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EDITORIAL—THE NATION'S CAPITAL SURVEYED

This month, the largest and most ambitious tuberculosis case-finding effort in history will draw to a close in Washington, D. C., where for the first time a city of nearly 1,000,000 population will have been screened for tuberculosis by the technique of the community-wide survey. In operation, the survey of the Nation's capital has followed the successful pattern developed in several cities where similar enterprises have previously been completed. As in the case of these previous surveys, the touchstone of success has been community participation and organization. Responsibility for the technical aspects of the survey was discharged by the cooperative efforts of the official health agency, the local voluntary association, and the local medical profession. The difficult task of bringing the population before the penetrating eye of the photofluorograph was accomplished through the efforts of citizens' committees directed by leaders in every field of civic enterprise.

Although such case-finding programs have come to be known popularly as mass X-ray surveys, they are in reality deserving of a more meaningful term, for they actually extend far beyond the activity of case finding alone. They are, indeed, well-organized efforts on the part of all groups in a community to bring to bear upon the tuberculosis problem the weight of all known techniques and all existing facilities. Therefore, the photofluorographic examination of all adults in a community is but one result of such programs. More important yet, the fusion of all groups within the community in the common effort to find tuberculosis brings with it further benefits which make possible for the future a more effective tuberculosis control program. Moreover, in providing the opportunity for a community to evaluate precisely the extent of its tuberculosis problem, the community-wide survey concurrently stimulates the mobilization

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of community resources to deal effectively with that problem. Thus, the mass case-finding technique, in serving as a measure of the need for community action to control tuberculosis, invariably points the way to the institution of long-range control measures which will certainly bear fruit far beyond the envisioned objectives of the original case-finding undertaking.

The ease and economy of the mass radiographic technique make it eminently possible for localities to conduct mass surveys within a brief period of time, without disruption of the normal work of the various agencies concerned. Moreover, it has been demonstrated that high standards of performance, especially in the follow-up of newly discovered cases, can be maintained in the course of these programs, and can be expected to persist long after their completion. As further experience is gained in this community activity, it can be expected that methods will be improved and higher standards of performance attained in the daily application of control principles.

Experience indicates that the resources basic to the prosecution of these local programs are inherent in the individual community's organizations, agencies, and institutions. Indeed, in one area after another where surveys have already been completed, not only has the community found the resources necessary for case finding, but it has proceeded to find and furnish the tools for long-range tuberculosis-control activities following the completion of the case-finding program. Given a high level of popular interest stimulated through local leadership, and given appropriate community participation and mobilization, such as that employed within the District of Columbia and elsewhere, more and more localities can achieve equal success in the acceleration and intensification of their tuberculosis-control programs.

The medium of mass radiography based on community action now makes it possible to envision the examination of the entire adult population of the United States within a very few years. Success in this phase of the national program will spell material progress toward the effective goal of ultimate tuberculosis control within the national community.

FRANCIS J. WEBER, *Medical Director,*
Chief, Tuberculosis Control Division.

THE EFFECT OF HYDROGEN-ION CONCENTRATION ON THE YEASTLIKE PHASE OF *HISTOPLASMA CAPSULATUM* (DARLING)[1]

By FORREST W. CROSS, *Assistant Sanitarian (R) Public Health Service*

The effect of hydrogen-ion concentration on the saprophytic phase of *Histoplasma capsulatum* has been studied and reported by Howell (*1*) who employed a modification of Mosher's synthetic medium with a pH range from 3.5 through 8.6. He found that the hydrogen-ion concentration affects the growth and sporulation of *H. capsulatum* and that the optimum hydrogen-ion concentration may vary with the medium used. Moore (*2*), in his study on Posadasia capsulata (*H. capsulatum*), observed the growth of the mycelial phase on various media, each of which had a fixed hydrogen-ion concentration. The hydrogen-ion of the media he used varied from 4.1–7.5, but each medium was employed at only one hydrogen-ion concentration and the optimum range for each medium was not determined.

The effect of hydrogen-ion concentration on the yeastlike phase of *H. capsulatum* was first reported by DeMonbreun (*3*) who found that the hydrogen-ion concentration of the medium employed influences both the character and amount of growth obtained. In a medium rich in protein or organic nitrogen compounds, considerable proliferation of the yeastlike form, as well as the development of the mycelial form, was observed in cultures in infusion broth (pH 7.2) maintained at 37° C. There was little tendency for the mycelium to develop when this medium, adjusted to pH 8.4, was inoculated with the yeastlike organisms; and the yeastlike organisms persisted for a comparatively long time but showed only slight tendency to multiply.

Reid, Scherer, Herbut, and Irving (*4*) reported growth of the yeastlike phase of *H. capsulatum* in a veal infusion medium adjusted to pH 7.4.

Parsons and Zarafonetis (*5*) have reported that the yeastlike form of *H. capsulatum* as obtained directly from tissue or blood can be grown at 37° C. on blood agar or other neutral or slightly basic media which have a high content of protein.

Other investigators have reported that the yeastlike form persists on blood or serum media at 37° C., when sealed and transferred at short intervals (*3*, *6*, *7*, *9*).

Salvin (*7*) reported growth of a yeastlike phase in a fluid medium, designated as "Y. P." medium, containing a mixture of organic nitrogen compounds, with best growth occurring at hydrogen-ion concentrations between 6.3–8.1 at a temperature near 37° C. However, he stated that no growth appeared in this medium unless a small

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

percentage of agar, silica gel or some similarly functioning substance was added.

The present study was undertaken because it had been observed that it is difficult to maintain the micro-organisms persistently in the smooth yeastlike phase on blood agar. The effects of the hydrogen-ion concentration with relation to the medium employed were studied in an attempt to ascertain the optimum hydrogen-ion range for the propagation of the yeastlike form of *H. capsulatum.*

MATERIALS AND METHODS

Five strains of *H. capsulatum* were used in this experiment. These were obtained from Dr. Arden Howell, Jr., Mycologist, Office of Field Studies, Tuberculosis Control Division, Public Health Service. Three of these strains were isolated from cases reported by Rhodes, Conant and Glesne (*8*), Reid, Scherer, Herbut and Irving (*4*) and DeMonbreun (*9*). One strain was isolated by Dr. J. C. Peterson, Vanderbilt University Medical School, from a fatal case in 1945.[2] The fifth strain was isolated from a case in South Africa in 1945.[3] In this report these strains were designated as strains C–650, C–651, C–701, P–4 and C–984, respectively.

Three media were employed:

1. Sabouraud's dextrose broth modified by use of only 1 percent dextrose. The dextrose was sterilized by Seitz filtration and added to the sterile peptone solution.
2. Brain Heart Infusion Broth "Difco" lot No. 380365.
3. Beef extract broth modified as follows: Beef extract, 6 grams; NaCl, 5.0 grams; Bacto-peptone, 10 grams; distilled water, 1,000 cc. Sterilization by autoclaving.

The various hydrogen-ion concentrations used with each medium were adjusted by means of sodium phosphate buffers. The final initial concentrations used were as follows: Sabouraud's broth—6.8, 6.9, 7.1, 7.25, 7.4, 7.55, 7.7, 7.8, 8.1, and 8.85; Brain Heart Infusion—6.80, 7.15, 7.25, 7.3, 7.4, 7.5, 7.6, 7.8, and 8.0; beef extract broth—6.7, 6.8, 7.0, 7.1, 7.3, 7.5, 7.8, 7.9, and 8.45.

A 1:100 saline suspension prepared from 6-day-old cultures[4] of the yeastlike phase of each strain was used as the inoculum. Each tube containing 10 ml. of each medium was inoculated with five-tenths of a cubic centimeter of this suspension. The actual volume of packed cells constituting each inoculum was determined by centrifugation in Hopkin tubes at 2,000 r. p. m. for 30 minutes. Five tubes of each medium at each hydrogen-ion concentration were employed.

Immediately following inoculation, three tubes of each medium

[2] Personal communication.
[3] Obtained from Dr. N. F. Conant, Duke Medical School.
[4] Grown on agar containing 10 percent horse blood.

were placed in the incubator at 37° C. The remaining two tubes of each medium were left at room temperature, 25° C. At the end of 5 days of incubation the amount of growth in each tube at 37° C was estimated by centrifugation in Hopkin tubes at 2,000 r. p. m. for 30 minutes. The packed volume of each tube was recorded and the average volume of the three tubes determined.

Immediately after centrifugation wet mounts were prepared for microscopic examination from the sediment of each tube at each hydrogen-ion concentration. These mounts were prepared with Linder's mounting fluid (*10*).

RESULTS

CULTURES AT 25° C.

The cultures of all strains at room temperature (25° C) showed conversion from the yeastlike phase and the resultant growth was mycelial in character.

CULTURES AT 37° C.

Sabouraud's broth.—All cultures of all strains in this medium showed macroscopic growth of the mycelial phase of *H. capsulatum* which varied from small submerged floccose masses to scattered pin point surface colonies of white aerial mycelium. Since this growth was not suitable for measurement in Hopkin tubes, the amount of growth was estimated macroscopically and recorded in table 1.

TABLE 1.—*Growth of* Histoplasma capsulatum *in Sabouraud's broth at various hydrogen-ion concentrations after 5 days incubation at 37° C.*

pH	C-984	C-650	C-701	C-651	P4
6.8	+++	+++	+++	++++	+++
6.9	++	++	+++	+++	+++
7.1	+++	+++	+	+++	±
7.25	++++	+++	+	+	±
7.4	++	+++	+	+++	+++
7.55	±	++	+++	++	++
7.7	+++	++	+++	++	++
7.8	+++	+++	++	+++	+
8.1	++	++	+	+	±
8.85	−	−	−	−	−

− No growth.
± Few small submerged floccose colonies.
+ Many small submerged floccose colonies, occasional small surface colonies.
++ Many small and few large submerged floccose colonies, occasional small surface colony.
+++ Many mixed small and large submerged floccose colonies, occasional surface colony.
++++ Same as +++ with occasional large surface colony (coalesced small colonies).

As can be seen from table 1 the amount of growth of *H. capsulatum* in Sabouraud's broth at 37° C. varied with the strain and hydrogen-ion concentration used.

Strain C–984 showed maximum growth occurring at pH 7.25 with the minimum at 7.55. Strain C–650 showed maximum growth occurring at pH range of 6.8 through 7.4 with minimum growth at pH range of 7.55 through 8.1. Strain C–701 showed maximum growth at pH 6.8 to 6.9 and 7.55 to 7.8, with minimum growth at 7.1

through 7.4 and 8.1 or above. Strain C–651 gave maximum growth at pH range 6.8 through 7.1 with a secondary maximum at pH range 7.4 to 7.8 and minimum growth at pH range 7.25 and 8.1 or above. Strain P4 gave maximum growth at pH 6.8 through 6.9 with a slight secondary rise at 7.4 through 7.7, with minimum at pH range 7.1 to 7.25 and 8.1. Microscopic examination of cultures from all tubes exhibiting growth showed a mixture of yeastlike cells and young mycelial forms, the amount of yeastlike cells varying inversely with the amount of mycelium produced. The submerged masses of mycelium showed varying numbers of smooth-walled chlamydospores. The surface colonies showed masses of hyphae with an occasional characteristic tuberculate chlamydospore.

After examination of these cultures at the end of 5 days, the cultures of all strains at pH 8.85 were reincubated for 2 weeks at which time they were reexamined. At this time there was no additional change from the observation recorded at 5 days. Samples of the sediment were then streaked on potato dextrose agar and Sabouraud's agar and incubated at room temperature for 4 additional weeks. No growth was apparent on any of these cultures. Therefore, it would seem that the organisms after exposure to Sabouraud's broth at pH 8.85 for 19 days were no longer visible.

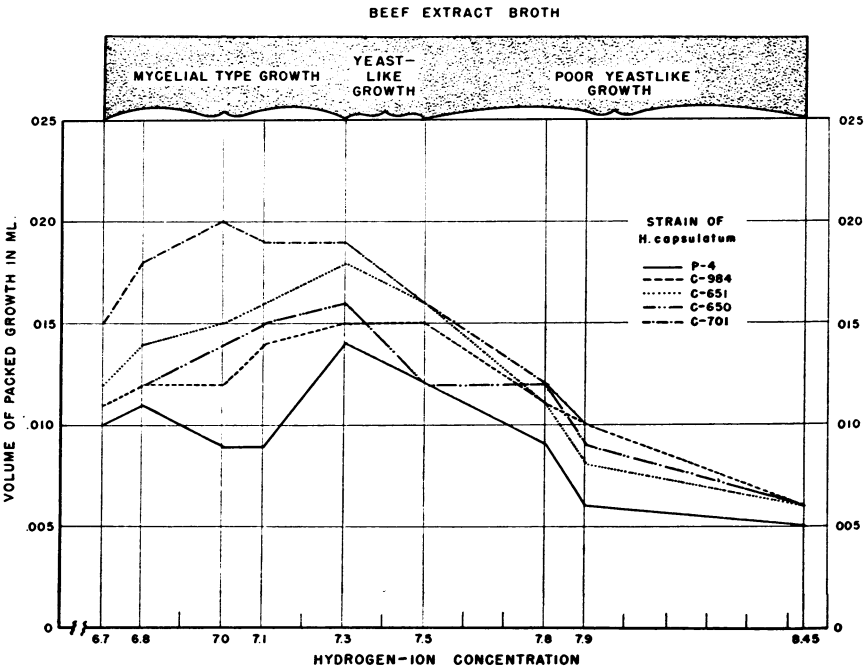

FIGURE 1

Curves showing the effect of various hydrogen-ion concentrations in beef extract broth on five strains of the yeastlike phase of *Histoplasma capsulatum* incubated for 5 days at 37° C.
Volume of growth obtained by centrifugation of cultures in Hopkin tubes at 2,000 r. p. m. for 30 minutes.
Initial volume of inoculum 0.005 ml. yeastlike cells.

Beef extract broth.—Examination of the growth in this medium, (figure 1) showed that the maximum growth for all strains except C-701 occurred at pH 7.3. In the latter strain the optimum appeared to be pH 7.0. Microscopic examination of the growth showed that the greatest production of yeastlike cells in all strains occurred between the pH range of 7.3 to 7.5. The variation of volume in pH range 6.7 through 7.1 was due to the conversion of yeastlike cells to the mycelial phase with a more marked production of mycelium at pH 6.7 through 7.0 except for strain P–4. This strain showed the greatest amount of conversion to the mycelial phase at pH 6.8 with a strong tendency to predominance of yeastlike growth at 7.0 and 7.1. The maximum production of smooth-budding yeastlike cells, however, occurred at pH 7.3. All strains except strain C–984 showed some tendency to convert to the mycelial phase in the range 7.5 to 7.9. The growth of strain C–984 at pH 7.5 was similar in character to that obtained at pH 7.3. All strains at pH 7.9 showed a predominance of yeastlike cells, smooth and intermediate, with occasional short fragments of

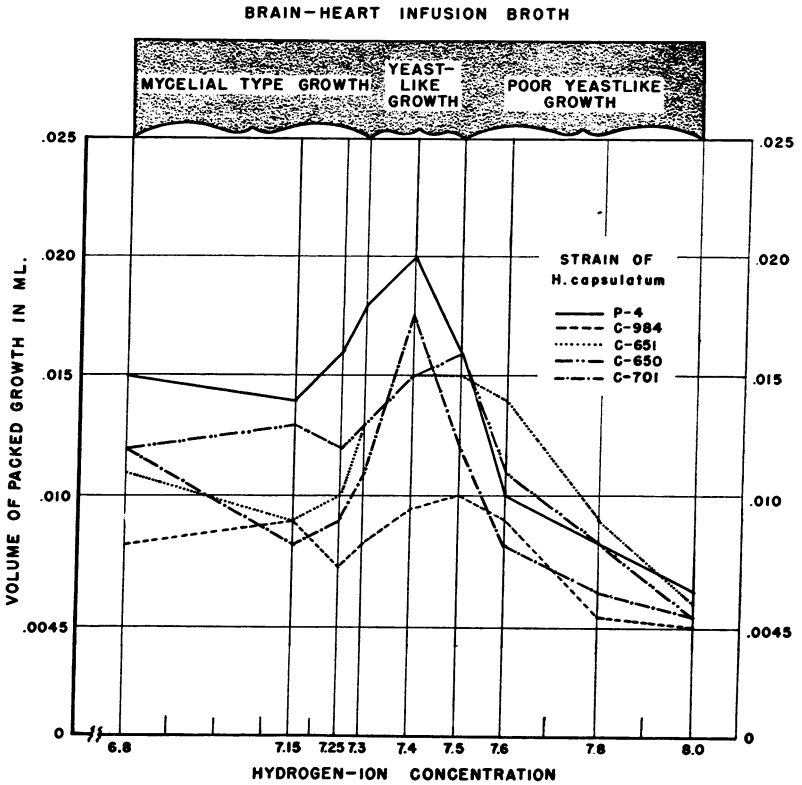

FIGURE 2

Curves showing the effect of various hydrogen-ion concentrations in Brain Heart Infusion Broth (Difco) on five strains of the yeastlike phase of *Histoplasma capsulatum* incubated for 5 days at 37° C. Volume of growth obtained by centrifugation of cultures in Hopkin tubes at 2,000 r. p. m. for 30 minutes. Initial volume of inoculum 0.0045 ml. yeastlike cells.

hyphae. The strains at pH 8.45 showed a similar type of growth with rare short fragments of hyphae.

Brain Heart Infusion Broth.—The maximum growth for all strains in this medium occurred in the pH range 7.3 through 7.5 (figure 2). Microscopic examination of this growth showed predominantly yeastlike cells. Strains C–701 and P–4 produced the most yeastlike growth at pH 7.4, while strains C–984 and C–650 produced their best yeastlike growth at pH 7.5. Strain C–651 showed an equal amount of yeastlike type production at pH 7.4 and 7.5.

The conversion of yeastlike cells to the mycelial phase was greatest in this medium at pH 6.8 diminishing in mycelial characteristics at pH 7.15 in all strains. With the exceptions of C–984 and C–650, all strains showed increased production of yeastlike cells at pH 7.25.

From pH 7.5 to 7.8, strains C–701 and P–4 showed a tendency of the yeastlike cells to convert to mycelium. Strains C–651, C–650, and C–984 showed this tendency beginning at pH 7.6.

Yeastlike cells predominated at pH 8.0 for all strains with a very slight tendency towards conversion, although the amount of growth was limited.

DISCUSSION

From the data presented in table 1, it would appear that the nutritional constituents of Sabouraud's broth are not suitable for propagation of the yeast-phase of *H. capsulatum* at hydrogen-ion concentrations ranging from 6.8 to 8.85 at 37° C. This may be due to the complexity of the nutritional requirement of the yeast-phase. While conversion to and growth of the mycelial phase occurred in all strains at hydrogen-ion concentration varying from 6.8 to 8.1, a pH of 8.85 inhibited growth after 19 days at 37° C.

Beef extract broth, although permitting multiplication of the yeastlike forms in the pH range 7.3 to 7.5, did not have a definite range in which consistently smooth-budding yeastlike cells were produced. The lack of dextrose in this medium rendered it poor in carbohydrates and may have influenced the lack of good yeastlike production. The high concentration of sodium chloride may also have influenced the lack of good yeastlike production. Since the protein complex in this medium was high, it may have been responsible for the limited production of yeastlike forms observed. It would appear that a further and more complex medium is necessary for good propagation of the yeastlike form of *H. capsulatum*.

Brain Heart Infusion supported growth of the yeast phases more consistently than the other two media employed. In this medium there was little tendency toward conversion to the mycelial phase at 7.4–7.5. In using this medium a careful check of the initial hydrogen-ion concentration is necessary. Slight variations from the pH range

7.4–7.5 will seriously effect the growth of the yeast phase of *H. capsulatum*. Variations of hydrogen-ion concentration from the optimum of 7.4–7.5 may produce a rough variety of yeastlike forms, retard growth of the yeastlike forms, or induce conversion to the mycelial phase.

From a practical standpoint this medium more than any other liquid medium tested, meets the requirements for the propagation of the yeastlike phase.

In the media employed, except Sabouraud's, when the hydrogen-ion concentration range was 6.7 through 6.8, conversion from the yeast phase to the mycelial phase as well as growth of the mycelial phase occurred, whereas when the hydrogen-ion concentration range was 7.6 through 8.45, there appeared to be only a slight tendency toward conversion to the mycelial phase and very limited growth of the yeastlike organisms.

In Sabouraud's medium, conversion to and growth of the mycelial phase occurred over a wide range of hydrogen-ion concentrations with no production of yeastlike forms. Although yeastlike production was observed with the other media employed, an optimum pH range was found necessary for good growth. Yeastlike production, however, seems to depend as much on the components of the media as the pH. The recent work of Salvin (7) indicates that with a medium of organic nitrogen compounds, the viscosity of the medium is an important factor in the production of the yeastlike phase, and that the viscosity influences the range of hydrogen-ion concentration in which good yeastlike production can be obtained.

SUMMARY AND CONCLUSIONS

1. The effect of various hydrogen-ion concentrations on the yeastlike phase of five strains of *Histoplasma capsulatum*, in modified Sabouraud's broth, modified beef extract broth and Brain Heart Infusion Broth (Difco) has been studied.

2. It is shown that, depending on the medium employed, the optimal initial hydrogen-ion concentration for the growth of the yeastlike phase of *H. capsulatum* was between pH 7.2–7.6 when the cultures were incubated at 37° C. for 5 days.

3. Of the media employed, Brain Heart Infusion Broth (Difco) provided the optimal conditions for growth of the yeastlike phase of *H. capsulatum* at pH 7.4–7.5 at 37° C.

4. The modified Sabouraud's broth employed appeared to be unsatisfactory for the propagation of the yeastlike phase of *H. capsulatum*.

5. In all media employed at 37° C., except Sabouraud's, the growth and conversion of the yeastlike phase of *H. capsulatum* decreased as the hydrogen-ion concentration is decreased above the optimal

range determined. Hydrogen-ion concentration above the optimal range determined permits conversion to and growth of the mycelial phase.

6. The hydrogen-ion concentration of a culture medium, although closely related to nutritional requirements and physio-chemical factors plays an important part in the metabolism and growth of the fungi.

ACKNOWLEDGMENT

The author desires to express his appreciation to Dr. Arden Howell, Jr., Senior Mycologist, and Michael L. Furcolow, Surgeon, Tuberculosis Control Division, Public Health Service, for their assistance in this study.

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CHARACTERISTICS OF COMMERCIAL X-RAY INTENSIFYING SCREENS AND FILMS—III [1] [2]

By WILLARD W. VAN ALLEN, *Physicist, Public Health Service*

Resolving power constitutes a measure of the ability of X-ray films and screens to record detail and is measured by radiographing on the film or screen under standard conditions a graduated series of linear

[1] From the Rockville Laboratory, Tuberculosis Control Division.

[2] For previous reports in the series see PUBLIC HEALTH REPORTS, March 1, 1946, and September 6, 1946. The information contained in these reports is revised and augmented from time to time.

patterns. It is expressed as the maximum number of lines per millimeter that can be distinguished on the processed film. The resolving power of radiographic screens is considerably less than that of films, and therefore measurements of film-screen combinations are essentially the resolving power of the screens alone. Screens with the highest resolving power are capable of recording the greatest detail (table 1).

TABLE 1.—*Resolving power of commercial screens*

Manufacturer	Type	Resolving power	Use
Buck	Xtra speed	10	Intensification.
	Midspeed	10	Do.
	Definition	10	Do.
Eastman	Ultra speed	10	Do.
	Fine grain	10	Do.
	Definition	10	Do.
Patterson	Parspeed	10	Do.
	Detail	15	Do.
U. S. Radium	666D double	6	Do.
Patterson	D regular	[1] 7	Fluorographic and photofluorographic.
	D cleanable	[1] 7	Do.
	B	[1] 5	Do.
	E2	[1] 5	Do.
U. S. Radium	666D single	[1] 8	Do.

[1] These figures are for screens alone. When used in photofluorography, the additional effect of the lens must be taken into consideration.

The exposure necessary to produce a given amount of film blackening depends upon the type of screen and film used and also upon the conditions of development including time, temperature, age and type of developer. If the development conditions are held constant, therefore, the speed of a film-screen combination may be determined by measuring the exposure required to produce a given density on the film. For convenience, the speed is defined as the reciprocal of the exposure in deciroentgens required to produce a density of 1.0.

The following table gives the speed, determined as above, for the film-screen combinations noted. This table will be revised and en-

TABLE 2.—*Relative speed of commercial screens*

Manufacturer	Type	Speed	Film	Development
Buck	Xtra speed	80	Eastman blue brand	4½ minutes at 68° F. in Eastman X-ray developer.
	Midspeed	70	do	Do.
	Definition	55	do	Do.
Eastman	Ultraspeed	125	do	Do.
	Fine grain	100	do	Do.
	Definition	70	do	Do.
Patterson	Parspeed	75	do	Do.
	Detail	25	do	Do.
U. S. Radium	666D double	225	do	Do.
Patterson	D regular	125	Eastman blue photoflure	6 minutes at 68° F. in Eastman X-ray developer.
	D cleanable	100	do	Do.
	B regular	70	Eastman green photoflure	Do.
	E2	80	do	Do.
U. S. Radium	666D single	75	Eastman blue photoflure	Do.

larged from time to time to include other film-screen combinations of interest, as well as data on different developers. These results will appear on these pages in subsequent issues.

The following table gives the average speed for five different developers of several types of X-ray film in combination with the screen noted.

TABLE 3.—*Relative speed of commercial films*

Film	Speed	Screen
Ansco high speed	60	Patterson parspeed.
Buck	30	Do.
Dupont 508	75	Do.
Eastman blue brand	80	Do.
Ansco fluorapid [1]	140	Patterson D.
Eastman blue photoflure	125	Do.
Eastman green photoflure	75	Patterson B.

[1] This figure is based on tests made on a pre-production sample. This film is now reported on the market.

WHERE TO FIND . . .

Tuberculosis Mortality and Morbidity Data [1]

By ELEANOR HANNA, *Statistician*, and STANLEY GLASER, *Statistician*, *Public Health Service*

For the year 1945, basic data relating to tuberculosis mortality and morbidity may be obtained from 12 sources which have been released by 2 Federal offices. The accompanying bibliography has been prepared to identify and describe these references. Although the bibliography is intended principally to serve the needs of tuberculosis workers, the National Office of Vital Statistics references, which include data on all causes of death, will be generally useful to all public health workers.

The column, "Where You Will Find It," gives the specific reference and a brief description of its general contents. The column, "What You Will Find" presents a detailed description of all tabulations which relate to tuberculosis.

Because of the tremendous task involved in the compilation, analysis, and publication of vital statistics, 1945 is the most recent year for which complete published data are available from Federal sources. More recent information for individual States may be obtained from State registrars. However, such information may not be comparable from State to State because of variations in the selection of categories and classifications.

The data contained in the references below are the only available statistics which are comparable on a National and State-to-State basis.

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

WHERE YOU WILL FIND IT	WHAT YOU WILL FIND
I. *Vital Statistics of the United States, 1945, Part I—by Place of Occurrence*, National Office of Vital Statistics, Public Health Service, Federal Security Agency. (The number of deaths and the death rates from tuberculosis by age, race, and sex for the United States, its States and some of its territories and possessions.)	(a) Death rates, tuberculosis (respiratory, other forms), Death Registration States, 1900–45. (b) Death rates, tuberculosis (all forms), by age (5-year intervals up to 75 and under 1 year), United States, 1945. (c) Infant mortality rates, tuberculosis (all forms, respiratory, meninges, other forms), United States, 1941–45. (d) Death rates, and number of deaths, tuberculosis (each form), United States, 1944, 1945. (e) Number of deaths, tuberculosis (each form), by race (white, Negro, Indian, Chinese, Japanese, all other) and sex, United States, 1945. (f) Number of deaths, tuberculosis (each form), by age (under 1 year, by 1-year intervals up to 5 years, by 5-year intervals up to 100 years), race (white, Negro, other), and sex, United States, 1945. (g) Number of deaths from tuberculosis (all forms), for each major geographic division (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, Pacific) and for each State, 1945. (h) Number of deaths, tuberculosis (all forms, respiratory, other forms), not in institutions and number of deaths in institutions by type of institution (general hospital, tuberculosis hospital, mental institution, etc.) and by type of control (Federal, State, nonprofit, etc.), United States, 1945. (i) Hawaii— (1) Number of deaths, tuberculosis (all forms, respiratory, other forms), Territory of Hawaii and its subdivisions, 1945. (2) Number of deaths, tuberculosis (each form), by race (Hawaiian, Part-Hawaiian, Puerto Rican, Caucasian, Chinese, Japanese, Korean, Filipino, all other), 1945. (3) Number of deaths, tuberculosis (all forms, respiratory, other forms), by age (1-year intervals up to 5, and 5-year intervals up to 100), 1945. (4) Number of deaths, tuberculosis (all forms, respiratory, other forms), by month, 1945.

(5) Number of deaths, infants (under 1 day, by days under 1 month, by months under 1 year), tuberculosis (all forms, respiratory, meninges), 1945.

(6) Infant mortality rates, tuberculosis (respiratory, meninges, other forms), 1934–45.

(j) Puerto Rico—

(1) Number of deaths, tuberculosis (all forms, respiratory, other forms), by race (white, nonwhite), sex and place (rural, urban places over 10,000, urban places between 2,500 and 10,000, and each urban place of 10,000 or more), 1945.

(2) Similar to (i, 3) by race (white, nonwhite).

(3) Number of deaths, tuberculosis (each form), by race (white, nonwhite), 1945.

(4) Number of deaths, tuberculosis (all forms, respiratory, other forms), by race (white, nonwhite) and month, 1945.

(5) Number of deaths, infants (under 1 day, by days under 1 month, by months under 1 year), tuberculosis (all forms, respiratory, meninges, other forms), 1945.

(6) Infant mortality rates, tuberculosis (all forms, respiratory, meninges, other forms) 1944 and 1945.

(k) Virgin Islands—

(1) Number of deaths, tuberculosis (all forms, respiratory, other forms), by race (white, Negro, other), each Island, 1945.

(2) Number of deaths, tuberculosis (each form) by race (white, Negro, other), 1945.

(3) Number of deaths, tuberculosis (all forms, respiratory, other forms) by ages (by 1-year intervals up to 5, 5-year intervals up to 100), 1945.

(4) Number of deaths, tuberculosis (all forms, respiratory, other forms) by month, 1945.

(5) Infant mortality rates, tuberculosis (respiratory), 1926–45.

(l) Alaska

(1) Number of deaths, tuberculosis (each form) by race (white, Indian, Eskimo, all other), 1945.

(2) Number of deaths, tuberculosis (all forms, respiratory, other forms), by age (1-year intervals up to 5, 5-year intervals up to 100).
(3) Number of deaths, tuberculosis (all forms, respiratory, other forms), by months, 1945.
(4) Number of deaths, infants (under 1 day, by days under 1 month, by months under 1 year), tuberculosis (all forms, respiratory, meninges), 1945.
(5) Infant mortality rates, tuberculosis (all forms, respiratory, meninges), 1945.

II. *Vital Statistics of the United States, 1945, Part II—by Place of Residence*, National Office of Vital Statistics, Public Health Service, Federal Security Agency.

(There is only one rate table in this volume. Seven tables present data on the number of deaths by age, race, sex, and place.)

(a) Tuberculosis death rates for the United States, for the major geographic divisions and for each State, 1945.
(b) Number of deaths, tuberculosis (all forms, respiratory and other forms), by calendar months, for the United States and for each State, 1945.
(c) Number of deaths, tuberculosis (all forms, respiratory, other forms), by race (white, nonwhite) and sex, by age (1-year intervals up to 5, 5-year intervals from 5 to 100), for each State, 1945.
(d) Number of deaths, tuberculosis (all forms and each form), by race (white, nonwhite) and sex, for the United States and for each State, 1945.
(e) Number of deaths, tuberculosis (all forms, respiratory, meninges, other forms) of infants under 1 year for the United States—by calendar month—by age in months (in days for ages under 1 month), by race (all races, white, Negro, other races)—by rural and by large and small urban place, by race (white, nonwhite), United States, 1945.
(f) Number of deaths, tuberculosis (all forms), each State, each county, and each urban place having, in 1940, a population of 10,000 or more, United States, 1945.

III. *Vital Statistics—Special Reports, State Summaries, 1945*, Vol. 26, Nos. 1–54, National Office of Vital Statistics, Public Health Service, Federal Security Agency.

(a) Death rates, tuberculosis (all forms, respiratory, other forms), each State, 1943, 1944, and 1945.
(b) Number of deaths (total, white, nonwhite) by age groups for the five leading causes of death, each State, 1945. Tuberculosis (all forms) appears in some of the age groups (seven unequal intervals).
(c) Number of deaths, tuberculosis (all forms, respiratory, other forms), by age, (seven unequal intervals) each State, 1945.

WHERE YOU WILL FIND IT	WHAT YOU WILL FIND
(There is a separate summary for each State and Territory and one for the United States. Number of deaths and death rates by age, race, sex, and by institutions are presented.	(d) Number of deaths, tuberculosis (all forms, repiratory, other forms), in hospitals and other institutions by type of institution, each State, 1945.
	(e) Number of deaths and death rates, tuberculosis (all forms), infants (under 1 year and under 1 month), each State, 1940–45.
	The United States Summary contains more data than the State or Territory summaries and presents it in more detail.
	(f) Similar to (a) for the United States, 1935–45.
	(g) Number of deaths and death rate, tuberculosis (all forms), United States, 1945.
	(h) Same as (b) for the United States, 1945.
	(i) Death rates and number of deaths, tuberculosis (all forms, respiratory, other forms), United States, 1935–45.
	(j) Death rates and number of deaths, tuberculosis (all forms, respiratory, other forms), by age (under 1 year and by 5-year intervals to 75), United States, 1945.
One table in each State summary gives the leading causes of death by selected age groups. For comparing the rank order of each State by cause of death, a pamphlet prepared by the Tuberculosis Control Division will be useful. It is titled *Leading Causes of Death in the United States & States, 1945.*)	(k) Similar to (d). More detailed break-down of institutions; type of ownership or control also shown, United States, 1945.
	(l) Number of deaths, tuberculosis (all forms, respiratory, all other forms) by race (white, Negro, Indian, Chinese, Japanese, all other), United States, 1945.
	(m) Similar to (e), tuberculosis (all forms, respiratory, meninges, all other forms). Also shows race (white and nonwhite) and infant mortality rate, United States, 1945.
	The summaries for the outlying possessions (Alaska, Hawaii, Puerto Rico, and the Virgin Islands) are similar, with the exceptions noted below, to the State summaries.
	(n) Similar to (a) but shows number of deaths instead of death rates.
	(o) Puerto Rico, similar to (e) but has data for 1945 only.
	(p) Virgin Islands, number of deaths, tuberculosis (all forms), by Islands.
	(q) Alaska, number of deaths, tuberculosis (all forms, respiratory, all other forms), by race (Indian, Eskimo, Aleut, other native, white, all other), 1943, 1945.
	(r) Hawaii, similar to (q) (Hawaiian, Part-Hawaiian, Puerto Rican, Caucasian, Chinese, Japanese, Korean, Filipino, all other), 1943–45.

IV. *Deaths and Death Rates for Each Cause, United States, 1943–1945*, Vol. 27, No. 2, National Office of Vital Statistics, Public Health Service, Federal Security Agency.

(Each cause of death by number and rate.)

(a) Number of deaths and death rates for tuberculosis (all forms) each form separately—numbers 13 through 22 in the International List of Causes of Death), United States, 1943–45.

V. *Deaths and Death Rates for Selected Causes by Age, Race, and Sex, United States, 1945*, Vol. 27, No. 11, National Office of Vital Statistics, Public Health Service, Federal Security Agency.

(Number of deaths and death rates, tuberculosis (all forms), by age, race and sex, United States, 1945.)

(a) Death rates, tuberculosis (all forms), by race (white, nonwhite) and sex, United States, 1945.

(b) A line chart showing death rates, tuberculosis (all forms), by age (under 1 year and by 5-year intervals to 75), race (white, nonwhite), and sex, United States, 1945.

(c) Death rates adjusted for age, tuberculosis (all forms), by race (white, nonwhite) and sex, United States, 1943–45. Also the percent change in rates from 1943 to 1944 and from 1944 to 1945.

(d) Number of deaths tuberculosis (all forms, respiratory, other forms), by age (under 1 year and by 5-year intervals up to 100), race (white, Negro, other) and sex, United States, 1945.

(e) Death rates, tuberculosis (all forms, respiratory, other forms), by age (under 1 year and by 5-year intervals up to 75), race (white, nonwhite) and sex, United States, 1945.

VI. *Deaths and Death Rates for Selected Causes, United States, Each Division and State, 1945*, Vol. 27, No. 3, National Office

NOTE: State and geographic data are by place of residence.

(a) Death rates, 10 leading causes of death including tuberculosis (all forms), United States, 1943–45; percent change, 1943–44 and 1944–45.

(b) Death rates, 10 leading causes of death in the 9 major geographic areas, United States, 1945; percent change, 1944–45. Includes tuberculosis (all forms).

WHERE YOU WILL FIND IT	WHAT YOU WILL FIND
of Vital Statistics, Public Health Service, Federal Security Agency. (Number of deaths and death rates, tuberculosis, United States, each State and each of the major geographic divisions, 1945. The divisions referred to are the nine major geographic divisions of the United States: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, Pacific).	(c) Graphic presentation using eight maps of the United States showing death rates (all causes and seven leading causes), including tuberculosis (all forms). Each State is shown in one of five patterns of cross-hatching representing ranked rates from highest to lowest. (d) Number of deaths and death rates, tuberculosis (all forms, respiratory, other forms), for the United States, for each of the nine major geographic divisions, and for each State, 1945.
VII. *Vital Statistics—Special Reports, National Summaries, 1945*, Vol. 27, No. 21, National Office of Vital Statistics, Public Health Service, Federal Security Agency.	NOTE: All data concern tuberculosis (all forms). (a) Number of deaths and death rates by race (white, nonwhite) and sex, United States, 1941–45. (b) Number of deaths and death rates by age (under 1 year, 1 to 4 years, 10-year intervals from 5 to 75), race (white, nonwhite), and sex, United States, 1945. (c) Number of deaths and death rates by age (as in (b) above), United States, 1941–45. (d) Number of deaths and death rates, by month, United States, 1945.

(Number of deaths and death rate for tuberculosis (all forms) by age, race, sex, and month, United States; number of deaths, each State and death rates, each State, 1945.)

(e) Number of deaths and death rates, by race (white, Negro, Indian, Chinese, Japanese, other), United States, 1940 and 1945.

(f) Number of deaths and percent distribution by type of institution (general hospital, tuberculosis hospital, mental institution, etc.) and type of control (Federal, State, private, etc.), United States, 1945.

(g) Number of deaths and death rates for the United States, for each of the nine major geographic divisions, and for each State, by place of residence, 1941–45.

VIII. *Current Mortality Analysis*, Vol. 4, 5, 6, Nos. 1–13, National Office of Vital Statistics, Public Health Service, Federal Security Agency.

(This is the latest information available on tuberculosis mortality. Each monthly issue contains estimates of the death rate for specified causes of death based on a 10-percent sample of death certificates received in vital statistics offices and is available 60 to 75 days after the end of the month to which it refers.)

NOTE: Volume 5 pertains to the year 1947; Volume 6 to the year 1948.

(a) A series of charts shows for a period of 1 year by months the expected behavior of the tuberculosis (all forms) death rate, the range of nonsignificant deviation from the expected trend line and the death rate as observed from the 10-percent sample. Most of the issues chart this information for the United States as a whole; one or more issues show separate charts for each of the nine major geographic divisions.

(b) The number of deaths in the sample and the death rate as observed from the sample, tuberculosis (all forms, respiratory, other forms), for the reporting area (substantially the whole United States) and tuberculosis (all forms) for the nine major geographic divisions.

A summary for the year, which is available approximately 6 months after the end of the year shows the following information:

(c) Estimated number of deaths, estimated death rate and estimated percent error, tuberculosis (all forms, respiratory and other forms), compared with the actual death rate for the preceding 6 years, United States.

(d) Estimated number of deaths and estimated death rates for tuberculosis (all forms), by age (6 unequal intervals), race (white, nonwhite) and sex, year of report and 6 preceding years, United States.

WHERE YOU WILL FIND IT	WHAT YOU WILL FIND
IX. "Tuberculosis Mortality in the United States and in Each State: 1945" by Elizabeth H. Pitney and Richard V. Kasius, *Public Health Reports*, Vol. 62, No. 14 (Tuberculosis Control Issue No. 14), Public Health Service, Federal Security Agency. (Death rates and number of deaths from tuberculosis for 1945; in some distributions as early as 1910. Some of the tables present data for all forms combined; some for each form separately; some compare respiratory tuberculosis with "other forms." There are distributions by race, sex, age, States, other geographic units and war veteran status. One table deals with proportionate mortality).	NOTE: Data for States are by place of residence. (a) Death rates, tuberculosis (all forms), by race (white, nonwhite) and sex, United States, 1910–45. (One table and one graph.) (b) Death rates and number of deaths, tuberculosis (all forms), by age (5-year intervals to 35, 10-year intervals to 75), race (white, nonwhite), and sex, United States, 1944, 1945, 1939–41 average and 1942–44 average. (One table and one graph.) (c) A graph of proportionate mortality (tuberculosis deaths as a percent of all deaths) by age (10-year intervals to 80), race (white, nonwhite), and sex, United States, 1945. (d) Percentage distribution of tuberculosis deaths by age (four unequal intervals), and sex, United States, 1945. (e) Percentage distribution (graph) of deaths from tuberculosis (all forms), by age (same as (d) above), United States, 1944, 1945, 1939–41 average and 1942–44 average. (f) Number of deaths from tuberculosis (all forms) among war veterans, by specified war, United States, 1944, 1945. (g) Death rates and number of deaths from tuberculosis (all forms) for nonwhites by specified race (Negro, Indian, Chinese, Japanese, other), United States, 1940–45. (h) Map of the United States showing the geographic distribution of tuberculosis (all forms), rates by quartiles, each State, 1945. (i) Number of deaths and death rates, tuberculosis (all forms), United States and each State, 1944, 1945, 1939–41 average, and 1942–44 average. Percent change in rates from 1944 to 1945 and from 1939–41 average to 1942–44 average. (j) Number of deaths from tuberculosis (all forms), number of deaths from all causes, proportionate mortality (deaths from tuberculosis as a percent of deaths from all causes), by age (four unequal intervals), race (white, nonwhite) and sex, Florida, 1941–45. (k) Number of deaths and death rates, tuberculosis (all forms and for 10 specified forms), United States, 1945. (l) Death rates, tuberculosis (all forms, respiratory, other forms) by race (white, nonwhite), Death Registration States, 1910–45.

(m) Number of deaths and death rates, tuberculosis (respiratory, nonrespiratory) by age (5-year intervals to 35, 10-year intervals to 75), race (white, nonwhite), and sex, United States, 1945.

(n) A graph of death rates from nonrespiratory tuberculosis by age (10-year intervals to 80), race (white, nonwhite) and sex, United States, 1945.

(o) Number of deaths from tuberculosis (all forms, respiratory, other forms), and death rates from tuberculosis (respiratory, other forms), United States and each State, 1945.

(p) A map similar to (h) for nonrespiratory tuberculosis, United States, 1945.

X. "Tuberculosis Mortality in Major Cities: United States, 1945" by Sara A. Lewis and Richard V. Kasius, *Public Health Reports*, Vol. 63, No. 1 (Tuberculosis Control Issue No. 23). Public Health Service, Federal Security Agency.

(Data on the number of deaths from tuberculosis and proportionate mortality ratios for tuberculosis (all

NOTE: Data are by place of residence.

(a) Proportionate mortality ratios, tuberculosis (all forms), by age (six unequal intervals), race (white, nonwhite), and sex, for cities of 100,000 or more and places under 100,000, United States, 1945. (One table and one graph.)

(b) Proportionate mortality ratios and number of deaths, tuberculosis (all forms), and deaths (all causes), by age (six unequal intervals), race (white, nonwhite), and sex, cities of 100,000 or more, United States, 1939–41 average, 1942–44 average, 1944, 1945. (One table and two graphs.)

(c) Proportionate mortality ratios adjusted for age, and unadjusted by race (total, white, nonwhite), sex, population-size of city and by geographic location (Northwest, Middle West, South, Far West), 92 cities (100,000 or more), United States, 1945. (One table and two graphs.)

(d) Proportionate mortality ratios and rank order for each of the 92 cities (100,000 or more), by race (white, nonwhite), 1939–41 average compared with 1942–45 average; each city by population size group, geographic region and race (white, nonwhite) for 1945.

WHERE YOU WILL FIND IT	WHAT YOU WILL FIND
forms) in major cities. A proportionate mortality ratio for a disease is the number of deaths from that disease expressed as a percent of deaths from all causes. An analysis of the data and a brief explanation of techniques used comprise the text of the article).	(e) Number of deaths, tuberculosis (all forms), and deaths (all causes), by race (white, nonwhite), sex, population size and geographic location, cities over 100,000, United States, 1945. (f) Number of deaths from tuberculosis (all forms), by age (six unequal intervals), race (total, white, nonwhite), and sex, 92 cities (100,000 or more), United States, 1945.
XI. "Deaths from Respiratory Tuberculosis in Institutions in the United States, 1945" by Richard V. Kasius and Evelyn H. Halpin, *Public Health Reports*, Vol. 62, No. 36 (Tuberculosis Control Issue No. 19), Public Health Service, Federal Security Agency. (This article is chiefly concerned with deaths from respiratory tuberculosis in institutions, including hospi-	(a) Number and percent distribution of deaths from respiratory tuberculosis, not in institutions and in institutions, by type of institution (general hospitals, tuberculosis hospitals, nervous and mental institutions, etc.) and by type of control (Federal State, nonprofit, etc.), United States, 1944, 1945, 1939–41 average and 1942–44 average. (b) Number and percent distribution of deaths from respiratory tuberculosis, in each type of institution classified according to the type of control of the institution, United States, 1945. (c) A table similar to (a) which compares the number and percent of deaths from tuberculosis (respiratory) with tuberculosis (other forms), United States, 1945. (d) A table similar to (a) which presents a classification by race (white, nonwhite) and sex, United States, 1945. (e) Number and percent of deaths from respiratory tuberculosis, not in institutions and in institutions, by type of institution, age (five unequal intervals), and race (white, nonwhite), United States, 1945. (f) Number of deaths from respiratory tuberculosis, not in institutions, and in institutions, by type of institution, and by type of control, United States and each State, 1945.

tals. For purposes of comparison it also shows the number of deaths not in institutions and the number of deaths from other forms of tuberculosis. The tables and charts in the article present distributions by type of institution, and by age, race, sex, length of stay and State.)

(g) Number of deaths from respiratory tuberculosis, by race (white, nonwhite) and sex, for persons in institutions and for persons not in institutions, United States and each State, 1945.

The summaries (h) through (l) are based upon a 10-percent sample of death certificates received in vital statistics offices of 43 States and the District of Columbia, 1945.

(h) Number and percent distribution of deaths from respiratory tuberculosis, race (white, nonwhite), and sex, by age (five unequal intervals), in institutions and not in institutions, reporting area 1945.

(i) Number and percent distribution of deaths from respiratory tuberculosis, age (five unequal intervals), race (white, nonwhite), and sex, by length of stay in institutions (weeks, months, etc.) reporting area, 1945.

(j) Number and percent distribution of deaths from respiratory tuberculosis in institutions, type of institution and type of control, by length of stay, reporting area, 1945.

(k) A bar graph which shows the percent distribution of deaths from respiratory tuberculosis, by length of stay, and by sex, reporting area, 1945.

(l) Median length of stay in institutions prior to death from respiratory tuberculosis, by type of institution, and by type of control, reporting area, 1945.

(m) A map of the United States which shows, for each State, the percent of deaths from respiratory tuberculosis which occurred outside of institutions, 1945.

(n) A bar graph which shows the percent distribution of deaths from respiratory tuberculosis by type of institution and by sex, United States, 1945.

XII. "The Notifiable Diseases, Prevelance of Certain Important Communicable Diseases, by States, 1945," Supplement 193 to Public Health Reports, Public Health Service, Federal Security Agency.

(a) Number of cases newly reported, case rate per 100,000, number of deaths registered, death rate, and number of cases per death, tuberculosis (all forms) 43 States and respiratory tuberculosis, 24 States, 1945.

(b) Number of cases newly reported by months, tuberculosis (all forms), United States; respiratory tuberculosis, 26 States, 1945.

(c) Number of deaths registered, by months, tuberculosis (all forms), United States; respiratory tuberculosis, 44 States, 1945.

(d) Number of cases newly reported and number of deaths reported, tuberculosis (all forms, respiratory), each State, 1945.

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(The number of newly reported cases of tuberculosis and the number of tuberculosis deaths registered, 1945.)	NOTE: For data for earlier years, a quotation from this report may be helpful: "Tabulations of reported cases of, and deaths from, the principal notifiable diseases have been issued by the Public Health Service since 1912 (reprints numbered 163, 208, 298, 345, 426, 505, 551, 643, 681, 791, 879, 974, 1056, and 1132, and supplements numbered 67, 73, 79, 88, 104, 105, 109, 112, 117, 119, 134, 147, 160, 163, 166, 172, 174, 182, and 190)." Data for 1946 appeared in Public Health Reports, Vol. 62, No. 11, March 14, 1947.
XIII. *Estimated Population of the United States, by Age, Color, and Sex: 1945 and 1944*, Series P–46, No. 2, Bureau of the Census, U. S. Department of Commerce. (Two separate population estimates are presented; one includes the armed forces overseas, the other excludes them.)	(a) Estimated population of the continental United States, including armed forces overseas, by age (5-year intervals to 75, 14 and over, and 21 and over), race (white, nonwhite), and sex, July 1, 1944 and July 1, 1945. Also a percent distribution. (b) A table similar to (a) excluding the armed forces overseas. (c) A table similar to (a) for the enumerated population as of April 1, 1940.
XIV. *Estimated Population of the United States, by States: 1940 to 1945*, Series P–46, No. 3, Bureau of the Census, U. S. Department of Commerce. (Two separate estimates of the population by States are	(a) Estimated population of the United States, excluding the armed forces overseas, and the estimated civilian population, by region (Northeast, North Central, South, West), geographic division (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, Pacific), and each State, July 1, 1945, and April 1, 1940. Also number and percent change in population from 1940 to 1945. (b) Population changes, United States (region, division, and each State), by component of change (estimated natural increase, estimated net loss to the armed forces, and estimated net gain or loss through civilian migration), April 1, 1940, to July 1, 1945

made; one excludes the armed forces overseas, the other is an estimate of the civilian population.)

(c) Estimated population of the United States, excluding armed forces overseas, by region, division, and State, July 1, 1940, to July 1, 1945. (This is the estimate used for computing death rates.)
(d) Similar to (c), civilian population only.

XV. *Estimated Civilian Population of the United States, by Counties: November 1, 1943*, Series P–44, No. 3, Bureau of the Census, U. S. Department of Commerce.

(Although this is earlier than the other data presented in this list it is the latest data on individual counties. The estimates are based on registration for War Ration Book No. 4.)

(a) Estimated civilian population, United States, for each region, geographic division, and State, November 1, 1943, and April 1, 1940. Also number and percent change from April 1, 1940, to November 1, 1943.
(b) Similar to (a) for metropolitan counties (137 areas).
(c) Similar to (a) for each county.

XVI. *Suggested Procedures for Estimating the Current Population of Counties*, by Hope T. Eldridge, P–47, No. 4, Bureau of the Census, U. S. Department of Commerce.

(The two methods described may also be applied to cities.)

(a) This publication suggests two methods for estimating the current population of counties in the United States. Either of the methods can be used to estimate the current population of cities or of other places for which the necessary basic and ancillary information is available. The first method, which is spelled out in detail, consists of collecting estimates of changes in the major components of the population and of estimating other changes by reference to source material such as school registration. The second method, which is presented in outline only, is the life table or cohort method of estimation. The sources of basic data are explicitly named or described.

WHERE TO OBTAIN SUCH REFERENCE MATERIAL

Your local library Reference room.	may have many or all of the items I through XVI.
The Bureau of The Census Department of Commerce, Washington 25, D. C.	will furnish items XIII, XIV, XV, and current population reports.
Superintendent of Documents The Government Printing Office, Washington 25, D. C.	will furnish item I (price, $1.75) and item II (price $3.50).
The National Office of Vital Statistics Public Health Service, Washington 25, D. C.	will furnish items III through VIII, various publications concerning mortality data and a pamphlet entitled "Current Publications of the National Office of Vital Statistics."
The Tuberculosis Control Division Attention: Publications Unit, Public Health Service, Washington 25, D. C.	will furnish items IX through XII; the pamphlet, "The Leading Causes of Death, 1945"; and material concerning general or specific phases of tuberculosis work.

COPYING X-RAY FILMS [1]

By DAVID M. GOULD, *Surgeon;* WILLARD W. VAN ALLEN, *Physicist;* and CHARLES M. BAILEY, *Photographer, Public Health Service*

The need frequently arises for making copies of radiographs for exhibition, teaching and other special purposes. Although such reproductions are obtainable from companies specializing in this work, the cost and effort involved often make it impractical for the radiologist to avail himself of this service. A simple method by which copies of radiographs of special interest could be made would, therefore, be of considerable value to the radiology department or radiologist desiring such duplicates. To meet this need, the method and equipment to be described were devised.

The choice of procedure is governed by the requirements in the copy. Any method for reproducing radiographs, to be fully satisfactory, must meet certain standards. The reproduction must be a faithful copy, preserving all the detail and clarity of the original film. In chest films especially, where pathologic lesions are often recorded by very slight variations in density, it is imperative that the copy, to be of any value at all, must have the same tonal scale. Furthermore, to be practical, it is desirable that the whole process be as nearly automatic as possible, involving a minimum of judgment and special skill on the part of the operator.

There are, in general, three methods of copying radiographs. Solarization, whereby the film is given an extreme over-exposure, has been used as a contact printing method, and produces copies satisfactory for some purposes. However, due to the characteristics of a solarized emulsion this method under average conditions does not maintain the faithfulness of reproduction required for the demonstration of subtle lesions. A second possibility is the production of direct copies by chemical reversal of a contact print on direct positive film. This method has serious disadvantages in that it requires extremely critical control throughout several steps in the processing procedure, and, with materials presently available, makes the faithful reproduction of the whole tonal range of the original a very difficult matter even in the hands of an expert. Furthermore, it requires special darkroom equipment and techniques.

The third and most promising method consists of preparing an intermediate "positive" film from which the final copy is produced by enlargement or contact printing. This method has the advantages of simplifying the problem of reproducing the whole tonal range of the original, requiring no unusual darkroom procedure and making possible the use of automatic exposure control without unduly complicated apparatus. Furthermore, by using 70-mm. film for the intermediate

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

with subsequent enlargement, copies of any desired size may be obtained and the intermediate easily filed for future copies.

A photograph of the apparatus used in making the intermediate

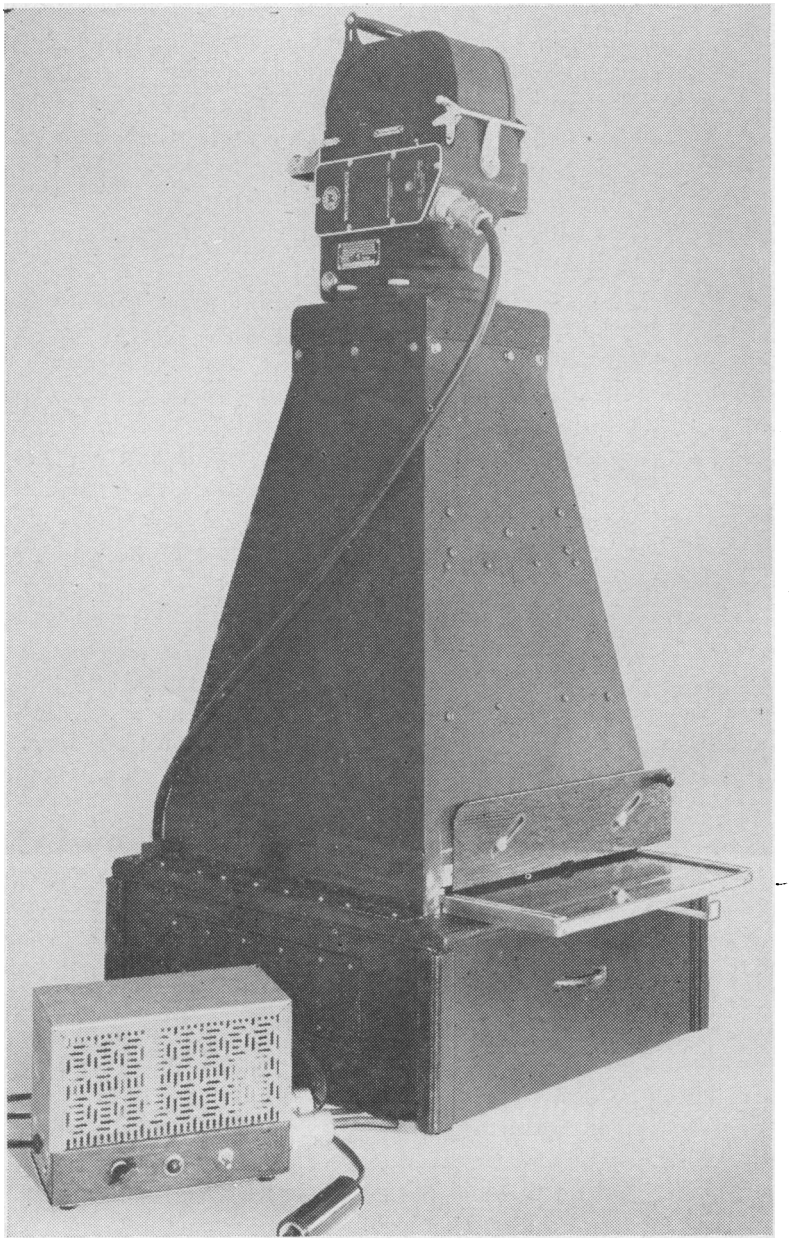


FIGURE 1.—Converted photofluorographic hood and camera used to make 70-mm. intermediate "positives" from 14" x 17" radiographs.

"positives" is shown in figure 1. The equipment consists of a conventional photofluorographic hood and automatic 70-mm. camera mounted vertically on an illuminator. The fluorescent screen and grid are removed and a sliding glass film holder substituted. If it is desired to produce copies of uniform density from originals of varying quality, the phototube camera and phototimer are retained for the control of exposure. It is necessary to alter the phototimer somewhat in order to cover the required exposure range, since longer exposures are needed than in photofluorography. On the other hand, if it is desired to copy exactly the quality of the original, then a fixed exposure is all that is required. This exposure may be obtained from a simple time switch connected to the illuminator. Also it is desirable to stop down the f1.5 lens in the automatic camera to a smaller aperture in order to improve the definition.

With this equipment, all that is required of the operator is to place the film to be copied in the film holder, close the door and push the exposure switch. The exposure is then made automatically and the film advanced in the camera for the next copy.

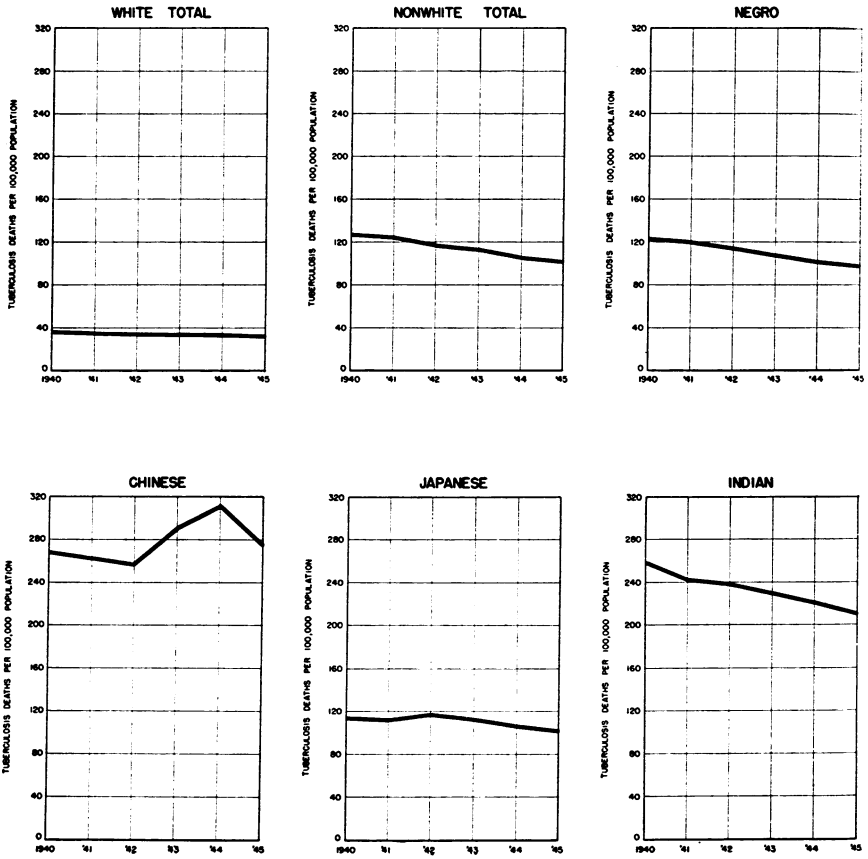
A very satisfactory film for preparing the intermediate negative is Eastman Negative Material #5203 developed in DK 76. This is a slow speed, fine grain emulsion with high resolving power. It permits enlargements up to the original size without objectionable graininess. Where full size reproductions are not required, Ansco Supreme film developed in DK 76, gives good results and is much faster.

The final step in preparing the reproduction involves printing from the intermediate in an ordinary photographic enlarger. Obviously prints of any desired size within the physical limitations of the intermediate emulsion may be obtained and may be made on film, paper or lantern slides. For transparencies, Eastman Contrast Process Ortho Film developed in DK 60A has been found satisfactory. From intermediates prepared as described above, prints may be made with fixed exposure for all copies of a given size and on a given material. However, it is often desirable to vary the printing exposure somewhat in order to control the contrast of the copy. Once the proper processing procedures are determined, therefore, the whole operation of copying becomes routine.

The method described above gives very faithful reproductions of chest films. It has been used successfully for both transparencies and paper prints. Furthermore, it allows considerable flexibility of control over the characteristics of the reproduction. When desired, the contrast of the copy may be made greater or less than the original. This is sometimes desirable when paper prints are wanted for halftones. Furthermore, it is a distinct advantage to be able to prepare copies of different size from a single intermediate.

DEATH RATES FOR TUBERCULOSIS (ALL FORMS) BY RACE

UNITED STATES 1940 – 1945



INCIDENCE OF DISEASE

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

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED MAY 15, 1948

Summary

A total of 142 cases of poliomyelitis was reported for the current week, as compared with 107 last week and a 5-year (1945–47) median of 34. Of the 20 States reporting cases, the 7 reporting more than 2 cases each are as follows (last week's figures in parentheses): Texas 60 (55), California 21 (14), North Carolina 18 (8), New Jersey 7 (2), Illinois 6 (2), Louisiana 6 (1), and Pennsylvania 4 (0). The 7 States reporting more than 11 cases each during the 8 weeks since March 20 (approximate average date of lowest weekly incidence) are as follows (corresponding figures last year and 1944–47 averages in parentheses): Texas 173 (16–28), California 55 (68–37), North Carolina 42 (1–4), New York 16 (25–27), New Jersey 16 (4–3), Indiana 15 (1–2), Iowa 15 (3–3). The total since March 20 is 463, as compared with a 5-year median of 230 (reported for the period last year).

The incidence of measles increased from 28,343 cases last week to 28,895 for the current week, as compared with a 5-year median of 25,813. The net increase is accounted for chiefly in the reports of Massachusetts, Connecticut, New York, New Jersey, Michigan, Maryland, West Virginia, Florida, Utah, Washington, Oregon, and California. During the 4-week period since April 17, a total of 113,102 cases has been reported, as compared with 33,797 for the same period last year and a 5-year average of 84,882.

No occurrence of smallpox was reported during the week. One case of anthrax was reported, in New Jersey. Of 8 cases of Rocky Mountain spotted fever, Virginia, Kentucky, and Wyoming reported 2 each, and New York and Delaware 1 each.

Figures for the year to date above the corresponding median expectancies have been reported for the dysenteries, infectious encephalitis, poliomyelitis, tularemia, and undulant fever.

Deaths recorded during the week in 93 large cities in the United States totaled 9,329, as compared with 9,266 last week, 9,331 and 8,901, respectively, for the corresponding weeks of 1947 and 1946, and a 3-year (1945–47) median of 9,202. The total to date is 198,170, as compared with 198,445 for the corresponding period last year. Infant deaths for the week totaled 743, as compared with 655 last week and a 3-year median of 613. The cumulative figure is 13,815, as compared with 15,841 for the same period last year.

Telegraphic morbidity reports from State health officers for the week ended May 1, 1948, and comparison with corresponding week of 1947 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 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47
	May 15, 1948	May 10, 1947		May 15, 1948	May 10, 1947		May 15, 1948	May 10, 1947		May 15, 1948	May 10. 1947	
NEW ENGLAND												
Maine	0	1	1	1			16	102	102	0	1	
New Hampshire	0	0	0				19	12	12	0	0	
Vermont	0	0	0		7		7	172	66	0	0	
Massachusetts	4	13	4				1,456	402	971	2	1	
Rhode Island	0	1	1			1	18	173	52	0	0	
Connecticut	1	1	1	3	8	1	154	1,072	491	1	3	
MIDDLE ATLANTIC												
New York	9	16	16	[1] 4	[1] 1	[1] 5	3,142	636	1,555	8	5	
New Jersey	7	8	7	3	2	4	2,097	461	1,192	3	1	
Pennsylvania	3	16	10	[2]	[2]	[2] 1	2,135	284	937	8	4	
EAST NORTH CENTRAL												
Ohio	1	12	12	4	2	3	1,214	918	519	3	2	
Indiana	10	3	6	1	2	2	1,024	155	179	0	5	
Illinois	4	4	4		4	11	1,262	228	695	4	4	
Michigan [3]	0	10	3	1	2	2	1,904	116	902	0	1	
Wisconsin	0	2	1	20	10	22	1,836	365	2,320	1	2	
WEST NORTH CENTRAL												
Minnesota	0	3	3				451	555	379	0	1	
Iowa	2	0	2		70	1	191	1,248	183	7	2	
Missouri	2	5	4	6	5	2	286	70	126	1	3	
North Dakota	0	3	1		21	2	20	85	85	0	0	
South Dakota	0	0	0				49	128	39	0	2	
Nebraska	2	1	1	2		2	245	20	80	7	0	
Kansas	5	4	4	1	1		60	17	320	0	0	
SOUTH ATLANTIC												
Delaware	0	1	0				45	2	13	0	0	
Maryland [3]	5	6	6	1	10	8	668	41	263	3	3	
District of Columbia	1	0	0			1	116	8	123	0	2	
Virginia	3	3	3	184	471	102	219	272	326	1	0	
West Virginia	3	2	2	22	15	11	200	48	159	0	1	
North Carolina	5	8	8				19	155	280	2	1	
South Carolina	4	3	4	206	384	184	148	130	130	0	1	
Georgia	0	2	2	3	11	10	64	166	141	0	0	
Florida	0	3	3	8	30	12	271	54	136	0	2	
EAST SOUTH CENTRAL												
Kentucky	4	3	3		3	1	224	20	113	0	1	
Tennessee	3	1	1	20	48	29	129	37	92	3	4	
Alabama	2	3	3	16	220	29	79	223	223	2	1	
Mississippi [3]	7	3	7		9		32	13		0	1	
WEST SOUTH CENTRAL												
Arkansas	0	4	2	41	39	29	85	91	98	0	1	
Louisiana	4	2	2	2	22	5	34	23	31	1	1	
Oklahoma	2	1	3	6	78	44	55	8	91	1	3	
Texas	15	12	23	430	600	472	2,427	386	441	4	2	
MOUNTAIN												
Montana	1	2	2	3	6	6	82	99	99	0	0	
Idaho	1	0	0	2	3		75	2	49	0	1	
Wyoming	0	1	0		1	1	67	14	38	0	0	
Colorado	1	8	8	1	27	12	391	104	170	0	0	
New Mexico	0	0	0	2	1	1	93	19	23	0	1	
Arizona	4	2	2	51	131	25	489	45	45	0	0	
Utah [3]	2	2	0		6	6	452	7	252	0	0	
Nevada	0	0	0				5	15			0	
PACIFIC												
Washington	1	2	4	4	3	1	829	23	236	1	2	
Oregon	1	3	1	15	18	8	241		158	[4] 1	0	
California	9	11	16	68	27	27	3,770	270	1,510	7	10	
Total	128	191	191	1,131	2,298	1,150	28,895	9,494	25,813	71	75	
19 weeks	3,603	5,012	5,012	131,466	292,674	183,596	363,835	116,715	368,642	[4] 1,525	1,671	
Seasonal low week [5]	(27th) July 5–11			(30th) July 26–Aug. 1			(35th) Aug. 30–Sept. 5			(37th) Sept. 13–19		
Total since low	9,961	12,578	13,746	175,024	325,649	325,649	398,781	139,602	406,655	[4] 2,307	2,643	

[1] New York City only. [2] Philadelphia only. [3] Period ended earlier than Saturday.
[4] Delayed report: Oregon, week ended Apr. 17, meningococcus meningitis, 1 case.
[5] Dates between which the approximate low week ends. The specific date will vary from year to year.

Telegraphic morbidity reports from State health officers for the week ended May 15, 1948, and comparison with corresponding week of 1947 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median	Week ended		Median	Week ended—		Median	Week ended—		Median
	May 15, 1948	May 10, 1947	1943-47	Dec. 15, 1948	Dec. 10, 1947	1943-47	May 15, 1948	May 10, 1947	1943-47	May 15, 1948	May 10, 1947	1943-47
NEW ENGLAND												
Maine	0	0	0	6	3	14	0	0	0	0	0	0
New Hampshire	0	0	0	2	4	4	0	0	0	0	1	0
Vermont	0	0	0	3	9	9	0	0	0	0	2	0
Massachusetts	0	0	0	234	109	345	0	0	0	[6] 5	7	1
Rhode Island	0	0	0	10	9	17	0	0	0	0	0	0
Connecticut	0	0	0	18	34	69	0	0	0	0	0	0
MIDDLE ATLANTIC												
New York	2	1	1	[7] 219	264	594	0	0	0	[6] 4	3	3
New Jersey	7	1	0	67	97	154	0	0	0	0	1	1
Pennsylvania	4	0	0	290	210	380	0	0	0	[6] 1	1	3
EAST NORTH CENTRAL												
Ohio	1	0	1	273	195	312	0	0	1	1	3	2
Indiana	2	1	0	35	116	116	0	1	0	[6] 2	1	2
Illinois	6	0	1	103	87	202	0	0	0	[6] 4	1	1
Michigan [3]	1	0	0	183	131	152	0	0	0	2	2	2
Wisconsin	0	0	1	66	65	221	0	1	0	1	0	0
WEST NORTH CENTRAL												
Minnesota	0	2	0	37	52	60	0	0	0	0	0	0
Iowa	0	1	0	13	24	46	0	0	0	0	1	0
Missouri	2	3	0	16	41	62	0	2	0	1	0	2
North Dakota	1	1	0	5	4	5	0	0	0	0	0	0
South Dakota	0	0	0	1	4	9	0	0	0	0	0	0
Nebraska	0	1	0	19	27	27	0	0	0	1	0	0
Kansas	0	1	1	11	46	63	0	0	0	0	0	0
SOUTH ATLANTIC												
Delaware	0	0	0	3	13	7	0	0	0	0	0	0
Maryland [3]	0	0	0	27	30	180	0	0	0	[6] 4	1	0
District of Columbia	0	0	0	3	9	18	0	0	0	0	0	0
Virginia	0	0	0	17	28	66	0	0	0	[6] 2	4	2
West Virginia	0	0	0	[7] 8	12	35	0	0	0	2	1	1
North Carolina	18	0	0	33	20	27	0	0	0	2	2	1
South Carolina	0	0	1	3	3	5	0	1	0	[6] 3	3	2
Georgia	0	0	0	19	0	15	0	0	0	[6] 3	2	3
Florida	1	0	1	7	4	4	0	0	0	4	2	1
EAST SOUTH CENTRAL												
Kentucky	1	1	1	0	25	32	0	0	0	4	2	1
Tennessee	0	1	0	9	9	28	0	0	0	0	1	2
Alabama	0	0	0	4	9	9	0	0	0	1	1	1
Mississippi [3]	0	0	2	0	3	5	0	0	0	1	0	0
WEST SOUTH CENTRAL												
Arkansas	0	0	0	3	2	10	0	0	0	3	4	2
Louisiana	6	2	1	3	2	3	0	0	0	3	3	4
Oklahoma	0	1	0	9	2	15	0	0	0	[6] 4	0	0
Texas	60	3	3	14	25	58	0	0	1	6	7	11
MOUNTAIN												
Montana	0	0	0	8	3	8	0	0	0	0	1	0
Idaho	2	0	0	[7] 9	3	10	0	0	0	1	1	1
Wyoming	0	0	0	5	0	8	0	0	0	0	0	0
Colorado	1	0	0	18	32	56	0	0	0	0	1	1
New Mexico	0	0	0	8	11	11	0	2	0	1	0	1
Arizona	2	2	1	4	6	10	0	0	0	0	0	0
Utah [3]	0	0	0	15	7	21	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	2	0	0	35	22	31	0	0	0	0	1	0
Oregon	2	0	0	19	10	36	0	0	0	0	4	1
California	21	12	10	81	136	166	0	0	0	[6] 7	5	3
Total	142	34	34	1,975	1,957	3,963	0	7	9	73	69	65
19 weeks	811	842	648	42,995	48,964	75,724	44	118	198	928	889	1,083
Seasonal low week [5]	(11th) Mar. 15-21			(32nd) Aug. 9-15			(35th) Aug. 30-Sept. 5			(11th) Mar. 15-21		
Total since low	463	230	230	65,534	75,650	114,045	65	172	281	455	404	490

[3] Period ended earlier than Saturday.
[5] Dates between which the approximate low week ends. The specific date will vary from year to year.
[6] Including paratyphoid fever and salmonella infections reported separately, as follows: Massachusetts 4 (salmonella infection); New York 2 (salmonella infection); Pennsylvania 1 (salmonella infection); Indiana 1; Illinois 1; Maryland 1; Virginia 1; South Carolina 1; Georgia 1; Oklahoma 1; California 2.
[7] Including cases reported as streptococcal infections and septic sore throat.

Telegraphic morbidity reports from State health officers for the week ended May 15, 1948, and comparison with corresponding week of 1947 and 5-year median—Con.

Division and State	Whooping cough			Week ended May 15, 1948							
	Week ended—		Median 1943–47	Dysentery			Encephalitis, infectious	Rocky Mt. spotted fever	Tularemia	Typhus fever, endemic	Undulant fever
	May 15, 1948	May 10, 1947		Amebic	Bacillary	Unspecified					
NEW ENGLAND											
Maine		8	14								
New Hampshire	3	4	2								
Vermont	32	8	7								2
Massachusetts	44	117	137				1				2
Rhode Island	7	26	16								
Connecticut	22	32	46								
MIDDLE ATLANTIC											
New York	76	249	166	9	1		3	1			5
New Jersey	54	149	135			1	1				
Pennsylvania	100	172	172								2
EAST NORTH CENTRAL											
Ohio	41	195	82	9							2
Indiana	26	48	12				1				2
Illinois	40	80	80	10	1		2		1		6
Michigan [3]	50	273	124	10	10		1				4
Wisconsin	85	192	84								12
WEST NORTH CENTRAL											
Minnesota	7	43	13		2						8
Iowa	7	27	27								
Missouri	18	49	19								1
North Dakota	1		1								
South Dakota	2	1	1								2
Nebraska	7	13	8	2							4
Kansas	46	48	39		1						
SOUTH ATLANTIC											
Delaware	1	5	2					1			
Maryland [3]	5	80	79				2				
District of Columbia	1	8	8								
Virginia	73	97	97			58		2	1		1
West Virginia	2	27	27								
North Carolina	63	70	97	2	1		1				1
South Carolina	136	86	62		11						
Georgia	21	23	17	1	1					2	2
Florida	24	43	34	3					1	2	2
EAST SOUTH CENTRAL											
Kentucky		31	31					2			
Tennessee	36	35	29	1					1		1
Alabama	33	67	48				1			7	1
Mississippi [3]	1	10		1					2	1	2
WEST SOUTH CENTRAL											
Arkansas	33	55	11	4					8		1
Louisiana	1	16	4	2							2
Oklahoma	17	27	27						1		
Texas	473	854	276	17	405	97			1	8	3
MOUNTAIN											
Montana	6	4	3								
Idaho	5	9	7								
Wyoming	5	3	4					2			1
Colorado	47	41	41								5
New Mexico	23	66	16								
Arizona	35	44	28			29					3
Utah [3]	13	15	19								1
Nevada			1								
PACIFIC											
Washington	19	25	26	1		1					
Oregon	43	12	17	7				[8]			
California	107	427	427	11	10						6
Total	1,891	3,914	2,576	90	443	186	13	8	16	20	84
Same week, 1947	3,914			63	233	194	6	7	20	26	112
Median, 1943–47	2,576			33	374	106	6	10	18	50	[9] 104
52 weeks: 1948	40,341			1,348	5,550	3,391	171	[8] 29	340	267	1,724
1947	51,914			891	5,536	3,813	127	28	590	716	1,980
Median, 1943–47	47,302			563	5,536	1,989	156	32	316	857	[9] 1,642

[3] Period ended earlier than Saturday.
[8] Correction: Oregon, week ended April 17, Rocky Mountain spotted fever 0 (instead of 1 case).
[9] 3-year median 1945–47.

Anthrax: New Jersey 1 case.
Alaska: Chickenpox 1, measles 1, influenza 1, mumps 3, whooping cough 2, pneumonia 2, scarlet fever 2
Territory of Hawaii: Rabies 0, measles 4, scarlet fever 6, whooping cough 14.

WEEKLY REPORTS FROM CITIES *

City reports for week ended May 8, 1948

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.

Division, State, and City	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	1	0	1	0	1	0	3	0	0	------
New Hampshire:												
Concord	0	0	------	0	-------	0	0	0	0	0	0	------
Vermont:												
Barre	0	0	------	0	-------	0	0	0	0	0	0	------
Massachusetts:												
Boston	7	0	------	0	270	3	7	0	73	0	0	5
Fall River	0	0	------	0	16	0	0	0	1	0	0	8
Springfield	0	0	------	0	6	0	0	0	3	0	0	------
Worcester	0	0	------	0	36	0	5	0	6	0	0	4
Connecticut:												
Bridgeport	0	0	------	0	-------	0	0	0	0	0	0	------
Hartford	0	0	------	0	1	0	1	0	1	0	0	------
New Haven	0	0	------	0	7	0	4	0	2	0	0	2
MIDDLE ATLANTIC												
New York:												
Buffalo	0	0	------	0	51	0	1	0	11	0	0	1
New York	13	0	------	0	1,500	6	64	1	86	0	0	22
Rochester	0	0	------	0	5	0	1	0	8	0	0	1
Syracuse	0	0	------	0	5	0	2	0	9	0	0	13
New Jersey:												
Camden	1	0	------	0	32	0	0	0	0	0	0	------
Newark	0	0	1	0	339	0	3	0	6	0	0	4
Trenton	0	0	------	0	6	0	1	0	1	0	0	------
Pennsylvania:												
Philadelphia	0	0	------	0	1,044	1	12	0	52	0	0	7
Pittsburgh	0	0	------	0	5	1	9	0	56	0	0	------
Reading	0	0	------	0	6	0	2	0	12	0	0	3
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	------	0	133	1	4	0	13	0	0	5
Cleveland	0	0	2	0	36	1	5	0	31	0	0	3
Columbus	0	0	------	0	73	0	1	0	3	0	0	------
Indiana:												
Fort Wayne	0	0	------	0	12	0	2	0	3	0	0	------
Indianapolis	1	0	------	0	268	0	0	0	9	0	0	3
South Bend	0	0	------	0	7	0	0	0	0	0	0	------
Terre Haute	0	0	------	0	-------	0	0	0	0	0	0	------
Illinois:												
Chicago	0	0	2	0	521	6	25	0	27	0	1	18
Springfield	0	0	------	0	-------	0	5	0	3	0	0	------
Michigan:												
Detroit	1	1	------	0	599	2	4	0	70	0	0	8
Flint	0	0	------	0	1	0	1	0	3	0	0	------
Grand Rapids	0	0	------	0	16	0	1	0	3	0	0	1
Wisconsin:												
Kenosha	0	0	------	0	91	0	0	0	0	0	0	------
Milwaukee	0	0	------	0	181	0	3	0	15	0	0	7
Racine	0	0	------	0	38	0	0	0	3	0	0	2
Superior	0	0	------	0	183	0	0	0	0	0	0	------
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	------	0	416	0	0	0	1	0	0	------
Minneapolis	0	0	------	0	32	0	2	0	11	0	0	1
St. Paul	2	0	------	0	49	0	5	0	7	0	0	3
Missouri:												
Kansas City	1	0	1	0	32	0	1	0	3	0	0	11
St. Joseph	0	0	------	0	1	0	0	0	1	0	0	------
St. Louis	6	0	1	0	124	1	9	0	10	0	0	------

* In some instances the figures include nonresident cases.

City reports for week ended May 8, 1948—Continued

Division, State, and City	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												
Nebraska:												
Omaha	0	0		1	125	1	1	0	1	0	0	2
Kansas:												
Topeka	0	0		0	14	0	0	0	1	0	0	3
Wichita	0	0		0	5	0	1	0	3	0	0	7
SOUTH ATLANTIC												
Delaware:												
Wilmington	0	0		0	14	0	2	0	1	0	0	
Maryland:												
Baltimore	1	0		0	326	0	11	0	12	0	0	6
Cumberland	1	0		0		0	0	0	1	0	0	
Frederick	0	0		0		0	0	0	0	0	0	
District of Columbia:												
Washington	0	0		0	132	0	8	0	9	0	0	5
Virginia:												
Lynchburg	0	0		0	2	0	0	0	0	0	0	
Richmond	0	0		0	4	0	2	0	5	0	0	3
Roanoke	0	0		0		0	0	0	3	0	0	
West Virginia:												
Charleston	0	0		0		0	4	0	0	0	0	
Wheeling	0	0		0	65	0	2	0	0	0	0	
North Carolina:												
Raleigh	0	0		0		0	1	0	2	0	0	
Wilmington	0	0		0		0	1	0	0	0	0	2
Winston-Salem	1	0		0		0	0	0	2	0	0	
South Carolina:												
Charleston	0	0	25	1	1	0	3	0	0	0	1	12
Georgia:												
Atlanta	0	0		0	2	0	3	0	3	0	0	1
Brunswick	0	0		0	3	0	0	0	0	0	0	2
Savannah	0	0		0		0	0	0	0	0	0	3
Florida:												
Tampa	2	0		0	9	0	2	1	1	0	0	2
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	0	0		0	47	0	7	0	2	0	0	11
Nashville	0	0		0		0	0	0	1	0	0	
Alabama:												
Mobile	0	0	1	1		0	0	0	0	0	0	
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	4	0	11	0	2	0	1	0	0	
Louisiana:												
New Orleans	2	0	1	0	2	1	3	0	0	0	1	
Shreveport	0	0		0		0	3	1	0	0	0	
Oklahoma:												
Oklahoma City	0	0		0	9	0	4	0	2	0	0	
Texas:												
Dallas	2	0		0	244	0	0	0	0	0	1	
Galveston	0	0		0		0	1	1	1	0	0	
Houston	0	0		0		0	2	4	1	0	0	1
San Antonio	0	0		0	18	0	8	0	0	0	0	3
MOUNTAIN												
Montana:												
Billings	0	0		0		0	0	0	1	0	0	
Great Falls	0	0		0		0	1	0	1	0	0	
Helena	0	0		0		0	0	0	0	0	0	
Missoula	0	0		0	2	0	0	0	0	0	0	
Idaho:												
Boise	0	0		0		0	0	0	0	0	0	
Colorado:												
Denver	0	0		0	228	1	5	0	5	0	0	8
Pueblo	0	0		0	22	0	1	0	14	0	0	
Utah:												
Salt Lake City	3	0		0	110	0	2	0	3	0	0	1

City reports for week ended May 8, 1948—Continued

Division, State, and City	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	0	0	.....	0	225	0	3	0	3	0	0	1
Spokane	0	0	.....	0	6	0	0	0	2	0	0	0
Tacoma	0	0	.....	0	15	0	0	0	1	0	0	.....
California:												
Los Angeles	0	0	7	0	405	1	5	1	13	0	0	9
Sacramento	0	0	.....	0	31	0	2	0	2	0	0	8
San Francisco	2	0	5	0	127	0	8	1	16	0	0	1
Total	44	1	51	3	8,347	26	279	10	659	0	4	226
Corresponding week, 1947 [1]	60	.....	67	19	2,112	.....	303	.....	666	2	14	820
Average 1943–47	66	.....	57	[2] 16	[3] 5,914	.....	[2] 313	.....	1,394	1	13	668

[1] Exclusive of Oklahoma City.
[2] 3-year average, 1945–47.
[3] 5-year median, 1943–47.

Rates (annual basis) per 100,000 population, by geographic groups, for the 88 cities in the preceding table (latest available estimated population, 34,082,100)

	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	20.8	0.0	3.0	0.0	1,004	8.9	53.6	0.0	265	0.0	0.0	57
Middle Atlantic	6.5	0.0	0.5	0.0	1,385	3.7	44.0	0.5	112	0.0	0.0	24
East North Central	1.2	0.6	2.4	0.0	1,313	6.1	31.0	0.0	111	0.0	0.6	29
West North Central	18.1	0.0	4.0	2.0	1,605	4.0	38.2	0.0	76	0.0	0.0	54
South Atlantic	8.2	0.0	40.9	1.6	912	0.0	63.7	1.6	64	0.0	1.6	59
East South Central	0.0	0.0	8.6	8.6	403	0.0	60.0	0.0	26	0.0	0.0	94
West South Central	5.1	0.0	12.7	0.0	721	2.5	58.4	15.2	13	0.0	5.1	10
Mountain	23.8	0.0	0.0	0.0	2,875	7.9	71.5	0.0	191	0.0	0.0	71
Pacific	3.2	0.0	19.0	0.0	1,279	1.6	28.5	3.2	59	0.0	0.0	35
Total	6.8	0.2	7.8	0.5	1,281	4.0	42.8	1.5	101	0.0	0.6	35

Anthrax.—Cases: Philadelphia 1.
Dysentery, amebic.—Cases: Buffalo 1; New York 9; Detroit 8; Memphis 1; New Orleans 3; San Antonio 2; Los Angeles 3.
Dysentery, bacillary.—Cases: Worcester 1; Los Angeles 6.
Dysentery, unspecified.—Cases: Baltimore 4; San Antonio 8.
Leprosy.—Cases: New York 1; San Francisco 1.
Typhus fever, endemic.—Cases: New York 2; New Orleans 1.

PLAGUE INFECTION IN ARIZONA AND WASHINGTON

Under date of May 11 plague infection was reported proved in ectoparasites of rodents in Arizona and Washington as follows:

ARIZONA

Apache County.—A pool of 126 fleas from 3 ground squirrels, *Citellus variegatus* (*Otospermophilus variegatus juglans* (?)) (one found dead),

taken April 27 on State Highway No. 61, 6 miles north of a location 10 miles northeast of Show Low on U. S. Highway No. 60; and a pool of 3 ticks taken from the ground squirrel found dead.

WASHINGTON

Kittitas County.—A pool of 245 fleas from 195 mice, *Microtus (nanus?)*, trapped 18 miles east of Ellensburg on U. S. Highway No. 10.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended April 24, 1948.—During the week ended April 24, 1948, 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		33		205	224	49	22	13	90	636
Diphtheria				10	1	1			1	13
Dysentery, bacillary									1	1
German measles				235	27		1	7	12	282
Influenza		26			10	9			22	67
Measles		4		1,079	1,183	2	4	26	104	2,402
Mumps		16		228	371	53	91	45	8	812
Poliomyelitis					1					1
Scarlet fever		5	2	81	91	5		4	12	200
Tuberculosis (all forms)		6	6	140	44	18	13		39	266
Typhoid and paratyphoid fever				11					2	13
Undulant fever				1	1	1		1	4	8
Venereal diseases:										
Gonorrhea		23	10	96	77	29	13	41	45	334
Syphilis		5	5	69	52	10	8	5	18	172
Whooping cough		1		69	32	5	4	26	5	142

FINLAND

Notifiable diseases—March 1948.—During the month of March 1948, cases of certain notifiable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	8	Paratyphoid fever	[illegible]
Diphtheria	225	Poliomyelitis	[illegible]
Dysentery	5	Scarlet fever	[illegible]
Gonorrhea	908	Syphilis	[illegible]
Malaria	5	Typhoid fever	[illegible]

MADAGASCAR

Notifiable diseases—March 1948.—Notifiable contagious diseases were reported in Madagascar and Comoro Islands during March 1948 as follows:

Disease	March 1948			
	Aliens		Natives	
	Cases	Deaths	Cases	Deaths
Beri-beri	0	0	6	0
Bilharziasis	1	0	307	2
Cerebrospinal meningitis	0	0	8	3
Diphtheria	8	0	3	0
Dysentery, amebic	15	0	433	8
Dysentery, bacillary	5	0	1	0
Erysipelas	0	0	15	2
Influenza	10	0	2,881	14
Leprosy	1	0	66	0
Malaria	702	3	51,269	441
Measles	0	0	88	1
Mumps	4	0	122	0
Plague	0	0	28	23
Pneumonia, broncho	0	0	258	50
Pneumonia, pneumococcic	1	0	373	62
Poliomyelitis	0	0	2	0
Puerperal infection	0	0	7	2
Relapsing fever	1	0	0	0
Trachoma	1	0	1	0
Tuberculosis, pulmonary	7	1	191	21
Typhoid fever	3	0	43	8
Whooping cough	5	1	150	4

NORWAY

Notifiable diseases—January 1948.—During the month of January 1948, cases of certain notifiable diseases were reported in Norway as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	9	Mumps	4,531
Diphtheria	103	Paratyphoid fever	3
Dysentery	253	Pneumonia (all forms)	3,064
Encephalitis, epidemic	1	Poliomyelitis	10
Erysipelas	401	Rheumatic fever	179
Gastroenteritis	3,578	Scabies	3,604
Gonorrhea	158	Scarlet fever	288
Hepatitis, epidemic	195	Syphilis	128
Impetigo contagiosa	3,027	Tuberculosis (all forms)	341
Influenza	4,157	Typhoid fever	1
Laryngitis, including bronchitis	14,678	Weil's disease	4
Measles	77	Whooping cough	447

STRAITS SETTLEMENTS

Singapore—Poliomyelitis.—Under date of May 13, 1948, 12 new cases of poliomyelitis, with 4 deaths, were reported in Singapore, bringing the total since April 17 to 33 cases and 6 deaths (12 cases, 2 deaths in adults, and 21 cases, 4 deaths in children).

VENEZUELA

Maracaibo—Poliomyelitis.—Information dated May 4, 1948, reports an outbreak of poliomyelitis in Maracaibo, with 8 cases occurring during the preceding 24 hours.

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

India—Calcutta.—During the week ended April 24, 1948, 73 cases of plague with 12 deaths were reported in Calcutta, India.

Smallpox

China—Shanghai.—For the week ended May 1, 1948, 92 cases of smallpox were reported in Shanghai, China.

Libya—Tripolitania.—For the week ended April 24, 1948, 129 cases of smallpox were reported in Tripolitania, Libya, including 4 cases in Tripoli, 90 in Gebel Soda, and 35 in other areas.

Peru—Lima.—Information dated May 14, 1948, states that a mild outbreak of smallpox has been reported in Lima-Callao and adjacent areas. During the month of January 12 cases were reported, 12 in February, 11 in March, and 22 in April.

DEATHS DURING WEEK ENDED MAY 8, 1948

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

	Week ended May 8, 1948	Corresponding week, 1947
Data for 93 large cities of the United States:		
Total deaths	9,266	9,190
Median for 3 prior years	9,147	
Total deaths, first 19 weeks of year	188,841	189,114
Deaths under 1 year of age	655	769
Median for 3 prior years	619	
Deaths under 1 year of age, first 19 weeks of year	13,072	15,064
Data from industrial insurance companies:		
Policies in force	71,061,430	67,282,120
Number of death claims	12,507	14,611
Death claims per 1,000 policies in force, annual rate	9.2	11.3
Death claims per 1,000 policies, first 19 weeks of year, annual rate	10.1	10.1