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THE NATIONAL HEALTH SERVICE OF CHILE

A Brief Synopsis of the Achievements of the Service During the Year Ended July 1, 1926

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In accordance with a decree law dictated by the first "Junta de Gobierno" (Decree Law No. 44), the Chilean National Health Service has been completely reorganized. The following synopsis of achievements during the past year will give a general conception of the present status of the health service and a glimpse into its future possibilities:

1. Constitutional guaranties (art. 10, pars. 10 and 14, Chilean constitution).
2. The National Sanitary Code, approved October 13, 1925, which includes the ratification of the Pan American Sanitary Code (an international sanitary treaty) and a chapter on foods and drugs.
3. Frontier and maritime quarantine regulations.
4. Regulations for the control of the importation and sale of opium, cocaine, and their derivatives.
5. Regulations relative to the practice of medicine and the other healing arts.
6. Regulations relative to the control of prostitution.
7. Regulations for the administration of the headquarters office of the health service.
8. Graphic chart of the health service organization.
9. Graphic chart of the functions and duties of the officials and employees.
10. Physical examination blank and regulations relative to the periodic physical examination of all school children.
11. Regulations relative to sewage disposal in small towns, villages, and small districts.
12. Regulations relative to pharmacies and drug stores.
13. A model municipal sanitary code to be utilized by cities, towns, and villages in the preparation and drafting of sanitary ordinances and regulations.
14. A school for the instruction of visiting public health nurses, and a course of instruction for sanitary inspectors.
15. A model sanitary latrine, for use in small towns and rural districts where public sewer systems do not exist, for the prevention of the contamination of the soil, of surface waters, and of wells that supply water for domestic use.
16. There has been devised and plans are now being prepared for a sanitary type of house or home which can be quickly constructed of native materials at a relatively small cost.

17. A sanitary type of well has been devised for supplying reasonably safe water for domestic use in small towns or rural districts where public water supplies are not available.

18. Numerous public addresses on public health have been delivered in a number of different cities. Intense interest has been manifested on all occasions.

19. Public interest in improving sanitary conditions and in reducing morbidity and mortality has been apparently thoroughly aroused, as evidenced by letters received and numerous personal visists and interviews, as well as by sanitary improvements that are being voluntarily made.

20. Fly extermination campaigns have been carried on with quite appreciable reductions in death rates, especially in the infant mortality.

21. Eleven boards of health have been organized in an equal number of cities and are now functioning.

22. Ten sanitary zones, comprising the entire Republic, have been formed.

23. The sanitary zones have been subdivided into 83 sanitary divisions; a considerable number are now functioning and the remainder will be soon.

24. Officials and employees have been physically examined and placed in the new organization or recommended for retirement, in accordance with the circumstances in each case.

25. Appointments have all been approved by the President and the Minister of Hygiene, but not by the Minister of the Treasury, except in a few instances.

26. Officials and employees have been assigned, and the majority have gone, to their various posts or stations and are actually functioning.

27. The appropriation law for 1926, has been drafted and presented to the Minister of Hygiene.

28. The principal points to be considered in the appropriation law for 1927, have been indicated.

29. A study of the principal sanitary problems of the country has been made, and their solutions have been indicated.

30. Widespread public interest has been aroused in the improvement of public water supplies, and a number of cities are insisting upon improvements in existing supplies.

From the above it may be seen that Chile now has a complete modern health organization based upon national and international needs and obligations.

With sufficient funds, reasonable freedom of action, full time health officials, and a reasonable amount of study of problems and application of the measures indicated, results should be equal to those obtained in other countries, some of them not so favorably situated as Chile, that have applied the same principles with entirely satisfactory results in the reduction of morbidity and mortality and the prolongation of the average expectancy of life.

REPORT OF THE COMMITTEE ON UNIFORM STANDARD MILK ORDINANCE, CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS, 1926

Your committee, appointed by resolution of the 1925 Conference of State and Territorial Health Officers, was instructed "To make a careful study of the milk ordinance which has been adopted as standard by eight States, and to submit a report to the 1926 conference as to whether this ordinance or any modification thereof is suitable for general adoption by the State health officers of the United States."

In presenting its report your committee believes that attention should first be given to the theoretical considerations underlying the need for a standard milk ordinance, and the general principles upon which its construction should be based.

It wishes to include as an appendix to its report, therefore, a paper by Sanitary Engineer Leslie C. Frank, of the United States Public Health Service, which discusses these questions thoroughly.[1]

Your committee is in accord with the general conclusions reached in that paper, namely—

(1) That a uniform standard ordinance is vitally necessary in order to increase the general level of milk quality and safety in the United States, in order to elicit the cooperation of the dairy industry, and in order to promote a greater milk consumption.

(2) That proper criteria for an effective standard milk ordinance are—

(*a*) It must be designed to effect the maximum percentage of pasteurization which each city will support.

(*b*) It must improve as rapidly and as much as possible the quality of the milk before pasteurization.

(*c*) It must improve as rapidly and as much as possible the quality of any portion of the milk which remains unpasteurized.

(*d*) It must encourage greater milk consumption.

(*e*) It must elicit the cooperation of the dairy industry.

(*f*) It must be so framed as to be likely to be enacted by both small and large cities; cities with little or no previous milk control, and cities with long experience in milk control; cities with a majority sentiment in favor of pasteurization, and cities with a majority sentiment opposed to pasteurization.

(*g*) It must therefore be so designed as not to exclude the many cities which can not be induced to enact a universal pasteurization ordinance and the many cities which can not be induced to enact an ordinance which limits the sale of milk to the highest ideal grade.

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[1] A National Program for the Unification of Milk Control, p. 1583, of this issue.

(3) That in order to satisfy all of these conditions the ordinance must be of the multiple grading type, providing a number of grades of both raw and pasteurized milk.

(4) That the grades of milk to be provided for in the Standard Milk Ordinance should be—

(*a*) *Grade "A" pasteurized milk.*—This grade should be milk which has been produced in a cleanly manner and under all major safety precautions, and which has been properly pasteurized in a properly designed and properly operated plant.

(*b*) *Grade "B" pasteurized milk.*—This grade of milk should be milk in the production of which certain items, such as tuberculin testing of cows or health examination of employees, may not have been applied, but which has been produced in a cleanly manner, and which has been properly pasteurized in a plant in which only minor items of sanitation may have been found to be violated.

(*c*) *Grade "C" pasteurized milk.*—This grade should comprise all pasteurized milk not complying with either grade "A" or grade "B" pasteurized requirements.

(*d*) *Grade "A" raw milk.*—This grade of raw milk should be the highest which it is practicable to produce. It should meet certain production refinements, such as a very low bacterial count, a very low cooling temperature, and certain structural details which most authorities believe can not be practicably required of grade "A" pasteurized milk.

(*e*) Finally, the grades of raw milk used for each of the three grades of pasteurized milk should be defined in the ordinance.

(5) That any grade of raw milk, however carefully produced, is made still safer by pasteurization.

(6) That the highest grade of pasteurized milk should place ample emphasis upon proper production methods as well as proper pasteurization methods.

(7) That each city should be encouraged to require the maximum percentage of pasteurization which its citizens will support.

(8) That cities which feel that all of their milk supplies can be required to comply with all of the items of sanitation for the highest grade of milk defined in the ordinance, namely, grade "A" pasteurized, may limit the sale of milk to that one grade.

(9) That cities which feel they can not require all of their milk supplies to equal grade 'A' quality should be permitted to sanction the sale of the other grades defined in the ordinance, but should be urged to inform their citizens that grade 'A' pasteurized milk is the safest milk, by placards in all restaurants, soda fountains, etc., where milk is sold, and by other means.

Your committee believes that the Standard Milk Ordinance tentatively proposed by the United States Public Health Service [2] and now adopted as standard by 10 States, admirably satisfies in general the above requirements.

Believing that the States which are actually applying this ordinance should be well qualified to render judgment as to the effect of its application, your committee has made inquiries of each of these States concerning the effect of the operation of the ordinance.

The three States which feel they have been applying the Public Health Service Standard Milk Ordinance long enough to justify conclusions are North Carolina, Texas, and Alabama.

North Carolina and Alabama have now been applying this ordinance for about three years, and Texas has been applying it for about two and one-half years. In these three States over 60 cities are now operating under the ordinance. Each of the States reports to your committee that its experience with the operation of the ordinance is satisfactory, and none of them suggests modification, except that Texas suggests that it would like it to be made more adaptable to its "smaller communities which are without laboratories and from which it will not always be practicable to ship samples of milk to central laboratories."

The State which has been operating longest under the Standard Milk Ordinance is Alabama, and that State reports that following the application of the Standard Ordinance in eight of its cities the results described below have been noted.

(1) The enforcement of the Public Health Service Standard Milk Ordinance has been followed by a greatly improved milk sanitation

Table 1 shows the increase in the general milk sanitation ratings (on the basis of the Public Health Service rating plan) of eight Alabama cities which have now been operating under the Standard Milk Ordinance long enough to make it possible to measure results.

TABLE 1.—*United States Public Health Service milk sanitation ratings (general)*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Rating	Date	Rating	
Montgomery	January, 1923	35.6	December, 1925	59.1	66.0
Florence	March, 1924	24.5	do	48.8	99.2
Selma	do	29.1	do	47.8	64.3
Tuscaloosa	do	29.7	do	62.7	111.1
Mobile	September, 1923	27.1	do	48.2	77.8
Huntsville	March 1924	27.0	do	67.1	148.5
Gadsden	January, 1924	28.5	do	47.1	65.3
Albany-Decatur	March, 1925	8.1	do	73.3	805.0
Averages (weighted) [a]		29.2		54.2	85.6

[a] Weighted on gallonage consumption basis.

[2] A State-wide Milk Sanitation Program (Appendix A). By Leslie C. Frank. Pub. Health Rep., vol. 39, No. 45, Nov. 7, 1924. (Reprint No. 971.)

The above figures show that there has been in these eight cities an average increase of well over 80 per cent in milk sanitation since the passage of the milk ordinance. It would be unwarranted, of course, to state that no other milk ordinance would have accomplished the same improvement in the same length of time, but it is believed conservative to state that the present ordinance does effect a significant increase in milk sanitation if properly enforced.

In order to bring out the relative improvement in production and pasteurization ratings, Tables 2 and 3 are given below.

TABLE 2.—*United States Public Health Service milk sanitation ratings (production)*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Rating	Date	Rating	
Montgomery	January, 1923	67.2	December, 1925	93.9	39.7
Florence	March, 1924	49.0	do	97.5	99.0
Selma	do	58.2	do	95.5	64.0
Tuscaloosa	do	53.3	do	94.0	76.4
Mobile	September, 1923	54.2	do	96.4	77.8
Huntsville	March, 1924	54.0	do	95.2	76.3
Gadsden	January, 1924	57.0	do	94.3	65.4
Albany-Decatur	March, 1925	16.2	do	80.8	398.5
Averages (weighted) [1]		56.8		94.8	66.9

[1] Weighted on gallonage consumption basis.

Table 2 shows that the average production improvement in the eight cities has been 66.9 per cent, and that the individual production ratings for all except one of the eight cities are now well over 90 per cent, signifying that production sanitation has in these eight cities been brought to a high level within a comparatively short period of time.

TABLE 3.—*United States Public Health Service milk sanitation ratings (pasteurization)*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Rating	Date	Rating	
Montgomery	January, 1923	4.0	December, 1925	24.4	510.0
Florence	March, 1924	.0	do	.0	.0
Selma	do	.0	do	.0	.0
Tuscaloosa	do	6.2	do	31.3	405.0
Mobile	September, 1923	.0	do	.0	.0
Huntsville	March, 1924	.0	do	38.9	
Gadsden	January, 1924	.0	do	.0	.0
Albany-Decatur	March, 1925	.0	do	65.8	
Averages (weighted) [1]		1.6		13.5	744.0

[1] Weighted on gallonage consumption basis.

Table 3 shows that for the eight cities as a whole the pasteurization ratings were practically zero when the work began, that the percentage increase in the pasteurization ratings of four of the eight cities has

been large, but that the other four of the eight cities are still without pasteurization facilities.

The operation of a pasteurization plant in one of these cities, Florence, to pasteurize all of the city's milk supply, was begun on April 15, 1926. This city's pasteurization rating, therefore, advanced to nearly 100 per cent following the establishment of the plant.

In the other three cities sentiment is still strongly against pasteurization, but it is believed that opinion will lean more and more toward pasteurization as the educational work continues. In the meantime the consumers are being protected as much as possible by high production precautions.

(2) *The enforcement of the Public Health Service Standard Milk Ordinance has been followed by an increase in the volume of market milk sales*

Table 4 shows the increase in the volume and percentage of market milk sales in the eight Alabama cities previously considered.

TABLE 4.—*Increase in market milk consumption*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Gallons per day	Date	Gallons per day	
Montgomery	January, 1923	1,588	December, 1925	2,713	70.9
Florence	March, 1924	277	March, 1925	345	24.5
Selma	do	605	do	669	10.6
Tuscaloosa	do	505	April, 1925	687	36.0
Mobile	September, 1923	[1] 2,000	December, 1925	3,351	67.6
Huntsville	March, 1924	365	March, 1925	417	15.3
Gadsden	January, 1924	362	December, 1925	370	2.2
Albany-Decatur	March, 1925	177	do	220	24.3
Totals and average		5,879		8,772	49.2

[1] Estimated.

The average increase in market milk sales, following the application of the Standard Milk Ordinance, can not be interpreted to indicate the true increase in total milk consumption, as we are dealing with small cities in which the number of family cows is high and in which a fairly large percentage of the total milk consumed is from private cows. Again, it would not be scientifically sound to conclude that the increase in the consumption of milk has been caused by the application of the Standard Ordinance itself. However, the figures do indicate the actual increase in *market milk consumption*, and it is believed that while it is conceivable that some other cause could have been operative, this is not deemed likely.

Your committee wishes further to report that the Standard Milk Ordinance has, in general, elicited the support of the dairy industry. In a large number of the cities now operating under the Standard

Ordinance the passage of the ordinance was urged by the dairy industry itself.

The support of the dairy industry is further illustrated by the indorsement given the Public Health Service program by the National Dairy Council, a national organization of the dairy interests.

Finally, the support of the dairy industry is evidenced by the fact that, so far as known, only two or three court cases have occurred in connection with milk control in all of the many cities now operating under the ordinance. None of these court cases has been decided against the city.

Your committee wishes further to report that the Public Health Service Standard Milk Ordinance has been enacted by practically all types of cities.

In the 10 States which have thus far adopted the Standard Milk Ordinance, the many cities which have enacted the ordinance into law include the largest cities in those States, cities with as small a population as 5,000, cities which had previously done no milk-control work whatever, cities which have spent many years in improving milk supplies, cities which are willing to require 100 per cent pasteurization, and cities which are largely opposed to pasteurization.

Your committee believes, therefore, that it may safely be stated that the ordinance is so framed as to be attractive to the majority of types of cities. However, it should be noted that none of the States in which the ordinance has become standard has cities of over 500,000 population, and it still remains for actual future experience to demonstrate whether the ordinance will be attractive or can be modified so as to become attractive to such large cities. On the other hand, your committee wishes to suggest in this connection that the principal problem with which we as State health officers have to deal is not that of our largest cities, as these in general have done far better milk sanitation work than the average in the State as a whole, but that our principal problem is rather that of our many smaller cities which are in general not yet advanced in milk-control methods.

PROPOSED MODIFICATIONS OF THE ORDINANCE

The Public Health Service has taken the position that its principal object is not to insist upon the exact wording of its present Standard Milk Ordinance, but rather to emphasize the vital need for the uniform adoption by the State health officers of the United States of the ordinance as it now stands or of any modification of the ordinance which is theoretically sound and practically effective.

Your committee has therefore been open to proposed modifications which might lead to general agreement and wide application.

The following modifications have thus far been suggested to your committee:

Proposed modification No. 1.—Section 1, definition: Add a definition for chocolate milk as follows: "Chocolate milk is defined as whole or adjusted or skim milk to which has been added in a sanitary manner a chocolate sirup composed of wholesome ingredients, and which is labeled with the grade of milk or milk products from which it is made. If chocolate milk contains less than 3¼ per cent milk fat the label shall indicate the percentage of milk fat to which the milk has been adjusted." It is recommended that this section be made optional with States.

Proposed modification No. 2.—Section 1, definition, adulterated milk and milk products: Change this definition to the following: "Any substance claimed to be any milk or milk product defined in this ordinance but not conforming with its definition as given in this ordinance shall be deemed adulterated and misbranded"

Proposed modification No. 3.—Section 1, definition C: Change the minimum milk fat percentage for light creams from "18 per cent" to "18 per cent, preferably 20 per cent." Insert "containing not less than 30 per cent milk fat" after "whipping cream and manufacturing cream are creams."

Proposed modification No. 3-a.—Delete definition E.

Proposed modification No. 4.—Section 1, definition O: Insert "every particle of" after "shall be taken to refer to the process of heating." Change the pasteurization temperature from 142° to 145°.

Proposed modification No. 4-a.—Definitions Q and S: Add the following sentence to each of these: "This section shall not be construed to include what is generally known as 'family cows.'"

Proposed modification No. 5.—Section 1, definition V: Insert "of the" after "to mean the average." Change "count" to "counts."

Proposed modification No. 6.—Section 4: Delete "(5) The percentage of milk fat if the package or other container encloses adjusted milk" and substitute therefor: "(5) Name of producer or distributor."

Add at the end of the first paragraph the following: "The label or mark shall be in letters of a size and kind approved by the health officer and shall contain no marks or words not approved by the health officer."

Insert "at all times" after "every grocery store, restaurant, * * * shall display."

Change the period at the end of section 4 to a comma, and add the following: "and including the following statement: 'The Safest Grade of Milk is Grade 'A' Pasteurized.'"

Proposed modification No. 6-a.—Section 5: Add at end of first paragraph: "Two violations of this ordinance within any one grading period shall call for immediate de-grading."

Proposed modification No. 6-b.—Section 6: Add "plate count method of" after "conformity with the" in third sentence of first paragraph.

Proposed modification No. 7.—Section 7: Delete "daily" in first sentence. Insert "and of the State Board of Health or City or County Health Officer" after "Medical Society of ——— County."

Proposed modification No. 8.—Section 7, first paragraph: Delete "except that the permissible bacterial limits shall be multiplied fivefold in each case."

Proposed modification No. 9.—Grade "A" raw milk, cows, tuberculosis and other diseases: It is proposed that this item of sanitation be made identical with the new official wording approved by the Bureau of Animal Industry, provided that this wording shall be made to include isolation of infected animals and proper requirements concerning the addition of new cows to the dairy herd.

Proposed modification No. 10.—Grade "A" raw milk, item 2: Change to "Such sections of all dairy barns where cows are kept or milked shall have at least three square feet of window space for each stanchion."

Proposed modification No. 11.—Grade "A" raw milk, item 3: Change to "Such sections of all dairy barns where cows are kept or milked shall have at least five hundred (500) cubic feet of air space per stanchion, and shall be well ventilated."

Proposed modification No. 12.—Grade "A" raw milk, item 4: Change the first part of the first sentence so as to read: "The floors and gutters of such parts of all dairy barns in which cows are kept or milked shall be constructed of concrete or other equally impervious * * *." Add at end of item: "No horses, pigs, fowl, etc., shall be permitted in parts of the barn used for dairy purposes."

Proposed modification No. 13.—Grade "A" raw milk, item 5: Change the last sentence to read as follows: "In case there is a second story above that part of the barn in which cows are kept or milked, the ceiling shall be tight."

Proposed modification No. 14.—Grade "A" raw milk, item 8: Change "cement" to "concrete." Add "and ventilated" after "the milk house shall be well lighted." Add "and the washing and sterilizing of milk apparatus and utensils" before the comma after the words "Storage of milk" in the first sentence.

Proposed modification No. 15.—Grade "A" raw milk, item 12: Insert "non-absorbent material and of" after "all containers or utensils used in the handling or storage of milk or milk products must be of."

Proposed modification No. 16.—Grade "A" raw milk, item 13: Change this item to read: "All containers and other utensils used in the handling, storing, or transportation of milk and milk products must be thoroughly cleaned after each usage."

Proposed modification No. 17.—Grade "A" raw milk, item 14: Change to read: "All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall between each usage be sterilized with steam or chlorine or in a manner approved by the State health authority."

Proposed modification No. 18.—Grade "A" raw milk, item 17: Change this item to read as follows: "The udders and teats of all milking cows shall be clean at the time of milking."

Proposed modification No. 19.—Grade "A" raw milk, item 19: Add at the end of this paragraph: "Convenient facilities shall be provided for the washing of milkers' hands." Item 20: Add "and milk handlers" after "milkers." Item 22: Add "or straining room" at the end of the first sentence.

Proposed modification No. 20.—Grade "A" raw milk, item 24: Delete "preferbly" in first sentence. Change last sentence to read: "Caps shall be purchased in sanitary tubes and kept therein in a clean place until used."

Proposed modification No. 21.—Grade "A" raw milk, item 25: Change this item to read as follows: "Every person connected with a dairy or milk plant whose work brings him in contact with the production, handling, storage, or transportation of milk or milk products shall have within twelve months passed a medical examination made by the health officer."

Proposed modification No. 22.—Grade "A" raw milk, item 26: Change "within twenty-four hours" to "immediately."

Proposed modification No. 23.—Grade "B" raw milk: Add after "which at no time prior to delivery exceeds 200,000 per cubic centimeter" the following: "or which falls in class 1 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association." Delete the following: "Item (14) shall apply except that boiling water may be substituted for steam."

Proposed modification No. 24.—Grade "C" raw milk: After "which at no time prior to delivery exceeds 1,000,000 per cubic centimeter," add the following: "or which falls in class 2 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association."

Proposed modification No. 25.—Grade "D" raw milk: After "does not exceed 5,000,000 per cubic centimeter" add the following: "or which falls in class 3 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association."

Proposed modification No. 26.—Grade "A" pasteurized milk, item 1: Insert "constructed of concrete or other equally impervious and easily cleaned material and shall be" after "floors of all rooms in which milk is handled shall be." Delete "impervious" from the original reading occurring after the word "smooth."

Proposed modification No. 27.—Grade "A" pasteurized milk, item 5: Insert after first sentence the following: "This requirement shall be interpreted to include separate rooms for (*a*) the pasteurizing, cooling, and bottling operations, (*b*) the container-washing and sterilizing operation. Cans of raw milk shall not be unloaded directly into the pasteurizing room."

Proposed modification No. 28.—Grade "A" pasteurized milk, item 6: Add at the end of second sentence: "or stored."

Proposed modification No. 29.—Grade "A" pasteurized milk, item 8: Change "wash room" to "washing facilities"; change "equipped with" to "including."

Proposed modification No. 30.—Grade "A" pasteurized milk, item 12: Change the wording of this item to the following: "All milk containers and milk apparatus shall be thoroughly cleaned after each usage and sterilized in a manner approved by the health officer immediately before each usage."

Proposed modification No. 31.—Grade "A" pasteurized milk, item 13: Change "in an inverted position and in a clean place" to "in such manner as to be."

Proposed modification No. 32.—Grade "A" pasteurized milk, item 16: Add "dated and" after "the time and temperature record charts shall be."

Proposed modification No. 33.—Grade "A" pasteurized milk, item 17: Change "upon receipt shall be" to "within two hours after it is received at the plant shall then be."

Proposed modification No. 34.—Grade "A" pasteurized milk, item 18: Add after "bottling shall be done" the following: "in automatic machinery approved by the health officer."

Proposed modification No. 35.—Grade "A" pasteurized milk, item 22: Change the wording of this item to read as follows: "Every person connected with a dairy or milk plant whose work brings him or her in contact with the production, handling, storage, or transportation of milk or milk products shall have within twelve months passed a medical examination made by the health officer."

Proposed modification No. 36.—Grade "A" pasteurized milk, item 23: Change "within twenty-four hours" to "immediately."

Proposed modification No. 37—Grade "C" pasteurized milk: Delete the last sentence beginning "Grade 'C' pasteurized milk shall be sold for cooking and manufacturing purposes only," etc.

Proposed modification No. 38—Section 17, proscribed milk: It is suggested that this item be changed to read as follows: "Milk which does not conform with the following grades as described in this ordinance shall not be sold in the city of ———: ————————." (Any city which wishes to prohibit the sale of any of the grades of milk described in this ordinance may use this section for that purpose.)

Proposed modification No. 39.—Section 13, vehicles: Add "in such manner as to permit contamination."

Proposed modification No. 40.—Section 16: Add "which shall not be less than the Grade A requirements of this ordinance."

Your committee has made a careful study of each one of the above suggested modifications. It does not believe that any of them, with two or three exceptions, will either detrimentally affect the operation

of the Standard Ordinance or lead to disagreement. In fact, it believes that the proposed modifications will, if adopted, encourage a wider usage of the ordinance.

The several proposed modifications which your committee feels may lead to disagreement are as follows:

Proposed modification No. 4, second part: "Change the pasteurization temperature from 142° Fahrenheit to 145° Fahrenheit." Health officials seem to be about equally divided in their support of the two temperatures. Your committee believes, however, that pending the outcome of future research work the temperature required by the ordinance should be 145° F., because this temperature gives the public the benefit of all doubt from a public health standpoint.

Proposed modification No. 17: This modification has been suggested by a State health department which believes that chlorine sterilization should be accepted as being as effective as steam sterilization. It is believed that a number of health officers will disagree with this as not having been proved, particularly in view of the doubtful results which have been secured in the sterilization of milking machines by means of chlorine. Your committee feels, however, that inasmuch as this is a debatable point, it will be wise to include the modification and invite such health officials as prefer to require steam expressly to do so.

Proposed modifications Nos. 23, 24, and 25: These modifications propose the alternative acceptance of the reductase test in place of the bacterial count. The proponents of the modification hold that the requirement of the bacterial count will be too costly for large cities with milk sheds of long radius, and that the accuracy of the bacterial count has been much overrated. The opponents to the modification hold that the reductase test is too crude.

Here, again, your committee feels that we are dealing with a debatable issue. Therefore it recommends that the proposed modification be included in the Standard Ordinance and that such States and cities as oppose it eliminate it as a local adaptation of the ordinance.

Your committee wishes to point out, in connection with the above recommended action, that any city which adopts the ordinance as above outlined will not have violated the spirit of the Standard Ordinance, which is that of "*minimum requirements.*"

In conclusion, your committee has the honor to recommend that the Standard Milk Ordinance of the United States Public Health Service, modified as above suggested, be adopted by this conference as a uniform standard for the United States, with the understanding that small communities without laboratory facilities may pass the ordinance with the laboratory requirements deleted, and be recognized as having adopted the "Junior Standard Ordinance."

The members of the committee on uniform standard milk ordinance:

(Signed) S. W. WELCH,
Chairman.
A. J. CHESLEY,
C. A. HARPER,
E. L. BISHOP,
Members.

A NATIONAL PROGRAM FOR THE UNIFICATION OF MILK CONTROL[1]

By LESLIE C. FRANK, Sanitary Engineer, United States Public Health Service

During the past three years the United States Public Health Service has been encouraging the adoption of a uniform, effective milk sanitation program by the cities and States of the United States. On May 25, 1926, the Standard Milk Ordinance of the United States Public Health Service, slightly modified, was adopted as a standard for the United States by the Conference of State and Territorial Health Officers. The purpose of this paper is to discuss the conditions which make such a program advisable, to describe the program itself, and to discuss the progress made thus far.

A uniform effective milk control program is advisable because our present chaotic state of milk control in the Nation as a whole is permitting the occurrence of many milk-borne outbreaks of communicable disease

Trask[2] listed 500 outbreaks of milk-borne communicable disease as having been reported in the literature during the 27-year period, 1880 to 1907. The numbers of outbreaks reported for the various diseases are given in Table 1.

TABLE 1.—*Milk-borne disease outbreaks, 1880–1907. (Reported in United States and foreign countries)*

Disease:	Number of outbreaks
Typhoid fever	317
Scarlet fever	125
Diphtheria	51
Septic sore throat and pseudodiphtheria	7
Total number of outbreaks	500
Total number of outbreaks reported in the United States	168
Total number of outbreaks per year in the United States	6

In 1924 the Office of Milk Investigations of the United States Public Health Service made a questionnaire survey of milk-borne outbreaks occurring in the registration cities of the United States during the six-year period 1918 to 1923, inclusive. Table 2 gives the number of outbreaks reported.

TABLE 2.—*Milk-borne disease outbreaks in registration cities of the United States, 1918–1923, inclusive*

Disease:	Number of outbreaks
Typhoid fever	87
Scarlet fever	16
Diphtheria	4
Septic sore throat	4
Dysentery	1
Total number of outbreaks	112
Total number of outbreaks per year	18.7

[1] Expanded from a paper read at the American Health Congress, Atlantic City, N. J., May 20, 1926.

[2] United States Public Health Service Bulletin No. 56.

It will be noted that the rate of milk-borne outbreaks per year in the United States reported for the period 1918 to 1923 is 18.7, whereas the rate shown by the literature survey for 1880 to 1907 was 6. This does not necessarily mean that there has been an increase in the milk-borne outbreak rate, but rather that a questionnaire survey tends to give more complete returns than does a literature survey. Many epidemics not reported in the literature will be disclosed by a questionnaire.

In 1925 a questionnaire survey was made of milk-borne outbreaks occurring in 1924, with the following results:

TABLE 3.—*Milk-borne disease outbreaks reported in the United States during 1924*

Disease:	Number of outbreaks
Typhoid and paratyphoid fever	35
Scarlet fever	5
Diphtheria	1
Septic sore throat	1
Dysentery	2
Total number of outbreaks in 1924	44

A rate of 44 outbreaks per year for 1924, as shown in Table 3, is large compared with the rate of 18.7 outbreaks per year for the period 1918 to 1923. Here again, however, it is improbable that there was an actual increase in the milk-borne outbreak rate. It is more likely that the apparent increase indicates that the health office records of 1924 are more nearly complete than the records for the period 1918 to 1923, or that the health authorities are more active in identifying these outbreaks. City health officers come and go in many cities with distressing frequency, and records are often submerged in the transfer of the office.

However, the number of milk-borne outbreaks of disease is far greater than has hitherto been assumed; and it is evident that our past milk-control efforts, nationally considered, have not been adequate. There has been no effective leadership, no respected and uniform national program; hence health officers, bewildered by the array of milk ordinances from which to choose, have often chosen ineffective ones.

This constitutes the first reason why a uniform and effective milk-control program is advisable.

A uniform milk-control program is advisable because our present non-uniform methods have caused the dairy industry to discredit the health officer's knowledge of milk sanitation

There can be no doubt that there is at present in the United States little evidence of unity of thought among health officers in matters of milk control. Until very recently there have been almost as many different ordinances as there were health officers to write them.

We can, therefore, hardly criticize the dairy industry in general for doubting the soundness of the average health officer's knowledge of milk control. It can readily be understood that the dairyman has come to feel that "among so many different practices, some must be wrong. They can not all be sound." In fact, in many localities the dairyman has come to feel that the local milk ordinance is the personal invention of an individual untrained in the particular branch of public health involved, and is partly composed of requirements which have no real public health significance and which are unnecessary economic burdens upon the dairymen.

It is easy to understand, therefore, that many members of the dairy industry have developed a spirit of resistance to milk ordinances in general. A dairyman who doubts the health officer's knowledge of milk control will not carry out willingly an ordinance devised by that health officer. This lack of respect for the health officer's knowledge by many persons in the dairy industry is believed to be partly responsible for the fact that the local milk ordinance is so unsatisfactorily complied with in so many communities.

This is the second reason why it is advisable to establish a uniform and effective milk-control program in the United States. We must earn the respect of the dairy industry before we can expect to achieve the optimum results in milk control.

A uniform and effective milk-control program is necessary because our present conflicting methods of milk control are partly responsible for a lower milk consumption than is desirable from a public health point of view

Many intelligent milk consumers seek advice of the pediatrician when they wish to secure a safe milk for infant feeding, and the pediatrician seldom gives *carte blanche* approval of the general market milk supply. He usually advises the purchase of "certified" milk, or the milk of some special dairyman. This can only mean that the consumer and the pediatrician distrust the general milk supply. The very existence of medical milk commissions for the control of "certified" milk is, in effect, evidence that the consumer has found it advisable to set up a special unofficial health organization for the purpose of providing a safer milk supply than the health officer has provided.

It follows naturally as a result of this attitude on the part of the pediatrician that the consumer should begin to ask himself this question: If the general market milk supply is not safe enough for consumption by my baby, is it safe enough for consumption by the others of my family? And so we have a force working in the direction of low milk consumption, the opposite of which should be desired by every thoughtful health official. This general distrust of milk

quality on the part of the consumer is strengthened by the frequent exhibitions of resistance to the local milk ordinance displayed by the dairy industry, and is further strengthened by the frequent campaigns on the part of the local health officer for a new milk ordinance.

Under the present system of a confusion of local milk ordinances, many incoming health officers inaugurate campaigns for a new milk ordinance. The old milk ordinance, written by the previous health officer, is condemned and the milk-consuming public is advised that the dangers of the present milk supply are such as to make it necessary to pass an entirely new milk ordinance. To the consumer this means a frequent confession on the part of the official health agency that the general city milk supply is not as safe as it might be. Can we wonder, then, that the consumer drinks on the average about three quarters of a pint per day instead of the quart per day recommended by specialists?

It must be evident to the thoughtful person that a program of unification and stabilization of milk-control methods is necessary. It is difficult to conceive of a more unfortunate condition than the present one in which many producers of milk and many consumers of milk fail to have the proper confidence in the controlling official.

A uniform national milk control program is desirable because we are rapidly entering the era of interstate milk shipments, the successful control of which must inevitably be based upon uniform State standards if Federal control is to be avoided

During the early period of milk-control history, practically all communities received their milk supplies from immediately surrounding areas. This made a relatively short radius problem of milk control. As our solution of the fluid milk transportation problem has developed, however, it has become correspondingly easier for areas producing milk in large quantities to supply the demands of areas producing in small quantities, even where great distances intervene. For example, Florida is now receiving milk shipments from northern States. We are dealing here with an economic force which will unceasingly strive to establish a uniform milk-price level, and this can be done only by the removal of barriers to the free interstate shipment of milk. If, now, our control of these ever-increasing interstate milk shipments is to be logical and effective, it must be based eventually upon uniform interstate standards. To-day the State health officer of Florida is asking the State health officer of Alabama, "What is the quality of the milk which Alabama is shipping into Florida?" We need here a universal milk-control language. Compliance with Alabama standards may not satisfy Florida, and Alabama will not be willing to apply a different standard for every different State to which it may ship milk. This is, then, the fourth reason why a uniform national milk-control program is advisable.

Within recent years certain States have realized the need for a uniform milk-control program

During the past 10 years a few States have come to realize that State leadership is needed in order to achieve a unified milk-control program. Thus, certain States have adopted various types of State milk ordinances, which they have then recommended for enactment by their various cities. This has resulted in some good locally in improving milk supplies.

It is even more necessary, however, to unify State standard ordinances than it is to unify the municipal milk ordinances within the State

It must be obvious that, unless the States now agree upon one uniform ordinance, we shall merely have advanced from a condition of intrastate to a condition of interstate confusion. Now is a good time, when, for all practical purposes, the adoption of State standards is just beginning to advance from the idea of individual State ordinances to its logical and inevitable final conclusion, namely, a National standard.

Ten States have within the past three years subscribed to the standard ordinance of the public health service

Although prior to 1923 no two States were operating under the same State milk ordinance, since 1923 ten States have, in rapid succession, adopted as standard an ordinance recommended by the United States Public Health Service. In these States nearly 100 communities have enacted the ordinance into law. The first State to adopt the Public Health Service program was Alabama, followed by North Carolina, Texas, Virginia, Tennessee, South Carolina, Missouri, Kentucky, Arkansas, and Louisiana, in the order named. There seems, therefore, to be some basis for the hope that within a reasonable period of time the majority of the States will be operating under one uniform milk-control program.

The Public Health Service Program for the unification of milk control involved four major items:

(1) The development of a practical standard milk ordinance.

(2) The encouragement of its adoption by States and its enactment by communities.

(3) The development of a policy of relationship between the cities, the States, and the Federal Government to promote effective enforcement of the ordinance.

(4) The development of a method of measuring the results of the enforcement of the ordinance.

The first part of the program was the development of a standard milk ordinance which would be generally applicable and generally effective in providing safe milk and stimulating its adequate consumption

In the endeavor to develop a standard ordinance it was decided first to set down the criteria to be used.

The following criteria were used in the development of the United States Public Health Service Standard Ordinance:

(1) It must achieve the maximum practicable degree of milk safety.

(2) It must encourage greater milk consumption.

(3) It must elicit the cooperation of the dairy industry.

(4) It must be so framed as to be likely to be enacted by both small and large cities; cities with little or no previous milk control, and cities with long experience in milk control; cities with a majority sentiment in favor of pasteurization, and cities with a majority sentiment opposed to pasteurization.

Before applying the criteria in developing a standard ordinance it was necessary to know what was meant by safe milk

The easiest approach to the answer to the question, What is meant by safe milk? is believed to be through the answer to the question, Is the highest grade of raw milk which it is practicable to produce sufficiently safe? It would have simplified matters to have been able to answer this question affirmatively. There still remains considerable opposition to pasteurization, and most ordinances developed upon the principle that the highest grade raw milk is not sufficiently safe will meet with this opposition. After careful consideration a negative answer was found unavoidable. Experience in the operation of high-grade raw-milk dairies leads to the conviction that no precautions humanly possible are in practice sufficient to prevent at all times the transmission of disease organisms through raw milk.

Tuberculin testing is an important public-health measure. After years of consistent tuberculin testing, however, a small residual percentage of reactors will persist. Tuberculin testing should, therefore, be regarded by both the health officer and the industry as an important factor of safety from the public health point of view, and as an economic necessity for the dairy industry (it is simply bad business for the dairyman to permit tuberculosis to spread through his herd), *but not as a final and complete safeguard.*

Periodic search for typhoid carriers is an equally important public health measure. Health officers should not neglect to employ any practicable measure which will help to keep carriers of typhoid fever

from having to do with milk production or distribution. But even the recent advances in the laboratory technique for the recognition of typhoid carriers can not solve the problem of intermittency of discharge of the organisms by the carrier. A carrier may or may not be discharging the organisms of typhoid fever on the day on which the specimens of feces and urine are collected. If the result of the laboratory test is positive, the result is significant; but if the result is negative it means that the organism was not found in the specimen examined, not that the person examined is not a carrier. Hence, again, while the health officer must regard the search for typhoid carriers among milk handlers as one important factor of safety in milk control, he should not regard it as a final and complete safeguard against the spread of typhoid fever by carriers; it does not discover all carriers.

Furthermore, what is to be done with the milker in the presymptom infective period, the period during which the infectiveness is often the greatest? There are no practicable precautions which can obviate this danger. In the case of certain infections spread through milk a milker can be in an infective condition for several hours or days before he has any symptoms whatever to warn him of his infection. Finally, even if there were no presymptom infective period we would still have to deal with the problem of the milk handler who persists in working for a time after the beginning of first symptoms and before a diagnosis has been made as to whether his condition is infective or not.

The above reasoning applies equally well to "certified" milk or to any other "highest grade" of raw milk. The fact that epidemics do not occur frequently among the users of certified milk is sometimes advanced as evidence that certified milk is sufficiently safe. Unhappily, this evidence is not convincing. The ratio of epidemics among users of certified supplies to epidemics among users of noncertified supplies reported to the United States Public Health Service in 1924 is 1:43, whereas the ratio of certified to noncertified dairies in the United States is considerably less than 1:43. Obviously the comparison of these ratios can not be taken to mean that certified milk is no safer than the general supply, but just as certainly it can not be taken to mean that certified milk is without danger.

The above is not intended as a criticism of the certified-milk movement, which has provided an extremely valuable service during the past quarter century in emphasizing the need of better milk sanitation in general and higher quality production methods in particular; but this just appraisal of the certified-milk movement does not, unfortunately, invalidate the conclusion that any raw milk, however carefully safeguarded, is made still safer by the process of pasteurization.

Shall we abandon production precautions entirely, then, and rely solely upon pasteurization? This is what has been done in effect by

certain of our cities, particularly the larger cities. In many of these cities the control of production is little more than paper control; it is neither real nor effective. Certainly, one inspection per year, or less, can not be accepted as control, and some of our cities inspect their sources of pasteurized milk even less often.

It is believed that a policy which abandons production precautions and relies solely upon pasteurization is not sound. There can be no reasonable doubt that pasteurization, if properly applied, will prevent milk-borne infections. Pasteurization is in this respect certainly superior to raw milk precautions. But, on the other hand, the pasteurization process is not always properly applied. It is designed and operated by human beings. Many of the designs are not sound; occasional slips in operation are inevitable. Suppose we abandon production precautions entirely or largely; suppose many of the cows are not tuberculin tested and that a high percentage of tuberculosis exists in the herd (true for many of our large cities); suppose that we take no precautions against typhoid carries on the farm, etc.; if, then, a failure in the pasteurization process does occur, our last safeguard is down, and the consumer is left defenseless.

Furthermore, a very serious opposition to pasteurization comes from the feeling on the part of the consumer that pasteurization makes it possible for the dairy industry to deliver low-grade milk to the consumer with impunity. It is easy to understand why this should arouse the opposition of the consumer and discourage him in the consumption of milk. He wishes not merely a safe product but also one which satisfies his desire for cleanliness and wholesomeness.

A policy, therefore, which ignores production precautions and relies solely upon pasteurization must be considered not only as unsound from the standpoint of safety but also as undesirable from the standpoint of adequate milk consumption. With due consideration of all factors involved, it is believed that "safe" milk should be defined as follows:

Safe milk is milk which has been both properly produced and properly Pasteurized.

Under such a definition "safe" milk has a factor of safety of 2—two barriers have been erected between the consumer and the various sources of infection: Production precautions constitute one factor of safety and pasteurization constitutes the other. Neither one is sufficient by itself. Both must go hand in hand. Under such a policy we are following what we have learned with respect to water supplies, namely, that the single factor of safety provided by a patrolled watershed or by filtration should be further reinforced by a second safeguard, namely, disinfection by chlorination or other means.

The most direct and obvious type of standard milk ordinance is a single grade ordinance which simply sets down the requirements for the ideal safe milk described above, and which bars all other milk from the market

The enforcement of such an ordinance in any city would mean that no milk could be sold except such as had satisfied every necessary production requirement and had been properly pasteurized. Such an ordinance would undoubtedly provide the maximum in safe milk and, by increasing the confidence of the consuming public in milk quality, would encourage greater milk consumption. It would be the ideal standard ordinance if cities in general could be induced to pass it and to enforce it. It is practically certain, however, that very few cities are sufficiently advanced to enact such an ordinance or to enforce it properly. Years of experience in the passage of milk ordinances bring the conviction that only the occasional city can be induced at the present time to pass an ordinance requiring universal pasteurization. In most cities the public is not sufficiently convinced as yet of the imperativeness of pasteurization to be willing to favor such an ordinance, and one mistake that we should by all means avoid is to proceed faster than public opinion will follow:

Furthermore, the practical objections to this type of ordinance as a universal standard do not confine themselves to the pasteurization phase. There are many cities which will not at the outset pass an ordinance which requires the utmost in production precautions for all milk. Here, again, we must be guided by actual experience and not be carried away with a theoretical ideal. Most cities still have to make their first earnest attack upon the milk-sanitation problem; it is yet new to them. If these cities are suddenly approached with a proposal to pass an ordinance requiring that all dairymen immediately satisfy high production requirements, many of them will refuse because of the opposition of the dairymen. The legislators will heed the plea of many of the dairymen that the ordinance will entail a prohibitive expense, force many of them out of business, disastrously reduce the available milk supply, and increase the price of milk to the consumer. This picture will be immediately familiar to anyone who has made it a business to encourage the passage of milk legislation.

There is no question that this ordinance would be the ideal type if it could be generally enacted and enforced; but if we were to permit our scientific convictions to overrule our practical judgment and attempt to promote a standard ordinance of this type we should simply be doing paper work. The result would not be the greatest good for the greatest number. Clearly this type of ordinance will not satisfy the criterion that the standard ordinance must be one which most cities can be induced to pass.

A second type of milk ordinance is one which still attempts to retain the single-grade feature but which attempts to overcome part of the practical difficulties previously described by reducing production requirements

By this second type of ordinance is meant the universal pasteurization ordinance which a very few of our cities have passed and which places little or no emphasis upon production requirements. This ordinance is unquestionably effective in reducing milk-borne outbreaks, but it is not suited for use as a general standard, for two reasons: First, because it is a universal pasteurization ordinance, and, as previously indicated, few cities can be induced to pass such an ordinance; second, because of the previously discussed objections to any ordinance which ignores or minimizes production requirements.

A third general type of ordinance is one which frankly recognizes the practical objections to a single-grade ordinance and which divides market milk into classifications

Most of the cites of the United States operate under some variant of this general type of ordinance.

There are a number of different types of multiple classification ordinances. The first and most frequently used type is one which simply divides milk into two classifications, "raw" and "pasteurized," and describes the items of sanitation which must be satisfied by each of these two grades of milk.

This type of ordinance would possibly be satisfactory as a general standard if the requirements of the one pasteurized grade of milk could be made strict enough to satisfy the fundamental definition of "safe" milk, if the requirements of the one grade of raw milk included everything except pasteurization, and if the ordinance were then still lenient enough to insure passage by the majority of cities.

Unfortunately, it seems impossible to satisfy these opposing requirements in the same ordinance. In the attempt to use this type of ordinance the usual practice has been to state that milk which is produced from tuberculin-tested herds and which satisfies certain other production requirements may be sold raw and that all other milk must be pasteurized. This is unsatisfactory because of the lack of sufficient emphasis upon production requirements for the pasteurized milk. Furthermore, it leaves the consumer with the impression that the health officer is permitting high-grade milk to be sold raw, while all other milk, good and poor alike, may be dumped into the pasteurization apparatus and sold as the highest and only grade of pasteurized milk on the market. This leaves the consumer dissatisfied and leads, as previously described, to an incentive to a low milk consumption.

On the other hand, the very fact that lower grades of milk are permitted to be delivered to the pasteurization plants, while no distinction is drawn between the lower and the better grades, leads to a poor production incentive. Even dairymen of high principles have little incentive to maintain their production precautions when they know that their milk is to be dumped into the same vat with that of their lax competitors, who nevertheless, often receive the same price. This type of ordinance is one which has been adopted by some northern cities, the condition of the raw-milk supply of many of which is deplorable.

If now we attempt to remedy these defects and step up the requirements of the one pasteurized grade to a degree which will satisfy the fundamental definition of safe milk and of the one raw grade to satisfy all except the pasteurization item, we will find ourselves confronted with the difficulty that most cities will hesitate and many of them refuse to enact it into law.

There would seem to be, then, only one other possible solution, namely, to construct an ordinance with a number of grades of both raw and pasteurized milk, with the upper grade in each class sufficiently high to satisfy the most exacting reasonable requirements and with the lowest grade in each class sufficiently relaxed to leave no excuse for the least-advanced city to refuse to pass it.

At this point it may be helpful to revise somewhat the first criterion of the ideal standard ordinance, which was that the ordinance must be designed to achieve the maximum percentage of milk safety. Let us subdivide this criterion as follows:

(*a*) The ordinance must be designed so as to effect the maximum percentage of pasteurization which each city will support.

(*b*) The ordinance must improve as rapidly and as much as possible the quality of the milk before pasteurization.

(*c*) The ordinance must improve as rapidly and as much as possible the quality of any portion of the milk which remains unpasteurized.

Most health officers will undoubtedly agree that a standard ordinance which satisfies these three requirements will have exhausted the practical possibilities in encouraging safe milk.

Suppose, now, that we construct a standard ordinance which describes a number of grades of both raw and pasteurized milk, which, in part, bases the grading of pasteurized milk upon the excellence of the milk pasteurized, which allows the individual city to specify which grades of milk must be pasteurized and which grades shall be barred from the market, and which is prefaced by a foreword advising the city to require as nearly complete pasteurization as local opinion will support. Such an ordinance will have the following characteristics:

(1) It will achieve the maximum percentage of pasteurization which each city will support.

(2) It should improve the quality of the raw milk which is pasteurized as rapidly and as much as possible. (Since the grading of the pasteurized product is based partly upon the grade of the milk pasteurized, and the pressure of the buying public will be in the direction of the highest grade.)

(3) It should improve as rapidly and as much as possible the quality of any portion of the milk which remains unpasteurized. (If raw milk of more than one grade is permitted to be sold, the demand will be for the highest grade.)

(4) It should encourage greater milk consumption, because even in cities where lower grades of milk are permitted to be sold the fact that the highest grade is available and recognizable should insure confidence in milk quality, which in turn should increase the demand.

(5) It should appeal to most cities, as it is sufficiently flexibly designed to fit itself to the varying intensities of opinion concerning pasteurization and to the varying states of advancement in milk control. The cities which have become sufficiently converted to pasteurization can require all grades to be pasteurized, and the cities which have reached the zenith of milk-control progress can bar all grades of milk from the market except grade "A" pasteurized. In this latter case the mere description of the lower grades can, with profit, be retained in the ordinance, as violations will probably arise from time to time of such minor nature as to make the health officer hesitate to bar the milk from the market immediately and altogether. In these cases he can resort to de-grading under the ordinance as a temporary punitive measure.

The ordinance adopted by the United States Public Health Service for use in its unification program is of the above grading-type. How many grades should be provided for in the standard ordinance, and what general requirements should be specified for each grade?

Careful consideration has led to the belief that it will be wise to provide for the following grades in the Standard Ordinance in order to meet all of the conditions which a standard ordinance is required to fulfill:

(*a*) *Grade "A" pasteurized milk.*—This grade should be milk which has been produced in a cleanly manner and under all major safety precautions, and which has been properly pasteurized in a properly designed and operated plant. This grade of milk is therefore provided with a factor of safety of 2. It should be considered and recommended by the health officer as the safest grade of milk.

(*b*) *Grade "B" pasteurized milk.*—This grade should be milk which has been produced in the absence of certain production precautions, such as tuberculin testing of cows or health examinations of employees, but in a cleanly manner,

and which has been properly pasteurized in a properly designed and operated plant. This grade of milk will therefore be provided with a factor of safety of 1.

It is necessary to provide for this grade because, as previously indicated, the majority of cities will not support an ordinance which limits the sale of milk to grade "A" pasteurized. For example, many will not support compulsory tuberculin testing of all cows or compulsory medical examination of all farm employees, and yet those cities should be encouraged to pass a standard ordinance which will at least differentiate for the buying public the milk which does not comply with these items from that which does.

(c) *Grade "C" pasteurized milk.*—This grade should comprise all pasteurized milk not complying fully with either "grade 'A' or grade 'B' pasteurized" requirements. It is included in the Standard Ordinance because some cities and authorities feel that milk supplies can be brought to a high grade more adroitly and with less friction by a policy of de-grading than by a prohibition and court case policy. Again, some cities and authorities feel that even after all of the milk supply of the city is of "grade 'A' or grade 'B' pasteurized" quality it is far easier and just as effective to punish occasional lapses by degrading than through the method of "closure." Furthermore, certain thoughtful State health officers feel that it will be wise to include this grade because many city health officers can be induced to punish by de-grading, whereas they will hesitate to go to the extreme of closing, and that where the only remedy is closure by forfeiture of permit many infractions will go unpunished.

It is believed to be certain that a pasteurization plant can not long endure the competitive pressure resulting from a "grade 'C'" label, and that for this reason no practical disadvantage will follow the inclusion of this grade in the Standard Ordinance. As previously indicated, cities which do not wish to tolerate this grade, even for temporary punishment means, can bar it from sale altogether in the section of the ordinance designed for this purpose. The above reasoning holds also for grade "B" pasteurized milk with respect to the relative advantages of a closure policy as compared with a policy of de-grading.

(d) *Grade "A" raw milk.*—This grade of milk should be the highest grade of raw milk which it is practicable to produce. It should meet certain production refinements, such as a very low bacterial count, a very low cooling temperature, and certain structural refinements which most authorities believe can not be practicably required in the production of grade "A" pasteurized milk.

This grade of milk is included in the Standard Ordinance because, as previously stated, most cities can not be induced to pass an ordinance requiring universal pasteurization.

(e) Finally, the grades of raw milk acceptable for each of the three grades of pasteurized milk should be defined in the ordinance and can conveniently be termed "B," "C," and "D."

These grades will also be useful for smaller communities which have no pasteurization plants and which can not be induced to require all raw milk to be of grade "A" raw quality. There are many such small communities, as experience in securing the passage of milk legislation has amply demonstrated. The fear need not be entertained that such cities will, as a result, tend to have much low-grade raw milk on the market. Competition under the grading principle, if properly enforced, will usually result within a very short time in practically all of the milk reaching a "grade 'A' raw" level. On the other hand, stubborn insistence upon a policy or standard ordinance which would permit the sale of only "grade 'A' raw" milk in such hesitant cities would in many cases have led to failure to pass any ordinance, and hence failure to achieve the result above noted.

The second part of the Public Health Service unification program was to encourage the adoption of the Standard Ordinance by States and cities

This part of the program is now well under way. As previously indicated, 10 States have adopted the Public Health Service ordinance as standard and nearly 100 cities have enacted it into law.

Experience in securing the enactment of this ordinance has suggested a number of items of policy.

The first is that it is unwise to ignore the dairy industry in securing the passage of milk legislation. The legislation should not be approached with the implied attitude that most of the dairymen in the community are guilty of consciously foisting a dangerous product upon the consumers, and that what is needed is some drastic law to whip them into line. The legislation should not be held out as a device to force the dairymen to do what they would otherwise be unwilling to do, but rather as a device through which a dairyman can profit financially in direct ratio to the safety of his product.

The second item of policy is that the dairymen should not be told that the ordinance is being submitted for their vote of approval or disapproval, and that it will be introduced only if a majority vote of approval is secured. Such a policy would place the milk sanitation welfare of the consumers more completely in the control of the dairy industry than is warranted. After all, the consumers should have the power to choose the kind of milk they wish to buy, and the health officer is the direct representative of the consumers.

A good plan seems to be to advise the dairymen in meeting that the local health department has determined to ask the city to pass the United States Public Health Service Standard Milk Ordinance, but that as a courtesy to the dairymen it wishes to discuss the ordinance with them first, in order that its advantages to the industry may be clear and in order to give any individual dairyman ample opportunity to register a protest with the city authorities if he so desires. It may be emphasized that the principal reason for the conference between the health department and the dairy industry is to make clear to the latter the fact that the interests of the consumers and the interests of the dairy industry are really identical, in that both need insurance against milk-borne epidemics and in that both will profit by the consumption of more milk; further, that the standard ordinance is designed to accomplish both of these objects and that both the consuming public and the dairy industry should therefore be interested in promoting its passage.

The third item of policy is that the dairymen should be advised from the outset that whether or not the city adopts the Standard Milk Ordinance the health department must necessarily take the position that pasteurized milk is safer than raw milk. If this is not made clear to the dairymen at the outset they will have the feeling,

after the ordinance is in force and the health officer gives preference to pasteurized milk, that the health departmenth as misled them and this should by all means be avoided.

The next item of policy is that the development of public opinion in favor of the milk ordinance should not be begun until after the ordinance has been informally discussed with the city authorities; otherwise the city authorities are likely to feel that the ordinance is being forced upon them.

A wise plan seems to be to discuss the ordinance with the city authorities at the outset and to make clear (1) that the health department recommends the passage of the Standard Milk Ordinance; (2) that it is desired to pass the ordinance without political embarrassment to the administration; and (3) that it is the plan of the health department, in case the administration fears political embarrassment, to develop favorable public sentiment and thus insure against political embarrassment.

The third part of the Public Health Service unification program was to develop a plan of relationship between cities, States, and the Public Health Service which would promote the uniform and effective enforcement of the standard ordinance

The mere enactment of a milk ordinance by a city does not guarantee enforcement. It is believed to be a conservative statement that at present the majority of cities do not effectively enforce their milk ordinances. There are four principal reasons for this: (1) Lack of adequate personnel and funds; (2) political interference; (3) lack of confidence on the part of the public in the soundness and tenability of the local ordinance; (4) lack of sustained interest on the part of the local health officer and the public.

Lack of adequate personnel and funds is frequently a reflection of one or more of the other three factors. If a community is not convinced as to the soundness of its milk regulations, if there is a political desire to hamper its enforcement, or if the local health officer is not interested in its enforcement, it will follow naturally that the necessary funds will not be applied to its enforcement. It is seldom actually true that a community can not actually afford adequate milk control. An average of 6 to 10 cents per capita per year is usually sufficient for enforcement, and it is probably safe to say that if a community is convinced of the desirability of milk control it will be willing to spend this amount upon it. Therefore the destruction of this barrier to enforcement would seem logically to lie in convincing the community of the necessity for proper milk control and of its practicability. It is believed that the community can be convinced if it is possible to lay before it a concrete measure of its inferior milk sanitation as compared with the excellence of milk sanitation in other

communities which appropriate adequate funds and use the proper methods.

The second barrier—political interference—is frequently the result of opposition on the part of the dairy industry, operating through political powers which are probably more often than we suspect sincerely convinced that certain features of the local milk ordinance are not necessary or sound. On the other hand, political barriers are sometimes purely political and not based upon lack of conviction.

Where the first condition exists the solution would seem to be to provide an ordinance in which the dairy industry will have confidence. It is believed that a standard ordinance of wide usage would be more likely to inspire such confidence than would a local ordinance.

In the few cases in which the second condition prevails, the most effective deterrent would be a periodic rating system which would automatically bring before the voting public the evil results of political interference with the operation of a good milk ordinance.

The third barrier to enforcement—lack of public confidence in the soundness and tenability of the local ordinance—will probably disappear in the city which adopts a standard ordinance operating successfully in a large number of other cities.

The fourth barrier—lack of sustained interest on the part of the local health officer and the public—exists more frequently than we suspect. Often this is due to the health officer's inability to convince himself that enforcement of his milk ordinance will lead to measurable results. He knows of no way to evaluate the results of his work and thus keep before his appropriating body an achievement which will inspire continued appropriations.

If there could be established a method by means of which the results of milk sanitation could be fairly and periodically measured, the interest of the local health officer could be awakened by the results in other cities and sustained by a periodic measurement of the improvement effected in his own city.

It is believed, therefore, that the most effective solvent of local enforcement barriers would be to set up a continously operating plan under which the milk sanitation of cities was measured periodically. If we could establish a fair method of determining municipal milk sanitation ratings at periodic intervals, the following advantages would likely ensue:

(1) It would help the local health officer secure adequate funds and personnel in case a low rating of the city was the result of inadequate funds and personnel. In addition to emphasizing the disease hazards he could point to the poor advertising resulting from a low rating and the excellent advertising resulting from a high rating.

(2) It would tend to remove political interference where interference would be likely to lead to an official low rating evident to the voting public.

(3) It would maintain confidence on the part of the community in its milk ordinance and its health official if the milk ordinance were sound, properly enforced, and yielding a high rating.

(4) It would sustain interest in the proper enforcement of the ordinance on the part of the local health officer.

The Public Health Service unification program, therefore, includes the following two elements of relationship between the cities, the States, and the Public Health Service:

(1) The State is advised, upon adoption of the Public Health Service program, to have one of its milk-control officials visit each city in the State operating under the standard ordinance at least once during each grading period, and check the accuracy and uniformity of the inspection and the laboratory and grading methods, thus giving assurance to the city officials and to the dairy industry that uniform enforcement methods are being followed throughout the State. Among other advantages, the local health officer frequently finds this service of assistance in enabling him to resist pleas for special dispensation in grading. He is able to take the position that he can not afford to make concessions, as his work will be checked by the State health department.

(2) A Public Health Service officer is detailed to each State operating under the program each year for a period long enough to coordinate the State's interpretation of the Standard Ordinance with that of the other States, and to determine jointly with the State the milk sanitation ratings of the various cities operating under the Standard Ordinance.

We thus have a plan which gives the maximum assurance of continued uniform enforcement of the standard ordinance, and which gives a scientific measure once each year of the relative progress made by the various cities operating under the ordinance. This leads us logically to the necessity of devising a means of measuring the result of municipal milk sanitation effort, and thus to the fourth part of the Service unification program.

The fourth part of the Public Health Service unification program was to determine a method of measuring the results of municipal milk sanitation effort

The plan devised by the Public Health Service is simple. Each item of sanitation, including both production and pasteurization items, is assigned a value which is intended to represent approximately its relative importance. The credits for all items of sanitation total 1,000. In computing the milk sanitation rating for a community the credit value for each item of sanitation is multiplied by the percentage of the total milk supply of the community which complies with that item, the result being the "earned credit" for that item. The "earned credits" for all items are added and the sum is

divided by the sum of all possible credits (1,000). The result is the milk sanitation rating of the community. A 100 per cent rating means that all of the city's milk supply is both properly produced and properly pasteurized.

A subdivision of ratings has recently been inaugurated by subdividing the general rating into a production rating and a pasteurization rating, computed as follows: The total earned credits for production items are divided by the total possible credits for production items (500), and the total earned credits for pasteurization items are divided by the total possible credits for pasteurization items (500). These give, respectively, the production and pasteurization ratings.

A 100 per cent production rating means that all of the community's milk is properly produced. A 100 per cent pasteurization rating means that all of the community's milk is properly pasteurized. Thus, for a community in which pasteurization has not yet been inaugurated, the production rating might be 90 per cent, the pasteurization rating 0.0 per cent, and the combined rating 45 per cent.

Specimen milk sanitation ratings are presented in Appendix B. These are actual ratings and were determined in the routine survey work of the Public Health Service.

Preliminary observations following the application of the Public Health Service standard program

(1) The enforcement of the ordinance has been followed by an improvement in milk sanitation.

(2) The enforcement of the ordinance has been followed by an increase in the volume of market milk sales.

(3) The ordinance has elicited the support of the dairy industry.

(4) The ordinance has been enacted by many different types of cities.

The ordinance has been followed by an improvement in milk sanitation.—Table 4 shows the increase in the general milk sanitation ratings of eight Alabama cities which have now been operating under the Public Health Service ordinance long enough to make it worth while to measure results.

TABLE 4.—*United States Public Health Service milk sanitation ratings (general)*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Rating	Date	Rating	
Montgomery	January, 1923	35.6	December, 1925	59.1	66.0
Florence	March, 1924	24.5	do	48.8	99.2
Selma	do	29.1	do	47.8	64.3
Tuscaloosa	do	29.7	do	62.7	111.1
Mobile	September, 1923	27.1	do	48.2	77.8
Huntsville	March, 1924	27.0	do	67.1	148.5
Gadsden	January, 1924	28.5	do	47.1	65.3
Albany-Decatur	March, 1925	8.1	do	73.3	805.0
Averages (weighted)[1]		29.2		54.2	85.6

[1] Weighted on gallonage consumption basis.

The above figures show that there has been in these eight cities an average increase of well over 80 per cent in milk sanitation since the passage of the milk ordinance. It would be unwarranted, of course, to state that no other milk ordinance would have accomplished the same improvement in the same length of time, but it is felt that it is conservative to say that the ordinance does effect a significant increase in milk sanitation if properly enforced.

In order to illustrate the relative improvement in production and in pasteurization ratings, Tables 5 and 6 are given below.

TABLE 5.—*United States Public Health Service milk sanitation ratings (production)*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Rating	Date	Rating	
Montgomery	January, 1923	67.2	December, 1925	93.9	39.7
Florence	March, 1924	49.0	do	97.5	99.0
Selma	do	58.2	do	95.5	64.0
Tuscaloosa	do	53.3	do	94.0	76.4
Mobile	September, 1923	54.2	do	96.4	77.8
Huntsville	March, 1924	54.0	do	95.2	76.3
Gadsden	January, 1924	57.0	do	94.3	65.4
Albany-Decatur	March, 1925	16.2	do	80.8	398.5
Averages (weighted)[1]		56.8		94.8	66.9

[1] Weighted on gallonage-consumption basis.

Table 5 shows that the average production improvement in the eight cities has been 66.9 per cent and that the individual production ratings for all except one of the eight cities are now well over 90 per cent, signifying that production sanitation has in these eight cities been brought to a high level within a comparatively short period of time.

TABLE 6.—*United States Public Health Service milk sanitation ratings (pasteurization)*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Rating	Date	Rating	
Montgomery	January, 1923	4.0	December, 1925	24.4	510.0
Florence	March, 1924	.0	do	.0	.0
Selma	do	.0	do	.0	.0
Tuscaloosa	do	6.2	do	31.3	405.0
Mobile	September, 1923	.0	do	.0	.0
Huntsville	March, 1924	.0	do	38.9	
Gadsden	January, 1924	.0	do	.0	.0
Albany-Decatur	March, 1925	.0	do	65.8	
Averages (weighted)[1]		1.6		13.5	744.0

[1] Weighted on gallonage consumption basis.

Table 6 shows that for the eight cities as a whole the pasteurization ratings were practically zero when the work began, that the percentage increase in the pasteurization ratings of four of the eight cities

has been large, but that the other four of the eight cities were in December, 1925, still without pasteurization facilities. In one of these four cities a pasteurization plant has now been placed in operation and is pasteurizing all the city's supply. In the other three cities sentiment is still strongly against pasteurization, but it is believed that opinion will swing more and more toward pasteurization as the educational work proceeds. In the meantime the consumers are being protected as much as possible by thorough production precautions.

In the five cities in which part of the milk is now pasteurized the increase in percentage of milk pasteurized has been as follows:

Montgomery, from 17.6 per cent to 26.7 per cent.
Tuscaloosa, from 19.8 per cent to 34.6 per cent.
Huntsville, from 19.2 per cent to 41.7 per cent.
Albany-Decatur, from 0.0 per cent to 68.2 per cent.
Florence, from 0.0 per cent to 100 per cent.

The application of the Public Health Service Standard Milk Ordinance has been followed by an increase in the consumption of market milk

Table 7 shows the increase in the volume and percentage of market milk sales in the eight cities previously referred to.

TABLE 7.—*Increase in market milk consumption*

City	Preenforcement		Postenforcement		Per cent increase
	Date	Gallons per day	Date	Gallons per day	
Montgomery	January, 1923	1,588	December, 1925	2,713	70.9
Florence	March, 1924	277	March, 1925	345	24.5
Selma	do	605	do	669	10.6
Tuscaloosa	do	505	April, 1925	687	36.0
Mobile	September, 1923	[1] 2,000	December, 1925	3,351	67.6
Huntsville	March, 1924	365	March, 1925	417	15.3
Gadsden	January, 1924	362	December, 1925	370	2.2
Albany-Decatur	March, 1925	177	do	220	24.3
Totals and averages		5,879		8,772	49.2

[1] Estimated.

It is evident from Table 7 that the milk consumers of the eight cities are drinking one and one-half times as much milk as they did before the application of the new program. This increase in market milk consumption can not, of course, be interpreted to indicate the true increase in total milk consumption, as we are dealing with small cities in which the number of family cows is high and in which a fairly large percentage of the total milk consumed is that from private cows. However, the figures do indicate a heavy increase in market milk consumption, and this should be very attractive to the dairy industry. Obviously it would not be scientifically sound to con-

clude that this increase in consumption of milk has been caused by the application of the standard program. It is conceivable that some other cause could have been operative, but this is deemed unlikely.

The Standard Ordinance has, in general, elicited the support of the dairy industry

In a large number of the cities now operating under the Standard Milk Ordinance the passage of the ordinance was urged by the dairy industry itself.

This has been one of the most gratifying features of the work. The history of milk legislation in the past has generally been that it has been enacted over the protest of the dairy industry. The support which has been accorded the present program by the dairy industry should be accepted as evidence that that industry is progressive and is mindful of its responsibility for the health of its patrons.

The support of the dairy industry is further illustrated by the indorsement given the Public Health Service program by the National Dairy Council, a national organization of the dairy interests.

Finally, the support of the dairy industry is evidenced by the fact that, so far as known, only two or three court cases have occurred in connection with milk control in all of the many cities now operating under the ordinance. None of these court cases has been decided against the city.

The Standard Ordinance has been enacted by practically all types of cities

In the 10 States which have thus far adopted the Standard Milk Ordinance the many cities which have enacted the ordinance include some of the larger cities in those States; cities with a population as small as 5,000; cities which had previously done no milk-control work whatever; cities which have spent many years in improving milk supplies; cities which are converted to 100 per cent pasteurization; and cities which are largely opposed to pasteurization.

It is believed, therefore, that it may be fairly safely stated that the ordinance is so framed as to be attractive to the majority of types of cities. None of the States in which the ordinance has become standard has cities of over 500,000 population, and it still remains for actual future experience to demonstrate whether the ordinance will be attractive or can be modified so as to become attractive to such large cities.

CONCLUSION

In general, the preliminary results discussed above should be accepted as suggestive only, and not as conclusive. It is not believed that they cover either a sufficient number or range of cities nor a

sufficient period of time to be finally conclusive. It is believed, however, that they will be of value and interest to health officers and others impressed with the necessity for a solution of our national milk-control problem.

APPENDIX A

United States Public Health Service Standard Milk Ordinance

(Modified as adopted by the Conference of State and Territorial Health Officers at Washington, D. C. May, 1926)

AN ORDINANCE

Defining "Milk" and Certain "Milk Products," "Milk Producer," "Pasteurization," etc., Prohibiting the Sale of Adulterated and Misbranded Milk and Milk Products, Requiring Permits for the Sale of Milk and Milk Products, Regulating the Inspection of Dairy Farms and Milk Plants, the Testing, Grading, Labeling, Placarding, Pasteurization, Regrading, Distribution, Sale, and Denaturing of Milk and Milk Products, Providing for the Publishing of Milk Grades, the Construction of Future Dairies and Milk Plants, the Enforcement of this Ordinance, and the Fixing of Penalties

Be it ordained by the ———— of the city of ———— as follows:

SECTION 1. DEFINITIONS.—The following definitions shall apply in the interpretation and the enforcement of this ordinance:

Milk.—(A) Milk is hereby defined to be the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and five days after calving, or such longer period as may be necessary to render the milk practically colostrum free; which contains not less than eight and one-half per cent (8½%) of solids not fat, and not less than three and one-fourth per cent (3¼%) of milk fat.

Milk fat or butter fat.—(B) Milk fat or butter fat is the fat of milk and has a Reichert-Meissel number of not less than twenty-four (24) and a specific gravity of not less than 0.905 (40° C./40° C.).

Cream.—(C) Cream, sweet cream, is that portion of milk, rich in milk fat, which rises to the surface of milk on standing or is separated from it by centrifugal force, is fresh and clean, and which contains not less than eighteen per cent (18%), preferably twenty per cent (20%) of milk fat; provided that cream having less than eighteen per cent milk fat shall be known as substandard cream.

Cream having less than thirty per cent (30%) milk fat shall be known as light cream.

Cream having thirty per cent (30%) or more and less than forty per cent (40%) milk fat shall be known as heavy cream, and cream having forty per cent (40%) or more milk fat shall be known as extra heavy cream.

Whipping cream and manufacturing cream are creams containing not less than 30% milk fat intended for whipping or manufacturing purposes, and the grades of same shall not be based on bacterial count.

Skimmed milk.—(D) Skimmed milk is milk from which substantially all the milk fat has been removed.

Chocolate milk.—(E) Chocolate milk is defined as whole or adjusted or skimmed milk to which has been added in a sanitary manner a chocolate syrup composed of wholesome ingredients, and which is labeled with the grade of milk or milk products from which it is made. If chocolate milk contains less than three and one-quarter per cent (3¼%) milk fat, the label shall indicate the percentage of milk fat to which the milk has been adjusted. (This section is optional with States.)

Buttermilk.—(F) Buttermilk is the product which remains when milk fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than eight and five-tenths per cent (8.5%) of milk solids not fat.

Cultured buttermilk.—(G) Cultured buttermilk is the product resulting from the souring or treatment by a lactic acid culture of milk or milk products.

Evaporated milk (unsweetened).—(H) Evaporated milk (unsweetened) is milk from which a considerable portion of water has been evaporated and which contains not less than twenty-five and five-tenths per cent (25.5%) of milk solids and not less than seven and eight-tenths per cent (7.8%) milk fat.

Condensed milk (sweetened).—(I) Condensed milk (sweetened) is milk from which a considerable portion of water has been evaporated, to which sugar has been added, and which contains not less than twenty-eight per cent (28%) of milk solids and not less than eight per cent (8%) milk fat.

Condensed skimmed milk.—(J) Condensed skimmed milk is skimmed milk from which a considerable portion of water has been evaporated, and which contains not less than twenty per cent (20%) of milk solids.

Powdered (dried) whole milk.—(K) Powdered whole milk is milk from which substantially all the water has been removed, and which contains not less than twenty-six per cent (26%) of milk fat and not more than five per cent (5%) of moisture.

Powdered (dried) skimmed milk.—(L) Powdered skimmed milk is skimmed milk from which substantially all the water has been removed, and which contains not more than five per cent (5%) of moisture.

Recombined milk.—(M) Recombined milk is a substance produced by recombining powdered whole milk, powdered skimmed milk, condensed or evaporated whole milk, or skimmed milk, and milk fat, with water, and shall conform in milk-fat percentage and bacterial counts to the provisions of this ordinance relating to milk.

Milk products.—(N) Milk products shall be taken to mean and include cream, skimmed milk, adjusted milk, buttermilk, cultured buttermilk, evaporated milk (unsweetened), condensed milk (sweetened), condensed skimmed milk, powdered whole milk, powdered skimmed milk, and recombined milk.

Pasteurization.—(O) The terms "Pasteurization," "Pasteurized," "Pasteurize," and similar terms shall be taken to refer to the process of heating every particle of milk or milk products to a temperature of not less than one hundred and forty-five degrees (145°) Fahrenheit, and holding at such temperature for not less than thirty (30) minutes in pasteurization apparatus approved by the health officer, the temperature and time being automatically recorded by a temperature and time recording device approved by the health officer.

Adulterated milk and milk products.—(P) Any substance claimed to be any milk or milk product defined in this ordinance but not conforming with its definition as given in this ordinance shall be deemed adulterated and misbranded.

Milk producer.—(Q) A milk producer is any person, firm, or corporation which owns or controls one or more cows, a part or all of the milk from which is for sale, or sold or delivered to another person, firm, or corporation. This section shall not be construed to include what is generally known as "family cows."

Milk distributor.—(R) A milk distributor is any person, firm, or corporation which has in possession, offers for sale, sells, or delivers to another any milk or milk products for consumption or manufacturing purposes.

Dairy or dairy farm.—(S) A dairy or dairy farm is any place or premises where one or more cows are kept, a part or all of the milk or milk products from which is sold or delivered to any person, firm, or corporation. This section shall not be construed to include what is generally known as "family cows."

Milk plant.—(T) A milk plant is any place, or premises, or establishment where milk or milk products are collected, handled, processed, stored, bottled, pasteurized, or prepared for distribution.

Health officer.—(U) The health officer shall be taken to mean the health officer of the city of ———— in person, or his authorized representative.

Average bacterial count.—(V) Average bacterial count shall be taken to mean the average of the bacterial counts of all samples taken during the grading period, including at least four samples taken upon separate days.

Grading period.—(W) The grading period shall be such period of time as the health officer may designate, within which grades shall be determined for all milk and cream supplies, provided that the grading period shall in no case exceed six (6) months.

Disinfectant.—(X) A disinfectant is any germicidal substance approved by the health officer.

SEC. 2. THE SALE OF ADULTERATED OR MISBRANDED MILK OR MILK PRODUCTS PROHIBITED.—No person, firm, association, or corporation shall within the city of ———— produce, sell, offer or expose for sale, or have in possession with intent to sell any milk or milk product which is adulterated or misbranded.

SEC. 3. PERMITS.—It shall be unlawful for any person, firm, association, or corporation to bring into or receive into the city of ————, for sale, or to sell, or offer for sale therein, or to have on hand any milk or milk product, excepting evaporated milk, condensed milk, condensed skimmed milk, powdered whole milk, and powdered skimmed milk, who does not possess an unrevoked permit from the health officer of the city of ————, and on whose vehicles or in whose place of business there does not appear in a conspicuous place a placard showing the permit number in figures at least three inches high and one and one-half inches wide.

Such a permit may be revoked by the health officer upon the violation by the holder of any of the terms of this or any other health ordinance of the city of ————, provided that the holder of said permit shall, after complying with such revocation, have the right of appeal to the board of health.

SEC. 4. LABELING AND PLACARDING.—All bottles, cans, packages, and other containers enclosing milk or any milk product defined in this ordinance shall be plainly labeled or marked with (1) the name of the contents as given in the definitions in this ordinance; (2) the grade of the contents if said contents are graded under the provisions of this ordinance; (3) the word "pasteurized" if the contents have been pasteurized; (4) the word "raw" if the contents are raw; (5) name of producer or distributor. The label or mark shall be in letters of a size and kind approved by the health officer and shall contain no marks or words not approved by the health officer.

Every grocery store, restaurant, café, soda fountain, or similar establishment selling or serving milk shall display at all times, in a place designated by the health officer, a card furnished by the health officer, stating the grade of the milk at the time when delivered and whether same is raw or pasteurized, and including the following statement: *The Safest Grade of Milk is Grade "A" Pasteurized.*

SEC. 5. INSPECTION OF DAIRY FARMS AND MILK PLANTS FOR THE PURPOSE OF GRADING OR REGRADING.—At least once during each grading period the health officer shall inspect every dairy farm producing milk or cream for consumption within the city of ————, and all milk plants whose milk or cream is intended for consumption within the city of ————. In case the health officer discovers the violation of any item of sanitation, he shall make a second inspection after a lapse of such time as he deems necessary for the defect to be remedied but not before the lapse of three days, and the second inspection shall be used in

determining the grade of milk or cream. Two violations of this ordinance within any one grading period shall call for immediate de-grading.

One copy of the inspection report shall be posted by the health officer in a conspicuous place upon an inside wall of one of the dairy farm or milk plant buildings, and said inspection report shall not be removed by any person except the health officer. Another copy of the inspection report shall be filed with the records of the health department.

SEC. 6. THE TESTING OF MILK AND MILK PRODUCTS.—During each grading period at least four samples of milk or cream from each dairy farm and each milk plant shall be tested by the health officer. Samples of milk and cream from stores, cafés, soda fountains, restaurants, and other places where milk products are sold shall be tested as often as the health officer may require. Bacterial counts shall be made in conformity with the plate-count method of the standard methods recommended by the American Public Health Association. Tests may include such other chemical and physical determinations as the health officer may deem necessary for the detection of adulteration. Notices of bacterial counts shall be given to the producer or distributor concerned as soon as made, or to any interested person on request. Samples may be taken by the health officer at any time prior to the final delivery of the milk or milk products. All stores, cafés, restaurants, soda fountains, and other similar places shall furnish the health officer, upon his request, with the name of the milk distributor from whom their milk is obtained.

Should the market value of any single sample exceed twenty-five cents the city of ———— shall pay the distributor therefor.

SEC. 7. THE GRADING OF MILK AND CREAM.—At least once every six (6) months the health officer shall announce through the press the grades of all milk and cream supplies delivered by all producers or distributors and ultimately consumed within the city of ————. Said grades shall be based upon the following standards, the grading of cream being identical with the grading of milk:

Certified Milk:

Certified milk is milk which conforms with the requirements of the American Association of Medical Commissions, and is produced under the supervision of the Medical Milk Commisision of the Medical Society of ———— County, and of the State Board of Health or City or County Health Officer.

Grade "A" Raw Milk:

Grade "A" raw milk is milk the average bacterial count of which as determined under section 6 of this ordinance does not exceed 50,000 per cubic centimeter, and which is produced upon dairy farms conforming with all of the following items of sanitation.

Cows: Tuberculosis and other diseases.—(1) A physical examination and tuberculin test of all cows shall be made before any milk therefrom is sold, and at least once every twelve months thereafter by a veterinarian approved by the health officer or by the State livestock sanitary authority, and said tests shall be made, and any reactors disposed of, in accordance with the current requirements approved by the United States Bureau of Animal Industry for accredited herds.

A certificate signed by the veterinarian and filed with the health officer shall be the only valid evidence of the above test. Every diseased animal shall be removed from the herd at once and no milk from diseased cows shall be offered for sale. All reacting animals shall be isolated at once and immediately excluded from the premises. All animals failing to pass the T. B. test shall be branded with the letters "T" or "TB" on the shoulder, hip, or jaw, and removed at once and slaughtered under the direction of the health officer. Each letter in the brand shall be not less than two inches high and one and one-half inches wide.

Dairy barns.—(2) Lighting: Such sections of all dairy barns where cows are kept or milked shall have at least three square feet of window space for each stanchion.

(3) Air space: Such sections of all dairy barns where cows are kept or milked shall have at least five hundred (500) cubic feet of air space per stanchion, and shall be well ventilated.

(4) Floors: The floors and gutters of such parts of all dairy barns in which cows are kept or milked shall be constructed of concrete or other equally impervious and easily cleaned material approved by the health officer and shall be graded to drain properly, and shall be kept clean and in good repair. No horses, pigs, fowl, etc., shall be permitted in parts of the barn used for dairy purposes.

(5) Walls and ceilings: The walls and ceilings of all dairy barns shall be whitewashed once each year or painted once every two years, or finished in a manner approved by the health officer, and shall be kept clean and in good repair. In case there is a second story above that part of the barn in which cows are kept or milked, the ceiling shall be tight.

(6) Cow yard: All cow yards shall be graded and drained as well as practicable and kept clean.

(7) Manure disposal: All manure shall be removed and stored or disposed of in such manner as best to prevent the breeding of flies therein.

Milk house or room.—(8) Construction: There shall be provided a separate milk house or milk room for the handling and storage of milk and the washing and sterilizing of milk apparatus and utensils, provided with a tight floor constructed of concrete or other impervious material and graded to provide proper drainage. The walls and ceilings of the milk house or room shall be of such construction as to permit easy cleaning, and shall be painted at least once each year or finished in a manner approved by the health officer. The milk house or room shall be well lighted and ventilated and all openings effectively screened to prevent the entrance of flies, and shall be used for no other purpose than the handling and storage of milk or milk products and other operations incident thereto. The cleaning and other operations shall be so located and conducted as to prevent any contamination one to the other. The milk room shall not open directly into the barn or into any room used for sleeping or domestic purposes.

(9) Cleanliness and flies: The floors, walls, ceilings, and equipment of the milk house or room shall be kept clean at all times. All means necessary for the elimination of flies shall be used.

(10) Toilet: Every dairy farm shall be provided with a sanitary toilet constructed and operated in accordance with the ordinances of the city of ————.

(11) Water supply: The water supply shall be easily accessible, adequate, and of a safe sanitary quality.

Utensils.—(12) Construction: All containers or utensils used in the handling or storage of milk or milk products must be made of non-absorbent material and of such construction as to be easily cleaned, and must be in good repair. Joints and seams shall be soldered flush. All milk pails shall be of a narrow-mouth design approved by the health officer.

(13) Cleaning: All containers and other utensils used in the handling, storage, or transportation of milk and milk products must be thoroughly cleaned after each usage.

(14) Sterilization: All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall between each usage be sterilized with steam or chlorine or in a manner approved by the State health authority.

(15) Storage: All containers and other utensils used in the handling, storage or transportation of milk or milk products shall be stored so as not to become contaminated before again being used.

(16) Handling: After sterilization no container or other milk or milk product utensil shall be handled in such manner as to permit any part of the person or clothing to come in contact with any surface with which milk or milk products come in contact.

Milking.—(17) Udders and teats: The udders and teats of all milking cows shall be clean at the time of milking.

(18) Flanks: The flanks of all milking cows shall be kept free from visible dirt at the time of milking.

(19) Milkers' hands: Milkers' hands shall be clean, rinsed with a disinfectant, and dried with a clean towel immediately before milking. Should the milking operation be interrupted, the milkers' hands must be redisinfected. Wet hand milking is prohibited. Convenient facilities shall be provided for the washing of milkers' hands.

(20) Clean clothing: Milkers and milk handlers shall wear clean outer garments while working.

(21) Milk stools: Milk stools shall be kept clean.

(22) Removal of milk: Each pail of milk shall be removed immediately to the milk house or straining room. No milk shall be strained in the dairy barn.

(23) Cooling: Milk must be cooled within one hour after milking to 50 degrees Fahrenheit or less and maintained at or below that temperature until delivery, unless it is delivered to a milk plant for pasteurization or separation, in which case it must be cooled or pasteurized within two hours of the time of production.

(24) Bottling and capping: Capping shall be done by machine. Caps shall be purchased in sanitary tubes and kept therein in a clean place until used.

Personnel.—(25) Health certificates: Every person connected with a dairy or milk plant whose work brings him in contact with the production, handling, storage, or transportation of milk or milk products shall have within twelve months passed a medical examination made by the health officer.

(26) Notification of disease: Notice shall be sent to the health officer immediately by any milk producer or distributor upon whose dairy farm any case of sickness or any infectious, contagious, or communicable disease occurs.

Grade "B" Raw Milk:

Grade "B" raw milk is milk the average bacterial count of which at no time prior to delivery exceeds 200,000 per cubic centimeter, or which falls in class 1 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association, and which is produced upon dairy farms conforming with all the items of sanitation required for grade "A" raw milk except (2), (3), (4), (5), or (6), provided that cleanliness of the barn and cow yard shall in no case be omitted. Item (23) shall apply except that the cooling temperature shall be changed to sixty (60) degrees Fahrenheit.

Grade "C" Raw Milk:

Grade "C" raw mi.k is milk the average bacterial count of which at no time prior to delivery exceeds 1,000,000 per cubic centimeter, or which falls in class 2 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association, and which is produced on dairy farms conforming with all the items of sanitation required for Grade "B" raw milk, except (1), (7), (12), (14), (23), (24), or (25), provided that cleanliness shall in no case be omitted.

Grade "D" Raw Milk:

Grade "D" raw milk is milk which does not meet the requirements of grade "C" raw milk, and the average bacterial count of which does not exceed 5,000,000 per cubic centimeter, or which falls in class 3 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association.

Grade "A" Pasteurized Milk:

Grade "A" pasteurized milk is grade "A" or grade "B" raw milk which has been pasteurized, cooled, and bottled in a milk plant conforming with all of the following items of sanitation and the average bacterial count of which at no time after pasteurization and until delivery exceeds 50,000 per cubic centimeter.

Buildings and equipment.—(1) Floors: The floors of all rooms in which milk is handled shall be constructed of concrete or other equally impervious and easily cleaned material and shall be smooth, properly drained and provided with trapped drains, and kept clean.

(2) Walls and ceilings: Walls and ceilings of rooms in which milk is handled or stored shall be frequently painted with a light-colored paint or finished in a manner approved by the health officer and kept clean.

(3) Doors and windows: All openings into the outer air shall be effectively screened to prevent the access of flies. Doors shall be self-closing.

(4) Lighting and ventilation: All rooms shall be well lighted and ventilated.

(5) Protection from contamination and flies: The various milk-plant operations shall be so located and conducted as to prevent any contamination one to the other. All means necessary for the elimination of flies shall be used. This requirement shall be interpreted to include separate rooms for (*a*) the pasteurizing, cooling, and bottling operations; (*b*) the container-washing and sterilizing operation. Cans of raw milk shall not be unloaded directly into the pasteurizing room.

(6) Toilet facilities: Every milk plant shall be provided with toilet facilities conforming with the ordinances of the city of ————. There shall be at least one room or vestibule not used for milk purposes between the toilet room and any room in which milk or milk products are handled or stored. The doors of all toilet rooms shall be self-closing. Toilet rooms shall be kept in a clean condition, in good repair, and well ventilated. In case privies or earth closets are permitted and used, they shall be located at least 100 feet from the building, and shall be of a sanitary type constructed and operated in conformity with the ordinances of the city of ————.

(7) Water supply: The water supply shall be easily accessible, adequate, and of a safe, sanitary quality.

(8) Washing facilities: Washing facilities shall be provided, including hot running water, soap, and sanitary towels of a type approved by the health officer. The use of a common towel is prohibited.

(9) Milk piping: Only "sanitary milk piping" of a type which can be easily cleaned with a brush shall be used.

(10) Construction of equipment: All equipment with which milk comes in contact shall be constructed in such manner as to be easily cleaned.

(11) Disposal of wastes: All wastes shall be disposed of in conformity with the requirements of the health officer.

Methods. (12) All milk containers and milk apparatus shall be thoroughly cleaned after each usage and sterilized in a manner approved by the health officer immediately before each usage.

(13) Storage of containers: After sterilization all bottles, cans, and other containers shall be stored in such manner as to be protected from contamination.

(14) Handling of containers and apparatus: Between sterilization and usage all containers and apparatus shall be handled in such manner as to prevent any part of the person or clothing from coming in contact with any surface with which milk or milk products come in contact.

(15) Storage of caps: Milk-bottle caps shall be purchased and stored only in sanitary tubes and shall be kept therein until used.

(16) Pasteurization: Pasteurization shall be performed as described in the definition section of this ordinance. The time and temperature records charts

shall be dated and preserved for a period of three months for the information of the health officer.

(17) Cooling: All milk not pasteurized within two hours after it is received at the plant shall then be immediately cooled to a temperature of 50 degrees Fahrenheit or less and maintained thereat until pasteurized; and all pasteurized milk shall be immediately cooled to a temperature of 50 degrees Fahrenheit or less and maintained thereat until delivery.

(18) Bottling: Bottling shall be done in automatic machinery approved by the health officer in such manner as to prevent any part of the person or clothing from coming in contact with any surface with which milk or milk products come in contact.

(19) Overflow milk: Overflow milk which has become machine contaminated shall not be sold for human consumption.

(20) Capping: Capping shall be done by machinery approved by the health officer. Hand capping is prohibited.

(21) Time of delivery: Milk to be consumed in the form of whole milk shall be delivered to the final consumer within 36 hours of the time of pasteurization.

Personnel.—(22) Health certificates: Every person connected with a dairy or milk plant whose work brings him or her in contact with the production, handling, storage, or transportation of milk or milk products shall have within twelve months passed a medical examination made by the health officer.

(23) Notification of disease: Notice shall be sent to the health officer immediately by any milk producer or distributor upon whose dairy farms or in whose milk plant any case of sickness or any infectious, contagious, or communicable disease occurs.

(24) Cleanliness: All persons coming in contact with milk or milk-products containers or equipment shall wear clean outer garments and shall keep their hands clean at all times while thus engaged.

Grade "B" Pasteurized Milk:

Grade "B" pasteurized milk is grade "A," "B," or "C," raw milk which has been pasteurized, cooled, and bottled in a milk plant conforming with all of the items of sanitation required for grade "A" pasteurized milk excepting (2), (4), or (24), and the average bacterial count of which at no time after pasteurization and prior to delivery exceeds 100,000.

Grade "C" Pasteurized Milk:

Grade "C" pasteurized milk is pasteurized milk which does not meet the requirements of grade "B" pasteurized milk, and the average bacterial count of which at no time prior to delivery exceeds 500,000 per cubic centimeter.

SEC. 8. GRADES OF RAW MILK WHICH MUST BE PASTEURIZED.—The wording of this section should be adjusted to the degree of support which the community will accord pasteurization. If a pasteurization plant is already in existence, or can be established, and the majority of the voting public can be educated to support complete pasteurization, this section should read as follows:

"At the expiration of twelve months from the date on which this ordinance takes effect, and thereafter, all grades of milk sold in the city of ———— shall be pasteurized before delivery to the consumer."

Other communities in which a pasteurization plant exists or can be established, but in which the prevailing sentiment can not easily be converted to complete pasteurization, should be urged to limit the sale of raw milk to grade "A" raw milk after the lapse of one year.

Communities which can not be induced to adopt even this second alternative may permit lower grades to be sold raw, but should keep constantly in mind, as they make progress under this ordinance, the desirability of achieving complete pasteurization as soon as possible.

SEC. 9.—SUPPLEMENTARY REGRADING.—At any time between regular announcements of milk grades any producer or distributor may make application for regrading his product.

In case the applicant's existing low grade is due to excessive bacterial count, said application must be supported by at least two bacteriological examinations made subsequent to the end of the previous grading period and indicating that the quality of the applicant's output has improved since the last grading announcement and conforms with the requirements of a higher grade. The samples upon which the said two analyses are made may be brought to the health department laboratory by the applicant.

Upon the receipt of a satisfactory application, the health officer shall make at least four bacteriological analyses upon samples collected by the health officer of the applicant's output within a period of not less than two weeks and not more than three weeks of the date of the application. The health officer shall award a higher grade immediately in case the said four analyses indicate the necessary quality.

In case the applicant's existing low grade is due to a violation of an item of sanitation other than bacterial count, said application must be accompanied by a statement signed by the applicant to the effect that the violated item of sanitation has been conformed with. Within one week of the receipt of such an application the health officer shall make a reinspection of the applicant's establishment and, in case the findings justify, shall award a regrade.

At any time between regular announcements of milk grades the health officer may lower the grade of any milk producer or distributor if, as a result of inspection or milk analyses, a lower grade shall be justified in accordance with the terms of this ordinance.

SEC. 10. TRANSFERRING OR DIPPING MILK.—No milk producer or distributor shall transfer milk or milk products from one container to another upon the street or in any vehicle or store, or in any place except a bottling or milk room especially used for that purpose, except as may be specially permitted by the health officer in the case of milk being delivered in bulk. The sale of dip milk is hereby expressly prohibited.

It shall be unlawful for hotels, soda fountains, restaurants, and similar establishments to sell or serve any whole milk or adjusted milk except in the original container in which it was received from the producer or distributor.

SEC. 11. MILK NOT TO BE PASTEURIZED OUTSIDE OF ———— COUNTY.—No milk or cream shall be sold in the city of ———— that has been pasteurized outside the county of ————, except as may be authorized by the health officer.

SEC. 12. SPITTING.—No person shall spit, except into a receptacle provided for the purpose, in any part of any room, vehicle, or other place used for the sale, storage, handling, or transportation of milk.

SEC. 13. VEHICLES.—All vehicles used for delivery of milk in the city of ———— shall be so constructed as to protect the milk from the sun and from contamination. Such vehicles shall be kept clean while used in transporting milk or milk products. No substance capable of contaminating milk or milk products shall be transported with milk or milk products in such manner as to permit contamination.

SEC. 14. DENATURING MISBRANDED PRODUCTS.—The health officer shall immediately denature with rennet or some harmless coloring matter any milk or milk product found misbranded with respect to grading or sold without a permit.

SEC. 15. REPASTEURIZATION PROHIBITED.—No milk or milk products shall be pasteurized more than once.

SEC. 16. FUTURE DAIRIES AND MILK PLANTS.—All dairies and milk plants from which milk is supplied to the city of ————, which are hereafter constructed,

shall conform in their construction to the requirements of the health officer, which shall not be less than the grade "A" requirements of this ordinance.

SEC. 17. PROSCRIBED MILK.—Milk which does not conform with the following grades as described in this ordinance shall not be sold in the city of ———— ————. (Any city which wishes to prohibit the sale of any of the grades of milk described in this ordinance may use this section for that purpose.)

SEC. 18. PENALTY.—Any person, firm, association, or corporation who shall violate any provision of this ordinance shall be fined not more than one hundred dollars ($100), at the discretion of the recorder.

SEC. 19. REPEAL AND DATE OF EFFECT.—All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed; and this ordinance shall be in full force and effect immediately upon its adoption and its publication, as provided by law.

SEC. 20. UNCONSTITUTIONALITY CLAUSE.—Should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason, the remainder of said ordinance shall not be affected thereby. Each and every violation of the provisions of this ordinance shall constitute a separate offense.

APPENDIX B

UNITED STATES PUBLIC HEALTH SERVICE

Determination of Municipal Milk Sanitation Rating for City of Huntsville, Ala., as of March, 1924—Population, 10,000

PRODUCTION ITEMS

Item No.	Item of sanitation	Per cent complying	Possible credit	Earned credit
1	Cows, Tuberculin testing and physical examination	100.0	75	75.00
	Dairy barns:			
2	Lighting	25.1	5	1.26
3	Air space	69.8	5	3.49
4a	Floor construction	59.6	5	2.98
4b	Floor cleanliness	65.1	5	3.26
5	Walls and ceilings	44.3	5	2.21
6	Barnyard	49.7	10	4.97
7	Manure	51.5	25	12.88
	Milk rooms:			
8a	Floors	44.7	5	2.23
8b	Walls and ceiling	25.1	5	1.26
8c	Lighting	51.3	5	2.56
8d	Screening	48.6	15	7.29
9	Cleanliness and flies	71.8	10	7.18
10	Toilets: Location, construction, and operation	87.5	20	17.50
11	Water supply: Accessibility, adequacy, quality	84.3	20	16.86
	Utensils:			
12	Construction	44.3	20	8.86
13	Cleaning	60.6	20	12.12
14a	Sterilization with steam	9.8	25	2.45
14b	Sterilization with boiling water	18.5	[1] (20)	3.70
15	Storage	65.7	10	6.57
16	Handling	80.3	5	4.02
	Milking:			
17	Udders and teats	0	20	0
18	Flanks	80.3	5	4.01
19	Hands	0	20	0
20	Clothing	72.7	5	3.64
21	Milk stools	3.5	5	.18
22	Immediate removal of milk to milk house	54.1	5	2.71
	Cooling:			
23a	Cooling to 50° F. or under	0	25	0
23b	Cooling to between 50° F. and 60° F	2.2	[1] (15)	.33
24	Bottling and capping: Method (full credit given if milk delivered in cans)	2.2	20	.44
25	Employees: Health certificates	0	25	0
	Bacterial counts:			
—	Bacterial counts under 50,000 per c. c	73.2	75	54.90
—	Bacterial counts 50,000 to 200,000 per c. c	20.8	[1] (25)	5.20
—	Bacterial counts 200,000 to 1,000,000 per c. c	3.7	[1] (10)	.37
	Total possible and total earned credits for production items		500	270.43

[1] Fractional credits; not included in addition of column.

Determination of Municipal Milk Sanitation Rating for City of Huntsville, Ala., as of March, 1924—Population, 10,000—Continued

PASTEURIZATION ITEMS

Item No.	Item of sanitation	Per cent complying	Possible credit	Earned credit
	Buildings and equipment at pasteurization plants:			
1	Floors	0.00	5	0.00
2	Walls and ceiling	.00	5	.00
3	Doors and windows	.00	20	.00
4a	Lighting	.00	5	.00
4b	Ventilation	.00	5	.00
5	Protection from contamination and flies	.00	10	.00
6	Toilet facilities	.00	20	.00
7	Water supply	.00	20	.00
8	Wash room	.00	5	.00
9	Milk piping	.00	10	.00
10	Construction of equipment	.00	10	.00
11	Disposal of wastes	.00	5	.00
	Methods used at pasteurization plants:			
12a	Cleaning of containers and apparatus	.00	20	.00
12b	Sterilization of containers and apparatus	.00	25	.00
13	Storage of containers	.00	10	.00
14	Handling of containers and apparatus	.00	10	.00
15	Storage of milk-bottle caps	.00	5	.00
16	Pasteurization process, design and operation	.00	150	.00
17	Cooling	.00	25	.00
18	Bottling	.00	10	.00
19	Overflow milk discarded	.00	5	.00
20	Capping	.00	10	.00
21	Delivery within 36 hours	.00	5	.00
	Employees at pasteurization plants:			
22	Health certificates	.00	25	.00
24	Cleanliness	.00	5	.00
	Bacterial counts after pasteurization:			
—	Final bacterial counts under 50,000	.00	75	.00
—	Final bacterial counts 50,000 to 100,000	.00	[1] (25)	.00
	Total possible and total earned credits for pasteurization items		500	.00

[1] Fractional credits; not included in addition of column.

Computation of ratings

	Per cent
Production rating = Earned production credits ÷ possible production credits = (270.43) ÷ (500) =	54.1
Pasteurization rating = Earned pasteurization credits ÷ possible pasteurization credits = (0.0) ÷ (500) =	.0
Combined rating = Earned production and pasteurization credits ÷ 1,000 = (270.43) ÷ (1,000) =	27.0

HUNTSVILLE ALA., *March, 1924.*

APPENDIX C

UNITED STATES PUBLIC HEALTH SERVICE

Determination of Municipal Milk Sanitation Rating for City of Huntsville, Ala. as of April, 1926—Population, 10,000

PRODUCTION ITEMS

Item No.	Item of sanitation	Per cent complying	Possible credit	Earned credit
1	Cows: Tuberculin testing and physical examination	100.00	75	75.00
	Dairy barns:			
2	Lighting	89.68	5	4.48
3	Air space	100.00	5	5.00
4a	Floor construction	100.00	5	5.00
4b	Floor cleanliness	95.87	5	4.79
5	Walls and ceiling	97.25	5	4.86
6	Barnyard	100.00	10	10.00
7	Manure	100.00	25	25.00

Determination of Municipal Milk Sanitation Rating for City of Huntsville, Ala., as of April, 1926—Population, 10,000—Continued

PRODUCTION ITEMS—Continued

Item No.	Item of sanitation	Per cent complying	Possible credit	Earned credit
	Milk rooms:			
8a	Floors	100.00	5	5.00
8b	Walls and ceiling	100.00	5	5.00
8c	Lighting	100.00	5	5.00
8d	Screening	100.00	15	15.00
9	Cleanliness and flies	100.00	10	10.00
10	Toilets: Location, construction, and operation	100.00	20	20.00
11	Water supply: Accessibility, adequacy, quality	100.00	20	20.00
	Utensils:			
12	Construction	100.00	20	20.00
13	Cleaning	75.65	20	15.13
14a	Sterilization with steam	75.24	25	18.81
14b	Sterilization with boiling water	24.76	[1] (20)	4.95
15	Storage	100.00	10	10.00
16	Handling	100.00	5	5.00
	Milking:			
17	Udders and teats	100.00	20	20.00
18	Flanks	100.00	5	5.00
19	Hands	100.00	20	20.00
20	Clothing	100.00	5	5.00
21	Milk stools	91.75	5	4.59
22	Immediate removal of milk to milk house	100.00	5	5.00
	Cooling:			
23a	Cooling to 50° F. or under	68.00	25	17.00
23b	Cooling to between 50° F. and 60° F	32.00	[1] (15)	4.80
24	Bottling and capping: Method (full credit given if milk delivered in cans)	100.00	20	20.00
25	Employees: Health certificates	100.00	25	25.00
	Bacterial counts:			
—	Bacterial counts under 50,000 per c. c	74.21	75	55.66
—	Bacterial counts 50,000 to 200,000 per c. c	16.78	[1] (25)	4.20
—	Bacterial counts 200,000 to 1,000,000 per c. c	9.01	[1] (10)	.90
	Total possible and total earned credits for production items		500	475.17

PASTEURIZATION ITEMS

	Buildings and equipment at pasteurization plants:			
1	Floors	50.37	5	2.52
2	Walls and ceilings	50.37	5	2.52
3	Doors and windows	50.37	20	10.07
4a	Lighting	50.37	5	2.52
4b	Ventilation	50.37	5	2.52
5	Protection from contamination and flies	50.37	10	5.04
6	Toilet facilities	50.37	20	10.07
7	Water supply	50.37	20	10.07
8	Wash room	50.37	5	2.52
9	Milk piping	50.37	10	5.04
10	Construction of equipment	50.37	10	5.04
11	Disposal of wastes	50.37	5	2.52
	Methods used at pasteurization plants:			
12a	Cleaning of containers and apparatus	50.37	20	10.07
12b	Sterilization of containers and apparatus	50.37	25	12.59
13	Storage of containers	50.37	10	5.04
14	Handling of containers and apparatus	50.37	10	5.04
15	Storage of milk-bottle caps	50.37	5	2.52
16	Pasteurization process, design and operation	50.37	150	75.56
17	Cooling	40.32	25	10.08
18	Bottling	50.37	10	5.04
19	Overflow milk discarded	50.37	5	2.52
20	Capping	50.37	10	5.04
21	Delivery within 36 hours	50.37	5	2.52
	Employees at pasteurization plants:			
22	Health certificates	50.37	25	12.59
24	Cleanliness	50.37	5	2.52
	Bacterial counts after pasteurization:			
—	Final bacterial counts under 50,000	50.37	75	37.78
—	Final bacterial counts 50,000 to 100,000	.00	[1](25)	.00
	Total possible and total earned credits for pasteurization items		500	249.36

[1] Fractional credits; not included in addition of column.

Computation of ratings

	Per cent
Production rating=earned production credits÷possible production credits=(475.17)÷(500)=	95. 0
Pasteurization rating=earned pasteurization credits÷possible pasteurization credits=(249.36)÷(500)=	49. 87
Combined rating=earned production and pasteurization credits÷1,000=(724.53)÷(1,000)=	72. 5

HUNTSVILLE, ALA., *April, 1926.*

PUBLIC HEALTH ENGINEERING ABSTRACTS

Many School Water-Supplies Found Unsatisfactory. Anon. *Public Health News, New Jersey State Department of Health,* vol. 11, No. 4, March, 1926, pp. 92–95. (Abstract by E. C. Sullivan.)

More than half of 740 school water-supplies recently examined by the bureau of chemistry of the State Department of Health of New Jersey showed evidence of contamination and were classified as unsuitable for drinking purposes. This conclusion is based upon complete chemical and bacteriological examinations made, at the request of the State Department of Public Instruction, upon samples submitted by representatives of local boards of health or education. Wells, springs, and cisterns were included in the survey, embracing all types of water used in schools not receiving water from an approved public system.

Report of Committee on Mosquito Control of Sanitary Engineering Section of American Public Health Association, October 21, 1925. *American Journal of Public Health,* vol. 16, No. 3, March 26, 1926, pp. 258–262. (Abstract by J. A. LePrince.)

This report is a summary of antimosquito activities in the United States for the year. Control operations were carried on very generally in 11 States, to a limited extent in 10 States, and no control work was done in 27 States.

In New Jersey the wet and humid weather shortened the usual larval development period by two or three days, and in the Southern States the rain shortage caused marked increases in *Culex* production, owing to intensified sewage pollution of streams. In New Jersey the expenditure for mosquito control was $325,000. The ditching machine now developed for use on the New Jersey marshes weighs 12 tons, has a ground pressure of only 1½ pounds per square inch, and "chews" up the sod and spreads it over an area 30 feet wide. Experiments indicate a cutting speed of 40 feet per minute and the cost per linear foot of ditch (regulation straight-sided ditch adopted as the standard in that State) as somewhat less than one-half cent.

The Florida State Antimosquito Association had a bill passed in the legislature enabling any county to organize a mosquito control district.

In Mississippi, 40 towns did control work, and in Texas, 100 communities, in addition to 68 towns on the Texas border, are engaged in *Stegomyia* control. Alabama has been doing mosquito control for ten years; work is going on in 23 counties, and $33,000 was spent last year. In addition to work in rural sections of Georgia, 40 towns carried on campaigns against mosquitoes.

In California, 17 mosquito abatement districts are active; in Virginia, 25 towns are doing mosquito control work; and in Rhode Island the State has aided several communities in financing mosquito control operations. In Illinois, in Chicago and Cook County, an intensive antimosquito campaign was inaugurated by the Gorgas Memorial Institute in which boy scouts made house-yard inspections. Mosquito production was found on 40 per cent of the premises.

The United States Department of Agriculture has started investigations of the salt marsh mosquito problem of the Gulf Coast. The Cotton Belt and Missouri Pacific railways are working in cooperation with cities and towns along their lines, and an antimosquito demonstration was recently conducted under the joint auspices of the Missouri Pacific Railway, Arkansas State Bankers Association, and the State Health Department of Arkansas.

Anopheles control work in the United States was started by the United States Public Health Service in 1914 in 13 States, and is now supervised by the State health departments, but the requests for advisory assistance from incorporated communities are coming in so rapidly that some State health departments can not keep up with the requests owing to insufficient personnel.

Report of Committee on Transportation of Milk and Milk Products. Russell S. Smith, International Association of Dairy and Milk Inspectors *Fourteenth Annual Report*, October 12, 14, 1925, pp. 135–150. (Abstract by W. W. White.)

Some of the conditions in handling milk causing economic losses which were brought to the attention of the President's Agricultural Committee by Secretary Hoover are outlined. The changes in methods of transporting milk in recent years, with an explanation of the extent of these changes, are thoroughly explained. Insulated glass-enamel lined metal tanks in insulated cars are used for bulk shipments. Tanks are mounted on special cradles and anchored to the needle beam of the car. This means of transportation can be

used only where a railroad siding is available. The unit tank system was tried by railroads hauling milk to New York City, but it failed because of insufficient equipment to handle the weight.

Motor truck tanks and trailers are a recent development, and up to January 1, 1925, about 230 metal tanks were in use. To avoid overweight on roads in some States semitrailers or trailers are used.

Refrigerator trucks are the latest means of hauling milk from receiving stations to the city plants. Condenser coils, compressor and compressor-motor drive are located on top of the refrigerator body.

A committee of the United States Chamber of Commerce studied the motor transportation situation and in their conclusions recommended cooperation among transportation agencies at points where further expansion would be possible. Short hauls by organized motor transports will reduce yard congestion and release cars for line hauls. Further development of technical equipment and public regulation of all common carriers will be necessary to insure good service.

The great improvement in transportation directs special attention to the efforts which are being made by some to reach perfection in the sanitary production, handling, and transportation of milk and milk products.

DEATHS DURING WEEK ENDED JULY 17, 1926

Summary of information received by telegraph from industrial insurance companies for week ended July 17, 1926, and corresponding week of 1925. (From the Weekly Health Index, July 21, 1926, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 17, 1926	Corresponding week, 1925
Policies in force	64, 955, 791	60, 539, 284
Number of death claims	12, 203	10, 541
Death claims per 1,000 policies in force, annual rate	9. 8	9. 1

Deaths from all causes in certain large cities of the United States during the week ended July 17, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, July 21, 1926, issued by the Bureau of the Census, Department of Commerce)

City	Week ended July 17, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended July 17, 1926 [2]
	Total deaths	Death rate [1]		Week ended July 17, 1926	Corresponding week, 1925	
Total (65 cities)	5,966	10.8	10.9	682	741	[3] 55
Akron	27			6	3	64
Albany [4]	32	14.0	15.9	2	1	42
Atlanta	72			12	10	
White	37			1		
Colored	35	[5]		11		
Baltimore [4]	186	12.0	13.3	25	31	73
White	136			13		46
Colored	50	[5]		12		195
Birmingham	59	15.6	14.5	11	12	
White	22			6		
Colored	37	[5]		5		
Boston	166	11.0	11.2	23	20	65
Bridgeport	24			1	2	17
Buffalo	132	12.7	10.2	15	16	63
Cambridge	15	6.4	10.0	0	3	0
Camden	19	7.6	14.2	1	6	17
Canton	28	13.3	9.3	2	2	44
Chicago [4]	545	9.3	9.8	44	51	39
Cincinnati	124	15.7	15.5	16	14	100
Cleveland	154	8.4	8.4	11	21	29
Columbus	63	11.5	12.7	4	11	37
Dallas	52	13.6	15.6	10	10	
White	45			8		
Colored	7	[5]		2		
Dayton	27	8.0	10.3	4	4	63
Denver	59	10.8	14.8	3	14	
Des Moines	27	9.6	11.8	2	0	33
Detroit	236	9.5	9.2	37	36	60
Duluth	11	5.1	9.4	0	4	0
El Paso	23	11.0	11.9	6	5	
Erie	19			3	1	57
Fall River [4]	20	8.0	10.9	4	6	58
Flint	26	9.9	8.4	7	1	116
Fort Worth	20	6.6	8.6	2	0	
White	17			1		
Colored	3	[5]		1		
Grand Rapids	21	7.0	12.9	2	6	29
Houston	60			9	6	
White	34			5		
Colored	26			4		
Indianapolis	59	8.4	12.2	4	9	29
White	51			3		25
Colored	8			1		55
Jersey City	50	8.2	7.4	7	5	50
Kansas City, Kans	26	11.6	12.1	3	4	52
White	21			3		63
Colored	5	[5]		0		0
Kansas City, Mo	65	9.0	11.8	6	15	
Los Angeles	196			12	25	33
Louisville	86	14.4	11.2	12	8	103
White	68			9		89
Colored	18	[5]		3		188
Lowell	18			4	4	74
Lynn	18	9.0	7.1	0	2	0

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, July 16, 1926.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Forth Worth 14, Houston 25, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended July 17, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, July 21, 1926, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended July 17, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended July 17, 1926
	Total deaths	Death rate		Week ended July 17, 1926	Corresponding week, 1925	
Memphis	75	22.1	17.6	7	14	
White	34			3		
Colored	41	(5)		4		
Milwaukee	104	10.5	10.1	19	7	88
Minneapolis	85	10.2	10.9	7	4	39
Nashville [4]	65	24.7	23.7	5	16	
White	48			4		
Colored	17	(5)		1		
New Bedford	26			6	2	104
New Haven	35	10.0	7.3	2	5	27
New Orleans	143	17.8	17.1	13	26	
White	86			9		
Colored	57	(5)		4		
New York	1,170	10.3	10.4	127	151	51
Bronx borough	147	8.5	8.4	11	16	36
Brooklyn borough	384	8.9	8.5	42	43	43
Manhattan borough	466	12.9	14.0	54	75	60
Queens borough	123	8.4	8.2	15	11	68
Richmond borough	50	18.2	12.4	5	6	88
Newark, N. J	79	9.0	8.6	10	10	48
Norfolk	35	10.5	9.9	6	7	112
White	16			3		89
Colored	19	(5)		3		149
Oakland	51	10.2	10.7	6	4	69
Oklahoma City	21			3	2	
Omaha	45	10.9	15.5	6	3	63
Paterson	34	12.4	9.2	5	2	87
Philadelphia	449	11.7	10.1	49	47	65
Pittsburgh	127	10.4	13.8	22	22	73
Portland, Oreg	68			2	1	20
Providence	55	10.4	9.5	13	4	108
Richmond	47	13.0	13.1	7	10	88
White	24			1		20
Colored	23	(5)		6		210
Rochester	64	10.4	10.2	6	3	48
St. Louis	199	12.5	11.8	22	18	
St. Paul	58	12.2	9.3	5	4	44
Salt Lake City [4]	28	11.0	11.1	2	1	28
San Antonio	56	14.2	14.0	13	9	
San Diego	20	9.5	21.1	9	5	190
San Francisco	129	11.9	11.1	4	9	24
Schenectady	18	10.1	7.3	3	0	87
Seattle	66			6	3	56
Somerville	9	4.7	6.8	0	0	0
Spokane	29	13.9	11.0	2	0	47
Springfield, Mass	24	8.6	8.8	1	3	14
Syracuse	45	12.8	7.4	5	2	63
Tacoma	25	12.3	11.5	3	3	70
Toledo	53	9.4	10.5	2	6	19
Trenton	42	16.3	14.6	6	3	100
Washington, D. C	108	10.7	10.9	15	13	85
White	60			6		50
Colored	48	(5)		9		164
Waterbury	23			2	2	43
Wilmington, Del	28	11.8	6.8	6	1	141
Worcester	29	7.8	10.4	4	4	46
Yonkers	15	6.7	7.3	1	4	22
Youngstown	39	12.3	7.8	6	4	76

[4] Deaths for week ended Friday, July 16, 1926.

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Week Ended July 24, 1926

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	2
Diphtheria	10
Influenza	8
Lethargic encephalitis	1
Malaria	75
Measles	81
Mumps	15
Pellagra	30
Pneumonia	12
Poliomyelitis	2
Scarlet fever	7
Smallpox	9
Tetanus	2
Tuberculosis	169
Typhoid fever	112
Typhus fever	1
Whooping cough	72

ARIZONA

Diphtheria	3
Mumps	1
Tuberculosis	3
Typhoid fever	1

ARKANSAS

Chicken pox	2
Hookworm disease	2
Influenza	17
Malaria	112
Measles	20
Mumps	34
Paratyphoid fever	2
Pellagra	17
Scarlet fever	8
Smallpox	2
Trachoma	1
Tuberculosis	19
Typhoid fever	28
Whooping cough	50

CALIFORNIA

	Cases
Cerebrospinal meningitis—	
Alameda County	1
Los Angeles	1
Chicken pox	43
Diphtheria	102
Influenza	4
Lethargic encephalitis	2
Measles	152
Mumps	50
Poliomyelitis—	
Los Angeles	1
Orange County	1
Scarlet fever	59
Smallpox	10
Tuberculosis	136
Typhoid fever	15
Whooping cough	48

COLORADO

Chicken pox	6
Diphtheria	12
Influenza	1
Measles	8
Pneumonia	2
Scarlet fever	4
Tuberculosis	31
Typhoid fever	4
Vincent's angina	8
Whooping cough	31

CONNECTICUT

Chicken pox	18
Diphtheria	9
Dysentery (bacillary)	1
German measles	48
Pneumonia (broncho)	7
Pneumonia (lobar)	12
Scarlet fever	21
Tuberculosis (all forms)	36
Typhoid fever	2
Whooping cough	45

DELAWARE

	Cases
Chicken pox	1
Diphtheria	1
Measles	1
Mumps	1
Scarlet fever	3
Tuberculosis	4
Typhoid fever	1
Whooping cough	6

DISTRICT OF COLUMBIA

Cerebrospinal meningitis	1
Chicken pox	2
Diphtheria	8
Measles	14
Pneumonia	7
Scarlet fever	4
Tuberculosis	24
Typhoid fever	2
Whooping cough	16

FLORIDA

Chicken pox	2
Diphtheria	10
Influenza	2
Malaria	2
Measles	7
Mumps	6
Paratyphoid fever	1
Scarlet fever	1
Smallpox	7
Tuberculosis	44
Typhoid fever	1
Whooping cough	43

GEORGIA

Chicken pox	1
Conjunctivitis (acute)	1
Dengue	1
Diphtheria	5
Dysentery	18
Influenza	15
Malaria	55
Measles	12
Mumps	4
Paratyphoid fever	5
Pellagra	11
Pneumonia	10
Poliomyelitis	2
Scarlet fever	1
Smallpox	8
Tetanus	1
Tuberculosis	9
Typhoid fever	74
Whooping cough	21

IDAHO

Chicken pox	4
Measles	5
Scarlet fever	9
Smallpox	5
Tuberculosis	2
Typhoid fever	1
Whooping cough	2

ILLINOIS

	Cases
Cerebrospinal meningitis—Jackson County	1
Chicken pox	116
Diphtheria	62
Influenza	56
Lethargic encephalitis—Lawrence County	1
Measles	349
Mumps	22
Pneumonia	152
Poliomyelitis—Rock Island County	1
Scarlet fever	103
Smallpox:	
Champaign County	11
Scattering	9
Tuberculosis	270
Typhoid fever	32
Whooping cough	242

INDIANA

Chicken pox	18
Diphtheria	24
Influenza	7
Measles	69
Pneumonia	1
Poliomyelitis	1
Scarlet fever	25
Smallpox	24
Tuberculosis	50
Typhoid fever	19
Whooping cough	98

IOWA

Chicken pox	1
Diphtheria	9
German measles	5
Measles	14
Scarlet fever	16
Smallpox	16
Tuberculosis	32
Typhoid fever	5
Whooping cough	19

KANSAS

Chicken pox	4
Diphtheria	13
Influenza	5
Measles	37
Mumps	4
Pneumonia	7
Scarlet fever	17
Smallpox	8
Tuberculosis	45
Typhoid fever	21
Whooping cough	73

LOUISIANA

Anthrax	1
Diphtheria	2
Influenza	72
Leprosy	1
Malaria	20
Pellagra	6
Pneumonia	16
Scarlet fever	8
Smallpox	3
Tuberculosis	26
Typhoid fever	48
Whooping cough	17

MAINE

	Cases
Chicken pox	10
Diphtheria	3
Measles	43
Mumps	5
Pneumonia	3
Scarlet fever	7
Tetanus	4
Tuberculosis	8
Whooping cough	14

MARYLAND [1]

Chicken pox	16
Diphtheria	8
Dysentery	9
Influenza	2
Malaria	2
Measles	54
Mumps	26
Paratyphoid fever	1
Poliomyelitis	4
Scarlet fever	19
Septic sore throat	1
Tetanus	2
Trachoma	2
Tuberculosis	77
Typhoid fever	15
Vincent's angina	1
Whooping cough	88

MASSACHUSETTS

Cerebrospinal meningitis	1
Chicken pox	79
Conjunctivitis (suppurative)	7
Diphtheria	43
German measles	19
Influenza	5
Lethargic encephalitis	2
Malaria	2
Measles	139
Mumps	58
Ophthalmia neonatorum	17
Pellagra	2
Pneumonia (lobar)	13
Poliomyelitis	5
Scarlet fever	95
Septic sore throat	3
Tetanus	3
Tuberculosis (pulmonary)	105
Tuberculosis (other forms)	38
Typhoid fever	9
Whooping cough	123

MICHIGAN

Diphtheria	70
Measles	113
Pneumonia	44
Scarlet fever	143
Smallpox	9
Tuberculosis	46
Typhoid fever	14
Whooping cough	178

MINNESOTA

Chicken pox	16
Diphtheria	27
Influenza	4

MINNESOTA—continued

	Cases
Measles	92
Pneumonia	2
Scarlet fever	102
Smallpox	1
Tuberculosis	51
Typhoid fever	6
Whooping cough	14

MISSISSIPPI

Diphtheria	3
Poliomyelitis	1
Scarlet fever	1
Typhoid fever	59

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis	3
Chicken pox	4
Diphtheria	33
Measles	31
Mumps	1
Scarlet fever	14
Smallpox	1
Tetanus	2
Trachoma	3
Tuberculosis	28
Typhoid fever	17
Whooping cough	40

MONTANA

Diphtheria	1
Measles	15
Mumps	2
Scarlet fever	16
Smallpox	5
Tuberculosis	10

NEBRASKA

Chicken pox	5
Diphtheria	3
Measles	3
Mumps	5
Pneumonia	4
Scarlet fever	12
Septic sore throat	1
Smallpox	4
Tuberculosis	17
Typhoid fever	1
Whooping cough	10

NEW JERSEY

Anthrax	2
Chicken pox	50
Diphtheria	44
Dysentery	1
Influenza	5
Malaria	1
Measles	97
Paratyphoid fever	1
Pneumonia	25
Poliomyelitis	1
Scarlet fever	59
Typhoid fever	7
Whooping cough	102

[1] Week ended Friday.

NEW MEXICO

	Cases
Chicken pox	1
Conjunctivitis	3
Diphtheria	4
Measles	1
Mumps	1
Tuberculosis	28
Typhoid fever	13
Whooping cough	13

NEW YORK

(Exclusive of New York City)

Chicken pox	94
Diphtheria	57
German measles	35
Influenza	1
Lethargic encephalitis	5
Malaria	3
Measles	554
Mumps	40
Ophthalmia neonatorum	1
Pneumonia	63
Poliomyelitis	12
Scarlet fever	62
Septic sore throat	1
Smallpox	13
Tetanus	1
Typhoid fever	8
Vincent's angina	16
Whooping cough	228

NORTH CAROLINA

Cerebrospinal meningitis	2
Chicken pox	13
Diphtheria	12
German measles	10
Malaria	1
Measles	110
Poliomyelitis	8
Scarlet fever	14
Septic sore throat	2
Smallpox	13
Typhoid fever	64
Whooping cough	328

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Cerebrospinal meningitis—Ottawa County	1
Chicken pox	4
Diphtheria	5
Influenza	23
Malaria	73
Measles	10
Mumps	1
Pellagra	34
Pneumonia	5
Scarlet fever	11
Smallpox	3
Typhoid fever	104
Whooping cough	52

OREGON

Cerebrospinal meningitis	1
Chicken pox	14
Diphtheria	18

OREGON—continued

	Cases
Influenza	13
Malaria	1
Measles	23
Mumps	12
Pneumonia	[2] 4
Poliomyelitis	1
Scarlet fever	16
Smallpox	14
Tuberculosis	[2] 2
Typhoid fever	2
Whooping cough	34

PENNSYLVANIA

Actinomycosis—Philadelphia	1
Cerebrospinal meningitis:	
Homestead	1
Pittsburgh	1
Scranton	1
Chicken pox	171
Diphtheria	120
German measles	17
Lethargic encephalitis—Pittsburgh	1
Measles	826
Mumps	21
Ophthalmia neonatorum:	
Hampton Township [2]	1
Philadelphia	1
Pneumonia	46
Rabies—Scranton	1
Scarlet fever	220
Smallpox	1
Tetanus:	
Heidelburg Township [2]	1
Philadelphia	3
Trachoma—Erie	1
Tuberculosis	124
Typhoid fever	27
Whooping cough	476

RHODE ISLAND

Cerebrospinal meningitis—Providence	1
Chicken pox	3
Diphtheria	2
German measles	5
Lethargic encephalitis—Providence	1
Measles	18
Ophthalmia neonatorum	1
Pneumonia	3
Scarlet fever	5
Tuberculosis	13
Typhoid fever	2
Whooping cough	8

SOUTH DAKOTA

Chicken pox	2
Diphtheria	14
Measles	4
Mumps	3
Scarlet fever	19
Smallpox	3
Typhoid fever	3
Whooping cough	10

TENNESSEE

Chicken pox	8
Diphtheria	1
Dysentery	3

[2] Deaths.

[3] County not specified.

TENNESSEE—continued

	Cases
Influenza	8
Malaria	63
Measles	15
Ophthalmia neonatorum	3
Pellagra	12
Pneumonia	7
Rabies	1
Scarlet fever	12
Smallpox	1
Tetanus	1
Trachoma	1
Tuberculosis	37
Typhoid fever	40
Whooping cough	56

TEXAS

Chicken pox	10
Diphtheria	11
Dysentery	6
Influenza	5
Measles	7
Mumps	10
Paratyphoid fever	1
Pellagra	2
Pneumonia	6
Poliomyelitis	6
Scarlet fever	11
Smallpox	10
Tuberculosis	31
Typhoid fever	32
Typhus fever	3
Whooping cough	57

UTAH

Chicken pox	4
Diphtheria	3
Measles	2
Mumps	5
Smallpox	1
Whooping cough	48

VERMONT

Chicken pox	9
Diphtheria	3
Measles	19
Mumps	2
Scarlet fever	1
Whooping cough	34

WASHINGTON

Cerebrospinal meningitis:	
Kitsap County	1
Spokane	1
Spokane County	1
Chicken pox	26
Diphtheria	28
German measles	5
Impetigo contagiosa	1
Influenza	1
Measles	29

WASHINGTON—continued

	Cases
Mumps	29
Pneumonia	1
Poliomyelitis	1
Scarlet fever	22
Smallpox	19
Tuberculosis	5
Typhoid fever	6
Whooping cough	27

WEST VIRGINIA

Chicken pox	11
Diphtheria	10
Influenza	1
Measles	69
Scarlet fever	17
Smallpox	13
Tuberculosis	22
Typhoid fever	14
Whooping cough	75

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	1
Chicken pox	12
Diphtheria	10
German measles	2
Influenza	2
Measles	87
Mumps	11
Pneumonia	10
Scarlet fever	2
Tuberculosis	15
Typhoid fever	1
Whooping cough	90
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	23
Diphtheria	12
German measles	15
Influenza	5
Measles	495
Mumps	9
Pneumonia	5
Poliomyelitis	1
Scarlet fever	48
Smallpox	5
Tuberculosis	23
Typhoid fever	5
Whooping cough	168

WYOMING

Chicken pox	2
Measles	1
Mumps	2
Rocky Mountain spotted fever:	
Park County	1
Sheridan County	1
Scarlet fever	1
Typhoid fever	2
Whooping cough	3

Reports for Week Ended July 17, 1926

DISTRICT OF COLUMBIA

	Cases
Chicken pox	3
Diphtheria	2
Measles	31
Pneumonia	6
Poliomyelitis	1
Scarlet fever	7
Tuberculosis	6
Typhoid fever	2
Whooping cough	23

NORTH DAKOTA

	Cases
Diphtheria	8
German measles	1
Measles	14
Mumps	8
Pneumonia	9
Scarlet fever	21
Smallpox	2
Tuberculosis	1
Typhoid fever	1
Whooping cough	13

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June, 1926										
Arkansas	1	6	54	248	145	93	0	38	6	63
District of Columbia	1	38	1	-------	519	2	0	71	4	2
Illinois	8	367	334	6	4,813	1	6	947	105	95
Louisiana	0	30	75	79	21	39	1	30	55	103
Maryland	3	68	25	1	878	2	1	254	2	46
Michigan	-------	434	4	0	3,957	-------	3	1,189	30	38
Minnesota	4	245	7	-------	2,489	-------	0	851	23	19
Mississippi	1	34	456	8,082	1,143	1,372	6	21	35	264
Missouri	6	250	19	3	1,845	0	0	410	32	45
New Jersey	11	319	10	1	2,955	-------	2	792	3	37
New Mexico	1	17	0	1	29	3	2	13	0	16
New York	7	618	279	23	10,110	-------	12	1,815	29	85
North Carolina	2	74	-------	-------	1,520	-------	7	82	127	87
Ohio	7	335	82	1	4,042	0	4	1,078	152	57
Oklahoma [1]	2	19	107	165	264	74	4	51	26	109
Rhode Island	1	18	8	-------	274	-------	0	26	0	2
South Carolina	0	126	463	1,225	119	512	13	34	79	335
West Virginia	0	33	21	-------	1,875	1	1	92	36	23

[1] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended July 10, 1926, 37 States reported 954 cases of diphtheria. For the week ended July 11, 1925, the same States reported 883 cases of this disease. Ninety-nine cities, situated in all parts of the country and having an aggregate population of more than 29,000,000, reported 549 cases of diphtheria for the week ended July 10, 1926. Last year for the corresponding week they reported 505 cases. The estimated expectancy for these cities was 628 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-four States reported 5,336 cases of measles for the week ended July 10, 1926, and 1,967 cases of this disease for the week ended July 11, 1925. Ninety-nine cities reported 1,757 cases of measles for the week this year, and 1,058 cases last year.

Poliomyelitis.—The health officers of 37 States reported 37 cases of poliomyelitis for the week ended July 10, 1926. The same States reported 90 cases for the week ended July 11, 1925.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-seven States—this year, 1,803 cases; last year, 1,103 cases; 99 cities—this year, 682 cases; last year, 477 cases; estimated expectancy, 367 cases.

Smallpox.—For the week ended July 10, 1926, 37 States reported 310 cases of smallpox. Last year for the corresponding week they reported 305 cases. Ninety-nine cities reported smallpox for the week as follows: 1926, 42 cases; 1925, 90 cases; estimated expectancy, 56 cases. One death from smallpox was reported by these cities for the week this year—at Omaha, Nebr.

Typhoid fever.—Six hundred and twenty-eight cases of typhoid fever were reported for the week ended July 10, 1926, by 36 States. For the corresponding week of 1925 the same States reported 1,016 cases of this disease. Ninety-nine cities reported 76 cases of typhoid fever for the week this year and 186 cases for the corresponding week last year. The estimated expectancy for these cities was 131 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 93 cities, with a population of more than 28,350,000, as follows; 1926, 388 deaths; 1925, 328.

City reports for week ended July 10, 1926

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1917 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	1	0	0	0	0	1	0	0
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	1
Manchester	83,097	0	1	0	0	0	0	0	0
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Burlington	24,089	0	0	0	0	0	11	0	0
Massachusetts:									
Boston	779,620	12	42	19	0	0	48	29	8
Fall River	128,993	1	3	1	0	0	0	0	3
Springfield	142,065	0	2	1	1	1	0	0	0
Worcester	190,757	5	2	1	0	0	1	0	4

City reports for week ended July 10, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—con.									
Rhode Island:									
Pawtucket	69,760	0	1	0	0	0	2	0	0
Providence	267,918	0	4	0	0	0	29	2	1
Connecticut:									
Bridgeport	(1)	2	4	0	0	1	0	1	1
Hartford	160,197	1	4	0	0	1	4	0	3
New Haven	178,927	1	2	2	0	0	18	0	2
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	18	9	0	0	0	0	0	5
New York	5,873,356	101	196	148	22	1	107	36	88
Rochester	316,786	1	5	6	0	0	9	1	1
Syracuse	182,003	6	4	0	0	0	114	3	3
New Jersey:									
Camden	128,642	2	2	1	0	0	5	0	2
Newark	452,513	23	11	8	1	0	35	5	5
Trenton	132,020	1	3	1	1	0	4	3	2
Pennsylvania:									
Philadelphia	1,979,364	34	46	72	----	2	66	3	28
Pittsburgh	631,563	14	14	5	----	0	74	1	12
Reading	112,707	2	2	0	----	0	10	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	3	6	9	0	1	59	7	5
Cleveland	936,485	42	17	39	0	2	8	0	13
Columbus	279,836	9	2	13	0	0	13	0	3
Toledo	287,380	25	5	2	0	0	69	0	1
Indiana:									
Fort Wayne	97,846	1	2	1	0	0	17	0	2
Indianapolis	358,819	7	4	1	0	0	2	0	9
South Bend	80,091	0	0	1	0	0	18	0	1
Terre Haute	71,071	1	1	0	0	0	1	0	2
Illinois:									
Chicago	2,995,239	71	73	37	2	6	255	11	31
Peoria	81,564	1	0	0	0	0	3	3	1
Springfield	63,923	0	0	1	0	0	3	2	1
Michigan:									
Detroit	1,245,824	----	31	----	----	----	----	----	----
Flint	130,316	4	3	0	0	0	44	0	3
Grand Rapids	153,698	3	3	1	0	0	27	0	3
Wisconsin:									
Kenosha	50,891	1	1	0	0	0	61	0	0
Madison	46,385	13	0	0	0	0	14	0	0
Milwaukee	509,192	42	11	8	1	1	124	12	5
Racine	67,707	1	0	0	0	0	60	0	2
Superior	39,671	0	0	1	0	0	1	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	1	0	2	0	0	27	0	0
Minneapolis	425,435	18	10	14	0	0	10	0	9
St. Paul	246,001	3	10	7	0	0	82	1	6
Iowa:									
Davenport	52,469	1	0	1	0	----	2	0	----
Sioux City	76,411	0	0	2	0	----	0	0	----
Waterloo	36,771	4	0	0	0	----	19	0	----
Missouri:									
Kansas City	367,481	1	3	1	0	0	9	0	6
St. Joseph	78,342	0	0	1	0	0	1	0	1
St. Louis	821,543	6	21	19	0	0	42	0	----
North Dakota:									
Fargo	26,403	4	0	0	0	0	4	2	0
Grand Forks	14,811	----	0	----	----	----	----	----	----
South Dakota:									
Aberdeen	15,036	0	0	0	0	----	4	1	----
Sioux Falls	30,127	----	0	----	----	----	----	----	----

[1] No estimate made.

City reports for week ended July 10, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued									
Nebraska:									
Lincoln	60,941	3	0	0	0	0	2	0	2
Omaha	211,768	5	3	0	0	0	11	0	3
Kansas:									
Topeka	55,411	3	0	0	0	0	1	0	0
Wichita	88,367	1	0	0	0	0	1	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	----	0	1	0	0	1	----	2
Maryland:									
Baltimore	796,296	19	11	11	1	0	13	15	10
Cumberland	33,741	0	0	0	0	0	1	0	0
Frederick	12,035	----	0	----	----	----	----	----	----
District of Columbia:									
Washington	497,906	8	4	15	3	0	34	0	4
Virginia:									
Lynchburg	30,395	1	0	3	0	0	9	1	0
Norfolk	(1)	1	0	0	0	0	9	0	3
Richmond	186,403	1	1	3	0	0	50	3	1
Roanoke	58,208	0	0	0	0	0	4	0	0
West Virginia:									
Charleston	49,019	0	0	0	0	0	1	0	1
Huntington	63,485	0	0	0	0	0	0	0	0
Wheeling	56,208	0	1	0	0	0	14	0	0
North Carolina:									
Raleigh	30,371	5	0	0	0	0	0	0	2
Wilmington	37,061	0	0	0	0	0	0	0	2
Winston-Salem	69,031	1	0	1	0	0	11	0	0
South Carolina:									
Charleston	73,125	0	0	0	4	0	0	0	0
Columbia	41,225	0	0	0	0	0	0	1	0
Greenville	27,311	0	0	0	0	0	0	0	0
Georgia:									
Atlanta	(1)	0	2	1	2	0	7	11	6
Brunswick	16,809	0	0	0	0	0	2	0	0
Savannah	93,134	0	1	0	0	0	0	0	2
Florida:									
Miami	69,754	0	----	1	0	0	0	1	0
St. Petersburg	26,847	----	0	----	----	0	----	----	1
Tampa	94,743	0	0	0	0	0		0 0	5
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	0	0	0	0	0	0	1
Louisville	305,935	2	2	0	0	0	5	0	6
Tennessee:									
Memphis	174,533	1	1	0	0	1	24	0	3
Nashville	136,220	0	0	0	0	2	1	0	3
Alabama:									
Birmingham	205,670	1	1	0	1	0	23	4	9
Mobile	65,955	0	0	0	0	0	0	0	1
Montgomery	46,481	0	1	1	0	0	2	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	0	0	0	0	----	1	0	----
Little Rock	74,216	0	0	0	0	0	4	0	2
Louisiana:									
New Orleans	414,493	0	5	4	1	0	0	0	0
Shreveport	57,857	0	0	1	0	0	0	0	0
Oklahoma:									
Oklahoma City	(1)	0	1	0	0	0	0	0	3
Texas:									
Dallas	194,450	3	2	1	1	1	2	0	6
Galveston	48,375	0	1	0	0	0	0	0	0
Houston	164,954	0	1	2	0	0	0	0	1
San Antonio	198,069	0	1	2	0	0	4	0	3

[1] No estimate made.

City reports for week ended July 10, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	3	0	1
Great Falls	29,883	1	1	0	0	0	5	0	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	0	0	0	0	0	0	0	0
Idaho:									
Boise	23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	280,911	15	8	8	0	0	15	1	2
Pueblo	43,787	0	1	1	0	0	1	0	1
New Mexico:									
Albuquerque	21,000	1	0	1	0	0	0	0	1
Arizona:									
Phoenix	38,669	0	0	0	0	0	0	0	1
Utah:									
Salt Lake City	130,948	4	3	4	0	0	5	9	0
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	3	4	4	0	----	14	3	----
Spokane	108,897	14	1	10	0	----	19	0	----
Tacoma	104,455	4	2	4	0	0	6	0	1
Oregon:									
Portland	282,383	2	5	8	0	0	21	1	3
California:									
Los Angeles	(1)	28	34	36	3	1	20	16	9
Sacramento	72,260	0	2	0	0	0	2	2	1
San Francisco	557,530	13	12	13	0	0	64	7	4

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	1	0	0	0	0	0	1	0	0	0	11
New Hampshire:											
Concord	0	1	0	0	0	2	0	0	0	0	7
Manchester	1	0	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	0	2
Burlington	1	0	0	0	0	1	0	0	0	0	5
Massachusetts:											
Boston	22	41	0	0	0	15	2	0	0	37	183
Fall River	1	1	0	0	0	1	1	1	1	0	30
Springfield	2	2	0	0	0	3	0	0	0	4	32
Worcester	3	4	0	0	0	4	0	1	0	0	41
Rhode Island:											
Pawtucket	1	0	0	0	0	1	0	0	0	0	13
Providence	3	3	0	0	0	1	1	0	0	43	48
Connecticut:											
Bridgeport	3	6	0	0	0	1	0	0	0	0	26
Hartford	2	7	0	0	0	2	1	2	0	7	30
New Haven	1	2	0	0	0	0	1	0	0	5	45

[1] No estimate made.

City reports for week ended July 10, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MIDDLE ATLANTIC											
New York:											
Buffalo	11	7	0	0	0	13	1	0	1	10	130
New York	68	173	0	1	0	[1]98	20	11	3	60	1,15
Rochester	5	5	0	0	0	2	0	0	0	13	63
Syracuse	4	1	0	0	0	1	0	1	0	31	37
New Jersey:											
Camden	1	5	0	0	0	0	1	0	0	0	27
Newark	9	14	0	0	0	8	1	1	0	25	91
Trenton	1	0	0	0	0	7	0	0	1	0	34
Pennsylvania:											
Philadelphia	34	35	0	0	0	34	6	1	2	72	455
Pittsburgh	12	13	0	0	0	6	2	0	0	58	112
Reading	0	6	0	0	0	0	1	0	0	6	21
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	5	0	0	0	12	1	1	0	12	147
Cleveland	11	36	2	1	0	20	2	0	0	71	177
Columbus	2	4	0	1	0	12	1	0	0	9	86
Toledo	6	8	1	0	0	3	1	0	0	54	61
Indiana:											
Fort Wayne	1	3	0	4	0	0	0	0	0	6	33
Indianapolis	3	2	2	5	0	4	1	0	0	24	92
South Bend	1	3	0	0	0	0	0	1	0	0	16
Terre Haute	1	0	0	0	0	2	0	0	0	2	20
Illinois:											
Chicago	40	77	2	0	0	46	4	1	0	42	624
Peoria	1	0	1	0	0	0	0	0	0	10	18
Springfield	1	0	1	0	0	1	0	0	0	15	20
Michigan:											
Detroit	33	------	4	------	------	------	4	------	------	------	------
Flint	2	1	1	0	0	0	0	0	0	4	24
Grand Rapids	3	10	0	0	0	1	0	0	0	4	29
Wisconsin:											
Kenosha	1	0	2	0	0	0	0	0	0	8	4
Madison	0	0	0	0	0	0	0	0	0	4	11
Milwaukee	13	10	2	0	0	5	0	2	1	49	102
Racine	2	0	0	0	0	0	0	0	0	6	8
Superior	1	0	2	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	2	9	1	0	0	3	0	1	0	5	23
Minneapolis	11	41	4	0	0	5	1	2	2	4	94
St. Paul	8	11	2	1	0	7	1	0	0	24	68
Iowa:											
Davenport	0	1	1	0	------	------	0	0	------	0	------
Sioux City	1	4	0	5	------	------	0	0	------	1	------
Waterloo	0	0	0	0	------	------	0	0	------	4	------
Missouri:											
Kansas City	2	0	1	0	0	10	1	0	0	9	80
St. Joseph	0	0	0	0	0	1	0	0	1	0	28
St. Louis	9	20	1	2	0	8	4	1	0	34	218
North Dakota:											
Fargo	0	0	0	0	0	0	0	0	0	2	10
Grand Forks	0	------	1	------	------	------	0	------	------	------	------
South Dakota:											
Aberdeen	0	1	0	0	------	------	0	0	------	10	------
Sioux Falls	0	------	1	------	------	------	0	------	------	------	------
Nebraska:											
Lincoln	0	1	0	1	0	1	0	0	0	12	13
Omaha	1	12	3	6	1	3	1	0	0	0	48
Kansas:											
Topeka	0	5	0	0	0	0	1	4	0	11	10
Wichita	1	0	2	0	0	1	1	0	0	9	32

[1] Pulmonary tuberculosis only.

City reports for week ended July 10, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	1	0	0	0	1	0	0	0	-------	30
Maryland:											
Baltimore	8	16	0	0	0	9	4	3	1	69	184
Cumberland	0	0	0	0	0	0	1	0	0	0	10
Frederick	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Dist. of Columbia:											
Washington	6	5	0	0	0	9	3	0	0	27	136
Virginia:											
Lynchburg	0	0	0	0	0	0	1	0	0	13	11
Norfolk	0	2	0	2	0	3	2	0	0	26	-------
Richmond	1	3	0	0	0	3	2	0	0	2	72
Roanoke	0	0	0	0	0	2	1	0	0	0	27
West Virginia:											
Charleston	1	0	1	0	0	0	2	0	0	1	22
Huntington	0	0	0	0	0	1	0	0	0	0	12
Wheeling	1	1	0	0	0	0	1	1	0	0	13
North Carolina:											
Raleigh	0	0	0	0	0	1	0	2	0	10	21
Wilmington	0	2	0	0	0	0	0	1	0	17	17
Winston-Salem	0	0	1	0	0	0	3	1	0	0	21
South Carolina:											
Charleston	0	0	0	0	0	1	2	1	2	1	19
Columbia	0	1	0	0	0	0	2	0	0	0	0
Greenville	0	0	0	0	0	0	1	1	0	0	9
Georgia:											
Atlanta	2	0	3	1	0	2	3	10	1	3	-------
Brunswick	0	0	0	0	0	1	1	0	0	0	2
Savannah	1	0	0	0	0	4	2	0	0	0	35
Florida:											
Miami	-------	0	-------	0	0	1	-------	4	0	6	32
St. Petersburg	0	-------	0	-------	0	0	0	-------	0	-------	11
Tampa	1	3	0	2	0	2	0	3	0	0	35
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	0	0	0	0	2	0	0	0	0	20
Louisville	1	3	1	0	0	5	3	3	1	6	110
Tennessee:											
Memphis	1	3	0	0	0	5	4	3	0	11	81
Nashville	1	1	0	0	0	3	5	3	2	14	73
Alabama:											
Birmingham	0	0	1	0	6	4	4	0	0	23	82
Mobile	0	0	0	0	0	2	1	0	0	0	21
Montgomery	0	3	1	0	0	0	1	1	0	3	6
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	1	0	-------	-------	0	0	-------	2	-------
Little Rock	0	0	0	0	0	11	2	0	0	0	-------
Louisiana:											
New Orleans	1	5	1	1	0	0	5	2	0	2	-------
Shreveport	0	0	1	0	0	1	2	1	0	4	21
Oklahoma:											
Oklahoma	0	0	0	0	0	0	2	5	0	2	22
Texas:											
Dallas	1	1	0	0	0	3	3	4	0	11	77
Galveston	0	0	0	0	0	0	0	0	0	0	10
Houston	0	1	0	0	0	6	2	0	2	0	58
San Antonio	0	1	0	0	0	7	1	0	0	0	56
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	7
Great Falls	1	0	1	0	0	0	0	0	0	0	6
Helena	0	0	0	0	0	0	0	0	0	0	4
Missoula	0	0	1	0	0	0	0	0	0	0	7

City reports for week ended July 10, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MOUNTAIN—con.											
Idaho:											
Boise	0	1	1	1	0	0	0	0	0	0	4
Colorado:											
Denver	6	3	2	0	0	6	1	0	0	17	53
Pueblo	0	0	0	0	0	0	1	0	0	0	7
New Mexico:											
Albuquerque	0	1	0	0	0	5	0	0	0	2	25
Arizona:											
Phoenix	0	0	0	0	0	7	0	0	0	0	28
Utah:											
Salt Lake City	2	2	1	0	0	2	1	0	0	44	38
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	1
PACIFIC											
Washington:											
Seattle	5	6	3	0	----	----	0	2	----	4	----
Spokane	2	12	3	1	----	----	0	0	----	6	----
Tacoma	1	1	2	5	0	1	0	0	0	0	20
Oregon:											
Portland	3	9	6	13	0	4	0	2	0	0	57
California:											
Los Angeles	10	12	3	3	0	21	4	1	1	5	195
Sacramento	1	1	0	0	0	6	1	2	0	1	26
San Francisco	7	13	1	0	0	10	1	0	0	2	139

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	1	0	0	0	0	0	0	0
Fall River	0	0	0	0	0	0	0	1	1
Springfield	0	0	1	0	0	0	0	0	0
Connecticut:									
New Haven	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [1]	4	1	4	6	0	0	3	5	1
Rochester	0	0	0	0	0	0	0	1	0
New Jersey:									
Newark	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	1	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	1	0	1	0	0	0	0	0
Cleveland	0	0	0	0	0	0	0	0	1
Columbus	0	0	0	1	0	0	0	0	0
Toledo	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago	1	0	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Missouri:									
St. Louis	1	0	0	0	0	0	0	0	0
Kansas:									
Topeka	0	0	1	0	0	0	0	0	0

[1] Typhus fever, 1 case at New York City.

City reports for week ended July 10, 1926—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC									
District of Columbia:									
Washington	0	0	0	0	1	1	0	0	0
North Carolina:									
Winston-Salem	0	0	0	0	0	0	0	2	0
South Carolina:									
Charleston [1]	0	0	0	0	11	0	0	0	0
Florida:									
St. Petersburg	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	0	1	0	1	0
Nashville	0	0	0	0	2	1	0	0	0
Alabama:									
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	4	0	0	0
Louisiana:									
New Orleans	0	0	0	0	1	0	0	0	0
Shreveport	0	0	0	0	0	1	0	0	1
Texas:									
Dallas	1	1	0	0	3	1	0	4	0
Houston	0	0	0	0	1	3	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Utah:									
Salt Lake City	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1	0	0	0	0	0	0	0	0
Spokane	1	0	0	0	0	0	0	0	0
Tacoma	1	1	0	0	0	0	0	0	0
Oregon:									
Portland	0	1	0	0	0	0	0	0	0
California:									
Los Angeles	0	0	0	0	0	0	0	3	1
San Francisco	0	0	0	0	0	1	0	0	0

[1] Dengue, 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 103 cities for the five-week period ended July 10, 1926, compared with those for a like period ended July 11, 1925. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 103 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 96 cities reporting deaths had more than 29,250,000 estimated population in 1925 and more than 29,750,000 in 1926. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, June 6 to July 10, 1926—Annual rates per 100,000 population—Compared with rates for the corresponding period of 1925 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	June 13, 1925	June 12, 1926	June 20, 1925	June 19, 1926	June 27, 1925	June 26, 1926	July 4, 1925	July 3, 1926	July 11, 1925	July 10, 1926
103 cities	116	[2] 136	114	[2] 113	112	[2] 131	[3] 92	[4] 122	93	[5] 99
New England	91	69	93	78	122	59	113	64	60	57
Middle Atlantic	155	155	166	124	163	152	95	163	126	120
East North Central	89	146	86	131	78	161	81	117	83	[6] 93
West North Central	141	[2] 231	129	[2] 167	111	[2] 195	127	[7] 125	90	[7] 93
South Atlantic	54	60	48	68	69	45	38	83	52	[8] 66
East South Central	11	26	5	16	32	10	5	[9] 22	21	5
West South Central	66	47	70	43	44	43	57	47	35	43
Mountain	176	127	185	146	102	118	176	155	102	118
Pacific	157	159	108	102	102	132	[3] 138	129	119	181

MEASLES CASE RATES

103 cities	558	[2] 928	416	[2] 734	292	[2] 617	[3] 225	[4] 435	186	[5] 315
New England	860	659	611	494	393	425	338	319	273	246
Middle Atlantic	724	707	542	585	380	476	257	313	248	211
East North Central	779	1,018	547	943	377	828	300	634	210	[6] 536
West North Central	131	[2] 2,038	84	[2] 1,260	58	[2] 935	30	[7] 604	34	[7] 417
South Atlantic	280	1,103	330	825	263	701	248	436	200	[8] 294
East South Central	194	1,396	105	695	121	612	89	[9] 430	110	285
West South Central	13	125	18	77	4	95	4	52	0	47
Mountain	92	919	74	701	92	792	37	437	55	264
Pacific	83	593	80	582	50	485	[3] 35	461	39	337

SCARLET FEVER CASE RATES

103 cities	170	[2] 261	159	[2] 233	113	[2] 212	[3] 95	[4] 170	87	[5] 122
New England	173	255	137	203	103	236	108	187	141	158
Middle Atlantic	155	195	144	221	99	210	79	188	81	129
East North Central	198	333	202	340	146	253	114	187	91	[6] 125
West North Central	315	[2] 621	317	[2] 480	179	[2] 354	163	[7] 270	139	[7] 205
South Atlantic	58	160	58	131	42	152	56	66	42	[8] 64
East South Central	147	78	147	47	84	47	68	[9] 66	116	52
West South Central	44	86	35	69	53	30	44	60	9	34
Mountain	268	118	139	127	203	118	102	91	148	55
Pacific	155	237	110	216	102	159	[3] 67	151	50	121

SMALLPOX CASE RATES

103 cities	36	[2] 16	35	[2] 11	24	[2] 16	[3] 14	[4] 11	16	[5] 8
New England	0	0	0	0	0	0	0	0	2	0
Middle Atlantic	2	0	1	0	0	0	1	2	0	0
East North Central	40	12	42	10	19	14	13	10	11	[6] 9
West North Central	50	[2] 28	58	[2] 32	36	[2] 44	16	[7] 26	20	[7] 28
South Atlantic	21	38	29	30	13	26	10	11	23	[8] 9
East South Central	273	52	184	10	121	88	58	[9] 39	74	0
West South Central	4	34	18	26	0	17	4	22	4	4
Mountain	28	46	18	27	28	18	28	55	18	9
Pacific	141	54	146	24	163	32	[3] 85	19	97	24

[1] The figures given in this table are rates per 100,000 population, annual basis—and not the number of cases reported. Populations used are estimated as of July 1, 1925 and 1926, respectively.
[2] Grand Forks, N. Dak., not included.
[3] Spokane, Wash., not included.
[4] Grand Forks, N. Dak., Sioux Falls, S. Dak., and Covington, Ky., not included.
[5] Detroit, Mich., Grand Forks, N. Dak., Sioux Falls, S. Dak., and Frederick, Md., not included.
[6] Detroit, Mich., not included.
[7] Grand Forks, N. Dak., and Sioux Falls, S. Dak., not included.
[8] Frederick, Md., not included.
[9] Covington, Ky., not included.

Summary of weekly reports from cities, June 6 to July 10, 1926—Annual rates per 100,000 population—Compared with rates for the corresponding period of 1925—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	June 13, 1925	June 12, 1926	June 20, 1925	June 19, 1926	June 27, 1925	June 26, 1926	July 4, 1925	July 3, 1926	July 11, 1925	July 10, 1926
103 cities	27	[2] 12	21	[2] 11	25	[2] 12	[3] 35	[4] 17	33	[5] 14
New England	24	17	19	19	17	9	22	12	24	9
Middle Atlantic	17	6	14	9	18	10	15	11	17	7
East North Central	9	4	6	4	8	4	10	5	13	[6] 4
West North Central	24	[2] 6	12	[2] 10	10	[2] 4	20	[7] 10	42	[7] 16
South Atlantic	61	26	46	28	67	30	65	36	56	[8] 43
East South Central	110	57	74	21	84	36	184	[9] 127	163	52
West South Central	110	52	123	30	128	30	233	13	159	30
Mountain	46	9	37	0	0	0	9	27	28	0
Pacific	14	13	6	8	19	16	[3] 21	22	17	13

INFLUENZA DEATH RATES

96 cities	7	10	6	7	6	5	4	[10] 6	2	[11] 4
New England	5	12	2	9	7	0	2	5	0	7
Middle Atlantic	6	9	4	9	6	6	2	7	2	1
East North Central	6	10	7	3	6	3	5	5	2	[6] 8
West North Central	8	4	6	4	4	6	0	[12] 8	0	[12] 0
South Atlantic	4	6	6	4	2	6	6	8	0	[8] 0
East South Central	16	36	32	16	16	5	11	[9] 0	16	16
West South Central	19	19	10	24	10	24	10	14	10	5
Mountain	9	9	0	0	9	0	0	9	0	0
Pacific	4	0	4	4	4	0	4	4	0	4

PNEUMONIA DEATH RATES

96 cities	99	95	78	87	65	74	56	[10] 75	59	[11] 67
New England	113	102	60	87	58	69	46	92	43	54
Middle Atlantic	130	109	93	95	75	83	61	90	64	73
East North Central	79	87	76	74	45	61	42	61	55	[6] 67
West North Central	57	58	32	75	51	44	40	[12] 38	38	[12] 53
South Atlantic	115	96	75	111	90	94	71	88	65	[8] 72
East South Central	58	125	95	99	110	125	89	[9] 121	84	119
West South Central	82	94	87	71	73	76	58	57	58	57
Mountain	102	82	139	100	55	109	65	46	74	36
Pacific	44	67	58	75	47	43	73	43	65	53

[2] Grand Forks, N. Dak., not included.
[3] Spokane, Wash., not included.
[4] Grand Forks, N. Dak., Sioux Falls, S. Dak., and Covington, Ky., not included.
[5] Detroit, Mich., Grand Forks, N. Dak., Sioux Falls, S. Dak., and Frederick, Md., not included.
[6] Detroit, Mich., not included.
[7] Grand Forks, N. Dak., and Sioux Falls, S. Dak., not included.
[8] Frederick, Md., not included.
[9] Covington, Ky., not included.
[10] Sioux Falls, S. Dak., and Covington, Ky., not included.
[11] Detroit, Mich., Sioux Falls, S. Dak., and Frederick, Md., not included.
[12] Sioux Falls, S. Dak., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1925 and 1926, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1925	1926	1925	1926
Total	103	96	29,944,996	30,473,129	29,251,658	29,764,201
New England	12	12	2,176,124	2,206,124	2,176,124	2,206,124
Middle Atlantic	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central	14	11	2,594,962	2,634,662	2,461,380	2,499,036
South Atlantic	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central	7	7	993,103	1,004,953	993,103	1,004,953
West South Central	8	6	1,184,057	1,212,057	1,078,198	1,103,695
Mountain	9	9	563,912	572,773	563,912	572,773
Pacific	6	4	1,888,142	1,934,084	1,434,245	1,469,144

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended June 26, 1926.—The following report for the week ended June 26, 1926, was transmitted by the Far Eastern Bureau of the Health Section of the League of Nations' Secretariat, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Iraq:							French Indo-China:						
Basra	0	0	0	0	1	1	Saigon and Cholon	3	1	15	11	2	0
British India:							Haiphong	0	0	42	42	0	0
Calcutta	----	0	----	41	11	8	China:						
Bombay	----	0	----	0	13	13	Amoy	9	----	0	0	0	0
Madras	----	0	----	0	1	0	Hongkong	0	0	0	0	3	1
Rangoon	----	6	----	12	2	2	Shanghai	0	0	1	0	----	1
Negapatam	----	0	----	23	0	0	Japan:						
Straits Settlements:							Osaka	0	0	0	0	2	0
Singapore	1	1	0	0	0	0	Kwantung:						
Dutch East Indies:							Port Arthur	0	0	0	0	1	0
Surabaya	0	0	0	0	1	1							
Siam:													
Bangkok	1	1	56	26	3	2							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

British India.—Chittagong, Cochin, Tuticorin, Vizagapatam.

Ceylon.—Colombo.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Samarang, Cheribon, Belawan Dli, Palembang, Sabang, Makassar, Menado, Banjermasin, Balik-Papan, Tarakan, Pontianak, Padang.

Sarawak.—Kuching.

British North Borneo.—Sandakan.

Portuguese Timor.—Dilly.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

French Indo-China.—Turane.

Formosa.—Keelung.

Kwantung.—Dairen.

Japan.—Nagasaki, Yokohama, Moji, Kobe, Niigata, Tsuruga, Hakodate, Simonoseki.

Korea.—Chemulpo, Fusan.

Manchuria.—Antung, Mukden, Changchun, Harbin.

U. S. S. R.—Vladivostok.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.
New Guinea.—Port Moresby.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.

AFRICA

Egypt.—Alexandria, Port Said, Suez.
Anglo-Egyptian Sudan.—Port Sudan.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Magadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenço Marques.
Union of South Africa.—Durban, East London, Port Elizabeth, Cape Town.

Reports had not been received in time for distribution from:
British India.—Karachi.
Mauritius.—Port Louis.
Madagascar.—Tamatave, Majunga.

CANADA

Communicable diseases—Province of Ontario—May 30–June 26, 1926 (comparative).—During the four week period ended June 26, 1926, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	May 30–June 26, 1926		May 31–June 27, 1925		Disease	May 30–June 26, 1926		May 31–June 27, 1925	
	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	5	1	5	2	Measles	2,976	12	1,063	2
Chancroid			1		Mumps	37		309	
Chicken pox	454		457	1	Pneumonia		159		126
Diphtheria	188	12	142	12	Poliomyelitis	2			
German measles	433		23		Scarlet fever	373	3	326	1
Gonorrhea	65		132		Smallpox	36		12	1
Influenza		20	10	7	Syphilis	72		48	
Lethargic encephalitis			4	4	Tuberculosis	164	77	165	85
					Typhoid fever	33		46	3
					Whooping cough	290	6	297	7

Smallpox.—The greatest number of cases of smallpox was reported at Kingston, viz, 7. At North Bay and at Peterboro 6 cases each were reported; in Richmond township, 4 cases.

CHINA

Shanghai—Cholera—July 20, 1926.—Thirty-five cases of cholera with 8 deaths, were reported from Shanghai, China, July 20, 1926.

ECUADOR

Plague—Guayaquil—June 16-30, 1926.—During 15 days ended June 30, 1926, one case of plague was reported at Guayaquil.

Plague-infected rats.—During the period under report 10,037 rats were reported taken and 13 rats found plague infected.

GREECE

Plague—Patras—June 5-12, 1926.—Under date of June 12, 1926, two cases of plague were reported as having occurred at Patras, Greece, June 5 and 12, 1926, respectively. The occurrence was in different quarters of the city.

IRELAND (IRISH FREE STATE)

Typhus fever—Kerry County—June 27-July 3, 1926.—During the week ended July 3, 1926, a case of typhus fever was reported at Dingle, Kerry County, Irish Free State.

PANAMA CANAL

Communicable diseases—May, 1926.—During the month of May, 1926, communicable diseases were reported in the Canal Zone, and at Colon and Panama as follows:

Disease	Canal Zone		Colon		Panama		Infected in other localities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chicken pox	1		1		3				5	
Diphtheria					8		1		9	
Dysentery		1	1		1	2	6	1	8	4
Hookworm			3		22	1	57		82	1
Malaria	17	1	1				29	1	47	2
Measles	2		1		4				7	
Meningitis					1	1			1	1
Mumps							3		3	
Pneumonia [1]		1		2		11		3	17	
Poliomyelitis	1	1							1	1
Tuberculosis [1]				6		14		3		23
Whooping cough					1				1	

[1] Only deaths reported.

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

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended July 30, 1926 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Shanghai	Reported July 20	35	8	
India				May 23-29, 1926: Cases, 2,026; deaths, 1,202.
Bombay	May 30-June 5	1	1	
Calcutta	June 13-19	46	41	
Philippine Islands:				
Romblon Province	Dec. 14-31	42	43	
Siam:				
Bangkok	May 30-June 5	146	60	

PLAGUE

British East Africa:				
Kisumu	May 16-22	1	1	
Uganda	Mar. 1-31	35	34	
Ceylon:				
Colombo	May 29-June 5	1	1	
China:				
Foochow	June 6-12			Several cases; not epidemic.
Ecuador:				
Guayaquil	June 16-30	1		Rats taken: 10,037; found infected, 13.
Greece:				
Patras	June 5-12	2		In different quarters of city.
India				May 23-29, 1926: Cases, 6,094; deaths, 4,711.
Bombay	May 30-June 5	4	4	
Karachi	June 13-19	1	1	
Madras Presidency	May 23-29	20	9	
Iraq:				
Baghdad	May 30-June 12	36	23	
Java:				
Batavia	May 29-June 4	10	10	Province.
Madagascar:				
Tananarive Province				Apr. 16-30, 1926: Cases, 30; deaths, 27.
Tananarive Town	Apr. 16-30	2	2	
Other localities	Apr. 1-30	65	59	Bubonic: Cases, 28; deaths, 22. Pneumonic cases, 21, deaths, 21; septicemic, cases 16, deaths, 16.

SMALLPOX

Algeria:				
Algiers	June 11-20	1		
Bolivia:				
La Paz	May 1-31	8	5	
Brazil:				
Rio de Janeiro	June 6-12		17	
British East Africa:				
Tanganyika	May 2-22		12	
Uganda	Mar. 1-31	1		
British South Africa:				
Northern Rhodesia	May 18-24	17	6	Natives.
Canada:				
Manitoba—				
Winnipeg	July 11-17	3		
China:				
Chungking	May 29-June 5			Present.
Hongkong	May 23-June 5	3	1	
Manchuria—				
Antung	June 13-19	1		On South Manchuria Railway.
Changchun	do	1		
Kai-yuan	do	2		Do.
Kungchuling	do	1		Do.
Penhsihu	do	2		Do.
Teshihchiao	do	1		Do.
India				May 23-29, 1926: Cases, 6,994 deaths, 1,865.
Bombay	May 30-June 12	64	36	
Calcutta	June 13-19	8	7	
Madras	do		1	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received During Week Ended July 30, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Iraq:				
Baghdad	May 30–June 5	1		
Basra	May 23–June 5	10	8	
Japan:				
Taiwan Island	June 1–10	8		
Java:				
Surabaya	May 16–22	14	1	
Mexico:				
San Luis Potosi	July 4–10		1	
Siam:				
Bangkok	May 30–June 5	4	5	
Union of South Africa:				
Transvaal—				
Johannesburg	do	3		

TYPHUS FEVER

Algeria:				
Algiers	June 11–20	1		
Egypt:				
Port Said	June 4–10	1		
Ireland (Irish Free State):				
Kerry County—				
Dingle	June 27–July 3	1		
Palestine:				
Jaffa district	June 15–28	5		

Reports received from June 26 to July 23, 1926 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
Ceylon				Apr. 18–May 1, 1926: Cases, 30; deaths, 24.
French Settlements in India				Mar. 7–Apr. 10, 1926: Cases, 13; deaths, 13.
India				Apr. 25–May 22, 1926: Cases. 10,542; deaths 6,440.
Calcutta	Apr. 4–May 29	478	418	
Madras	May 16–June 5	2	1	
Rangoon	May 9–June 5	23	16	
Indo-China:				
Saigon	May 2–15	52	48	
Do	May 22–June 5	22	21	
Philippine Islands:				
Manila	May 18–24	2	2	
Provinces—				
Albay	Apr. 18–24	1	1	
Mindoro	Feb. 21–27	1	1	
Siam:				
Bangkok	May 2–29	1,063	626	

PLAGUE

Azores:				
St. Michaels—				
Arrifes	May 9–15	1		
Livramento	May 15–29	2	1	
China:				
Amoy	Apr. 18–May 29		30	Quite prevalent.
Do	May 30–June 12	19		Deaths not reported.
Nanking	May 9–June 5			Prevalent.
Ecuador:				
Guayaquil	May 16–June 15	5		Rats taken, 20,877; found infected, 18.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received from June 26 to July 23, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Egypt				Jan. 1–June 10, 1926: Cases, 56.
City—				
Suez	May 21–June 3	4	3	
Province—				
Beni-Suef	May 28–June 8	8	2	
Gharbieh	June 2	1	1	
Greece:				
Athens	Apr. 1–30	7	2	Including Piraeus.
Do	May 1–31	9	2	Do.
Patras	May 27	2	1	
Zante	May 17	1		
India				Apr. 25–May 22, 1926: Cases, 38,880; deaths, 30,129.
Bombay	May 2–22	9	9	
Karachi	May 23–June 12	10	9	
Madras Presidency	Apr. 25–May 22	49	41	
Rangoon	May 9–June 5	7	5	
Indo-China:				
Saigon	May 23–June 5	3	1	
Iraq:				
Baghdad	Apr. 18–May 15	107	61	
Japan:				
Yokohama	Reported July 6		3	
Java:				
Batavia	Apr. 24–May 28	47	47	
Cheribon	Apr. 11–24	3	3	
Madagascar				Apr. 1–15, 1926: Cases, 42; deaths, 39.
Moramanga Province	Apr. 1–15	2	2	Septicemic.
Tananarive Province—				
Tananarive Town	do	3	3	Pneumonic and septicemic.
Other localities	do	37	34	Bubonic, pneumonic, septicemic.
Nigeria				Feb. 1–Mar. 31, 1926: Cases, 81; deaths, 62.
Peru				May, 1926: Cases, 23; deaths, 10.
Departments—				
Ancash	May 1–31			Present.
Cajamarca	do			Do.
Ica	do	1		
Libertad	do	4		Pacasmayo, cases, 2; Trujillo district, cases, 2.
Lima	do	18	10	Lima City, 1 case; country estates, 1.
Russia				Jan. 19–Feb. 25, 1926: Cases, 7.
Senegal				Nov. 1–30, 1923: Cases, 3; deaths, 2.
Siam:				
Bangkok	May 23–29	1	1	
Straits Settlements:				
Singapore	May 2–8	1	1	
Tunisia:				
Kairouan	June 9	3		9 cases 34 miles south of Kairouan.
Union of South Africa:				
Cape Province	May 16–22	5	3	
Orange Free State—				
Hoopstad District—				
Protestpan	May 9–22	3	3	

SMALLPOX

Algeria:				
Algiers	May 21–June 10	10		
Brazil:				
Manaos	Apr. 1–30		5	
Para	May 16–June 19	20	21	
Rio de Janeiro	May 2–June 5	102	55	
Santos	Mar. 1–7		1	
Canada				May 30–June 12, 1926: Cases, 46.
Alberta	May 30–June 12	3		
Manitoba	May 30–June 26	24		
Winnipeg	June 6–12	5	1	
Do	July 4–10	3		

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

Reports Received from June 26 to July 23, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada—Continued.				
Ontario				May 30-June 26, 1926: Cases, 36.
Kingston	May 23-June 26	5		
Kitchener	Apr. 26-May 29	3	1	
North Bay	May 2-22	5		
Orillia	Apr. 26-May 29	7		
Packenham	do	10		
Toronto	do	7		
Waterloo	do	6		
Saskatchewan				May 30-June 19, 1926: Cases, 16.
Chile:				
Antofagasta	June 6-12	1		
China:				
Amoy	May 1-29		8	
Do	May 30-June 12	3		
Antung	May 16-June 13	4		
Chungking	May 2-June 12			Present.
Foochow	May 9-29			Do.
Hongkong	May 2-22	11	7	
Manchuria—				
An-Shan	May 16-June 12	5		South Manchuria Railway.
Changchun	May 16-June 5	5		Do.
Dairen	Apr. 26-May 9	31	6	Do.
Fushun	do	3		Do.
Harbin	May 14-June 12	16		
Kai-yuan	May 16-June 12	2		Do.
Liao-yang	do	3		Do.
Mukden	do	2		Do.
Penhsihu	do	2		Do.
Supingkai	do	1		Do.
Teshihchiao	do	1		Do.
Wa-feng-tien	do	3		Do.
Nanking	May 8-June 5			Present.
Shanghai	May 2-29	9	24	Cases: Foreign. Deaths, population of international concession, foreign and native.
Swatow	May 9-June 5			Sporadic.
Wanshein	May 1			Present among troops.
Chosen:				
Fusan	May 1-31	1		
Seishun	do	2	1	
Egypt:				
Alexandria	May 15-June 10	12	2	
Esthonia				May 1-31, 1926: Cases, 1.
France				Mar. 1-31, 1926: Cases, 68.
St. Etienne	June 9-15	2		
French Settlements in India	Mar. 7-Apr. 10	127	127	
Great Britain:				
England—				
Bradford	May 23-29	1		
Newcastle-on-Tyne	June 6-12	1		
Nottingham	May 2-June 5	7		
Sheffield	June 13-19	1		
India				Apr. 25-May 22, 1926: Cases, 27,963; deaths, 7,170.
Bombay	May 2-29	114	63	
Calcutta	Apr. 4-22	165	150	
Do	May 23-29	6	2	
Karachi	May 16-June 12	36	14	
Madras	do	6	3	
Rangoon	May 9-June 5	7	3	
Indo-China:				
Saigon	May 9-15	1		
Iraq:				
Baghdad	May 9-29	3		
Basra	Apr. 18-May 22	20	13	
Italy				Mar. 28-Apr. 17, 1926: Cases, 10.
Jamaica				May 30-June 26, 1926: Cases, 99. (Reported as alastrim.)
Japan:				
Kobe	May 30-June 5	1		
Nagoya	May 16-22		1	
Taiwan Island	May 11-20	24		
Yokohama	May 2-8	2		
Java:				
Batavia	May 15-21	1		Province.
East Java and Madoera	Apr. 11-May 15	26	2	
Malang	Apr. 4-10	6	1	Interior.
Latvia				Apr. 1-30, 1926: Cases, 3.

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

Reports Received from June 26 to July 23, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico:				
Aguascalientes	June 13-26		5	
Guadalajara	June 8-14		2	
Do	June 29-July 5		1	
Mexico City	May 16-June 5	3		Including municipalities in Federal District.
San Antonio de Arenales	Jan. 1-June 30			Present: 100 miles from Chihuahua.
San Luis Potosi	June 13-26		7	
Tampico	June 1-10		2	
Torreon	May 1-June 30		17	
Nigeria				Feb. 1-Mar. 31, 1926: Cases, 270; deaths, 12.
Poland				Mar. 28-May, 1926: Cases, 12; deaths, 1.
Portugal:				
Lisbon	Apr. 26-June 19	10	3	
Oporto	May 23-June 5	4		
Russia				Jan. 1-31, 1926: Cases, 492.
Siam:				
Bangkok	May 2-29	15	11	
Straits Settlements:				
Singapore	Apr. 25-May 1	1		
Tunisia				Apr. 1-May 10, 1926: Cases, 6.
Union of South Africa:				
Cape Province—				
Idutywa District	May 23-29			Outbreaks.
Transvaal—				
Johannesburg	May 9-15	1		
On vessels				Three cases, 1 death, at Aden, Arabia, stated to have been imported by sea.

TYPHUS FEVER

Algeria:				
Algiers	May 21-June 10	5	1	
Chile:				
Antofagasta	May 23-29	3		
Valparaiso	Apr. 29-May 5		1	
China:				
Ichang			1	Reported May 1, 1926. Occurring among troops.
Wanshien				Present among troops, May 1, 1926. Locality in Chungking consular district.
Chosen	Feb. 1-28	228	18	
Chemulpo	May 1-31	28	1	
Ireland (Irish Free State):				
Cobh (Queenstown)	May 30-June 5	1		
Cork	June 5	1		
Italy				Mar. 28-Apr. 17, 1926: Cases, 2.
Japan				Mar. 28-Apr. 10, 1926: Cases, 15.
Lithuania				Mar. 1-31, 1926: Cases, 38; deaths, 5.
Mexico:				
Mexico City	May 16-June 5	20		Including municipalities in Federal District.
Do	June 13-19	9		Do.
San Luis Potosi	June 13-26			Present, city and country.
Morocco				Mar. 1-31, 1926: Cases, 140
Palestine				March, 1926: Cases, 6. Exclusive of Bedouin tribes and the British military forces.
Peru:				
Arequipa	Jan. 1-31		2	
Poland				Mar. 28-May 15, 1926: Cases, 781; deaths, 60.
Rumania				Mar. 1-31, 1926: Cases, 41.
Russia				Jan. 1-31, 1926: Cases, 2,956.
Tunisia				Apr. 1-May 10, 1926: Cases, 64.

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

Reports Received from June 26 to July 23, 1926—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa				April, 1926: Cases, 85; deaths, 14 (colored); European, 2 cases: Total, 87 cases, 14 deaths.
Cape Province				Apr. 1-30, 1926: Cases, 71; deaths, 11. Native.
Do	May 9-15			Outbreaks.
Grahamstown	do	1		Sporadic.
Natal				Apr. 1-30, 1926: Cases, 4. Native.
Orange Free State				Apr. 1-30, 1926: Cases, 7. Native.
Transvaal				Apr. 1-30, 1926: Cases, 3; deaths, 3. Native.
Yugoslavia:				
Zagreb	May 15-21	1		

YELLOW FEVER

Brazil	Reported June 26			Present in interior of Bahia, Pirapora, and Minas.
Bahia	May 9-29	4	3	