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THE TUMOR CLINIC OF THE BALTIMORE MARINE HOSPITAL[1]

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A total of 226 patients have been treated for cancer by surgery, X-ray, radium, or by combinations of these three methods during the first 8 months of the operation of the new tumor clinic at the Marine Hospital maintained by the United States Public Health Service at Baltimore, Md.

In addition to these patients who have received treatment at the clinic, 146 other persons have been examined for cancer symptoms by the clinic staff and the practicing physicians in Baltimore who act as consultants for certain types of cancer cases. One hundred and thirteen of the 146 consultations were in-patients while 33 were out-patients.

Of the 226 patients treated by the clinic, 183 have been hospitalized during the 8-month period from November 1, 1939, to June 30, 1940, and the remaining 43 have been treated as out-patients. The seriousness of the illness of these 226 patients is shown by the record of 27 deaths. Nineteen post-mortem examinations have been obtained, an autopsy record of 70 percent.

The clinic is maintained for beneficiaries of the Public Health Service who are located east of the Mississippi River. The number of these beneficiaries is 170,000, of whom 40,000 are now in the age group in which cancer most frequently occurs. Sixty-three of the first 226 patients, or 28 percent, were veterans, while 51, mostly merchant seamen, were transferred to the clinic from other marine hospitals.

Two hundred and twenty-nine specimens of tissue believed to be cancerous were examined histologically and 152 photographs were taken of 97 different tissue specimens or of patients with certain types of external cancer during this period.

In addition to care and dressings on the wards, the 226 patients were treated, dressed, or had some form of special care requiring the

[1] Grateful acknowledgment is made to Dr. John E. Wirth, director of the tumor clinic, for his assistance during the preparation of this article.

clinic examining room and its facilities on 3,219 occasions. This means approximately 14 visits per patient.

The Baltimore Marine Hospital was selected as the location for this new clinic because it is closest to the National Cancer Institute in Bethesda, Md., and because necessary alterations in the building there could be made at a minimum of expense.

Erection of an additional floor for the tumor clinic on one of the hospital wings was made possible by funds allocated by the Public Works Administration. It was built at a cost of $93,770.16. This added section, which is 100 by 45 feet, contains offices, X-ray treatment rooms, examining rooms for hospitalized patients, doctors' offices, secretary's office, photographic and dark rooms. One hundred beds are available for clinic patients in the adjoining wings of the same floor. The basement of the south wing of the Marine Hospital, an open space of some 84 by 25 feet, was renovated and in it were installed a $15,000 radium laboratory with an emanation plant, out-patient clinic for X-ray treatment, examining and dressing rooms, physicist's office, and laboratory. The out-patient demands, however, have not been sufficiently heavy as yet to occasion use of the out-patient facilities.

The clinic contains adequate examining rooms, a minor surgery section, and instruments necessary for complete diagnosis and treatment of practically all types of cancers. Great emphasis is placed on early diagnosis. It is believed that no patient can be properly treated for a cancer unless the exact type of the cancer is established.

Complete case histories are kept on all clinic patients in order that the progress of the cases may be noted and future treatments outlined. Statistical studies of these records should shed much light on the scope of the cancer problem. They should also serve as a yardstick to measure progress or improvement in the results obtained following treatment.

The library is supplied with current medical journals to keep the personnel, as well as any visiting physician, informed as to the latest developments in cancer work. A photographic department is maintained to record graphically visible tumors before and after treatment.

The tumor clinic has two 250 K. V. P. (kilovolt-peak) X-ray machines and one 140,000 volt X-ray machine. These X-ray machines are in specially constructed rooms on the fourth floor. The front walls are lined with 6 millimeters of lead up to a height of 7 feet. The floor and inner walls are lined with 3 millimeters of lead. The purpose of the lead is to protect the personnel from overexposure to radiation. There are other rooms for two 250,000-volt X-ray machines.

Each X-ray machine has a lead housing designed to allow a limited beam of X-rays to be projected into the area to be treated and to prevent stray radiation from reaching persons other than the patient.

The housing is designed to allow as little exposure as possible of the operator to the rays.

The 140,000-volt X-ray is used for superficial therapy in cases of skin cancer, infections, or in cases where great penetration is not required. For deep therapy the 250,000-volt X-ray machine is used. It permits greater dosage in the tumor with less damage to the skin and overlying structures and is particularly valuable in tumors of the bladder, cervix, and uterus.

The two 250,000-volt X-ray machines are the latest type obtainable. This type resulted from a recent development by the General Electric Co. utilizing the resonant transformer principle. They have the advantages of a high output of very heavily filtered radiation, flexibility, ease of manipulation, and economy of operation. They are capable of delivering 75 r. (measured in air) per minute at 50 cm. target skin distance through an inherent filter of 1.5 mm. of copper by virtue of a grounded anode tube. A Leeds & Northrup self-recording and integrating X-ray intensity measuring device also has been obtained and is proving to be very valuable in experimental work.

In order that the clinic might function as a separate department in the hospital the necessary surgical equipment for minor or special operations was obtained. This included many diagnostic instruments such as laryngoscopes, esophagoscopes, bronchoscopes, and sigmoidoscopes. New chart carriages, forms, wheel chairs, tables, endotherm and actual cauteries, suction and spray machines, microscopes, and projectors also have been purchased.

There are certain cancers which may be more advantageously treated by radium, and this substance forms a very important part of the armamentarium of this modern cancer clinic.

The radium emanation plant of the clinic at Baltimore is a cell surrounded by a wall of concrete 2 feet thick. The storage room has concrete walls 1 foot thick. The control room, which is 9 feet from the radium, is a concrete cell with walls 2 feet thick. Direct vision is allowed through a window made of 50 percent lead content. One inch of lead glass is equivalent to one-half inch of lead as far as gamma rays are concerned. A safe lined with 3 inches of lead is used for storing radon and radium. The emanation plant is designed for 5 grams of radium.

Three hundred and thirty-four milligrams of radium element in needles and capsules have been obtained on loan from the National Cancer Institute, in addition to 1 gram of radium element in soluble salts for the emanation plant. The clinic has installed the first remote-controlled Failla type emanation plant in existence. With the aid of this and an automatic gold radon tube measuring device designed and constructed at the clinic, the exposure to the operator is cut to less than 1 percent of its former figure, thus enabling the same

operator to handle this plant for years without fear of harmful exposure.

It is in the Failla semiautomatic emanation plant that the radium is stored and radon, the first product of disintegration of radium, is obtained. With this gaseous substance any type of applicator that may be desired can be made. The greatest advantage of this is the production of gold radon seeds which may be buried in a tumor and left indefinitely, as the radon loses its energy at the rate of one-sixth of its value per day. A large dose of radiation may be given to a tumor by this means without greatly affecting the surrounding tissues, and without the necessity of removing the needles or applicators at a later time, as would be necessitated by the use of radium. The measuring equipment was built in a machine shop maintained by the tumor clinic.

The hazard of leakage of gas is largely prevented by the design of the ventilation system, which is so constructed that no gas can escape into the hospital.

The physics laboratory has under construction an integrating and recording type Geiger counter for protective measurements, searching for lost radium, and for experiments on artificially radioactive materials. A scale of eight counter, an FP–54 vacuum tube electrometer, an oscillograph, a linear amplifier, and other small apparatus also are being assembled by the clinic's physicist.

A photographic department consisting of a photographic and dark room has been equipped with an 8- by 10-inch studio camera, a 3¼- by 4¼-inch portable Recomar 33 camera and attendant devices to take and develop all clinical and pathological photographs as well as produce positive paper prints, enlargements, transparencies, and lantern slides.

In order to service and make much of the precise measuring apparatus, treatment devices, tools, etc., necessary for the tumor clinic, the machine shop has been equipped with a new small high precision monarch lathe, a milling machine, drill presses, saws, punches, grinders, buffers, and attendant micrometers and measuring instruments at a cost of $10,000.

As the need has arisen the original personnel of director, physicist, and secretary has been supplemented in succession by a pathologist, a junior medical officer, a machinist, an X-ray and radium technician, and an associate to the director. The salaries of most of this personnel are financed from the budget of the National Cancer Institute. Nursing personnel, orderlies, porters, and maids have been supplied by the Hospital Division of the Public Health Service.

It is hoped that the tumor clinic will add to the fund of scientific knowledge concerning the nature and cause of the disease as it seeks

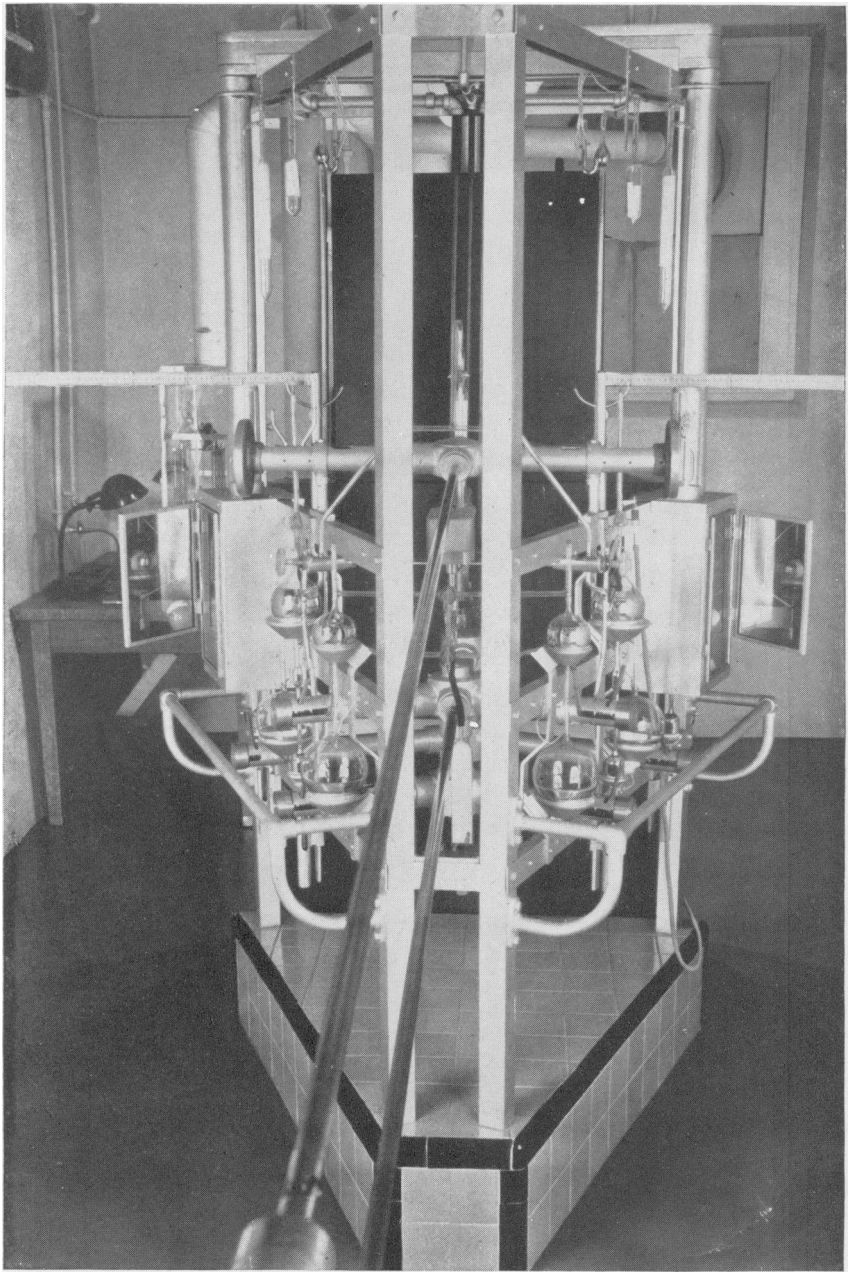

FIGURE 1.—View of Failla radon emanation plant at the Tumor Clinic, U. S. Marine Hospital, Baltimore, Md. This plant is the only one of its kind in the world which is operated by remote control.

FIGURE 2.—Physicist measures and clips off radon needles from radon emanation plant by remote control. He views the plant through a window which is 50 percent lead and 50 percent glass.

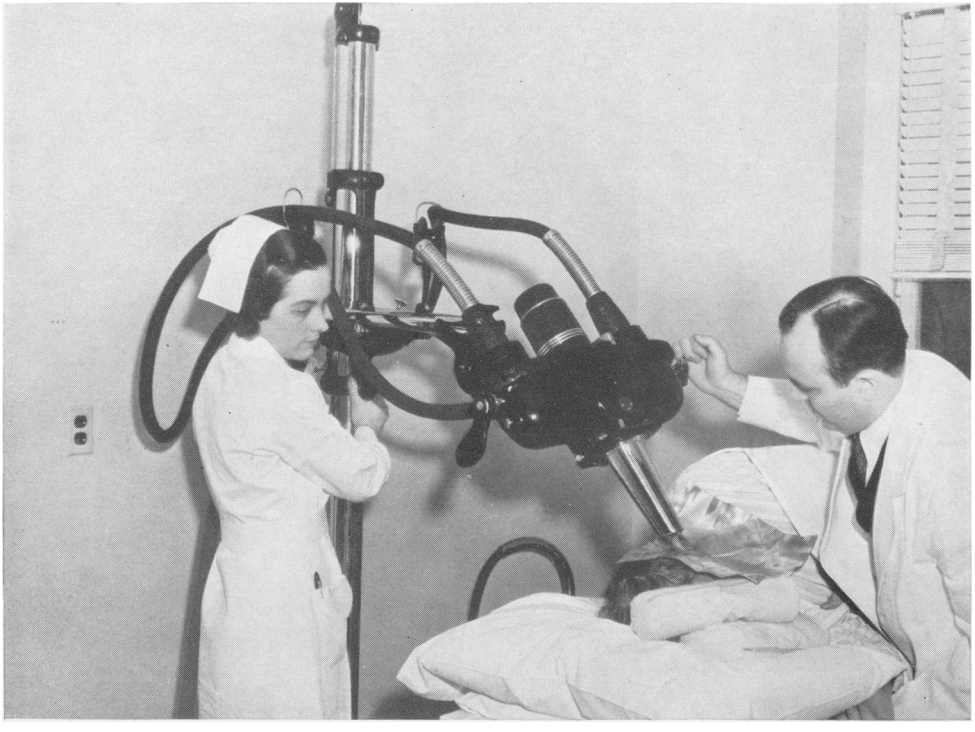

FIGURE 3.—Doctor and nurse prepare patient for X-ray therapy. Radiation will be applied to malignant growth on the ear. A protective lead shield is placed around the cancerous area.

to give the best possible treatment and care to an increasing number of cancer patients.

In 1939 there were recorded in the United States approximately 151,000 deaths from cancer. It is estimated that the prompt application of existing knowledge of cancer control would have saved about a quarter of these, or 35,000 lives. The clinic aims to do its full part in cutting down cancer death tolls through its own activities and by serving as a demonstration unit.

THE NATIONAL HEALTH SURVEY*

RECEIPT OF MEDICAL SERVICES IN DIFFERENT URBAN POPULATION GROUPS

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INTRODUCTION

General findings of the National Health Survey with respect to the occurrence of disease, accidents, and impairments have been recorded in a previous report.[1] At this time it is desired to present data on the receipt of medical care for such cases.

The scope, method, and general definitions of the National Health Survey have been described elsewhere.[2] It was a house-to-house canvass of 703,092 urban families in 18 States and 36,801 families in certain rural areas to determine the frequency of serious disabling illnesses, the medical services received in connection with such illnesses, and the relation of these items to certain social and economic conditions. The survey was patterned on previous ones conducted

*From the Division of Public Health Methods, National Institute of Health. The survey, a house-to-house canvass, was executed with the aid of grants from the Works Progress Administration. Acknowledgment is made to various members of the National Health Survey staff for assistance in the preparation of this article.

[1] The National Health Survey: Some general findings as to disease, accidents, and impairments in urban areas. By Rollo H. Britten, Selwyn D. Collins, and James S. Fitzgerald. Pub. Health Rep., 55: 444-470 (March 15, 1940). (Reprint 2143.)

[2] The National Health Survey: Scope and method of a nation-wide canvass of sickness in relation to its social and economic setting. By George St. J. Perrott, Clark Tibbitts, and Rollo H. Britten. Pub. Health Rep., 54: 1663-1687 (September 15, 1939). (Reprint 2098.)

Reference may be made also to The National Health Survey, 1935-1936: Illness and Medical Care in Relation to Economic Status, Preliminary Reports, Sickness and Medical Care Series, Bulletin No. 2, Division of Public Health Methods, National Institute of Health, U. S. Public Health Service; and to Health as an Element in Social Security, by George St. J. Perrott and Dorothy F. Holland, Ann. Am. Acad. Polit. and Soc. Sc., 202: 116-136 (March 1939).

by the Public Health Service and in general followed the established techniques developed in such surveys, information being obtained by trained enumerators from the housewife or other responsible member of the household. In this survey, periodic visits were impracticable. Because it was recognized that at a single visit no complete record of all illnesses occurring over a 12-month period could be obtained, the queries centered around illnesses disabling for 7 consecutive days or longer during the 12 months immediately preceding the visit. The canvassing was carried on from November 1935 to March 1936.

The annual frequency of illnesses disabling for a week or longer was 171 per 1,000 persons observed.[3] The medical care data presented in this report relate solely to this group of cases. Disability was defined as inability to work, attend school, care for home, or carry on other usual pursuits by reason of disease, accident, or physical or mental impairment. For the purpose of this summary report, all persons in hospitals or other institutions for the care of disease for the entire 12 months immediately preceding the visit have been excluded.[4]

The data in this article have been confined to the urban survey and, except for a special section comparing the medical services received by the white and by the colored populations, have been based on white persons (the total for the urban area being 2,249,995,[5] or 3.6 percent of the urban white population of the United States in 1930).[6]

The following points of information on medical services (for illness disabling for a week or more) were obtained:

(*a*) Whether the case was attended by a doctor.[7]

(*b*) Whether the doctor's service was rendered in a hospital, at the patient's home, or in a public clinic or outpatient department of a hospital.

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[3] Certain points require emphasis. (*a*) One person may have had more than one recorded illness during the year. (*b*) An illness due to more than one diagnosis was counted only once in the computation of this rate. (*c*) Cases with onset of disability prior to the 12-month period were included, the frequency of such cases being 18 per 1,000 persons. (*d*) Records of all confinements, hospital cases, and deaths were included without limitation as to the duration of disability, the rate for cases in these categories which had disabled for less than 7 days being 4 per 1,000 persons.

[4] Persons in institutions for the care of physical or mental diseases were not directly enumerated in the survey, but the family was asked to report any such persons who had formerly lived in the household. The record obtained was incomplete. For instance, the frequency of cases in institutions for the care of disease for the whole 12 months immediately preceding the visit was 0.8 per 1,000 persons in the entire population, giving 0.29 days per person. On the basis of data in the Census of Hospitals of the American Medical Association relating to the year 1935, hospital days for patients in tuberculosis and mental hospitals in the country as a whole amounted to 1.63 per person in the entire population (Am. Med. Assoc., Hospital Services in the United States. J. Am Med. Assoc., 106: 790 (Mar. 7, 1936)).

[5] The enumerated white urban population with known family income and known age was 2,152,740, which is the general population base used in this report.

[6] The sample was chosen to be representative in general of cities in the United States according to region and size. In large cities (100,000 and over) the population to be canvassed was determined by a random selection of many small districts based on those used in the U. S. Census of 1930. In the smaller cities selected for study the population was enumerated completely. See Perrott, Tibbitts, and Britten, op. cit., for a more detailed account of the sampling procedure and a comparison of certain characteristics of the population enumerated with those of the urban population as a whole (Census, 1930).

(Continued on next page)

(*c*) The number of calls (visits) by or on a doctor, exclusive of any made to inpatients in a hospital.

(*d*) Whether the case was hospitalized (i. e., in hospital for 24 hours). "Hospital" meant any institution for the care of physical or mental disease.[8]

(*e*) The number of days the person was hospitalized for the particular illness.

(*f*) Whether the case was attended by a private duty nurse, i. e., bedside care by a full-time nurse, including care by special nurses in hospital but not nursing service rendered by the hospital without special charge.[9] No attempt was made to distinguish between registered and nonregistered nurses.

(*g*) The number of days of nursing service rendered by the private duty nurse. Where the patient was attended by both day and night nurses, 2 days of care were recorded for each attended day.

Footnote 6—Continued.

The number of cities of different sizes which were included in the Health Survey sample is shown in the following table.

	Size of city (Census, 1930)					
	500,000 and more	100,000 to 500,000	25,000 to 100,000	10,000 to 25,000	5,000 to 10,000	Under 5,000
Total	10	21	10	8	20	14
Northeast	5	4	2	3	6	1
North Central	4	6	3	1	7	2
West	1	5	1	2	4	6
South		6	4	2	3	5

In connection with the data furnished on hospital care in this report, attention is called to the fact that some of the smaller cities and towns did not contain hospitals. The number of such cities (1936) is shown in the following table.

	Size of city (Census, 1930)		
	10,000 to 25,000	5,000 to 10,000	Under 5,000
Total	1	6	7
Northeast		2	1
North Central		2	*2
West	1	2	2
South			2

*One city contained tuberculosis hospital only.

[7] The term "doctor" refers to physicians and a relatively small number of other practitioners (95 percent of attended cases were attended by physicians). The family reported the name of the doctor, and the type of attendant was coded by reference to telephone directories and to the American Medical Directory.

[8] As stated above, cases in an institution for the full 12 months immediately preceding the visit have been excluded from the present report.

[9] Of 13,927 cases attended by a private duty nurse, 6,671 (white, urban, known income, known age) were not hospitalized. The others were hospitalized, but the nursing care may have been given before or after the period of hospitalization.

(*h*) Whether nurses from any agency made visits in connection with the disabling illness, including service from private duty nurses secured on an hourly basis.[10]

For the various types of services discussed, numerous relations may be set up with respect to the population surveyed or to the illnesses themselves. Among such relations are:

Number of disabling illnesses receiving care:

Per 1,000 persons observed.

Per 100 illnesses.

Volume of services rendered (number of calls, visits, etc.):

Per person observed.

Per illness.

Per illness receiving the specified care.

In table 1 are shown these five types of rates (total urban area, white) for the various kinds of care. The table carries detailed explanatory notations and later tables should be considered in the light of such comments. Owing to wide differences in medical services in communities of different sizes, the rates for the total urban area are of limited use, and are given largely to indicate the inherent relations and qualifications.

TABLE 1.—*Summary of information on medical care received for disabling illness.*[a] *Urban, white*

Type of rate	Doctor [b]				Hospital [d]	Nursing	
	Total [c]	Exclusive of hospital care [d]				Private duty [h]	Visiting
		Total [c]	Home [f]	Public clinic [g]			
ANNUAL NUMBER OF DISABLING ILLNESSES [a] RECEIVING SPECIFIED CARE							
Per 1,000 persons observed	138	127	91	8.8	47	6.5	11.9
Per 100 illnesses [a]	81	75	53	5.2	27	3.8	7.0
ANNUAL VOLUME OF SERVICES RENDERED							
Per person observed		*Calls* 0.90	*Calls* 0.53		*Days* 0.89	*Days* 0.17	*Visits* 0.06
Per illness [a]		5.3	3.1		5.2	1.0	.37
Per illness receiving specified service		7.4	5.9		19.	26.	5.3

[a] Disabling for 7 consecutive days or longer during the 12 months immediately preceding the visit, exclusive of cases in hospital for the entire period. Hospital cases, confinements, and fatal cases which disabled for less than 7 days are included.

[b] The term "doctor" refers to physicians and a relatively small group of other practitioners.

[c] Comprises cases in which the only care by a doctor was given in a hospital and those listed in footnote *e*.

[d] Hospital care refers solely to inpatient care. Cases in hospital for the entire 12 months preceding the visit are excluded. Hospital cases which disabled for less than 7 days are included.

[e] Comprises cases treated by a doctor at home, in the doctor's office, or in a clinic or outpatient department of a hospital.

[f] Refers to cases treated at home whether or not other types of medical service were also given.

[g] Includes cases treated in outpatient departments of hospitals.

[h] Exclusive of floor duty nursing service in hospital.

[10] Two items not used in this report should be mentioned: Whether an operation was performed, and whether the person had a doctor for a previous attack of the same disease during the 12 months preceding the visit.

The rate of medically attended cases (including hospital medical care) was 138 per 1,000 persons per year; but it must be constantly kept in mind that this rate covers only cases disabling for a week or longer during the 12-month period. Since medical service must be related to the need for it, the second line of the table gives the percentage of illnesses disabling for a week or longer which were medically attended. With an illness rate of 171 per 1,000 persons (see p. 2200), the percentage of illnesses which were medically attended becomes 81.

The rate for cases attended by a doctor outside of the hospital was 127 per 1,000 persons and for cases attended by a doctor in the home was 91. The percentages of disabling illnesses receiving these types of care were 75 and 53, respectively.

Volume of services (number of calls) is also an important measure of care; hence, the lower part of the table is concerned with this aspect. Calls (outside of hospital) were 0.9 per person observed. The next line of the table relates the calls to the disabling illnesses (whether or not attended), and the last line relates them to the illnesses which received the specified service. For the purpose of the present report this final conception (volume of service per case receiving the specified service), together with the proportion of all disabling illnesses which received the services, form the fundamental measures of medical care.

It will be observed that the annual frequency of hospital cases per 1,000 persons was 47. As pointed out, an attempt was made to obtain a record of hospital cases whether or not the illness was disabling for a week or more. Comparisons with other data suggest that a portion of short hospital cases were unreported, perhaps owing to failure of the family informants to remember all such cases. As a result the average duration of time in the hospital is relatively high in comparison with previous studies.[11] While tuberculosis sanatoria and mental hospitals are included under "hospital," in evaluating the data it is to be recalled that persons in institutions for the care of disease for the full 12 months immediately preceding the visit have been excluded. This exclusion has little effect on the frequency of hospitalized cases or the percentage of disabling illnesses hospitalized, but a major effect on the days in hospital.[12]

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[11] In the survey of the Committee on the Costs of Medical Care, the rate of hospital cases per 1,000 persons was 58.6 (general hospitals) and the days hospitalized 0.75 per person. The corresponding figures in the Health Survey were 47 and 0.89. See The Incidence of Illness and the Receipt and Costs of Medical Care Among Representative Families. Experiences in Twelve Consecutive Months During 1928-31. By I. S. Falk, Margaret C. Klem, and Nathan Sinai. Publications of the Committee on the Costs of Medical Care, No. 26. The University of Chicago Press, Chicago, Ill. (Appendix table B-27, p. 283.)

[12] The percentage of illnesses disabling for a week or more which received hospital care is slightly in excess of the correct value for cases of this minimum duration of disability, since, as indicated, hospitalized cases have been included whatever the duration of disability. However, the rate of hospitalized cases disabling for less than a week was only 1.9 per 1,000 persons.

Since interpretation of the percentage of cases receiving medical care rests on the composition of the total group of cases, some further description from this point of view seems desirable:

(*a*) As stated, the cases were illnesses disabling for a week or longer; hence, they were of a relatively severe nature.

(*b*) There was considerable variation with age in the frequency and disability rates (see table 2).

TABLE 2.—*Annual frequency and disability rates of illnesses disabling for a week or longer. Urban, white* *

Age (years)	Frequency per 1,000 persons	Days of disability [1]		Number of illnesses
		Per person	Per case	
All ages	171	9.5	56	367,257
Under 15	224	5.8	26	116,347
15–24	128	5.1	40	48,930
25–64	149	9.9	67	167,129
65 and over	275	35.1	129	34,851

* See footnote *a*, table 1.
[1] Excludes cases with unknown duration of disability.

(*c*) The rates were sharply differentiated by income (see table 3), being especially high in the relief group. (Further discussion of illness by economic status will be found on p. 2207.)

TABLE 3.—*Annual frequency of illnesses disabling for a week or longer as related to economic status. Urban, white* *

Annual family income and relief status	Frequency per 1,000 cases	Ratio to rate in highest income group ($5,000 and over=100)	Number of illnesses
All incomes	171	116	367,257
Relief	237	161	85,029
Nonrelief:			
Under $1,000	179	122	82,986
$1,000 to $2,000	152	103	136,114
$2,000 to $3,000	146	99	40,057
$3,000 to $5,000	145	99	15,838
$5,000 and over	147	100	7,233

* See footnote *a*, table 1.

(*d*) The distribution of cases by the sole or primary diagnosis [13] is indicated in table 4.

[13] The primary diagnosis is that which had been associated with the disability for the longest period; or, if a separate period of disability was not specified for any diagnosis, the primary diagnosis is the one which was regarded by the family as the most important cause of the disability.

Cases are classified by diagnosis in this report in accordance with the statements given by the family. (See Perrott, Tibbitts, and Britten, op. cit., for discussion of use made of confirmations of diagnoses received from physicians.)

Syphilis and gonorrhea, although of recognized importance as causes of disability, are not given separately in the table because of the incompleteness of reports of such diseases in a house-to-house canvass.

TABLE 4.—*Percentage of illnesses disabling for a week or longer which were due to various diagnoses (sole or primary). Urban, white* *

Item number	Diagnosis	Percentage
	All diagnoses †	100.0
	Communicable diseases:	
1	Common communicable diseases of childhood	16.3
2	Other	1.5
3	Cancer and other tumors	1.7
4	Diabetes mellitus	.5
5	Rheumatism and allied diseases	3.3
6	Cardiovascular-renal diseases	6.2
7	Nervous and mental diseases	2.9
8	Diseases of ear and mastoid process	1.2
	Diseases of respiratory system:	
9	Tuberculosis (including nonrespiratory)	.7
10	Pneumonia (all forms)	2.7
11	Tonsillitis (including tonsillectomies)	6.0
12	Other diseases of respiratory system (colds, influenza, etc.)	20.6
	Diseases of digestive system:	
13	Appendicitis (including appendectomies)	3.0
14	Hernia	.6
15	Diseases of teeth, mouth, and gums	.3
16	Other diseases of the digestive system	4.4
17	Diseases of the thyroid gland	.4
18	Anemia	.3
19	Hemorrhoids	.4
20	Varicose veins	.2
21	Diseases of bladder, urethra, urinary passages, and male genital organs	.7
22	Diseases of female genital organs and complications of pregnancy	1.7
	Confinements:	
23	Live births	8.1
24	Other	.6
25	Diseases of skin and cellular tissue	1.2
26	Accidents	9.1
27	Orthopedic impairments	1.4
28	Blindness and deafness	.2
29	Other and ill-defined diagnoses	3.7

* See footnote *a*, table 1.
† For specific classification of diagnoses into these categories, see reference *j* in "References to Tables and Charts," Perrott, Tibbitts, and Britten, op. cit.

(*e*) As has been noted in all previous surveys, the amount of disability is not distributed evenly over the population, but is concentrated among certain persons and in certain households. The percentage distribution of persons and of households [14] by the number of days disabled is shown in table 5. The inequality in the illness load is evident and suggests the widely different economic problem for particular persons or particular households, both in terms of loss of wages (or other effects of disability) and in terms of the cost of medical care.

TABLE 5.—*Percentage distribution of persons and of households according to amount of disability from illnesses disabling for a week or longer in a 12-month period. Urban, white* *

Days of disability	Percentage †	
	Persons	Households
Total	100.0	100.0
None	85.0	60.7
1–11	3.7	6.3
12–17	2.5	5.1
18–29	3.1	6.5
30–179	4.2	15.1
180–359	.5	2.3
360 and more	1.0	4.0

* See footnote *a*, table 1. † Based on a 0.5 percent random sample of punched cards.

[14] The term "household" is used instead of "family" since persons unrelated to the head are included. The household was a group of persons (or a single person) living in one abode or dwelling unit.

SIZE OF CITY

The relative availability of medical facilities in communities of different sizes is one of the factors determining the extent of medical care received. In large cities any type of service is available and its receipt depends on numerous factors, including economic status. In smaller cities there is some limitation in the types of medical services available. In small towns (and rural areas) there is much greater restriction. These factors are fundamental in producing the variations shown in tables 6 and 7, giving the percentage of illnesses (of the type stated) receiving various kinds of medical care, and the services per case, by size of city.

TABLE 6.—*Percentage of disabling illnesses receiving various types of medical care, by size of city. Urban, white* *

Size of city	Doctor				Hospital	Nursing		Total number of illnesses
	Total	Exclusive of hospital care				Private duty	Visiting	
		Total	Home	Public clinic				
All sizes	81	75	53	5.2	27	3.8	7.0	367,257
100,000 and over	83	75	52	6.4	30	3.4	7.7	252,205
25,000 to 100,000	79	75	57	3.4	23	4.8	4.7	55,810
Under 25,000	75	72	54	1.3	19	4.4	6.0	59,242

* See footnotes, table 1.

TABLE 7.—*Services per case receiving specified types of medical care, by size of city. Urban, white* *

Size of city	Doctor, exclusive of hospital care		Hospital (days)	Nursing	
	Total (calls)	Home (calls)		Private duty (days)	Visiting (visits)
All sizes	7.4	5.9	19	26	5.3
100,000 and over	7.5	5.9	20	29	5.2
25,000 to 100,000	7.4	5.7	17	21	6.5
Under 25,000	7.1	5.9	18	23	5.2

* See footnotes *a*, *b*, *d*, *e*, *f*, and *h*, table 1.

The percentage of illnesses disabling for a week or longer which did *not* receive medical attention varied as follows by size of city (first column of table 6, figures subtracted from 100):

	Percentage
100,000 and over	17
25,000 to 100,000	21
Under 25,000	25

The most notable change with size of community was in the percentage receiving hospital care, the figures being, respectively, 30, 23, and 19.[15]

The services per case receiving the specified service (see table 7) are not determined to any great extent by availability of medical facilities and hence do not show consistent relations. There was, however, a tendency for the large cities to have a greater number of hospital days per hospital case and a greater number of nursing days per private duty nurse case.

ECONOMIC STATUS

No one facet of the problem of distribution of medical services is so important as economic status. The National Health Survey shows: (1) That a large proportion of the population had incomes that left no margin or only a small margin for meeting the costs of medical care; (2) that the illness rates were highest in the groups least able to meet such costs; and (3) that, in general, persons at the lowest economic levels received the least medical care.

In the Health Survey, families were classified by income received during the 12 months preceding the interview and also by whether

[15] As stated in the introduction, the National Health Survey was carried out also in certain rural areas. In Georgia 16 counties were sampled (the population covered being 31,679 white persons and 21,607 Negroes); in Michigan the counties of Hillsdale, Crawford, Otsego, and Roscommon were completely enumerated (the white population covered in places under 2,500 and in purely rural areas being 31,878); in Missouri the counties of Livingston, Linn, and Howell were completely enumerated (the white population covered in places under 2,500 and in purely rural areas being 38,035). In view of the fact that these areas cannot be taken to be representative of rural United States generally, direct comparison with the data for the 83 cities is justified only in a broad way. On the other hand, the sharp contrast offered, especially with respect to hospitalization, is of interest. No averages for the entire rural sample seem legitimate, but Georgia has been presented in one group and certain other combinations of counties made where they seemed similar enough to justify this.

It is evident from the following table that the percentage of disabling illnesses which were hospitalized was very much less in the rural areas surveyed than in the urban areas. Very much lower percentages were also noted for visiting nurse services. Other differences may be observed from the table.

*Percentage of disabling illnesses receiving various types of medical care (rural, white)**

Community	Doctor		Hospital	Nursing		Total number of illnesses
	Total	Exclusive of hospital care		Private duty	Visiting	
Towns and villages under 2,500 population:						
Georgia (16 counties)	79	78	10.8	4.0	2.81	1,496
Michigan counties:						
Hillsdale	83	80	17.2	3.7	1.69	1,121
Crawford, Otsego, Roscommon	80	78	16.1	10.3	9.07	915
Missouri counties:						
Livingston, Linn	65	64	7.6	1.5	1.38	1,381
Howell	75	73	12.5	2.9	1.46	481
Purely rural:						
Georgia (16 counties)	77	76	8.5	3.0	2.62	4,459
Michigan counties:						
Hillsdale	73	70	12.3	4.3	1.69	4,139
Crawford, Otsego, Roscommon	70	67	15.5	5.8	4.97	1,248
Missouri counties:						
Livingston, Linn	55	54	5.7	1.2	0.63	5,058
Howell	59	55	7.8	1.8	0.52	3,091

* See footnotes, table 1.

relief had been received during that time. Persons in families [16] with annual incomes under $1,000 comprised about 40 percent of the surveyed group; about 65 percent were in families with annual incomes under $1,500; and 80 percent were in families with incomes under $2,000. Almost one-half of the lowest income group had been in receipt of relief during the year 1935. In table 3 has been given the frequency of illnesses disabling for a week or more according to the income and relief status of the family. The excess in the relief group over the rate in the group with incomes of $5,000 or more was 61 percent. There was also a definite excess for the nonrelief group with incomes below $1,000.

TABLE 8.—*Percentage of disabling illnesses receiving various types of doctor's care, by economic status and size of city. Urban, white* *

Annual family income and relief status	Size of city			
	All sizes	100,000 and over	25,000 to 100,000	Under 25,000
DOCTOR'S CARE: TOTAL				
All incomes	81	83	79	75
Relief	78	81	76	70
Nonrelief:				
Under $1,000	78	80	77	73
$1,000 to $2,000	82	83	81	77
$2,000 to $3,000	85	87	83	81
$3,000 to $5,000	87	88	86	82
$5,000 and over	89	90	87	87
DOCTOR'S CARE: EXCLUSIVE OF HOSPITAL CARE				
Total:				
All incomes	75	75	75	72
Relief	70	71	72	68
Nonrelief:				
Under $1,000	72	75	73	71
$1,000 to $2,000	76	76	77	74
$2,000 to $3,000	80	81	79	77
$3,000 to $5,000	82	83	81	78
$5,000 and over	84	85	83	81
Home:				
All incomes	53	52	57	54
Relief	47	45	52	49
Nonrelief:				
Under $1,000	50	48	54	53
$1,000 to $2,000	55	54	59	55
$2,000 to $3,000	60	60	60	58
$3,000 to $5,000	64	64	65	60
$5,000 and over	69	69	69	70
Public clinic:				
All incomes	5.2	6.4	3.4	1.3
Relief	12.3	15.1	10.5	1.6
Nonrelief:				
Under $1,000	4.2	5.9	1.9	1.2
$1,000 to $2,000	2.9	3.6	.8	1.3
$2,000 to $3,000	2.0	2.3	.8	1.1
$3,000 to $5,000	1.5	1.6	.4	2.0
$5,000 and over	.9	1.0	.1	.6
TOTAL NUMBER OF ILLNESSES				
All incomes	367,257	252,205	55,810	59,242
Relief	85,029	58,246	13,307	13,476
Nonrelief:				
Under $1,000	82,986	50,632	15,055	17,299
$1,000 to $2,000	136,114	96,258	19,435	20,421
$2,000 to $3,000	40,057	29,637	5,007	5,413
$3,000 to $5,000	15,838	11,793	2,071	1,974
$5,000 and over	7,233	5,639	935	659

* See footnotes *a* through *g*, table 1.

[16] For the purpose of this comparison, all persons living in a household are classified according to the total income of the related members of that household. See appendix table C, Perrott, Tibbitts, and Britten, op. cit., for detailed distributions of persons by annual family income, color, and sex.

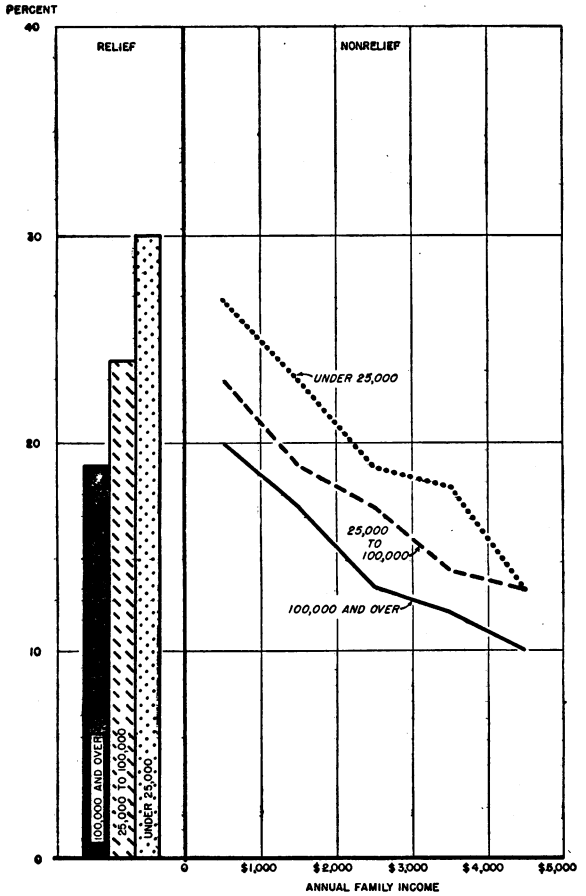

FIGURE 1.—Percentage of illnesses disabling for a week or longer which did *not* receive medical care.

The percentage of illnesses which received medical attention varied markedly with income and also with size of city for the same income group. The relation, expressed as the percentage of cases which did *not* receive such care, is shown in figure 1. As income rises there is a general tendency toward a decrease in the proportion of cases *not* medically attended. The percentage of disabling illnesses receiving various types of doctor's care is given in table 8 by economic status and size of city. One of the major facts brought out by the table is that clinic facilities, which supplement "home or office" medical care in large cities, are less adequately provided in small cities.

In table 9 is shown the number of doctor's calls per case attended by a doctor, classified by economic status and size of city. It will be observed that the amount of care per patient treated by a doctor in the lower economic status groups (especially the relief) was below the

averages for the higher income groups. This tendency was true in each city-size group; and it was true of "home" calls as well as of "total" calls.

TABLE 9.—*Doctor's calls per case of disabling illness receiving the specified care, by economic status and size of city. Urban, white* *

Annual family income and relief status	Size of city			
	All sizes	100,000 and over	25,000 to 100,000	Under 25,000
TOTAL CALLS PER CASE				
All incomes	7.4	7.5	7.4	7.1
Relief	6.8	7.0	6.6	6.4
Nonrelief:				
Under $1,000	7.9	8.1	8.0	7.5
$1,000 to $2,000	7.2	7.2	7.4	7.0
$2,000 to $3,000	7.6	7.6	7.4	7.7
$3,000 to $5,000	8.0	8.9	8.1	8.0
$5,000 and over	9.2	9.3	9.0	9.5
HOME CALLS PER CASE				
All incomes	5.9	5.9	5.7	5.9
Relief	4.8	4.7	4.8	5.1
Nonrelief:				
Under $1,000	6.3	6.4	6.2	6.1
$1,000 to $2,000	5.8	5.8	5.7	5.8
$2,000 to $3,000	6.3	6.2	6.0	6.5
$3,000 to $5,000	6.7	6.7	6.4	7.0
$5,000 and over	8.3	8.1	8.2	9.3

* See footnotes *a*, *b*, *d*, *e*, and *f*, table 1.

In the interpretation of the figures relating to medical care received by the surveyed families on relief, it should be noted that a relatively large volume of medical care was provided with the aid of Federal relief funds in 1935, the approximate survey year. In the fall of 1935, Federal subsidies for medical relief were discontinued.

Turning now to hospital care, even sharper differences are noted by size of city in the low-income groups than in the preceding comparisons (see fig. 2). Although in the income group of $5,000 and over the percentage of illnesses disabling for a week or longer which were hospitalized was about the same in each city-size group, the curves diverge widely as the lower income levels are reached. The maximum difference is shown for the relief group. In this group twice as large a proportion of the illnesses under consideration were hospitalized in cities with 100,000 or more population as in cities with populations below 25,000. The data are presented in table 10, which also gives the days in hospital per hospital case by size of city and economic status. Relief and low-income (under $1,000) groups show a somewhat greater average stay in hospital; the average is somewhat greater in larger cities than in small.

TABLE 10.—*Hospital care received for disabling illnesses, by economic status and size of city. Urban, white* *

Annual family income and relief status	Size of city			
	All sizes	100,000 and over	25,000 to 100,000	Under 25,000
PERCENTAGE OF CASES HOSPITALIZED				
All incomes	27	30	23	19
Relief	27	31	21	15
Nonrelief:				
Under $1,000	25	29	21	17
$1,000 to $2,000	28	30	25	21
$2,000 to $3,000	29	31	26	24
$3,000 to $5,000	29	30	28	26
$5,000 and over	31	32	30	31
DAYS IN HOSPITAL PER HOSPITAL CASE				
All incomes	19	20	17	18
Relief	24	24	21	22
Nonrelief:				
Under $1,000	21	22	18	19
$1,000 to $2,000	17	17	15	16
$2,000 to $3,000	16	16	13	14
$3,000 to $5,000	15	15	15	18
$5,000 and over	16	16	14	14

* See footnotes *a* and *d*, table 1.

In table 11 are presented the percentages of illnesses disabling for a week or longer which received nursing services and the services per attended case. Bedside nursing care by a private duty nurse was received for only a small proportion of illnesses in relief families (0.9 percent in cities of 100,000 or more population; 1.5 percent in cities of 25,000 to 100,000; and 1.9 percent in cities under 25,000 population). The percentages rose rapidly with income (for the group with incomes of $5,000 or more the percentages were, respectively, 15.8, 20.4, and 17.8). In the case of services by a visiting nurse, the reverse was naturally true; however, the relatively greater amount of visiting nurse service in relief and low-income families in no sense compensates for the low volume of continuous bedside nursing care, a type of nursing service which should be available during the acute stages of many diseases. This point is well brought out by consideration of the services per case receiving the specified care. A visiting nurse made about 5 visits to the average illness disabling for a week or longer which she attended; but the days of nursing service for the cases attended by the private duty nurse averaged 26. The figures also bring out a striking difference by income in the average days of private duty nursing service. For the relief group, the average number of days was 19, whereas it was 42 for the group with incomes of $5,000 or more. A similar tendency is apparent for each city-size group.

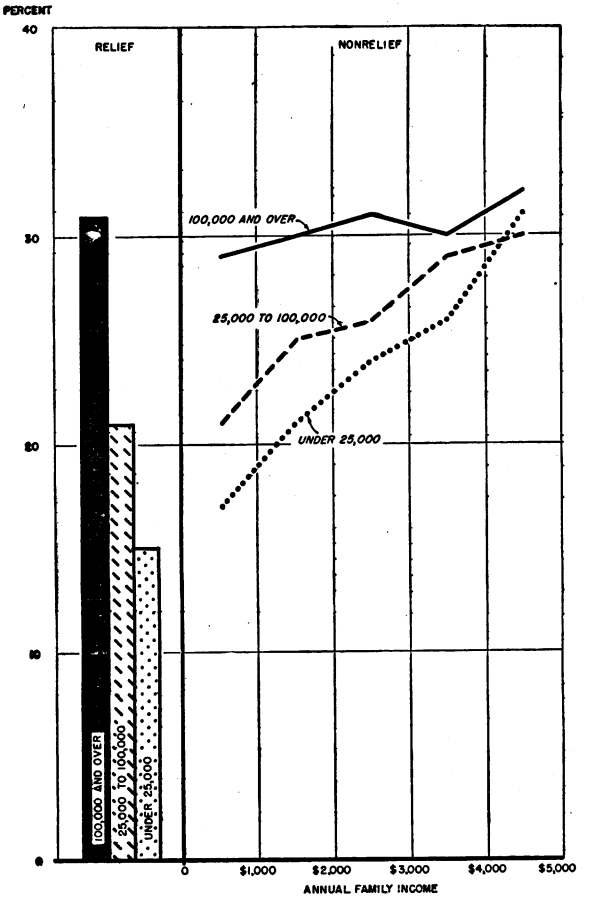

FIGURE 2.—Percentage of illnesses disabling for a week or longer which were hospitalized.

Because of the widely different medical needs associated with acute and with chronic illnesses, it seems desirable to consider the relative adequacy of medical care (as measured by changes with economic status) for these two groups of illnesses. Diseases the symptoms of which had been observed for 3 months or longer have been regarded as "chronic" for this purpose. Table 12 gives the percentage of acute and of chronic illnesses which were attended by a doctor and which were hospitalized, in the different economic status groups. (See also tables 16 and 17.)

TABLE 11.—*Nursing service received for disabling illnesses, by economic status and size of city. Urban, white* *

Annual family income and relief status	Size of city			
	All sizes	100,000 and over	25,000 to 100,000	Under 25,000
PERCENTAGE OF CASES RECEIVING PRIVATE DUTY NURSING CARE				
All income	3.8	3.4	4.8	4.4
Relief	1.2	.9	1.5	1.9
Nonrelief:				
Under $1,000	2.9	2.5	3.6	3.5
$1,000 to $2,000	3.9	3.3	5.4	5.2
$2,000 to $3,000	6.4	5.9	8.1	7.5
$3,000 to $5,000	9.2	8.5	13.4	8.9
$5,000 and over	16.6	15.8	20.4	17.8
DAYS OF NURSING PER PRIVATE DUTY NURSE CASE				
All income	26	29	21	23
Relief	19	18	26	17
Nonrelief:				
Under $1,000	24	27	20	23
$1,000 to $2,000	23	26	19	21
$2,000 to $3,000	27	29	21	24
$3,000 to $5,000	30	32	21	36
$5,000 and over	42	45	33	39
PERCENTAGE OF CASES RECEIVING VISITING NURSING CARE				
All income	7.0	7.7	4.7	6.0
Relief	11.8	13.2	8.5	9.3
Nonrelief:				
Under $1,000	6.0	6.7	3.9	5.5
$1,000 to $2,000	6.0	6.5	3.7	5.5
$2,000 to $3,000	4.6	5.1	2.7	3.3
$3,000 to $5,000	3.3	3.6	1.8	3.1
$5,000 and over	2.7	3.0	1.2	2.0
VISITS PER VISITING NURSE CASE				
All income	5.3	5.2	6.5	5.2
Relief	5.5	5.6	5.6	4.9
Nonrelief:				
Under $1,000	6.0	5.9	7.6	5.2
$1,000 to $2,000	4.8	4.6	6.5	5.1
$2,000 to $3,000	5.3	4.8	7.9	7.4
$3,000 to $5,000	4.1	3.8	8.1	4.1
$5,000 and over	6.7	6.2	15.3	5.9

* See footnotes *a* and *h*, table 1.

AGE

Although separate reports show the rates of illness and medical care received in the various major age groups of the population (children, youths, early and middle-aged adults, the aged),[17] a summary

[17] The disabling diseases of childhood. Their characteristics and medical care as observed in 500,000 children in 83 cities canvassed in the National Health Survey, 1935-36. By Dorothy F. Holland. I. Characteristics and leading causes. Pub. Health Rep., 55: 135-156 (Jan. 26, 1940). II. Medical and nursing care. Pub. Health Rep., 55: 227-244 (Feb. 9, 1940).

TABLE 12.—*Percentage of acute and of chronic [1] illnesses disabling for a week or longer which received doctor's or hospital care, by economic status. Urban, white* *

Annual family income and relief status	Doctor				Hospital		Total number of illnesses	
	Total		Exclusive of hospital care					
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic
All income	78	89	72	83	25	35	267,577	99,680
Relief	75	87	66	80	24	34	59,864	25,165
Nonrelief:								
Under $1,000	75	86	68	81	22	30	56,795	26,191
$1,000 to $2,000	79	91	73	85	26	36	103,338	32,776
$2,000 to $3,000	83	93	78	88	26	38	30,296	9,761
$3,000 to $5,000	85	93	80	88	26	40	11,980	3,858
$5,000 and over	87	94	83	89	27	43	5,304	1,929

* See footnotes *a* through *e*, table 1.
[1] "Chronic" refers to illnesses the symptoms of which had been observed for 3 months or more.

of such findings is desirable here. In table 13 is given the percentage, in four broad age groups, of illnesses disabling for a week or longer which received various types of medical care, and in table 14 the services per case receiving the specified types of care. In any interpretation of these averages, it must be kept in mind that the nature and severity of any given case of illness, and hence the medical care requirements for it, vary greatly with age.[18]

Table 13 indicates that the percentage of cases (of the type specified) receiving medical attention was at a maximum in the age group 25–64 and at a minimum in childhood. However, the relations are by no means the same for the different types of care, as is shown in the following summary:

	Percentage is least in age group	*Percentage is greatest in age group*
Private duty nursing service	Under 15	65 and over
Doctor's care (excluding hospital care)	Under 15	65 and over
Any medical care	Under 15	25–64
Hospital care	Under 15	15–24
Doctor's home care	15–24	65 and over
Public clinic	65 and over	Under 15
Visiting nursing	65 and over	Under 15

The contrast is most marked in the case of nursing. Among children only 1.3 percent of illnesses received private duty nursing care, whereas among persons over 65 the percentage was 7.1; for visiting nursing these percentages were reversed, being 13.2 and 3.1, respectively.

The services per case (table 14) reflect primarily the increasing severity of the individual case of illness as age advances. Each of the five indices used is at a maximum in the age groups 65 and over and each shows a rapid rise with age.

[18] The frequency and days of disability per person and per case are given for the four age groups in table 2. As to diagnosis, there is a gradual shift from acute to chronic diseases as age increases, implying a change in the character of medical care needs.

TABLE 13.—*Percentage of disabling illnesses receiving various types of medical care, by age. Urban, white* *

Age (years)	Doctor				Hospital	Nursing		Total number of illnesses
	Total	Exclusive of hospital care				Private duty	Visiting	
		Total	Home	Public clinic				
All ages	81	75	53	5.2	27	3.8	7.0	367,257
Under 15	72	68	51	6.2	17	1.3	13.2	116,347
15–24	84	73	48	4.2	40	3.5	6.5	48,930
25–64	86	79	53	5.0	33	4.9	4.4	167,129
65 and over	83	80	66	3.8	18	7.1	3.1	34,851

* See footnotes, table 1.

Among the many factors entering into the differences in medical care at various ages is economic status. By way of illustration, table 15 gives the percentage of illnesses disabling for a week or more which received medical care, by age and economic status. Although in the higher income groups there is a tendency for the percentage to rise gradually with age (reflecting the increasing severity of the illnesses), this tendency is not consistently maintained for the relief and low-income groups, in which persons over 65 years of age show a lower percentage than other adults. Children, who in the higher income groups showed only a slightly lower percentage than youths, had in the relief and low-income group a very much lower percentage.

TABLE 14.—*Services per case receiving specified type of medical care, by age. Urban, white* *

Age (years)	Doctor		Hospital (days)	Nursing	
	Exclusive of hospital care			Private duty (days)	Visiting (visits)
	Total (calls)	Home (calls)			
All ages	7.4	5.9	19	26	5.3
Under 15	4.4	3.9	14	16	3.2
15–24	6.3	4.7	16	12	5.5
25–64	8.9	6.5	21	22	8.1
65 and over	10.8	9.6	29	56	14.0

* See footnotes *a*, *b*, *d*, *e*, *f* and *h*, table 1.

DIAGNOSIS

The medical needs of the sick vary with the cause of illness. Hence, in table 16 is shown, for selected diagnoses,[19] the percentage of disabling illnesses receiving various types of medical care by the diagnosis

[19] Excluded from these comparisons are tuberculosis and nervous and mental diseases (these diagnoses are particularly affected by the conditions described in footnote 4), pneumonia, and confinements (special reports are being prepared), and a few other diagnoses of relatively infrequent occurrence.

(sole or primary) of the illness, and in table 17 the services per case receiving the specified type of care, similarly classified. The relative frequency of different causes, including those under consideration here, has already been given (table 4).[20]

TABLE 15.—*Percentage of disabling illnesses receiving doctor's care (inclusive of hospital care), by age and economic status. Urban, white* *

Age (years)	Annual family income and relief status						
	All incomes	Relief	Nonrelief				
			Under $1,000	$1,000 to $2,000	$2,000 to $3,000	$3,000 to $5,000	$5,000 and over
	PERCENTAGE OF ILLNESSES						
All ages	81	78	78	82	85	87	89
Under 15	72	70	67	72	78	82	85
15–24	84	83	83	85	86	87	88
25–64	86	84	82	87	90	89	91
65 and over	83	78	80	86	87	90	92
	TOTAL NUMBER OF ILLNESSES						
All ages	367,257	85,029	82,986	136,114	40,057	15,833	7,233
Under 15	116,347	31,067	21,173	44,527	12,777	4,694	2,109
15–24	48,930	11,614	12,246	17,838	4,584	1,862	786
25–64	167,129	35,440	37,607	63,120	19,512	7,962	3,488
65 and over	34,851	6,908	11,960	10,629	3,184	1,320	850

* See footnotes *a*, *b*, and *c*, table 1.

The proportion of cases *not* receiving medical attention varied from about 38 percent for communicable diseases, colds, influenza, etc., to about 6 percent for tonsillitis (including tonsillectomies), digestive diseases, accidents, and degenerative diseases. The percentages are shown graphically in figure 3. It is clear that the nature of the disease plays an important part in determining the extent to which medical care is received.

The proportion of cases of any given disease which were hospitalized varied from 51 for tonsillitis and tonsillectomies to 4 for colds, influenza, etc. The relatively high proportions for certain diagnoses reflect surgical procedures, which are usually carried out in the hospital. It may be mentioned that appendicitis and appendectomies (included in the digestive group) were notable in that 88 percent of the cases were hospitalized.

[20] The diagnoses shown in tables 16–19 correspond to those on certain lines of table 4, as follows: Communicable diseases, 1, 2; rheumatism and allied diseases, 5; degenerative diseases, 4, 6, and 21; tonsillitis, 11; colds, influenza, etc., 12; diseases of digestive system, 13–16; accidents, 26; orthopedic impairments, 27.

TABLE 16.—*Percentage of disabling illnesses receiving various types of medical care, by diagnosis (sole or primary). Urban, white* *

Diagnosis	Doctor				Hospital	Nursing		Total number of illnesses
	Total	Exclusive of hospital care				Private duty	Visiting	
		Total	Home	Public clinic				
All diagnoses	81	75	53	5.2	27	3.8	7.0	367,257
Selected diagnoses:								
Communicable diseases	62	61	52	6.0	5.0	1.1	16.2	65,320
Rheumatism and allied diseases	81	79	55	6.9	12	2.0	2.9	11,997
Degenerative diseases	94	89	69	5.3	25	6.2	3.6	28,868
Tonsillitis (including tonsillectomies)	93	82	40	3.6	51	1.4	4.7	21,952
Colds, influenza, etc	64	63	51	3.8	4.1	1.3	2.8	75,671
Diseases of digestive system	94	88	63	3.6	56	7.1	3.3	27,156
Accidents	94	86	44	8.9	36	2.6	2.5	33,493
Orthopedic impairments	69	64	39	7.1	23	3.9	4.1	6,161

* See footnotes, table 1.

Cases of communicable diseases showing nursing visits (16.2 percent of 65,320 cases) amounted to 41 percent of the total number of visiting nurse cases.

TABLE 17.—*Services per case receiving specified types of medical care, by diagnosis (sole or primary). Urban, white* *

Diagnosis	Doctor		Hospital (days)	Nursing	
	Exclusive of hospital care			Private duty (days)	Visiting (visits)
	Total (calls)	Home (calls)			
All diagnoses	7.4	5.9	19	26	5.3
Selected diagnoses:					
Communicable diseases	4.1	3.6	25	20	2.8
Rheumatism and allied diseases	11.1	8.5	37	67	13.3
Degenerative diseases	12.7	10.6	28	44	11.8
Tonsillitis (including tonsillectomies)	3.0	2.8	2.3	3.7	2.6
Colds, influenza, etc	4.5	3.6	18	16	4.1
Diseases of digestive system	7.4	5.5	16	16	8.1
Accidents	9.2	6.5	18	34	9.0
Orthopedic impairments	17.3	13.5	56	146	22.0

* See footnotes *a*, *b*, *d*, *e*, *f*, and *h*, table 1.

Services per case (see table 17) vary widely depending on the severity of the disease and other factors. Since, with respect to the volume of service, it is of particular interest to consider the part of the load absorbed by any given diagnosis, an additional table (No. 18) is introduced to indicate the percentage of doctor's calls and of hospital days associated with each of the selected diagnoses under consideration.

TABLE 18.—*Percentage distribution of doctor's calls and of hospital days by diagnosis. Urban, white* *

Diagnosis	Doctor's calls	Hospital days
All diagnoses	100.0	100.0
Selected diagnoses:		
Communicable diseases	8.0	4.2
Rheumatism and allied diseases	4.9	2.8
Degenerative diseases	16.1	10.7
Tonsillitis (including tonsillectomies)	2.7	1.3
Colds, influenza, etc	10.5	2.9
Diseases of digestive system	8.9	12.8
Accidents	12.8	11.4
Orthopedic impairments	3.2	4.2

* See footnotes *a*, *d*, and *e*, table 1.

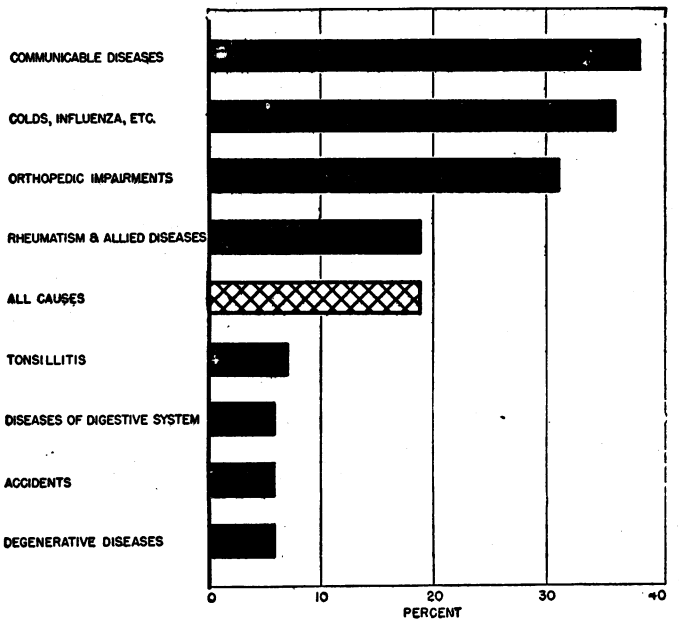

FIGURE 3.—Proportion of disabling illnesses due to certain selected diagnoses (sole or primary) which did *not* receive doctor's care.

A further table (No. 19) gives the percentage of disabling illnesses receiving doctor's care by diagnosis and economic status. The difference between the percentages which did receive care for the relief group and the group with incomes of $3,000 and more are as follows:

Communicable diseases	20
Colds and influenza	18
Rheumatism	11
Orthopedic impairments	10
All diagnoses	10
Digestive diseases	7
Tonsillitis	6
Degenerative diseases	6
Accidents	3

TABLE 19.—*Percentage of disabling illnesses receiving doctor's care (inclusive of hospital care) by diagnosis and economic status. Urban, white* *

Diagnosis	Average duration of disability per case (days)	Annual family income and relief status					
		All incomes	Relief	Nonrelief			
				Under $1,000	$1,000 to $2,000	$2,000 to $3,000	$3,000 and over
PERCENTAGE RECEIVING DOCTOR'S CARE							
All diagnoses	56	81	78	78	82	85	88
Selected diagnoses:							
Communicable diseases	23	62	59	56	62	70	79
Rheumatism and allied diseases	124	81	78	76	85	87	89
Degenerative diseases	123	94	91	92	95	96	97
Tonsillitis (including tonsillectomies)	14	93	90	90	94	96	96
Colds, influenza, etc	24	64	58	57	65	72	76
Diseases of digestive system	59	94	92	92	96	98	99
Accidents	49	94	93	92	95	96	96
Orthopedic impairments	305	69	67	67	70	74	77
TOTAL NUMBER OF ILLNESSES							
All diagnoses		367,257	85,029	82,986	136,114	40,057	23,071
Selected diagnoses:							
Communicable diseases		65,320	16,273	12,616	25,616	7,117	3,698
Rheumatism and allied diseases		11,997	3,079	3,279	3,883	1,155	601
Degenerative diseases		28,868	6,687	7,750	9,623	2,964	1,844
Tonsillitis (including tonsillectomies)		21,952	5,055	4,072	8,716	2,702	1,407
Colds, influenza, etc		75,671	15,455	16,540	28,067	9,334	6,275
Diseases of digestive system		27,156	5,879	6,274	9,885	3,173	1,952
Accidents		33,493	6,871	8,200	12,709	3,652	2,061
Orthopedic impairments		6,161	1,674	1,853	1,850	506	278

* See footnotes *a*, *b*, and *c*, table 1.

The wide variation in the rates of hospitalization in cities of different sizes makes it important to determine how such differentials obtain in the case of certain diagnoses. Table 20 relates these differences to economic status. In general the proportion of cases hospitalized falls off as the city becomes smaller, but the changes are more marked for some diseases (especially the communicable group) than for others.

COLOR

A comparison is given in tables 21 and 22 of the extent and type of medical care received by the colored population in comparison with that received by the white population. The same indices are used as in the preceding tables. In the South the data are given separately for the three city-size groups (over 100,000,[21] 25,000 to

[21] Baltimore, the only city in the South with more than 500,000 population, was surveyed but has been excluded from the general reports, since the sample (which, for a special purpose, was limited to the eastern and western health districts) did not give a representative cross-section of the city.

100,000, and under 25,000). In other parts of the country comparison is limited to cities over 500,000 population, because of the relatively small colored populations in smaller cities. The West has been excluded from these comparisons because of the fact that the colored population in the West differs in composition from that in the rest of the country. The present analysis is essentially a comparison between white and Negro populations.[22]

TABLE 20.—*Percentage of cases hospitalized by economic status, size of city, and diagnosis*

Diagnosis and size of city	Annual family income and relief status			
	Relief	Nonrelief		
		Under $1,000	$1,000 to $2,000	$2,000 and over
All diagnoses:				
100,000 and over	31.5	28.9	30.3	30.7
25,000 to 100,000	21.1	20.6	24.9	27.1
Under 25,000	14.8	16.7	21.4	25.3
Selected diagnoses:				
Communicable diseases:				
100,000 and over	10.7	7.7	5.1	4.7
25,000 to 100,000	4.0	3.0	2.2	2.5
Under 25,000	1.0	1.4	1.5	2.1
Rheumatism and allied diseases:				
100,000 and over	15.5	11.8	11.7	13.6
25,000 to 100,000	11.7	8.3	9.4	15.9
Under 25,000	6.9	7.1	10.8	12.7
Degenerative diseases:				
100,000 and over	33.1	25.1	26.7	26.0
25,000 to 100,000	19.5	17.2	22.3	29.8
Under 25,000	16.0	14.6	20.4	28.3
Colds, influenza, etc.:				
100,000 and over	5.6	5.2	3.9	3.9
25,000 to 100,000	3.3	2.8	3.5	4.5
Under 25,000	2.2	2.4	2.9	5.5
Tonsillitis (including tonsillectomies):				
100,000 and over	57.7	52.9	53.4	57.6
25,000 to 100,000	36.9	29.0	36.6	45.0
Under 25,000	31.3	37.2	44.3	53.0
Diseases of digestive system:				
100,000 and over	50.1	51.6	60.2	68.0
25,000 to 100,000	39.6	43.1	56.1	65.0
Under 25,000	37.8	42.0	58.9	65.8
Accidents:				
100,000 and over	42.6	35.4	36.1	35.5
25,000 to 100,000	34.7	34.5	39.0	41.3
Under 25,000	27.4	28.5	31.7	33.8
Orthopedic impairments:				
100,000 and over	26.6	19.6	24.7	26.1
25,000 to 100,000	21.1	22.6	27.5	30.4
Under 25,000	14.6	17.4	23.3	27.0

The major fact brought out in table 21 is the relative lack among the Negro population of hospital care (especially in the smaller cities in the South) and of private duty nursing. In contrast is the greater

[22] In the Northeast and North Central areas "Negro" includes a negligible proportion of "other colored."

proportion among Negroes of cases receiving care in public clinics (except in the smaller cities in the South) and from visiting nurses.[23]

TABLE 21.—*Percentage of disabling illnesses receiving various types of medical care, by color, geographic area, and size of city. Urban* *

Color	Doctor				Hospital	Nursing	
	Total	Exclusive of hospital care				Private duty	Visiting
		Total	Home	Public clinic			
SOUTH: CITIES OF 100,000 AND OVER							
White	83	77	57	5.7	31	5.2	3.8
Negro	81	72	48	16.1	23	.7	8.2
SOUTH: CITIES OF 25,000 TO 100,000							
White	79	75	55	3.6	25	6.3	2.1
Negro	73	71	55	1.3	11	.7	2.2
SOUTH: CITIES OF UNDER 25,000							
White	78	76	63	.8	19	5.2	2.2
Negro	77	76	66	.4	8	1.1	2.7
NORTHEAST: CITIES OF 500,000 AND OVER							
White	87	76	54	7.4	34	3.1	7.9
Negro [a]	86	76	46	17.6	31	.5	11.1
NORTH CENTRAL: CITIES OF 500,000 AND OVER							
White	86	77	54	9.1	32	2.9	10.2
Negro [a]	87	75	51	22.8	29	.5	15.0

* See footnotes, table 1.
[a] Includes a negligible porportion of "other colored."

[23] In the rural areas surveyed (see footnote 15) adequate data for Negroes were obtained only for the 16 counties of Georgia. The percentage of disabling illnesses receiving various types of medical care was:

Community and color	Doctor		Hospital	Nursing		Total number of illnesses
	Total	Exclusive of hospital care		Private duty	Visiting	
Towns and villages under 2,500 population:						
White	79	78	10.8	4.0	2.81	1,496
Negro	64	64	2.4	1.2	3.25	585
Purely rural:						
White	77	76	8.5	3.0	2.62	4,459
Negro	64	64	1.7	0.6	4.11	3,477

The major differences are relatively lower rates of hospitalization and receipt of private duty nursing care among Negroes and relatively higher rate of visiting nurse care.

TABLE 22.—*Services per case receiving various types of medical care, by color, geographic area, and size of city. Urban* *

Color	Doctor		Hospital (days)	Nursing	
	Exclusive of hospital care				
	Total (calls)	Home (calls)		Private duty (days)	Visiting (visits)
SOUTH: CITIES OF 100,000 AND OVER					
White	7.9	6.1	16	24	6.6
Negro	6.9	5.1	18	24	6.7
SOUTH: CITIES OF 25,000 TO 100,000					
White	7.7	5.7	15	18	4.4
Negro	5.1	3.9	24	14	4.5
SOUTH: CITIES OF UNDER 25,000					
White	7.9	6.6	17	19	4.9
Negro	5.7	4.9	21	15	4.6
NORTHEAST: CITIES OF 50,000 AND OVER					
White	7.9	6.7	21	31	6.1
Negro **	7.7	5.4	24	11	5.8
NORTH CENTRAL: CITIES OF 500,000 AND OVER					
White	7.5	5.5	20	25	4.7
Negro **	6.3	4.2	27	16	5.4

* See footnotes, *a*, *b*, *d*, *e*, *f*, *h*, and *i*, table 1.
** Includes a negligible proportion of "other colored."

The most significant point to be noted in table 22 is the longer period of hospitalization per hospitalized case among the Negro population. For the other types of medical care the services per case tend to be greater for the white population.

SUMMARY

The foregoing report summarizes information on the receipt of medical care collected in a house-to-house canvass of more than 700,000 urban families (2,500,000 persons) in 18 States, made from November 1935 to March 1936. The data relate to care received for illnesses resulting from disease, accidents, and impairments which kept persons from work, school, home duties, or usual pursuits for a week or longer during the 12 months immediately preceding the visit. Persons in hospitals or other institutions for the care of disease for the entire 12-month period have been excluded. With the exception of a few comparisons between white and colored persons, the material presented has been restricted to white households.

The percentage of illnesses which received medical attention varied markedly with income and also with size of city for the same income group. As income rose there was a general tendency toward an increase in the proportion of cases medically attended. Free hospital and clinic facilities, which supplement "home or office" medical care in large cities, were less adequately provided in small cities.

The amount of care per patient treated by a doctor in the lower economic status groups (especially the relief) was below the averages for the higher income group. This tendency was true in each city-size group; and it was true of "home" calls as well as of "total" calls.

Although in the income group of $5,000 and over the percentage of illnesses disabling for a week or longer which were hospitalized was about the same in each city-size group, the curves diverged widely as the lower incomes were reached, the maximum difference being shown for the relief group. In this group twice as large a proportion of the illnesses were hospitalized in cities with populations of 100,000 and over as in cities with populations below 25,000.

Bedside nursing care by a private duty nurse was received for only a small proportion of illnesses in relief families, the percentages rising rapidly with increasing income. The reverse was true in the case of services by a visiting nurse.

The percentage of illnesses receiving medical care was at a maximum in the age group 25–64 and at a minimum in childhood. However, the relations were by no means the same for the different types of care. Services per case reflected particularly the increasing severity of the individual case of illness as age advanced.

Although in the higher income groups there was a tendency for the percentage of illnesses receiving medical care to rise gradually with age (again reflecting the increasing severity of the illness), this tendency was not consistently maintained for the relief and low-income groups, in which persons over 65 years of age showed a lower percentage than other adults. Children, who in the higher income groups showed only a slightly lower percentage than youths, had in the relief and low-income groups a very much lower percentage.

The amount and type of medical care received varied with the nature of the disease, the proportion of disabling illnesses not receiving care varying from about 38 percent for communicable diseases, colds, influenza, etc., to about 6 percent for tonsillitis (largely tonsillectomies), diseases of the digestive system, accidents, and degenerative diseases.

There was a relative lack of private duty nursing and hospital care among the Negro population, especially in the smaller cities in the South; and a greater proportion of Negroes received care in public clinics and from visiting nurses.

Broadly speaking, the survey shows that a large proportion of the urban population had incomes that left no margin or only a small margin for meeting the costs of medical care; that the illness rates were highest in the groups least able to meet such costs; that, in general, persons at the lowest economic levels received the least medical care; that such persons residing in smaller cities were at a particular disadvantage compared with those in larger cities, especially with respect to hospitalization.

COLORADO TICK FEVER

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More or less widespread throughout the world is a group of diseases the exact nature of which is not clearly understood. These diseases are reputedly transmitted by one of the arthropods, usually a tick, and include, among others, South African tick fever (*1*), Kenya typhus (*2*), and Colombian spotted fever (*3*). To this group has been added, by those interested in this field, a febrile illness to which has been applied the name, "Colorado tick fever." Locally the disease has been known by several names, "mountain fever," "tick fever," "mountain tick fever," etc. Toomey reviewed the older literature in three articles entitled "American Mountain Tick Fever" (*4*) published in 1931 and 1932. However, his articles were preceded by Becker's studies in 1930 (*5, 6*), in which he gave the disease its present name and described some of its symptoms.

The present study was instituted in Boulder, Colo., during the tick season of 1940. Its objects were to study clinically the cases occurring in and about Boulder, to make certain epidemiological observations, and, finally, to attempt isolation of the causative agent from the afflicted individuals.

CLINICAL OBSERVATIONS

During the period May 6 to June 4, 1940, all cases of Colorado tick fever reported to the United States Public Health Service field laboratory in Boulder were investigated. The disease is well understood by the practicing physicians of Boulder and a surprisingly small number of cases in which the diagnosis could not be supported were reported to us. During the month 11 cases of Colorado tick fever were studied. Much of the pertinent clinical data is summarized in table 1.

TABLE 1.—*Summary of clinical data on cases of Colorado tick fever*

Patient number	Age	Sex	Previous history tick bite	Date tick removed, 1940	Date onset, 1940	Duration first febrile period, in days	Duration of remission, in days	Duration of relapse, in days	Height of recorded fever, first period	Height of recorded fever on relapse	Symptoms	White blood count	Date of white blood count, 1940
9	6	♀	Multiple +.	May 3[1]	May 6	2	2	1	102.6	99.6	Headache, photophobia, chills, nausea, vomited once.	4,500	May 8
11	17	♂	One +---	May 4	May 8	3	1½	1½	103	102	Headache, chills, muscle pains.	4,400	May 9
13	25	♀	One +---	May 6	May 7	1	3	2	101	103	Headache, chills, backache, hyperesthesia of skin.	2,500 2,100 9,300	May 11 May 12 May 22
14	61	♂	One +---	May 11	May 11	2	3	2	101	101	Headache, chilly sensation, muscle pain, backache.	4,300	May 12
15	38	♀	One +---	May 6	May 10	2	3	2	102.4	101	Headache, backache, photophobia, hyperesthesia of skin.	-----	
16	11	♂	One +---	May 14[2]	May 19	2	3	1	102	101	Headache, chilly sensations.	4,100	May 20
17	54	♀	One +---	May 14	May 14	2	2	2	99.5	103	Headache, backache, chilly sensations.	-----	
24	55	♂	Multiple +.	May 15, May 20, May 21	May 21	3	2	2	101	102	Headache, muscle pain, abdominal pain.	1,300	May 27
25	10	♀	One +---	May 23	May 28	2	2	1	101	100	Chilly sensations, pains in legs.	2,700	May 30
26	34	♂	Multiple (?).	(?)	May 26	3	2	2	(?)	105	Headache, chills, muscle pains, photophobia.	1,300	May 31
27	13	♂	One +---	May 26[2]	May 30	2	2	1	102	99.6	Headache, photophobia, muscle pains.	-----	

[1] 3 removed.

[2] 2 removed.

Several of these patients had only one history of exposure to ticks, while on either a picnic or a fishing trip. Patients 11, 15, and 16 were all on picnics in the foothills near Boulder. The following day a tick or ticks were found attached to their bodies. The onset of cases 11 and 15 occurred 4 days later, while onset of case 16 occurred 5 days later. Patient 27 was fishing in a canyon near Boulder on May 25; the following day two ticks were removed from his body and 4 days later, May 30, he developed Colorado tick fever. From these cases it would appear that the incubation period is about 4 or 5 days. There is only one case in the series that may have had a longer incubation period. This patient, No. 26, had been working in an area heavily infested with ticks and had had several tick bites, so that a definite history was impossible to obtain.

Prodromata in Colorado tick fever are very indefinite and in the 11 cases in this series not well established. The onset, in contradistinction, was sharp and clearly defined; it was not unusual for the patient to set the onset within an hour or so. The disease was usually ushered in with headache, backache, and chilly sensations. In several of the

patients there was some nausea and in one case, No. 9, there was vomiting. The temperature rose rapidly and was sustained for about 48 hours with a persistence of headache, backache, muscle pains, photophobia, and in several cases some hyperesthesia of the skin. There was usually a gradual fall in fever and a cessation of symptoms between 36 and 48 hours after onset. A period of remission then occurred, lasting 2 or 3 days, in which the patient had no complaints except perhaps slight weakness. At the end of this period there was a relapse, again with a sudden onset, and a recurrence of the previous symptoms lasting 24 to 48 hours and then rapidly disappearing. Figure 1 illustrates the typical febrile record in a case of Colorado tick fever. Following the relapse the patients not infrequently complained of great weakness and the convalescence seemed unusually long considering the relatively short duration of the fever.

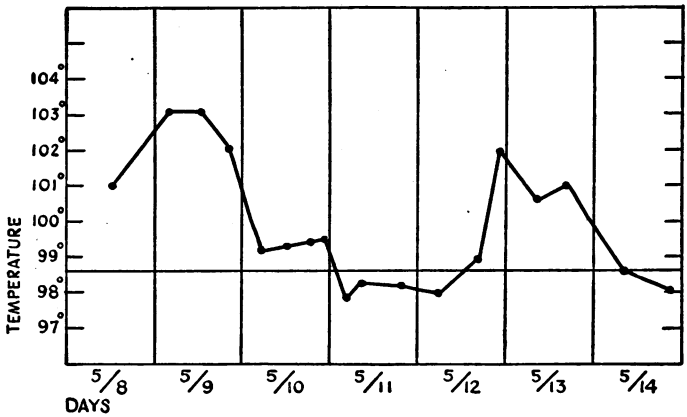

FIGURE 1.—Temperature record in Colorado tick fever, case 2.

During 1940 follow-up cards requesting additional information were sent to the physicians reporting cases of Colorado tick fever. The replies are summarized in tables 2 and 3. It is obvious that some of the cases were not Colorado tick fever as we know it; however, the majority of the cases conform to our conception of the disease.

TABLE 2.—*Incidence of symptoms in 53 cases of Colorado tick fever reported in Colorado in 1940* [1]

Symptoms	Number of cases	Symptoms	Number of cases
Fever	53	Vomiting	5
Headache	39	Malaise	5
Chills	30	Abdominal tenderness	[2] 7
Backache	20	Weakness	5
Muscle pain	17	Dizziness	2
General aches	17	Restlessness	2
Photophobia	14	Anorexia	1
Nausea	14	Diarrhea	1
Leg muscular pains	12	Abdominal rigidity	1

[1] 56 cards: 53 Colorado tick fever, 1 tick paralysis, 1 (?) rash, no remission, 1 "mistaken diagnosis."
[2] Five of these reported as splenic tenderness.

TABLE 3.—*Incidence of relapse, duration of febrile periods, and duration of remission in the 53 cases of Colorado tick fever reported in Colorado in 1940*

	Days	Cases
No relapse: 11 cases.		
Duration of single febrile period	2	2
	3	1
	4	1
	5	3
	7	1
	9	1
	16	1
	?	1
One relapse: 39 cases.		
Duration of first febrile period	2	14
	3	19
	4	4
	5	1
	7	1
Duration of remission	1	11
	2	24
	3	2
	4	1
	7	1
Duration of second febrile period	1	1
	2	14
	3	12
	4	3
	5	3
	7	1
	8	1
	11	1
Two relapses: 1 case (?).		
Case above with 7-day second febrile period (?).		
Not known: 3 cases.		

In our 11 cases the physical findings were extremely meager. At times the most to be found on examination was a slight injection of the throat and conjunctiva. At no time during the illness or convalescence was any form of exanthema observed. In most of the cases the site of previous attachment of a tick was still discernible. In none of the 11 cases was there evidence of any unusual reaction about this local area.

Certain laboratory procedures were followed routinely. The most outstanding finding of this work was the consistent reduction of the total white cell count without any decided shifts in cell distribution. The highest white cell count found in the series was 4,500, while the lowest (1,300) was found in two patients, No. 24, bled on the sixth day after onset, and No. 26, bled on the fifth day after onset. One patient, No. 13, was checked following convalescence and her count had returned to within normal limits.

Blood smears stained with either Giemsa or Wright's stain were examined on many occasions and nothing unusual was noted except a leucopenia and evidence of degeneration in some of the white cells. Weil-Felix tests using *Proteus* OX–19, OX–2, and OX–K were done on the sera from these patients with results that were interpreted as being not significant.

Clinically, the disease is characteristic, having a consistent history, no physical findings of importance, and a rather marked leucopenia.

EPIDEMIOLOGY

Certain of the epidemiological aspects of Colorado tick fever were studied during the season of 1940 as well as statistical data available from the Colorado State Board of Health. The city health officer of Boulder, Dr. H. L. Morency, has kept records of Colorado tick fever in Boulder since 1930. He very kindly has made these records available.

Seasonal distribution.—During 1938, 1939, and up to July 31, 1940, there were 175 cases reported to the Colorado State Division of Public Health for the entire State. Table 4 gives the distribution of these cases by months; it is noted that in 1938 and 1940 the peak occurred in June, while in 1939 it was 1 month earlier. This seasonal distribution coincides with the seasonal distribution of the wood tick, *D. andersoni*, in this area as well as with the cases of Rocky Mountain spotted fever, a disease known to be tick-transmitted. During 1938 and 1939 there were 27 cases of Rocky Mountain spotted fever reported to the Public Health Service by the State health officer of Colorado. They were distributed as follows: March, 1 case; April, 3; May, 10; June, 8, and July, 5.

TABLE 4.—*Reported cases of Colorado tick fever in the State of Colorado by months, 1938, 1939, and 1940* [1]

Months	1938		1939		1940	
	Number of cases	Percentage distribution by month	Number of cases	Percentage distribution by month	Number of cases	Percentage distribution by month
Total	53	100.0	58	100.0	64	100.0
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	1	1.9	1	1.7	0	0
April	1	1.9	3	5.2	7	10.9
May	9	17.0	28	48.3	17	26.6
June	31	58.5	18	31.0	35	54.7
July	9	17.0	8	13.8	5	7.8
August	2	3.8	0	0		
September	0	0	0	0		
October	0	0	0	0		
November	0	0	0	0		
December	0	0	0	0		
	0	0	0	0		

[1] Reported cases include all cases reported up to and including July 31, 1940.

The seasonal distribution of cases of Colorado tick fever in the city of Boulder varies somewhat from that in the State as a whole. There were 6 cases in March, 6 in April, 32 in May, 12 in June, and 2 in July for the period 1930–39 (fig. 2). It must be remembered that in Colorado there are areas with great differences in altitude, mean temperatures, and humidities. Boulder lies at the foot of the Rocky Mountains at an altitude of about 5,000 feet. The tick season is rather early and ends quickly, presumably because of the dry heat of June. The more mountainous areas are cooler, the ticks appear later and persist longer, and therefore cases of a tick-transmitted dis-

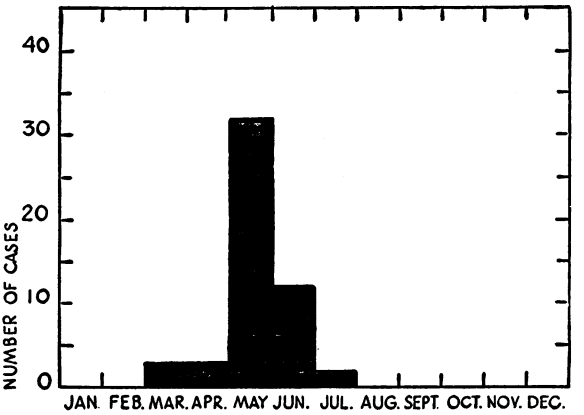

FIGURE 2.—Seasonal distribution of Colorado tick fever, city of Boulder, 1930-39.

ease would be expected several weeks later in these areas than at lower altitudes.

The recorded cases of Colorado tick fever in Boulder for the period 1930–39 are presented by years in figure 3. This is particularly interesting when certain facts are correlated with this graph. In 1938 the field laboratory was established in Laramie, Wyo., just 100 miles from Boulder, and one of the scientific personnel visited Boulder and spoke before the county medical society. In 1939 the field laboratory was located in Boulder. There were twice as many cases reported in 1938 as in any previous year and six times as many in 1939. These data would seem to indicate either that there are many cases not being recognized by the practitioners of medicine or that they are not being reported to the health authorities. With this point in mind, a trip was made over the western slope in Colorado. Many of the local doctors were interviewed. In one town a physician went over his records for 1939 and found that he had treated 23 cases of Colorado tick fever and that an associate had seen approximately a like number; yet none of these cases had been reported to the State Board of Health. From the foregoing, it must be assumed that the actual

number of cases of the disease far exceeds the reported cases and that data presented here can be considered only preliminary in nature until plans to collect more complete data are perfected and have been carried out.

Geographical distribution.—The name "Colorado tick fever" is misleading because the disease undoubtedly occurs in some of the surrounding States at least. It has been reported to the Public Health Service from Colorado, Utah, Idaho, and Wyoming. In May 1937, the latter State first reported 2 cases from Albany County and 2 cases

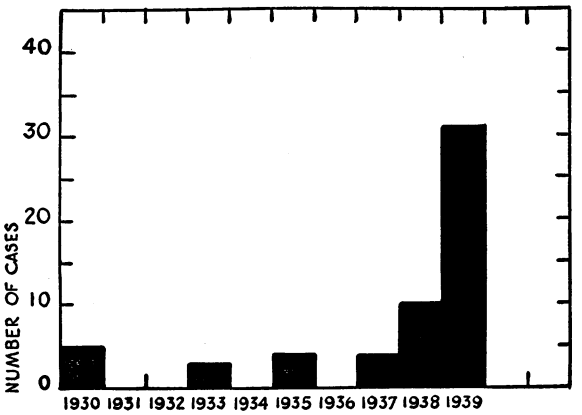

FIGURE 3.—Occurrence of Colorado tick fever in the city of Boulder, by years, 1930-39.

from Carbon County under the name "Colorado tick fever." However, cases were occurring in some of these States long before 1937. Becker's articles (*5*, *6*) appeared in 1930, reporting cases in Colorado along with a statement that his attention had first been directed to the syndrome by "several Boulder physicians" in 1922. In a published letter to Dr. Becker from Dr. Albert B. Tonkin, then president of the Wyoming State Board of Health, dated March 7, 1930, the statement is made, "I am positive that such a condition is not a separate entity of Colorado but is native also to Wyoming." [1]

Cases of the disease, at present, are reported in greater numbers in Colorado than in the surrounding States; for this reason their geographical distribution within the State of Colorado itself was studied. There are two foci, one with Boulder at the center and the other on the western slope of the Rocky Mountains with Delta as the center, in which the disease apparently occurs with greater frequency than elsewhere in the State. However, the disease has been reported from practically the entire mountainous region of the State, the areas where *D. andersoni* are prevalent. The flat prairie country of eastern Colorado has been free of the disease. In this area *D. andersoni* is absent

[1] Quoted by Becker: Colorado Med., 27: 142 (1930).

or rare. In his monograph "The Genera Dermacentor and Otocentor (Ixodidae) in the United States," Cooley (7) states, "This tick (*D. andersoni*) is prevalent in Colorado, as shown by many laboratory collections, but is absent or rare east of the mountains, though we have one definite record from western Nebraska."

Figure 4 shows the geographic distribution of the cases reported in 1938, and figure 5 gives that for 1939.

Age and sex distribution.—Tables 5, 6, and 7 give the age and sex distribution for the 175 cases reported to the State health officer for 1938, 1939, and up to July 31, 1940. From an analysis of the tables it is readily apparent that the majority of the cases occur in the older age groups, as might be expected, since more persons of these ages are probably exposed to tick bites through occupation. Further, in analyzing distribution according to sex, it is apparent that males are affected more frequently than females. Again this is probably what might be expected since males, as a result of occupation, would be more exposed to tick bites than females. Rocky Mountain spotted fever, in this area, is also primarily a disease of the adult male population. The following figures for Idaho and Montana (1930–39, inclusive) [2] serve to illustrate this point:

Sex:	*0–14*	*15–39*	*40 and over*	*Total*
Male	55	239	312	606
Female	53	25	42	120

Thus it is seen that the age and sex distribution of the cases of Colorado tick fever is comparable to the age and sex distribution of spotted fever, a known tick-transmitted disease, in the Rocky Mountain region.

TABLE 5.—*Reported cases of Colorado tick fever in the State of Colorado, by age, 1938–40, inclusive* [1]

Age (years)	Number of cases	Percent at given ages	Age	Number of cases	Percent at given ages
Total	175	100.0	25–29	17	9.7
			30–34	16	9.1
Under 1	0	0	35–39	9	5.1
1	0	0	40–44	13	7.4
2	2	1.1	45–49	22	12.6
3	1	.6	50–54	18	10.3
4	2	1.1	55–59	4	2.3
5–9	13	7.4	60–64	12	6.9
10–14	8	4.6	65 and over	6	3.4
15–19	9	5.1	Age unknown	13	7.4
20–24	10	5.7			

[1] Includes all cases reported up to and including July 31, 1940.

Number of reported cases under 20 years of age, 35, or 20 percent. Number of reported cases 20 years of age and over, 140, or 80 percent.

[2] Reported to the authors by the State health officers of Idaho and Montana.

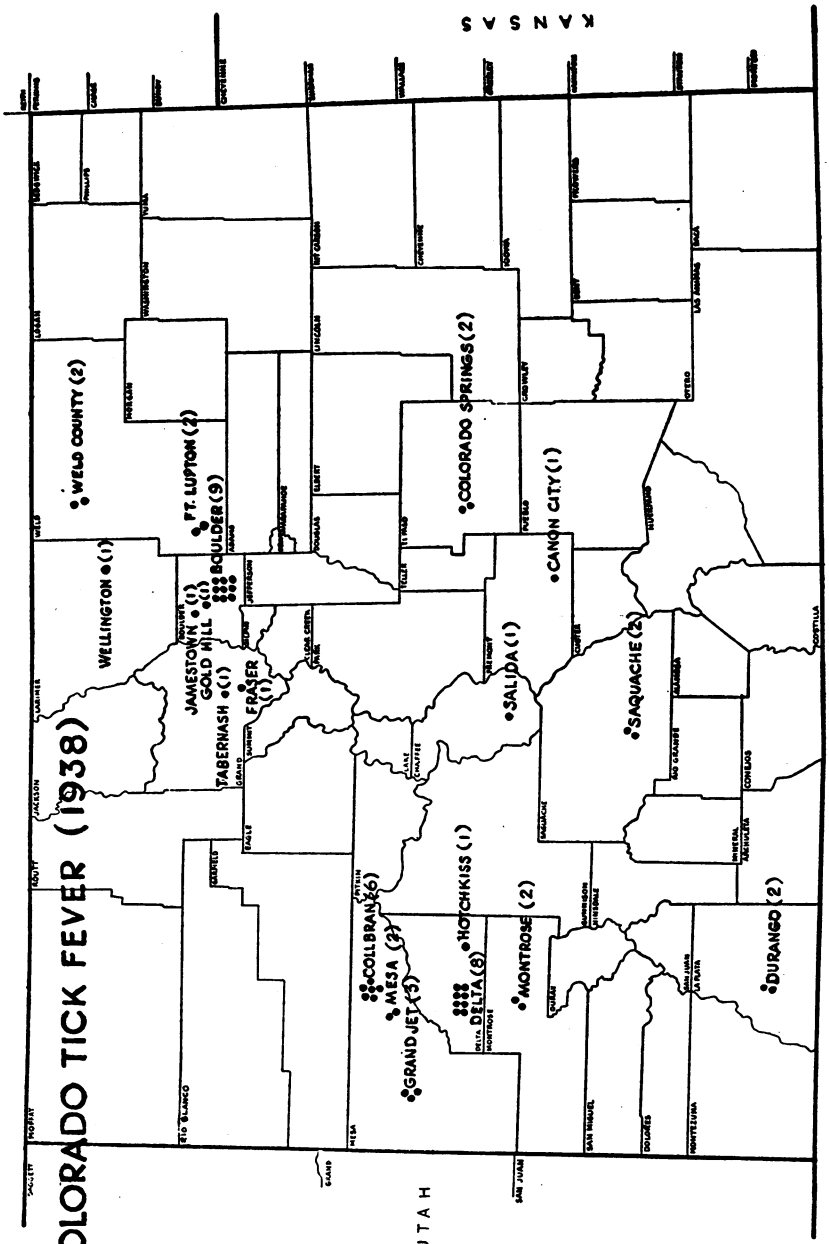

FIGURE 4.—Occurrence of Colorado tick fever in Colorado during 1938.

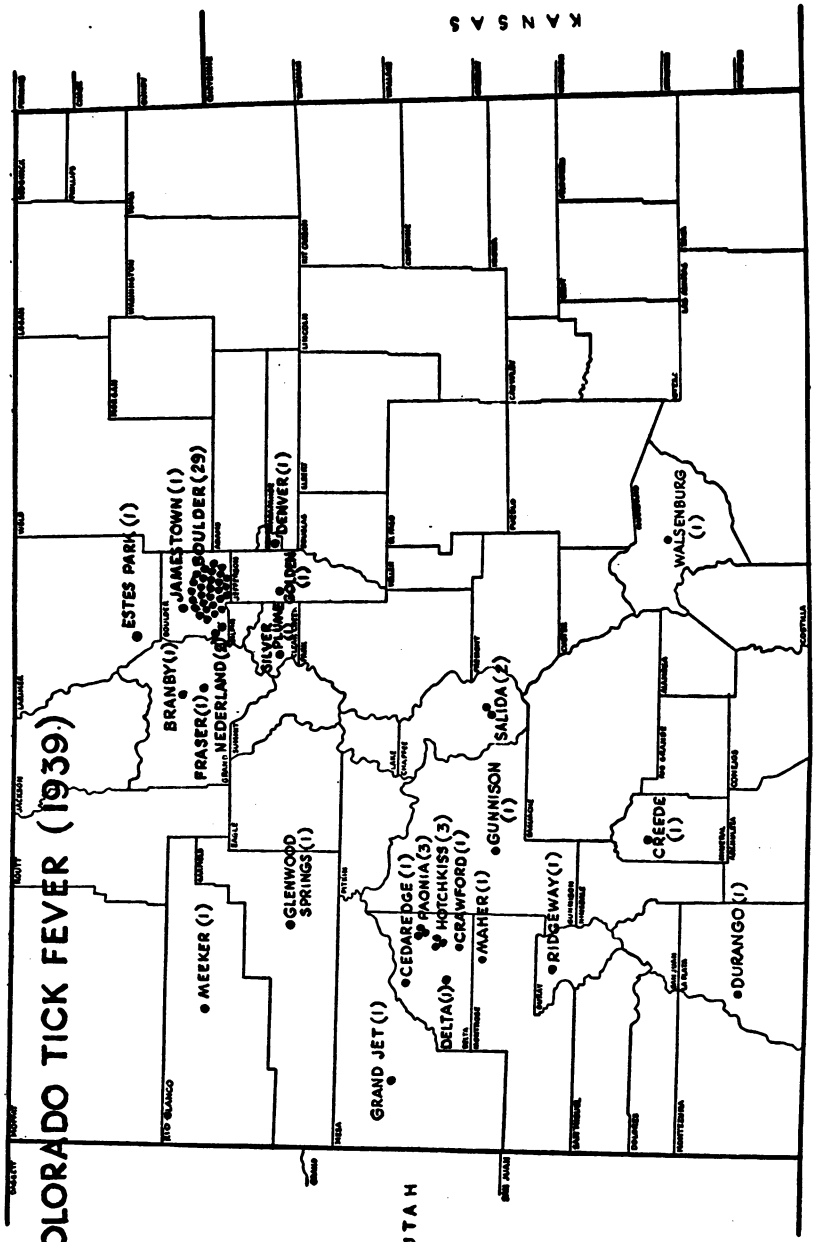

FIGURE 5.—Occurrence of Colorado tick fever in Colorado during 1939.

TABLE 6.—*Reported cases of Colorado tick fever in the State of Colorado, by age, 1938, 1939, and 1940*[1]

Age (years)	1938		1939		1940	
	Number of cases	Percent at given ages	Number of cases	Percent at given ages	Number of cases	Percent at given ages
Total	53	100.0	58	100.0	64	100.0
Under 1	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	1	1.7	1	1.6
3	1	1.9	0	0	0	0
4	0	0	2	3.5	0	0
5–9	2	3.8	5	8.6	6	9.4
10–14	2	3.8	3	5.2	3	4.7
15–19	2	3.8	2	3.5	5	7.8
20–24	1	1.9	2	3.5	7	10.9
25–29	5	9.4	4	6.9	8	12.5
30–34	7	13.2	2	3.5	7	10.9
35–39	2	3.8	2	3.5	5	7.8
40–44	6	11.3	3	5.2	4	6.3
45–49	8	15.0	9	15.5	5	7.8
50–54	7	13.2	9	15.5	2	3.1
55–59	1	1.9	1	1.7	2	3.1
60–64	1	1.9	6	10.3	5	7.8
65 and over	3	5.7	1	1.7	2	3.1
Age unknown	5	9.4	6	10.3	2	3.1

[1] Includes all cases reported up to and including July 31, 1940.

Mode of transmission.—From the field studies at Boulder certain methods of transmission can be ruled out at once. In the 11 cases seen during the month of May there were six different sources of milk; four of these sources were reliable dairies which dispensed only pasteurized milk. There were three separate sources of water. Two of the patients drank water only from deep private wells, 8 used water from the community supply, while 1 drank water supplied in a mine where he worked.

TABLE 7.—*Reported cases of Colorado tick fever in the State of Colorado, by sex, 1938, 1939, and 1940*[1]

Year	Total	Male	Percent males	Females	Percent females	Sex unknown
1938	53	41	77.4	12	22.6	0
1939	58	44	77.2	13	22.8	1
1940	64	49	76.5	15	23.5	0

[1] Includes all reported cases up to and including July 31, 1940.

Only 1 (No. 25) of the 11 cases occurred in a household in which there had been a previous case of Colorado tick fever this year. The onset of this case was on May 28, 1940, while onset of the previous case occurred on April 1, 1940, almost 2 months before. Of the 31 cases reported in Boulder during 1939, only 1 case occurred in a household in which there had been a previous case, and these 2 cases were separated by a 10-day interval. There was no traceable connection between any of the cases investigated during 1940, nor was there any concentration of cases in any particular section of the city.

Histories of these cases failed to reveal any consistent contact with the arthropod or insect group, other than ticks, or with animals. One patient, No. 27, stated that he had been bitten by a mosquito while on a fishing trip, and that he had also had two tick bites. The rest of the patients denied contact with mosquitoes.

All of the available evidence certainly points to the tick as the transmitting agent of Colorado tick fever. The seasonal, geographic, and age and sex distribution are all similar to Rocky Mountain spotted fever in that area, all 11 cases that were investigated had a recent tick bite, and, above all, the disease is called "tick fever" locally. It seemed that one possible fallacy might be that tick bites were so common in Boulder that any given disease might be successfully correlated with their occurrence. Therefore, a group of about 160 biology students in the high school were asked to bring to the laboratory any ticks found on their bodies or clothing during a 2-week period, May 15 to June 1; only 2 ticks were submitted by this group. It was thus believed that tick bites were a rather rare occurrence in this selected group in Boulder.

Attempts at isolation.—All attempts at isolation of the causative agent were unsuccessful. The usual procedures for the isolation of the rickettsiae were followed, inoculating various animals with whole, citrated, or defibrinated blood. The species of animals in which isolations were attempted were guinea pigs, monkeys, rats, mice, and rabbits. Some of the guinea pigs were on vitamin C deficient diets, and some of the rats and mice were on riboflavin deficient diets, yet in the main they reacted no differently than the normal animals. Several rabbits were inoculated intraocularly after the method proved successful in the isolation of tsutsugamushi (*8*). Cultivation of the causative agent in chicken embryo material also proved unsuccessful.

Citrated blood, macerated blood clot in saline, blood serum, and spinal fluid were all inoculated intracerebrally into mice at various times but the results were negative. Blood smears were studied for the occurrence of spirochetes or other blood parasites, but these have proved consistently negative.

The source material was collected from the patients on the first febrile rise and from some during the relapse, and finally from several during both rises in fever; yet none of the experimental animals showed any consistent variation from the normal.

Many local ticks were tested, but the results again were negative. Several ticks (*D. andersoni*), allegedly the cause of the syndrome in some of the patients, also were tested in various ways, but these, too, failed to infect the test animals.

DISCUSSION AND SUMMARY

Colorado tick fever is a clinical entity with a characteristic symptomatology and epidemiology. Its present geographical distribution is limited to the range of the tick, *D. andersoni*. Its seasonal distribution coincides with the seasonal distribution of this tick. The cases give a consistent history of tick bite usually 4 or 5 days previous to the onset of illness, and there is apparently no other source of infection revealed by this study.

Clinically the disease is a rather mild febrile illness with as yet no reported fatalities. The symptomatology consists of fever, headache, chills, backache, muscle pains, and photophobia. The febrile curve is usually broken by one remission of 2 or 3 days followed by a relapse of like duration. There is a consistent and rather marked leucopenia without any decided shifts in the differential count.

In reviewing the clinical picture of this disease one cannot help but be struck by its similarity clinically to dengue fever. The symptomatology, the interrupted febrile curve, the leucopenia are all part of the picture of this virus disease as well as of Colorado tick fever. However, the exanthema seen in over 50 percent of the cases of dengue fever (*9*) has not been noted in Colorado tick fever; furthermore, the epidemiology of the two is very dissimilar.

The actual causative agent in Colorado tick fever has not been successfully isolated. Until such time the true nature of the infection must remain obscure.

ACKNOWLEDGMENT

We wish to acknowledge gratefully the assistance and cooperation of Dr. H. L. Morency, city health officer of Boulder, Colo., during this study.

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COURT DECISION ON PUBLIC HEALTH

Compensation under workmen's compensation law allowed for death of employee from pneumonia.—(Ohio Court of Appeals; *Johnson* v. *Industrial Commission*, 27 N.E.2d 418; decided April 3, 1939.) In a proceeding under the Ohio workmen's compensation law to recover for the death of an employee from pneumonia it appeared that the deceased was subjected to a change in temperature in going, in the course of his employment, from the inside of a tank to the outside. The temperature inside the tank ranged from 110° to 120°, while outside of the tank the temperature varied from 69° to 88°. When the employee came from within the tank to the outside thereof his clothes were wet with perspiration. The appellate court concluded that the judgment of the lower court granting compensation should be affirmed. The cause of the pneumonia and death, said the court, was the internal injury resulting from the change of temperature that the employee was compelled to endure. "It was an unusual, sudden and unexpected happening, at a particular time, resulting in physical injuries accidental in origin and cause."

DEATHS DURING WEEK ENDED NOVEMBER 16, 1940

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

	Week ended Nov. 16, 1940	Corresponding week, 1939
Data from 88 large cities of the United States:		
Total deaths	8,093	8,247
Average for 3 prior years	8,226	
Total deaths, first 46 weeks of year	384,988	378,489
Deaths under 1 year of age	503	510
Average for 3 prior years	497	
Deaths under 1 year of age, first 46 weeks of year	23,088	22,849
Data from industrial insurance companies:		
Policies in force	64,855,143	66,558,358
Number of death claims	10,110	12,092
Death claims per 1,000 policies in force, annual rate	8.2	9.5
Death claims per 1,000 policies, first 46 weeks of year, annual rate	9.6	9.9

PREVALENCE OF DISEASE

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

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED NOVEMBER 23, 1940

Summary

The incidence of the nine communicable diseases reported weekly by the State health authorities continued favorable during the current week, with no significant increases or unusual prevalence recorded. The figures for diphtheria, meningococcus meningitis, scarlet fever, smallpox, and typhoid fever were not only below the 5-year (1935–39) median expectancy but were the lowest for the 5-year period.

The number of cases of influenza increased from 1,180 for the preceding week to 1,332 for the current week. The incidence declined in Virginia, South Carolina, and Texas, which reported the largest number of cases last week, and increased in California (from 138 cases to 471) and Arizona (from 56 to 117).

Of 26 cases of smallpox reported currently, 22 cases occurred in the North Central States, while no cases were reported in the New England, Middle Atlantic, South Atlantic, or Pacific States. The highest incidence of measles is apparently in the eastern area of the United States (New England, Middle Atlantic, and East North Central groups). Of 44 cases of endemic typhus fever, 16 were reported in Georgia, 8 in Alabama, and 7 in Mississippi. One case of leprosy was reported in Maryland.

For the current week the Bureau of the Census reports 8,070 deaths in 88 major cities of the United States, as compared with 8,093 for the preceding week and with a 3-year (1937–39) average of 7,913 for the corresponding week.

Telegraphic morbidity reports from State health officers for the week ended November 23, 1940, and comparison with corresponding week of 1939 and 5-year median

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	Nov. 23, 1940	Nov. 25, 1939		Nov. 23 1940	Nov. 25, 1939		Nov. 23, 1940	Nov. 25, 1939		Nov. 23, 1940	Nov. 25, 1939	
NEW ENG.												
Maine	1	8	3	-------	1	1	64	47	37	1	0	0
New Hampshire	0	0	0	-------	-------	-------	3	2	2	0	0	0
Vermont	0	0	1	-------	-------	-------	12	39	39	0	0	0
Massachusetts	1	4	4	-------	-------	-------	264	197	75	1	0	1
Rhode Island	1	1	0	-------	-------	-------	0	54	32	0	0	0
Connecticut	0	0	2	4	1	4	4	60	55	2	0	0
MID. ATL.												
New York	13	17	29	[1] 1	[1] 7	[1] 13	493	129	129	0	5	5
New Jersey	10	16	11	3	12	8	183	11	23	2	1	0
Pennsylvania	16	42	42	-------	-------	-------	972	23	62	2	1	2
E. NO. CEN.												
Ohio	10	17	46	25	9	9	35	15	18	0	0	1
Indiana	17	22	40	7	8	13	21	11	7	1	0	0
Illinois	19	39	42	3	20	12	356	18	18	0	0	1
Michigan [2]	12	12	18	-------	-------	1	348	183	37	2	1	2
Wisconsin	1	3	5	21	17	25	262	0	40	0	0	0
W. NO. CEN.												
Minnesota	1	6	7	-------	3	1	59	70	41	0	0	1
Iowa	4	6	6	4	1	2	33	13	7	0	1	1
Missouri	4	16	28	3	-------	25	5	28	17	2	1	2
North Dakota	5	0	1	9	1	8	0	1	5	0	0	0
South Dakota	0	6	2	-------	-------	-------	0	2	2	0	0	0
Nebraska	0	1	4	-------	-------	-------	2	2	3	0	0	0
Kansas	5	10	14	1	8	8	15	69	11	1	0	1
SO. ATL.												
Delaware	4	1	0	-------	4	0	3	2	3	0	1	0
Maryland [2]	3	10	11	5	7	7	4	6	6	1	1	2
Dist. of Col	1	0	7	1	-------	-------	3	4	2	0	1	0
Virginia [2]	24	57	68	123	129	-------	48	8	23	2	1	4
West Virginia [2]	8	22	22	16	5	20	14	5	18	0	4	2
North Carolina [2]	27	94	78	5	3	6	8	189	132	1	0	1
South Carolina [2]	10	15	12	157	623	274	2	4	6	0	0	0
Georgia [2]	18	34	27	16	271	7	5	3	2	0	1	1
Florida [2]	9	9	9	2	7	4	2	3	3	0	0	0
E. SO. CEN.												
Kentucky	10	16	25	10	10	16	144	2	10	1	0	2
Tennessee [2]	16	23	23	14	57	40	13	18	8	1	2	3
Alabama [2]	12	34	37	52	181	48	11	10	10	0	3	2
Mississippi [2] [3]	4	20	21	-------	-------	-------	-------	-------	-------	0	3	1
W. SO. CEN.												
Arkansas	23	17	17	62	46	46	3	1	1	0	1	0
Louisiana [2]	8	13	23	6	9	6	0	1	1	1	1	1
Oklahoma	7	26	13	38	47	51	2	0	2	0	0	1
Texas [2]	17	55	54	104	333	209	2	87	9	1	1	1
MOUNTAIN												
Montana	3	2	2	5	45	6	4	16	16	0	0	0
Idaho	0	0	0	-------	-------	2	0	26	26	0	1	1
Wyoming	0	2	0	1	-------	-------	0	4	2	0	0	0
Colorado	6	4	7	11	9	-------	26	21	5	1	1	1
New Mexico	0	4	5	4	1	1	14	2	3	0	1	0
Arizona	3	5	5	117	58	58	30	3	3	0	0	0
Utah [2]	0	0	1	12	22	-------	2	45	15	0	1	0
Nevada	0	-------	-------	-------	-------	-------	0	-------	-------	0	-------	-------
PACIFIC												
Washington	3	4	2	1	-------	-------	11	289	48	0	0	1
Oregon	2	0	1	18	28	23	23	21	9	0	1	0
California	17	25	40	471	16	33	63	149	149	1	0	4
Total	355	718	808	1,332	1,999	1,096	3,568	1,893	2,094	24	35	68
47 weeks	13 930	21. 013	24. 896	179, 196	162. 712	148, 788	248, 828	361. 420	361, 420	1, 473	1, 793	4, 998

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended November 23, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	Nov. 23, 1940	Nov. 25, 1939		Nov. 23, 1940	Nov. 25, 1939		Nov. 23, 1940	Nov. 25, 1939		Nov. 28, 1940	Nov. 25, 1939	
NEW ENG.												
Maine	0	0	0	9	22	19	0	0	0	0	1	1
New Hampshire	0	0	0	0	4	5	0	0	0	0	1	0
Vermont	0	1	0	11	3	6	0	0	0	0	1	1
Massachusetts	0	1	1	119	53	105	0	0	0	3	1	1
Rhode Island	0	0	0	3	3	9	0	0	0	0	0	0
Connecticut	1	1	1	29	43	43	0	0	0	5	2	2
MID. ATL.												
New York	3	14	7	141	233	259	0	0	0	6	7	8
New Jersey	1	3	1	72	106	77	0	0	0	5	3	2
Pennsylvania	4	7	7	187	218	349	0	0	0	9	14	15
E. NO. CEN.												
Ohio	16	2	2	130	213	252	0	0	0	2	2	4
Indiana	10	2	0	72	122	141	0	3	3	0	3	3
Illinois	26	3	3	242	314	314	4	0	1	3	6	6
Michigan [2]	13	2	2	112	229	274	9	3	1	2	3	3
Wisconsin	18	7	1	108	145	175	2	7	7	0	0	2
W. NO. CEN.												
Minnesota	11	9	2	70	143	143	6	21	8	0	0	0
Iowa	6	5	2	99	92	92	0	2	2	1	0	3
Missouri	5	0	2	49	81	86	0	0	4	2	6	6
North Dakota	1	1	0	11	29	29	0	0	16	0	0	0
South Dakota	0	0	0	24	38	36	0	2	2	0	0	0
Nebraska	6	6	0	7	21	21	1	0	0	0	2	0
Kansas	2	1	1	89	112	125	0	0	1	3	3	3
SO. ATL.												
Delaware	0	0	0	7	26	9	0	0	0	0	3	0
Maryland [2]	1	0	0	36	34	50	0	0	0	2	3	7
Dist. of Col.	0	0	0	8	11	11	0	0	0	0	0	0
Virginia [2]	9	2	0	55	79	51	0	0	0	6	9	9
West Virginia [2]	18	3	0	44	114	104	0	0	0	1	4	5
North Carolina [2]	2	0	1	78	124	76	0	0	0	8	0	4
South Carolina [2]	0	1	1	10	16	11	0	0	0	0	0	2
Georgia [2]	0	0	0	35	37	27	0	0	0	5	9	9
Florida [2]	0	0	0	3	7	7	0	0	0	4	0	0
E. SO. CEN.												
Kentucky	4	2	2	79	96	75	0	0	0	4	4	7
Tennessee [2]	3	0	2	98	98	70	1	0	0	3	3	4
Alabama [2]	1	2	2	35	45	28	0	0	0	2	3	3
Mississippi [2 3]	0	1	1	18	13	17	0	0	0	2	1	3
W. SO. CEN.												
Arkansas	0	2	2	13	23	13	1	0	2	10	7	4
Louisiana [2]	0	0	0	8	12	15	0	0	0	5	9	9
Oklahoma	1	1	1	12	27	27	0	5	4	5	2	9
Texas [2]	1	3	1	16	68	68	0	10	2	0	18	20
MOUNTAIN												
Montana	1	0	0	24	37	37	1	0	23	0	0	0
Idaho	1	4	0	11	6	24	0	0	1	4	1	2
Wyoming	2	0	0	5	4	9	0	0	0	0	1	0
Colorado	2	1	1	31	26	39	0	1	3	2	1	1
New Mexico	0	1	1	6	7	25	0	0	0	5	1	4
Arizona	0	0	0	8	8	10	0	0	0	1	1	1
Utah [3]	1	3	0	12	11	18	1	1	0	3	1	0
Nevada	0	----	----	0	----	----	0	----	----	0	----	----
PACIFIC												
Washington	1	2	0	13	16	45	0	3	3	3	2	2
Oregon	3	1	0	25	25	34	0	0	3	2	2	2
California	5	24	11	78	169	212	0	2	3	9	15	7
Total	179	118	114	2,357	3,363	3,979	26	60	127	127	155	200
47 weeks	9,379	6,911	6,911	140,753	143,500	199,748	2,202	9,122	9,122	9,038	12,077	13,609

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended November 23, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Whooping cough	
	Week ended	
	Nov. 23, 1940	Nov. 25, 1939
NEW ENG.		
Maine	29	49
New Hampshire	10	6
Vermont	10	78
Massachusetts	266	114
Rhode Island	5	16
Connecticut	115	77
MID. ATL.		
New York	465	334
New Jersey	147	116
Pennsylvania	649	279
E. NO. CEN.		
Ohio	289	98
Indiana	26	56
Illinois	130	125
Michigan [2]	322	109
Wisconsin	134	154
W. NO. CEN.		
Minnesota	119	72
Iowa	20	6
Missouri	99	20
North Dakota	9	6
South Dakota	4	2
Nebraska	8	4
Kansas	116	12
SO. ATL.		
Delaware	38	15
Maryland [2]	89	52
Dist. of Col	9	10
Virginia [2]	86	20
West Virginia [2]	29	13
North Carolina [2]	176	63
South Carolina [2]	33	8
SO. ATL.—continued		
Georgia [2]	18	8
Florida [2]	6	5
E. SO. CEN.		
Kentucky	67	41
Tennessee [2]	51	22
Alabama [2]	13	32
Mississippi [2 3]	----------	----------
W. SO. CEN.		
Arkansas	7	3
Louisiana [2]	4	43
Oklahoma	15	7
Texas [2]	37	33
MOUNTAIN		
Montana	5	3
Idaho	6	2
Wyoming	1	8
Colorado	17	11
New Mexico	20	3
Arizona	2	15
Utah [2]	24	87
Nevada	0	----------
PACIFIC		
Washington	41	12
Oregon	10	27
California	323	105
Total	4,099	2,381
47 weeks	150,970	159,786

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Typhus fever, week ended Nov. 23, 1940, 44 cases as follows: Virginia, 1; North Carolina, 4; South Carolina, 1; Georgia, 16; Florida, 1; Tennessee, 1; Alabama, 8; Mississippi, 7; Louisiana, 4; Texas, 1.

WEEKLY REPORTS FROM CITIES

City reports for week ended November 9, 1940

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

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								
Data for 90 cities:											
5-year average	198	96	32	472	470	881	5	322	37	960	----
Current week	84	53	17	889	292	658	0	288	16	1,345	----
Maine:											
Portland	0	----	0	0	1	0	0	0	0	7	22
New Hampshire:											
Concord	0	----	0	0	1	0	0	0	0	0	11
Manchester	----	----	----	----	----	----	----	----	----	----	----
Nashua	0	----	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	0	----	0	0	0	0	0	0	0	0	2
Burlington	0	----	0	2	0	1	0	0	0	0	11
Rutland	0	----	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston	0	----	0	42	13	25	0	5	0	74	209
Fall River	2	----	0	0	0	4	0	1	0	0	27
Springfield	0	----	0	1	1	3	0	2	0	1	40
Worcester	0	----	0	86	3	1	0	1	0	0	58
Rhode Island:											
Pawtucket	0	----	0	0	0	3	0	0	0	0	24
Providence	0	----	1	0	2	3	0	1	0	3	49
Connecticut:											
Bridgeport	0	----	0	0	1	2	0	0	0	3	36
Hartford	0	----	0	0	0	4	0	0	0	2	50
New Haven	0	1	0	0	1	0	0	0	0	27	31
New York:											
Buffalo	0	----	0	7	11	8	0	6	0	22	132
New York	13	6	3	176	52	64	0	67	4	134	1,421
Rochester	0	----	0	1	2	3	0	0	0	12	56
Syracuse	0	----	0	0	0	1	0	0	0	3	53
New Jersey:											
Camden	1	----	0	25	2	1	0	1	0	3	30
Newark	0	2	0	13	5	23	0	6	0	32	86
Trenton	0	----	0	0	0	6	0	2	0	3	39
Pennsylvania:											
Philadelphia	2	----	0	173	11	41	0	19	3	139	429
Pittsburgh	2	----	1	1	7	4	0	7	0	32	159
Reading	0	----	0	3	1	0	0	0	0	37	34
Scranton	0	----	----	2	----	0	0	----	0	1	----
Ohio:											
Cincinnati	1	----	0	0	4	15	0	5	0	18	135
Cleveland	1	15	1	1	11	22	0	10	0	76	185
Columbus	0	----	0	0	2	8	0	1	0	9	56
Toledo	1	----	0	1	1	5	0	3	0	7	77
Indiana:											
Anderson	0	----	0	0	0	4	0	0	0	0	8
Fort Wayne	0	----	0	0	0	2	0	0	0	0	20
Indianapolis	0	----	1	1	3	14	0	0	1	5	78
Muncie	0	----	0	0	3	4	0	0	0	0	13
South Bend	0	----	0	0	2	0	0	0	0	0	10
Terre Haute	0	----	0	0	0	1	0	0	0	0	17
Illinois:											
Alton	0	----	0	0	0	3	0	0	0	1	6
Chicago	13	----	0	162	18	125	0	28	2	96	615
Elgin	0	----	0	0	1	0	0	0	0	1	14
Springfield	0	----	0	0	1	1	0	0	0	0	15
Michigan:											
Detroit	7	2	0	131	12	46	0	10	1	163	230
Flint	0	----	0	1	6	1	0	0	0	8	28
Grand Rapids	1	----	1	0	0	7	0	0	0	22	34
Wisconsin:											
Kenosha	0	----	0	0	0	0	0	0	0	0	7
Madison	0	----	0	1	0	1	0	0	0	3	17
Milwaukee	0	1	1	17	4	19	0	8	0	30	114
Racine	0	----	0	1	0	8	0	1	0	0	11
Superior	0	----	0	0	0	0	0	0	0	0	11

City reports for week ended November 9, 1940—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								
Minnesota:											
Duluth	0	------	0	0	0	3	0	1	0	9	16
Minneapolis	0	------	0	1	1	17	0	2	0	24	95
St. Paul	0	------	0	4	3	15	0	4	0	25	55
Iowa:											
Cedar Rapids	0	------	--------	0	-------	10	0	-------	0	0	--------
Davenport	0	------	--------	0	-------	6	0	-------	0	0	--------
Des Moines	0	------	0	0	0	7	0	0	0	1	33
Sioux City	0	------	--------	0	-------	2	0	-------	0	0	--------
Waterloo	5	------	--------	0	-------	2	0	-------	0	0	--------
Missouri:											
Kansas City	0	------	0	0	11	9	0	2	1	25	89
St. Joseph	1	------	0	0	3	0	0	0	0	0	22
St. Louis	10	------	0	0	7	13	0	2	1	19	183
North Dakota:											
Fargo	0	------	0	0	0	2	0	0	0	3	5
Grand Forks	0	------	--------	0	-------	2	0	-------	0	0	--------
Minot	0	------	0	0	0	0	0	0	0	0	9
South Dakota:											
Aberdeen	0	------	--------	0	-------	2	0	-------	0	4	--------
Sioux Falls	0	------	0	0	0	5	0	0	0	0	10
Nebraska:											
Lincoln	0	------	--------	0	-------	3	0	-------	0	4	--------
Omaha	0	------	0	0	3	1	0	1	0	1	36
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	3
Topeka	0	------	0	0	2	9	0	0	0	0	36
Wichita	0	------	0	1	1	3	0	0	0	10	25
Delaware:											
Wilmington	0	------	0	0	0	0	0	0	0	4	25
Maryland:											
Baltimore	0	3	2	1	5	11	0	12	0	86	193
Cumberland	0	------	0	0	0	0	0	1	0	0	15
Frederick	0	------	0	0	0	0	0	0	0	0	5
Dist. of Col.:											
Washington	4	------	0	0	7	6	0	7	0	14	174
Virginia:											
Lynchburg	3	------	0	0	0	1	0	0	0	0	8
Norfolk	1	------	0	0	1	6	0	1	2	0	22
Richmond	2	------	0	0	3	9	0	2	0	0	46
Roancke	0	------	0	4	0	1	0	0	0	5	14
West Virginia:											
Charleston	0	------	0	0	0	1	0	0	0	0	8
Huntington	0	------	--------	0	-------	1	0	-------	0	0	--------
Wheeling	0	------	0	0	2	0	0	0	0	2	20
North Carolina:											
Gastonia	2	------	--------	0	-------	0	0	-------	0	5	--------
Raleigh	0	------	0	0	0	1	0	0	0	3	5
Wilmington	3	------	0	0	0	3	0	0	0	0	11
Winston-Salem	1	------	0	2	0	2	0	1	0	16	12
South Carolina:											
Charleston	0	8	0	9	3	1	0	1	0	1	17
Florence	0	4	0	0	0	0	0	0	0	0	9
Greenville	0	------	0	0	0	2	0	0	0	1	12
Georgia:											
Atlanta	1	------	0	0	5	8	0	3	0	1	79
Brunswick	0	------	0	0	0	0	0	0	0	4	4
Savannah	0	1	1	0	1	0	0	2	0	1	46
Florida:											
Miami	0	1	0	1	0	0	0	2	1	0	33
Tampa	2	------	0	0	3	0	0	0	0	0	20
Kentucky:											
Ashland	0	------	0	0	1	0	0	1	0	0	8
Covington	0	------	0	0	0	0	0	0	0	0	13
Lexington	0	------	0	30	0	1	0	1	0	18	12
Louisville	-------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Tennessee:											
Knoxville	0	1	0	0	2	8	0	0	0	7	26
Memphis	0	------	0	4	2	7	0	5	2	16	53
Nashville	0	------	1	1	0	6	0	2	0	0	63
Alabama:											
Birmingham	1	2	0	7	4	3	0	5	0	4	50
Mobile	1	1	0	0	1	2	0	0	0	0	17
Montgomery	0	1	--------	0	-------	2	0	-------	0	1	--------
Arkansas:											
Fort Smith	0	------	--------	0	-------	1	0	-------	0	0	--------
Little Rock	0	1	0	0	4	0	0	2	0	1	--------

City reports for week ended November 9, 1940—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								
Louisiana:											
Lake Charles	0	------	0	0	0	0	0	0	0	0	3
New Orleans	3	2	0	1	6	5	0	9	1	4	160
Shreveport	0	------	0	1	2	0	0	3	0	0	57
Oklahoma:											
Oklahoma City	0	------	0	0	7	4	0	0	0	0	38
Tulsa	2	------	0	0	3	0	0	1	1	6	19
Texas:											
Dallas	1	------	0	0	0	4	0	0	0	0	54
Fort Worth	0	------	0	9	4	0	0	1	1	3	36
Galveston	0	------	0	0	1	1	0	0	0	0	10
Houston	1	------	0	0	0	2	0	3	0	0	74
San Antonio	0	1	1	1	2	0	0	7	0	6	54
Montana:											
Billings	0	------	0	0	3	2	0	0	0	0	13
Great Falls	0	------	0	1	0	0	0	0	0	0	5
Helena	0	------	0	0	0	0	0	0	0	0	2
Missoula	0	1	0	0	0	3	0	0	0	0	5
Idaho:											
Boise	0	------	0	0	0	0	0	0	0	0	5
Colorado:											
Denver	2	------	0	1	9	9	0	3	0	5	87
Pueblo	0	------	0	0	0	1	0	0	0	0	6
New Mexico:											
Albuquerque	0	------	0	0	0	0	0	3	0	0	15
Utah:											
Salt Lake City	0	------	0	1	2	1	0	0	0	13	37
Washington:											
Seattle	3	------	1	0	7	5	0	3	0	9	119
Spokane	0	------	0	0	0	3	0	1	0	0	28
Tacoma	0	------	0	1	1	1	0	0	0	0	32
Oregon:											
Portland	2	2	0	3	2	3	0	3	0	0	68
Salem	0	------	--------	0	-------	0	0	-------	0	0	--------
California:											
Los Angeles	2	6	2	6	4	21	0	15	0	42	328
Sacramento	0	------	0	0	2	0	0	2	0	2	23
San Francisco	0	------	0	0	5	3	0	6	0	29	200

State and city	Meningitis, meningococcus		Poliomyelitis cases	State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Iowa:			
Worcester	0	0	1	Sioux City	0	0	1
New York:				Missouri:			
New York	1	0	2	Kansas City	0	0	6
New Jersey:				Virginia:			
Newark	2	0	2	Roanoke	0	0	2
Pennsylvania:				Alabama:			
Philadelphia	0	0	1	Birmingham	2	0	0
Ohio:				Louisiana:			
Cleveland	0	0	2	New Orleans	0	0	3
Columbus	0	0	2	Shreveport	0	1	2
Toledo	0	0	2	Utah:			
Indiana:				Salt Lake City	0	0	1
Indianapolis	0	0	2	Washington:			
Illinois:				Seattle	0	0	1
Chicago	0	0	13	Spokane	0	0	1
Michigan:				Tacoma	0	0	3
Detroit	1	0	2	California:			
Flint	0	0	1	Los Angeles	0	0	1
Grand Rapids	0	0	1				
Minnesota:							
Minneapolis	1	0	1				

Encephalitis, epidemic or lethargic.—Cases: New York, 1; Rochester, 1; Newark, 1.
Pellagra.—Cases: Charleston, S. C., 2; Savannah, 11; Montgomery, 2.
Typhus fever.—Cases: Charleston, S. C., 1; Atlanta, 3; Savannah, 3; Miami, 1; Montgomery, 1; Houston, 3; Los Angeles, 1.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended October 26, 1940.—During the week ended October 26, 1940, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1		4	3	1		2		11
Chickenpox		9	1	89	213	100	21	77	85	595
Diphtheria		32	8	25		14				79
Dysentery				4	5					9
Influenza		4			6	1			22	33
Measles		14		44	111	77	29	42	34	351
Mumps				10	65	24	1	6	4	110
Pneumonia		5			8				7	20
Poliomyelitis				5	3	1				9
Scarlet fever		11	7	111	107	6	19	5	14	280
Smallpox							1			1
Trachoma							6		4	10
Tuberculosis	2	3	4	55	31		2	1		98
Typhoid and paratyphoid fever		1	3	25	5	1			5	40
Whooping cough		13	1	217	115	64	6	11	23	450

CUBA

Habana—Communicable diseases—4 weeks ended October 19, 1940.—During the 4 weeks ended October 19, 1940, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths
Diphtheria	10	1
Malaria	3	
Tuberculosis	1	1
Typhoid fever	23	5

Provinces—Notifiable diseases—4 weeks ended October 12, 1940.—During the 4 weeks ended October 12, 1940, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer		2		4	2	9	17
Chickenpox				1			1
Diphtheria	1	9	2	3	1	1	17
Hookworm disease		20					20
Leprosy					1	1	2
Malaria	43	2		6	1	41	93
Measles	1	4	2				7
Poliomyelitis				1			1
Scarlet fever		2					2
Tuberculosis	32	53	28	26	17	27	183
Typhoid fever	7	46	5	21	16	28	123
Yaws						1	1

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths]

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates

Place		Jannary-August 1940	September 1940	October 1940—week ended—			
				5	12	19	26
ASIA							
Ceylon.[1]							
China:							
Dairen	C	2					
Foochow	C	29	97				
Hong Kong	C	5	753	24	12	6	9
Macao	C	20	345	67	37	25	14
Manchuria	C	31					
Shanghai	C	341	124	37	33	20	8
Shantung Province	C	244					
India	C	39,561					
Bassein	C	164					
Bombay	C	12	1				
Calcutta	C	1,805	87	18	11	52	35
Cawnpore	C	291	38		4		
Chittagong	C	4					
Madras	C	1					
Moulmein	C	16					
Porto Novo	C	1					
Rangoon	C	43					
Vizagapatam	C	20		1			
India (French)	C	34					
Indochina (French)	C	436					
Thailand	C	235					

[1] For the week ended Nov. 9, 1940, 1 case of cholera was reported in Trincomalee, Ceylon.

PLAGUE

[C indicates cases; D, deaths]

AFRICA							
Algeria	C	6	14			2	
Plague-infected rats		2					
Belgian Congo	C	21				2	
British East Africa:							
Kenya	C	8					
Uganda	C	148					
Egypt	C	[1] 409					
Madagascar	C	472					[2] 17
Morocco.[3]							
Rhodesia, Northern	C	1					
Senegal:							
Dakar	D	[4] 1					
Thies	C	1					
Tivaouane	C	3					
Tunisia: Tunis	C		5			1	
Plague-infected rats			1				
Union of South Africa	C	25					
ASIA							
China.[5]							
Dutch East Indies:							
Java and Madura	C	284					
West Java	C	8					
India	C	14,438					
Bassein	C	18					
Cochin	C	1					
Plague-infected rats		3		1			1
Rangoon	C	6					
Indochina (French)	C	3					

[1] Includes 5 cases of pneumonic plague.

[2] For the period Oct. 20-30, 1940.

[3] A report dated May 11, 1940, stated that there was an epidemic of bubonic plague in southern Morocco, where several hundred cases had been unofficially reported.

[4] Imported.

[5] Information dated July 7 states that up to July 6, 17 cases of plague had been reported near Tungliao, Hsingan Province, China; and a report dated July 13 states that an outbreak of bubonic plague occurred along the Yunnan-Burma border in the districts of Loiwing, Chefang, Juili, and Muchieh. Information dated Aug. 17 states that 45 cases of plague with 36 deaths had occurred in Nungen District and a telegram dated Oct. 2 states that 15 cases of bubonic plague with 3 deaths occurred in Hsinking, Manchuria.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

Place		January–August 1940	September 1940	October 1940—week ended— 5	12	19	26
ASIA—continued							
Thailand:							
Bangkok	C	3					
Bisnulok Province	C	3					
Chingmai	C	3					
Dhonpuri Province	C	1					
Jayanad Province	C	3					
Kamphaeng Bajr Province	C	29					
Kanchanapuri Province	C	12					
Koan Kaen Province	C	5					
Nagara Svarga Province	C	30					
Noangkhay Province	C	4					
Sukhodaya Province	C	22					
EUROPE							
Portugal: Azores Islands	C	2					
SOUTH AMERICA							
Argentina:							
Catamarca Province	C	8					
Cordoba Province	C	[6] 30	1				[7] 9
Jujuy Province	C	9					
Salta Province	C	8					
San Luis Province	C	1					
Santiago del Estero Province	C	70	6				[7] 3
Tucuman Province	C	19	1				[7] 1
Brazil:							
Alagoas State	C	9					
Pernambuco State	C	4					
Ecuador: El Oro Province	C	6					
Peru:							
Cajabamba Department	C	1					
Cajamarca Department	C	27					
Lambayeque Department	C	12					
Libertad Department	C	47					
Lima Department	C	44	3				
Piura Department	C	6					
Tumbes Department	C	[8] 18	1				
OCEANIA							
Hawaii Territory: Plague-infected rats		36	3		2	1	

[6] Includes 11 cases of pneumonic plague.
[7] For the month of October 1940.
[8] Includes 3 suspected cases.

SMALLPOX

[C indicates cases; D, deaths]

AFRICA							
Algeria	C	5					
Angola	C	103					
Belgian Congo	C	3,010					
British East Africa	C	43					
Dahomey	C	50	2			19	
French Guinea	C	13					
Gibraltar	C	[1] 1					
Ivory Coast	C	113					
Nigeria	C	2,014					
Niger Territory	C	594	5				
Nyasaland	C	60	14				
Portuguese East Africa	C	1					
Rhodesia:							
Northern	C	6					
Southern	C	196	7				
Senegal	C	134					
Sierra Leone	C	10					
Sudan (Anglo-Egyptian)	C	501	17	1			6
Sudan (French)	C	1					
Union of South Africa	C	106					

[1] Imported.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

Place		January–August 1940	September 1940	October 1940—week ended— 5	12	19	26
ASIA							
Arabia	C	255					
China	C	819					
Chosen	C	533					
Dutch East Indies—Sabang	C	4					
India	C	154,740					
India (French)	C	5					
India (Portuguese)	C	20					
Indochina (French)	C	1,160					
Iran	C	177					
Iraq	C	218	261	48	40	19	31
Japan	C	500					
Straits Settlements	C	1					
Sumatra	C	1					
Thailand	C	168	14	3	3		1
EUROPE							
Great Britain	C	2					
Greece	C	23					
Portugal	C	354	2	1	2		
Spain	C	605					
Turkey	C	139					
NORTH AMERICA							
Canada	C		7	1			
Guatemala	C	35					
Mexico	C	53					
SOUTH AMERICA							
Bolivia	C	288					
Brazil	C	1					
Colombia	C	1,349	2				
Ecuador	C	1					
Peru	C	104					
Venezuela (alastrim)	C	163	20				

TYPHUS FEVER

[C indicates cases; D, deaths]

AFRICA							
Algeria	C	1,784			16	1	
Belgian Congo	C	1,210					
British East Africa	C	2					
Egypt	C	3,574	21	8	8	2	2
Eritrea	C	40					
Morocco	C	277					
Tunisia	C	515					
Union of South Africa	C	154					
ASIA							
China	C	2,065	17				
Chosen	C	359					
India	C	3					
Indochina (French)	C	2					
Iran	C	233					
Iraq	C	123	5	1	1	26	
Japan	C	2					
Palestine	C	109	16	23	8	5	13
Straits Settlements	C	7					
Sumatra	C	[1] 1					
Trans-Jordan	C	15					
EUROPE							
Bulgaria	C	139			2	3	1
Germany	C	213					
Greece	C	29	5		1	2	
Hungary	C	76	1			1	
Irish Free State	C	10					
Lithuania	C	115					
Rumania	C	1,243	5	1		4	3
Spain	C	14					
Turkey	C	503					
Yugoslavia	C	282					

[1] For the month of July 1940.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

Place		January–August 1940	September 1940	October 1940—week ended— 5	12	19	26
NORTH AMERICA							
Guatemala	C	269	8				
Mexico	C	175	8				
Panama Canal Zone	C	3					
SOUTH AMERICA							
Bolivia	C	626					
Chile	C	241					
Ecuador	C	2					
Peru	C	667					
Venezuela	C	11					
OCEANIA							
Australia	C	10					
Hawaii Territory	C	19	2	1			

YELLOW FEVER

[C indicates cases; D, deaths]

AFRICA							
Cameroon: Nkongsamba	C	[1]1					
French Equatorial Africa: Fort Archambault	C	[1]1					
Gold Coast	C	1					
Ivory Coast	C	[2]4					[1]1
Nigeria:							
Ibadan	C	1					
Oshogbo	C	[1]1					
Sudan (Anglo-Egyptian): Kordofan Province.[3]							
Sudan (French): Segou.[4]							
Togo (French)	C	1					
SOUTH AMERICA							
Brazil:							
Espirito Santo State	D	[5]28					
Rio de Janeiro State	D	[5]1					
Colombia:							
Antioquia Department—San Luis	D	2					
Caldas Department—							
La Pradera	D	1					
Samana	D	1					
Victoria	D	1					
Meta Department	D	2		1			
Municipality of Jesus Maria	D		1				
Santander Department	D	1		1			

[1] Suspected.
[2] Includes 2 suspected cases.
[3] For the week ended Nov. 9, 1940, 733 cases of yellow fever with 75 deaths were reported in Kordofan Province, Anglo-Egyptian Sudan.
[4] For the week ended Nov. 9, 1940, 1 suspected case of yellow fever was reported in Segou, French Sudan.
[5] Jungle type.

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