

Public Health Reports

Vol. 62 • MARCH 7, 1947 • No. 10

EDITORIAL

ADVISING THE SUSPECT CASE

Mass radiography surveys in recent years have brought to the attention of the medical profession thousands of persons with X-ray evidence of pulmonary tuberculosis. Careful radiological and laboratory studies have led to the identification of clinical cases—with and without positive sputum, subclinical cases, and suspects. Attention has, of course, been directed first toward the clinical and then toward the subclinical cases. Suspects have been neglected in favor of those who present unmistakable roentgenological and bacillary evidence of tuberculosis. The overcrowded physicians' offices and other medical facilities of our country create a condition which tends to encourage such an attitude. Scarcity of trained personnel and the pressure of daily professional duties prohibit the necessarily prolonged management of the suspect case. Even though the suspect does not require immediate medical or hospital care, he should not be forgotten. He needs to be advised about his condition and guided toward sound health habits over a prolonged period until his final diagnosis is established.

Such advice should be given to all persons who are classified as "suspects," although some accommodate themselves unaided. The physician, the public health nurse, and the medical social worker can serve as advisers in each case, so that no one will lack the advantages of aid during the critical period that precedes adjustment.

It is not enough to inform the suspected person that he may have early tuberculosis and that he must return to his physician or clinic for periodic reexaminations. Worry, confusion, impatience, endured for many months, can undermine all the advantages of early case finding.

Specifically, the suspected person should be assured at the outset that even in the event of a final diagnosis of tuberculosis, there is no real occasion for alarm. The nature of the disease and its favorable

This is the thirteenth of a series of special issues of PUBLIC HEALTH REPORTS devoted exclusively to tuberculosis control, which will appear the first week of each month. The series began with the Mar. 1, 1946, issue. The articles in these special issues are reprinted as extracts from the PUBLIC HEALTH REPORTS. Effective with the July 5 issue, these extracts may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 10 cents a single copy. Subscriptions are obtainable at \$1.00 per year; \$1.25 foreign.

prognosis if discovered early should be made plain. Even highly educated and widely informed persons know little about tuberculosis. For the most part, the word is associated inevitably with death. Misconceptions and old wives' tales are entertained by the emotions even when they have been intellectually rejected.

It is the first task of the physician, public health nurse, or medical social worker to find the "teachable moment"—the pertinent psychological occasion—and to begin the reeducation process which, in replacing error with truth, permits the growth of confidence and understanding. A nice balance, determined by the character and background of the person, must be maintained between the seriousness of the prospect of tuberculosis and the optimism predicated on a favorable outcome. The possible necessity for changes in ways of life and plans for the future could be discussed. This, however, should be done gradually. A sick mind, like a sick body, must assume new values only at that speed which it can individually assume.

The suspected person should be encouraged to return to the clinic or physician for other than medical advice. If the suspect plans to change his job, with or without adequate reason, he should not do so without proper guidance, based on sound medical reasons. If the home life presents serious problems, the services of the public health nurse or medical social worker would be helpful.

Through such guidance the suspected person and the supervisory and professional staff come to a helpful understanding of each other. The individual comes to an appreciation of what it means to be well. The professional person gains new insight into the complexities of human beings. If the suspected person is finally diagnosed as tuberculous, he is prepared for the disciplines of sanatorium life and medical care. If he is found to be nontuberculous, new and useful health habits will have been established, which may make for a fuller and happier existence.

No one knows how many thousands of suspects the community loses through maladjustment or through unnecessary advancement of disease. Because of the lack of advisory and educative care and adequate medical follow-up, the number lost must be great.

To be sure, such a desirable program cannot be undertaken without additional medical, nursing, and social work personnel, as well as increased clinic facilities. Present facilities are inadequate, even for ordinary diagnostic work, in most parts of the United States.

It is society's duty to provide these resources at the earliest possible moment.

HERMAN E. HILLEBOE,
*Assistant Surgeon General,
Associate Chief, Bureau of State Services.*

MEDICAL SOCIAL SERVICE IN TUBERCULOSIS CONTROL ¹

Medical social service is a special field within the social work profession. It has developed over the past 40 years in relation to the practice of medicine in hospitals, clinics, departments of public health, and other organized programs of medical care. A broad concept of medical care has long included treatment not only of physical illness but also of those social factors which influence the effectiveness of medical care, contribute to the degree and duration of the disability, and help determine the ultimate adjustment of the individual. There is an increasing emphasis in medical practice on the preventive approach and on the social and community aspects of health.

The functions of the medical social worker are:

1. To practice medical social case work—
 - a. Through study of social, economic, and emotional factors which reveal the patient's readiness and ability to carry out the recommendations for medical care;
 - b. Through evaluation of these factors as they affect the capacity of the patient and his family to adjust to the medical situation;
 - c. Through dealing with social, economic, and emotional factors which may affect the patient's ability to gain full benefits of medical care and reach the best possible state of health and well-being.
2. To serve as medical social consultant, bringing to cooperating health agencies an increased knowledge of the social aspects, and to welfare agencies an interpretation of the significance, of illness and medical treatment as these affect plans of medical and social care.
3. To participate in community planning for health and welfare.
4. To share with other staff members of the health agency responsibility for participation in the orientation and in-service training programs for professional personnel.
5. To participate in the education and training of students in schools of medicine, public health, nursing, and social work, and to supervise medical social students assigned to the agency for field work practice.
6. To participate in research concerned with understanding the relationship of economic, social, and emotional factors to ill health.

The medical social worker is qualified to render these services because of the knowledge and skill developed through specialized professional education and experience. Schools of social work with approved medical social curricula require two postgraduate years of professional education leading to the degree of master of arts.²

¹ From the Medical Social Unit, Office of the Chief, Tuberculosis Control Division. This article is a redaction of *Medical Social Service in Tuberculosis Control*, Miscellaneous Publication 37, United States Public Health Service, Government Printing Office, Washington, D. C. (1946).

² Eighteen of the forty-five member schools of the American Association of Schools of Social Work have an approved medical social curriculum. Because of the urgent need for trained personnel, scholarships for the required graduate training are available through grant-in-aid funds.

The medical social worker's knowledge regarding health and disease, her understanding of the role of the emotions and the meaning of behavior in illness, her understanding of the relationship and influence of economic and social factors on ill health and disability, and her ability to utilize the services of those community resources best suited to the needs of the particular individual and his family are all basic in dealing with social problems related to illness.

Under the leadership of the physician, the medical social worker functions in continuous association with the other professional personnel in the medical and health agency. She is a member of a team composed of the doctor, the nurse, the nutritionist, and others concerned with the care of the sick. Responsibility for recognizing and considering the social aspects of illness is shared by all members of the team, but the medical social worker has the primary responsibility in this respect because of her specialized training and experience. She can give help to other staff members by increasing their understanding of social factors which affect the medical, nursing, or other care which is their primary concern.

In the field of tuberculosis control, the functions of the medical social worker are those previously described. The specific methods, as related to the problem of tuberculosis, are discussed in the following pages.

EVALUATION OF THE PROBLEM

The medical social worker recognizes, as a first step in tuberculosis control, the importance of determining the extent of the problem in a community. Such an evaluation is made from all available information. The contribution of the medical social worker is to bring out the social significance of the problem by adding specific information concerning personal situations and community problems revealed through case work. The way in which contributions are made can be shown by examples:

An index of the per capita income of a State does not show the financial position of a particular family, but the medical social worker may be able to do so, as a result of personal contact.

Figures that show the availability of beds in a State do not point out for a given area the relation of beds to need, nor do they show how the beds are distributed. The medical social worker, through contact with individual patients, can add to the social interpretation of State data.

A mere statement of the number of beds in an institution does not give an accurate picture of the adequacy of a given program; but the medical social worker, through frequent experiences with patients,

can offer revealing information concerning the adequacy of medical care, the existence or nonexistence of discriminatory practices, or the quality of the food.

She may be able to point out the need for new medical and social services in a community. Various groups concerned with helping tuberculous patients and their families can use the data collected by the medical social worker as a basis for increasing the resources of a community, such as relief grants and foster-home programs for children.

RESEARCH AND HEALTH EDUCATION

Effective preventive and remedial methods in tuberculosis control are constantly improved through research and strengthened by health education. Both activities are found in other areas of tuberculosis control: case finding; medical care; isolation and aftercare; rehabilitation; and relief from economic distress.

Research.—The medical social worker can aid in research related to medical care and community health. Her work would include medical social studies of (1) intake policies of sanatoria, (2) underlying reasons why tuberculous patients leave sanatoria against medical advice, (3) problems of the tuberculous transient, and (4) economic, social, and emotional insecurity which may contribute to the reactivation of tuberculosis. Some typical locales for such studies would be health agencies where medical social service is a part of the program; research departments of health, welfare, and other social agencies; and graduate schools of social work.

Health education.—The medical social worker has no primary responsibility in health education, but rather she enables the patient to utilize its benefits. In her daily practice, she gains insight into the patient's pattern of attitudes and possible resistance to recommendations. She may observe inadequacies in home sanitation and the failure of patients to take advantage of community health facilities.

CASE FINDING

Case finding has been defined as a program of mass and individual examinations for discovering unsuspected tuberculosis. The settings in which the studies are made vary and, to some extent, determine the role of the medical social worker. The examining agent may be a private physician, or the personnel of a health department, tuberculosis association, clinic, etc. Case finding is a primary function of the public health nurse. The medical social worker, however, contributes to this activity when referrals are made to her by the nurse for intensive study or on a consultant basis when potential sources of infection

resist examination. Specifically, the functions of the medical social worker in a case-finding program are as follows:

1. To assist the physician and public health nurse *on referral*, in problems of follow-up, and in bringing in contacts.
2. To evaluate attitudes, social complications, and other factors that affect adversely the patient's ability or readiness to follow recommendations for diagnosis or treatment.
3. To help the patient to work through his difficulties and to utilize resources for meeting his needs.

In agencies where no medical social worker is yet on the staff, the public health nurse will assume, to some extent, the medical social activities. In other agencies, such as voluntary hospitals, no public health nurse may be available, and the medical social worker will extend her services to include interpretation of medical recommendations, health education, and follow-up, in addition to her case-work functions. Because of limitations of personnel in both groups, public health nurses and medical social workers will have to continue to assume some of each other's activities. In general, however, each will recognize the activities which, by education and experience, are the valid function of the other. A statement which will clarify the division of responsibility in tuberculosis control is being drawn up jointly by representatives of the National Organization for Public Health Nursing and the American Association of Medical Social Workers.

The success of a case-finding program depends upon efficient case holding. The medical social worker's contribution is increased if she is called in at the time of diagnosis, and the effectiveness of her work is often determined by the frequency with which she is consulted. Some specific social and emotional problems of patients are discussed in the following section.

MEDICAL CARE, ISOLATION, AND AFTERCARE

Tuberculosis is a disease in which body and mind must be treated simultaneously. The medical social worker helps the physician and the nurse to understand the patient as a person, in terms of his total needs and those of his family, so that a well-rounded plan can be made which will insure maximum benefits from medical care.

A. *Problems of the tuberculous patient.*

Emotional.—The problems most frequently encountered in the tuberculous patient, and those which demand the most skillful handling on the part of the medical social worker, are emotional. The diagnosis is often a great shock to the patient, and the reaction may not diminish as medical care is given. Medical treatment and isolation from the family may contribute fears that aggravate his condition.

Fear patterns may be complicated by cultural patterns and unsound advice of relatives and friends. Some frequent fears and anxieties are as follows:

1. *Fear of the disease.*—Its ultimate outcome; the possibility of death; the treatment administered, particularly surgery and its disabling effects; the danger of becoming physically, economically, and emotionally impotent and dependent; the cost of long-time medical care; stigma, and the realization that other members of the family may have become infected; inability to accept the prescribed medical regime which requires restriction of activity, removal from all close associates, loss of privacy, and submission to a medical authority.

2. *Social fears.*—Loss of status in the home and in the community as a wage earner or career person; fear of the inability to maintain the home with regard to finances, and care and supervision of the children; marital infidelity and the complicated problem of sexual relationships, including the possible inadvisability of having children; loneliness and boredom.

Economic.—Economic needs are major factors in the emotional distress of the patient. Because of the magnitude of this problem, it is discussed in a separate section, "Protection of the Tuberculous Family Against Economic Distress."

Social.—Social problems are difficult to isolate from the foregoing, since all have social aspects. For purposes of this discussion, however, the term refers to environmental problems of the patient, or more specifically, to family and legal problems. These problems are, briefly:

1. *Family problems.*—These may result from attitudes of the family toward the patient, or may arise in regard to the care of children. Housing has significance, and may be a factor in the spread and progress of tuberculosis. Visits to and by the patient frequently involve activity on the part of the medical social worker, and she must plan with family and patient so that the latter may return to a favorable environment when discharged.

2. *Legal problems.*—These are often caused by nonresidents not being accepted for care in many communities, and by conflict between the patient's desires and the welfare of others.

B. *Functions of medical social service.*

The medical social worker can give two types of service:

1. Consultation service to professional persons assisting the patient.
2. Direct case-work service to the patient.

In either type, the medical social worker will have related responsibilities of administration, education, community organization, and social action.

In health departments.—Many medical social workers on the staffs of State and district health departments are called "consultants," a term descriptive of their primary function. As specialists in social problems related to health and medical care, they provide consultant service, on individual and community problems, to all workers, in-

cluding social workers and public health nurses. Through liaison activities with social agencies, they strengthen the integration of health and welfare services. They may also interview patients and their families in health department clinics. In communities which do not yet provide the needed social service, the medical social consultant may provide it herself, as a temporary measure. Through interpretive conferences with public health nurses and supervisory workers in welfare agencies, she may help the patient to obtain additional care.

The medical social consultant's services are being utilized increasingly by public health nurses in group discussions and individual conferences. By request of the public health nurse, the consultant visits a family; nurse and consultant then decide on the next step—whether the nurse shall carry the responsibility alone, whether the consultant shall continue to assist the nurse by consultation or direct service to the patient, or whether the nurse and a local social agency shall give the service. In a social situation the members of a medical team must agree, by conference, on the responsibility that each will carry. The medical social consultant in a tuberculosis-control program in State health agencies will work cooperatively with other medical social consultants, so that all the social services will be closely correlated.

In tuberculosis clinics.—In a public health clinic, the medical social worker can serve as consultant or, by agreement with the physician and the public health nurse, can assume a direct case-work responsibility. Generally, her major function will be to discover, evaluate, and assist in the solution of problems, emotional, economic, and social, which hinder the patient's adjustment. Specifically, she will assist by dealing with the patient's attitude toward diagnosis and treatment; by determining his eligibility for treatment resources and interpreting procedures and policies; by helping him and his family to work through any social complications that interfere with his medical care; and by establishing a supportive relationship which will help to sustain the patient and his family throughout the period of care.

Additional functions with regard to patients discharged from the sanatorium are: to reevaluate the social situation in light of the patient's medical needs, revealing current factors and trends; to inform physician and nurse of changes in the patient's social situation; to learn of changes in medical status, for the purpose of joint planning; and to assist the physician and nurse in helping the patient and his family to understand his condition, so that there will be neither over-protection nor excessive demands.

Referral of a patient to the medical social worker is possible at any

time, but serious social problems can be prevented if she is called at the time of diagnosis. After a complete study of the patient's problem, the medical team determines the division of responsibility for further service. In order to avoid overlapping functions and activities of the medical social worker and the public health nurse, reasons for referral should be studied and clearly stated. The physician is responsible for the total plan of medical care, but the plan between public health nurse and medical social worker may follow one of three patterns:

1. When the health problem is paramount, the public health nurse should carry the major responsibility, and the medical social worker should serve as consultant for the social aspects of service;

2. When the social problem is of major proportions, responsibility for social study and care should be assigned to the medical social worker; and

3. A problem with serious health and social aspects, calling for the special skills of nurse and medical social worker, should be handled cooperatively.

In the tuberculosis sanatorium.—The day-to-day life of the patient in a sanatorium can produce much strain and tension. The medical social worker can be of assistance in such problems as personality conflicts, fears, superstitions, the need to repress sexual desires, and refusal of treatment. In order to carry the responsibilities, an adequate number of medical social workers are needed—at least 1 for every 50 to 75 patients. At the time of the patient's admission to the sanatorium, the physician may use the medical social worker in two ways: (1) to assist the patient in making adjustments, and (2) to make a social evaluation of all new cases. To avoid crises, such as leaving the sanatorium against advice, the physician should ask the medical social worker's help in discovering and dealing with the emotional, economic, and social problems of the patient.

In addition to referrals from the physicians, the medical social worker may receive requests for services from patients, patients' families, other staff members, and interested agencies. She will evaluate each situation, with respect to the patient's need for her services, in the following manner: (1) patients for whom no service is indicated at the present, (2) patients for whom temporary service is indicated, and (3) patients for whom extended service is required. In order to synchronize the activities of the medical team, a weekly staff conference is recommended, to reevaluate patients' problems, to analyze the medical-social needs of new patients, and to determine the readiness of patients to be referred to vocational counselors.

REHABILITATION

Rehabilitation is an integral part of the treatment of the tuberculous patient. Its goal is the restoration of the patient to the fullest possible physical, mental, emotional, social, vocational, and economic

usefulness of which he is capable. The process of rehabilitation begins at the time of diagnosis and is continuous throughout medical care.

Rehabilitation requires teamwork in which several professions take part, but not necessarily at the same time. The leader is the physician, and all other services are based on his diagnosis and recommendations. Among the members of the team are the nurse, medical social worker, occupational therapist, rehabilitation counselor, and teacher. At times, representatives of outside agencies may participate. The medical social worker, an essential member, assumes responsibility for the social aspects of service.

A. Social, emotional, and economic aspects of rehabilitation.

All the social services previously discussed in relation to the social, emotional, and economic needs of the patient may be given by the medical social worker as part of the rehabilitation process. Her share in the process includes help with social aspects of problems that retard recovery and block rehabilitation. She can prepare the patient for vocational referral by interpreting services, and can utilize community resources to overcome financial and social difficulties. Understanding the patient's fear of losing status, she may help him to accept a job that is less satisfying economically and socially than his former one. She can assist with follow-up problems resulting from unhealthy attitudes or other complications.

The after-care period has been considered to include the first 6 years after discharge. Some of the anxieties and fears that occur at the time of diagnosis and during the sanatorium period may carry over into the postsanatorium period, with added anxieties concerning the attitudes of family or employer.

B. Vocational aspects of rehabilitation.

Decisions with regard to vocational referral are dependent on many factors requiring joint consideration by the team. A staff conference, led by the physician, enables each member of the team to make his particular contribution. The medical social worker contributes by bringing to the other members the information that she has gained from the patient regarding his attitudes, family, background, and interests. She is in a position to know which patients are ready, socially and emotionally, for vocational service.

Those who plan rehabilitation services are confronted with two major problems: the attitude of industry toward employment of tuberculous patients, and the complications arising from the policies of insurance companies. The solution is not within the scope of medical social service. The medical social worker, however, may

be able to assist by explaining the patient's situation to employers and others. There are hopeful signs that employers and the United States Employment Service will join with health officials and others to find an answer to the employment needs of the tuberculous.

Rehabilitation service must provide the fullest possible life in terms of physical and mental health, occupation, and society. The human and economic waste that results when the benefits of sanatorium care are nullified by inadequate rehabilitation services cannot be overemphasized. Every tuberculous patient restored to his place in society adds to the continuity of family life and enriches the community. The success of rehabilitation services provides a new measure of the effectiveness of tuberculosis control programs.

PROTECTION OF THE TUBERCULOUS PATIENT AND HIS FAMILY AGAINST ECONOMIC DISTRESS

Indigenous to the problem of tuberculosis are economic problems, which may contribute to produce the disease or may arise from it. Inadequate food, poor living conditions, and constant emotional strain are debilitating, and may contribute to the incidence of tuberculosis. On the other hand, loss of earning power, as a result of tuberculosis, may affect adversely the patient and his family, creating a financial drain on the community. Tuberculosis is especially prevalent in the age group that is most economically productive.

When tuberculosis strikes the average family, financial aid from the outside is usually needed, especially if the disease strikes the wage earner. Some of the general economic problems of the tuberculous patient are loss of income, cost of lengthy and expensive medical care, the burden of providing for children in the absence of the mother, and the loss of assets, such as homes, businesses, insurance, and savings. To neglect these problems is to neglect treatment.

The resources for medical care in tuberculosis vary markedly among States and communities. Only a few areas have met this problem with any degree of effectiveness. Present inadequacies in medical care include an insufficient number of beds, an absence of free diagnosis and treatment in many communities, and restrictive requirements as to residence and race. These inadequacies, combined with such dubious administrative techniques as the means test, form a concrete barrier to effective tuberculosis control.

In the United States, the three accepted patterns of financial aid are public assistance, general relief, and social insurance. Funds for public assistance usually come from Federal grants-in-aid, matched by State funds; general relief funds may come from State or local sources; and social insurance, unfortunately, does not provide for persons disabled by illness. A national disability insurance program

is the only satisfactory answer to the total economic problem of the tuberculous.

The medical social worker, through consultant or direct case-work service, can gather evidence of the patient's economic position; and interested groups may use these data in securing remedial social action for adequate economic protection. For the patient and family with economic problems, the medical social worker can provide direct assistance by helping them to work out a plan of medical care within their means. She can help them to make applications for public assistance, general relief, or other financial aid, and can offer a liaison service between agencies concerned with helping them. She can arrange employment of an assistant in the home, furnish transportation to and from the sanatorium, and assure enough visitors to maintain morale.

The medical social worker functions in relation to other social agencies. Her activity consists in helping the patient to choose the appropriate resource to meet his needs, preparing the patient and the agency for the referral, and in assisting the health and welfare agencies to work out a division of cooperative responsibility to the patient.

In spite of individual or combined efforts, the present inadequacies in public assistance, general relief, and social insurance often preclude a sound plan for the patient, his family, and the community. Measures most often advocated to relieve this situation are grants-in-aid for the tuberculous as a group, Federal disability insurance, or a combination of both. Medical social workers have an important contribution to make toward broader social planning, and they can effectively help in the social action necessary to bring such plans into being. Because of the essential relation between tuberculosis and economic insecurity, effective tuberculosis control cannot be achieved so long as society fails to provide adequate economic security for the disabled.

THE EVOLUTION OF OFFICIAL TUBERCULOSIS CONTROL IN THE UNITED STATES ¹

By ROBERT G. PATERSON, *Secretary, Committee on Archives, National Tuberculosis Association*

In reviewing the evolution of the official tuberculosis control program in the United States, one question constantly arises:

Why did it take so long to establish official participation?

Beginning with the first organization of an unofficial tuberculosis association, The Pennsylvania Society for the Prevention of Tuberculosis,

¹ From the Office of the Chief, Tuberculosis Control Division, Bureau of State Services, U. S. Public Health Service.

culosis (1) established by Dr. Lawrence F. Flick in 1892, and culminating in the official Tuberculosis Control Division of the United States Public Health Service (2) in 1944, the time required was 52 years.

Between these two dates, 1892 and 1944, many changes were made in the approach to the tuberculosis problem. Throughout this period, conflict can be sensed between the medical and the social approaches, the private as opposed to the public handling of the problem, and the philosophy of the local as against the central control of the disease. These conflicts are inherent in the tuberculosis movement in the United States. Moreover, they contain the answer to our question.

From 1882, when Koch (3) announced his discovery of the tubercle bacillus, to 1892, when Flick organized the Pennsylvania Society, there is discernible the struggle to establish the concept of "the contagiousness of consumption" as against the generally accepted idea of hereditary transmission of the disease. Accompanying this effort, attempts were made to educate the public concerning the nature of the disease. An effort made by Dr. Herman M. Biggs (4) in New York City in 1889 marks the first real attempt to establish public administrative control of tuberculosis.

Tuberculosis workers have a tendency to mark the beginning of the organized efforts against tuberculosis with the formation of the National Tuberculosis Association (5) in 1904. Yet there is ample evidence (6) that this date merely signifies the compromises among a number of conflicting medical concepts and groups of workers. These conflicting medical concepts concerned therapeutics, pathology, and diagnosis. Many of the concepts came from ancient times. For example, the ideas of the therapeutic value of sea voyages and of residence in or near woods that abound in pine or balsam go back to Hippocratic medicine. Then came the idea of change of climate. Rush advocated especially "a dry situation, the higher and drier for the purpose, the better." Together with this notion was advanced that of horse-back riding, which took the patient out in the air.

What is known today as the "open-air treatment" stems from George Bodington, who in 1840 wrote "an Essay on the Treatment and Cure of Pulmonary Consumption." The practical application of Bodington's belief was first made by Hermann Brehmer in 1859 at Goerbersdorf in Silesia. Eight years later, in 1867, Peter Dettweiler founded his sanatorium at Falkenstein, near Frankfort, Germany, at an altitude of 1,300 feet. He added the "rest-cure" to the "open-air cure" of Brehmer.

In the United States, the first private sanatorium was erected in 1875 by Dr. J. W. Gleitzmann. It was located in Asheville, N. C.

The first sanatorium for the poor was established by Edward Livingston Trudeau at Saranac Lake in 1884. It was known as the Adirondack Cottage Sanatorium. The first municipal sanatorium was erected in 1897 at Cincinnati, Ohio. The first State sanatorium was established by Massachusetts and was opened at Rutland, October 1, 1898.

In 1887, the first tuberculosis dispensary in the world was opened in Edinburgh, Scotland, by Dr. Robert W. Philip. This dispensary had for its objectives the reception and examination of patients; the instruction and guidance of patients, their families, and friends; the dispensing of necessary medicines; visits in homes of the tuberculous; and the selection of patients for hospital treatment.

In the United States, the first such dispensary was established at Philadelphia in 1891 by Rush Hospital for Consumption and Allied Diseases. Dr. John H. Huddleston organized the first tuberculosis dispensary under municipal auspices at Gouverneur Hospital in New York City in 1903.

In 1895, Roentgen of Wurtzburg, Germany, discovered a certain ray of light that can penetrate opaque objects, and can reveal in shadows what is hidden from the eye. The X-ray made possible the examination of bodies to determine their physical structure, and disclosed the physical alterations brought about in the lungs by the invasion of tubercle bacilli. Here was the discovery of a reliable means of diagnosis and of gaining information relative to the treatment of pulmonary tuberculosis. Today, the X-ray is a major instrument in the early diagnosis of the disease, on both an individual and a mass basis.

The social aspects of the problem began to emerge about 1902. Organization of the Committee on Tuberculosis of the New York City Charity Organization Society introduced a new element into the tuberculosis movement. This new element was the election of a layman as secretary of the committee. The significance of this action was to place emphasis upon the social implications of tuberculosis.

From these beginnings, interest in the tuberculosis program increased among the members of the medical profession and among persons especially interested in philanthropy. Before the formation of the National Tuberculosis Association in 1904 (6), several attempts were made to organize a tuberculosis movement on a national scale. In all of these efforts, the conflict between the private medical support for *treatment* and the public health belief in *prevention* is sharply defined.

When the National Tuberculosis Association was formed on June 6, 1904, at Atlantic City, these conflicting viewpoints were contending for supremacy. The results of decisions at this historic meeting are

evident today. The decision to include both treatment and prevention in the objectives of the association was fundamental. This meant close teamwork between the medical profession and the public. Interpreted in the light of present-day efforts, this decision has made it clear that the official agencies for the control of tuberculosis can never afford to act without the approval of public opinion.

Another important decision was the general acceptance of the idea of retaining the movement under private control. At the time, there was a widespread distrust, if not contempt, for the so-called official public health authorities, local, State, and national. Most of them were regarded as political appointees and were not esteemed by the medical profession.

That the conflicting concepts, the treatment and prevention of tuberculosis, and the private control of the movement, were firmly rooted in the tuberculosis program was demonstrated in 1912. In that year, in Ohio, discussion came up concerning the establishment of a Division of Tuberculosis in the State Board of Health. Leaders in the National Tuberculosis Association were fearful of such a proposal on three grounds. It was feared, first, that such a step would throw the tuberculosis movement into politics; second, that professional personnel requirements in State Boards of Health were non-existent, or on such a low plane that little or no help would accrue to the movement; and third, that the creation of such an official agency would constitute a threat to private tuberculosis control activities.

After the establishment of the Division of Tuberculosis under the Ohio State Board of Health in May, 1913, however, the National Tuberculosis Association began to discuss the place of local and State health departments in the tuberculosis movement (7, 8). In 1917, a special committee on expenditures of Red Cross Seal funds recommended "securing the establishment in State or local health departments of divisions of tuberculosis, or of definitely organized tuberculosis activity, for the promotion of all forms of antituberculosis work" (9). During the same year, a Committee on Federal Legislation reported on the Kent Bill, which was amended to provide for a division of tuberculosis in the United States Public Health Service, but the bill failed to pass. Similar bills (S. 1597, Senator Ramsdell, and H. R. 3666, Mrs. Rayburn) were introduced in the next session of Congress, but they, too, failed to pass (10).

Gradually, it was recognized that certain parts of the tuberculosis program should be under official control. It became clear that the tuberculosis program was too important and far-reaching for private effort and finance to carry on alone. General acceptance of official

responsibility for sanatoria, clinics, nursing services, case finding, and certain phases of health education can be observed in the evolution of the tuberculosis program, but developments of these opinions were uneven throughout the Nation. Private tuberculosis organizations were reluctant to give up the programs they had initiated.

World War I gave impetus to the recognition of the need for governmental participation in the control of tuberculosis. In 1919, the National Tuberculosis Association adopted a resolution urging the establishment of a division of tuberculosis in the United States Public Health Service. But no effective steps were taken to implement the idea. A deep-seated reluctance to yield private control of the movement continued.

Between World War I and World War II, an unprecedented migration of population took place in the United States. This migration became a problem in tuberculosis hospitalization and brought about agitation for Federal aid in meeting hospital costs for nonresident cases of the disease. A resolution urging increased effort in the control of tuberculosis by official agencies was passed by the National Tuberculosis Association.

With the advent of World War II, the fluidity of the population increased to such an extent that in 1943 the National Tuberculosis Association was led to appoint a War Emergency Committee to consider what changes, if any, should be recommended in the program of the association. Discussion of the problem of hospital care for migratory tuberculous patients was prominent on the agenda.

In the meantime, Surgeon General Parran had taken steps for the United States Public Health Service to engage actively in the tuberculosis control program (11). Soon after Pearl Harbor, he established a small tuberculosis control section in the States Relations Division of the Bureau of State Services.

Throughout 1943 and in early 1944, in and out of Congress, agitation continued for more extended activities for control of tuberculosis. The War Emergency Committee of the National Tuberculosis Association recommended over-all participation in the tuberculosis control program by the United States Public Health Service. This recommendation was given force by a mass health-education campaign carried on by every State tuberculosis association under the leadership of the National Tuberculosis Association. Early in 1944, a comprehensive health bill was introduced in the Congress by Representative Bulwinkle of North Carolina and Senator Thomas of Utah. Congress acted affirmatively, and the Tuberculosis Control Division of the United States Public Health Service was established on July 1, 1944.

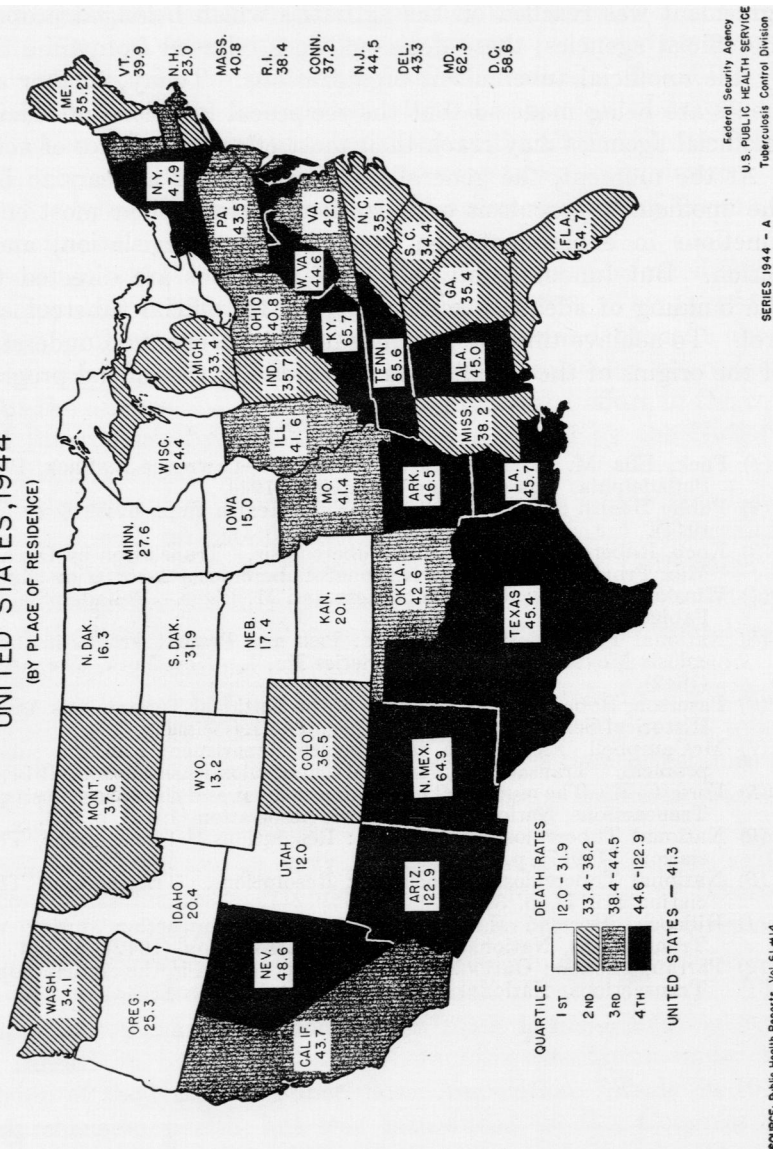
In brief, this is the story of the long road traveled by the tuberculosis movement to secure official governmental support, local, State, and Federal. Adjustments in the programs of public and private agencies had to be made after each advance. Gradually, widespread agreement was reached on the activities which belonged properly to the official agencies; these decisions were released from time to time by the unofficial tuberculosis organizations. Today, further adjustments are being made so that the reciprocal functions of official and unofficial agencies may reach their most effective spheres of action.

At the moment, the generally accepted thesis appears to be that the unofficial tuberculosis organizations perform their most enduring functions in experimentation, demonstration, legislation, and education. But fundamentally all these functions are directed toward the building of adequate public support for official tuberculosis control. To achieve this goal, there is need for a common understanding of the origins of the specific items included in the official program.

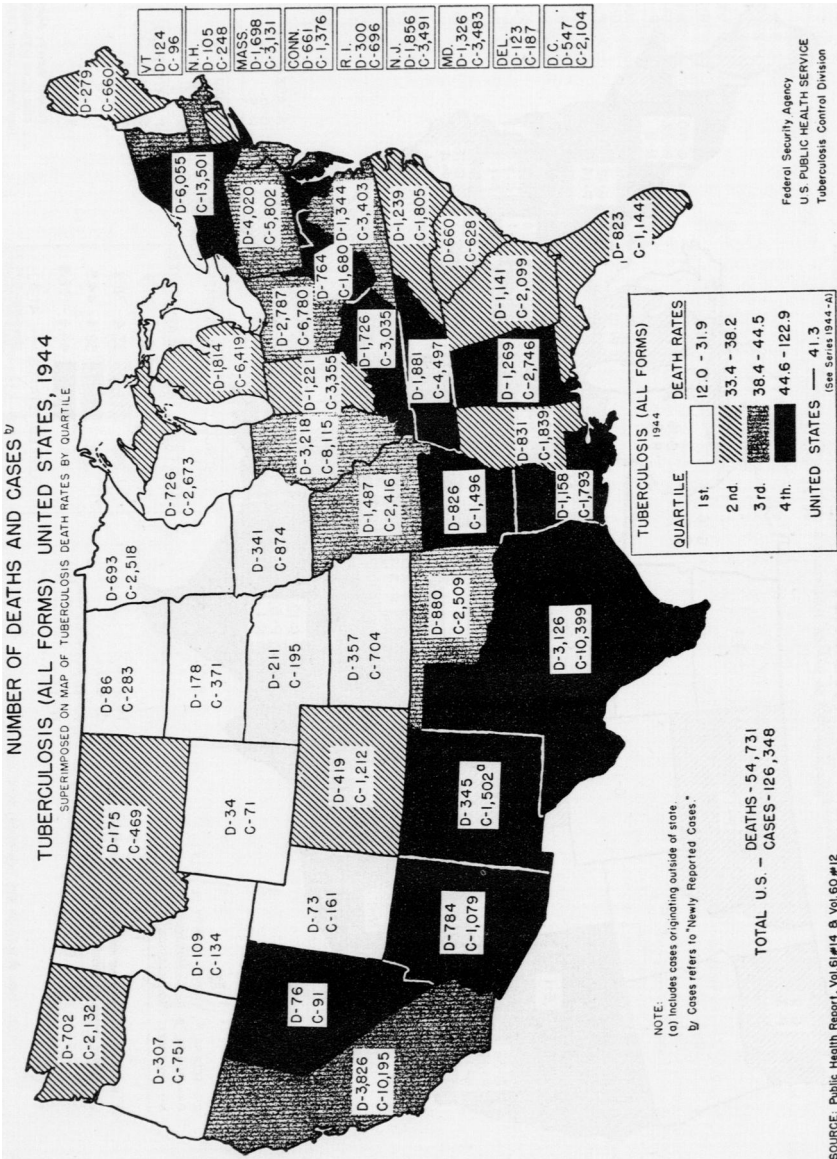
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TUBERCULOSIS (ALL FORMS) DEATH RATES PER 100,000 POPULATION
 UNITED STATES, 1944
 (BY PLACE OF RESIDENCE)

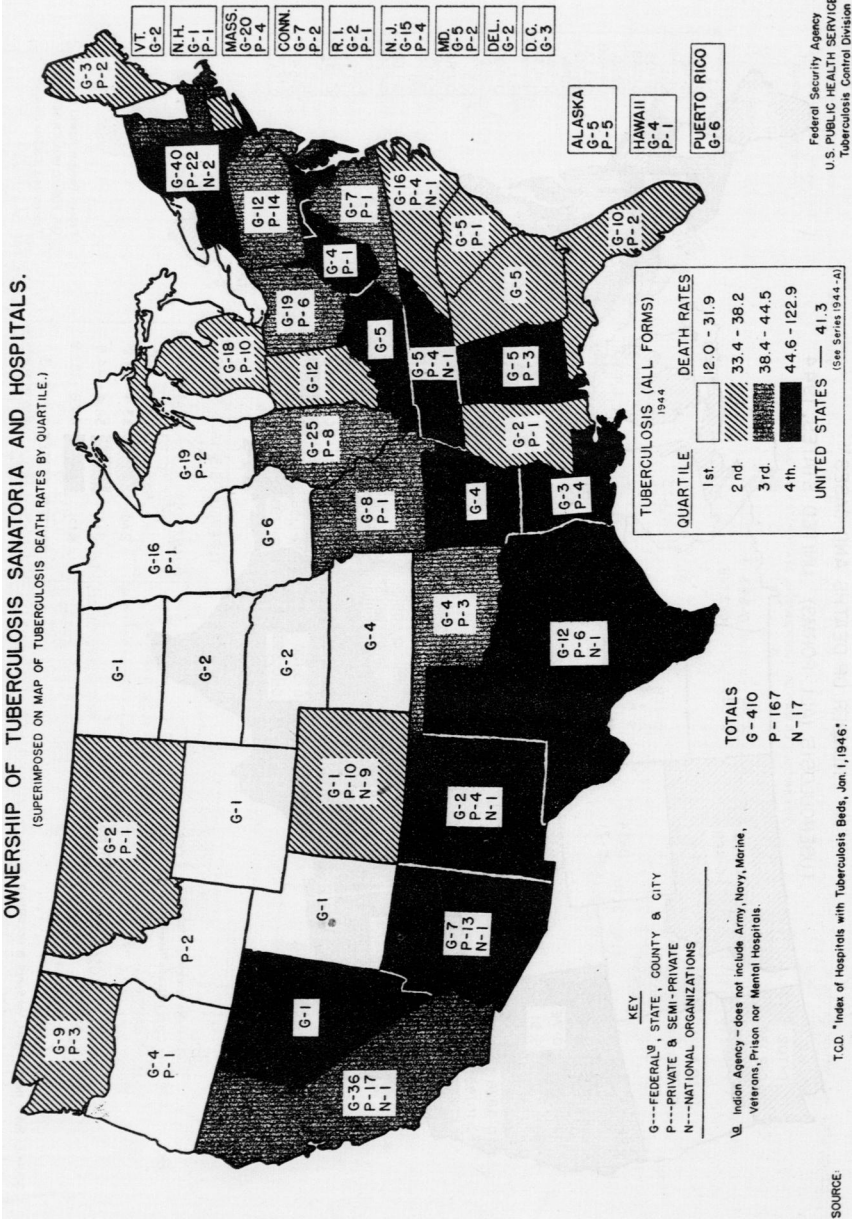


SOURCE: Public Health Reports, Vol. 61 #14



OWNERSHIP OF TUBERCULOSIS SANATORIA AND HOSPITALS.

(SUPERIMPOSED ON MAP OF TUBERCULOSIS DEATH RATES BY QUARTILE.)



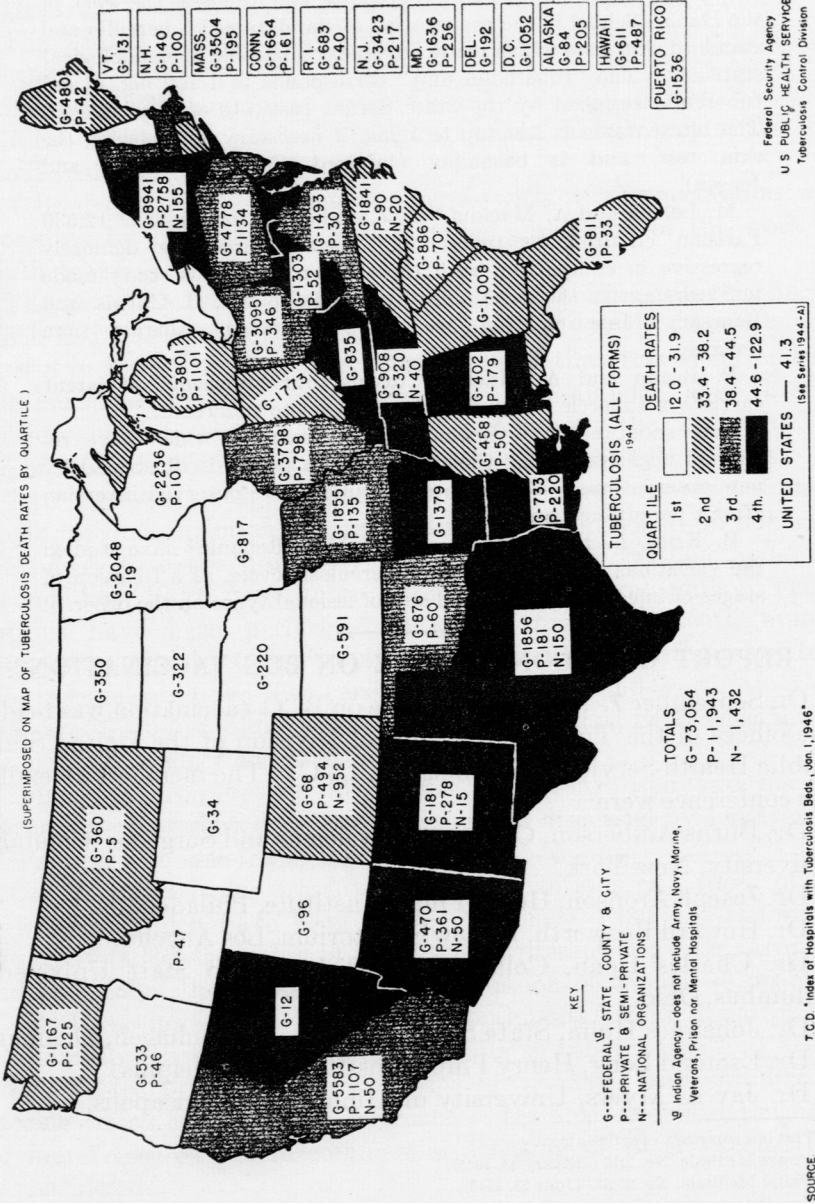
Federal Security Agency
 U.S. PUBLIC HEALTH SERVICE
 Tuberculosis Control Division

T.C.D. *Index of Hospitals with Tuberculosis Beds, Jan. 1, 1946*

SOURCE

BEDS IN TUBERCULOSIS SANATORIA AND HOSPITALS BY OWNERSHIP

(SUPERIMPOSED ON MAP OF TUBERCULOSIS DEATH RATES BY QUARTILE.)



Federal Security Agency
U.S. PUBLIC HEALTH SERVICE
Tuberculosis Control Division

T.C.D. Index of Hospitals with Tuberculosis Beds, Jan. 1, 1946*

SOURCE

SKIN REACTIONS TO TUBERCULIN*

An article by P. Hauduroy¹ on "tuberculin and tuberculin reactions" refers to Calmette's reports of the very unequal experimental values of various commercial tuberculin, and discusses the work of the Danish School in the preparation of standardized tuberculin and standard skin tests which made possible comparable epidemiological statistics. The "tuberculin unit" corresponds to 1/100 mg. of old tuberculin supplied by the State Serum Institute of Copenhagen. The intracutaneous test, up to 1 mg. if necessary, is replacing the skin test, and is becoming standard (Madsen, Holm, and Jensen). . . .

M. Lelong and A. Maclouf² have studied the reactions of 12,530 Parisian children to tuberculin. These figures are definitely regressive in comparison with those of an analogous study made ten years ago in the same office by P. Lereboullet, H. Gavois, and Baussan. Male children are more frequently allergic than females. . . .

P. Braun and A. Maclouf³ discuss our knowledge of latent carriers of tubercle bacilli who do not react to tuberculin.

Late spontaneous inversion of skin reactions which have remained negative during the usual waiting period is illustrated by new observations. Bernheim and Jeune⁴ have observed inversion after a percutaneous reaction.

B. Kreis, L. Barre, Martinet, and Mlle. Renault⁵ have studied the variations of allergy in the tuberculosis cycle, as a function of stages of infection on one hand and of lesional types on the other.

REPORT OF A CONFERENCE ON BCG VACCINATION¹

On September 7, 1946, a conference on BCG vaccination was held in the offices of the Tuberculosis Control Division of the United States Public Health Service in Washington, D. C. The members attending the conference were:

Dr. Burns Amberson, College of Physicians and Surgeons, Columbia University, New York.

Dr. Joseph Aronson, Henry Phipps Institute, Philadelphia.

Dr. Howard Bosworth, Barlow Sanatorium, Los Angeles.

Dr. Charles Doan, College of Medicine, Ohio State University, Columbus, Ohio.

Dr. Johannes Holm, State Serum Institute, Copenhagen, Denmark.

Dr. Esmond Long, Henry Phipps Institute, Philadelphia.

Dr. Jay A. Myers, University of Minnesota, Minneapolis.

*This is a summary of articles from—

¹ Presse Medicale, No. 2:13 (January 13, 1945).

² Presse Medicale, No. 25:337 (June 23, 1945).

³ Soc. Pathol. comp. (February 13, 1945).

⁴ Soc. med. des hop. de Lyon (January 9, 1945).

⁵ Soc. d'est. scient. sur la tub. (March 10, 1945).

¹ From the Office of the Chief, Tuberculosis Control Division, Bureau of State Services, U. S. Public Health Service.

Dr. David T. Smith, Duke University, Durham, N. C.

Dr. Henry Stuart Willis, William H. Maybury Sanatorium, Northville, Mich.

Dr. I. C. Yuan, National Institute of Health, Nanking, China.

The United States Public Health Service was represented by Dr. Herman E. Hilleboe, Dr. Francis J. Weber, and Dr. Carroll E. Palmer of the Tuberculosis Control Division, Bureau of State Services; and Dr. Milton V. Veldee, Biologics Control Laboratory of the National Institute of Health.

A brief review of the past experience with BCG vaccination was presented by Dr. Hilleboe, with detailed discussion of the work in South America.

The development of a particular strain of bovine tubercle bacilli which had lost its virulence was announced in 1908 by Calmette and Guerin in Paris; 12 years later they reported that this BCG culture was harmless to man. Since the work of Calmette and Guerin, considerable interest has been shown throughout the world in the use of artificial immunization for protection against tuberculosis.

Two methods of application are possible: First, the use of dead bacilli; second, injection of strains of living bacilli which do not have the power to cause progressive disease. Of the two methods the second has been used more extensively. Several million vaccinations have been performed since the first work with human beings was done by Calmette and Guerin in 1921. Although extensive vaccinations have been carried out in Europe and South America, and careful studies undertaken in the United States, BCG vaccination has not been widely accepted in this country.

During the conference, the studies of Dr. Aronson and his co-workers were presented by Dr. Aronson and discussed by Dr. Carroll E. Palmer, who assisted in the analysis of these data.

Dr. Johannes Holm presented his investigations and those of his co-workers, which have been carried on since 1930 in Denmark. After a detailed discussion of the material presented by Dr. Aronson and Dr. Holm, there was a general discussion of the entire problem of BCG vaccination, including the experimental work done on the relationship between allergy and immunity in tuberculosis.

Dr. Veldee presented the problems of virulence and stability of vaccine which contains live organisms. He also discussed the need for more research before commercial licensing of BCG vaccine can be considered.

As a result of these deliberations of outstanding leaders in tuberculosis in the United States, China, and Denmark, certain recommendations were made which will be used as a guide in the expansion

of the research program of the Tuberculosis Control Division of the United States Public Health Service.

It was strongly urged at the conference that BCG vaccine should not be commercially produced at present in the United States. Extensive investigations are indicated before commercial distribution can be considered. After a detailed review of the literature and the presentation of papers by the members of the conference, it was concluded that BCG vaccination appears to confer increased resistance to tuberculosis for the period covered in the studies. At present, however, information is incomplete as to the amount of this resistance or its duration. Furthermore, these studies as yet do not answer the question of the long-time effect of BCG vaccination on aging members of the population.

On the basis of a careful review of all published reports and the experience of members of the conference who have actually done vaccination, it was agreed that there have been no proved cases of progressive disease from BCG vaccination in human beings.

Vaccination of human beings with BCG vaccine can be done without causing severe local reactions at the site of injection or in the regional lymph glands, provided that proper vaccine, dosage, and method of administration be used. It was recommended that the intracutaneous method of vaccination be utilized in any studies contemplated. Further research should be done in the other methods of vaccination in an attempt to develop a technique to decrease the number of severe local reactions to the vaccine.

BCG vaccine is given only to nonreactors to tuberculin, and it was agreed that properly prepared vaccine could convert a high percentage of these nonreactors into reactors to tuberculin. There is as yet no conclusive information concerning the duration of tuberculin sensitivity which results from BCG vaccination.

In order to study the need for revaccination of those reactors who become nonreactors after vaccination, it was recommended that one study group be revaccinated and another group not be revaccinated, so that the need for revaccination might be determined.

It was recommended that a single laboratory produce BCG vaccine for the entire United States during the period of the proposed expanded study program and that this laboratory be established and supervised by the United States Public Health Service.

It was recommended that conferences be held with representatives of European, South American, and Asian countries in order to work out plans for uniform methods of producing BCG vaccine, and to make a comparison of the vaccine strains used in various countries of the world. Cooperative planning of studies should also be undertaken.

It was recommended that investigations be conducted during 1947 on certain population groups in the United States, in order to determine the effectiveness of BCG vaccine in the control of tuberculosis. Persons exposed to such a degree that they are almost certain to become infected, should be given first consideration. Particularly should we concern ourselves with the various tribes of American Indians in the United States; inmates and employees of mental institutions; employees of general hospitals and sanatoria in which the danger of infection is excessive because control measures are lacking; medical students in schools in which the services include exposure to tuberculous patients; and persons economically and socially underprivileged, among whom tuberculosis mortality is very high.

It is not recommended that the vaccine be used in areas such as Minnesota, where the incidence of tuberculosis and the percentage of tuberculin reactors is markedly low. Extensive studies in populous areas should be initiated by the Public Health Service, in cooperation with local groups. It was suggested that a county or part of a State, with a population of at least 100,000 people, could be studied over a period of several years in order to determine the effect of BCG vaccination on an entire community.

It was recommended that the vaccine not be furnished to general practitioners for use in individual patients at present.²

CONCLUSIONS AND RECOMMENDATIONS ²

1. BCG vaccine should not be made commercially available at present.
2. From studies presented at the conference, it appears that BCG vaccination confers increased resistance to tuberculosis for the limited period covered in these studies.
3. Medical literature fails to reveal any proved cases of progressive disease as a result of BCG vaccination.
4. BCG vaccination can be done without causing severe local reaction.
5. The intracutaneous method of vaccination is recommended for use at present.
6. In the studies presented, BCG vaccination converted a large percentage of nonreactors (to the tuberculin test) into reactors.
7. Need for revaccination and the time interval between vaccination require further study.
8. It was recommended that a single laboratory be established by the Tuberculosis Control Division to produce BCG vaccine for the

² The policy expressed in this announcement was approved by Surgeon General Thomas Parran on October 7, 1946.

entire United States for use in research programs proposed at the conference.

9. Extensive investigations should be carried on cooperatively with recognized research groups throughout the nation, especially in population groups highly exposed to tuberculous infection.

10. It was recommended that the Tuberculosis Control Division set up a controlled study in a community with a population of 100,000 or more, to determine immediate and long-range results.

11. Further research is strongly recommended to determine the efficiency of the vaccination and also to attempt to develop a vaccine composed of dead bacilli. It was recommended that methods be developed to standardize techniques of preparation of a potent and stable vaccine for use in the United States and, if possible, throughout the world.

A REVIEW ¹ OF

A COMPARISON OF THE EFFECTIVENESS, FOR TUBERCULOSIS CASE FINDING, OF VARIOUS ROENTGENOGRAPHIC AND PHOTOFLUOROGRAPHIC METHODS

Of special interest to workers in tuberculosis control is an investigation reported by Birkelo, Chamberlain, Phelps, Schools, Zacks, and Yerushalmy in the February 8 issue of the *Journal of the American Medical Association*.

In 1944 the Veterans' Administration appointed a Board of Roentgenology to evaluate the diagnostic efficiency of the various sizes of films which are used in mass surveys to determine the presence or absence of pulmonary tuberculosis in large groups of the population. Neglecting such considerations as cost, ease of operation, and the like, the Board set out to investigate the effectiveness of the 35-mm. and 4'' by 10'' photofluorogram, 14'' by 17'' paper negative, and 14'' by 17'' celluloid film. The Board was requested to seek out a most efficient medium and to make proper recommendations.

The following is an abridgment of the article.

In selecting the material on which to base the study, the Board attempted to simulate as nearly as possible the conditions of mass-survey work for which these media are ordinarily utilized. Accordingly, the entire populations of two Veterans' Administration institutions were surveyed. The populations of these institutions were of three different types: (1) employees, (2) ambulatory patients of a general hospital, and (3) residents for domiciliary care.

¹ From the Office of the Chief, Tuberculosis Control Division, Bureau of State Services, U. S. Public Health Service.

A 35-mm. photofluorogram, a 4'' by 10'' stereophotofluorogram, a roentgenogram on a 14'' by 17'' paper negative, and a conventional 14'' by 17'' celluloid film were taken, within a few minutes of one another, of each person participating in the study. The companies that provided the machines made special efforts to produce films of the best possible quality. The four sets of films were interpreted independently by the five members forming the Board of Roentgenology.

Prior to reviewing any of the films, the Board convened, reached agreements on nomenclature, and developed a code for classifying the films into distinct categories in as uniform a way as possible. Members of the Board also reviewed samples of films (not included in the study) made with various techniques, and classified them independently and in conference, in an attempt to arrive at uniformity of nomenclature.

The object of the study was to obtain a measure of the efficiency of the different techniques in selecting individuals with chest disease from among the study group. Specifically, the following two measures must be obtained for each technique. First, the percentage of persons with chest disease whose films are read as negative, which might be called "under-reading" or "misses"; and second, the percentage of films called positive for persons having no chest disease. These would be "over-reading" or "false positives."

The first difficulty encountered in a study of this kind is that of distinguishing the limitations due to the media from those limitations resulting from the subjective error inherent in film interpretation. The magnitude of the latter may be appreciated from a review of the difficulties involved in obtaining an answer to the simplest and most fundamental question: How many persons in the study were positive for tuberculosis? On 1,256 films (14'' by 17'' celluloid), one reader selected 56 positives, another 100 positives, and the remaining three readers selected intermediate numbers. There were 131 films called positive by one or more readers. The number of cases called positive by a single reader using all the different media (35-mm. photofluorogram, 4'' by 10'' stereophotofluorogram, 14'' by 17'' paper negative, and 14'' by 17'' celluloid film) varied from 74 to 170. The number of cases called positive by one or more readers on all media was 262. It became apparent from the accumulation of figures in the study that the different readers, even when limited to the 14'' by 17'' celluloid films, showed great variation in their interpretations.

As an initial step, an attempt was made to measure subjective errors, which are of two types: (1) inter-individual variation, or the failure of an individual reader to be consistent with other readers in interpreting the same set of films; and (2) intra-individual variation, or the failure of a reader to be consistent with himself in two independent interpretations of the same set of films.

The study revealed that experienced radiologists and chest specialists were not consistent with one another in classifying films in the broad categories used for evidence of tuberculosis. It was even more surprising to find, in some cases, that 20 percent of the films called positive for tuberculosis by one reader were called entirely negative by another. Part of these differences could be attributed to the varied background and experience of the five readers. By no means, however, did this account for the entire variation, since each of the specialists, reading the complete set of 14" by 17" celluloid films for the second time, showed considerable differences in his own two independent interpretations. For example, one reader called 59 films positive for tuberculosis on his first reading and 78 positive on the second reading 1 month later, and the 78 did not include all the 59 which he called positive originally.

Because of the foregoing difficulties, it became necessary to devise a method of analysis which would reduce, as much as possible, the effect of inter- and intra-individual variations, and which would accentuate the inherent limitations of the different films—if such limitations could be proved to exist. Such a method, it was believed, could be obtained by basing the analysis on "group opinion." There are a number of valid objections to the "group opinion" interpretation when such an opinion is obtained in conference or in consultation. In this material, however, a "group opinion" was obtained by combining the independent interpretations of the individual readers.

The rationale behind this method of analysis was formulated as follows: The classification of an individual, on roentgenological evidence, as being positive or negative for tuberculosis depends not only on whether a shadow exists on his X-ray, but also upon whether the shadow is such that it can be perceived by an interpreter. In other words, if it were possible to show, by some objective measurement, that a shadow is present on an X-ray film, but that it cannot be perceived in normal reading practice, such a shadow is for all practical purposes nonexistent.

Now, if a film is called positive by only one of five competent readers and negative by the other four, it is idle to speculate on whether a lesion is really present and the four have missed it, or whether the single positive reading represents over-reading. For all practical purposes, it may be concluded that even if a lesion exists, the film is not capable of revealing it, since it escaped detection by four of the five. However, when a film is called positive by more than one reader, there is greater probability not only that the case is positive, but also that the film in question is capable of revealing the lesion. In addition, the subjective errors are greatly reduced by using more than one reader, for while a single reader may miss a positive

film, the chances that the same film will be missed by several readers, each reading independently of the others, are small.

The study, then, attempted to measure the relative diagnostic efficiency of films of different sizes. The 14'' by 17'' celluloid film was considered the standard with which to compare the performance of other film sizes, and it first became necessary to designate positive cases by "group opinion" on the 14'' by 17'' films.

Positive cases—that is, cases which should be selected from the group as requiring further study—were defined as those whose films were read as positive by at least three of the five readers. A specific technique was considered to have missed any of these cases if the film for that technique was read as negative by three or more of the readers. In other words, "positive cases" were obtained by "group opinion" on the 14'' by 17'' celluloid films. The performance of the other film sizes in detecting abnormal shadows for these cases was a measure of their relative diagnostic efficiencies. Such results again were obtained by "group opinion." Thus, if a given small film was called positive by only one or even two of the five readers, it was concluded that although the 14'' by 17'' celluloid film revealed the shadow, the shadow on the small film was not sufficiently distinct, since a majority of the readers missed it.

Such a comparison was conducted, and tabulation showed that approximately the same percentage of cases was missed on each of the three film sizes. There were 61 cases which were called positive for tuberculosis by three or more readers on the 14'' by 17'' celluloid films.

The test of the efficiency of the other media was their ability to select these 61 cases. The films for these cases were called negative for tuberculosis by three or more readers in approximately 10 percent of the cases on the 35-mm. films, and a similar percentage was obtained on the 4'' by 10'' and the paper negatives. It was therefore concluded that 35-mm. film, the 4'' by 10'' film, and the 14'' by 17'' paper negatives are *equally efficient* in selecting positive cases.

The study went a step further in that it attempted to determine the relative efficiency of the different media without using the 14'' by 17'' celluloid film as a standard. Instead, it utilized the information yielded by all the media in defining positive cases. This was accomplished as follows: Since there were available four different films for each person, and since each of these films was interpreted independently by five different readers, each person in the study had 20 opportunities to be called positive for tuberculosis (five readings on each of four media). It was therefore argued that for purposes of case finding, "positive cases" may be defined as those having a majority (11 or more of the 20) of positive readings. That is, a person who has at

least 11 positive readings should be selected for further study. By this definition it became possible to line up all four techniques (including the 14'' by 17'' celluloid) and to count the number of positive readings obtained on each technique for all these "positive cases." From this analysis, it was startling to find that the number of positive readings was approximately the same for each of the four techniques. It was therefore concluded that all the film sizes have practically the same efficiency in revealing those cases that require further study.

In evaluating the results of the study, it must be remembered that the purpose was to determine the efficiency of the different film sizes in the selection of positive cases of tuberculosis—that is, to determine the efficiency of these film sizes for case finding. The study was not set up to determine the efficiency of the different film sizes in the more detailed and exacting phases of X-ray work and clinical diagnosis. Doubtless, the texture and morphology of individual tuberculous lesions are less adequately visualized in the miniature films. This may lead to a certain amount of over-reading when miniature films are utilized, and this over-reading may constitute a real problem under some circumstances. It was found, however, that the amount of over-reading is slight in actual practice and that it can be overcome by training.

It was therefore concluded that from the standpoint of their effectiveness in revealing cases of tuberculosis, *no one of the media, not even the 14'' by 17'' celluloid film, is superior to any of the other.*

A number of other conclusions were derived from the study:

1. The problem of inter-individual and intra-individual variation in film interpretation is of such magnitude that it is important to subject this problem to a very extensive and detailed investigation.
2. A revision of the method of classifying X-rays, including that of the NTA classification, is needed. Such revision must be based on extensive study and experimentation.
3. In mass-survey work, it is recommended that all survey films be read independently by at least two interpreters. All persons whose films are selected as positive or suspicious for tuberculosis by either of the interpreters should be recalled for further study.

PHILIPPINES IMMUNIZATION REQUIREMENT

The Republic of the Philippines has modified its requirements concerning smallpox immunization for persons arriving from the United States. According to information received from the Department of State, the present requirement is as follows:

Officers, crew members, and passengers of all vessels clearing from United States ports for the Philippines are required to present satisfactory certificates of recent smallpox vaccination. Satisfactory certificate of vaccination means evidence that not more than 1 year prior to the actual date of presentation of the certificate the holder has either received a successful smallpox vaccination or had an immune reaction to a smallpox vaccination. Certificates are honored if issued by the United States Public Health Service or by medical officers of United States armed forces or other Government agencies. Certificates issued by private physicians are honored if on professional stationery and duly signed.

It is assumed that "vessels," in the first sentence of the requirement, includes aircraft.

DEATHS DURING WEEK ENDED FEB. 8, 1947

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Feb. 8, 1947	Corresponding week, 1946
Data for 93 large cities of the United States:		
Total deaths.....	9,663	10,211
Median for 3 prior years.....	9,953	-----
Total deaths, first 6 weeks of year.....	60,030	64,467
Deaths under 1 year of age.....	783	615
Median for 3 prior years.....	615	-----
Deaths under 1 year of age, first 6 weeks of year.....	4,970	3,639
Data from industrial insurance companies:		
Policies in force.....	67,295,456	67,160,433
Number of death claims.....	12,464	14,325
Death claims per 1,000 policies in force, annual rate.....	9.7	11.1
Death claims per 1,000 policies, first 6 weeks of year, annual rate.....	9.9	11.7

(355)

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED FEBRUARY 15, 1947

Summary

A total of 3,459 cases of influenza was reported, as compared with 3,624 last week and a 5-year (1942-46) median of 5,308. An aggregate of 2,677 cases, or 77 percent of the total, occurred in 3 States—Virginia (490, last week 371), South Carolina (426, last week 409), and Texas (1,761, last week 2,013). The only other States reporting more than 69 cases are Oklahoma 147 (last week 90) and Colorado 140 (last week 144). The total for the year to date is 27,425, as compared with 147,779 for the same period last year and a 5-year median of 33,080.

Of the total of 43 cases of poliomyelitis reported, as compared with 46 last week, no State reported more than 2 cases except California 13 (last week 15), and Michigan 4 (last week 1). For the corresponding week last year 33 cases were reported, and the 5-year median is 26. The total for the year to date is 462, as compared with 313 for the first 7 weeks of 1946 and a 5-year median for the period of 213.

Slight seasonal increases were reported for the week in the incidence of measles and scarlet fever. Both the current and cumulative figures for these diseases, as well as for meningococcus meningitis, smallpox and typhoid and paratyphoid fever, are much below the respective 5-year medians. The current totals for diphtheria and whooping cough are practically the same as the medians. The cumulative figure for diphtheria is slightly below the median, while that for whooping cough is above.

A total of 95 cases of undulant fever was reported (last week 120). The cumulative total is 634, as compared with 451 and 510, respectively, for the corresponding periods of 1946 and 1945. One case of anthrax was reported in Pennsylvania and 1 case of Rocky Mountain spotted fever in Virginia.

Deaths recorded for the week in 93 large cities in the United States totaled 10,007, as compared with 9,663 last week, 10,063 and 9,913, respectively, for the corresponding weeks of 1946 and 1945, and a 3-year (1944-46) median of 9,913. The total for the year to date in these cities is 70,037, as compared with 74,530 for the corresponding period last year.

Telegraphic morbidity reports from State health officers for the week ended Feb. 15, 1947, and comparison with corresponding week of 1946 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none was reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46
	Feb. 15, 1947	Feb. 16, 1946		Feb. 15, 1947	Feb. 16, 1946		Feb. 15, 1947	Feb. 16, 1946		Feb. 15, 1947	Feb. 16, 1946	
NEW ENGLAND												
Maine	6	5	1	3	4	2	309	14	14	1	1	1
New Hampshire	0	0	0	2	2		11	9	3	0	0	0
Vermont	1	2	0		17		124	6	6	0	0	0
Massachusetts	12	8	4				634	250	450	3	5	7
Rhode Island	1	0	0				141	4	16	0	0	0
Connecticut	1	1	0	2	14	4	626	84	282	0	0	2
MIDDLE ATLANTIC												
New York	17	17	15	12	18	17	133	1,102	1,102	9	12	32
New Jersey	3	7	6	5	12	13	125	425	425	1	6	6
Pennsylvania	10	19	12	3	4	4	516	1,998	1,174	8	16	21
EAST NORTH CENTRAL												
Ohio	14	39	10	7	26	26	532	104	154	4	4	6
Indiana	17	17	9	8	34	34	35	340	175	2	4	6
Illinois	3	11	11	1	8	8	50	1,035	506	6	9	16
Michigan ¹	8	13	6	1	2	2	260	1,429	249	3	4	5
Wisconsin	5	4	1	54	90	56	154	328	411	0	5	5
WEST NORTH CENTRAL												
Minnesota	5	7	4			1	63	48	48	1	7	3
Iowa	4	5	4			2	30	47	133	2	4	4
Missouri	6	12	6	8	5	4	4	415	212	2	7	7
North Dakota	2	4	1	30	9	10	1	3	28	1	0	0
South Dakota	3	1	1				6	110	66	1	0	0
Nebraska	4	3	2		26	26	3	146	82	0	2	1
Kansas	5	6	6	3	13	13	3	740	353	0	4	4
SOUTH ATLANTIC												
Delaware	0	1	1				3	8	8	0	2	1
Maryland ¹	4	16	6	4	14	9	37	113	113	1	2	5
District of Columbia	0	0	1	2	5	1	13	48	48	0	3	2
Virginia	10	10	7	490	937	559	245	257	257	3	4	7
West Virginia	6	7	5	41	10	29	95	37	37	0	2	2
North Carolina	14	8	12			35	478	254	254	2	2	7
South Carolina	1	2	4	426	961	735	43	122	122	0	3	5
Georgia	5	7	5	20	139	145	127	163	163	1	0	1
Florida	7	3	5	10	11	5	4	42	42	1	2	2
EAST SOUTH CENTRAL												
Kentucky	11	8	5		93	10	15	371	54	1	3	4
Tennessee	2	11	9	25	213	101	27	253	125	1	6	6
Alabama	1	5	9	43	569	230	25	250	95	2	1	4
Mississippi ¹	7	4	6							0	3	4
WEST SOUTH CENTRAL												
Arkansas	4	2	5	69	318	318	34	60	150	1	2	2
Louisiana	1	13	7	6	541	21	23	195	84	0	5	4
Oklahoma	5	8	8	147	314	248	3	84	84	3	7	4
Texas	25	38	42	1,761	2,885	2,043	100	442	442	3	7	14
MOUNTAIN												
Montana	0	5	5	26	25	22	256	57	168	0	0	0
Idaho	0	4	1	4	39		5	73	53	0	0	0
Wyoming	1	3	0	6	2	7	10	19	43	0	1	0
Colorado	10	1	5	140	83	83	45	191	206	2	1	2
New Mexico	5	2	2	1	2	2	38	45	21	1	0	0
Arizona	4	0	3	64	203	166	64	22	22	0	0	0
Utah ¹	0	0	0	13	19	57	8	219	82	0	2	0
Nevada	0	0	0					5	5	0	0	0
PACIFIC												
Washington	4	8	4	1		3	27	484	215	2	2	4
Oregon	4	7	3	5	28	28	57	144	137	0	2	2
California	30	31	27	16	716	103	238	1,331	683	4	19	19
Total	288	385	287	3,459	8,411	5,308	5,780	13,932	15,866	72	173	281
7 weeks	2,166	2,874	2,366	27,425	147,779	33,080	29,870	53,474	78,682	688	1,468	1,697
Seasonal low week ²	(27th) July 5-11			(30th) July 26-Aug. 1			(35th) Aug. 30-Sept. 5			(37th) Sept. 13-19		
Total since low	9,732	14,518	11,258	60,400	510,027	68,942	52,757	79,598	116,695	1,560	2,972	3,646

¹ New York City only.

² Period ended earlier than Saturday.

³ Dates between which the approximate low week ends. The specific date will vary from year to year.

Telegraphic morbidity reports from State health officers for the week ended Feb. 15, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever ¹		
	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46
	Feb. 15, 1947	Feb. 16, 1946		Feb. 15, 1947	Feb. 16, 1946		Feb. 15, 1947	Feb. 16, 1946		Feb. 15, 1947	Feb. 16, 1946	
NEW ENGLAND												
Maine.....	0	0	0	13	52	28	0	0	0	0	1	1
New Hampshire.....	0	0	0	0	9	8	0	0	0	0	0	0
Vermont.....	0	0	0	11	11	11	0	0	0	0	0	0
Massachusetts.....	0	0	0	177	178	373	0	0	0	2	2	2
Rhode Island.....	0	0	0	18	11	14	0	0	0	0	0	0
Connecticut.....	0	0	0	36	72	72	0	0	0	0	1	0
MIDDLE ATLANTIC												
New York.....	2	4	4	338	486	507	0	0	0	2	0	4
New Jersey.....	1	1	0	109	121	141	0	0	0	0	1	1
Pennsylvania.....	0	1	0	259	337	337	0	0	0	4	0	5
EAST NORTH CENTRAL												
Ohio.....	1	0	0	364	327	365	0	0	0	2	2	2
Indiana.....	2	1	1	124	111	111	1	1	1	2	0	0
Illinois.....	0	0	0	150	218	272	0	0	0	3	4	1
Michigan ²	4	0	0	121	134	218	0	0	0	0	0	1
Wisconsin.....	1	0	0	68	130	219	0	0	0	1	0	0
WEST NORTH CENTRAL												
Minnesota.....	1	1	0	51	41	82	0	0	0	0	0	0
Iowa.....	2	1	0	53	60	60	0	1	1	0	0	0
Missouri.....	0	0	0	38	82	82	0	0	1	1	2	2
North Dakota.....	0	0	0	15	14	22	0	0	0	0	0	0
South Dakota.....	0	0	0	17	22	22	0	0	0	0	0	0
Nebraska.....	0	0	0	52	85	54	1	0	0	0	0	0
Kansas.....	1	0	0	71	91	91	0	0	0	0	0	0
SOUTH ATLANTIC												
Delaware.....	0	0	0	12	7	9	0	0	0	0	0	0
Maryland ²	1	0	0	34	83	83	0	0	0	0	0	0
District of Columbia.....	1	0	0	13	22	24	0	0	0	0	1	0
Virginia.....	0	0	0	43	53	53	0	0	0	1	2	2
West Virginia.....	0	0	0	24	47	47	0	0	0	0	1	1
North Carolina.....	1	1	1	34	51	51	0	0	0	2	2	1
South Carolina.....	0	0	0	8	8	8	0	0	0	1	0	0
Georgia.....	1	1	0	23	16	16	0	0	0	1	1	2
Florida.....	0	5	0	9	7	7	0	0	0	2	7	3
EAST SOUTH CENTRAL												
Kentucky.....	0	1	1	38	42	81	0	0	0	0	1	1
Tennessee.....	2	1	0	48	73	73	0	0	0	1	2	2
Alabama.....	2	1	1	17	29	22	0	0	0	0	1	1
Mississippi ²	0	1	1	16	16	12	1	1	1	1	0	1
WEST SOUTH CENTRAL												
Arkansas.....	0	2	0	1	21	13	0	1	1	0	0	2
Louisiana.....	1	0	0	5	9	6	0	0	0	1	3	3
Oklahoma.....	2	0	0	10	17	17	0	4	0	0	1	1
Texas.....	1	0	2	45	97	83	0	1	4	3	4	4
MOUNTAIN												
Montana.....	0	1	0	7	7	11	0	0	0	0	0	0
Idaho.....	0	0	1	14	11	11	0	0	0	2	0	0
Wyoming.....	0	0	0	10	4	10	0	0	0	0	0	0
Colorado.....	0	0	1	48	42	58	0	2	0	1	0	0
New Mexico.....	0	0	0	5	15	15	0	0	0	0	0	0
Arizona.....	0	0	0	7	17	17	0	0	0	0	0	0
Utah ²	1	0	0	15	23	71	0	0	0	0	0	0
Nevada.....	0	0	0	2	0	0	0	0	0	0	0	0
PACIFIC												
Washington.....	2	1	1	45	45	57	0	0	0	0	0	0
Oregon.....	0	0	0	45	26	26	0	0	0	3	0	0
California.....	13	9	8	135	235	235	1	0	0	2	3	3
Total.....	43	33	26	2,798	3,615	4,069	4	11	14	38	42	67
7 weeks.....	462	313	213	17,837	21,094	26,048	27	60	88	292	281	419
Seasonal low week ³	(11th) Mar. 15-21			(32nd) Aug. 9-15			(35th) Aug. 30-Sept. 5			(11th) Mar. 15-21		
Total since low.....	52,238	13,650	12,284	44,523	59,665	65,022	81	126	205	3,820	4,532	5,547

¹ Period ended earlier than Saturday.

² Dates between which the approximate low week ends. The specific date will vary from year to year.

³ Including paratyphoid fever reported separately, as follows: Massachusetts 2 (salmonella infection); Florida 1; Oregon 1.

⁴ Delayed report: Poliomyelitis, Maryland 1 October case and 1 December case, included in total since low.

Telegraphic morbidity reports from State health officers for the week ended Feb. 15, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Whooping cough			Week ended Feb. 15, 1947							
	Week ended—		Median 1942-46	Dysentery			Encephalitis, infectious	Rocky Mt. spot- ted fever	Tula- remia	Ty- phus fever, en- demic	Un- dan- tant fever
	Feb. 15, 1947	Feb. 16, 1946		Ame- bic	Bacil- lary	Un- spec- ified					
NEW ENGLAND											
Maine.....	17	17	36								1
New Hampshire.....	5	2									
Vermont.....	7	22	27								3
Massachusetts.....	179	141	142	1	3						2
Rhode Island.....	29	34	23								
Connecticut.....	40	50	45								
MIDDLE ATLANTIC											
New York.....	135	221	221	5			1				8
New Jersey.....	87	146	146				2				1
Pennsylvania.....	178	150	192	3							4
EAST NORTH CENTRAL											
Ohio.....	134	79	128								3
Indiana.....	37	14	22								2
Illinois.....	100	96	96	5			2		4		3
Michigan ¹	226	97	97	2	1						
Wisconsin.....	148	51	82								3
WEST NORTH CENTRAL											
Minnesota.....	12	9	32								5
Iowa.....	17	4	6	1							15
Missouri.....	15	14	13			1			1		
North Dakota.....	5	2	2								
South Dakota.....	1		5								1
Nebraska.....	9	10	14								
Kansas.....	13	17	33						6		11
SOUTH ATLANTIC											
Delaware.....	10	3	3								1
Maryland ¹	60	12	47				1				1
District of Columbia.....	8	4	10					1			
Virginia.....	86	38	38	2		14		1	5		
West Virginia.....	20	13	40								
North Carolina.....	42	42	126						2		
South Carolina.....	22	74	51		17				1	3	
Georgia.....	16	31	18		3				4	7	3
Florida.....	17	9	19							3	1
EAST SOUTH CENTRAL											
Kentucky.....	30	8	39					1			
Tennessee.....	32	41	37	2				2	1		2
Alabama.....	5	10	9					1	1		3
Mississippi ¹								3	1		4
WEST SOUTH CENTRAL											
Arkansas.....	15	12	12			1			3		
Louisiana.....		3	7							3	
Oklahoma.....	4	1	4					1			1
Texas.....	332	146	162	36	272	57		1	13		9
MOUNTAIN											
Montana.....	6	6	15								
Idaho.....	5	18	5								
Wyoming.....	1		3								
Colorado.....	7	28	28								1
New Mexico.....	31	6	9				1				
Arizona.....	29	16	16		10						
Utah ¹		37	17								2
Nevada.....											
PACIFIC											
Washington.....	25	37	44	8	2	13					1
Oregon.....	17	21	19			1					
California.....	96	97	185		1					2	4
Total	2,310	1,889	2,325	65	299	99	5	1	36	34	95
Same week, 1946.....	1,889			30	220	95	9	2	25	49	59
Median, 1942-46.....	2,325			17	201	61	9	0	9	37	68
7 weeks: 1947.....	17,038			327	2,690	1,479	47	2	334	341	634
1946.....	12,814			273	2,239	873	54	3	155	386	451
Median, 1942-46.....	16,017			143	1,538	381	54	3	155	386	480

¹ Period ended earlier than Saturday.

² 2-year median, 1945-46.

Anthrax: Pennsylvania 1 case.

Leptosy: California 2 cases.

NOTIFIABLE DISEASES, FOURTH QUARTER, 1946¹

The figures in the following table are the totals of the monthly morbidity reports received from the State health authorities for October, November, and December, 1946. These reports are preliminary and the figures are therefore more or less incomplete and subject to correction by final reports. In most instances they include cases reported in both civilian and military populations. The comparisons made are with similar preliminary reports; but, owing to population shifts in many States since the 1940 census, the figures for some States may not be comparable with those for prior years, especially for certain diseases. Each State health officer has been requested to include in the monthly report for his State all diseases that are required by law or regulation to be reported in the State, although some do not do so. The lists of diseases required to be reported are not the same for each State. Only 11 of the common communicable diseases are notifiable in all the States. In some instances cases are reported, in some States, of diseases that are not required by law or regulation to be reported and the figures are included although manifestly incomplete. There are also variations among the States in the degree of, and checks on, the completeness of reporting of cases of the notifiable diseases; therefore, comparisons as between States may not be justified for certain diseases. As compared with the deaths, incomplete case reports are obvious for such diseases as malaria, pellagra, pneumonia, and tuberculosis, while in many States other diseases, such as puerperal septicemia, rheumatic fever, and Vincent's infection, are not reportable.

In spite of these known deficiencies, however, these monthly reports, which are published quarterly and annually in consolidated form, have proved of value in presenting early information regarding the reported incidence of a large group of diseases and in indicating trends by providing a comparison with similar preliminary figures for prior years. The table gives a general picture of the geographic prevalence of certain diseases, as the States are arranged by geographic areas.

Leaders are used in the table to indicate that no case of the disease was reported.

Consolidated monthly State morbidity reports for October, November, and December 1946

Division and State	Anthrax	Chick- enpox	Con- juncti- vitis†	Diph- theria*	Dysen- tery amebic	Dysen- tery bacil- lary	Dysen- tery unde- fined	En- ceph- alitis, infec- tious	Ger- man meas- les	Hook- worm disease	Influ- enza	Ma- laria	Meas- les*	Men- ingitis, menin- gococ- cus*	Mumps	Oph- thal- mia neona- torum	Pella- gra	Pneu- monia, all forms
NEW ENGLAND																		
Maine.....		824		46				53			22	6	1,942	10	345			167
New Hampshire.....		124		1				12			5		431	2	29			20
Vermont.....		486		6				38					1,349	2	297			27
Massachusetts.....	1	2,230	47	238	1	13	2	182				42	2,041	21	800	35		4,248
Rhode Island.....		82		9	1	4		5			8		1,163	8	63			76
Connecticut.....	1	1,180	40	9	3	3	4	72			30	37	494	18	1,028			567
MIDDLE ATLANTIC																		
New York.....	5	4,328		217	109	190		671		643	67	182	1,855	73	6501	19		2,985
New Jersey.....	1	4,719		77	17	7		204			51	84	606	29	1,197	4		985
Pennsylvania.....	2	6,075		197	7					1	44		3,622	56	2,544	7		911
EAST NORTH CENTRAL																		
Ohio.....	1	3,664	1	232	27			64			75	22	1,243	43	1,149	156		674
Indiana.....		1,019	4	152	3		2	15			60	37	1,061	15	94			88
Illinois.....		4,584		84	54	7		86			37	96	461	40	627			1,006
Michigan.....		4,640	12	78	10	11		133			13	201	484	26	1,052			1,475
Wisconsin.....		5,516		45	2			70			261	7	586	21	1,587			479

WEST NORTH CENTRAL	649	288	7 28	1	7	9	165	59	19	178	19	47
Minnesota.....	841	42	8	7	3	8	14	66	23	50	23	87
Iowa.....	363	95	1	1	26	40	40	23	17	60	17	182
Missouri.....	78	25	4	4	51	51	51	15	4	1	4	165
North Dakota.....	127	9	4	4	70	70	22	52	10	12	10	40
South Dakota.....	245	24	3	3	92	92	17	62	11	82	11	47
Nebraska.....	858	85	3	10	92	92	17	70	11	182	11	198
SOUTH ATLANTIC												
Delaware.....	50	8	1	2	31	31	2	7	2	10	7	2
Maryland.....	453	119	1	2	51	51	10	170	7	174	7	336
District of Columbia.....	174	7	2	2	6	6	2	10	7	10	7	230
Virginia.....	715	205	388	388	3,713	3,713	32	565	26	301	26	772
West Virginia.....	396	66	1	25	322	322	2	397	11	189	11	93
North Carolina.....	189	169	1	1	181	181	62	710	12	6	12	943
South Carolina.....	358	91	17	87	3,188	3,188	874	105	5	108	5	190
Georgia.....	185	133	6	23	960	960	71	341	10	42	10	462
Florida.....	95	211	17	10	1,070	1,070	245	110	23	111	23	324
EAST SOUTH CENTRAL												
Kentucky.....	558	295	10	2	6	6	32	91	20	113	20	130
Tennessee.....	310	144	14	6	3	3	248	99	24	52	24	623
Alabama.....	161	138	3	1	471	471	219	114	16	74	16	374
Mississippi.....	1,456	170	298	985	1,287	1,287	2,628	704	12	732	12	3,589
WEST SOUTH CENTRAL												
Arkansas.....	279	124	6	7	1	1	158	146	9	68	9	177
Louisiana.....	42	98	61	8	176	176	81	30	10	19	10	699
Oklahoma.....	193	72	27	2	10	10	131	28	13	69	13	209
Texas.....	1,764	325	170	3,279	615	615	1,101	555	52	1,668	52	2,112
MOUNTAIN												
Montana.....	459	14	8	15	92	92	5	441	6	190	6	57
Idaho.....	392	27	1	1	139	139	84	44	3	84	3	111
Wyoming.....	261	15	3	32	64	64	25	25	2	74	2	42
Colorado.....	475	80	3	4	294	294	2	92	8	129	8	278
New Mexico.....	186	35	4	20	17	17	6	248	2	67	2	197
Arizona.....	307	37	36	292	2	2	1,490	21	4	121	4	383
Utah.....	1,381	6	6	6	30	30	28	87	2	763	2	52
Nevada.....	214	5	6	1	10	10	2	10	1	11	1	12
PACIFIC												
Washington.....	1,448	73	2	24	34	34	6	210	12	597	12	240
Oregon.....	449	23	1	6	71	71	17	168	7	267	7	214
California.....	5,897	291	89	96	31	423	132	109	86	1,833	86	4,508
Total.....	61,310	4,922	945	4,798	1,352	3,681	6,697	22,639	849	19,685	849	799
Fourth quarter 1946.....	42,072	3,182	867	5,898	1,897	4,061	10,192	25,449	1,357	25,042	1,357	798
Median 1941-45.....	65,217	6,761	807	5,898	1,897	3,863	10,881	38,420	1,857	28,082	1,857	978
Alaska.....												
Hawaii Territory.....	126	2	8	13	3	3	25	5	4	6	4	6
Panama Canal Zone.....	56	58	7	17	1	1	9	168	1	30	1	10 08

Consolidated monthly State morbidity reports for October, November, and December, 1946—Continued

Division and State	Polio- myeli- tis*	Rabies in man	Rheu- matic fever	Rooky Moun- tain spotted fever	Scarlet fever*	Septic sore throat	Small- pox*	Teta- nus	Tra- cho- ma	Trich- ino- sis	Tuber- culosis, all forms*	Tuber- culosis, respir- atory	Tulsa- remia	Ty- phoid fever*	Para- ty- phoid fever	Ty- phus fever, en- demic	Undu- lant fever*	Vin- cent's infect- ion	Whoop- ing cough*
NEW ENGLAND																			
Maine.....	22				418	6		1		3	152	150		7	1		6	6	154
New Hampshire.....	58				93	16				6	29	29		2			15	7	111
Vermont.....	44				75	1					50	50		19			19	24	152
Massachusetts.....	202				1,155	82		3		11	717	670	2	8	34	1	10		1,883
Rhode Island.....	35		26		130	3		3			148	144		1			8	3	331
Connecticut.....	67				247	43		2		4	220	215		1	2		23		445
MIDDLE ATLANTIC																			
New York.....	498			2	2,423	(1) ¹		13		28	3,075	2,950		31	8	6	83		2,655
New Jersey.....	76				739	37		1		4	741	741		9	5	2	15		1,683
Pennsylvania.....	92	1	217		1,340			3		1	889		5	41	17	1	50		2,014
EAST NORTH CENTRAL																			
Ohio.....	185		27		2,730	12	5	2		3	1,456		23	27	7	1	40	18	983
Indiana.....	174				761	21	6	1			539	527	55	31			54	6	246
Illinois.....	735		44		1,307	39		11	6	1	2,588	2,384	67	23	5		131	89	1,178
Michigan.....	388		100		1,694	65	2	14		3	1,535		20	8	18		32		2,522
Wisconsin.....	348				726		1				419		1	2	1		96		2,383
WEST NORTH CENTRAL																			
Minnesota.....	394		21		383	104	1	1			7,900		1	5	13		53	19	109
Iowa.....	226		2		308	8					208			9			356	2	201
Missouri.....	351		54		306	8	5				539		54	28	1	2	14		181
North Dakota.....	71				48		1				94	40		5			3	9	7
South Dakota.....	676				60	2					98			4			11	1	7
Nebraska.....	233				262						98		2	1			4		65
Kansas.....	280		2		363		1	3	4		199	191	26	4	1		61	56	147
SOUTH ATLANTIC																			
Delaware.....	11				80	1					55	55		4					59
Maryland.....	37		33		239	40		1			639	697	11	4			8	1	502
District of Columbia.....	16				74					1	796	742	5	5	2				96
Virginia.....	56				546	515		2			974	974	27	25		2	21		733
West Virginia.....	19				686	8					639		16	1					175
North Carolina.....	60		5		340	9					829	788	18	9	1	15	1		445
South Carolina.....	2				60	684		3			61		8	6			9		268
Georgia.....	36		10		164	29		6			614	610	13	8	2		34	43	107
Florida.....	71				92	68	2	18			1,209	1,209	1	23	13	93	50	40	286

FOOTNOTES FOR TABLE ON PAGES 360 TO 363

* Diseases marked with an asterisk (*) are reportable by law or regulation in all the States, including the District of Columbia. Typhoid fever is reportable in all the States; paratyphoid fever in all except 6 States. Syphilis is reportable in all the States and the District of Columbia but is not included in the table. Some States have increased and some have reduced the list of reportable diseases since the latest published compilation of reportable diseases (Pub. Health Rep., 69: 317-340 (Mar. 10, 1944). Reprint No. 2544).

1 For reports for first, second, and third quarters of 1946, see pp. 836, 1386, and 1822 of the PUBLIC HEALTH REPORTS for June 7, Sept. 13, and Dec. 13, 1946, respectively.

† Includes cases of kerato- and suppurative conjunctivitis and of pink eye.

‡ Lobar pneumonia only.

§ Includes delayed reports.

¶ New York City only; figures for some diseases for New York City include supplemental reports not included in first and second quarters of 1946.

‡ Off-shipping.

§ Includes the cities of Colon and Panama.

¶ In the Canal Zone only.

‡ Includes septic sore throat.

§ Includes scarlet fever.

¶ Includes cases of salmonella infections.

‡ The numbers of cases of poliomyelitis reported in Colorado for the second quarter of 1946 should be 79 and for the third quarter of 1946 should be 717 instead of the figures previously published.

§ For 2 months only.

¶ 4-year (1942-45) average.

‡ The following list includes certain rare conditions, diseases of restricted geographical distribution, and those reportable in or reported by only a few States; last year's figures in parentheses (where no figures are given, no cases were reported last year):

Actinomyces: Minnesota 3 (4), South Dakota 2, Tennessee 1.
 Botulism: Tennessee 1, New Mexico 7, California 2 (13).
 Coccioidiomycosis: Arizona 4, California 12 (13).
 Dengue: South Carolina 1 (4), Texas 1, Wyoming 1.
 Diarrhea: New York 45, New Jersey 17 (1), Pennsylvania 28, Ohio 120 (170) includes enteritis, Illinois 21 (1), Michigan 4, North Dakota 1, Maryland 31 (41), South Carolina 1,186 (1,828), Florida 12 (11), Colorado 14 (4) includes enteritis, New Mexico 79 (66), Oregon 27 (2) includes enteritis, California 129 (19).
 Dog bites: Illinois 2,343 (1,991) (all animal bites), Michigan 1,061 (1,303), Arkansas 128 (68).
 Filariasis: Minnesota 1 (1).
 Food poisoning: New Jersey 2, Ohio 3, Indiana 5 (5), Illinois 23 (2), Louisiana 2 (7), Idaho 7, Nevada 2, Washington 19, California 133 (141).
 Framboesia: South Carolina 1.
 Granuloma inguinale: Missouri 6 (2), Florida 95 (68), Tennessee 20 (20), Mississippi 163 (189), Louisiana 59 (67), Arizona 2 (1).
 Impetigo contagiosa: New York 64, Ohio 6 (3), Indiana 43 (26), Illinois 10 (22), Michigan 697 (574), Missouri 2 (4), North Dakota 8, Kansas 7 (13), Maryland 2 (7), Kentucky 13, Montana 19 (7), Idaho 22 (18), Wyoming 14, Colorado 2 (10), Nevada 57 (59), Washington 365 (362).
 Jaundice (including hepatitis and Well's disease): Maine 15 (5), New York 183, Pennsylvania 19, Indiana 4 (43), Illinois 15 (63), Michigan 2 (32), Minnesota 6 (5), Kansas 2 (6), Maryland 3 (10), South Carolina 3 (13), Florida 8 (2), Tennessee 3, Louisiana 3 (4), Montana 1 (6), Idaho 18 (6), Utah 1 (22), Washington 8, Oregon 31 (10), California 37 (108), Hawaii Territory 1 (16).
 Leprosy: Michigan 2, Florida 1, Louisiana 1 (3), Colorado 1, California 1 (1).
 Lymphocytic choriomeningitis: Massachusetts 2 (2), Tennessee 6 (7).
 Lymphogranuloma venereum: Missouri 7 (7), Florida 45 (30), Tennessee 37 (20), Louisiana 15 (45).
 Psittacosis: Massachusetts 1, Michigan 4, California 3.
 Puerperal septicemia: Florida 2, Mississippi 71 (44), Louisiana 12 (20), New Mexico 1, Nevada 1.
 Rabies in animals: Maine 1, New York 318 (137), Ohio 161 (146), Illinois 88 (72), Michigan 5 (3), Missouri 2, Kansas 8 (4), Maryland 2 (11), South Carolina 33 (28), Florida 36, Alabama 115 (123), Missouri 3 (4), Kansas 3 (22), Maryland 2, Idaho 29 (8), Nevada 1 (4), Washington 267 (192).
 Rel bits fever: Utah 5 (2), California 78 (80).
 Relapsing fever: Texas 14 (3), Idaho 1, Arizona 1, California 9 (2).
 Ringworm disease: Pennsylvania 1,166 (279), Ohio 130, Illinois 672 (1,159), Michigan 738 (856), Minnesota 4 (170), Missouri 3 (4), Kansas 3 (22), Maryland 2, Idaho 29 (8), Nevada 1 (4), Washington 267 (192).
 Scabies: Rhode Island 2, Pennsylvania 317 (47), Ohio 13 (1), Michigan 499 (401), Missouri 23 (4), North Dakota 6, Kansas 67 (38), Maryland 3, Kentucky 17, Montana 33 (26), Idaho 103 (96), Wyoming 6, Nevada 5 (33).
 Sillitosis: Maine 1, New Hampshire 1, Idaho 1 (1), New Mexico 1 (3).

WEEKLY REPORTS FROM CITIES ¹

City reports for week ended Feb. 8, 1947

This table lists the reports from 89 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

Division, State, and City	Diphtheria cases	Erythema, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polliomvelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland.....	0	0	0	0	34	0	2	0	1	0	0	3
New Hampshire:												
Concord.....	0	0	0	0		0	0	0	2	0	0	
Vermont:												
Barre.....	0	0	0	0	20	0	0	0	0	0	0	2
Massachusetts:												
Boston.....	8	0	0	0	19	1	16	0	36	0	0	39
Fall River.....	0	0	0	0	11	0	1	0	1	0	0	6
Springfield.....	0	0	0	0	7	0	0	0	5	0	0	4
Worcester.....	0	0	0	0		0	9	0	11	0	0	20
Rhode Island:												
Providence.....	0	0	1	0	60	0	2	0	8	0	0	15
Connecticut:												
Bridgeport.....	0	0	0	0	5	0	1	0	1	0	0	
Hartford.....	0	0	0	0	1	0	0	0	2	0	0	
New Haven.....	0	0	0	0	33	0	0	0	7	0	0	3
MIDDLE ATLANTIC												
New York:												
Buffalo.....	1	0	0	0	2	1	4	0	11	0	0	1
New York.....	16	0	4	1	62	8	61	0	139	0	2	69
Rochester.....	0	0	0	0	1	0	3	0	14	0	0	4
Syracuse.....	0	0	0	0		0	3	0	13	0	0	9
New Jersey:												
Camden.....	0	0	0	0		1	1	0	5	0	0	4
Newark.....	0	0	1	0	4	0	5	0	11	0	0	15
Trenton.....	0	0	0	0	11	0	3	0	7	0	0	1
Pennsylvania:												
Philadelphia.....	11	0	6	0	11	1	21	0	39	0	2	37
Pittsburgh.....	0	0	2	0	130	1	10	0	15	0	0	3
Reading.....	0	0	0	0	2	0	1	0	5	0	0	1
EAST NORTH CENTRAL												
Ohio:												
Cincinnati.....	1	0	1	0	3	3	6	0	10	0	0	4
Cleveland.....	0	0	6	1	281	2	8	0	31	0	0	19
Columbus.....	3	0	1	1	5	0	4	1	9	0	0	3
Indiana:												
Fort Wayne.....	0	0	0	0	10	0	1	0	1	0	0	
Indianapolis.....	3	0	0	0	1	1	0	0	15	0	0	15
South Bend.....	0	0	0	0	8	0	0	0	7	0	0	1
Terre Haute.....	0	0	0	0		0	1	0	2	0	0	
Illinois:												
Chicago.....	3	0	0	0	13	0	22	1	37	0	0	45
Springfield.....	0	0	0	0		0	2	0	3	0	0	
Michigan:												
Detroit.....	1	2	0	0	4	0	12	0	41	0	0	98
Flint.....	0	0	0	0	0	0	2	0	6	0	0	4
Grand Rapids.....	0	0	0	0	2	0	0	0	5	0	0	4
Wisconsin:												
Kenosha.....	0	0	0	0		0	0	0	5	0	0	2
Milwaukee.....	0	0	0	0	12	1	2	0	8	0	0	76
Racine.....	0	0	0	0	2	0	2	0	3	0	0	10
Superior.....	0	0	0	0	1	0	0	0	0	0	0	
WEST NORTH CENTRAL												
Minnesota:												
Duluth.....	1	0	0	0		0	0	0	1	0	0	
Minneapolis.....	1	0	1	4		0	2	0	6	0	0	2
St. Paul.....	2	0	0	3		0	4	0	7	0	0	2
Missouri:												
Kansas City.....	0	0	1	3		0	9	0	15	0	0	7
St. Joseph.....	0	0	0	0		1	0	0	0	0	0	4
St. Louis.....	1	0	2	4		0	9	0	12	0	0	10

¹ In some instances the figures include nonresident cases.

City reports for week ended Feb. 8, 1947—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomylitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—continued												
Nebraska:												
Omaha.....	0	0	0	0	0	0	5	0	8	0	0	0
Kansas:												
Topeka.....	0	0	0	0	0	0	0	0	6	0	0	5
Wichita.....	0	0	0	0	1	0	3	0	1	0	0	4
SOUTH ATLANTIC												
Delaware:												
Wilmington.....	0	0	4	0	2	0	3	0	5	0	0	7
Maryland:												
Baltimore.....	8	0	1	1	6	4	7	0	10	0	0	70
Cumberland.....	0	0	0	0	7	0	2	0	0	0	0	0
Frederick.....	0	0	0	0	0	0	1	0	0	0	0	0
District of Columbia:												
Washington.....	0	0	2	0	10	0	8	0	14	0	0	1
Virginia:												
Lynchburg.....	0	0	0	0	0	0	1	0	3	0	0	4
Richmond.....	0	0	0	0	44	0	3	0	3	0	0	1
Roanoke.....	0	0	0	0	3	0	0	0	4	0	0	0
West Virginia:												
Wheeling.....	0	0	0	0	1	0	1	0	1	0	0	0
North Carolina:												
Raleigh.....	0	0	0	0	3	0	0	0	0	0	0	3
Wilmington.....	0	0	0	0	4	0	1	0	0	0	0	0
Winston-Salem.....	0	0	0	0	33	0	0	0	5	0	0	0
South Carolina:												
Charleston.....	0	0	14	0	5	0	0	0	0	0	0	0
Georgia:												
Atlanta.....	0	0	0	0	1	0	5	0	7	0	0	1
Brunswick.....	0	0	0	0	0	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	25	0	0	0	0	0	0	0
Florida:												
Tampa.....	1	0	1	0	2	0	2	0	1	0	1	0
EAST SOUTH CENTRAL												
Tennessee:												
Memphis.....	0	0	3	1	2	0	13	0	3	0	0	14
Nashville.....	0	0	1	1	0	0	1	0	2	0	0	0
Alabama:												
Birmingham.....	1	0	4	0	3	0	0	0	2	0	0	0
Mobile.....	0	0	6	0	1	0	1	3	0	0	0	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock.....	0	0	0	0	2	0	0	0	1	0	0	2
Louisiana:												
New Orleans.....	0	0	10	1	3	1	5	0	1	0	0	0
Shreveport.....	0	0	0	0	0	0	9	0	0	0	0	0
Oklahoma:												
Oklahoma City.....	0	0	1	0	0	0	1	0	0	0	0	0
Texas:												
Dallas.....	1	0	1	1	4	0	2	0	0	0	0	11
Galveston.....	0	0	0	0	0	0	1	0	0	0	0	0
Houston.....	1	0	0	0	0	0	1	0	1	0	0	0
San Antonio.....	3	0	0	0	1	0	3	1	4	0	0	0
MOUNTAIN												
Montana:												
Billings.....	0	0	0	0	0	0	0	0	0	0	0	0
Great Falls.....	0	0	0	0	0	0	1	0	0	0	0	0
Helena.....	0	0	0	0	6	0	0	0	0	0	0	0
Missoula.....	0	0	0	0	0	0	0	0	0	0	0	0
Idaho:												
Boise.....	0	0	0	0	0	0	1	0	0	0	0	0
Colorado:												
Denver.....	1	0	16	0	4	1	10	0	21	0	0	1
Pueblo.....	1	0	0	0	1	0	0	0	0	0	0	0
Utah:												
Salt Lake City.....	0	0	0	0	1	0	0	0	1	0	0	0

City reports for week ended Feb. 8, 1947—Continued

Division, State, and City	Diphtheria cases	Enecephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC												
Washington:												
Seattle.....	2	0	0	0	3	0	5	0	2	0	0	5
Spokane.....	0	0	2	0	5	0	0	0	2	0	0	0
Tacoma.....	0	0	0	0	3	1	0	0	2	0	0	0
California:												
Los Angeles.....	22	0	5	6	7	2	5	3	26	0	0	13
Sacramento.....	0	0	0	0	3	1	0	0	1	0	0	3
San Francisco.....	0	0	0	0	6	2	6	1	8	0	0	0
Total.....	93	2	94	16	971	33	336	10	702	0	5	687
Corresponding week, 1946*	114		331	56	4,309		444		945	0	4	590
Average 1942-46*	76		286	38	3,747		498		1,458	1	11	714

* 3-year average, 1944-46.

* 5-year median, 1942-46.

* Exclusive of Oklahoma City.

Dysentery, amebic.—Cases: New York 3; Rochester 1; Detroit 1; St. Louis 1; Birmingham 1; Los Angeles 2.

Dysentery, bacillary.—Cases: New York 2; Los Angeles 2.

Dysentery, unspecified.—Cases: San Antonio 6.

Typhoid fever.—Cases: Washington, D. C., 1.

Typhus fever, endemic.—Cases: New York 1; Mobile 3; New Orleans 4.

Rates (annual basis) per 100,000 population, by geographic groups, for the 89 cities in the preceding table (latest available estimated population, 34,526,000)

	Diphtheria case rates	Enecephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England.....	20.9	0.0	2.6	0.0	497	2.6	81.0	0.0	193	0.0	0.0	240
Middle Atlantic.....	13.0	0.0	6.0	0.5	103	5.6	51.8	0.0	120	0.0	1.9	67
East North Central.....	6.7	1.2	4.9	1.2	208	4.3	37.7	1.2	111	0.0	0.0	171
West North Central.....	10.1	0.0	4.0	4.0	30	2.0	64.4	0.0	113	0.0	0.0	68
South Atlantic.....	15.1	0.0	36.8	1.7	244	6.7	56.9	0.0	89	0.0	1.7	146
East South Central.....	5.9	0.0	76.7	11.8	35	0.0	88.5	17.7	41	0.0	0.0	83
West South Central.....	12.7	0.0	30.5	5.1	25	2.5	55.9	2.5	18	0.0	0.0	33
Mountain.....	15.9	0.0	127.1	0.0	95	7.9	95.3	0.0	175	0.0	0.0	8
Pacific.....	38.0	0.0	11.1	9.5	43	9.5	25.3	6.3	65	0.0	0.0	33
Total.....	14.1	0.3	14.2	2.4	147	5.0	50.9	1.5	106	0.0	0.8	104

TERRITORIES AND POSSESSIONS

Hawaii Territory

Plague (rodent).—Plague infection has been proved in a pool of 31 rats trapped on January 9, 1947, in District 1A, Kukuihaele area, Hamakua District, Island of Hawaii, T. H.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended January 25, 1947.—During the week ended January 25, 1947, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox.....		16	2	246	392	22	31	64	113	886
Diphtheria.....		2	3	43	9	1	2			61
Dysentery:										
Amebic.....					6					6
Bacillary.....				1					3	4
German measles.....				16	36		2	13	9	76
Influenza.....		37			5		1		14	57
Measles.....		105	2	43	80	202	94	421	489	1,436
Meningitis, meningococcus.....		1		3	2			1	2	9
Mumps.....		5		76	433	54	173	39	204	964
Poliomyelitis.....			1	1						2
Scarlet fever.....		4	6	53	88	13	4	7	11	186
Tuberculosis (all forms).....		1	13	115	34	13	3	51	23	253
Typhoid and paratyphoid fever.....				6					1	7
Undulant fever.....					1			1		2
Veneral diseases:										
Gonorrhoea.....		15	12	73	104	43	28	52	76	403
Syphilis.....		19	2	100	87	8	9	9	45	279
Other forms.....									3	3
Whooping cough.....		33	1	76	107	19	6	2	8	252

NOTE.—No report was received from Prince Edward Island for the above period.

JAPAN

Notifiable diseases—4 weeks ended January 25, 1947.—During the 4 weeks ended January 25, 1947, certain notifiable diseases were reported in Japan as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis.....	153	30	Paratyphoid fever.....	224	11
Diphtheria.....	2,810	262	Scarlet fever.....	182	1
Dysentery.....	232	66	Smallpox.....	67	5
Encephalitis, Japanese "B".....	1	2	Syphilis.....	6,891	
Gonorrhoea.....	11,756		Typhoid fever.....	1,100	110
Malaria.....	635	1	Typhus fever.....	240	13

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual incidence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during recent months. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Plague

Madagascar.—Plague has been reported in Madagascar as follows: December 11–20, 1946, 20 cases, 19 deaths; December 21–31, 1946, 43 cases, 42 deaths.

Typhus Fever

Rumania.—For the period January 8–15, 1947, 369 cases of typhus fever were reported in Rumania, including 15 cases reported in Bucharest.