologically and found to be apparently both of venereal and nonvenereal origin.

2. Unusual Syndromes, Possibly Infectious—Figure 3 presents the cases of various syndromes that participants considered as possibly of infectious origin. They are grouped in the figure from below up, according to the week reported. It is hoped that, with more experience, TW₃ID may offer clues as to the distribution in time and place of some of these illnesses.

3. Infectious Diseases with Unusual Manifestations—Some of these are noted in Table 1. Of interest was the finding that 14 cases of postinfectious encephalitis were reported to TW₃ID. In contrast, no cases of this reportable condition were notified by Georgia to the

Morbidity and Mortality weekly report. Of the total of 282 cases reported for the country over this five-month period, our 14 cases represent about 5 per cent, or ten times the anticipated incidence for Atlanta on the basis of its population (about one million) compared to that of the United States (about 180 million). It is doubtful that this difference is due to any increased risk of this complication in Atlanta patients.

4. Relatively Uncommon Infections—Figure 4 presents the cases that fall into this category by week of reporting. Of interest was an unexplained cluster of 13 cases of rheumatic fever (May 19 to June 30), when streptococcal infections were not frequent.

Also of note were several cases of staphylococcal furunculosis in adults, reported in June, which upon investigation were found to have a common source. The occasional cases of typhoid, diphtheria, and Rocky Mountain spotted fever reported would warn the practitioner to consider these infections as possible diagnoses when he sees a pa-

Table 1—Infectious diseases with unusual manifestations. (Cases reported over a four-month period (May 5-October 6, 1965) to TW₃ID—Atlanta)

| Disease | No. of Cases |
|---|--------------|
| 1. Postinfectious encephalitis | |
| a. Measles | 5 |
| b. Varicella | 2 |
| c. Mumps | 7 |
| 2. Vaccinia reactions | |
| a. Aberrant vaccinia | 3 |
| b. Eczema vaccinatum | 2 |
| 3. Infectious mononucleosis with | |
| a. Aseptic meningitis | 1 |
| b. Hepatitis | 1 |
| 4. Rubella thrombocytopenia | 1 |
| 5. Salmonella osteomyelitis | 3 |
| 6. Tuberculosis with | |
| a. Osteomyelitis | 3 |
| b. Phlyctenules | 1 |
| 7. Amebiasis with pleural effusion | 1 |
| 8. Gonococcal arthritis, septicemia and skin rash | 1 |
| 9. Group B streptococcal septicemia | |
| a. In newborn infant | 1 |
| b. With arthritis | 1 |
| 10. Measles | |
| a. With croup | 1 |
| b. Hemorrhagic | 1 |
| 11. Herpes zoster ophthalmicus | 4 |
| 12. Cat scratch fever with Parinaud's syndrome | 1 |

tient with FUO, exudative pharyngitis, or febrile exanthem around the same period of the reports.

Discussion

The usefulness of communicable disease reports was reviewed by Sherman and Langmuir in 1952.⁵ These authors pointed out the inherent defects in the national reporting system; but they concluded that, despite the numerous flaws maligned by the perfectionists, such reporting is indispensable for several reasons: the immediate recognition of a disease situation requiring public health action; the determination of areas and trends of disease; their use in administrative planning of long-range programs; their value in providing the

raw material for epidemiological research.

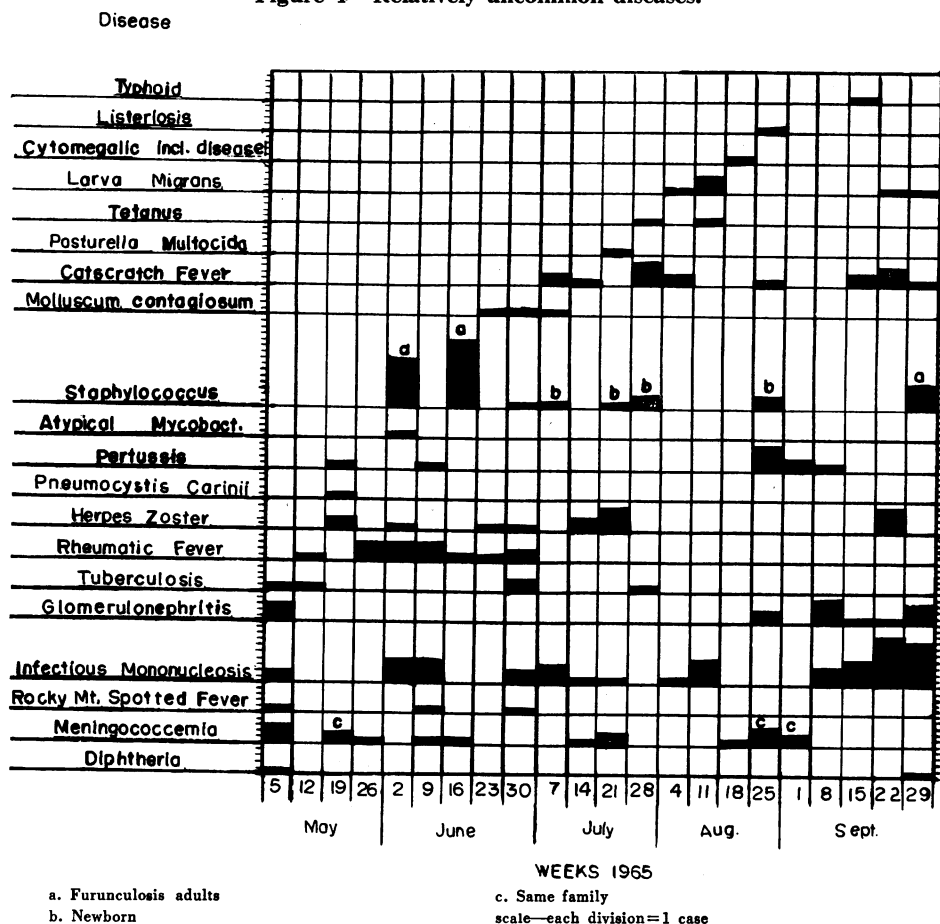
The type of community reporting system we have established fulfills many of these uses. It has the advantage of being more current and therefore of greater potential usefulness to the initial reporter. The participating practitioners have cited many instances where TW₃ID helped them in their daily practice. Such a system is also of particular value to public health agencies, providing a rapid way of recognizing the occurrence of multiple cases in the community. Examples of this were noted with the outbreaks of staphylococcal furunculosis, Salmonella enteritis, infectious hepatitis, herpangina, and the multiple cases of meningococemia in the same family.

Another advantage is the pooling of laboratory information from work conducted in hospitals, public health agencies, and research laboratories attached to universities and medical schools. In addition, certain syndromes of possible infectious origin (Figure 2) can be approached from an epidemiological and laboratory viewpoint.

The reporting of infectious diseases with unusual manifestations (Table 1) is of particular value to those clinicians interested in infectious diseases. The community reporting system also offers potential use to the teaching of infectious diseases and epidemiology. Already, TW₃ID—Atlanta is mentioned to medical students and hospital staff physicians in relation to infectious disease teaching. It is also hoped to use the current information obtained from TW₃ID to provide opportunities for "shoe-leather epidemiological training" to medical students.

This report summarizes the limited objectives and findings of TW₃ID—Atlanta over a five-month period. As more experience is accumulated, the important question of determining the denominator, so as to obtain a perspective of the true incidence of infections in the com-

Figure 4—Relatively uncommon diseases.



munity, can be approached. Although difficult, we feel that this is not an insurmountable problem.*

Summary

A community reporting system for infectious diseases has been established in the Greater Atlanta area since May, 1965. Its main purpose is to provide current information on infectious diseases which may be of value to practitioners, epidemiologists, laboratory workers, and teachers of infectious diseases and preventive medicine. Methods used for obtaining the reports and feeding back the compiled data on a weekly

* Any assistance which we may be able to provide to those interested in establishing some form of community reporting of infectious diseases will be gladly rendered.

basis are outlined. The results of our findings over a five-month period are presented. Our experience to date appears to have justified our original belief that a community reporting system of infectious diseases is feasible, and can provide valuable information to workers in the fields of medicine and public health.

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APPENDIX A

1. Common Infectious Diseases of Unusual Prevalence

These would include:

| | | |
|--------------------------------|---------------------------------|--------------------------|
| Clinically | Measles | Erythema infectiosum |
| Recognizable | Rubella | Scarlet fever |
| Exanthems: | Roseola | Varicella |
| Diarrhea: | No agent recovered | Salmonellosis |
| | Food poisoning | Shigellosis |
| | | Enteropathogenic E. coli |
| Respiratory | URI | Bronchiolitis |
| Infections: | Pharyngitis (strep or other) | "Influenza" |
| | Croup | Pneumonitis |
| Hepatitis—infected, serum | | |
| Impetigo | | |
| Meningitis, bacterial, aseptic | | |
| Mumps | | |

2. Unusual Syndromes—Possibly Infectious

e.g., Syndrome of skin rash, fever, mouth lesions
or pharyngitis and conjunctivitis, and the like

3. Common Diseases with Unusual Manifestations

e.g., Postexanthem encephalitis or thrombocytopenia
or Vaccinia complication

4. Relatively Uncommon Diseases

| | |
|-------------------------------|--------------------------------|
| Amebiasis | Rocky Mountain spotted fever |
| Anthrax | Staphylococcal infections |
| Atypical mycobacteria | newborn infants |
| Cat scratch fever | breast abscesses in mothers |
| Cytomegalic inclusion disease | postoperative wound infections |
| Diphtheria | Systemic fungal infection |
| Encephalitis (etiology?) | Tetanus |
| Endemic (murine) typhus | Trichinosis |
| Herpes simplex | Tuberculosis |
| Herpes zoster | Tularemia |
| Infectious mononucleosis | Typhoid |
| Leptospirosis | Whooping cough |
| Meningococemia | Others |
| Psittacosis | |

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