PUBLIC HEALTH REPORTS

VOL. 49 NOVEMBER 2, 1934 NO. 44

THE RELATION BETWEEN HOUSING AND HEALTH

By ROLLO H. BRITTEN, *Senior Statistician, United States Public Health Service*

The United States Public Health Service has developed an array of facts from which we may draw our own conclusions. Publication of these findings cannot fail to awaken the public to their ominous implications. Health officers, building officials, and social workers have an obligation to see to it that these implications are not disregarded.

Those who have been struggling fruitlessly for years with inadequate regulations or half-hearted enforcement now have an opportunity to take the leadership in this country in a movement which is making tremendous headway throughout the civilized world.

Austria, Germany, Holland, Russia, and Sweden have completed great projects. Great Britain reckons in terms of billions with a decade for complete rehousing.

A third of our population lives in structures unfit for human habitation, a state of being which does not make steady foundations for the body politic. We are late comers in the housing movement, but we are now under way. The first hundred million has been the most difficult, for we have been establishing standards, devising ways and means. The Government is undertaking the job which private capital has never been able to handle.

Now is the time for public officials and civic groups to cooperate with the Government in its movement for the betterment of communities through the elimination of insanitary housing and the rehabilitation of family environment.—Horatio B. Hackett, Director of Housing, Public Works Administration.

The United States Public Health Service wishes to endorse strongly a program which will further the demolition of slum areas and the construction of low-cost houses. Reduction of mortality and sickness rates in the future will rest to a great degree on extending to the total population the health standards of the more favored groups. One necessity is that a sanitary, healthful environment be available. It is not to be implied that such an environment will immediately change the health or "housekeeping" habits of any group of the population—the slow processes of health education must play their part—but the ultimate effect, I confidently believe, would be enormous.—Hugh S. Cumming, Surgeon General, United States Public Health Service.

There is definite evidence that the elimination of slum districts in cities and the provision of housing which meets adequate sanitary requirements would have an immeasurable effect on the future health of the population. This evidence rests in part on the fact that mortality and sickness rates are much higher in the slums, a fact which has been recognized for many years. But, since the concurrence of a low level of public health and bad housing conditions does not of

itself prove that the one is caused by the other, we are particularly interested in the specific directions in which a causal relation can be traced. These include impure water supply, insanitary toilets, lack of private toilets, lack of sewer connections, overcrowding, lack of light, lack of adequate ventilation, excessive dampness, dilapidation, lack of screening against flies and mosquitoes. Some of these conditions are not typical of slum areas, but all are found frequently enough, both in the tenement districts of large cities and in the blighted, poor areas found in most urban communities, to constitute a hazard to health (*a*)[1].

SICKNESS AND MORTALITY IN SLUM AREAS

The existence of excessive sickness and mortality rates in the recognized slum or overcrowded districts of large cities is an accepted fact. Evidence to this effect has been accumulating for many years, both in this country and abroad. The sharpest relation is shown for infant mortality, pulmonary tuberculosis, and perhaps pneumonia; but in certain areas many other diseases play their part, including typhoid fever, diphtheria, scarlet fever, rickets, hookworm disease, etc. A few recent examples may be cited.

On the basis of 23,000 records of births in 8 cities, the United States Children's Bureau (1) found that "the infant death rate in families which lived in homes with 2 or more persons per room was 2½ times that in families which lived in homes with less than 1 person per room. The variations in mortality from gastric and intestinal and from respiratory diseases were especially marked."

In Detroit, mortality rates (1927) were determined for different geographical zones in which the average number of persons per room was available from a special census (2). The results are summarized in the following table for three groups of such zones:

Average number of persons per room	Infant deaths per 1,000 births	Death rates per 100,000 population			Deaths from all causes (per 1,000)
		Tuberculosis	Pneumonia	Diphtheria	
0.9 or more	86	132	113	22	10.9
0.8	69	79	87	17	9.5
0.7 or less	62	52	77	18	9.5

Green (3) classified census tracts in Cleveland on the basis of the equivalent monthly rental, which, like persons per room, will serve as a rough index of areas which come within our conception of slums. After adjusting the 1930 death rate for age and sex, he found that it varied "from 15 per 1,000 population in the lowest of the 12 areas to 7.2 per 1,000 population in the highest economic area."

[1] Notes corresponding to these letters will be found on pp. 1310-1311.

The lowest economic area in this comparison covered average rental, or equivalent, of less than $20 per month; the highest $75 or more. Most of the excess mortality was found in areas with an average rental of less than $40 per month. The death rate from tuberculosis (ages 25–44) varied from 215 per 100,000 population in the lowest of these areas to 34 in the highest. The infant mortality rate (per 1,000 births) was 110 in the area with an average rental of less than $15 and decreased to 26 in the areas with an average rental of $100 or more (4). If the deaths in the first month of life are excluded—these exhibited no great relation to economic status—an even more striking correspondence is shown, the respective rates being 65 and 10 (*b*).

A large number of complicating factors enter into the interpretation of these figures. The Cleveland study referred to indicated an association between the average equivalent rental in given census tracts and a large number of factors, many of which enter into the determination of the sickness or death rates. Among these factors are density of population, race, tenement flats, proportion renting dwellings, age distribution, marital condition, unemployment, illiteracy, juvenile delinquency, birth rate. The populations are unlike also in many other particulars. Accordingly, although a social fact of great importance, general statistics are ambiguous from the point of view of expressing the effect of slum areas or of bad housing *per se*.

PROOF THAT SOME OF EXCESS IS DUE TO SUBSTANDARD HOUSING

Certain European data are more to the point, because they offer a comparison of the mortality in slum areas with that in municipal houses constructed for the same type of population. The following recent comparison is available for Liverpool (average 1923–29) (5).

	Population	Deaths from all causes per 1,000 population	Deaths from pulmonary tuberculosis per 100,000	Infant mortality per 1,000 births
Entire city	872,802	13.9	123	98
Corporation tenements	14,572	18.2	164	131
A slum area (*c*)	3,436	28.4	299	171

The mortality rates in the slum district are evidently greatly in excess of those in the municipal houses, although the latter are definitely higher than for the city generally. These figures take on an additional significance when it is realized that the "houses in this area (slum district) are systematically visited by the sanitary staff, and where nuisances have been found to exist, the usual notices have been served upon the owners. The streets and passageways are systematically cleansed, sewers and private drains regularly flushed, and in addition baths and washhouses, infant-welfare centers and

clinics have also been provided in close proximity to the area." In other words, methods falling short of demolition have failed to prevent the continuance of high death rates.

For Liverpool there is also available an example of the effect of rehousing on the same sites (6). In this case the same type of population is under consideration, since, with few exceptions, the only tenants accepted for the new houses were persons who had been previously living on the same sites (*d*).

	Deaths from all causes per 1,000 population	Deaths from phthisis per 1,000 population	Infant mortality per 1,000 births
Before reconstruction	37.0	4.0	259
After reconstruction	26.6	1.9	162
Entire city	18.0	1.7	119

The comparison is somewhat weakened by the facts that it does not relate to present slum conditions and two successive periods are compared; nevertheless, the definite improvement is unmistakable (*e*).

EFFECT OF LOW LEVEL OF SANITATION

A pure water supply is a first essential of sanitary living. Although city supplies are taken for granted today, there are countless instances in the slums where the water is not actually piped into the dwellings, or where wells or cisterns are still in use. Such conditions offer a continuing risk of epidemic disease.

Sanitary sewage disposal is no less important than sanitary water supply. Even today, practically no city has complete connections to the sewers, in its most crowded sections as well as in outlying districts. Where connections to sewers are lacking, the privy is found. Although it can be sanitary if properly constructed and properly maintained (and is of course a necessity in rural districts), its continued use in a city offers a serious risk to health, particularly when that use is extended to several families, no one of which assumes a responsibility for its cleanliness, or for precautions to prevent the spread of communicable diseases.

Yet the absence of the privy is not in itself a guarantee that an area has sanitary disposal of its sewage. In many cases a toilet connected to city sewers will serve the purpose of several families. Where climate permits, it may be located in a yard, at a distance from the house, or on a porch; in many tenements it will be in a hall, perhaps not even on the same floor with a given family unit. Of 386 families in a slum area in New York (1933) 267, or 69 percent, did not have toilets in their flats (7). In a survey of a district in St. Paul (1917) it was found that of 4,018 toilets inspected, 30 percent were in the yard, 5 percent in the basement, 6 percent in the hall, 41 percent in bath-

rooms, and 14 percent at other points in apartments (no information, 4 percent) (8). The use of a single toilet for several families offers a definite hazard to health. Under such conditions hardly a beginning of education in sanitation is possible. Insanitary disposal of sewage means the prevalence of typhoid fever, dysentery, various diarrheal diseases, summer complaints of infants, and, in some parts of the country, of hookworm.

OVERCROWDING AND THE SPREAD OF DISEASE

Overcrowding is a prime characteristic of slum areas. The inhabitants have little money for rent and must, as a rule, live in quarters that do not fit the size of the family. This is especially true today, because of the doubling-up of families. We must distinguish between congestion in sleeping quarters, in the individual house or flat as a whole, in the halls used by several families, in the yards, or playgrounds, in the streets, in public buildings. It is recognized that "the maximum opportunity for the spread of infection will occur when a center of close aggregation is associated with marked dispersal" (9). Thus it is regarded that the manifest excess of contact diseases in slum areas is due not so much to overcrowding in the individual flat or house as to the general congestion of the area—congregation of young children in the hallways of tenements and in the streets, etc. The problem is therefore a broad one; and it is evident that similar chances for the spread of infection occur throughout a crowded American city, in the subways, theaters, schools, etc.

Diseases which are passed from one to another on account of close personal contact are numerous, including the common cold, sore throats, bronchitis, influenza, diphtheria, scarlet fever, mumps, chicken pox, whooping cough, cerebrospinal fever, measles, and even pneumonia and tuberculosis. Although numerous means of conveyance are factors, these diseases are spread primarily by secretions from the mouth and nose through droplet infection (*f*).

Analysis of 3,200 deaths of infants under 1 year in a number of countries showed a higher proportion of deaths from infectious diseases where the housing was bad (10). Good housing, 34.7 percent; moderately good, 40.4; bad, 45.9. It did not appear that this difference could be entirely due to "social status", since a corresponding tabulation by social status showed: Good, 33.9; moderately good, 40.6; and bad, 39.6.

In the case of the common communicable diseases of children (measles, diphtheria, scarlet fever, whooping cough), there is recognized to be an excess mortality in overcrowded districts of cities. The reason for this higher mortality would appear to lie in the lower age incidence, since these diseases are more fatal (i. e., have a higher case fatality) in the very young ages (*g*).

It would not be possible to refer to any proportion of studies made on the relation between density and mortality, from William Farr down to the present time. Interpretation of them is complicated by the difficulty of ascertaining what the real causal factors are, but the evidence is unmistakable that congestion and overcrowding do in themselves cause the spread of disease. Their effect in the past on the prevalence of such epidemic diseases as plague, smallpox, cholera, typhus fever, and influenza is almost beyond belief; but the point is to be made that such conditions cause a real menace in the slum areas at the present time. Today, with our knowledge of the methods of spread of communicable disease, the continuation of such a menace is a severe criticism of our civilization. It should be added that in all programs of slum clearance or rehousing there must be a definite plan to prevent the development of equally hazardous conditions in other districts.

Communicable diseases endemic to slum areas are likely to be carried into other parts of the population. That has been a striking phenomenon in the past, especially in connection with those vast epidemics of smallpox, plague, cholera, and typhus fever in which so many millions of lives were lost. That the danger is not one of the remote past is shown in the epidemic of typhus fever and relapsing fever in Russia from 1919 to 1923. In 1920 about 5,500,000 cases were reported in European Russia and the Ukraine, while 13,000,000 were reported for the period 1919 to 1923 (11).

Even in the United States today, no individual can feel that his personal health can be maintained independently of the public-health status of the population generally or of that of the less privileged groups.

VENTILATION AND LIGHT

Many rooms in slum dwellings, or tenements, have inadequate windows, windows opening only on narrow, poorly ventilated courts, or no windows at all. A survey in a typical industrial city in New York State showed that 17 percent of the buildings had "dark rooms." Such rooms have no outside window, not even a window in an interior wall to admit light and air indirectly from another room or hall. The majority of the rooms in question serve as bedrooms (12).

Although in some cases the reasons remain obscure, absence of ventilation has long been known to play a part in the occurrence of such diseases as tuberculosis. In Keighley, England, the rate of cases notified in back-to-back houses (1.25 percent) was more than three times as high as the rate in houses with through ventilation (0.37 percent) (13). Part of this relation is spurious (due to the tendency for the tuberculous to drift into the poorer type of houses and the poorer levels of education and treatment in such districts), but the

evidence is still suggestive that the poorly ventilated house in itself plays a part.

Recent studies show the importance of ultraviolet light as well as diet in the prevention of rickets. Since ultraviolet light will not pass through ordinary window glass and would not, in any event, penetrate far into the room, it cannot be felt that the great prevalence of rickets in slum districts is to be blamed on inadequate windows in the houses. On the other hand, such districts make it difficult for infants and children to get out into the sunshine. Adequate playgrounds are seldom found, the streets are frequently narrow, and the buildings tall. Of course, the question is broader than that of sunlight in the prevention of rickets, important as that is—the physical development of the child may be retarded if there is no opportunity for play in satisfactory surroundings. The typical slum, with its crowded, dirty streets, constant risk of accident from automobiles, offers a poor chance for the development of a healthy population. Certainly in the clearance of slums, definite attention should be given to the provision of adequate playgrounds or courts.

OTHER SANITARY FACTORS

Houses in the average slum area are inadequately screened or have no screens at all. Although the relation between flies and disease has been exaggerated, there is some danger from this source in the case of typhoid fever and diarrheal diseases, especially with infants. In the South, malaria is to be considered. Since the *Anopheles* mosquito is nocturnal in its habits, a well-screened house, intelligently used, will protect against the disease. It is to be pointed out that the menace of the unscreened house is particularly marked in districts which have insanitary privies or other sources of pollution.

Ratproofing is almost unknown in the worst sections of our cities. It is an important public-health measure in those districts where there is some danger of outbreaks of plague or where plague is endemic among rodents.

Extreme conditions of dampness, such as flooded cellars, leaking roofs, wet walls, etc., are believed to be associated with rheumatic attacks and some other diseases.

DILAPIDATION A CAUSE OF ACCIDENTS

Dilapidation is one of the primary characteristics of what we call slum areas. The houses are old and "run down." Even before the depression, repairs were made with reluctance; today the owners are often not in financial condition to make any, because the persons living in the houses are frequently paying little or no rent. The buildings have deteriorated rapidly.

Dilapidation means an increased risk of accidents in the home. In 1933 about 29,500 fatal accidents are estimated to have occurred in houses (14). There were about 4,230,000 nonfatal accidents, of which about 130,000 were permanent in their effects. Of the fatal accidents occurring in 1932, about 47 percent were due to falls. It is also estimated that of the total number of accidents occurring inside the house, about 23 percent were on stairs and in halls. No data are available as to the proportion of these accidents due to dilapidation, broken steps, missing or uneven boards, damp or slippery surfaces, etc.; but it is evident that some of them are due to such causes. The point may be made that in many cases such dilapidation is so extended as to make no repair economically possible.

THE FIRE HAZARD

In some sections of the country, slum areas offer a definite hazard of a general conflagration, with consequent loss of life. The evidence that this is true lies in the repeated occurrence during past years of fires of this sort. In addition, there is the problem of fire in crowded tenements. The annual loss of life from fire, directly or indirectly, is estimated by the National Fire Protection Association to be about 10,000 lives, and according to the Fire Waste Council of the United States Chamber of Commerce about 70 percent of this loss was in dwellings (15). Figures are not available as to the loss in slum areas as such, but the continual occurrence of fatal fires in tenement houses in large cities is recognized. Strict building ordinances have greatly minimized the hazard in the case of newer construction; but perhaps a majority of slum dwellings antedate the passage of such ordinances, which, having no retroactive power, cannot enforce even a minimum standard of safety in such dwellings.

SECONDARY EFFECTS ON WELL-BEING

Up to this point the effect of slum areas on health has been measured in terms of mortality or sickness rates; but it is to be recognized that health embraces more than the mere absence of outright disease; it is a state of being in which all physical and mental processes function at their highest efficiency. Influences which affect physical or mental efficiency, or the peace and comfort of the family, are therefore to be regarded as having an adverse effect on health. It is clear that most of these influences are intangible, and are so bound up with poverty as such, with the worry of unemployment, with limited facilities for medical care, with lack of cleanliness, that we should not expect their elimination by the demolition of a given slum area and the rehousing of its inhabitants. At the same time, though the measurement of this side of health is not feasible, we are con-

vinced that slum-clearance projects will have immense secondary effects on the well-being of the population.

HEALTH HAZARDS A LEGAL BASIS FOR DEMOLITION OF HOUSES

It is hardly necessary to make the point that the relation between bad housing and health has long been recognized legally. At the present time strict sanitary standards are in force for new buildings or for remodeling. In a sense the slums are a relic of the period when there were few such sanitary regulations. The major reason given legally for the demolition of individual structures in this country has been that of health, and in European countries the same statement may be made also with respect to definite slum-clearance projects (*h*).

SURVEYS OF PARTICULAR SLUM AREAS TO DETERMINE HAZARD TO HEALTH

It is important to determine whether a given condemned area is to be regarded as sufficiently inimical to health to justify its demolition on that ground alone. Manifestly it will not usually be possible to determine this in terms of actual morbidity or mortality rates in the given area, both because that will not settle the question of a definite causal relation and because the data are not generally available or extensive enough in scope. It will be preferable to determine, by means of a specific, well-planned survey, whether certain conditions are wide-spread which the preceding discussion has shown to offer a hazard to health. The surveys should be made on a factual basis; that is, they should deal *only* with the physical aspects (type of sanitary installation, degree of dilapidation, overcrowding, etc.) rather than with an attempt to determine whether these conditions in this particular area can be shown to have affected health. A check list of the more important items to be investigated is given at the end of this article. It will be necessary also to obtain data as to the number of dwelling houses, family units, and persons (and their ages) in the area. Since the problem of the slum is not purely one of health, no doubt certain sociologic data not included in this list will also be desirable.

SUMMARY AND CONCLUSION

In the light of the recognized excess of sickness and mortality in slum areas, an attempt has been made to trace the specific directions in which poor housing affects health. They are many, and include impure water supply, insanitary toilets, lack of private toilets, lack of sewer connections, overcrowding, lack of light, lack of ventilation, dilapidation, and others. The occurrence of these conditions in slum areas and the consequent effect on the inhabitants are discussed.

These facts, together with European data showing a reduction in mortality associated with rehousing projects, indicate that poor housing is a public-health as well as a sociological problem and therefore one of immediate concern to health authorities.

NOTES

(*a*) Certain facts are implicit in this paper, although they will not be discussed in detail: The extraordinary complexity of the whole question, its diverse economic aspects, the large proportion of the population permanently unable to pay an economic rent for healthful living quarters, racial differences, educational and intelligence levels of the populations concerned, poor "housekeeping" and uncleanliness, the impossibility of considering slum-clearance projects separately from rehousing of the displaced population, the necessity for a different handling of the problem in individual cities, relation to the changing character of different areas within a single city, and many others. Although these factors are recognized, it has appeared desirable in this statement to keep strictly to the public-health aspects.

(*b*) The rapid decrease, even for relatively low rentals, is seen in the following table:

Infant mortality (1928) excluding first month (per 1,000 births)

Equivalent monthly rental (average):	
Under $15	65
$15 to $20	43
$20 to $25	45
$25 to $30	31
$30 to $35	36
$35 to $40	18
$40 to $45	17

(*c*) The slum area ("Gerard Street") is one for which a clearance order was issued July 3, 1932, i. e., it is one of the areas which England hopes to eliminate under its broad program for slum clearance. The corporation tenements are municipal rehousing projects in the old city area, many of long standing, with rentals (from 2s 6½d to 12s per week) which are comparable with those in the slum area.

(*d*) The rates for the insanitary housing group cover an average of 3 years prior to demolition; those for the new dwellings, an average of 3 years after reconstruction (1916–18). Rates for the whole city are given for the latter years.

(*e*) Mention should be made of two studies which yield a different result. The population of an "unhealthy area" in Stockton-on-Tees was moved to a self-contained municipal housing estate in 1927. Mortality and morbidity rates during the 5 succeeding years were higher than those before removal. McGonigle attributes this to the fact that the rents were higher in the new area and, therefore, less money was available for food (16). A study of housing conditions and respiratory disease morbidity in a poor-class quarter and in a rehousing area in Glasgow gave no consistent results, the somewhat higher rates in the latter being explainable on the grounds that there was as much crowding in sleeping quarters in the new area as in the old (17). Until a comprehensive analysis is made of the effect of the widespread municipal rehousing projects carried on in Europe since the war, no very definite conclusions are possible as to the immediate effect on health of transferring populations bodily to new surroundings. There is no doubt that the problem is complicated by economic considerations; the poorer groups of the population cannot increase markedly the proportion of their income going into rentals without a serious sacrifice in some other direction, and that may mean a sacrifice in health as well. Thus low rentals become one of the public-health aspects of rehousing projects.

(*f*) A disease the spread of which is peculiarly associated with overcrowded conditions is cerebrospinal fever. The history of this disease, particularly the experiences during the war, have demonstrated that it is likely to appear and spread where persons are aggregated in barracks. Studies by Glover showed, not only that the overcrowding itself was the responsible factor, but that the carrier rate of the disease could be dropped to a safe limit by increasing the space between beds (18). In one experiment the number of persons in each hut was reduced to give 40 square feet per person for sleeping quarters instead of 30. Before spacing out, the carrier rates in four cases were 22 percent, 28, 38.5, and 28. Afterwards the carrier rates were, respectively, 2 percent, 7, 4.5, and 4.5. At the same time, the carrier rate showed an increase in units where the conditions were kept unchanged. It was found that where the carrier rate was in excess of 20 percent, cases of cerebrospinal fever made their appearance. Under these circumstances, crowded conditions during the hours of sleep seemed to be of greatest importance.

(*g*) Halliday (19) found a lower age incidence for measles in Glasgow in the poor and industrial sections, as shown in the following table giving the percentage age distribution of the cases.

Section	Age (up to —)							
	1	2	3	4	5	6	7	7 and more
Residential	1.9	6.5	6.3	8.3	9.1	25.7	23.0	19.0
Residential and industrial	4.4	9.4	11.0	11.6	12.2	24.7	16.8	9.7
Mainly industrial	5.5	12.8	13.2	13.8	11.5	21.0	14.1	8.0
Industrial and poor	7.5	14.1	15.9	14.8	11.9	17.0	11.9	6.8

Similarly Doull (20) has shown that in poliomyelitis, measles, diphtheria, scarlet fever, and whooping cough, cases "are more concentrated in the earlier years of life as aggregation of population increases."

(h) It will be of interest to refer to an English clearance order, by way of illustration. In his statement to the city council of Manchester in regard to the Hulme Clearance Area, the health officer said: "(I) Dwelling houses in that area are by reason of disrepair and/or sanitary defects unfit for human habitation, and/or are by reason of their bad arrangement, or the narrowness or bad arrangement of the streets, dangerous or injurious to the health of the inhabitants of the area, and the other buildings in the area are for a like reason dangerous or injurious to the health of the said inhabitants; and (II) the most satisfactory method of dealing with the conditions in the area is the demolition of all the buildings in the area" (21). Statistics submitted by the health officer showed a mortality rate of 21.8 per 1,000 population, against 15.3 for the ward and 13.9 for the city as a whole; infant mortality rates of 135, 101, and 91 per 1,000 births, respectively; excess mortality in the area from measles, diphtheria, diarrhea, phthisis, nervous diseases, diseases of heart and blood vessels, bronchitis, pneumonia, and wasting diseases. The area was approved as a clearance area by the city council (July 1931).

REFERENCES

(1) Woodbury, Robert Morse: Causal factors in infant mortality. A statistical study based on investigations in eight cities. U. S. Children's Bureau Publication No. 142. Government Printing Office, Washington, D. C., 1925. (P. 7.)

(2) City Health. Report of Detroit Health Department for July–August, 1929.

(3) Green, Howard Whipple: Population characteristics, by Census tracts, Cleveland, Ohio, 1930. The Plain Dealer Publishing Co. 1931.

(4) Green, Howard Whipple: Infant mortality and economic status. Cleveland's five-city area. Cleveland Health Council. 1932.

(5) Mussen, A. A.: Report on the health of the city of Liverpool during the year 1930. C. Tinling & Co. 1931. (P. 254.)

(6) Hope, E. W.: Report on the health of the city of Liverpool during the year 1918. C. Tinling & Co. 1919. (P. 117.)

(7) What happened to 386 families who were compelled to vacate their slum dwellings to make way for a large housing project. New York. Fred L. Lavanburg Foundation. 1933.

(8) Aronoci, Carol: Housing conditions in the city of St. Paul. Report presented to the Housing Commission of the St. Paul Association. 1917.

(9) Stallybrass, C. O.: The principles of epidemiology and the process of infection. London. George Routledge & Son. 1931. (P. 453.)

(10) Memorandum relating to the enquiries into the causes and prevention of stillbirths and mortality during the first year of life. League of Nations, Health Organization. Geneva. May 31, 1930 (C. H. 820). Pages 90 and 92.

(11) Statistics of notifiable diseases for the year 1923. League of Nations, Health Organization, Epidemiological Intelligence No. 8. Geneva. 1924.

(12) Report of the State Board of Housing to the Governor and Legislature of New York. Legislative Document No. 95. 1929.

(13) Annual report of Medical Officer of Health, Keighley (England). 1926.

(14) Accident facts. 1934 edition. National Safety Council, Chicago.

(15) Quoted in chapter IV of Housing and Safety, of (VIII) Housing and the Community. The President's Conference on Home Building and Home Ownership. 1932.
(16) Quoted in "Letter from Great Britain." Am. Jour. Pub. Health, July 1933, Vol. 23, No. 7, p. 725.
(17) Smith, C. M.: Housing conditions and respiratory disease. Morbidity in a poor-class quarter and in a rehousing area in Glasgow. Medical Research Council Special Report Series No. 192. London. His Majesty's Stationery Office. 1934.
(18) Glover, J. A.: Meningococcus carrier rate and the prevention of cerebrospinal fever. *In* Medical Research Council Report No. 50. London. His Majesty's Stationery Office. 1920.
(19) Halliday, J. L.: An enquiry into the relationship between housing conditions and the incidence and fatality of measles. Medical Research Council Report No. 120. London. His Majesty's Stationery Office. 1928.
(20) Doull, J. A.: Variations in age distributions of mortality and moribidity from diphtheria, scarlet fever, and certain other diseases in relation to latitude. Am. Jour. Hyg., July 1928, Vol. 8, No. 4, page 633.
(21) Clark, R. Veitch: Report on the health of the city of Manchester, 1931. (P. 219.)

Additional recent references which the reader may be interested in consulting are:

Wood, Edith Elmer: Recent trends in American housing. New York. Macmillan Co. 1931.
Publications of National Housing Association, periodical, and pamphlets.
Annual Reports of New York Bureau of Housing to the Governor and Legislature.
The President's Conference on Home Building and Home Ownership:
VII. Farm and village housing. Chapter XVII: Housing and Health (p. 188).
VIII. Housing and the community—Home repair and remodeling: Chapter I. Housing and health.
Neuman, Bernard J.: Housing in Philadelphia. Annual publication of Philadelphia Housing Association.
Series of articles in the Journal of Royal Sanitary Institute, London.

FACT FINDING ON HOUSING HEALTH HAZARDS

Water Supply:

Extent to which city water is piped into house and to each family unit.
If not piped into house, distance to nearest hydrant.
Families with no access to city water supply.
Use of wells or cisterns for drinking-water supply.
Local sources of possible contamination.
Existing structures not meeting plumbing regulations for new structures.

Sewage Disposal:

Connected toilets lacking adequate water supply for flushing.
Location of toilets: in dwelling unit, in public hall, on porch, in yard.
Privies. Type. Number persons served. Families using privies jointly.
Existing structures not meeting plumbing regulations for new structures.

Sources of Fly Breeding, etc.:

Sources of fly breeding.
Sources of mosquito breeding.
Screening. Adequacy and condition of repair.
Rat proofing. Evidence of rats or mice.

Congestion:
- Degree of congestion (persons per room and per sleeping room).
- Cases of doubling-up of families.
- Degree of common use of halls.
- Extent of intermingling on stairs, courts, etc.
- Basement occupancy for sleeping purposes.

Ventilation and Light:
- Average room size, number and size of windows, rooms with no windows or with windows opening on small courts, etc.
- Cross ventilation.
- Lack of light and air due to tall buildings and narrow courts.
- Availability of playground areas.

Structural Conditions:
- Type of construction. Frame or masonry walls; wooden shingles, etc.
- Structural hazards (stairways without railings, etc.).
- Protection against elements—condition of roofs and walls; dampness in basement.
- Dilapidation: plaster, woodwork, masonry, windows, floors, steps, etc.
- Practicability of repair and modernization.

Fire Dangers:
- Possibility of general conflagration.
- Fire regulations, protection, etc.
- Trash accumulation.
- Extent to which electrical wiring meets regulations for new structures.
- Fire escapes.
- Hall lighting and stair conditions.

COURT DECISION ON PUBLIC HEALTH

Meat-packing company held not liable for death resulting from eating of raw pork infected with trichinae.—(Michigan Supreme Court; *Cheli* v. *Cudahy Bros. Co.*, 255 N. W. 414; decided June 4, 1934.) The plaintiff, as administrator of the estate of his deceased wife, brought an action against the defendant company because of the death of his wife resulting from the eating of raw pork infected with trichinae. It was claimed that the retailer from whom the wife purchased the pork had obtained the same from the defendant. It was alleged by the plaintiff that the defendant failed to use due care in the preparation of the meat and that there was a breach of an implied warranty that the meat was reasonably fit and proper for use as food.

The supreme court said that the testimony showed that there was no known practicable or feasible method of determining whether hogs were infected with trichinae and also that the evidence clearly showed that all the ordinary, usual, and reasonable precautions taken by the meat-packing industry were observed in the instant case. Speaking with reference to the Michigan statutory provisions prohibiting the sale of adulterated foods, including diseased or tainted meats, it was said that "While this court has held that the statutes impose

criminal liability upon those selling adulterated foods, regardless of the absence of proof of criminal intent or guilty knowledge *(People* v. *Snowberger*, 113 Mich. 86, 71 N. W. 497, 67 Am. St. Rep. 449), we cannot hold that the legislature intended to impose upon the producer the absolute civil responsibility of an insurer in cases where every reasonable means designed to guarantee the safety of food for normal use has been employed."

The conclusion was reached that the defendant was free from negligence, the court saying in part as follows:

There is no testimony revealing any negligence on the part of defendant. What breach of duty is chargeable to it? The fresh pork was prepared by the methods adopted by other packers engaged in similar businesses. The methods of preparation and inspection measured up to the standard demanded by the Federal Government.

"No one is held by the law to a higher degree of care than the average in the trade or business in which he is engaged" (*Ketterer* v. *Armour & Co.* (C. C. A.) 247 F. 921, 931, L. R. A. 1918D, 798).

The question then presented was whether liability could be imposed for breach of an implied warranty. Reference was made by the court to a prior case decided by it wherein it was held that a manufacturer who prepared foodstuffs destined to be sold to and consumed by the public was bound by an implied warranty that its product was free from foreign poisonous or deleterious substances. Proceeding, the court said that implied warranties of quality were limited by the uniform sales act, a portion of which read as follows:

Subject to the provisions of this act and of any statute in that behalf, there is no implied warranty or condition as to the quality or fitness for any particular purpose of goods supplied under a contract to sell or a sale, except as follows:

(1) Where the buyer, expressly or by implication, makes known to the seller the particular purpose for which the goods are required, and it appears that the buyer relies on the seller's skill or judgment, whether he be the grower or manufacturer or not, there is an implied warranty that the goods shall be reasonably fit for such purpose.

The court then went on to say:

Tested by this language, the record does not disclose that the buyer expressly or by implication made known to the seller that the pork was required for the purpose of making raw sausage, to be eaten in an uncooked state. Nor is there any showing that an implied warranty or condition as to the quality or fitness of raw pork as food in an uncooked condition is annexed to the sale by the usage of trade. See subdivision 5 of the same statute. Comparatively speaking, only an infinitesimal amount of the pork sold is eaten raw. It seems to follow logically that it is unfair to impose the liability of an insurer upon the meat packer through the implication of a warranty that pork is fit for human consumption in a raw state. This is especially true in view of the fact that the danger of infection can be reduced almost to the vanishing point by ordinary cooking methods. Fresh pork is not ordinarily intended to be eaten raw. The warranty should be applied only to food used in the usual, rather than in the unusual and improper, manner.

The opinion concluded with the statement that the court was satisfied that the defendant could not be held liable either for negligence or breach of an implied warranty.

DEATHS DURING WEEK ENDED OCT. 13, 1934

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

	Week ended Oct. 13, 1934	Corresponding week, 1933
Data from 86 large cities of the United States:		
Total deaths	7,346	7,138
Deaths per 1,000 population, annual basis	10.2	9.9
Deaths under 1 year of age	545	545
Deaths under 1 year of age per 1,000 estimated live births	51	[1] 46
Deaths per 1,000 population, annual basis, first 41 weeks of year	11.4	10.8
Data from industrial insurance companies:		
Policies in force	67,018,610	67,564,991
Number of death claims	9,445	9,661
Death claims per 1,000 policies in force, annual rate	7.3	7.5
Death claims per 1,000 policies, first 41 weeks of year, annual rate	9.9	9.8

[1] Data for 81 cities.

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

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Oct. 20, 1934, and Oct. 21, 1933

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 20, 1934, and Oct. 21, 1933

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933
New England States:								
Maine	1	3			1	1	0	0
New Hampshire	1				1	2	0	0
Vermont					1		0	0
Massachusetts	26	34			27	46	1	0
Rhode Island	2	1			2	1	0	0
Connecticut	1	1	1	5	46	1	0	0
Middle Atlantic States:								
New York	24	53	[1]3	[1]10	146	149	1	2
New Jersey	26	25	37	5	19	13	1	2
Pennsylvania	68	70			338	52	3	4
East North Central States:								
Ohio	94	60	4	5	61	22	4	0
Indiana	87	125	18	37	41	6	2	3
Illinois	61	51	11	9	70	19	8	7
Michigan	8	27		4	35	7	2	1
Wisconsin	11	7	12	25	103	19	1	0
West North Central States:								
Minnesota	6	17	1		78	2	0	0
Iowa [2]	16	20			15		0	0
Missouri	88	85	24	3	53	4	3	1
North Dakota	5	3		1	19		1	0
South Dakota	3	2			7	26	1	0
Nebraska	14	2		1	22	1	0	0
Kansas	18	34			35	5	1	2
South Atlantic States:								
Delaware	2	2			2	1	0	0
Maryland [3]	16	30	4	6	10	2	0	0
District of Columbia	7	9		1	2	1	0	0
Virginia [3]	114	159			44	11	0	0
West Virginia	91	99	18	15	37	1	2	2
North Carolina [4]	104	186	4	15	10	25	0	2
South Carolina [4]	25	50	172	291	3	26	0	0
Georgia [4]	81	60				48	0	1
Florida [4]	13	12	1	1	1	2	0	0
East South Central States:								
Kentucky	82	198	12		35		2	0
Tennessee	91	116	19	63	15	76	1	1
Alabama [4]	78	75	11	9	25	9	0	0
Mississippi	30	36					3	0
West South Central States:								
Arkansas	19	30	5	15		24	0	0
Louisiana [4]	32	51	5	10	12	3	0	1
Oklahoma [5]	18	64	11	11	1	12	3	0
Texas [4]	47	233	116	72	11	8	0	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 20, 1934, and Oct. 21, 1933—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933
Mountain States:								
Montana		2	1		47	4	0	0
Idaho	1		1	1	1	1	0	0
Wyoming	1					1	0	1
Colorado	11	13			18	6	2	1
New Mexico	3	12	2	1	60	14	0	0
Arizona	4	1	3	5	7	10	0	0
Utah [3]		3		2	5	12	0	0
Pacific States:								
Washington		8			162	12	1	2
Oregon	5		20	19	2	7	0	0
California	32	51	14	32	144	208	3	1
Total	1,467	2,120	530	674	1,774	900	46	36

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933
New England States:								
Maine	1	6	29	9	0	0	2	4
New Hampshire	0	0		26	0	0	1	2
Vermont	0	7	8	12	0	0	0	0
Massachusetts	1	4	136	137	0	0	4	4
Rhode Island	0	0	14	10	0	0	0	0
Connecticut	0	3	24	46	0	0	1	2
Middle Atlantic States:								
New York	6	31	206	227	0	0	25	27
New Jersey	1	9	96	71	0	0	10	10
Pennsylvania	5	10	308	339	0	0	18	44
East North Central States:								
Ohio	18	16	388	182	1	0	19	27
Indiana	3	1	145	148	1	0	6	12
Illinois	10	6	336	306	1	0	43	31
Michigan	13	3	184	218	0	1	22	22
Wisconsin	16	5	399	53	2	0	3	2
West North Central States:								
Minnesota	4	13	53	47	73	2	4	6
Iowa [3]	1	4	65	66	0	0	13	5
Missouri	0	2	76	108	0	1	24	9
North Dakota	1	3	16	2	0	0	0	1
South Dakota	0	1	15	12	0	1	0	1
Nebraska	1	1	18	12	2	0	1	1
Kansas	1	0	52	141	1	1	5	5
South Atlantic States:								
Delaware	0	0	7	2	0	0	1	3
Maryland [3]	1	2	93	71	0	0	11	24
District of Columbia	0	0	31	10	0	0	0	5
Virginia [3]	2	1	103	171	0	0	33	25
West Virginia	3	4	121	131	0	20	26	38
North Carolina [4]	1	1	132	182	1	0	11	12
South Carolina [4]	1	1	6	19	0	0	11	17
Georgia [4]	2	1	22	33	0	0	29	27
Florida [4]	0	0	1	1	0	0	1	9
East South Central States:								
Kentucky	4	1	62	205	3	4	25	31
Tennessee	3	1	78	146	0	2	12	36
Alabama [4]	1	0	35	51	0	0	11	11
Mississippi	0	0	28	44	0	0	3	3
West South Central States:								
Arkansas	0	0	5	28	0	0	7	8
Louisiana [4]	1	0	16	19	0	0	10	28
Oklahoma [4]	0	1	10	27	0	0	22	41
Texas [4]	13	1	88	105	2	5	31	86

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 20, 1934, and Oct. 21, 1933—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933	Week ended Oct 20, 1934	Week ended Oct. 21, 1933	Week ended Oct. 20, 1934	Week ended Oct. 21, 1933
Mountain States:								
Montana	6	0	9	28	1	0	4	7
Idaho	2	0	3	2	1	1	4	0
Wyoming	0	0	10	8	0	0	0	0
Colorado	1	0	71	21	0	10	5	2
New Mexico	0	0	14	22	0	0	18	20
Arizona	2	0	15	7	0	0	9	2
Utah [3]	1	2	29	10	0	0	2	0
Pacific States:								
Washington	25	6	41	23	23	3	7	3
Oregon	4	4	48	43	0	5	0	2
California	38	8	178	165	0	2	14	18
Total	193	159	3,774	3,746	112	58	508	673

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended Oct. 20, 1934, Virginia, 2 cases.
[4] Typhus fever, week ended Oct. 20, 1934, 40 cases, as follows: North Carolina, 1; South Carolina, 1; Georgia, 13; Florida, 8; Alabama, 3; Louisiana, 1; Texas, 13.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
1934										
North Dakota:										
June	2	10	2		320		0	74		2
July	1	12			195		0	25	1	5
August	2	7			44			27	1	18
September 1934										
Arizona		4	37	6	49		28	27	0	17
Florida	1	50	5	219	12	5	0	16	0	14
Illinois	19	141	49	46	142	2	35	723	2	187
Louisiana	1	51	15	237	96	15	1	33	0	51
Minnesota	2	30	5		75		21	137	4	23
New York	7	87		6	190		53	505	0	106
South Carolina		216	599	1,303	9	94	1	35	0	81
Texas	2	164	173	1,988	84	43	28	120	24	182
Virginia	5	203	179	88	60	8	21	227	0	136

1934

North Dakota:

	Cases
June:	
Chicken pox	18
Mumps	27
Vincent's infection	10
Whooping cough	152
July:	
Chicken pox	10
Mumps	10
Septic sore throat	1
Trachoma	1
Undulant fever	1
Vincent's infection	4
Whooping cough	120

1934—Continued

North Dakota—Contd.

	Cases
August:	
Chicken pox	15
Trachoma	1
Vincent's infection	3
Whooping cough	139

September 1934

Actinomycosis:	
Illinois	2
Anthrax:	
Louisiana	2
New York	1

September 1934—Continued

Chicken pox:	Cases
Arizona	9
Florida	1
Illinois	116
Minnesota	79
New York	241
South Carolina	9
Texas	22
Virginia	19
Conjunctivitis:	
Arizona	10

September 1934—Continued

	Cases
Dengue:	
Florida	459
South Carolina	7
Texas	5
Devil's grippe (Dabney's grippe):	
Virginia	372
Diarrhea:	
South Carolina	273
Dysentery:	
Arizona	23
Illinois (amoebic)	33
Illinois (amoebic carriers)	137
Illinois (bacillary)	36
Louisiana	5
Minnesota (amoebic)	3
Minnesota (bacillary)	18
New York (amoebic)	10
New York (bacillary)	144
Texas	98
Virginia (amoebic)	2
Dysentery and diarrhea:	
Virginia	404
German measles:	
Arizona	16
Illinois	20
New York	36
Hookworm disease:	
Louisiana	14
South Carolina	53
Impetigo contagiosa:	
Illinois	3
Jaundice, epidemic:	
Minnesota	2
Lead poisoning:	
Illinois	4
Leprosy:	
Illinois	1
Louisiana	2
Lethargic encephalitis:	
Arizona	1
Illinois	112
Louisiana	2

September 1934—Continued

	Cases
Lethargic encephalitis—Continued.	
Minnesota	1
New York	12
South Carolina	1
Texas	7
Virginia	4
Mumps:	
Arizona	10
Florida	14
Illinois	65
South Carolina	46
Texas	28
Virginia	23
Ophthalmia neonatorum:	
Illinois	8
Minnesota	1
New York	7
South Carolina	3
Paratyphoid fever:	
Florida	1
Illinois	14
New York	14
South Carolina	5
Texas	13
Virginia	3
Puerperal septicemia:	
Illinois	3
Rabies in animals:	
Illinois	20
Louisiana	7
South Carolina	22
Rocky Mountain spotted fever:	
New York	1
Virginia	6
Septic sore throat:	
Illinois	19
Louisiana	2
New York	15
Virginia	4
Tetanus:	
Illinois	9
Louisiana	4

September 1934—Continued

	Cases
Tetanus—Continued.	
New York	13
Virginia	2
Trachoma:	
Arizona	56
Illinois	1
Minnesota	1
Virginia	1
Trichinosis:	
New York	9
Tularaemia:	
Illinois	3
Minnesota	6
South Carolina	1
Texas	5
Virginia	4
Typhus fever:	
Florida	3
Illinois	2
Louisiana	4
South Carolina	9
Texas	52
Virginia	1
Undulant fever:	
Arizona	5
Illinois	4
Louisiana	3
Minnesota	5
New York	13
Virginia	2
Vincent's infection:	
Illinois	59
New York [1]	127
Whooping cough:	
Arizona	60
Florida	51
Illinois	630
Louisiana	18
Minnesota	128
New York	1,694
South Carolina	133
Texas	283
Virginia	258

[1] Exclusive of New York City.

DENGUE IN SOUTHEASTERN STATES

During the week ended October 20, 1934, 491 cases of dengue were reported in Georgia.

On October 19 it was estimated that there were 250 cases of dengue in Miami, Fla., with very few new cases. The following table shows the number of cases of dengue reported in Florida during the weeks ended October 13 and October 20, 1934:

Locality	County	Week ended— Oct. 13, 1934	Week ended— Oct. 20, 1934
Cocoa	Brevard	2	
Cocoanut Grove	Dade		1
Coral Gables	do	2	
Crescent City	Putnam	1	
DeFuniak Springs	Walton		3
Dunedin	Pinellas	1	
Hallandale	Dade	1	
Homestead	do		3
Miami	do	23	15
Near Miami	do	2	
Miami Beach	do	1	
Orlando	Orange	3	99
Tampa	Hillsborough	24	80
Total		60	206

The age distribution of the above cases was as follows:

	Week ended Oct. 13	Week ended Oct. 20
Under 1 year	0	0
1 to 5	4	1
6 to 13	4	1
14 to 17	1	1
18 to 34	21	15
35 to 49	17	10
50 to 69	7	9
Over 70	0	0
Not stated	6	169

WEEKLY REPORTS FROM CITIES

City reports for week ended Oct. 13, 1934

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	1	1	3	0	0	1	0	19
New Hampshire:											
Concord	0		0	0	1	0	0	0	0	0	9
Nashua	0			0		3	0		0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	0
Burlington	1		0	0	0	0	0	0	0	0	11
Massachusetts:											
Boston	1		0	3	19	7	0	12	3	12	212
Fall River	3		0	3	1	1	0	1	0	6	26
Springfield	0		0	2	0	3	0	0	0	2	32
Worcester	1		0	0	5	9	0	4	0	8	46
Rhode Island:											
Pawtucket	0			0		0	0		0	0	20
Providence	2		0	3	2	1	0	1	0	10	62
Connecticut:											
Bridgeport	0	1	1	0	2	2	0	1	0	0	28
Hartford	1		0	16	0	0	0	0	0	0	41
New Haven	0		0	1	1	0	0	0	0	0	25
New York:											
Buffalo	1		0	1	13	8	0	10	0	13	128
New York	17	9	3	10	83	45	0	85	9	218	1,290
Rochester	0		0	2	2	7	0	2	0	6	62
Syracuse	1		0	1	4	2	0	2	0	13	50
New Jersey:											
Camden	1	4	0	0	2	4	0	0	0	33	35
Newark	0	3	0	0	4	7	0	10	0	19	75
Trenton	0		0	0	2	9	0	3	0	1	27
Pennsylvania:											
Philadelphia	3	7	3	3	15	23	0	25	1	88	411
Pittsburgh	7	3	1	3	13	17	0	6	0	13	148
Reading	0		0	1	2	5	0	0	0	13	25
Scranton	1			18		4	0		0	11	
Ohio:											
Cincinnati	8		1	0	10	15	0	11	0	10	132
Cleveland	6	16	0	5	4	18	0	15	1	43	148
Columbus	9	1	1	0	5	24	0	4	0	6	80
Toledo	1	1	0	1	1	4	0	2	0	5	58
Indiana:											
Fort Wayne	5		0	0	0	4	0	1	0	1	28
Indianapolis	8		0	2	6	12	0	4	0	4	
South Bend	0		0	19	0	0	0	1	0	0	16
Terre Haute	1		0	0	1	1	0	1	0	0	21
Illinois:											
Chicago	20	1	1	9	35	114	0	40	1	44	626
Springfield	0		0	2	2	0	0	0	3	3	19
Michigan:											
Detroit	5		0	3	10	29	0	11	3	36	217
Flint	2		0	2	2	8	0	1	1	11	28
Grand Rapids	0		0	0	2	7	0	2	0	2	30
Wisconsin:											
Kenosha	0		0	2	0	2	0	0	0	10	8
Madison	0		0	1	0	2	0	0	1	3	14
Milwaukee	1		0	0	6	188	0	1	0	27	95
Racine	0		0	0	2	2	0	1	0	5	17
Superior	0		0	1	0	0	0	0	0	0	6

City reports for week ended Oct. 13, 1934—Continued

State and city	Diphtheria cases	Influenza cases	Influenza deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Minnesota:											
Duluth	0		0	4	1	0	0	0	0	1	26
Minneapolis	0		0	18	5	11	0	1	0	9	99
St. Paul	0		0	0	5	5	0	4	0	7	52
Iowa:											
Davenport	1			0		3	0		0	0	
Des Moines	0		0	0	0	7	0	0	0	0	21
Sioux City	1			0		2	0		0	2	
Waterloo	1		0	0		0	0		0	1	
Missouri:											
Kansas City	7		0	3	11	12	0	2	0	4	88
St. Joseph	0		0	0	2	1	0	0	0	1	10
St. Louis	22		0	1	7	17	0	12	0	7	213
North Dakota:											
Fargo	0		0	0	0	3	0	0	0	26	2
Grand Forks	0			0		5	0		0	1	
South Dakota:											
Aberdeen	0			0		0	0		0	6	
Sioux Falls	0		0	0	0	0	0	0	0	0	7
Nebraska:											
Omaha	3		0	1	4	4	0	0	0	1	48
Kansas:											
Topeka	0		0	1	2	6	0	0	0	1	16
Wichita	1		0	0	5	3	0	0	3	0	23
Delaware:											
Wilmington	0		0	0		0	0		0	0	29
Maryland:											
Baltimore	2	2	0	1	15	16	0	12	2	38	175
Cumberland	2	2	2	0	1	1	0	0	2	0	14
Frederick	0			0		0	0		0	0	1
District of Columbia:											
Washington	14		1	1	11	17	0	14	2	11	146
Virginia:											
Lynchburg	7		0	0	0	5	0	0	0	3	9
Norfolk	2		0	0	1	2	0	2	0	1	43
Richmond	3		0	0	2	5	0	1	0	0	43
Roanoke	6		0	0	1	3	0	0	0	0	27
West Virginia:											
Charleston	5	1	0	0	2	4	0	0	0	3	24
Huntington	11			0		12	0		0	0	
Wheeling	0		0	1	1	10	0	0	0	1	22
North Carolina:											
Raleigh	3		0	0	0	1	0	2	0	0	16
Wilmington	1		0	0	1	0	0	0	0	1	7
Winston-Salem	13		0	0	0	8	0	1	0	1	14
South Carolina:											
Charleston	0	23	0	0	2	1	0	2	0	0	23
Columbia	0			0		0	0		0	0	8
Greenville	0		0	0	0	1	0	0	0	2	5
Georgia:											
Atlanta	21	10	0	1	4	5	0	5	0	4	74
Brunswick	0		0	0	1	0	0	0	0	0	5
Savannah	1	6	1	0	4	0	0	3	0	0	34
Florida:											
Miami	1		0	0	2	0	0	0	0	0	31
Tampa	3	1	1	0	1	0	0	1	0	0	23
Kentucky:											
Ashland	1			0		2	0		1	0	
Lexington	2		0	0	1	0	0	0	0	3	21
Louisville	21	3	0	3	4	7	0	2	3	4	72
Tennessee:											
Memphis	1		1	0	3	8	0	3	1	0	96
Nashville	0		1	0	0	6	0	1	1	4	50
Alabama:											
Birmingham	8		0	0	5	7	0	4	1	0	57
Mobile	7		0	0	2	3	0	1	0	0	19
Montgomery	2			0		1	0		0	6	
Arkansas:											
Fort Smith											
Little Rock	0		0	0	1	1	0	0	0	2	
Louisiana:											
New Orleans	8	3	1	0	8	8	0	11	5	0	147
Shreveport	0		0	0	5	1	0	0	0	0	31
Oklahoma:											
Oklahoma City	3		1	0	3	0	0	0	0	0	27

City reports for week ended Oct. 13, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Texas:											
Dallas	3	------	0	0	4	9	0	0	0	0	62
Fort Worth	0	------	0	1	3	0	0	1	0	3	34
Galveston	0	------	0	0	2	0	0	1	0	0	7
Houston	8	------	0	0	1	1	0	3	0	0	49
San Antonio	1	------	1	0	4	1	0	4	0	0	46
Montana:											
Billings	1	------	0	5	0	0	0	0	0	0	3
Great Falls	0	------	--------	0	-------	0	0	-------	0	0	7
Helena	0	------	--------	0	-------	0	0	-------	0	0	3
Missoula	0	------	--------	0	-------	0	0	-------	0	1	--------
Idaho:											
Boise	0	------	0	0	1	0	0	0	0	0	8
Colorado:											
Denver	5	37	0	13	6	38	0	4	0	1	81
Pueblo	3	------	0	0	0	1	0	0	0	0	10
New Mexico:											
Albuquerque	1	------	1	2	0	1	0	2	0	2	11
Utah:											
Salt Lake City	0	------	0	2	2	11	0	2	1	12	30
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	5
Washington:											
Seattle	0	------	1	1	3	6	7	3	1	5	94
Spokane	0	2	2	2	1	3	0	2	1	0	41
Tacoma	0	------	0	0	0	1	1	0	0	5	35
Oregon:											
Portland	0	2	1	2	2	8	0	3	2	0	71
Salem	0	1	--------	0	-------	3	0	-------	1	0	--------
California:											
Los Angeles	17	18	0	6	6	27	0	15	0	8	230
Sacramento	0	------	0	0	7	1	0	1	0	2	19
San Francisco	0	2	0	4	3	10	0	5	2	16	144

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Missouri:			
Boston	1	0	2	St. Louis	1	0	1
Worcester	0	0	2	District of Columbia:			
New York:				Washington	0	1	0
Buffalo	0	0	4	South Carolina:			
New York	1	1	1	Greenville	0	1	0
Rochester	0	0	1	Georgia:			
Pennsylvania:				Savannah	0	0	1
Philadelphia	1	1	3	Kentucky:			
Pittsburgh	0	2	0	Louisville	0	0	1
Ohio:				Tennessee:			
Cincinnati	0	0	1	Nashville	0	0	1
Cleveland	0	0	3	Louisiana:			
Columbus	0	0	1	New Orleans	1	0	0
Toledo	0	0	2	Oklahoma:			
Indiana:				Oklahoma City	1	0	0
Indianapolis	0	3	0	Texas:			
Illinois:				Fort Worth	0	0	1
Chicago	4	0	3	Washington:			
Michigan:				Seattle	0	0	6
Detroit	1	0	4	Spokane	1	0	4
Flint	1	0	0	Oregon:			
Grand Rapids	0	0	1	Portland	0	0	3
Wisconsin:				California:			
Milwaukee	0	0	1	Los Angeles	0	0	16

Dengue.—Cases: Savannah, 37; Miami, 22; Tampa, 17; Birmingham, 1; Montgomery, 2.
Lethargic encephalitis.—Cases: Boston, 1; New York, 2; Toledo, 2; Chicago, 1; Memphis, 1.
Pellagra.—Cases: Charleston, S. C., 3; Brunswick, 1; Louisville, 1; New Orleans, 1; San Francisco, 1.
Typhus fever.—Cases: Charleston, S. C., 1; Savannah, 7; Tampa, 1; Mobile, 1; Montgomery, 1; Dallas, 3; Houston, 1.

FOREIGN AND INSULAR

VIRGIN ISLANDS

Notifiable diseases—July–September 1934.—During the months of July, August, and September 1934, cases of certain notifiable diseases were reported in the Virgin Islands, as follows:

Disease	July	August	September	Disease	July	August	September
Filariasis	3		2	Sprue		1	
Gonorrhea	2	3	2	Syphilis	10	24	7
Leprosy		1	1	Tuberculosis	2	1	
Malaria	2	5	1	Typhoid fever	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Oct. 26, 1934, pp. 1286–1299. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Nov. 30, 1934, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Dutch East Indies—Java—Batavia.—During the week ended October 13, 1934, 2 deaths from plague were reported in Batavia, Java, Dutch East Indies.

Hawaii Territory—Maui Island—Makawao District—Paia.—On October 12, 1934, 1 plague-infected rat was reported in Paia, Maui Island, Makawao District, Hawaii Territory.

India—Punjab Province.—During the week ended October 6, 1934, plague was reported present in Punjab Province, India.

Typhus Fever

Chile.—A report dated October 4, 1934, states that 1 case of typhus fever imported from Tarapaca Province has been reported in the port of Tocopilla, Antofagasta Province, Chile, and 1 case in the American copper mining camp of Chuquicamata, 162 miles from the port of Antofagasta. All necessary precautions have been taken. The report also states that 4 cases of typhus fever brought from Huara are in the hospital at the port of Iquique, Tarapaca Province, Chile.

Yellow Fever

Brazil—Ceara State—Iguatu.—On August 4, 1934, 1 death from yellow fever was reported in Iguatu, Ceara State, Brazil.

Niger Territory—Zinder.—On October 10, 1934, 1 case of yellow fever with 1 death was reported in Zinder, Niger Territory.