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EDITORIAL [1]

Since its inception in July 1944, the Tuberculosis Control Division of the United States Public Health Service has made many advances toward a realization of its long-range objective—the eradication of tuberculosis in the United States. Beginning as a section of the States Relations Division of the Bureau of State Services, the initial work of the original staff demonstrated the need for a Federal program of tuberculosis control. This need was recognized by Congress when, under the authority invested in the Public Health Service by Public Law 410, the Tuberculosis Control Division was created to carry forward a campaign against this disease.

Until the establishment of the Division, programs against tuberculosis had been conducted largely by volunteer agencies, led by the National Tuberculosis Association, and by State and local health departments. These groups continue to do excellent work, and the Tuberculosis Control Division in no sense replaces any of them. Rather, it is the function and the purpose of the Division to fortify and to integrate, by means of technical, advisory, research, and financial aids, all existing agencies which are working toward the goal of eradication.

Now, after nearly 2 years, the Division can confidently announce material progress. Its four major objectives—case finding, medical care and isolation, aftercare and rehabilitation, and protection of the tuberculous family against economic distress—have been guiding principles which have produced significant findings and have created policies and procedures for the future.

In case finding the photofluorograph has been the major tool. It

* This is the first of a series of special issues of PUBLIC HEALTH REPORTS containing articles devoted exclusively to tuberculosis control, which will appear the first week of each month.

[1] From the Office of the Chief, Tuberculosis Control Division.

permits the examination of large population groups, whereas before this instrument was brought to its present state of refined development, only individuals and families could be reached by the standard X-ray equipment. Now the X-ray goes to the people, finds them in large groups, and discovers tuberculosis, in overwhelming proportion, in its minimal stage. The importance of this finding is made clear by the fact that in recent years only 10 to 15 percent of admissions to tuberculosis hospitals were minimal cases. Today, with modern case-finding techniques, 65 to 70 percent of all cases found are minimal. Tuberculosis, therefore, is at last being found when it can be relatively easily arrested. Continuing effort in this area of action must, however, be reinforced by vigorous community accomplishments in medical care and hospitalization of all discovered cases. Through grants-in-aid and consultation that springs from experience and research, the Federal Government is assisting the States in the study and solution of their tuberculosis problems.

Through its consultants in rehabilitation and medical social work and through its public health nurses, the Division is now undertaking a concentrated attack on the complex problems of rehabilitation and aftercare. In addition, the Division is assisting in the promotion and development of a national plan to provide adequate financial protection for the family of the tuberculous person against loss of wages during periods of long disability. An extension and strengthening of our present social security laws is patently called for if the campaign against tuberculosis is finally to succeed.

The Division has also expanded its activities in the field of research. Nearly one-third of a million dollars has been appropriated from operational funds for this purpose during the present year, and work in progress promises results important to all workers in tuberculosis control.

In consequence of this increased and extended action, it is thought appropriate and useful to report to the medical and allied professions the current results of the many divisional activities. Through the courtesy of the Division of Public Health Methods, it is now possible to publish, in the first week of every month, a special tuberculosis issue of PUBLIC HEALTH REPORTS. This issue will bring to the attention of the thousands of workers in the field discussions, announcements, and reports on research of all kinds from the scientific, administrative, and statistical units of the Tuberculosis Control Division, as well as contributions from consultants, private specialists, and research workers throughout the Nation.

REHABILITATION AND AFTERCARE IN TUBERCULOSIS [1]

I. GENERAL PROBLEMS

By HERMAN E. HILLEBOE, *Medical Director*, and NORVIN C. KIEFER, *Surgeon*, *United States Public Health Service*

Rehabilitation and aftercare are absolute essentials for the tuberculous, as well as for all physically handicapped persons. Rehabilitation commonly is thought of as the process of restoration of economic self-sufficiency to a disabled person. There are, however, a few diseases in which rehabilitation is a much more complex problem. Tuberculosis is an outstanding example, because it is resistant to complete cure and always likely to recur. In this disease rehabilitation must serve the added purposes of protecting the patient against recurrence and the public health against spread of the disease. Failure to utilize all safeguards to keep the tuberculous person permanently well encourages continued spread of the disease and wastes the funds which are spent on the initial diagnosis, medical care, and hospitalization of the patient.

Over one hundred million dollars are being spent each year on the maintenance of over 90,000 tuberculosis sanatorium beds. Of the 57,000 persons who died of this disease in 1943, almost half (45 percent) were men and women between the ages of 20 and 44 and one-fourth (24 percent) were men between the ages of 45 and 64. These are the years of heaviest social and familial responsibility and maximum wage-earning capacity. Most of these deaths were premature and needless. They have influenced profoundly and adversely the lives of countless dependents. Such deaths and their unhappy effects will continue indefinitely as long as our tuberculosis control programs fail to utilize the full scope of our national resources in preventive measures.

The greatest number of tuberculous persons reported as rehabilitated in the United States in any one year to the Office of Vocational Rehabilitation was 3,043 in 1943. Siltzbach [2] has estimated that there are 65,000 to 75,000 tuberculous persons who need rehabilitation annually in this country. Even if a number only half as large is used, for the sake of conservatism, this figure still would mean that less than 10 percent of the tuberculous persons who require rehabilitation actually receive such assistance.

The four major objectives of the Tuberculosis Control Division of the United States Public Health Service are: (1) Case finding to discover all tuberculosis in an early stage; (2) adequate treatment and isolation facilities for all patients; (3) aftercare and rehabilitation; (4) protection of the patient's family against economic distress.

[1] From the Tuberculosis Control Division.

[2] Siltzbach, Louis E.: Clinical Evaluation of the Rehabilitation of the Tuberculous. National Tuberculosis Association, New York, 1944.

We are slowly achieving the first and second objectives on a Nation-wide scale. Treatment and isolation facilities, however, are still far from adequate, for they vary widely among the States and much work must be done before diagnostic and therapeutic facilities are expanded sufficiently to meet the needs of the Nation's tuberculous. The principles of treatment and isolation accepted as basic requirements of good tuberculosis control will be applied as funds are provided.

The success of the first two measures, however, depends upon the achievement of the last two—rehabilitation of the patient and protection of the family against economic distress. Unfortunately, we find that the States are less ready to recognize the necessity and value of these last two services than they are to admit the urgency of case finding and treatment and isolation. There is a tendency to regard rehabilitation and aftercare and protection against economic distress as auxiliary services instead of fundamental needs. They are thought of as gifts discriminately bestowed rather than as a capital investment in the present to avoid perpetual and larger expenditures in the future. They are thought of merely as benefits to individuals, when actually their greatest benefit lies in the protection they afford the community against the spread of tuberculosis and against repeated financial outlay for rehospitalization of the same persons.

Public Law 113, known as the Vocational Rehabilitation Act, approved July 6, 1943, defines rehabilitation as follows: "The term 'vocational rehabilitation' and the term 'rehabilitation services' mean any services necessary to render a disabled individual fit to engage in a remunerative occupation." Michael J. Shortley, Director of the United States Office of Vocational Rehabilitation, has classified the services now available under the program of that Bureau into five general headings: Social adjustment, training and guidance, financial assistance, physical restoration, and employment. In the broadest sense, the period of rehabilitation might be said to start with the diagnosis and earliest social service investigations. The period then extends through counseling, occupational therapy, education, prevocational advice and training, vocational testing and counseling, through vocational training both in the sanatorium and after discharge, to placement in a suitable job after completion of vocational training. The final step is follow-up of both the patient's physical and rehabilitation status for a considerable period of time. Vocational rehabilitation is only one phase of the complete process of rehabilitation.

The path to full realization of an extensive rehabilitation project will be a tortuous one, beset with difficulties and formidable obstacles. These problems must be recognized and the difficulties anticipated in order that an appropriate attack may be made to insure eventual success.

A basic difficulty which challenges the progress of all phases of rehabilitation work is the present state of confusion over the scope of the work of various professional groups. There is even confusion over the very fundamental terms used. There is urgent need for specific definition of the nomenclature employed. A glaring example is the diversity of interpretations of the word "rehabilitation" itself. What is rehabilitation in relation to tuberculosis: what does it include? We equivocate by stating, "rehabilitation in its broadest sense." What is its "broadest sense"?

Sharp delineation of the boundaries of the activities of various rehabilitation groups probably cannot be drawn at this time. A certain amount of overlapping must occur when physicians, nurses, psychologists, occupational therapists, medical social workers, and many others work jointly on any problem. But it is incredible that these various groups cannot, in joint session, work out a practicable plan that will clearly outline the sphere in which each is to operate, with allowance made, of course, for necessary and appropriate bulges. Without such cooperative action, the outcries of wounded feelings threaten to drown out the voice of progress in rehabilitation to such an extent as to stalemate the entire program. Each of these groups has contributed much to rehabilitation, but the time has come for a serious endeavor to coordinate their efforts.

Another prime necessity is that of developing criteria for the determination of the proper time to start various phases of the rehabilitation program, and of the kind of work to be allowed the patient, both at the outset and after his eventual discharge from the sanatorium. It must be remembered that the patient sees rehabilitation as a preparation for a maximum amount of economic independence; furthermore, it serves as a tremendous boost to morale. Rehabilitation should begin no later than the day the patient enters the sanatorium, because from the beginning he must know that there is still a future for him. This knowledge acquired early in illness makes a great difference in his morale and his manner of adjustment to a changed way of life.

Rehabilitation is a form of treatment. Obviously, during the period of diagnosis and early hospitalization, medical care is paramount; but, at some point during the period of hospitalization, vocational guidance and training constitute a large portion of treatment and are continued into the immediate post-sanatorium period. As the patient improves clinically, rehabilitation is intensified until he is ready for discharge, at which time part-time work is permitted. Later the patient gradually acquires a mastery of some skill and finally secures a full-time job.

As yet, however, there is no general agreement as to when the process of rehabilitation can be instituted and when each new phase

can be added. Widespread adoption of more specific policies is needed in addition to full realization of individual variations and the necessity of amendments based on subsequent experience.

Although there is no uniformity of opinion about suitable employment for ex-tuberculous individuals, the present tendency is to extend greatly the scope of these activities. If we exclude those jobs which have been proved to be hazardous because they involve extreme physical exertion, and excessively long hours or exposure to unfavorable hygienic conditions, there probably remain very few occupations which threaten the patient's health. To these must be added those jobs on which the tuberculous worker would endanger the health of other individuals. It also should be borne in mind that contentment and mental equanimity which are a consequence of work which the patient enjoys may prove to be far more important than the actual amount of activity expended. The solution of this problem will come from extensive experience in the employment of the tuberculous ex-patient, not from long, arbitrary lists of suitable occupations.

It is difficult at the present time to estimate the actual cost of rehabilitation of a tuberculous patient. Financially, there are three factors to be weighed against the actual per-patient cost of rehabilitation: (1) The cost of readmissions can be expected to be greater in number without benefit of rehabilitation; (2) the cost of maintenance of the patient and his family when the breadwinner is not economically independent; (3) the cost of caring for persons infected by a relapsed patient.

The first of these factors, cost of readmissions, can be influenced in two different ways by proper rehabilitation. The first method is placement in suitable work under controlled conditions. The second method assumes that the number of sanatorium discharges against medical advice will decrease with the realization that such action discontinues vocational training of future financial value as well as medical care.

The second factor is fundamental in vocational rehabilitation—restoration to economic self-sufficiency. Proper training should make possible larger incomes than would otherwise have been possible. Those already skilled can use the period of sanatorium confinement to increase proficiency. Housewives and others who do not earn a salary can be trained to perform their daily tasks with a minimum of effort.

No one has been able to estimate the cost to the community involved in the third factor—caring for persons infected by relapsed tuberculous patients. Probably, the cost is very high in both lives and money. Without vocational rehabilitation, the person recently discharged from a sanatorium has little choice but to return to the type of work he performed in the past, and the same factors that

precipitated the original breakdown may soon bring about a second one. The actual breakdown is preceded by a gradual decrease in strength, during which time the patient finds himself unable to work steadily. Untrained, economically insecure, he will gravitate to low-paid jobs of temporary and strenuous nature. If these require physical labor, he may do himself additional harm. Many such jobs, such as dishwashing, food-handling, domestic work, and care of children, render the tuberculous worker a danger to public health.

Even the patient who may return to work that requires a minimum of physical exertion cannot resume his job immediately upon leaving the sanatorium. At first, he has physical strength for only a limited number of hours of daily work. He needs time to rebuild full work tolerance and to bring his skill back to former standards.

In the past, the major proportion of tuberculosis was found only after it had reached an advanced stage. Over the years this situation made a profound impression on public opinion. It was corroborated by sanatorium statistics and reports which revealed that only 1 person in 10 entering a tuberculosis hospital had early or minimal disease. Today, with mass radiography of millions of adults in the military services and in civilian industrial groups, we find two-thirds of the tuberculosis cases still in the minimal stage and amenable to therapy. In this group it appears that the best therapeutic results can be obtained; moreover, this group also yields the greatest returns from a good rehabilitation program, although the groups in the more advanced stages are by no means excluded.

At the present time there are several different general types of rehabilitation programs in practice, and it is difficult to assess these projects comparatively. As a prelude to their consideration it might be well first to consider the types of tuberculous patients with whom the rehabilitation worker has to deal:

The tuberculous ex-patient with favorable prognosis.—If such a patient had a minimal lesion at the time of diagnosis and responded rapidly to treatment, the process of rehabilitation may not have progressed far before discharge from the sanatorium. For those who previously were engaged in suitable occupations, this condition usually will not be serious. Those whose former occupation was for any reason unsuitable will require, along with the more advanced cases, a complete rehabilitation program.

Some investigations indicate that the usual tuberculous ex-patients have employment records which compare favorably with those of the general population. To offset his somewhat increased absentee rate during occasional illnesses, the average tuberculous ex-patient has decreased absentee rate from nonmedical causes, presumably because fear of recurrence of disease or dismissal from employment have inculcated in him a greater respect for his job and because he is less inclined to overindulgence.

The chronic sputum-positive cases.—These can be further subdivided into the so-called good chronic cases and the permanently incapacitated ones.

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a. The "good chronics" quite often are comparable to the average tuberculous person from the standpoint of physical ability, but present the problem of endangering those with whom they work because of the persistence of bacteriologically positive sputum. Because of this complication, special disposition is necessary for these cases.

b. The second group of chronic sputum-positive patients are those who are permanently incapacitated.

c. Other individuals falling into this category are some of the far-advanced cases who will not necessarily have persistently positive sputum.

Because of the shortage of beds for the tuberculous, one of each three sanatorium beds is now occupied by these long-term irremediable cases. Many of these persons relapsed following their first sanatorium discharge, because they received no assistance in making physical and economic adjustment to an indifferent or hostile world. A few hundred dollars spent on rehabilitation during their period of initial illness might have saved many times that amount in rehospitalization costs.

Each of these types of tuberculous ex-patients requires a different kind of rehabilitation program. Let us now turn to a consideration of the types of programs which exist:

1. *Colony plan.*—This is one of the oldest types, and its main development has been in Europe, particularly in England. This plan establishes in the sanatorium group a colony to which the patient moves after completion of hospitalization. He and his family live here, and he works here. Although such colonies have many advantages, they have not been established in the United States. Because of the size of this country, such colonies cannot be located, save in prohibitive numbers, in satisfactory proximity to the homes of the patients. Nor are they fitted to American individualism. In addition, such colonies industrially are not practical because usually they are too far removed from shipping and other necessary facilities and because they are limited in scope of activity.

2. *In-sanatorium employment.*—This is a commonly used method which offers a satisfactory solution to many cases, particularly among the "good chronic" group. The number of positions, however, is necessarily limited, and again the geographic problem is encountered.

3. *Home-bound employment.*—This method is highly unsatisfactory, but, in the case of the permanently incapacitated person, it frequently is the only one possible. Although a few patients have developed highly remunerative home-bound projects, the great majority of cases earn little or nothing, and the program is therefore mainly a means of passing the time.

4. *Sheltered workshop.*—This scheme has attracted considerable attention. Such shops offer training and employment under carefully controlled, sheltered conditions, with suitable hours, adequate rest periods, attention to diet, and, in most cases, medical supervision. Usually the worker is paid a small wage while he is learning, and this amount is gradually increased as he becomes more proficient in his work. In spite of the excellent record shown by some of these institutions, there are serious objections. They present the same geographical problem mentioned previously. Work opportunities are usually limited to one or a few fields, so that the ex-patient must adapt himself, like it or not, to the kind of employment offered. The overhead is usually large and the wage scale comparatively low, with the result that almost without exception the worker's income must be complemented by eleemosynary funds in order to support the family.

5. *The role of industry.*—Absorption of ex-patients into private industry offers many advantages. If a large enough number of industries would cooperate, the geographical problem could be solved. Overhead which is high in the sheltered workshop here would be relatively small, because the ex-patient would have employment in an already established industrial concern. A more or less unlimited variety of occupations could be offered. The pay scale almost certainly would be higher. Even the chronic sputum-positive cases could be placed in a special department where only such individuals were employed, thus avoiding the possibility of exposure to others. The only serious disadvantage to the industrial method is the difficulty of convincing industrial employers of the desirability of such a program and its necessary medical supervision.

6. *State-wide programs.*—Analysis of the disadvantages of the above programs would seem to indicate that the primary objection to most of them is that of too sharp localization of available jobs. This and many of the other difficulties probably can best be solved by consolidation of the various programs into State-wide systems. In this manner State agencies such as the State Tuberculosis Control Division, the Vocational Rehabilitation Office, the Department of Education, and all allied agencies can coordinate their work to a single purpose. Consultation facilities and financial assistance would be available through Federal agencies and national and State voluntary organizations without duplication of effort or expense. Far from being too complicated or unwieldy, such a plan can eventually simplify the control of the many tuberculosis rehabilitation problems. Several States already are making progress with such systems. Sheltered shops, homebound employment, in-sanatorium employment, industrial cooperation, and perhaps even, to a limited extent, colonies—all can be utilized and their various activities unified in one over-all program, directed by competent State officials. Thus this plan would have all of the advantages of the more limited systems, and at the same time inherit very few of the disadvantages.

Only when such programs achieve national scope and are strengthened by invalidity insurance can we have permanently successful and progressive tuberculosis control. It is encouraging to see that a Nation-wide rehabilitation scheme for all disabled persons is at last in sight, and that the Federal Government has officially expressed deep interest in this work. Federal participation in vocational rehabilitation has helped to strengthen State programs. The Federal-State partnership operating under the Barden-La Follette Act of 1943 has greatly extended the scope of these services and has made them available to groups, including the tuberculous, not covered by earlier provisions. This program is administered by the Office of Vocational Rehabilitation which, like the Public Health Service, is part of the Federal Security Agency.

The eventual possibility of combining some of the rehabilitation projects relating to various types of disabilities should also be mentioned. It seems certain that several such projects will soon be started on at least an experimental basis. From the point of view of administrative and operating expenses, these projects have real merit. Certainly many institutions have been highly successful in conducting the rehabilitation of widely varying types of orthopedic disabilities. There is, however, considerable question about the feasibility and

hygienic safety of combining, for example, orthopedic, cardiac, and tuberculous rehabilitation under the same roof. Representative problems which would have to be met would be the establishment of reasonable assurance against the tuberculous group infecting the others, and recognition and management of the vastly different medical problems inherent in the three main groups. It would, however, seem desirable to conduct a few selected pilot studies to attempt to determine the exact advantages and disadvantages of such combined programs.

Another pressing problem that needs to be considered at this time is the placement of the tuberculous wage earner in a suitable job. Such placement necessarily involves cooperation on the part of both management and labor. Convincing evidence that proves the tuberculous ex-patient to be a satisfactory employee must be presented to management, and both the practicability and necessity of vocational rehabilitation of the disabled must be demonstrated conclusively. Labor unions have become interested in efforts to restore reasonable health and satisfactory employment to all of their less fortunate members; the feasibility of extending these principles to workers who are tuberculous must be demonstrated to all organizations of labor.

Placement of tuberculous ex-patients is made difficult by the employer's apprehension of incurring liability for the patient's relapse. That this problem has reality is clearly shown by numerous decisions of Workmen's Compensation Boards, which have been adverse to the employer. Although the financial loss has not been great, the reluctance of employers to incur this risk is easily understood.

Workmen's Compensation Boards probably have tempered their decisions with sympathy for the unfortunate employee. But this is a most short-sighted solution, because such decisions actually jeopardize the precarious financial stability of the tuberculous ex-patient, if in consequence employers refuse to hire such a person. There has been no adequate medical evidence to support the view that under reasonably controlled conditions the patient's employment *per se* can have any direct bearing on his subsequent breakdown. It is time for a more definite stand to be taken on this problem. Various recognized official tuberculosis organizations might prepare formal statements which could be used as supporting and guiding evidence for compensation boards. Organized labor can help immeasurably by recognizing the danger that temporary gain for one relapsed ex-tuberculous employee may result in partial or total loss of employment to a hundred others. It would seem that both management and labor have everything to profit and little or nothing to lose by the mutual recommendation that Workmen's Compensation Boards take a definite stand that tuberculosis is not a compensable disease. Only in this way can employment

of these people be reasonably assured. For those who do break down, it is to be hoped that in the not-too-distant future invalidity insurance will furnish the necessary protection.

Although in most States business and industry recognize their responsibility to compensate the wage earner for salary lost through industrial disability, local governments do not recognize the responsibility toward a similar worker who must accept lengthy isolation because he has a disease dangerous to the public health. The solution is twofold: rehabilitation and aftercare plus disability or invalidity insurance that will enable the patient to accept hospital treatment and aftercare without financial insecurity and social instability.

Financial assistance under the three public-assistance titles of the Social Security Act may afford some help for the tuberculous and their dependent families. For instance, aid to dependent children provides assistance to families when incapacity prevents a parent from supporting the children. Payments under this program, financed by State and Federal funds, vary among the States, and in May 1945 ranged from an average of about $21 to $89 per family. Without other resources neither amount seems adequate for the tuberculous family by today's living standards. Recipients of the other two public-assistance titles, old-age assistance and aid to the blind, may use their payments to help pay expenses of treatment or care for tuberculosis, although such payments are usually only sufficient to cover living expenses and a minimum of health or medical care.

In Denmark the place of rehabilitation in tuberculosis control has long been recognized and supported. National subsidy carries the patient and his family through the entire period of treatment, vocational retraining and restoration to full earning capacity. A similar policy is being adopted in England.

The prospect of abandoning dependents to a meager existence is a prime factor in the refusal of many tuberculous wage earners to accept early hospitalization. Instead they continue work until far-advanced disease forces the issue, by which time medical care can do little. Or, if hospitalization is accepted, family distress forces the wage earner to leave the hospital only partly well, to resume work he is physically unable to perform for any length of time.

It is thus seen that rehabilitation and some form of invalidity insurance go hand in hand. Even where the rehabilitation process can be carried on through vocational training, the process of apprenticeship and of gradual lengthening of working hours will in many cases be violated deliberately by the patient who believes that he must do something in order to earn a livable income for his family, no matter what the eventual risk to his health. Although an efficient and rigid system might control this undesirable situation by making it impos-

sible for the individual to obtain other than approved employment, there would not be a coincidental relief of the patient's mental conflict unless the necessary adequate financial assistance were supplied. The probably deleterious effects of emotional problems and mental discontent on the tuberculous ex-patient's physical well-being has been discussed previously.

The success of each of the four objectives of the Tuberculosis Control Division of the United States Public Health Service—case finding, treatment and isolation, aftercare and rehabilitation, and protection against economic distress—is dependent on the success of each of the others. There can be no rehabilitation without preceding medical care, but at the same time, treatment is not complete nor secure until complete rehabilitation has been assured. Completion of each of these phases will be endangered constantly so long as the patient and his family are economically insecure. The first, or case-finding phase, is necessary to search constantly for new or previously unrecognized cases of tuberculosis, so that the last three phases may be brought into operation.

When all four phases of the program have been brought into highly efficient operation on a Nation-wide basis, the final *coup de grace* may then be dealt to this ancient and vexing problem. Many weighty problems remain to be solved in the field of rehabilitation and aftercare of the tuberculous. It has been the purpose of this paper to point out some of the more serious ones with general suggestions as to the possible pathways to their eventual conquest.

PHOTOFLUOROGRAPHIC ROLL-FILM VIEWERS [1]

By Ira Lewis, *Surgeon (R), United States Public Health Service*

There has long been a controversy between American and British authorities regarding the type of viewer best suited for the interpretation of photofluorographic films. For the most part direct viewing systems have been used in America, whereas in Great Britain (*1*) the projection system has been preferred.

The British projection system of viewing employs a simple projector using a 100-watt incandescent bulb as a light source. The image is projected on a white flat screen at a distance of approximately 3½ feet and covers an area of approximately 8 by 10 inches. Other image sizes can obviously be obtained by using other projector-screen distances, but an image size of 8 by 10 inches is considered optimum by most British workers. A flat rather than granular type of screen is used in order to reduce unsharpness to a minimum. Customarily,

[1] From the Radiology Section, Tuberculosis Control Division.

the projector is operated in a darkened room by a projectionist, although, if necessary, the interpreter of the film may operate the projector.

The direct type of viewer which has been, until recently, used most widely in America to interpret 35-mm. photofluorographic films is illustrated in figure 1. It consists of a simple lens system 3 inches in diameter which magnifies the image approximately 2½ times. It includes a 7½-watt incandescent lamp as the light source. The filament temperature of the lamp can be adjusted by a rheostat on the side of the viewer. The device is manufactured by E. Leitz, Inc., New York, N. Y.

In addition to the viewer illustrated in figure 1, there will soon be available another direct viewer for 35-mm. film interpretation. This device is shown in figure 2 and will be manufactured by the Westinghouse Electric Corporation. It possesses a magnification of approximately 2 times and utilizes a reflection type of lens system. A fluorescent lamp will be used as a light source. This viewer also may be employed for the interpretation of 70-mm. photofluorographic films. The General Electric and the Fairchild Camera and Instrument Companies have in production direct-system viewers utilizing conventional lens systems also in the 70-mm. category. Both of these latter viewers are so designed as to permit the interpreter to read the films either with or without magnification.

In an attempt to resolve the relative merits of projection and direct viewing systems, a quantitative study of the subject has been undertaken in the laboratory of the Radiology Section of the Tuberculosis Control Division. The results of this investigation are presented in the paragraphs below.

Fundamentally, the optimum conditions under which photofluorographic films are viewed require that the following criteria be observed:

1. All detail which is present in the film must be reproduced at the retina of the observer's eye.
2. Eyestrain must be reduced to a minimum.
3. Mechanical operation of the viewing device must be as simple as possible.

The detail which a roentgen image exhibits is a function of the maximum resolving power of the radiographic film on which the image is recorded. Measurements of the resolving powers of photofluorographic films, conducted according to the method proposed by Morgan (*2*), indicate that 35-mm. Eastman green-sensitive film, exposed under normal photofluorographic conditions (i. e., with a Patterson type B fluorescent screen and with an Ektar f/1.5 lens) has an inherent maximum resolving power of 0.9 serrations per millimeter. Eastman 70-mm. blue-sensitive film (exposed with a Patterson type D fluorescent screen and with an Ektar f/1.5 lens) has an inherent resolving

power of 1.5 serrations per millimeter. The maximum resolving power which may be actually visualized when the 35-mm. film is viewed by the British projection method is 0.75 serration per millimeter. It is clear, therefore, that there is a loss in resolution of approximately 15 percent introduced by the unsharpness of the projection-lens system. The resolving power of the same 35-mm. film when observed on the Leitz viewer is 0.6 serration per millimeter. Thus, from the standpoint of ability to record detail there is a definite advantage in favor of the projection system over the heretofore available direct viewing systems. When the 35-mm. film is observed on the new Westinghouse type of viewer, however, the visible resolving power approaches 0.9 serration per millimeter. That is, this type of viewer introduces no loss in resolving power between the film and the interpreter's retina. Accordingly, this viewer may be considered somewhat superior to the projection system. Tests made with the General Electric and Fairchild viewers with 70-mm. film indicate that these viewers too are able to record on the observer's retina all of the detail which is present in the film.

It is well known that eyestrain which may be experienced by an observer interpreting photofluorographic film will approach a minimum when the distance between the eye and the virtual image of the film appearing in the viewing system is approximately 100 cm. Under these conditions normal convergence occurs and accommodation is obtained with a minimum of difficulty. When the distance approaches 40 cm. or less eyestrain becomes severe because of the abnormal convergence and accommodation required of the eyes.

Under normal conditions the screen in the British projection system is viewed at a distance of approximately 100 cm., whereas the viewing distance with the Leitz viewer is approximately 40 cm. It is evident, therefore, that the eyestrain experienced by an observer will be considerably less with the projection system than with the Leitz viewer. The viewing distance in the Westinghouse, General Electric, and Fairchild viewers, however, approaches the 100-cm. level. Accordingly, one may expect to use these viewers with as little discomfort, from the standpoint of eyestrain, as is the case when the same observer is using the projection system of viewing.

In regard to the mechanical operation of the projection and direct viewing systems, the former system possesses several disadvantages. First, the amount of heat developed about the projector is great, thereby causing the observer considerable discomfort. Second, the need for a darkened room is inconvenient, since it increases the difficulties in recording the observer's findings. Finally, the need for a projectionist in addition to the individual interpreting the films is uneconomical.

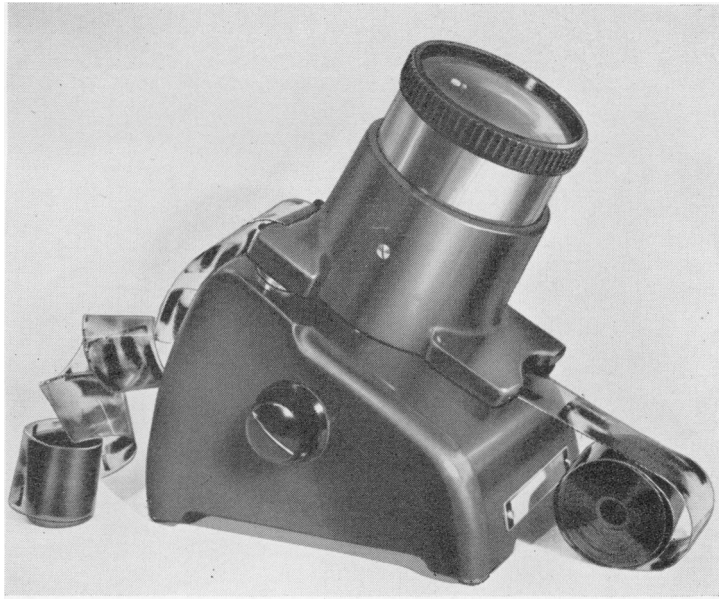

FIGURE 1.

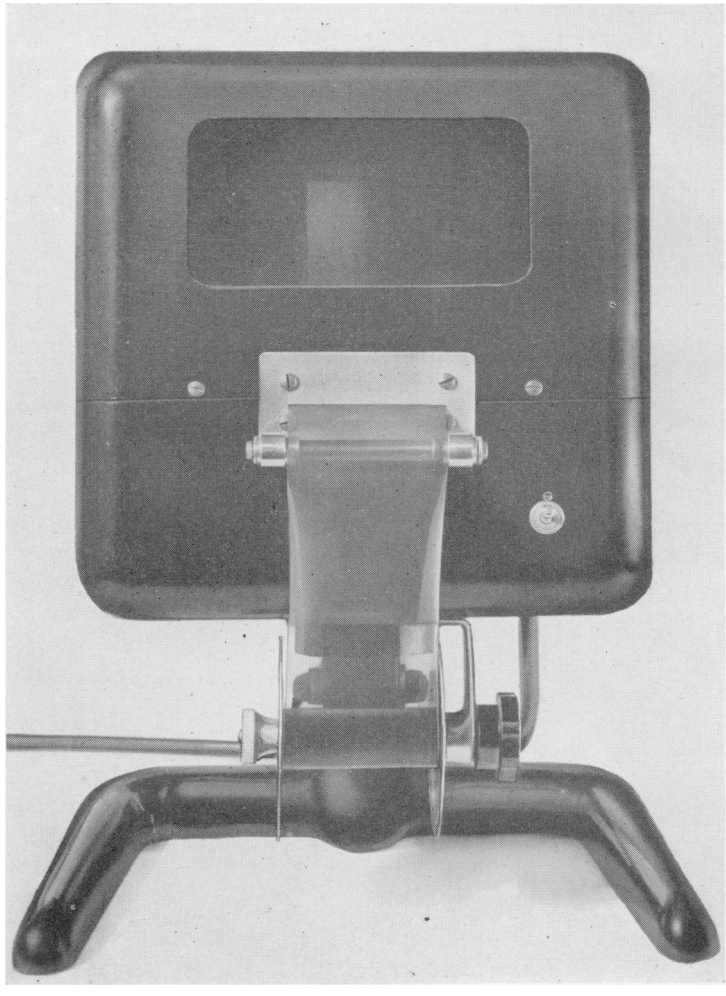

FIGURE 2.

From the foregoing it is clear that the projection system of viewing has been in many respects preferable to the direct system of viewing in the past. Due to incorrect design the direct viewers which have been available have provided poor reproduction of detail and have been the cause of considerable eyestrain. The direct viewers which are now becoming available overcome these difficulties, and since they do not have the mechanical disadvantages of operation inherent in projection systems of viewing, it is felt that they offer the closest approach to the ultimate in viewing system design.

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TUBERCULOSIS MORTALITY IN MAJOR CITIES: UNITED STATES, 1942–43[1]

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As a cause of death, tuberculosis presents a relatively greater problem in the large cities of the United States than in smaller cities or rural areas. In the 2-year period, 1942–43, tuberculosis was assigned as the cause of 4.6 percent of all deaths among residents of cities of 100,000 or more population, while among those living in rural areas and smaller urban places it was the cause of 4.0 percent and 3.6 percent, respectively, of the deaths from all causes.

Within the group of large cities, there is a wide range in the relative importance of tuberculosis as a cause of death. The proportion of deaths due to tuberculosis varies from less than 2 percent in some cities to nearly 10 percent in others. If the lower figures may be regarded as attainable goals and the higher figures as signposts for the guidance of control efforts, then it is of importance to determine how the mortality from tuberculosis in one city compares with that in the others. Such comparisons, based on tuberculosis death rates, have been made for earlier years by Liveright (*1*), the New York Tuberculosis and Health Association (*2*), and the National Tuberculosis Association (*3*).

The purpose of this paper is to present data on tuberculosis mor-

[1] From the Tuberculosis Control Division, U. S. Public Health Service, and the Vital Statistics Division, U. S. Bureau of the Census.

(Note: This paper is in part a summary of a longer study with the same title and by the same authors, published by the Bureau of the Census as a Vital Statistics-Special Report (vol. 21, No. 14). Detailed data are given on tuberculosis mortality in the 92 large cities by age, race, and sex for 1942–43 and 1939–41, with a discussion of the 1942–43 material and of the changes between the two periods.)

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tality by race for residents of the 92 cities of 100,000 or more population for the two periods, 1942-43 and 1939–41, to rank [2] the cities according to their mortality from tuberculosis in 1942–43, and to determine the changes in tuberculosis mortality between 1939–41 and 1942–43.

Because of the lack of population estimates necessary for computing death rates, the death ratio or proportionate mortality is used in this paper. This measure relates the number of deaths from a specific cause (in this case, tuberculosis) to the number of deaths from all causes. All required data, the number of deaths from tuberculosis and the number of deaths from all causes, are readily available from both local and Federal sources.

PROPORTIONATE MORTALITY

Since the death ratio or proportionate mortality has been less commonly used in recent years than the death rate, it may be well at the outset to discuss briefly its meaning and its relation to the death rate.

The tuberculosis death ratio expresses the relative importance of tuberculosis as a cause of death, measuring the relation of the mortality from tuberculosis to the total mortality problem. It is a useful supplement to the death rate and a valuable measure in its own right when used with a full understanding of its limitations.

From a comparison of the tuberculosis death ratio for one community with that for another it is possible to determine the difference between the two communities with respect to the importance of tuberculosis relative to the total mortality problem. For a given community the movement of the tuberculosis death ratio over a period of time reveals the course of the tuberculosis death rate relative to the general death rate. If the ratio increases, the tuberculosis death rate is either rising faster or decreasing more slowly than the general death rate; if it remains constant the two are following the same course; if the ratio decreases, the tuberculosis death rate either has dropped more rapidly or has risen more slowly than the total death rate. Since there exists a considerable body of knowledge concerning tuberculosis and its prevention, it is not, under normal conditions, too extreme to expect the tuberculosis death rate to decrease more rapidly than the general rate, the condition shown by declining death ratios.

Among the important factors affecting the death ratio are the composition of the population with respect to age, race, and sex and the general mortality situation. A community with a large proportion

[2] To facilitate intercity comparisons the cities will be ranked in order of their tuberculosis death ratios for each of the three race groups, all races, white, and nonwhite. Rankings will also be given by race for four city population-size groups, and four geographic regions. In all rankings the city with the lowest proportionate mortality is ranked in first place up to the city with the highest one, which is ranked ninety-second. As an aid in locating the cities in the various rankings, table 11 gives the cities in alphabetical order and their position in each of the rankings.

of its population at the younger ages where the number of deaths from all causes is relatively small may have a rather high tuberculosis death ratio, while an area having a large proportion of its population at the older ages where the number of deaths from all causes is large may have a rather low death ratio. Thus in some cases, tuberculosis death ratios may differ because of differences in the composition of the populations rather than because of any real difference in tuberculosis mortality. The effect of such differences may be controlled in large measure by the use of death ratios specific for age, race, and sex.

Under the conditions of an epidemic, the utility of the death ratio may be greatly diminished. When a large increase occurs in the number of deaths from some cause other than tuberculosis, the denominator of the death ratio is increased and the tuberculosis death ratio may decline. The reverse of this situation may occur when there is a sharp decrease in the number of deaths from one or several major causes. In such situations the death ratio may be modified by elimination of these causes from the denominator of the ratio. (A fuller discussion of these considerations is given in the Vital Statistics—Special Report, see footnote 1.)

Since studies of the rank order of the 92 cities for earlier years have been based on the tuberculosis death rate, it is desirable to indicate briefly the relation between the tuberculosis death ratio and death rate and the degree of comparability between the rankings for earlier years and those given in this paper which are based on the death ratio.

The relation between the tuberculosis death ratio and the tuberculosis death rate for a community is a function of the community's death rate for all causes.[3] Consequently, for a group of cities having the same general death rate, the rankings based on the tuberculosis death ratio will be identical with the rankings based on the tuberculosis death rate.

For the period 1939–41 the general death rates for some of the 92 cities were found to differ greatly from the average for the group of cities. Cities with such extreme general death rates will exhibit considerable variation between their positions in the rankings by the

[3] The death rate from tuberculosis divided by the tuberculosis death ratio is equal to the general death rate. The relation is:

$$\frac{d}{P} \div \frac{D}{P} \cdot \frac{d}{D} \text{ or } \frac{d}{P} \div \frac{d}{D} = \frac{D}{P}$$

where

d=deaths from tuberculosis
D=deaths from all causes
P=population

and

$\frac{D}{P}$=general death rate
$\frac{d}{P}$=tuberculosis death rate
$\frac{d}{D}$=tuberculosis proportionate mortality or death ratio.

tuberculosis death rate and by the tuberculosis death ratio, but for the majority of cities the rankings based on the two measures correspond fairly closely.[4] Moreover, for each city the ranking on the basis of the tuberculosis death ratio affords an intercity comparison of the importance of tuberculosis as a cause of death relative to the total mortality.

TUBERCULOSIS DEATH RATIOS OF THE 92 CITIES

The 92 cities ranked according to their tuberculosis death ratios (per 100 deaths from all causes) for 1942–43 for all races are given in table 1, which also includes the ratios for 1939–41 and their percentage change between the two periods.

TABLE 1.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for 92 cities of over 100,000 population: United States, 1942–43 and 1939–41 (all races)*

[Cities are ranked according to the death ratios for 1942–43 by place of residence]

Rank	City	Death ratio 1942–43	Death ratio 1939–41 [1]	Percent change 1939–41 to 1942–43	Rank	City	Death ratio 1942–43	Death ratio 1939–41 [1]	Percent change 1939–41 to 1942–43
1	Salt Lake City, Utah	1.4	2.0	−30.0	44	Scranton, Pa	3.8	3.5	+ 8.6
2	Des Moines, Iowa	1.7	2.2	−22.7	48	Cambridge, Mass	3.9	3.8	+ 2.6
2	Spokane, Wash	1.7	2.0	−15.0	49	Columbus, Ohio	4.0	4.3	− 7.0
4	Grand Rapids, Mich	1.8	1.5	+20.0	49	Yonkers, N. Y	4.0	4.1	− 2.4
4	Long Beach, Calif	1.8	2.2	−18.2	51	Fort Worth, Tex	4.1	4.6	−10.9
6	Duluth, Minn	2.0	2.3	−13.0	52	Camden, N. J	4.2	4.4	− 4.5
7	Minneapolis, Minn	2.1	2.1	.....	52	Indianapolis, Ind	4.2	4.3	− 2.3
7	Utica, N. Y	2.1	2.2	− 4.5	54	Pittsburgh, Pa	4.3	4.6	− 6.5
9	Portland, Oreg	2.4	2.6	− 7.7	55	St. Louis, Mo	4.4	4.5	− 2.2
9	Syracuse, N. Y	2.4	2.9	−17.2	55	San Francisco, Calif	4.4	5.1	−13.7
11	Omaha, Nebr	2.5	3.2	−21.9	57	Buffalo, N. Y	4.5	4.2	+ 7.1
11	Peoria, Ill	2.5	2.4	+ 4.2	57	Youngstown, Ohio	4.5	4.2	+ 7.1
11	Wichita, Kans	2.5	2.5	.....	59	Knoxville, Tenn	4.6	5.9	−22.0
14	Somerville, Mass	2.6	2.7	− 3.7	59	Louisville, Ky	4.6	4.0	+15.0
14	Springfield, Mass	2.6	2.6	.....	59	New York, N. Y	4.6	5.1	− 9.8
16	Lowell, Mass	2.7	2.8	− 3.6	59	Tulsa, Okla	4.6	6.5	−29.2
17	Elizabeth, N. J	2.8	3.9	−28.2	63	Los Angeles, Calif	4.7	5.0	− 6.0
17	Flint, Mich	2.8	3.1	− 9.7	63	Philadelphia, Pa	4.7	5.2	− 9.6
17	Rochester, N. Y	2.8	3.0	− 6.7	65	Tampa, Fla	4.9	5.0	− 2.0
17	South Bend, Ind	2.8	4.0	−30.0	65	Toledo, Ohio	4.9	5.4	− 9.3
21	New Haven, Conn	2.9	3.0	− 3.3	67	Boston, Mass	5.0	4.7	+ 6.4
21	Worcester, Mass	2.9	2.8	+ 3.6	67	Chicago, Ill	5.0	5.7	−12.3
23	St. Paul, Minn	3.0	2.8	+ 7.1	67	Jersey City, N. J	5.0	5.2	− 3.8
24	Erie, Pa	3.1	3.3	− 6.1	67	Dayton, Ohio	5.0	5.5	− 9.1
24	Tacoma, Wash	3.1	3.2	− 3.1	71	Dallas, Tex	5.1	5.6	− 8.9
26	New Bedford, Mass	3.2	4.4	−27.3	72	Cleveland, Ohio	5.2	5.5	− 5.5
27	Canton, Ohio	3.3	4.1	−19.5	72	Norfolk, Va	5.2	6.8	−23.5
27	Hartford, Conn	3.3	3.5	− 5.7	74	Cincinnati, Ohio	5.3	5.1	+ 3.9
27	Wilmington, Del	3.3	4.3	−23.3	75	Newark, N. J	5.5	5.9	− 6.8
30	Akron, Ohio	3.4	3.0	+13.3	75	Trenton, N. J	5.5	5.2	+ 5.8
30	Albany, N. Y	3.4	3.5	− 2.9	77	Miami, Fla	5.6	5.6	.....
30	Bridgeport, Conn	3.4	3.6	− 5.6	77	Richmond, Va	5.6	5.5	+ 1.8
30	Charlotte, N. C	3.4	4.6	−26.1	79	Nashville, Tenn	5.7	5.8	− 1.7
30	Fort Wayne, Ind	3.4	3.7	− 8.1	80	Detroit, Mich	5.9	6.0	− 1.7
30	Providence, R. I	3.4	3.4	.....	80	Houston, Tex	5.9	7.0	−15.7
30	Reading, Pa	3.4	4.4	−22.7	80	New Orleans, La	5.9	6.3	− 6.3

[1] 1940–41 only for Camden, N. J., Charlotte, N. C., and Sacramento, Calif.

[4] For the period 1939–41, the correlations between the tuberculosis death rates and the death ratios for the 92 cities based on 1940 census data were computed. (See appendix discussion in the Vital Statistics-Special Report.) The two measures are highly correlated for most of the age-race-sex divisions, and in general the correlation is higher for the white than for the nonwhite races, and for the older than for the younger ages. The coefficients of correlation varied from a value of 0.98 for white females over 65 years of age to 0.67 for nonwhite females aged 15–44.

TABLE 1.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for 92 cities of over 100,000 population: United States, 1942–43 and 1939–41 (all races)*—Continued

Rank	City	Death ratio 1942–43	Death ratio 1939–41	Percent change 1939–41 to 1942–43	Rank	City	Death ratio 1942–43	Death ratio 1939–41	Percent change 1939–41 to 1942–43
37	Kansas City, Kans	3.5	4.1	−14.6	83	Gary, Ind	6.0	7.2	−16.7
37	Oakland, Calif	3.5	3.3	+ 6.1	84	Jacksonville, Fla	6.2	7.1	−12.7
37	Seattle, Wash	3.5	3.9	−10.3	85	Atlanta, Ga	6.3	6.7	− 6.0
40	Fall River, Mass	3.7	4.1	− 9.8	85	Baltimore, Md	6.3	6.7	− 6.0
40	Kansas City, Mo	3.7	4.3	−14.0	85	Washington, D. C	6.3	6.9	− 8.7
40	Oklahoma City, Okla	3.7	4.2	−11.9	88	Birmingham, Ala	6.4	6.8	− 5.9
40	San Diego, Calif	3.7	4.1	− 9.8	89	Memphis, Tenn	6.5	7.9	−17.7
44	Denver, Colo	3.8	4.5	−15.6	90	Sacramento, Calif	7.2	6.7	+ 7.5
44	Milwaukee, Wis	3.8	4.0	− 5.0	91	Chattanooga, Tenn	8.4	8.9	− 5.6
44	Paterson, N. J	3.8	2.9	+31.0	92	San Antonio, Tex	9.9	11.0	−10.0

A great variation between the ratios is immediately evident. The maximum ratio of 9.9 in San Antonio is seven times the minimum value of 1.4 for Salt Lake City. Half of the cities have proportionate mortalities of less than 3.8, one quarter of the ratios are less than 3.0, and one quarter are greater than 5.0. Tuberculosis death ratios of 2.0 or less are found for six cities—Salt Lake City, Des Moines, Spokane, Grand Rapids, Long Beach, and Duluth, while tuberculosis accounted for 6 percent or more of all deaths in 10 cities—Gary, Jacksonville, Atlanta, Baltimore, Washington, Birmingham, Memphis, Sacramento, Chattanooga, and San Antonio.

An examination of the percentage changes from 1939–41 to 1942–43 shows that in the majority of cities the tuberculosis death ratios decreased during this period. The ratios for 70 cities, or 76 percent of the 92, declined, while 16 cities had increased ratios,[5] and in 6 cities no change took place. (See the Vital Statistics-Special Report for a fuller discussion of this topic, with reference to statistically significant changes.)

Table 2 presents the ranking of the 92 cities according to the tuberculosis death ratios for the white [6] population. The effect which the racial composition of the population of a city may have upon its death ratios, is strikingly illustrated by a comparison of the rank order in listings of the ratios for all races and whites for several southern cities having relatively large nonwhite populations. Birmingham, which is eighty-eighth in the ranking for all races, dropped to

[5] For each of the three race groups, all increases in the death ratios between 1939–41 and 1942–43 were tested for statistically significant change. Of these only the ratios for Paterson and Louisville for all races and for Louisville for whites showed statistically significant change.

[6] A race division was made for cities in which the nonwhite population numbered at least 20,000 or when that group constituted 10 percent or more of the total population. (This was not followed in the case of Dayton in order to gain comparability with data for 1939–41 when a race division was not available.) There were 39 cities which fulfilled this condition, and therefore had their mortalities tabulated for both whites and nonwhites. In the other 53 cities the nonwhites constitute such a small proportion of the total that the death ratios for all races are, for all practical purposes, the same as those for the white population and therefore are used in table 2.

twenty-first in that for whites, while Jacksonville changed from eighty-fourth to twenty-sixth, and Norfolk from seventy-second to ninth.

Since the data in the listings for whites and all races are identical for 53 of the cities (see footnote 6), it is to be expected that the 2

TABLE 2.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for 92 cities of over 100,000 population: United States, 1942–43 and 1939–41 (white)*[1]

[Cities are ranked according to the death ratios for 1942–43 by place of residence]

Rank	City	Death ratio 1942–43	Death ratio 1939–41 [2]	Percent change 1939–41 to 1942–43	Rank	City	Death ratio 1942–43	Death ratio 1939–41 [2]	Percent change 1939–41 to 1942–43
1	Salt Lake City, Utah	1.4	2.0	−30.0	44	Fort Wayne, Ind	3.4	3.7	− 8.1
2	Des Moines, Iowa	1.7	2.2	−22.7	44	Providence, R. I	3.4	3.4	
2	Spokane, Wash	1.7	2.0	−15.0	44	Reading, Pa	3.4	4.4	−22.7
4	Grand Rapids, Mich	1.8	1.5	+20.0	50	Cincinnati, Ohio	3.5	3.3	+ 6.1
4	Long Beach, Calif	1.8	2.2	−18.2	50	Louisville, Ky	3.5	2.9	+20.7
6	Duluth, Minn	2.0	2.3	−13.0	50	Memphis, Tenn	3.5	4.2	−16.7
7	Minneapolis, Minn	2.1	2.1		50	Oakland, Calif	3.5	3.3	+ 6.1
7	Utica, N. Y	2.1	2.2	− 4.5	50	Seattle, Wash	3.5	3.9	−10.3
9	Norfolk, Va	2.2	3.5	−37.1	55	Atlanta, Ga	3.6	3.3	+ 9.1
9	Wilmington, Del	2.2	3.2	−31.3	56	Fall River, Mass	3.7	4.1	− 9.8
11	Charlotte, N. C	2.4	2.4		56	Knoxville, Tenn	3.7	4.5	−17.8
11	Portland, Oreg	2.4	2.6	− 7.7	56	Newark, N. J	3.7	3.8	− 2.6
11	Syracuse, N. Y	2.4	2.9	−17.2	56	New York, N. Y	3.7	4.0	− 7.5
14	Omaha, Nebr	2.5	3.2	−21.9	56	Oklahoma City, Okla	3.7	4.2	−11.9
14	Peoria, Ill	2.5	2.4	+ 4.2	56	San Diego, Calif	3.7	4.1	− 9.8
14	Wichita, Kans	2.5	2.5		56	Tampa, Fla	3.7	3.2	+15.6
17	Somerville, Mass	2.6	2.7	− 3.7	63	Chicago, Ill	3.8	4.3	−11.6
17	Springfield, Mass	2.6	2.6		63	Denver, Colo	3.8	4.5	−15.6
19	Kansas City, Mo	2.7	3.2	−15.6	63	Milwaukee, Wis	3.8	4.0	− 5.0
19	Lowell, Mass	2.7	2.8	− 3.6	63	Paterson, N. J	3.8	2.9	+31.0
21	Elizabeth, N. J	2.8	3.9	−28.2	63	Scranton, Pa	3.8	3.5	+ 8.6
21	Flint, Mich	2.8	3.1	− 9.7	63	Tulsa, Okla	3.8	4.8	−20.8
21	Birmingham, Ala	2.8	3.5	−20.0	69	Cambridge, Mass	3.9	3.8	+ 2.6
21	Rochester, N. Y	2.8	3.0	− 6.7	69	Cleveland, Ohio	3.9	4.0	− 2.5
21	South Bend, Ind	2.8	4.0	−30.0	69	Fort Worth, Tex	3.9	4.0	− 2.5
26	Indianapolis, Ind	2.9	3.0	− 3.3	69	Gary, Ind	3.9	5.0	−22.0
26	Jacksonville, Fla	2.9	2.8	+ 3.6	69	Nashville, Tenn	3.9	4.4	−11.4
26	New Haven, Conn	2.9	3.0	− 3.3	69	Richmond, Va	3.9	3.3	+18.2
26	Worcester, Mass	2.9	2.8	+ 3.6	69	San Francisco, Calif	3.9	4.6	−15.2
30	Columbus, Ohio	3.0	3.0		76	Baltimore, Md	4.0	4.1	− 2.4
30	St. Paul, Minn	3.0	2.8	+ 7.1	76	Yonkers, N. Y	4.0	4.1	− 2.4
32	Erie, Pa	3.1	3.3	− 6.1	78	Dallas, Tex	4.1	4.9	−16.3
32	Pittsburgh, Pa	3.1	3.5	−11.4	79	Los Angeles, Calif	4.2	4.4	− 4.5
32	Tacoma, Wash	3.1	3.2	− 3.1	79	New Orleans, La	4.2	4.6	− 8.7
35	Camden, N. J	3.2	3.5	− 8.6	81	Detroit, Mich	4.3	4.5	− 4.4
35	Kansas City, Kans	3.2	3.1	+ 3.2	82	Buffalo, N. Y	4.5	4.2	+ 7.1
35	New Bedford, Mass	3.2	4.4	−27.3	82	Youngstown, Ohio	4.5	4.2	+ 7.1
35	Washington, D. C	3.2	3.6	−11.1	84	Boston, Mass	4.6	4.3	+ 7.0
39	Canton, Ohio	3.3	4.1	−19.5	85	Houston, Tex	4.9	6.0	−18.3
39	Hartford, Conn	3.3	3.5	− 5.7	85	Toledo, Ohio	4.9	5.4	− 9.3
39	Miami, Fla	3.3	3.0	+10.0	87	Dayton, Ohio	5.0	5.5	− 9.1
39	Philadelphia, Pa	3.3	3.7	−10.8	87	Jersey City, N. J	5.0	5.2	− 3.8
39	St. Louis, Mo	3.3	3.2	+ 3.1	89	Chattanooga, Tenn	5.5	6.1	− 9.8
44	Akron, Ohio	3.4	3.0	+13.3	89	Trenton, N. J	5.5	5.2	+ 5.8
44	Albany, N. Y	3.4	3.5	− 2.9	91	Sacramento, Calif	7.2	6.7	+ 7.5
44	Bridgeport, Conn	3.4	3.6	− 5.6	92	San Antonio, Tex	9.9	11.0	−10.0

[1] For cities having a small nonwhite population (less than 20,000 or less than 10 percent of the total population according to the 1940 Census) the death ratios for all races are used to approximate those for the white population.

[2] 1940–41 only for Camden, N. J., Charlotte, N. C., and Sacramento, Calif.

rankings would exhibit many points of similarity. The values of the maximum and minimum ratios of 9.9 and 1.4 are the same for whites as for all races, and the cities shown in the first 8 positions and in the ninety-second, in the one listing are the same as those shown in the

other. On the other hand, while one quarter of the cities have ratios for all races of 5.0 or more, the ratios for whites in only 6 cities—Dayton, Jersey City, Chattanooga, Trenton, Sacramento, and San Antonio— exceed this value. The high ratio in San Antonio may be attributable in part to its large Latin-American population.

There were slightly fewer decreases from 1939–41 to 1942–43 among the ratios for whites than there were among those for all races. In 63 cities, or 68 percent of all 92, decreases occurred, while increases were found in the ratios for 23 cities, and in 6 no change took place.

The inroad which tuberculosis makes in the nonwhite population of the large cities is shown in table 3, where the 39 cities (see footnote 6)

TABLE 3.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes, for 39 cities* [1] *of over 100,000 population: United States, 1942–43 and 1939–41 (nonwhite)*

[Cities are ranked according to the death ratios for 1942–43, by place of residence]

Rank	City	Death ratio 1942–43	Death ratio 1939–41 [2]	Percent change 1939–41 to 1942–43	Rank	City	Death ratio 1942–43	Death ratio 1939–41 [2]	Percent change 1939–41 to 1942–43
1	Kansas City, Kans.	4.5	7.4	−39.2	20	Columbus, Ohio	9.9	11.9	−16.8
2	Charlotte, N. C.	4.6	7.0	−34.3	22	Jacksonville, Fla.	10.1	11.8	−14.4
3	Fort Worth, Tex.	4.9	7.4	−33.8	23	Indianapolis, Ind.	10.2	10.7	− 4.7
4	Tampa, Fla.	7.7	9.4	−18.1	24	Gary, Ind.	11.2	13.1	−14.5
5	Wilmington, Del.	8.1	9.4	−13.8	25	Washington, D. C.	11.6	12.4	− 6.5
6	Richmond, Va.	8.2	8.5	− 3.5	26	Chattanooga, Tenn.	12.3	12.4	− .8
7	Knoxville, Tenn.	8.3	10.5	−21.0	27	Pittsburgh, Pa.	12.4	13.2	− 6.1
8	Dallas, Tex.	8.4	7.7	+ 9.1	28	Los Angeles, Calif.	12.6	13.8	− 8.7
9	Houston, Tex.	8.5	9.2	− 7.6	28	Philadelphia, Pa.	12.6	13.7	− 8.0
9	Louisville, Ky.	8.5	8.3	+ 2.4	30	Baltimore, Md.	12.9	14.2	− 9.2
11	Nashville, Tenn.	8.6	8.0	+ 7.5	30	Miami, Fla.	12.9	13.0	− .8
12	Kansas City, Mo.	8.9	10.2	−12.7	32	Boston, Mass.	14.0	12.9	+ 8.5
13	New Orleans, La.	9.0	9.0	------	33	Chicago, Ill.	14.1	16.2	−13.0
13	Tulsa, Okla.	9.0	15.5	−41.9	34	Cleveland, Ohio	14.6	16.6	−12.0
15	Norfolk, Va.	9.2	11.0	−16.4	35	San Francisco, Calif.	15.0	17.5	−14.3
16	Atlanta, Ga.	9.4	10.0	− 6.0	36	Cincinnati, Ohio	15.4	15.5	− .6
17	St. Louis, Mo.	9.5	10.2	− 6.9	37	New York, N. Y.	16.0	17.4	− 8.0
18	Memphis, Tenn.	9.6	11.3	−15.0	38	Newark, N. J.	16.2	18.8	−13.8
19	Birmingham, Ala.	9.7	9.8	− 1.0	39	Detroit, Mich.	16.4	15.9	+ 3.1
20	Camden, N. J.	9.9	9.9	------					

[1] Cities shown in this table are those in which the nonwhite population constitutes at least 10 percent of the total population or numbers 20,000 or more according to the 1940 Census.
[2] 1940–41 only for Camden, N. J., and Charlotte, N. C.

are ranked according to their tuberculosis death ratios for nonwhites. The ratios range from 4.5 in Kansas City, Kans., to 16.4 in Detroit. The three cities with the lowest ratios—Kansas City, Kans., Charlotte, and Fort Worth—have ratios of less than 5.0, which is equal to the ratio of the eighty-fifth city in the white ranking. Half of the cities have ratios of greater than 9.9, the maximum ratio for all races and whites.

A study of the rankings indicates that tuberculosis among non-

whites is a serious problem in northern and southern cities alike, but evidently it is most acute in the northern ones (see table 10). The eight highest ratios, all 14.0 or above, are found in Boston, Chicago, Cleveland, San Francisco, Cincinnati, New York, Newark, and Detroit, some of the largest northern industrial centers. However, this geographical differential in the ratios may, in part, be due to incompleteness in reporting tuberculosis as a cause of death in southern cities, in addition to real differences in tuberculosis mortality.

It was among the nonwhite population of the 92 cities that the relatively largest number of reductions in the death ratios were achieved between 1939–41 and 1942–43. Of the 39 ratios, only 5 increased and 2 showed no change, while 32, or 82 percent of the total, decreased.

RANKINGS OF TUBERCULOSIS DEATH RATIOS BY CITY POPULATION-SIZE GROUPS

There seems to be a variation in tuberculosis mortality with population size of city, although the reasons for it are not fully understood, and it is of interest, therefore, to note briefly the tuberculosis death ratios of cities of similar population size.

In table 4 are presented the tuberculosis death ratios by race for four city-size groups and for all cities for 1942–43 and 1939–41. There has been a general decrease in the total tuberculosis proportionate mortality for all 92 cities from 5.0 in 1939–41 to 4.6 in 1942–43 and, similarly, decreases have occurred in each of the race and city-size groups.

TABLE 4.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 92 cities of over 100,000 population, classified by population size of city, and by race: United States, 1942–43 and 1939–41*

[By place of residence]

Population size of city	All races		White [2]		Nonwhite [3]	
	1942–43	1939–41 [1]	1942–43	1939–41 [1]	1942–43	1939–41 [4]
All cities	4.6	5.0	3.7	3.9	11.9	12.9
1,000,000 or more	4.8	5.3	3.7	4.1	14.5	15.9
500,000 to 1,000,000	5.0	5.2	3.8	4.0	12.2	13.2
200,000 to 500,000	4.5	4.8	3.7	4.0	10.0	10.5
100,000 to 200,000	3.8	4.1	3.2	3.4	8.9	10.2

[1] Includes data for Sacramento, Calif., Camden, N. J., and Charlotte, N. C., for 1940–41 only.
[2] For cities having small nonwhite populations the data for all races are used.
[3] Based on data only for those cities in which the nonwhite population constitutes at least 10 percent of the total population or numbers 20,000 or more.
[4] Includes data for Camden, N. J., and Charlotte, N. C., for 1940–41 only.

The variation in the ratios for 1942–43 by size of city is not the same for each race group. For all races and whites the maximum ratio is found for the 500,000 to 1,000,000 population group while the minimum occurs in the smallest cities, the 100,000 to 200,000 groups. The death ratios for nonwhites, on the other hand, increase with population size from a minimum among cities of 100,000 to 200,000 to a maximum in cities of over 1,000,000.[7]

The individual cities ranked for each race and city size are given in tables 5 to 7.

TABLE 5.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 92 cities of over 100,000 population grouped according to population size of city: United States, 1942–43 (all races)*

[By place of residence]

Rank	City	Death ratio	Rank	City	Death ratio
	Cities of 100,000 to 200,000			*Cities of 200,000 to 500,000*	
1	Salt Lake City, Utah	1.4	1	Minneapolis, Minn	2.1
2	Des Moines, Iowa	1.7	2	Portland, Oreg	2.4
2	Spokane, Wash	1.7	2	Syracuse, N. Y	2.4
4	Grand Rapids, Mich	1.8	4	Omaha, Nebr	2.5
4	Long Beach, Calif	1.8	5	Rochester, N. Y	2.8
6	Duluth, Minn	2.0	6	St. Paul, Minn	3.0
7	Utica, N. Y	2.1	7	Akron, Ohio	3.4
8	Peoria, Ill	2.5	7	Providence, R. I	3.4
8	Wichita, Kans	2.5	9	Oakland, Calif	3.5
10	Somerville, Mass	2.6	9	Seattle, Wash	3.5
10	Springfield, Mass	2.6	11	Kansas City, Mo	3.7
12	Lowell, Mass	2.7	11	Oklahoma City, Okla	3.7
13	Elizabeth, N. J	2.8	11	San Diego, Calif	3.7
13	Flint, Mich	2.8	14	Denver, Colo	3.8
13	South Bend, Ind	2.8	15	Columbus, Ohio	4.0
16	New Haven, Conn	2.9	16	Indianapolis, Ind	4.2
16	Worcester, Mass	2.9	17	Louisville, Ky	4.6
18	Erie, Pa	3.1	18	Toledo, Ohio	4.9
18	Tacoma, Wash	3.1	19	Jersey City, N. J	5.0
20	New Bedford, Mass	3.2	19	Dayton, Ohio	5.0
21	Canton, Ohio	3.3	21	Dallas, Tex	5.1
21	Hartford, Conn	3.3	22	Cincinnati, Ohio	5.3
21	Wilmington, Del	3.3	23	Newark, N. J	5.5
24	Albany, N. Y	3.4	24	Houston, Tex	5.9
24	Bridgeport, Conn	3.4	24	New Orleans, La	5.9
24	Charlotte, N. C	3.4	26	Atlanta, Ga	6.3
24	Fort Wayne, Ind	3.4	27	Birmingham, Ala	6.4
24	Reading, Pa	3.4	28	Memphis, Tenn	6.5
29	Kansas City, Kans	3.5	29	San Antonio, Tex	9.9
30	Fall River, Mass	3.7			
31	Paterson, N. J	3.8		*Cities of 500,000 to 1,000,000*	
31	Scranton, Pa	3.8			
33	Cambridge, Mass	3.9	1	Milwaukee, Wis	3.8
34	Yonkers, N. Y	4.0	2	Pittsburgh, Pa	4.3
35	Fort Worth, Tex	4.1	3	St. Louis, Mo	4.4
36	Camden, N. J	4.2	3	San Francisco, Calif	4.4
37	Youngstown, Ohio	4.5	5	Buffalo, N. Y	4.5
38	Knoxville, Tenn	4.6	6	Boston, Mass	5.0
38	Tulsa, Okla	4.6	7	Cleveland, Ohio	5.2
40	Tampa, Fla	4.9	8	Baltimore, Md	6.3
41	Norfolk, Va	5.2	8	Washington, D. C	6.3
42	Trenton, N. J	5.5			
43	Miami, Fla	5.6		*Cities of 1,000,000 and over*	
43	Richmond, Va	5.6			
45	Nashville, Tenn	5.7	1	New York, N. Y	4.6
46	Gary, Ind	6.0	2	Los Angeles, Calif	4.7
47	Jacksonville, Fla	6.2	2	Philadelphia, Pa	4.7
48	Sacramento, Calif	7.2	4	Chicago, Ill	5.0
49	Chattanooga, Tenn	8.4	5	Detroit, Mich	5.9

[7] The same relationship was found by Liveright (*1*) for death rates in 1939–41.

TABLE 6.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 92 cities of over 100,000 population grouped according to population size of city: United States, 1942–43 (white)*[1]

[By place of residence]

Rank	City	Death ratio	Rank	City	Death ratio
	Cities of 100,000 to 200,000			*Cities of 200,000 to 500,000*	
1	Salt Lake City, Utah	1.4	1	Minneapolis, Minn	2.1
2	Des Moines, Iowa	1.7	2	Portland, Oreg	2.4
2	Spokane, Wash	1.7	2	Syracuse, N. Y	2.4
4	Grand Rapids, Mich	1.8	4	Omaha, Nebr	2.5
4	Long Beach, Calif	1.8	5	Kansas City, Mo	2.7
6	Duluth, Minn	2.0	6	Birmingham, Ala	2.8
7	Utica, N. Y	2.1	6	Rochester, N. Y	2.8
8	Norfolk, Va	2.2	8	Indianapolis, Ind	2.9
8	Wilmington, Del	2.2	9	Columbus, Ohio	3.0
10	Charlotte, N. C	2.4	9	St. Paul, Minn	3.0
11	Peoria, Ill	2.5	11	Akron, Ohio	3.4
11	Wichita, Kans	2.5	12	Providence, R. I	3.4
13	Somerville, Mass	2.6	13	Cincinnati, Ohio	3.5
13	Springfield, Mass	2.6	13	Louisville, Ky	3.5
15	Lowell, Mass	2.7	13	Memphis, Tenn	3.5
16	Elizabeth, N. J	2.8	13	Oakland, Calif	3.5
16	Flint, Mich	2.8	13	Seattle, Wash	3.5
16	South Bend, Ind	2.8	18	Atlanta, Ga	3.6
19	Jacksonville, Fla	2.9	19	Newark, N. J	3.7
19	New Haven, Conn	2.9	19	Oklahoma City, Okla	3.7
19	Worcester, Mass	2.9	19	San Diego, Calif	3.7
22	Erie, Pa	3.1	22	Denver, Colo	3.8
22	Tacoma, Wash	3.1	23	Dallas, Tex	4.1
24	Camden, N. J	3.2	24	New Orleans, La	4.2
24	Kansas City, Kans	3.2	25	Houston, Tex	4.9
24	New Bedford, Mass	3.2	25	Toledo, Ohio	4.9
27	Canton, Ohio	3.3	27	Dayton, Ohio	5.0
27	Hartford, Conn	3.3	27	Jersey City, N. J	5.0
27	Miami, Fla	3.3	29	San Antonio, Tex	9.9
30	Albany, N. Y	3.4			
30	Bridgeport, Conn	3.4		*Cities of 500,000 to 1,000,000*	
30	Fort Wayne, Ind	3.4	1	Pittsburgh, Pa	3.1
30	Reading, Pa	3.4	2	Washington, D. C	3.2
34	Fall River, Mass	3.7	3	St. Louis, Mo	3.3
34	Knoxville, Tenn	3.7	4	Milwaukee, Wis	3.8
34	Tampa, Fla	3.7	5	Cleveland, Ohio	3.9
37	Paterson, N. J	3.8	5	San Francisco, Calif	3.9
37	Scranton, Pa	3.8	7	Baltimore, Md	4.0
37	Tulsa, Okla	3.8	8	Buffalo, N. Y	4.5
40	Cambridge, Mass	3.9	9	Boston, Mass	4.6
40	Fort Worth, Tex	3.9			
40	Gary, Ind	3.9		*Cities of 1,000,000 and over*	
40	Nashville, Tenn	3.9	1	Philadelphia, Pa	3.3
40	Richmond, Va	3.9	2	New York, N. Y	3.7
45	Yonkers, N. Y	4.0	3	Chicago, Ill	3.8
46	Youngstown, Ohio	4.5	4	Los Angeles, Calif	4.2
47	Chattanooga, Tenn	5.5	5	Detroit, Mich	4.3
47	Trenton, N. J	5.5			
49	Sacramento, Calif	7.2			

[1] For cities having small nonwhite population the death ratios for all races are used.

TABLE 7.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 39 [1] cities of over 100,000 population grouped according to population size of city: United States, 1942–43 (nonwhite)*

[By place of residence]

Rank	City	Death ratio	Rank	City	Death ratio
	Cities of 100,000 to 200,000			*Cities of 200,000 to 500,000*—Con.	
1	Kansas City, Kans	4.5	7	Memphis, Tenn	9.6
2	Charlotte, N. C	4.6	8	Birmingham, Ala	9.7
3	Fort Worth, Tex	4.9	9	Columbus, Ohio	9.9
4	Tampa, Fla	7.7	10	Indianapolis, Ind	10.2
5	Wilmington, Del	8.1	11	Cincinnati, Ohio	15.4
6	Richmond, Va	8.2	12	Newark, N. J	16.2
7	Knoxville, Tenn	8.3			
8	Nashville, Tenn	8.6		*Cities of 500,000 to 1,000,000*	
9	Tulsa, Okla	9.0			
10	Norfolk, Va	9.2	1	St. Louis, Mo	9.5
11	Camden, N. J	9.9	2	Washington, D. C	11.6
12	Jacksonville, Fla	10.1	3	Pittsburgh, Pa	12.4
13	Gary, Ind	11.2	4	Baltimore, Md	12.9
14	Chattanooga, Tenn	12.3	5	Boston, Mass	14.0
15	Miami, Fla	12.9	6	Cleveland, Ohio	14.6
			7	San Francisco, Calif	15.0
	Cities of 200,000 to 500,000				
				Cities of 1,000,000 and over	
1	Dallas, Tex	8.4			
2	Houston, Tex	8.5	1	Los Angeles, Calif	12.6
2	Louisville, Ky	8.5	1	Philadelphia, Pa	12.6
4	Kansas City, Mo	8.9	3	Chicago, Ill	14.1
5	New Orleans, La	9.0	4	New York, N. Y	16.0
6	Atlanta, Ga	9.4	5	Detroit, Mich	16.4

[1] Cities in this table are those in which the nonwhite population constitutes at least 10 percent of the total population or numbers 20,000 or more according to the 1940 Census.

RANKINGS OF THE TUBERCULOSIS DEATH RATIOS BY GEOGRAPHIC DIVISIONS

To facilitate comparisons between cities of comparable geographical location, the country was divided into four regions, Northeast, South, Middle West, and Far West,[8] and the cities within each region ranked for each race group (tables 8–10).

TABLE 8.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 92 cities of over 100,000 population by geographic regions: United States, 1942–43 (all races)*

[By place of residence]

Rank	City	Death ratio
	Northeast	
1	Utica, N. Y.	2.1
2	Syracuse, N. Y.	2.4
3	Somerville, Mass.	2.6
3	Springfield, Mass.	2.6
5	Lowell, Mass.	2.7
6	Elizabeth, N. J.	2.8
6	Rochester, N. Y.	2.8
8	New Haven, Conn.	2.9
8	Worchester, Mass.	2.9
10	Erie, Pa.	3.1
11	New Bedford, Mass.	3.2
12	Hartford, Conn.	3.3
13	Albany, N. Y.	3.4
13	Bridgeport, Conn.	3.4
13	Providence, R. I.	3.4
13	Reading, Pa.	3.4
17	Fall River, Mass.	3.7
18	Paterson, N. J.	3.8
18	Scranton, Pa.	3.8
20	Cambridge, Mass.	3.9
21	Yonkers, N. Y.	4.0
22	Camden, N. J.	4.2
23	Pittsburgh, Pa.	4.3
24	Buffalo, N. Y.	4.5
25	New York, N. Y.	4.6
26	Philadelphia, Pa.	4.7
27	Boston, Mass.	5.0
27	Jersey City, N. J.	5.0
29	Newark, N. J.	5.5
29	Trenton, N. J.	5.5
	Middle West	
1	Des Moines, Iowa	1.7
2	Grand Rapids, Mich.	1.8
3	Duluth, Minn.	2.0
4	Minneapolis, Minn.	2.1
5	Omaha, Nebr.	2.5
5	Peoria, Ill.	2.5
5	Wichita, Kans.	2.5
8	Flint, Mich.	2.8
8	South Bend, Ind.	2.8
10	St. Paul, Minn.	3.0
11	Canton, Ohio	3.3
12	Akron, Ohio	3.4
12	Fort Wayne, Ind.	3.4
14	Kansas City, Kans.	3.5
15	Kansas City, Mo.	3.7
16	Milwaukee, Wis.	3.8
17	Columbus, Ohio	4.0
18	Indianapolis, Ind.	4.2
19	St. Louis, Mo.	4.4
20	Youngstown, Ohio	4.5
21	Toledo, Ohio	4.9
22	Chicago, Ill.	5.0
22	Dayton, Ohio	5.0
24	Cleveland, Ohio	5.2
25	Cincinnati, Ohio	5.3
26	Detroit, Mich.	5.9
27	Gary, Ind.	6.0
	South	
1	Wilmington, Del.	3.3
2	Charlotte, N. C.	3.4
3	Oklahoma City, Okla.	3.7
4	Fort Worth, Tex.	4.1
5	Knoxville, Tenn.	4.6
5	Louisville, Ky.	4.6
5	Tulsa, Okla.	4.6
8	Tampa, Fla.	4.9
9	Dallas, Tex.	5.1
10	Norfolk, Va.	5.2
11	Miami, Fla.	5.6
11	Richmond, Va.	5.6
13	Nashville, Tenn.	5.7
14	Houston, Tex.	5.9
14	New Orleans, La.	5.9
16	Jacksonville, Fla.	6.2
17	Atlanta, Ga.	6.3
17	Baltimore, Md.	6.3
17	Washington, D. C.	6.3
20	Birmingham, Ala.	6.4
21	Memphis, Tenn.	6.5
22	Chattanooga, Tenn.	8.4
23	San Antonio, Tex.	9.9
	Far West	
1	Salt Lake City, Utah	1.4
2	Spokane, Wash.	1.7
3	Long Beach, Calif.	1.8
4	Portland, Oreg.	2.4
5	Tacoma, Wash.	3.1
6	Oakland, Calif.	3.5
6	Seattle, Wash.	3.5
8	San Diego, Calif.	3.7
9	Denver, Colo.	3.8
10	San Francisco, Calif.	4.4
11	Los Angeles, Calif.	4.7
12	Sacramento, Calif.	7.2

[8] These regions were formed by combination of the geographic divisions used by the Bureau of the Census as follows:

Northeast: New England, and Middle Atlantic States;
South: South Atlantic, East South Central, and West South Central States;
Middle West: East North Central and West North Central States;
Far West: Mountain and Pacific States.

TABLE 9.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 92 cities of over 100,000 population by geographic regions: United States, 1942–43 (white)*[1]

[By place of residence]

Rank	City	Death ratio
	Northeast	
1	Utica, N. Y.	2.1
2	Syracuse, N. Y.	2.4
3	Somerville, Mass.	2.6
3	Springfield, Mass.	2.6
5	Lowell, Mass.	2.7
6	Elizabeth, N. J.	2.8
6	Rochester, N. Y.	2.8
8	New Haven, Conn.	2.9
8	Worcester, Mass.	2.9
10	Erie, Pa.	3.1
10	Pittsburgh, Pa.	3.1
12	Camden, N. J.	3.2
12	New Bedford, Mass.	3.2
14	Hartford, Conn.	3.3
14	Philadelphia, Pa.	3.3
16	Albany, N. Y.	3.4
16	Bridgeport, Conn.	3.4
16	Providence, R. I.	3.4
16	Reading, Pa.	3.4
20	Fall River, Mass.	3.7
20	Newark, N. J.	3.7
20	New York, N. Y.	3.7
23	Paterson, N. J.	3.8
23	Scranton, Pa.	3.8
25	Cambridge, Mass.	3.9
26	Yonkers, N. Y.	4.0
27	Buffalo, N. Y.	4.5
28	Boston, Mass.	4.6
29	Jersey City, N. J.	5.0
30	Trenton, N. J.	5.5
	Middle West	
1	Des Moines, Iowa	1.7
2	Grand Rapids, Mich.	1.8
3	Duluth, Minn.	2.0
4	Minneapolis, Minn.	2.1
5	Omaha, Nebr.	2.5
5	Peoria, Ill.	2.5
5	Wichita, Kans.	2.5
8	Kansas City, Mo.	2.7
9	Flint, Mich.	2.8
9	South Bend, Ind.	2.8
11	Indianapolis, Ind.	2.9
12	Columbus, Ohio	3.0
12	St. Paul, Minn.	3.0
14	Kansas City, Kans.	3.2
15	Canton, Ohio	3.3
15	St. Louis, Mo.	3.3
17	Akron, Ohio	3.4
17	Fort Wayne, Ind.	3.4
19	Cincinnati, Ohio	3.5
20	Chicago, Ill.	3.8
20	Milwaukee, Wis.	3.8
22	Cleveland, Ohio	3.9
22	Gary, Ind.	3.9
24	Detroit, Mich.	4.3
25	Youngstown, Ohio	4.5
26	Toledo, Ohio	4.9
27	Dayton, Ohio	5.0
	South	
1	Norfolk, Va.	2.2
1	Wilmington, Del.	2.2
3	Charlotte, N. C.	2.4
4	Birmingham, Ala.	2.8
5	Jacksonville, Fla.	2.9
6	Washington, D. C.	3.2
7	Miami, Fla.	3.3
8	Louisville, Ky.	3.5
8	Memphis, Tenn.	3.5
10	Atlanta, Ga.	3.6
11	Knoxville, Tenn.	3.7
11	Oklahoma City, Okla.	3.7
11	Tampa, Fla.	3.7
14	Tulsa, Okla.	3.8
15	Fort Worth, Tex.	3.9
15	Nashville, Tenn.	3.9
15	Richmond, Va.	3.9
18	Baltimore, Md.	4.0
19	Dallas, Tex.	4.1
20	New Orleans, La.	4.2
21	Houston, Tex.	4.9
22	Chattanooga, Tenn.	5.5
23	San Antonio, Tex.	9.9
	Far West	
1	Salt Lake City, Utah	1.4
2	Spokane, Wash.	1.7
3	Long Beach, Calif.	1.8
4	Portland, Oreg.	2.4
5	Tacoma, Wash.	3.1
6	Oakland, Calif.	3.5
6	Seattle, Wash.	3.5
8	San Diego, Calif.	3.7
9	Denver, Colo.	3.8
10	San Francisco, Calif.	3.9
11	Los Angeles, Calif.	4.2
12	Sacramento, Calif.	7.2

[1] For cities having small nonwhite populations the death ratios for all races are used.

TABLE 10.—*Deaths from tuberculosis (all forms) as percentages of deaths from all causes for the 39 [1] cities of over 100,000 population by geographic regions: United States, 1942–43 (nonwhite)*

[By place of residence]

Rank	City	Death ratio	Rank	City	Death ratio
	Northeast			*South*—Continued	
1	Camden, N. J.	9.9	3	Tampa, Fla.	7.7
2	Pittsburgh, Pa.	12.4	4	Wilmington, Del.	8.1
3	Philadelphia, Pa.	12.6	5	Richmond, Va.	8.2
4	Boston, Mass.	14.0	6	Knoxville, Tenn.	8.3
5	New York, N. Y.	16.0	7	Dallas, Tex.	8.4
6	Newark, N. J.	16.2	8	Houston, Tex.	8.5
	Middle West		8	Louisville, Ky.	8.5
1	Kansas City, Kans.	4.5	10	Nashville, Tenn.	8.6
2	Kansas City, Mo.	8.9	11	New Orleans, La.	9.0
3	St. Louis, Mo.	9.5	11	Tulsa, Okla.	9.0
4	Columbus, Ohio	9.9	13	Norfolk, Va.	9.2
5	Indianapolis, Ind.	10.2	14	Atlanta, Ga.	9.4
6	Gary, Ind.	11.2	15	Memphis, Tenn.	9.6
7	Chicago, Ill.	14.1	16	Birmingham, Ala.	9.7
8	Cleveland, Ohio	14.6	17	Jacksonville, Fla.	10.1
9	Cincinnati, Ohio	15.4	18	Washington, D. C.	11.6
10	Detroit, Mich.	16.4	19	Chattanooga, Tenn.	12.3
	South		20	Baltimore, Md.	12.9
1	Charlotte, N. C.	4.6	20	Miami, Fla.	12.9
2	Fort Worth, Tex.	4.9		*Far West*	
			1	Los Angeles, Calif.	12.6
			2	San Francisco, Calif.	15.0

[1] Cities in this table are those in which the nonwhite population constitutes at least 10 percent of the total population or numbers 20,000 or more according to the 1940 Census.

TABLE 11.—*Alphabetical listing of the 92 cities of 100,000 or more population with their respective ranking numbers as found in tables 1–10*

No.	City	Population-size group (1940 census) by 100,000's	Geographic region	Rank among 92 cities [1]			Rank within its population-size group [1]			Rank within its geographic region [1]		
				All races	White	Nonwhite	All races	White	Nonwhite	All races	White	Nonwhite
1	Akron, Ohio	2–5	Middle West	30	44	----	7	11	----	12	17	----
2	Albany, N. Y.	1–2	Northeast	30	44	----	24	30	----	13	16	----
3	Atlanta, Ga.	2–5	South	85	55	16	26	18	6	17	10	14
4	Baltimore, Md.	5–10	South	85	76	30	8	7	4	17	18	20
5	Birmingham, Ala.	2–5	South	88	21	19	27	6	8	20	4	16
6	Boston, Mass.	5–10	Northeast	67	84	32	6	9	5	27	28	4
7	Bridgeport, Conn.	1–2	Northeast	30	44	----	24	30	----	13	16	----
8	Buffalo, N. Y.	5–10	Northeast	57	82	----	5	8	----	24	27	----
9	Cambridge, Mass.	1–2	Northeast	48	69	----	33	40	----	20	25	----
10	Camden, N. J.	1–2	Northeast	52	35	20	36	24	11	22	12	1
11	Canton, Ohio	1–2	Middle West	27	39	----	21	27	----	11	15	----
12	Charlotte, N. C.	1–2	South	30	11	2	24	10	2	2	3	1
13	Chattanooga, Tenn.	1–2	South	91	89	26	49	47	14	22	22	19
14	Chicago, Ill.	10 and over	Middle West	67	63	33	4	3	3	22	20	7
15	Cincinnati, Ohio	2–5	Middle West	74	50	36	22	13	11	25	19	9
16	Cleveland, Ohio	5–10	Middle West	72	69	34	7	5	6	24	22	8
17	Columbus, Ohio	2–5	Middle West	49	30	20	15	9	9	17	12	4
18	Dallas, Tex.	2–5	South	71	78	8	21	23	1	9	19	7
19	Dayton, Ohio	2–5	Middle West	67	87	----	19	27	----	22	27	----
20	Denver, Colo.	2–5	Far West	44	63	----	14	22	----	9	9	----
21	Des Moines, Iowa	1–2	Middle West	2	2	----	2	2	----	1	1	----
22	Detroit, Mich.	10 and over	Middle West	80	81	39	5	5	5	26	24	10
23	Duluth, Minn.	1–2	Middle West	6	6	----	6	6	----	3	3	----
24	Elizabeth, N. J.	1–2	Northeast	17	21	----	13	16	----	6	6	----
25	Erie, Pa.	1–2	Northeast	24	32	----	18	22	----	10	10	----
26	Fall River, Mass.	1–2	Northeast	40	56	----	30	34	----	17	20	----
27	Flint, Mich.	1–2	Middle West	17	21	----	13	16	----	8	9	----
28	Fort Wayne, Ind.	1–2	Middle West	30	44	----	24	30	----	12	17	----
29	Fort Worth, Tex.	1–2	South	51	69	3	35	40	3	4	15	2
30	Gary, Ind.	1–2	Middle West	83	69	24	46	40	13	27	22	6
31	Grand Rapids, Mich.	1–2	Middle West	4	4	----	4	4	----	2	2	----
32	Hartford, Conn.	1–2	Northeast	27	39	----	21	27	----	12	14	----
33	Houston, Tex.	2–5	South	80	85	9	24	25	2	14	21	8
34	Indianapolis, Ind.	2–5	Middle West	52	26	23	16	8	10	18	11	5
35	Jacksonville, Fla.	1–2	South	84	26	22	47	19	12	16	5	17

See footnote at end of table.

TABLE 11.—*Alphabetical listing of the 92 cities of 100,000 or more population with their respective ranking numbers as found in tables 1–10*—Continued

No.	City	Population-size group (1940 census) by 100,000's	Geographic region	Rank among 92 cities [1]			Rank within its population-size group [1]			Rank within its geographic region [1]		
				All races	White	Nonwhite	All races	White	Nonwhite	All races	White	Nonwhite
36	Jersey City, N. J.	2–5	Northeast	67	87	----	19	27	----	27	29	----
37	Kansas City, Kans.	1–2	Middle West	37	35	1	29	24	1	14	14	1
38	Kansas City, Mo.	2–5	Middle West	40	19	12	11	5	4	15	8	2
39	Knoxville, Tenn.	1–2	South	59	56	7	38	34	7	5	11	6
40	Long Beach, Calif.	1–2	Far West	4	4	----	4	4	----	3	3	----
41	Los Angeles, Calif.	10 and over	Far West	63	79	28	2	4	1	11	11	1
42	Louisville, Ky.	2–5	South	59	50	9	17	13	2	5	8	8
43	Lowell, Mass.	1–2	Northeast	16	19	----	12	15	----	5	5	----
44	Memphis, Tenn.	2–5	South	89	50	18	28	13	7	21	8	15
45	Miami, Fla.	1–2	South	77	39	30	43	27	15	11	7	20
46	Milwaukee, Wis.	5–10	Middle West	44	63	----	1	4	----	16	20	----
47	Minneapolis, Minn.	2–5	Middle West	7	7	----	1	1	----	4	4	----
48	Nashville, Tenn.	1–2	South	79	69	11	45	40	8	13	15	10
49	Newark, N. J.	2–5	Northeast	75	56	38	23	19	12	29	20	6
50	New Bedford, Mass.	1–2	Northeast	26	35	----	20	24	----	11	12	----
51	New Haven, Conn.	1–2	Northeast	21	26	----	16	19	----	8	8	----
52	New Orleans, La.	2–5	South	80	79	13	24	24	5	14	20	11
53	New York, N. Y.	10 and over	Northeast	59	56	37	1	2	4	25	20	5
54	Norfolk, Va.	1–2	South	72	9	15	41	8	10	10	1	13
55	Oakland, Calif.	2–5	Far West	37	50	----	9	13	----	6	6	----
56	Oklahoma City, Okla.	2–5	South	40	56	----	11	19	----	3	11	----
57	Omaha, Nebr.	2–5	Middle West	11	14	----	4	4	----	5	5	----
58	Paterson, N. J.	1–2	Northeast	44	63	----	31	37	----	18	23	----
59	Peoria, Ill.	1–2	Middle West	11	14	----	8	11	----	5	5	----
60	Philadelphia, Pa.	10 and over	Northeast	63	39	28	2	1	1	26	14	3
61	Pittsburgh, Pa.	5–10	Northeast	54	32	27	2	1	3	23	10	2
62	Portland, Oreg.	2–5	Far West	9	11	----	2	2	----	4	4	----
63	Providence, R. I.	2–5	Northeast	30	44	----	7	12	----	13	16	----
64	Reading, Pa.	1–2	Northeast	30	44	----	24	30	----	13	16	----
65	Richmond, Va.	1–2	South	77	69	6	43	40	6	11	15	5
66	Rochester, N. Y.	2–5	Northeast	17	21	----	5	6	----	6	6	----
67	Sacramento, Calif.	1–2	Far West	90	91	----	48	49	----	12	12	----
68	St. Louis, Mo.	5–10	Middle West	55	39	17	3	3	1	19	15	3
69	St. Paul, Minn.	2–5	Middle West	23	30	----	6	9	----	10	12	----
70	Salt Lake City, Utah	1–2	Far West	1	1	----	1	1	----	1	1	----
71	San Antonio, Tex.	2–5	South	92	92	----	29	29	----	23	23	----
72	San Diego, Calif.	2–5	Far West	40	56	----	11	19	----	8	8	----
73	San Francisco, Calif.	5–10	Far West	55	69	35	3	5	7	10	10	2
74	Scranton, Pa.	1–2	Northeast	44	63	----	31	37	----	18	23	----
75	Seattle, Wash.	2–5	Far West	37	50	----	9	13	----	6	6	----
76	Somerville, Mass.	1–2	Northeast	14	17	----	10	13	----	3	3	----
77	South Bend, Ind.	1–2	Middle West	17	21	----	13	16	----	8	9	----
78	Spokane, Wash.	1–2	Far West	2	2	----	2	2	----	2	2	----
79	Springfield, Mass.	1–2	Northeast	14	17	----	10	13	----	3	3	----
80	Syracuse, N. Y.	2–5	Northeast	9	11	----	2	2	----	2	2	----
81	Tacoma, Wash.	1–2	Far West	24	32	----	18	22	----	5	5	----
82	Tampa, Fla.	1–2	South	65	56	4	40	34	4	8	11	3
83	Toledo, Ohio	2–5	Middle West	65	85	----	18	25	----	21	26	----
84	Trenton, N. J.	1–2	Northeast	75	89	----	42	47	----	29	30	----
85	Tulsa, Okla.	1–2	South	59	63	13	38	37	9	5	14	11
86	Utica, N. Y.	1–2	Northeast	7	7	----	7	7	----	1	1	----
87	Washington, D. C.	5–10	South	85	35	25	8	2	2	17	6	18
88	Wichita, Kans.	1–2	Middle West	11	14	----	8	11	----	5	5	----
89	Wilmington, Del.	1–2	South	27	9	5	21	8	5	1	1	4
90	Worcester, Mass.	1–2	Northeast	21	26	----	16	19	----	8	8	----
91	Yonkers, N. Y.	1–2	Northeast	49	76	----	34	45	----	21	26	----
92	Youngstown, Ohio	1–2	Middle West	57	82	----	37	46	----	20	25	----

[1] The cities are distributed according to population groups and geographic regions as follows:

Race group	Population group				Geographic region				Total
	100,000–200,000	200,000–500,000	500,000–1,000,000	1,000,000 and over	Northeast	Middle West	South	Far West	
White and all races	49	29	9	5	30	27	23	12	92
Nonwhite	15	12	7	5	6	10	21	2	39

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(3) National Tuberculosis Association, Medical Research Committee: Tuberculosis in the United States. Graphic presentation, vol. 3. Mortality statistitics for cities of 100,000 or more population by age, sex, and race 1939–41 (1945).

CHARACTERISTICS OF COMMERCIAL X-RAY INTENSIFYING SCREENS

RESOLVING POWER

Resolving power constitutes a measure of the ability of X-ray films and screens to record detail and is determined by radiographing, under standard conditions, a graduated series of linear patterns on the film or screen under test. It is expressed as the maximum number of lines per millimeter that can be distinguished on the processed film. The resolving powers of intensifying screens are considerably less than those of films, and therefore measurements of film-screen combinations are essentially the resolving powers of the screens alone. Screens with the highest resolving power are capable of recording the greatest detail.

Resolving power of commercial screens

Manufacturer	Type	Resolving power (lines per mm.)	Use	Note
Buck	Xtra speed	10	Intensifying	1 thick and 1 thin screen.
	Xtra speed	10	Intensifying	2 medium screens.
	Midspeed	12½	Intensifying	
	Definition	12½	Intensifying	
Eastman	Ultra speed	9	Intensifying	
	Fine grain	10	Intensifying	
	Definition	10	Intensifying	
Patterson	Parspeed	10	Intensifying	
	Detail	17½	Intensifying	
	Type D	[1] 7	Fluorographic	Regular.
	Type D	[1] 7	Fluorographic	Cleanable.
	Type B	[1] 6	Fluorographic and Fluoroscopic	Regular.
	Type B	[1] 6	Fluorographic and Fluoroscopic	Cleanable.

[1] These figures apply only to the fluorescent screens themselves. When used in photofluorography, the additional effect of the lens and film reduces resolving power to approximately one-third of these values in 70-mm. film and to one-fifth of these values in 35-mm. film.

Each month on this page these and other additional quantitative data on the characteristics of X-ray materials will be reported for the benefit of physicians and X-ray technicians. This represents the first systematic attempt to provide such information. In forthcoming months it is planned to include data on speed, contrast, and unsharpness of commercially available films and screens. These reports are from the Laboratory of the Radiology Section, Tuberculosis Control Division, United States Public Health Service.

Excerpt From

TUBERCULOSIS IN HOLLAND DURING THE WAR[1]

"When in September, 1939, war was declared between England and Germany (Holland became involved only in May, 1940) we feared that an increase of tuberculosis was to be expected, as happened during the Great War 1914–1918; then Holland remained neutral, but a large increase in the tuberculosis death-rate was already apparent in 1914.

"Before World War I, in 1913, the death-rate from tuberculosis in the Netherlands was 142.0 per 100,000 inhabitants for all forms and 106.4 for pulmonary tuberculosis. For Holland these figures showed an increase in 1918 up to 202.5 for all forms, and to 158.6 for pulmonary tuberculosis. Therefore there was an increase for the Netherlands of 49 per cent for all forms of tuberculosis and of 55 per cent for pulmonary tuberculosis. In England at the time the tuberculosis death-rate increased 17 per cent, and in Germany there was an increase of 62 per cent. . . .

"Such being our experience, it is to be understood that in 1939 we were very anxious about the future. Properly speaking an increase was expected before 1939 during the economic crisis, a period which brought social distress in Holland and to a great part of her inhabitants. Notwithstanding these sombre forebodings, however, there was no increase, but a notable decrease during the decade 1930–1939; for instance, in Amsterdam in 1939 the death-rate from all forms of tuberculosis was 35.2 and from pulmonary tuberculosis 25.2 per 100,000 inhabitants, i. e., 50 per cent of the death-rates in 1930. . . .

"In 1940 an increase was shown, although we were four months without war, and this increase has grown rapidly and steadily each year. In 1939 the death-rate in Holland was 41.0 for all forms and 28.3 for pulmonary tuberculosis per 100,000 inhabitants. The corresponding figures for Amsterdam were considerably lower, 35.2

[1] Van Den Berg, Heynsius: Tuberculosis in Holland during the war. Tubercle (London): 181–185 (November–December 1945).

and 25.2 respectively; like those for Great Britain they were among the lowest of the world. But from 1940 there is an increase for the Netherlands up 70.0 and 50.4 in 1943, and for Amsterdam up to 82.7 and 63.0 in 1944. For the year 1944 a death-rate for the Netherlands cannot be given. In that year one-half of Holland was liberated, the other half remaining under German occupation, consequently the statistics are not complete, since there were no means of communication between the two parts of the country. The figures for Amsterdam are given approximately, as the population can be estimated only because neither the number of Jews deported, nor the part of the male population [sent] to Germany, nor the number of those taken as prisoners are known yet.

134% RISE IN AMSTERDAM

"In the Netherlands in 1943 the rise was for all forms of tuberculosis 70 per cent, for the pulmonary tuberculosis 77 per cent, considerably higher therefore than in 1918, when it was 49 per cent and 55 per cent respectively. The rise in Amsterdam is still more serious; it is now 134 per cent for all forms of tuberculosis and 150 per cent for pulmonary tuberculosis. This means that the mortality from pulmonary tuberculosis in Amsterdam in 1944 has reached a height of two and a half times as large as that of 1939, an increase in a period of only five years, which far surpasses the alarming rise during the World War I in Germany and Austria.

"The only favourable aspect is, that the increase took place when the tuberculosis death-rate was very low. Owing to this, although the increase in Amsterdam was twice as high as in the former war, the number of deaths from tuberculosis was much lower in this war.

"Tuberculosis death-rates by ages and sex in Holland are not available, for the present age-composition of our population cannot be accurately calculated as the last census dates from fifteen years back. For many decades the death-rate from pulmonary tuberculosis in Amsterdam has been higher among the male inhabitants than among the female, whereas in the rest of the country it was just the opposite; there the death-rate from pulmonary tuberculosis for women always exceeded that for men. Since the war a modification has taken place in so far that in the rest of Holl[illegible] also the death-rate from pulmonary tuberculosis for men now exceeds that for women. As yet I cannot give a satisfactory explanation of this feature. It has been noticed, however, that on the whole men have withstood the want of food far less well than women and that they lost more weight. This smaller resistance of the men seems to have been noticed also in the concentration camps in Germany."

MORTALITY IN LARGE CITIES, 1945

A total of 471,729 deaths was reported in 93 large cities in the United States in 1945, as compared with 468,773 in 1944, according to provisional figures furnished by the Bureau of the Census. This number was 0.6 percent greater than the corresponding provisional figure for 1944.

The numbers of deaths reported each week in 1945 followed closely the 3-year average for the corresponding weeks of 1942–44, except for the first 3 weeks of the year and for two periods in the summer. The usual seasonal pattern obtained, exhibiting the highest mortality in the winter months when deaths due to various forms of respiratory disease increase. The number of deaths in these cities increased sharply during the last 3 weeks in December, accompanying the rise in influenza, but it is not yet known to what extent the death rate for influenza and other respiratory conditions were above those for non-epidemic years.

While the total deaths for all ages in these cities in 1945 were slightly above the figure for 1944, the number of infant deaths was 1.7 percent less, the numbers being 31,573 in 1945 and 32,113 in 1944.

Since population estimates are not available for all of these cities, death rates have not been computed. Therefore, the extent to which changes in this urban mortality in 1945 as compared with prior years are the result of population movement cannot be determined, and direct comparisons between cities or groups of cities are not possible.

	Provisional		Final, 1944
	1945	1944	
Total deaths, 93 cities	471,729	468,773	470,274
Percentage difference from preceding year's total	+0.6	−3.9	
Deaths under 1 year of age	31,573	32,113	33,260
Percentage difference from preceding year's total	−1.7	−6.7	

DEATHS DURING WEEK ENDED FEB. 2, 1946

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Feb. 2, 1946	Corresponding week, 1945
Data for 93 large cities of the United States:		
Total deaths	10,068	10,069
Average for 3 prior years	9,948	
Total deaths, first 5 weeks of year	54,224	49,157
Deaths under 1 year of age	586	602
Average for 3 prior years	653	
Deaths under 1 year of age, first 5 weeks of year	3,014	3,135
Data from industrial insurance companies:		
Policies in force	67,156,155	66,982,877
Number of death claims	16,146	15,962
Death claims per 1,000 policies in force, annual rate	12.5	12.4
Death claims per 1,000 policies, first 5 weeks of year, annual rate	11.9	10.7

PREVALENCE 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 9, 1946

Summary

The incidence of influenza continued to decline. A total of 8,846 cases was reported, as compared with 14,255 last week and a 5-year (1941–45) median of 5,376. For the corresponding week of 1944, the decline was from 14,912 to 10,748. Of the current total, an aggregate of 7,281 cases, or 82 per cent, occurred in 7 States—Texas (3,187), Louisiana (1,279), South Carolina (1,180), Virginia (827), Alabama (317), Arkansas (260), and Oklahoma (231). For the preceding week the same States reported 10,488 cases, or 74 percent of the total, and for the corresponding week in 1944 they reported 7,209 (67 percent). The cumulative total to date since November 18, 1945, is 477,934, as compared with 612,853 and 41,622, respectively, for the corresponding of periods 1943–44 and 1944–45.

Of the total of 175 cases of meningococcus meningitis reported for the week, as compared with 211 last week and a 5-year median of 244 (for the corresponding week in 1945), Pennsylvania reported 16, New York 15, California 13, Kentucky 12, Illinois and Virginia 9 each, Massachusetts, North Carolina, and Texas 8 each, and Ohio 7.

The current figures for diphtheria and poliomyelitis are above the corresponding 5-year medians, while those for measles, scarlet fever, smallpox, typhoid fever, and whooping cough are below. A total of 11,260 cases of measles was reported, as compared with 1,880 for the same week last year, and 39,542 cases have been reported to date as compared with 8,816 for the same period last year.

Deaths recorded during the week in 93 large cities of the United States totaled 10,211, as compared with 10,100 last week, 9,971 and 9,456, respectively, for the corresponding weeks of 1945 and 1944, and a 3-year (1943–45) average of 9,783. The total for the year to date is 64,467, as compared with 59,128 for the same period last year.

Telegraphic morbidity reports from State health officers for the week ended February 9, 1946, and comparison with corresponding week of 1945 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 1941–45	Week ended—		Median 1941–45	Week ended—		Median 1941–45	Week ended—		Median 1941–45
	Feb. 9, 1946	Feb. 10, 1945		Feb. 9, 1946	Feb. 10, 1945		Feb. 9, 1946	Feb. 10, 1945		Feb. 9, 1946	Feb. 10, 1945	
NEW ENGLAND												
Maine	1	0	0	24	------	------	11	5	70	2	1	3
New Hampshire	0	0	0	6	------	------	4	5	8	2	0	1
Vermont	0	0	0	6	2	2	2	2	10	1	0	0
Massachusetts	4	7	4	------	------	------	236	45	430	8	7	7
Rhode Island	0	0	0	------	75	10	2	10	59	3	0	0
Connecticut	0	0	0	11	2	8	47	39	169	2	6	5
MIDDLE ATLANTIC												
New York	29	12	12	[1] 15	[1] 3	[1] 14	2,475	161	1,272	15	26	26
New Jersey	4	5	5	14	5	20	284	38	733	6	9	9
Pennsylvania	14	9	9	2	3	3	1,337	51	2,038	16	10	10
EAST NORTH CENTRAL												
Ohio	31	8	10	27	6	16	77	23	222	7	16	3
Indiana	19	5	5	59	8	27	229	14	183	2	1	2
Illinois	5	1	13	7	5	23	1,073	72	323	9	13	5
Michigan [2]	19	9	3	4	5	5	988	21	215	2	7	7
Wisconsin	1	1	1	252	30	50	139	38	585	2	3	3
WEST NORTH CENTRAL												
Minnesota	25	9	3	2	------	1	7	3	28	1	1	2
Iowa	1	2	2	------	------	9	21	29	114	5	0	0
Missouri	8	7	6	16	------	6	334	4	85	4	6	6
North Dakota	0	2	0	5	------	24	------	------	11	0	1	1
South Dakota	2	5	4	------	------	------	53	15	18	1	0	0
Nebraska	1	2	1	1	1	2	18	16	16	0	1	0
Kansas	17	3	4	88	2	7	439	18	185	0	0	3
SOUTH ATLANTIC												
Delaware	0	0	1	------	------	------	6	23	22	0	1	0
Maryland [2]	16	10	5	58	23	23	78	46	61	1	3	3
District of Columbia	0	0	0	4	3	3	25	6	19	1	1	1
Virginia	17	9	8	827	532	903	127	36	173	9	10	10
West Virginia	3	5	5	20	28	43	31	16	134	2	5	0
North Carolina	7	10	11	------	------	33	88	9	182	8	5	5
South Carolina	1	5	5	1,180	897	897	59	19	47	2	7	7
Georgia	4	8	8	75	51	169	4	16	202	2	2	2
Florida	9	4	4	3	1	3	3	29	29	0	6	4
EAST SOUTH CENTRAL												
Kentucky	5	9	9	6	2	10	259	2	48	12	5	5
Tennessee	11	8	7	57	58	112	51	25	96	4	12	6
Alabama	11	5	5	317	178	448	48	12	198	1	8	8
Mississippi [2]	6	9	3	------	------	------	------	------	------	4	4	4
WEST SOUTH CENTRAL												
Arkansas	6	11	11	260	205	293	112	27	113	2	8	3
Louisiana	5	11	8	1,279	4	23	60	35	41	*5	1	2
Oklahoma	0	2	4	231	199	199	32	37	57	4	3	2
Texas	35	84	40	3,187	2,161	2,161	412	150	518	8	18	16
MOUNTAIN												
Montana	1	0	2	37	24	51	55	6	96	0	0	0
Idaho	3	0	0	113	------	------	71	3	25	0	0	0
Wyoming	1	0	0	4	------	53	24	6	56	0	0	1
Colorado	7	3	9	86	12	55	50	16	128	1	1	0
New Mexico	0	8	2	3	------	1	22	4	36	1	2	1
Arizona	2	2	2	164	110	155	7	------	80	1	0	0
Utah [2]	0	1	0	50	2	66	140	54	44	1	0	0
Nevada	0	0	0	------	------	------	3	6	6	0	0	0
PACIFIC												
Washington	9	8	2	------	------	1	504	72	72	2	7	3
Oregon	3	10	3	55	10	18	131	60	112	3	2	2
California	30	25	22	291	25	137	1,082	556	556	13	25	25
Total	373	334	305	8,846	4,672	5,376	11,260	1,880	14,062	175	244	244
6 weeks	2,489	2,057	1,919	139,368	26,109	27,772	39,542	8,816	64,741	*1,295	1,416	1,416

[1] New York City only.
[2] Period ended earlier than Saturday.
* Correction: Meningitis, meningococcus, Jan. 5: Louisiana 2 (instead of 0).

Telegraphic morbidity reports from State health officers for the week ended February 9, 1946, and comparison with corresponding week of 1945 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever [2]		
	Week ended—		Median 1941–45	Week ended—		Median 1941–45	Week ended—		Median 1941–45	Week ended—		Median 1941–45
	Feb. 9, 1946	Feb. 10, 1945		Feb. 9, 1946	Feb. 10, 1945		Feb. 9, 1946	Feb. 10, 1945		Feb. 9, 1946	Feb. 10, 1945	
NEW ENGLAND												
Maine	0	1	0	37	49	23	0	0	0	1	2	0
New Hampshire	0	0	0	8	2	9	0	0	0	0	0	0
Vermont	0	0	0	15	11	11	0	0	0	0	0	0
Massachusetts	0	2	0	179	300	373	0	0	0	0	0	1
Rhode Island	0	0	0	10	36	21	0	0	0	1	0	0
Connecticut	1	1	1	46	66	59	0	0	0	0	0	0
MIDDLE ATLANTIC												
New York	2	19	1	505	560	473	0	0	0	0	2	2
New Jersey	0	0	0	106	140	147	0	0	0	3	2	0
Pennsylvania	1	1	0	265	443	367	0	0	0	0	17	6
EAST NORTH CENTRAL												
Ohio	1	2	0	310	418	296	0	0	0	2	0	1
Indiana	0	0	0	114	189	145	1	0	0	1	0	2
Illinois	0	2	1	273	415	316	0	0	0	4	2	2
Michigan [1]	0	1	1	154	308	230	0	0	0	0	1	1
Wisconsin	1	0	1	138	192	208	0	0	0	1	0	0
WEST NORTH CENTRAL												
Minnesota	0	0	0	58	110	93	0	0	0	0	0	0
Iowa	0	0	0	47	75	75	0	0	1	0	0	0
Missouri	0	4	2	90	93	93	0	0	1	0	2	2
North Dakota	0	0	0	5	43	27	0	0	0	0	1	0
South Dakota	0	0	0	14	39	35	0	0	0	0	4	1
Nebraska	0	0	0	21	132	32	0	0	0	0	0	0
Kansas	0	0	0	91	110	95	0	0	0	0	0	0
SOUTH ATLANTIC												
Delaware	0	0	0	5	8	8	0	0	0	1	0	0
Maryland [1]	1	0	0	51	222	88	0	0	0	0	2	0
District of Columbia	0	1	0	14	69	28	0	0	0	0	0	1
Virginia	0	1	0	66	173	47	0	0	0	1	0	1
West Virginia	1	0	0	32	63	37	0	0	0	1	1	1
North Carolina	1	2	0	49	71	48	0	0	0	2	1	1
South Carolina	0	0	0	6	14	6	0	0	0	0	0	0
Georgia	1	0	0	13	33	27	0	0	0	2	1	3
Florida	1	0	0	9	11	11	0	0	0	1	1	0
EAST SOUTH CENTRAL												
Kentucky	1	1	0	52	54	78	0	0	0	0	0	0
Tennessee	1	0	1	27	83	53	0	1	0	0	1	1
Alabama	0	1	1	8	20	22	1	0	0	0	4	1
Mississippi [1]	1	2	0	9	71	10	0	0	1	0	1	1
WEST SOUTH CENTRAL												
Arkansas	0	0	0	13	39	7	0	0	1	1	0	2
Louisiana	2	0	0	10	18	6	0	0	0	1	3	3
Oklahoma	0	0	0	24	16	26	0	0	1	0	3	1
Texas	4	0	1	56	121	62	2	0	2	4	9	6
MOUNTAIN												
Montana	1	0	0	6	29	28	0	0	0	0	1	1
Idaho	0	0	0	5	56	18	0	0	0	1	1	0
Wyoming	0	0	0	6	2	8	0	1	0	0	0	0
Colorado	0	1	0	48	78	37	0	0	0	0	0	0
New Mexico	0	0	0	26	35	5	0	0	0	0	0	1
Arizona	1	1	0	24	47	14	0	0	0	0	0	0
Utah [1]	0	1	0	14	63	63	0	0	0	0	0	0
Nevada	0	0	0	0	10	0	0	0	0	0	0	0
PACIFIC												
Washington	6	4	0	26	111	45	0	5	0	3	1	0
Oregon	0	0	0	24	37	18	0	0	0	1	3	0
California	4	4	3	215	383	159	0	0	0	2	1	2
Total	32	52	26	3,324	5,668	3,823	4	7	28	34	67	67
6 weeks	280	246	186	17,479	30,071	22,010	39	51	113	239	352	447

[1] Period ended earlier than Saturday.
[2] Including paratyphoid fever reported separately, as follows: Rhode Island 1; North Carolina 1; Texas 1.

Telegraphic morbidity reports from State health officers for the week ended February 9, 1946, and comparison with corresponding week of 1945 and 5-year median—Con.

Division and State	Whooping cough			Week ended Feb. 9, 1946							
	Week ended—		Median 1941–45	Dysentery			Encephalitis, infectious	Rocky Mt. spotted fever	Tularemia	Typhus fever, endemic	Undulant fever
	Feb. 9, 1946	Feb. 10, 1945		Amebic	Bacillary	Unspecified					
NEW ENGLAND											
Maine	21	27	27								1
New Hampshire	6	9	9								
Vermont	24	28	28								1
Massachusetts	117	116	151								
Rhode Island	45	20	20								
Connecticut	37	52	52		2						4
MIDDLE ATLANTIC											
New York	214	278	328	3	9						3
New Jersey	103	79	102								
Pennsylvania	141	148	214								2
EAST NORTH CENTRAL											
Ohio	90	183	194						1		2
Indiana	40	9	9	1					1		1
Illinois	100	86	107	1	1		1				13
Michigan [3]	88	96	175		7						2
Wisconsin	67	89	150	2							5
WEST NORTH CENTRAL											
Minnesota	4	22	53								5
Iowa	5	2	20								
Missouri	1	14	20								1
North Dakota		2	5								
South Dakota		7	7								
Nebraska	3	2	10								
Kansas	15	26	45								2
SOUTH ATLANTIC											
Delaware	7	2	1								
Maryland [3]	22	71	60				1				
District of Columbia	3	10	10								
Virginia	47	42	70			35			1		1
West Virginia	10	38	43								
North Carolina	63	61	148						1		1
South Carolina	42	49	49		30					2	
Georgia	6	9	15			2				4	7
Florida	24	3	15	1						5	
EAST SOUTH CENTRAL											
Kentucky	11	42	42								
Tennessee	16	24	33							1	1
Alabama	20	5	15							5	*1
Mississippi [3]									1	3	
WEST SOUTH CENTRAL											
Arkansas	15	21	23	5					1		1
Louisiana	3	2	2	1			(*)		2	2	
Oklahoma	9	10	16								
Texas	87	231	231	30	220	33				18	7
MOUNTAIN											
Montana		28	21								
Idaho	14	6	6								
Wyoming	2	14	9								
Colorado	12	40	36	1							
New Mexico	2	6	13		1	1					
Arizona	11	29	29			14					2
Utah [3]	34	24	33								
Nevada			1								
PACIFIC											
Washington	28	21	42								1
Oregon	18	13	13			1					
California	65	208	244		1		1			1	7
Total	1,692	2,304	3,670	45	271	86	3	0	8	41	71
Same week, 1945	2,304			37	541	60	4	1	14	43	79
Average, 1943–45	2,632			21	343	57	7	[4] 1	11	[4] 45	
6 weeks: 1946	10,925			243	2,019	778	*45	1	130	337	*392
1945	13,692			175	3,916	884	34	2	168	386	433
Average, 1943–45	16,049		[4] 23,409	137	2,104	480	48	[4] 2	120	[4] 309	

[3] Period ended earlier than Saturday.

[4] 5-year median, 1941–45.

Leprosy: California, 1 case.

, Correction: Week ended Jan. 5: encephalitis, infections, Louisiana 1 case (instead of 0); undulant fever, Alabama 1 case (instead of 9).

WEEKLY REPORTS FROM CITIES

City reports for week ended February 2, 1946

This table lists the reports from 88 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.

	Diphtheria cases	Encephalitis, 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								
NEW ENGLAND												
Maine:												
Portland	0	0	----	0	1	1	3	0	8	0	0	5
New Hampshire:												
Concord	0	0	----	0	----	0	1	0	0	0	0	----
Vermont:												
Barre	0	0	----	0	----	0	0	0	3	0	0	----
Massachusetts:												
Boston	1	0	----	1	31	4	19	0	50	0	0	29
Fall River	0	0	----	0	----	0	1	0	3	0	0	10
Springfield	0	0	----	0	----	0	2	0	13	0	0	5
Worcester	0	0	----	0	2	0	16	0	8	0	0	4
Rhode Island:												
Providence	0	0	----	0	----	0	4	0	2	0	0	17
Connecticut:												
Bridgeport	0	0	2	0	----	0	0	0	2	0	0	----
Hartford	0	0	1	0	----	0	4	0	1	0	0	4
New Haven	0	0	1	0	1	1	8	0	1	0	0	1
MIDDLE ATLANTIC												
New York:												
Buffalo	2	0	----	2	27	1	6	0	13	0	0	36
New York	16	1	12	5	287	10	90	1	167	0	2	36
Rochester	0	0	----	0	60	0	1	0	13	0	0	3
Syracuse	1	0	----	0	653	0	0	0	5	0	0	2
New Jersey:												
Camden	1	0	1	0	14	0	2	0	1	0	0	1
Newark	0	0	2	0	34	1	2	0	11	0	0	22
Trenton	0	0	1	0	----	0	1	0	1	0	0	1
Pennsylvania:												
Philadelphia	2	0	4	3	488	8	37	0	35	0	1	31
Pittsburgh	1	0	----	1	----	7	8	0	6	0	0	6
Reading	0	0	----	0	2	0	4	0	3	0	0	14
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	5	0	----	2	24	1	19	0	11	0	0	10
Cleveland	2	0	14	1	2	4	12	0	15	0	0	18
Columbus	9	0	----	0	2	0	1	0	8	0	0	3
Indiana:												
Fort Wayne	0	0	----	0	----	0	0	0	0	0	0	----
Indianapolis	3	0	----	3	51	1	4	0	20	0	0	6
South Bend	0	0	----	0	2	0	0	0	5	0	0	----
Terre Haute	0	0	----	0	----	0	2	0	1	0	0	1
Illinois:												
Chicago	2	0	----	1	596	5	45	1	53	0	0	44
Michigan:												
Detroit	1	1	3	2	614	2	13	0	36	0	0	64
Flint	1	0	----	0	29	0	3	0	10	0	0	2
Grand Rapids	0	0	----	1	20	0	2	0	0	0	0	1
Wisconsin:												
Kenosha	0	0	----	0	1	0	0	0	2	0	0	----
Milwaukee	0	0	1	1	61	2	6	0	34	0	0	28
Racine	0	0	----	0	3	0	1	0	7	0	0	1
Superior	0	0	----	0	1	0	0	0	3	0	0	3
WEST NORTH CENTRAL												
Minnesota:												
Duluth	2	0	----	0	1	0	2	0	1	0	0	2
Minneapolis	6	0	----	1	10	1	3	0	8	0	0	2
St. Paul	0	0	----	0	----	4	6	0	13	0	0	----
Missouri:												
Kansas City	0	0	----	0	121	1	9	0	11	0	0	2
St. Joseph	0	0	----	0	29	0	1	0	1	0	0	----
St. Louis	1	0	8	0	25	3	15	1	11	0	0	1

City reports for week ended February 2, 1946—Continued

	Diphtheria cases	Encephalitis, 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								
WEST NORTH CENTRAL—continued												
North Dakota:												
Fargo	1	0	------	0	------	0	1	0	2	0	0	------
Nebraska:												
Omaha	0	0	------	0	4	0	1	0	10	0	0	------
Kansas:												
Topeka	0	0	------	0	40	0	2	0	0	0	0	1
Wichita	1	0	------	0	31	1	4	0	6	0	0	------
SOUTH ATLANTIC												
Delaware:												
Wilmington	0	0	------	0	3	0	2	0	1	0	0	3
Maryland:												
Baltimore	11	0	4	1	40	2	13	0	19	0	0	7
Cumberland	0	0	2	0	------	0	0	0	1	0	0	------
Frederick	0	0	------	0	------	0	0	0	0	0	0	------
District of Columbia:												
Washington	0	0	3	0	11	1	5	0	14	0	0	2
Virginia:												
Lynchburg	0	0	------	0	------	0	1	0	3	0	0	4
Richmond	0	0	------	0	5	0	4	0	8	0	0	2
Roanoke	0	0	------	0	------	0	0	0	2	0	0	------
West Virginia:												
Charleston	0	0	------	0	------	0	0	0	0	0	0	------
Wheeling	0	0	------	0	------	0	2	0	1	0	0	1
North Carolina:												
Raleigh	0	0	------	0	------	0	2	0	0	0	0	------
Wilmington	0	0	------	0	------	0	0	0	1	0	0	8
South Carolina:												
Charleston	0	0	39	1	------	0	2	0	1	0	0	------
Georgia:												
Atlanta	1	0	35	3	------	1	1	0	5	0	0	------
Brunswick	0	0	------	0	------	0	2	0	0	0	0	3
Savannah	0	0	6	2	------	0	0	0	0	0	0	------
Florida:												
Tampa	1	0	------	0	16	0	4	1	3	0	0	------
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	0	0	13	0	8	0	13	0	4	0	0	10
Nashville	0	0	------	1	31	2	2	0	1	0	0	2
Alabama:												
Birmingham	1	0	9	1	------	2	3	0	0	0	0	------
Mobile	0	0	37	0	------	0	6	0	0	0	0	------
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	28	0	------	0	0	0	0	0	0	1
Louisiana:												
New Orleans	1	0	7	8	2	2	10	2	7	0	0	1
Shreveport	0	0	------	0	------	0	2	0	1	0	0	------
Texas:												
Dallas	1	0	2	4	1	0	11	0	2	0	0	------
Galveston	0	0	------	1	3	0	2	0	0	0	0	------
Houston	5	0	------	2	1	0	9	0	1	0	0	1
San Antonio	2	0	3	1	5	0	10	0	4	0	0	3
MOUNTAIN												
Montana:												
Billings	0	0	------	0	------	0	0	0	0	0	0	------
Great Falls	0	0	------	0	------	0	1	0	0	0	0	------
Helena	0	0	------	0	------	0	0	0	0	0	0	------
Missoula	0	0	25	0	------	0	4	0	0	0	0	------
Idaho:												
Boise	0	0	------	0	6	0	1	0	0	0	0	------
Colorado:												
Denver	3	0	14	0	25	0	9	0	14	0	0	8
Pueblo	0	0	------	0	------	0	0	0	2	0	0	3
Utah:												
Salt Lake City	0	0	------	1	10	0	4	0	8	0	0	3

City reports for week ended February 2, 1946—Continued

	Diphtheria cases	Encephalitis, 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	5	0	------	0	92	0	3	0	7	0	0	5
Spokane	0	0	------	0	82	0	3	0	1	0	0	9
Tacoma	1	0	------	1	18	1	0	0	1	0	0	------
California:												
Los Angeles	4	0	35	0	70	2	8	0	46	0	0	14
Sacramento	3	0	1	1	11	0	5	0	6	0	0	------
San Francisco	1	0	13	1	102	4	8	0	14	0	6	3
Total	98	2	326	53	3,809	75	513	6	792	0	9	509
Corresponding week, 1945	81	------	83	30	372	------	469	------	1,669	0	28	554
Average, 1941–45	68	------	1,278	[1] 66	[2] 3,438	------	[1] 536	------	1,430	2	13	849

[1] 3-year average, 1943–45.
[2] 5-year median, 1941–45.

Dysentery, amebic.—Cases: New York, 3; Los Angeles, 1.
Dysentery, bacillary.—Cases: New York, 8; Rochester, 1; Chicago, 1; Nashville, 1.
Dysentery, unspecified.—Cases: Baltimore, 1; San Antonio, 11.
Tularemia.—Cases: Indianapolis, 1; Chicago, 1; Memphis, 1; New Orleans, 1.
Typhus fever, endemic.—Cases: Philadelphia, 1; Atlanta, 1; Savannah, 1; Tampa, 1; Birmingham, 1; Mobile, 1; New Orleans, 1; Shreveport, 1; San Antonio, 1; Los Angeles, 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 88 cities in the preceding table (estimated population, 1943, 34,254,000)

	Diphtheria case rates	Encephalitis, 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	2.6	0.0	10.5	2.6	91	15.7	151.6	0.0	238	0.0	0.0	196
Middle Atlantic	10.6	0.5	9.3	5.1	724	12.5	69.9	0.5	118	0.0	1.4	70
East North Central	14.1	0.6	11.0	6.7	862	9.2	66.2	0.6	126	0.0	0.0	111
West North Central	21.9	0.0	15.9	2.0	519	19.9	87.5	2.0	125	0.0	0.0	16
South Atlantic	21.7	0.0	148.6	11.7	125	6.7	63.5	1.7	99	0.0	0.0	50
East South Central	5.9	0.0	348.2	11.8	230	23.6	141.6	0.0	30	0.0	0.0	71
West South Central	25.8	0.0	114.8	45.9	34	5.7	126.3	5.7	43	0.0	0.0	17
Mountain	23.8	0.0	309.8	7.9	326	0.0	150.9	0.0	191	0.0	0.0	111
Pacific	22.1	0.0	77.5	4.7	593	11.1	42.7	0.0	119	0.0	9.5	49
Total	15.0	0.3	49.8	8.1	581	11.4	78.3	0.9	121	0.0	1.4	78

TERRITORIES AND POSSESSIONS

Hawaii Territory

Plague (rodent).—Plague infection in rodents in Hamakua District, Island of Hawaii, T. H., has been reported as follows: A pool of 47 rats found on December 8, 1945, in District 1A, Kukuihaele area, Honokaa, was proved positive for plague on December 15, 1945; a rat found on December 19, 1945 in District 2A, Kukuihaele, Honokaa, was proved positive for plague on December 26, 1945; a rat found on December 19, 1945, in District 10A, Paauhau area, Honokaa, was proved positive for plague on December 26, 1945.

Virgin Islands of the United States

Notifiable diseases—October–December 1945.—During the months of October, November, and December 1945, cases of certain notifiable diseases were reported in the Virgin Islands as follows:

Disease	October	November	December	Disease	October	November	December
Chickenpox		1		Pellagra			1
Filariasis	7	9		Syphilis	14	8	9
Gonorrhea	17	6	17	Tuberculosis (pulmonary)		1	2
Hookworm disease	2	3	1	Typhus fever (murine)		1	1
Leprosy	1		1				
Malaria		1					

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended January 12, 1946.—During the week ended January 12, 1946, 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		30	1	160	489	49	74	44	134	981
Diphtheria		6	2	51	14	7			3	83
Dysentery:										
Amebic					2					2
Unspecified					1					1
German measles				1	34	1	1	5	6	48
Influenza		151			112				48	311
Measles		33		159	966		4	29	152	1,343
Meningitis, meningococcus		1	1		5				2	9
Mumps			3	35	151	30	6	65	121	411
Poliomyelitis			1							1
Scarlet fever		8	15	56	66	19	7	26	22	219
Tuberculosis (all forms)		18		86	49	6	2	19	222	402
Typhoid and paratyphoid fever				2	3					5
Undulant fever				1						1
Venereal diseases:										
Gonorrhea		13	16	123	207	64	80	44	115	662
Syphilis		14	5	159	112	20	17	9	48	384
Other forms							6			6
Whooping cough		13		96	24	2		1	3	139

CHINA

Notifiable diseases—August 1945.—During the month of August 1945, certain notifiable diseases were reported in China as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	24	7	Relapsing fever	344	5
Cholera	1,835	351	Scarlet fever	4	
Diphtheria	16		Smallpox	211	
Dysentery	3,644	116	Typhoid fever	406	25
Plague	2	1	Typhus fever	133	3

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: January 1–10, 1946, 11 cases; January 11–20, 1946, 16 cases.

Portugal—Azores.—For the week ended January 5, 1946, 3 cases of plague were reported in the Azores, Portugal.

Smallpox

Bolivia.—For the month of December 1945, 147 cases of smallpox with 24 deaths were reported in Bolivia. Departments reporting the highest incidence are: Potosi, 23 cases, 1 death; Cochabamba, 34 cases, 9 deaths; La Paz, 41 cases, 6 deaths.

Morocco (French).—For the period January 1–10, 1946, 155 cases of smallpox were reported in French Morocco, including cases reported in regions as follows: Agadir, 17; Casablanca, 28; Fez, 10; Marrakech, 37; Meknes, 30; Oujda, 17; Rabat, 16.

Sudan (French).—Smallpox has been reported in French Sudan as follows: January 1–10, 1946, 357 cases; January 11–20, 1946, 277 cases.

Typhus Fever

Belgian Congo.—For the week ended January 12, 1946, 78 cases of typhus fever were reported in Belgian Congo.

Bolivia.—For the month of December 1945, 53 cases of typhus fever with 18 deaths were reported in Bolivia. Departments reporting the highest incidence are: Potosi, 18 cases, 10 deaths; Cochabamba, 14 cases, 3 deaths; La Paz, 13 cases, 3 deaths.

Morocco (French).—Typhus fever has been reported in French Morocco as follows: January 1–10, 1946, 89 cases; January 11–20, 1946, 102 cases.

Turkey.—Typhus fever has been reported in Turkey as follows: Week ended January 26, 1946, 36 cases including cases reported in ports as follows: Ankara, 1; Antalya, 1; Balikesir, 2; Icel, 1; Istanbul, 2; Izmir, 2; Kocaeli, 2; Samsun, 3. Week ended February 2, 1946, 27 cases including cases reported in ports as follows: Balikesir, 2; Istanbul, 6; Izmir, 3; Samsun, 1.

Yellow Fever

Venezuela.—Yellow fever has been reported in Venezuela as follows: Week ended February 2, 1946, Tachira State, Municipality Independencia, jurisdiction of San Felix, 1 case; Zulia State—Municipality General Urdaneta, jurisdiction of San Lorenzo, San Timoteo, 2 confirmed cases; Sucre District, Municipality General Urdaneta, near San Lorenzo, 1 confirmed case.

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