A STUDY OF THE COMPARATIVE INCIDENCE OF MORTALITY BY THE

USE OF AGE-CORRECTED DEATH RATES AND OTHER CRITERIA IN

SELECTED CITIES FOR THE YEARS 1920, 1930 AND 1940

by

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A THESIS

Presented to the Department of Public Health and Preventive
Medicine, the Department of Bacteriology and the Graduate
Division of the University of Oregon Medical School
in partial fulfillment
of the requirements for the degree of
Master of Science

June 1948

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TABLE OF CONTENTS

LIST OF TABLES

APPENDIX

CHAPTER I

INTRODUCTION

Rates derived from the data of vital statistics are
used for the purpose of expressing the occurrence of events
such as births and deaths in a community in a condensed
manner. If a comparison of the occurrence of an event
between communities is to be made, the calculation of rates
derived from the data to be compared, (using methods which
help to neutralize the differences in the compositions of
the populations of the communities), makes the expression of
the comparison a simpler and shorter process than is the
case when the raw data of vital statistics are used. If,
after such rates are adjusted to take into consideration the
differences in the compositions of the populations of the
communities under study, there are still significant differ-
ences in the incidence of whatever event is being compared,
the search for the causes of the differences would suggest
an examination of data other than the data from which the
rates used for comparison were calculated.

This study is the comparison of the incidence of mor-
tality in the cities of Portland, Oregon, Seattle, Washing-
ton, Los Angeles, California, San Francisco, California,
Detroit, Michigan and Baltimore, Maryland. The comparison
is made of the incidence of mortality in the six cities in

each of the census years 1920, 1930 and 1940 by the use of the age-corrected death rates and other criteria.

In carrying out this study, basic data, with respect to population, deaths from all causes and deaths from certain specified causes for each of the six cities for the census years 1920, 1930 and 1940 were collected. Crude death rates were calculated. It was evident that the crude death rates were not suitable for a comparison of the incidence of mortality in the cities, because crude death rates do not take into account the differences in the compositions of the populations of different communities. It was found necessary to adjust or correct the rates in a manner which took into account these differences. In the course of this investigation it was found necessary to obtain data, with respect to population and deaths in the six cities, for the intercensal years 1939 and 1941.

This study is limited to the comparison of the incidence of mortality, by the use of age-corrected death rates and other criteria, in the six cities for the census years 1920, 1930 and 1940. Some of the reasons for the differences in the incidence of mortality in the six cities are indicated, but because of the quantity of material which would be involved, investigations of these reasons were not undertaken.

This work is also limited to the three census years 1920, 1930 and 1940 for the same reason--that of the quan-

tity of material involved. The inclusion of the population and mortality data for the intercensal years 1939 and 1941 is only for the purpose of illustrating a procedure.

The two Eastern cities, Detroit, Michigan and Baltimore, Maryland were included because a limited study of the calculation of rates had been done on them for the year 1920, and the basic data with respect to population and deaths were available for that year. This made a convenient starting point and pattern for this present work. The four Pacific Coast cities were included because, as far as could be determined, no such study has been made of them.

CHAPTER II

THE COLLECTION OF BASIC DATA, DEFINITION OF TERMS AND THE
DESCRIPTION OF TECHNIQUES

The Collection of Basic Data

Requests for the basic data used in this study were
made of several sources. First, a letter of request for
the data needed was sent to each of the city health officers
of Portland, Oregon, Seattle, Washington, Los Angeles,
California and San Francisco, California, (Appendix, p.
64). The returns were incomplete, (Appendix, pp. 65, 66,
67, 68). A personal visit to the Oregon State Board of
Health yielded little data. Then, a letter requesting the
data needed was sent to the National Office of Vital Sta-
tistics, United States Public Health Service, Federal
Security Agency, Washington, D.C., (Appendix, p. 69).
The reply gave several valuable references to Census Bu-
reau publications, (Appendix, p. 70). All the basic data
used in this study were obtained from these publications[1]
which were found in the University of Oregon Medical School
Library, the Oregon State Board of Health Library, the Port-
land Public Library, and the Department of Commerce local

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[1] See Bibliography, Census Bureau Publications, p. 72.

office in Portland, Oregon.

The incomplete data which were received from the city health departments gave population and death totals which sometimes differed from the figures for the same cities in the same years as given in the Census Bureau publications. This explains why local health department data were largely useless for the purposes of this study.

Some of the data of deaths for 1930 and 1940, as published by the Census Bureau, were not given in the age groupings with which this study is concerned. Because of this, these groupings were obtained by calculating the percentages of deaths in those age groups over a period of previous years and by making theoretical age distributions of the total figures for the particular years for which such groupings were desired. However, all totals for population data for census years and death data for all the years used are those given in the Census Bureau publications, (Tables I to VI and XXII to XXXIII, pp. 16-21, 37-48).

The data of population in 1939 and 1941 were estimated and theoretical age distributions were calculated. The mortality data for 1939 and 1941 were found in the Census Bureau publications as totals only, except for Portland, Oregon for 1939. Theoretical age distributions were made for the rest of the 1939 and 1941 data used.

Definition of Terms and Description of Techniques

The observed frequencies of the occurrence of events,

such as deaths in a community, provide information of little value, unless the population of the community is known. This is not sufficient for comparative purposes unless the number of persons in the population exposed to the risk of the occurrence of the event is also known. Rates, as used in vital statistics, are an expression of the frequency of occurrence of events relative to the numbers of persons exposed to risk. Only properly calculated rates may be used in studying the incidence of events such as mortality, natality, morbidity or others.

The calculation of a rate is done by the formula:

$$Rate = \frac{a}{a+b}$$

which, expressed in words, means:

$$Rate = \frac{\text{Number of times event occurred.}}{\substack{\text{Number of times event occurred, plus the number} \\ \text{of times event could have occurred but did not.} \\ \text{In other words, the number exposed to risk.}}}$$

Rates are also limited in time. This time is defined preliminary to any discussion of rates, and the rates are usually calculated for a specified year or month or week.

For convenience, it is customary to convert rates into whole numbers instead of leaving them in the fractions which the simple calculations produce. This is done by multiplying them by multiples of 10. They become rates per cent, when multiplied by 100, or per thousand, when multiplied by 1000, etc. This is also defined preliminary to a discussion of rates. In the study of vital statistics, crude and corrected death rates, color-specific death rates and birth rates are

usually calculated per 1000, because the figures used are
usually large enough not to require a larger multiple to
convert them into whole numbers. Cause-specific and age-
specific death rates are usually calculated per 10,000 be-
cause the figures are usually small and need a larger mul-
tiple to convert them into whole numbers.

Crude rates are calculated from the observed frequencies
of events and the total population. This assumes that the
whole population is exposed to the risk of the occurrence
of an event. This is the formula for obtaining crude rates:

$$\text{Rate} = \frac{\text{Observed frequency}}{\text{Total population}}$$

Specific rates are calculated from the observed frequen-
cy in a specified class of population and the number exposed
to risk in the same class of population.

Because of the differences in the composition of the
populations of different communities, it is necessary to
"adjust" or "correct" the rates in order to take these diff-
erences into account to make a comparison of the incidence
of mortality, natality, or other events between communities.
These theoretic rates may be computed by applying the
specific rates in a community, (the specificity may be as
to age and/or sex and/or race or any other characteristic),
to the distribution of some chosen standard population.[2]

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[2]Raymond Pearl, Medical Biometry and Statistics (Phila-
delphia and London: W. B. Saunders Co., 1940), pp. 274-276.

These corrected rates may then be compared to the rates corrected by the same method in another community.

The crude death rates used in this study were obtained by the formula:

$$\text{Rate} = \frac{\text{Total deaths}}{\text{Total population}} \times 1000 \quad \text{(Table VII, p. 22).}$$

Age-specific death rates were obtained by the formula:

$$\text{Rate} = \frac{\text{Deaths in specified age group}}{\text{Population in specified age group}} \times 10,000$$

(Tables VIII-XIII, pp. 23-28).

Color-specific death rates were obtained by the formula:

$$\text{Rate} = \frac{\text{Deaths in white/other population}}{\text{White/other population}} \times 1000$$

(Tables XXXIV-XXXVI, pp. 49-51).

Cause-specific death rates were obtained by the formula:

$$\text{Rate} = \frac{\text{Deaths from specified causes}}{\text{Total population}} \times 10,000$$

(Tables XXXVII-XXXIX, pp. 52-54).

The method used for obtaining the age-corrected death rates for the six cities consists of adopting a theoretical standard population devised by combining the populations of the six cities by age groups and totals, (Tables XIV, XV and XVI, pp. 29-31). The "expected" deaths for each city, by age groups and totals, in the standard population, (Tables XVII-XX, pp. 32-35), were obtained by the formula:

$$\text{"Expected" deaths, by age} = \frac{\text{Standard population, by age, times the age-specific death rates}}{1000}$$

Then the age-corrected death rates for each city were obtained by the formula:

$$\text{Rate} = \frac{\text{Total "expected" deaths in city}}{\text{Standard population}} \times 1000$$

(Table XXI, p. 36).

The estimated populations for the intercensal years 1939 and 1941 were obtained by the arithmetic method of estimating populations. This method assumes a constant annual increment between two census years. The increase in ten years divided by ten gives the annual increase.

> The arguments in favor of this method of estimating population are that it is simple and easily understood; that in view of the various disturbing factors due to migration and other causes it gives results practically as near the truth as those obtained by geometrical progression.[3]

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[3]George Chandler Whipple, Vital Statistics (New York: John Wiley & Sons, Inc., 1923), p. 140.

CHAPTER III

REVIEW OF SEVERAL STUDIES OF THE COMPARISON OF
MORTALITY RATES

There have been many studies of the comparative inci-
dence of mortality made for different purposes. There have
been comparisons of the incidence of mortality from specific
causes, in racial groups, in population size groups and in
any type of group over varying periods of time. The aims
of these studies have been as varied as the number of them.
For the purpose of illustrating the use of mortality rates
in comparative studies and some conclusions which have been
reached through their use, certain studies published in
Public Health Reports, the weekly publication of the United
States Public Health Service, have been chosen for short
reviews.

One study is a comparison of the mortality rates for
the entire United States, from 1929 to 1938, which implied
that the resultant progressive lowering of the general mor-
tality rates meant that the general health conditions in the
United States were better than in previous years.[4]   Several
possible reasons for this trend were suggested as contribu-
tory factors, such as no major epidemics, expansion of

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[4] "Health Conditions in the United States as Indicated by
Mortality Rates, 1929-1938", Public Health Reports, V. 53
(Nov. 4, 1938), pp. 1961-1963.

public health activities, better medical care for lower income groups, expansion of health education activities and increased interest in the public health manifested by private physicians.

Another study of a similar type was a comparison of the mortality rates in the United States generally between 1930 and 1940, which indicated a lowering trend in mortality as compared to previous years.[5] This work includes comparisons of death rates between sexes, in racial groups, age groups, white and colored mothers and infants, and from certain specific diseases. This was simply a comparison of the rates with no reasons given for the differences in them.

As an illustration of what an unusual situation will do to apparently normal trends in rates, there is a study of the effect of Influenza and Pneumonia mortality as a result of epidemics on the mortality rates of the United States.[6] It consists of comparisons of mortality rates between epidemic and non-epidemic years in specific age groups.

The relationship between per capita income and mortality from certain diseases is another of the studies of

[5] Harold F. Dorn, "Changes in Mortality Rates, 1930-1940", Public Health Reports, V.57 (Dec. 4, 1942), pp. 1858-1868.

[6] Selwyn D. Collins, "Influenza and Pneumonia Mortality, 1890-1945", Public Health Reports, V.60 (July 27, 1945), pp. 853-863.

mortality rates.[7] This study attempts to show positive
correlation between low income and mortality from certain
diseases.   There seemed to be some correlation between death
rates and income for five of the diseases included in the
study, and no correlation for the other diagnosis groups.

A study of Negro mortality, in three parts, which
covered mortality rates from all causes,[8] birth rates and
maternal and infant mortality rates[9] and mortality rates from
specific causes,[10] was prepared at the request of the Office
of Negro Health Work, United States Public Health Service.
This study was of interest because it included a description
of the method used for obtaining the age-corrected death
rates used, which is the same method used in this paper.
Certain limitations in the collection of the data needed were
explained.

Pertinent to any study of vital statistics over a per-
iod of time are the changes in the compositions of popu-
lations which occur. Some of these changes and the problems

[7] Marion E. Altenderfer, "Relationship Between Per Capita
Income and Mortality", Public Health Reports, V.62 (Nov. 28,
1947), pp. 1681-1691.

[8] Mary Gover, "Negro Mortality, Part I", Public Health
Reports, V.61 (Feb. 22, 1946), pp. 259-265.

[9] _____, "Negro Mortality, Part II", Public Health Re-
ports, V.61 (Oct. 25, 1946), pp. 1529-1538.

[10] _____, "Negro Mortality, Part III", Public Health Re-
ports, V.63 (Feb. 13, 1948), pp. 201-213.

arising from them are discussed in an article in the American Journal of Public Health.[11] A few of the changes include the modification of age composition, industrialization and migration. Such changes help to explain certain trends in vital statistics and the differences in the compositions of the populations in different communities.

The reason for reviewing these studies is to build up some authoritative evidence of the risk of being dogmatic about the infallability of the data of vital statistics. In any presentation of the material of vital statistics, explanations of its limitations must be made. For example, one such explanation was made by Harold F. Dorn in the study reviewed[12] of the doubt as to the accuracy of ages reported by the Negro population between 50 and 75 years of age. Presumably, some persons in the Negro population exaggerated their ages in the expectation that their chances of receiving old age benefits would be increased.

In a study of rates derived from the data of vital statistics, it must be remembered that these data are subject to errors, and that the rates derived from them can only approximate the true picture of the incidence of events. More reliance can be placed on the accuracy of rates derived

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[11] Lowell J. Reed, "Changing Problems Growing Out of the Change in Composition of the Population", American Journal of Public Health, V.38 (Jan. 1948), pp. 160-163.

[12] Dorn, op. cit., pp. 1862-1863.

from a large mass of data than on those derived from small samples.[13] The possibility of sampling errors decreases with the increase in the amount of data used. In the seven studies reviewed, the quantities of population, mortality, and natality data used made for reliability in the rates obtained. An explanation of the limitations involved was included in each study.

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[13] Marguerite F. Hall, Public Health Statistics (New York: Paul B. Hoeber, Inc., Medical Book Dept. of Harper & Bros., 1942), p. 341.

CHAPTER IV

RESULTS OF INVESTIGATION

The incidence of mortality in a given population is a complex made up of many factors. Probably no one index to the incidence of mortality could be devised which would constitute a complete reflection of all the factors involved. For the purposes of this investigation, it was decided to collect basic data and to calculate rates relating to a number of the possible factors that comprise this complex. To attempt to describe the various approaches made in the examination of the incidence of mortality for specified years in the various cities already identified would be extremely confusing. As an alternative procedure, the various approaches are briefly identified in the list of tables following the table of contents. On the basis of this list, reference may directly be made to the actual tabular presentations themselves where data for making comparisons is to be found.

Tabulation of Results of Investigation

Table I.

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE, FOR PORTLAND, OREGON FOR THE YEARS
1920, 1930, 1939, 1940 AND 1941

Age Groups	1920		1930		1939		1940		1941	
	Population	Deaths	Population	Deaths	Popu-* lation	Deaths	Population	Deaths ***	Popu-* lation	Deaths **
Under 1	3836	310	3113	173	3526	182	3531	248	3534	260
1-4	16134	124	13908	59	12442	31	12459	110	12473	115
5-9	20757	62	21358	41	14867	21	14877	63	14902	66
10-19	37073	109	46504	71	40707	56	40756	110	40803	115
20-29	47388	247	50646	145	52311	115	52375	214	52433	224
30-39	50543	338	52219	446	47909	167	47967	429	48021	449
40-49	36607	341	49315	448	47446	369	47501	458	47557	479
50-59	25033	421	33053	583	42019	637	42070	537	42217	614
60-69	13960	503	20109	720	26767	842	26793	721	26830	754
70 & over	6709	709	11429	987	17042	1602	17065	986	17082	1033
Unknown	248		161	2				2		2
TOTALS	258288	3164	301815	3675	305036	4022	305394	3928	305752	4111

* Estimated total and theoretical age distribution.
** Theoretical age distribution.
*** Theoretical age distribution, 30 years of age and over.

Table II

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE, FOR SEATTLE, WASHINGTON FOR THE YEARS 1920, 1930, 1939, 1940 AND 1941

Age Groups	1920		1930		1939		1940		1941	
	Population	Deaths	Population	Deaths***	Popu-*lation	Deaths**	Population	Deaths***	Popu-*lation	Deaths**
Under 1	4928	349	4247	199	4085	282	4091	283	4091	296
1-4	20052	146	17550	60	15527	84	15542	85	15550	89
5-9	23753	74	26233	52	18854	71	18870	71	18682	74
10-19	41848	134	54690	105	48735	146	48772	146	48807	154
20-29	60998	294	64803	189	63467	280	63517	281	63561	294
30-39	66746	394	63963	431	59300	608	59345	610	59388	640
40-49	46459	436	59655	485	56835	701	56866	703	56919	737
50-59	29745	499	39177	566	50869	804	50901	805	50944	845
60-69	13197	528	23032	592	31338	845	31363	847	31384	889
70&over	6156	537	11639	612	19020	858	19035	870	19048	913
Unknown	1300		594	6		9		9		9
TOTALS	315312	3360	365583	3304	368030	4698	368302	4710	368574	4464

*   Estimated total and theoretical age distribution.
**   Theoretical age distribution.
***   Theoretical age distribution, 30 years of age and over.

Table III

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE, FOR LOS ANGELES, CALIFORNIA FOR THE YEARS 1920, 1930, 1939, 1940 AND 1941

Age Groups	1920		1930		1939		1940		1941	
	Population	Deaths	Population	Deaths	Popu-lation*	Deaths**	Population	Deaths***	Popu-lation*	Deaths**
Under 1	7549	830	15103	1107	17170	803	17488	777	17789	831
1-4	30589	350	63696	447	65298	75	66485	70	67651	78
5-9	39651	175	86569	221	78877	87	80162	85	81720	91
10-19	75181	302	162150	394	190780	266	194227	254	197654	276
20-29	103844	646	232057	881	261840	628	266563	608	271275	651
30-39	111219	843	231478	1505	260955	1013	265706	980	270357	1050
40-49	88349	876	190982	1598	228194	1747	232306	1690	236417	1811
50-59	61392	1104	132210	1999	181500	2896	184784	2800	188040	3002
60-69	36896	1319	79096	2481	120784	3706	122972	3583	125136	3842
70&over	20615	1829	44030	3398	72257	6268	73566	6055	74861	6497
Unknown	1383		697	1						
TOTALS	576673	8274	1238048	14028	1477655	17489	1504277	16902	1530900	18129

* Estimated total and theoretical age distribution.
** Theoretical age distribution.
*** Theoretical age distribution, 30 years of age and over.

Table IV

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE, FOR SAN FRANCISCO, CALIFORNIA FOR THE YEARS
1920, 1930, 1939, 1940 AND 1941

Age Groups	1920		1930		1939		1940		1941	
	Population	Deaths	Population	Deaths	Popu-* lation	Deaths**	Population	Deaths***	Popu-* lation	Deaths**
Under 1	6563	558	5915	312	6116	247	6118	238	6117	257
1-4	25958	266	26498	112	24214	43	24215	42	24215	44
5-9	33591	136	37610	92	28268	25	28255	25	28269	26
10-19	66479	256	116121	142	73834	78	73840	76	73836	81
20-29	99621	599	124473	421	106618	218	106609	211	106623	226
30-39	105127	842	123217	1100	116745	489	116750	473	116751	507
40-49	79494	918	103353	1232	107964	980	107970	947	107969	1017
50-59	49720	1125	70151	1460	86904	1681	86910	1623	86908	1745
60-69	24716	1152	38789	1535	55286	2137	55290	2063	55288	2218
70&over	12514	1404	16062	1900	28572	2845	28579	2749	28574	2955
Unknown	2891	3	8015	5		7	678	8		8
TOTALS	506676	7259	634394	8311	634520	8750	634539	8548	634550	9806

* Estimated total and theoretical age distribution.

** Theoretical age distribution.

*** Theoretical age distribution, 30 years of age and over.

Table V

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE, FOR DETROIT, MICHIGAN FOR THE YEARS 1920, 1930, 1939, 1940 AND 1941

Age Groups	1920 Population	1920 Deaths	1930 Population*	1930 Deaths***	1939 Population*	1939 Deaths**	1940 Population	1940 Deaths***	1941 Population*	1941 Deaths**
Under 1	22268	2885	28523	2134	23396	2312	23478	2345	23554	2401
1-4	89849	1258	118087	764	93584	953	93911	967	94217	990
5-9	86245	456	148172	449	113955	412	114346	418	114726	428
10-19	138853	581	256362	544	274149	533	275056	542	276006	554
20-29	240886	1712	321914	1273	297205	1448	298215	1470	299218	1504
30-39	199936	1700	317099	2401	285249	1934	286218	1962	287181	2009
40-49	108148	1209	205730	1693	260267	1367	261155	1387	262030	1419
50-59	61411	1203	100526	1683	162347	1318	162861	1337	163447	1368
60-69	29799	1182	48769	1655	72598	1283	72657	1299	73090	1373
70&over	13418	1514	22438	2132	35223	1643	35355	1664	35462	1706
Unknown	860		1041							
TOTALS	993678	13700	1568662	13136	1617975	13203	1623452	13391	1628931	13712

* Estimated total and theoretical age distribution.

** Theoretical age distribution.

*** Theoretical age distribution, 30 years of age and over.

Table VI

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE, FOR BALTIMORE, MARYLAND FOR THE YEARS 1920, 1930, 1939, 1940 AND 1941

Age Groups	1920		1930		1939		1940		1941	
	Population	Deaths	Popu-lation	Deaths***	Popu-* lation	Deaths**	Popu-lation	Deaths***	Popu-* lation	Deaths**
Under 1	14852	1961	11807	981	10150	646	10217	645	10279	690
1-4	54504	682	52677	329	45638	107	45936	107	46218	114
5-9	64492	201	73191	185	58332	67	58692	66	59073	72
10-19	123730	383	136317	382	142702	207	143612	206	144514	221
20-29	144897	964	148185	610	157726	464	158735	463	159729	496
30-39	122393	1032	135059	1257	143239	678	144155	674	145058	725
40-49	92342	1172	106390	1422	122725	1223	123506	1219	124284	1307
50-59	62563	1449	71607	1762	87613	1869	85154	1863	85726	1997
60-69	36008	1567	43311	1919	54266	2311	54638	2302	54975	2470
70&over	17894	1945	23159	2364	21370	3300	31455	3289	31667	3526
Unknown	151		3271			7		7		6
TOTALS	733826	11356	804874	11239	853681	10879	859100	10841	864523	11624

* Estimated total and theoretical age distribution.

** Theoretical age distribution.

*** Theoretical age distribution, 30 years of age and over.

Table VII

POPULATION, DEATHS AND DEATH RATES PER 1000 POPULATION, BY CITIES, FOR 1920, 1930 AND 1940

Cities	1920			1930			1940		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Portland	258288	3164	12.2	301815	3675	12.1	305394	3928	12.8
Seattle	315312	3360	10.6	365583	3304	9.0	368302	4710	12.7
Los Angeles	576673	8274	14.3	1238048	14028	11.3	1504277	16902	12.0
San Francisco	506676	7259	14.3	634394	8311	13.1	634536	8455	13.3
Detroit	733826	11356	15.5	1568662	13136	9.4	1623452	13391	8.2
Baltimore	991670	13700	13.8	804874	11239	14.0	859100	10841	12.6

Table VIII

POPULATION AND DEATHS, BY AGE, AND AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION FOR PORTLAND, OREGON FOR THE YEARS 1920, 1930 AND 1940, AND FOR THE COMBINED YEARS 1939, 1940 AND 1941

Age Groups	1920			1930			1940			1939, 1940 and 1941		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Under 1	3836	310	80.81	3113	173	55.57	3531	248	70.23	10591	690	65.14
1-4	16134	124	7.68	13908	59	4.24	12459	110	8.82	37374	256	6.84
5-9	20757	62	2.98	21358	41	1.91	14877	63	4.23	44646	150	3.35
10-19	37073	109	2.94	46504	71	1.53	40756	110	2.69	122266	281	2.29
20-29	47388	247	5.21	50646	145	2.86	52375	214	4.08	157119	553	3.51
30-39	50543	338	6.68	52219	446	8.54	47967	429	8.94	143897	1045	7.26
40-49	36607	341	9.31	49315	448	9.08	47501	458	9.64	142504	1306	9.16
50-59	25033	421	16.81	33053	583	17.63	42070	587	13.95	126206	1838	14.56
60-69	13960	503	36.03	20109	720	35.80	26793	721	26.91	80390	2317	28.82
70&over	6709	709	105.67	11429	987	86.35	17065	986	57.77	51189	5938	116.00

23

Table IX

POPULATION AND DEATHS, BY AGE, AND AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION FOR SEATTLE, WASHINGTON FOR THE YEARS 1920, 1930 AND 1940, AND FOR THE COMBINED YEARS 1939, 1940 AND 1941

Age Groups	1920			1930			1940			1939, 1940 and 1941		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Under 1	4928	349	70.81	4247	199	46.85	4091	283	69.17	12267	861	70.18
1-4	20052	146	7.28	17550	60	3.41	15542	85	5.46	46619	249	5.34
5-9	23753	74	3.11	26233	52	1.98	18870	71	3.76	56606	216	3.81
10-19	41848	134	3.20	54690	105	1.91	48772	146	2.99	146314	446	3.04
20-29	60998	294	4.81	84803	189	2.91	63517	281	4.42	190545	855	4.49
30-39	66746	394	5.90	63963	431	6.73	59345	610	10.27	178033	1858	10.43
40-49	46459	436	9.38	59655	485	8.13	56866	703	12.36	170620	2141	12.54
50-59	29745	499	16.77	39177	566	14.44	50901	805	15.81	152714	2454	16.06
60-69	13197	528	40.00	23032	592	25.70	31363	847	27.00	94085	2581	27.43
70&over	6156	537	87.23	11639	612	52.58	19035	870	45.70	57103	2651	46.42

Table X

POPULATION AND DEATHS, BY AGE, AND AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION FOR
LOS ANGELES, CALIFORNIA FOR THE YEARS 1920, 1920 AND 1940, AND FOR THE COMBINED YEARS 1939,
1940 AND 1941

Age Groups	1920			1920			1940			1939, 1940 and 1941		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Under 1	7549	830	109.94	15103	1103	73.03	17488	777	44.43	52447	2411	45.97
1-4	30589	350	11.44	63696	447	7.01	66485	70	1.05	194434	223	1.11
5-9	39651	175	4.41	86569	221	2.55	80162	85	1.06	240759	263	1.09
10-19	75181	302	4.01	162150	394	2.42	194227	254	1.30	582661	787	1.35
20-29	103844	646	6.22	232057	881	3.79	266563	608	2.28	799678	1887	2.35
30-39	111219	843	7.57	231478	1505	6.50	265706	980	3.68	797018	3043	3.81
40-49	88349	876	9.91	190962	1598	8.36	232306	1690	7.27	696917	5248	7.53
50-59	61397	1104	17.98	132210	1999	15.11	184784	2800	15.15	554324	8698	15.69
60-69	36896	1319	35.74	79096	2481	31.36	122972	3583	29.13	368892	11171	30.28
70&over	20615	1829	88.72	44030	3398	77.17	73566	6055	82.30	220684	18820	85.28

Table XI

POPULATION AND DEATHS, BY AGE, AND AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION FOR SAN FRANCISCO, CALIFORNIA FOR THE YEARS 1920, 1930 AND 1940, AND THE COMBINED YEARS 1939, 1940 AND 1941

Age Groups	1920			1930			1940			1939, 1940 and 1941		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Under 1	6563	558	85.02	5915	312	52.74	6118	238	38.90	18351	742	40.43
1-4	25958	266	10.24	26498	112	4.22	24215	42	1.73	72644	129	1.77
5-9	33591	136	4.04	37610	92	2.44	28255	25	.88	84792	76	.89
10-19	66479	256	3.85	116121	142	1.21	73840	76	1.02	221510	235	1.06
20-29	99621	599	6.01	124473	421	3.38	106609	211	1.97	319850	655	2.04
30-39	105127	842	8.00	123217	1100	8.92	116750	473	4.08	350246	1469	4.19
40-49	79494	918	11.54	103353	1232	11.92	107970	947	8.77	323603	2944	9.08
50-59	49720	1125	22.62	70151	1460	20.81	86910	1921	18.7	260722	5049	19.36
60-69	24716	1152	46.60	38789	1535	39.57	55290	2063	37.31	165864	6418	38.69
70 & over	12514	1404	112.19	18062	1900	105.19	28579	2749	99.18	85725	8549	99.72

Table XII

POPULATION AND DEATHS, BY AGE, AND AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION FOR DETROIT, MICHIGAN FOR THE YEARS 1920, 1930 AND 1940, AND THE COMBINED YEARS 1939, 1940 AND 1941

Age Groups	1920			1930			1940			1939, 1940 and 1941		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Under 1	22268	2885	129.56	28523	2134	74.82	23478	2345	99.88	70428	7058	100.21
1-4	89849	1258	14.00	118087	764	6.47	93911	967	10.30	281712	2910	10.32
5-9	88245	456	5.17	146172	449	3.03	114346	418	3.66	343027	1258	3.66
10-19	138858	581	4.18	256362	544	2.12	275056	542	1.97	825211	1629	1.97
20-29	240886	1712	7.11	321914	1273	3.95	298215	1470	4.93	894638	4422	4.94
30-39	199936	1700	8.50	317099	2401	7.57	286218	1962	6.85	858648	5905	6.87
40-49	108148	1209	11.18	205730	1693	8.23	261155	1387	5.31	783452	4173	5.32
50-59	61411	1203	19.59	100526	1683	16.74	162861	1337	8.21	488655	4023	8.23
60-69	29799	1182	39.66	48769	1655	33.94	72857	1299	17.83	218545	3915	17.91
70&over	13418	1514	112.83	22438	2132	95.02	35355	1664	47.07	106040	5013	47.27

Table XIII

POPULATION AND DEATHS, BY AGE, AND AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION FOR BALTIMORE, MARYLAND FOR THE YEARS 1920, 1930 AND 1940, AND THE COMBINED YEARS 1939, 1940 AND 1941

Age Groups	1920			1930			1940			1939, 1940 and 1941		
	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates	Population	Deaths	Rates
Under 1	14852	1961	132.04	11807	961	83.09	10217	645	63.13	30646	1981	64.64
1-4	54504	682	12.51	52677	329	6.25	45936	107	2.33	137792	328	2.38
5-9	64492	201	3.12	74191	185	2.53	58692	66	1.12	176097	205	1.16
10-19	123730	383	3.09	136317	382	2.80	143612	206	1.43	430828	634	1.47
20-29	144897	964	6.65	148085	610	4.12	158735	463	2.92	476190	1423	2.98
30-39	122393	1032	8.43	135059	1257	9.31	144155	674	4.68	432452	2077	4.80
40-49	92342	1172	12.69	106390	1422	13.37	123506	1219	9.87	370515	3749	10.11
50-59	62563	1449	23.16	71607	1762	24.61	88154	1863	21.13	264493	5729	21.66
60-69	36008	1567	43.52	43311	1919	44.31	54638	2302	42.13	163899	7083	43.21
70 & over	17894	1945	108.20	23159	2364	102.08	31455	3289	104.56	94392	10115	107.15

Table XIV

ARBITRARILY ADOPTED STANDARD POPULATION FOR 1920, BY AGE, DEVISED BY COMBINING THE POPULATIONS OF PORTLAND, OREGON, SEATTLE, WASHINGTON, LOS ANGELES, CALIFORNIA, SAN FRANCISCO, CALIFORNIA, DETROIT, MICHIGAN AND BALTIMORE, MARYLAND FOR THE YEAR 1920

Age Groups	POPULATIONS						Theoretical Standard Population
	Portland	Seattle	Los Angeles	San Francisco	Detroit	Baltimore	
Under 1	3836	4928	7549	6563	22268	14852	59996
1-4	16134	20052	30589	25958	89849	54504	237086
5-9	20757	23753	39651	33591	88245	64492	270489
10-19	37072	41848	75181	66479	138858	123730	483169
20-29	47388	60998	103844	99621	240886	144897	697634
30-39	50543	66746	111219	105127	199936	122393	655964
40-49	36607	46459	88349	79494	108148	92342	451399
50-59	25033	29745	61397	49720	61411	62563	289869
60-69	13960	13197	36896	24716	29799	36008	154576
70&over	6709	6156	20615	12514	13418	17894	77306
TOTALS	258288	315312	576673	506676	992818	733675	3383442

Table XV

ARBITRARILY ADOPTED STANDARD POPULATION FOR 1930, BY AGE, DEVISED BY COMBINING THE POPULATIONS OF PORTLAND, OREGON, SEATTLE, WASHINGTON, LOS ANGELES, CALIFORNIA, SAN FRANCISCO, CALIFORNIA, DETROIT, MICHIGAN AND BALTIMORE, MARYLAND FOR THE YEAR 1930

Age Groups	POPULATIONS						Theoretical Standard Population
	Portland	Seattle	Los Angeles	San Francisco	Detroit	Baltimore	
Under 1	3113	4247	15103	5915	28523	11807	68705
1-4	13908	17550	63696	26498	118087	52667	292406
5-9	21358	26233	86569	37610	148173	73191	393134
10-19	46504	54690	162150	116121	256362	136317	772144
20-29	50646	64803	232057	124473	321914	148086	941979
30-39	52219	63963	231478	123317	317099	135060	923036
40-49	49315	59655	190962	103353	205730	106392	715407
50-59	33053	39177	132210	70151	100526	7608	446725
60-69	20109	23032	79096	38769	48769	43714	253109
70&over	11429	11639	44030	18062	22438	23161	130759
TOTALS	301815	365583	1238048	634394	1567621	801603	4909064

Table XVI

ARBITRARILY ADOPTED STANDARD POPULATION FOR 1940, BY AGE, DEVISED BY COMBINING THE POPULATIONS OF PORTLAND, OREGON, SEATTLE, WASHINGTON, LOS ANGELES, CALIFORNIA, SAN FRANCISCO, CALIFORNIA, DETROIT, MICHIGAN AND BALTIMORE, MARYLAND FOR THE YEAR 1940

Age Groups	POPULATIONS						Theoretical Standard Population
	Portland	Seattle	Los Angeles	San Francisco	Detroit	Baltimore	
Under 1	3531	4091	17488	6118	23478	10217	64923
1-4	12459	15543	66485	24215	93911	45936	258548
5-9	14577	18870	80162	28255	114346	58692	315202
10-19	40756	48772	194227	73840	275056	143612	776263
20-29	52375	63517	266563	106609	298215	158735	946014
30-39	47967	59345	265706	116750	286218	144155	920141
40-49	47501	56866	232306	107970	261155	123506	829304
50-59	42070	50901	184784	86910	162861	88154	615680
60-69	26793	31363	122972	55290	72857	54638	363913
70&over	17065	19035	73566	28579	35355	31455	205046
TOTALS	305394	368302	1504277	634536	1623452	859100	5295061

Table XVII

THEORETICAL STANDARD POPULATION, AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION AND "EXPECTED" DEATHS IN STANDARD POPULATION, BY AGE AND CITIES, FOR THE YEAR 1920

Age Groups	Population	PORTLAND		SEATTLE		LOS ANGELES		SAN FRANCISCO		DETROIT		BALTIMORE	
		Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths
Under 1	59996	80.81	4845	70.80	4248	109.94	6596	85.02	5105	129.56	7773	132.04	7922
1-4	237086	7.68	1821	7.28	1726	11.44	2712	10.24	2428	14.00	3319	12.51	2966
5-9	270489	2.98	806	3.11	841	4.41	1193	4.04	1093	5.17	1398	3.12	844
10-19	483169	2.94	1421	3.20	1546	4.01	1938	3.85	1860	4.18	2220	3.09	1493
20-29	697634	5.21	3635	4.81	3356	6.22	4339	6.01	4193	7.11	4960	6.65	4639
30-39	655964	6.68	4382	5.90	3870	7.57	4966	8.00	5248	8.50	5576	8.43	5530
40-49	451399	9.31	4203	9.38	4234	9.91	4473	11.54	5209	11.18	5047	12.69	5728
50-59	289869	16.81	4872	16.77	4861	17.98	5212	22.62	6557	19.59	5679	23.16	6713
60-69	154576	36.03	5569	40.00	6183	35.74	5525	46.60	7203	39.66	6130	43.52	6727
70&up	77306	105.67	8169	87.23	6743	88.72	6859	112.19	8673	112.83	8722	108.70	8403
TOTAL	3383442		39727		37608		43613		47565		50624		50965

Table XVIII

THEORETICAL STANDARD POPULATION, AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION AND "EXPECTED" DEATHS IN STANDARD POPULATION, BY AGE AND CITIES, FOR THE YEAR 1930

Age Groups	Popu-lation	PORTLAND		SEATTLE		LOS ANGELES		SANFRANCISCO		DETROIT		BALTIMORE	
		Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths
Under 1	66708	55.57	3818	46.85	3219	73.03	5018	52.74	3624	74.82	5141	83.09	5709
1-4	292406	4.24	1240	3.41	997	7.01	2050	4.22	1234	6.47	1893	6.25	1828
5-9	393134	1.91	751	1.98	778	2.55	1002	2.44	959	3.03	1191	2.53	995
10-19	772144	1.52	1174	1.91	1475	2.42	1869	1.22	942	2.12	1637	2.80	2162
20-29	941979	2.86	2694	2.91	2741	3.79	3570	3.38	3184	3.95	3721	4.12	3881
30-39	923036	8.54	7883	6.73	7135	6.50	6000	8.92	8233	7.57	6987	9.31	8593
40-49	715407	9.08	6496	8.13	5816	8.36	5981	11.92	8528	8.23	5888	13.37	9565
50-59	446725	17.63	7876	14.44	6451	15.11	6750	20.81	9296	16.74	7478	24.61	10994
60-69	253109	35.80	9061	25.70	6505	31.36	7937	39.57	10016	33.94	8591	44.31	11215
70&up	139759	86.35	12291	52.58	6875	77.17	10090	105.19	13755	95.02	12425	102.08	13348
TOTAL	4909064		52284		41992		50267		59771		54952		68290

Table XIX

THEORETICAL, STANDARD POPULATION, AGE-SPECIFIC DEATH RATES PER 10,000 POPULATION AND "EXPECTED" DEATHS IN STANDARD POPULATION, BY AGE AND CITIES, FOR THE YEAR 1940

Age Groups	Popu-lation	PORTLAND		SEATTLE		LOS ANGELES		SANFRANCISCO		DETROIT		BALTIMORE	
		Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths
Under 1	64923	70.23	4560	69.17	4491	44.33	2885	38.90	2526	99.88	6485	63.13	4099
1-4	258548	8.82	2280	5.41	1412	1.05	271	1.73	447	10.30	2663	2.33	602
5-9	315202	4.23	1333	3.76	1185	1.06	334	.88	277	3.66	1154	1.12	353
10-19	776203	2.69	2088	2.99	2321	1.30	1009	1.02	792	1.97	1529	1.43	1110
20-29	946041	4.08	3860	4.42	4181	2.28	2157	1.97	1864	4.93	4664	2.92	2762
30-39	920141	8.94	8226	10.27	9450	3.68	3386	4.05	3727	6.85	6303	4.68	4306
40-49	829304	9.64	7994	12.36	10250	7.27	6029	8.77	7273	5.31	4404	9.87	8185
50-59	615680	13.95	8589	15.81	9734	15.15	9328	18.67	11495	8.21	5055	21.31	13009
60-69	363913	26.91	9793	27.00	9826	29.13	10601	37.31	13578	17.83	6489	42.13	15332
70&up	205046	57.77	11846	45.70	9371	82.30	16875	96.18	19721	47.07	9652	104.56	21440
TOTAL	5295061		60569		62221		52875		61700		48398		71198

34

Table XX

THEORETICAL STANDARD POPULATION FOR 1940, AGE--SPECIFIC DEATH RATES PER 10,000 POPULATION AND *EXPECTED* DEATHS IN STANDARD POPULATION, BY AGE AND CITIES, FOR THE COMBINED YEARS 1939, 1940 AND 1941

Age Groups	Popu-lation	PORTLAND		SEATTLE		LOS ANGELES		SANFRANCISCO		DETROIT		BALTIMORE	
		Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths	Rates	Deaths
Under 1	64923	65.14	4229	70.18	4556	45.97	2985	40.43	2625	100.21	6506	64.54	4197
1-4	258545	6.84	1768	5.34	1381	1.11	287	1.77	458	10.32	2668	2.38	615
5-9	315202	3.35	1056	3.81	1201	1.09	344	.89	281	3.66	1154	1.16	365
10-19	776263	2.29	1778	3.04	2360	1.35	1048	1.06	823	1.97	1529	1.47	1141
20-29	946041	3.51	3321	4.49	4248	2.35	2223	2.04	1930	4.94	4673	2.98	2819
30-39	920141	7.26	6680	10.43	9597	3.81	3506	4.19	3855	6.87	6321	4.80	4417
40-49	829304	9.16	7596	12.54	10399	7.53	6245	9.08	7530	5.32	4412	10.11	8384
50-59	615680	14.56	8964	16.06	9888	15.69	9660	19.36	11920	8.23	5067	21.66	13336
60-69	363913	28.82	10488	27.43	9982	30.28	11019	38.69	14080	17.91	6518	43.21	15725
70&up	205046	116.00	23785	49.42	9518	85.28	17486	99.72	20447	47.27	9693	107.15	21971
TOTAL	5295061		69665		63130		54802		63949		48541		72971

Table XXI   36

AGE-CORRECTED DEATH RATES PER 1000 POPULATION AS CALCULATED
FROM THE TOTAL "EXPECTED" DEATHS IN THE THEORETICAL STANDARD
POPULATION, BY CITIES, FOR 1920, 1930 AND 1940, AND FOR THE
COMBINED YEARS 1930, 1940 AND 1941

Cities	RATES			
	1920	1930	1940	1939, 1940 and 1941
Portland	11.74	10.65	11.44	13.15
Seattle	11.12	8.55	11.75	11.92
Los Angeles	12.95	10.24	9.99	10.34
San Francisco	14.06	12.18	11.65	12.07
Detroit	14.96	11.19	9.14	9.16
Baltimore	15.06	13.91	13.45	13.78

Table XXII

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE AND RACE, FOR PORTLAND, OREGON FOR THE YEARS 1920, 1930 AND 1940

Age Groups	1920 Population White	Population Other Races	Deaths White	Deaths Other Races	1930 Population White	Population Other Races	Deaths White	Deaths Other Races	1940 Population White	Population Other Races	Deaths White	Deaths * Other Races
Under 1	3722	114	279	31	3037	76	161	12	3471	60	231	17
1-4	15796	338	109	15	13556	352	53	6	12220	239	99	11
5-9	20466	291	58	14	20831	527	38	3	14549	328	58	5
10-19	36626	447	100	9	45737	767	65	2	39699	1057	100	10
20-29	46472	916	220	27	49546	1100	129	16	51393	982	190	24
30-39	49360	1183	308	30	51267	952	410	36	47052	915	395	34
40-49	35740	867	314	27	48745	926	417	31	46614	887	426	32
50-59	24356	677	396	25	32484	599	548	35	41279	691	552	35
60-69	13589	371	478	25	19810	299	691	29	26440	353	692	29
70&over	6598	111	695	14	11313	116	967	20	16690	175	966	29
Unknown	242	6			151	10	2				2	20
TOTALS	252967	5321	2957	207	296077	5738	3481	194	299707	5687	3711	217

* Theoretical age distribution, 30 years of age and over.

Table XXIII

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE AND RACE, FOR SEATTLE, WASHINGTON FOR THE YEARS 1920, 1930 AND 1940

Age Groups	1920 Population White	1920 Population Other Races	1920 Deaths* White	1920 Deaths* Other Races	1930 Population White	1930 Population Other Races	1930 Deaths* White	1930 Deaths* Other Races	1940 Population White	1940 Population Other Races	1940 Deaths* White	1940 Deaths* Other Races
Under 1	4537	391	304	45	4034	213	173	26	3940	151	246	37
1-4	18197	1855	131	25	16441	1109	50	10	14970	572	71	14
5-9	23057	696	72	2	24360	1873	50	2	18016	854	69	2
10-19	40769	1079	119	15	51402	3228	93	12	45560	2892	130	16
20-29	58207	2791	252	42	62200	2603	163	26	61041	2476	242	39
30-39	63265	3546	357	37	61516	2447	392	39	57150	2195	555	55
40-49	44579	1945	399	37	56938	2717	446	39	54754	2112	647	56
50-59	28964	781	467	32	37855	1322	532	34	49065	1836	757	48
60-69	12905	292	514	14	22680	352	574	18	30414	949	822	25
70&over	6092	64	528	9	11434	205	209	12	18771	264	853	22
Unknown	1196	104			482	212					8	1
TOTALS	301768	13544	3143	258	349342	16181	3086	218	354001	14301	4410	310

* Theoretical age distribution, 30 years of age and over.

38

Table XXIV

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE AND RACE, FOR LOS ANGELES, CALIFORNIA FOR THE YEARS 1920, 1930 AND 1940

Age Groups	1920				1930				1940			
	Population		Deaths		Population		Deaths *		Population		Deaths *	
	White	Other Races	White	Other Races	White	Other Races	White	Other Races	White	Other Races	White	Other Races
Under 1	6784	765	741	89	11169	3934	1016	87	16199	1289	723	54
1-4	28126	2463	310	40	47877	15819	411	36	61524	4961	66	4
5-9	37652	1999	164	11	67033	19536	202	19	74070	6092	76	9
10-19	72051	3130	281	21	135442	26708	363	31	179386	14841	226	28
20-29	97791	6053	570	76	197795	34262	785	96	247031	19550	523	85
30-39	103965	7254	762	61	202654	28824	1356	149	246042	19664	862	118
40-49	83596	4753	800	76	171200	19762	1460	138	217654	14652	1521	169
50-59	59204	2193	1039	65	122436	9774	1877	122	175074	9710	2704	196
60-69	36104	792	1273	46	75074	4022	2398	83	117879	5093	3440	143
70 & over	20312	303	1795	34	42340	1690	3337	61	71571	1995	5834	121
Unknown	1269	114			618	79	1					
TOTALS	546854	29819	7735	539	1073638	164410	13206	822	1406430	97847	15975	927

* Theoretical age distribution, 30 years of age and over.

Table XXV

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE AND RACE, FOR SAN FRANCISCO, CALIFORNIA FOR THE YEARS 1920, 1930 AND 1940

Age Groups	1920 Population White	1920 Population Other Races	1920 Deaths * White	1920 Deaths * Other Races	1930 Population White	1930 Population Other Races	1930 Deaths * White	1930 Deaths * Other Races	1940 Population White	1940 Population Other Races	1940 Deaths * White	1940 Deaths * Other Races
Under 1	6233	330	523	35	5223	692	289	23	5798	1277	221	17
1-4	24803	1155	236	30	23723	2775	94	18	22818	1397	38	4
5-9	32656	935	127	9	34214	3396	82	10	26197	2001	23	2
10-19	64788	1691	238	18	73443	5068	128	14	68158	5682	67	9
20-29	95558	4063	545	54	115073	9400	385	36	101113	5296	186	25
30-39	101484	3643	777	65	115359	7858	1040	60	110380	6270	421	52
40-49	76911	2583	862	56	98297	5056	1180	52	102426	5344	881	86
50-59	48245	1475	1047	76	67367	2784	1388	72	83675	3035	1428	195
60-69	24162	554	1068	84	37621	1168	1457	78	53555	1635	2001	62
70&over	12390	124	1373	31	17692	370	1874	26	27981	498	2694	55
Unknown	2792	99	3		7058	957	5				7	1
TOTALS	490022	16652	6799	460	595070	39524	7922	389	602101	32435	7967	488

* Theoretical age distribution, 30 years of age and over.

Table XXVI

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE AND RACE, FOR DETROIT, MICHIGAN FOR THE YEARS
1920, 1930 AND 1940

Age Groups	1920 Population White	1920 Population Other Races	1920 Deaths White	1920 Deaths Other Races	1930 Population White	1930 Population Other Races	1930 Deaths* White	1930 Deaths* Other Races	1940 Population White	1940 Population Other Races	1940 Deaths* White	1940 Deaths* Other Races
Under 1	21673	595	2734	151	26436	2087	1889	245	21063	2415	2089	256
1-4	87930	1919	1181	77	108502	9585	629	135	84783	9128	829	138
5-9	86044	2201	438	18	137161	11012	397	52	102591	11755	373	45
10-19	134194	4664	531	50	240265	16097	424	120	250803	24253	432	110
20-29	226659	14227	1477	235	287486	34428	910	363	271075	27140	1085	385
30-39	189456	10480	1474	226	285172	31927	2084	317	252982	33236	1611	351
40-49	103228	4920	1067	142	190475	15255	1495	198	235507	25648	1167	220
50-59	59669	1742	1130	73	95093	5433	1582	101	151879	10982	1225	112
60-69	29263	536	1149	33	47088	1681	1610	45	68408	4449	1249	50
70&over	13200	218	1479	35	21705	733	2083	49	33571	1784	1611	53
Unknown	749	111			803	238						
TOTALS	952067	39613	12660	1040	1440186	128476	12521	1615	1472662	150790	11671	1720

* Theoretical age distribution, 30 years of age and over.

Table XXVII

POPULATION AND DEATHS FROM ALL CAUSES, BY AGE AND RACE, FOR BALTIMORE, MARYLAND FOR THE YEARS 1920, 1930 AND 1940

Age Groups	1920 Population White	1920 Population Other Races	1920 Deaths White	1920 Deaths Other Races	1930 Population White	1930 Population Other Races	1930 Deaths * White	1930 Deaths * Other Races	1940 Population White	1940 Population Other Races	1940 Deaths * White	1940 Deaths * Other Races
Under 1	12884	1968	1489	472	9552	2255	674	307	7866	2351	392	253
1-4	48097	6407	497	185	42264	10073	222	107	35081	10855	59	48
5-9	56423	8069	162	39	60093	13098	137	48	44457	14235	37	29
10-19	107776	15954	267	116	114765	21552	293	89	114679	28933	92	114
20-29	119068	25829	647	317	116985	31100	375	235	128174	30561	230	233
30-39	100573	21820	694	338	107343	27716	846	411	112473	31682	351	323
40-49	76767	15575	809	363	86930	19460	983	439	99582	23924	717	502
50-59	54705	7858	1112	337	61716	9891	1353	409	74664	13490	1314	549
60-69	32543	3465	1319	248	38940	4371	1616	303	47611	7027	1926	376
70 & over	16184	1710	1786	159	21127	2032	2172	192	28136	3319	2972	317
Unknown	110	41			2047	1197					3	4
TOTALS	625130	108696	8782	2574	662129	142245	8671	2540	692705	166395	8093	2748

* Theoretical age distribution, 30 years of age and over.

Table XXVIII

DEATHS FROM CERTAIN SPECIFIED CAUSES, BY AGE, FOR PORTLAND, OREGON FOR YEARS
1920, 1930 AND 1940

Age Groups	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940 *	1920	1930	1940 **	1920	1930	1940 **
Under 1	18	2	2	-	-	-	1	1	1
1-4	9	3		1	1	1	4	-	2
5-9	3	-		1	-	-	1	2	1
10-19	-	-		1	1	1	18	10	9
20-29	1	-		3	4	6	27	10	15
30-39	3	1		21	20	3	40	21	19
40-49	1	-		57	56	7	22	14	12
50-59	5	2		80	102	112	14	13	9
60-69	3	1		84	199	180	20	15	11
70&over	6	2		73	134	222	3	4	2
Unknown									
TOTALS	49	11	2	320	517	532	150	90	81

* Under 2 years of age only.
** Theoretical age distribution, 30 years of age and over.

Table XXIX

DEATHS FROM CERTAIN SPECIFIED CAUSES, BY AGE, FOR SEATTLE, WASHINGTON FOR THE YEARS 1920, 1930 AND 1940

Age Groups	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940*	1920	1930	1940**	1920	1930	1940**
Under 1	23	4	1	-	2	1	-	-	-
1-4	9	1		1	2	1	5	1	3
5-9	1	-		-	1	1	5	3	3
10-19	2	-		-	5	3	21	9	13
20-29	-	-		3	9	6	54	46	43
30-39	3	2		10	16	19	36	36	29
40-49	1	1		68	69	96	36	29	28
50-59	3	2		93	127	161	28	26	23
60-69	1	1		98	158	167	13	19	13
70&over	5	4		68	159	168	10	14	7
Unknown					1				
TOTALS	84	15	1	342	545	649	202	183	162

* Under 2 years of age only.
** Theoretical age distribution, 30 years of age and over.

Table XXX

DEATHS FROM CERTAIN SPECIFIED CAUSES, BY AGE, FOR LOS ANGELES, CALIFORNIA FOR THE YEARS 1920, 1930 AND 1940

Age Groups	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940*	1920	1930	1940**	1920	1930	1940**
Under 1	210	98	32	1	3	4	5	11	10
1-4	71	30		5	5	7	12	31	31
5-9	4	2		2	3	5	13	13	12
10-19	1	2		1	12	15	73	32	32
20-29	3	2		13	31	45	239	62	57
30-39	1	1		48	85	116	243	213	198
40-49	4	3		120	204	277	154	184	166
50-59	6	3		185	374	485	117	149	134
60-69	6	3		217	477	625	76	106	95
70&over	18	11		204	562	742	42	57	55
Unknown									
TOTALS	324	155	32	796	1756	2321	974	858	790

* Under 2 years of age only.

** Theoretical age distribution, 30 years of age and over.

Table XXXI

DEATHS FROM CERTAIN SPECIFIED CAUSES, BY AGE, FOR SAN FRANCISCO, CALIFORNIA FOR THE YEARS 1920, 1930 AND 1940

Age Groups	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940*	1920	1930	1940**	1920	1930	1940**
Under 1	64	11	6	1	-	-	7	3	3
1-4	22	-		2	2	1	7	10	6
5-9	3	1		1	2	1	3	4	2
10-19	3	-		4	3	3	35	20	19
20-29	9	-		15	24	21	131	101	80
30-39	7	2		61	65	75	128	128	87
40-49	6	2		128	144	162	119	119	80
50-59	7	2		212	327	324	84	84	56
60-69	3	1		208	392	349	54	54	38
70&over	5	1		141	379	312	11	11	9
Unknown					1				
TOTALS	129	20	6	773	1339	1248	579	534	380

* Under 2 years of age only.
** Theoretical age distribution, 30 years of age and over.

Table XXXII

DEATHS FROM CERTAIN SPECIFIED CAUSES, BY AGE, FOR DETROIT, MICHIGAN FOR THE YEARS
1920, 1930 AND 1940

Age Groups	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940*	1920	1930	1940**	1920	1930	1940**
Under 1	571	262	46	1	8	4	10	1	8
1–4	136	41		2	24	11	17	2	15
5–9	7	5		4	10	6	9	4	10
10–19	3	1		–	118	49	96	5	83
20–29	7	4		11	340	144	297	12	252
30–39	2	3		54	52	43	228	592	666
40–49	6	3		114	108	91	93	243	162
50–59	6	3		172	164	137	72	187	190
60–69	8	4		164	157	130	33	85	152
70 & over	9	5		118	112	94	11	28	98
Unknown									
TOTALS	760	331	46	640	1093	709	866	1159	1636

* Under 2 years of age only.
** Theoretical age distribution, 30 years of age and over.

Table XXXIII

DEATHS FROM CERTAIN SPECIFIED CAUSES, BY AGE, FOR BALTIMORE, MARYLAND FOR THE YEARS 1920, 1930 AND 1940

Age Groups	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940*	1920	1930	1940**	1920	1930	1940**
Under 1	564	119	52	1	3	1	13	-	8
1-4	127	30		3	6	4	24	6	18
5-9	8	2		1	9	4	7	5	6
10-19	4	-		5	57	29	79	8	55
20-29	7	1		17	190	96	291	20	197
30-39	10	4		55	30	41	209	376	370
40-49	6	2		151	83	103	163	294	291
50-59	8	3		211	115	153	103	186	184
60-69	6	2		224	117	154	74	133	132
70&over	18	6		166	90	119	24	43	43
Unknown									
TOTALS	758	169	52	824	700	703	987	1071	1304

* Under 2 years of age only.
** Theoretical age distribution, 30 years of age and over.

48

Table XXXIV

POPULATION, DEATHS AND COLOR-SPECIFIC DEATH RATES PER 1000 SPECIFIED POPULATION, BY CITIES, FOR THE YEAR 1920

Cities	WHITE			OTHER RACES		
	Population	Deaths	Rates	Population	Deaths	Rates
Portland	252967	2957	11.68	5321	207	38.90
Seattle	301768	3143	10.41	13544	258	19.04
Los Angeles	546874	7753	14.14	29799	539	18.08
San Francisco	490022	6799	13.87	16654	460	27.62
Detroit	952065	12660	13.29	41613	1040	24.99
Baltimore	625130	8782	14.04	108696	2574	23.68

Table XXXV

POPULATION, DEATHS AND COLOR-SPECIFIC DEATH RATES PER 1000 SPECIFIED POPULATION, BY CITIES, FOR THE YEAR 1930

Cities	WHITE			OTHER RACES		
	Population	Deaths	Rates	Population	Deaths	Rates
Portland	296077	3481	11.75	5738	194	33.80
Seattle	349343	3825	10.94	15241	183	11.26
Los Angeles	1073638	13206	12.30	164410	822	4.99
San Francisco	595070	7922	13.31	39324	389	9.89
Detroit	1440186	11521	7.99	128476	1615	12.57
Baltimore	662129	8482	12.72	142245	2815	19.78

Table XXXVI

POPULATION, DEATHS AND COLOR-SPECIFIC DEATH RATES PER 1000 SPECIFIED POPULATION, BY CITIES, FOR THE YEAR 1940

Cities	WHITE			OTHER RACES		
	Population	Deaths	Rates	Population	Deaths	Rates
Portland	299707	3711	12.38	5687	207	36.39
Seattle	354001	4849	13.69	14301	167	11.67
Los Angeles	1406420	15975	11.35	97855	927	9.38
San Francisco	602101	7967	13.23	32435	488	15.04
Detroit	1472662	11671	7.92	150790	1720	11.40
Baltimore	692705	8093	11.68	166395	2748	16.51

Table XXXVII

DEATHS FROM SPECIFIC CAUSES AND THE CAUSE-SPECIFIC DEATH RATES PER 10,000 POPULATION, BY
CITIES, FOR THE YEAR 1920

Cities	DIARRHEA & ENTERITIS		MALIGNANT TUMORS		PULMONARY TUBERCULOSIS	
	Deaths	Rates	Deaths	Rates	Deaths	Rates
Portland	49	18.97	320	123.89	160	61.94
Seattle	48	15.22	341	108.14	208	65.96
Los Angeles	324	56.18	796	138.03	974	168.89
San Francisco	129	25.46	773	152.36	579	114.27
Detroit	758	76.20	640	62.30	866	85.30
Baltimore	758	103.30	824	112.30	987	134.50

Table XXXVIII

DEATHS FROM SPECIFIC CAUSES AND THE CAUSE-SPECIFIC DEATH RATES PER 10,000 POPULATION, BY CITIES, FOR THE YEAR 1930

Cities	DIARRHEA & ENTERITIS		MALIGNANT TUMORS		PULMONARY TUBERCULOSIS	
	Deaths	Rates	Deaths	Rates	Deaths	Rates
Portland	11	3.64	517	171.29	90	29.81
Seattle	15	4.10	549	150.17	183	50.05
Los Angeles	155	12.51	1756	141.83	534	69.30
San Francisco	20	3.15	1339	211.06	534	84.17
Detroit	331	21.10	1093	69.67	1159	73.88
Baltimore	169	20.99	700	86.97	1071	133.06

Table XXXIX

DEATHS FROM SPECIFIC CAUSES AND THE CAUSE-SPECIFIC DEATH RATES PER 10,000 POPULATION, BY
CITIES, FOR THE YEAR 1940

| Cities | DIARRHEA & ENTERITIS | | MALIGNANT TUMORS | | PULMONARY TUBERCULOSIS | |
	Deaths*	Rates*	Deaths	Rates	Deaths	Rates
Portland	2	12.50	532	174.20	81	26.52
Seattle	1	5.09	643	174.58	162	43.98
Los Angeles	32	38.10	2321	154.29	790	52.51
San Francisco	6	19.17	1248	196.67	380	59.88
Detroit	46	2.83	709	43.67	1636	100.77
Baltimore	52	6.05	704	81.94	1340	151.78

* Under 2 years of age only.

54

Interpretation

Reference to the foregoing tabular presentations will indicate that there are differences in the incidence of mortaility in the six cities studied. These differences, moreover, show some changes with the elapse of two time intervals of a decade each. The following derived table showing crude and age-corrected death rates for the six cities studied during the three specified years will illustrate these differences and facilitate comparisons.

Table XL.

CRUDE AND AGE-CORRECTED DEATH RATES PER 1000 POPULATION, BY CITIES, FOR THE YEARS 1920, 1930 AND 1940

| | RATES | | | | | |
| | 1920 | | 1930 | | 1940 | |
CITIES	Crude	Age-cor-rected	Crude	Age-cor-rected	Crude	Age-cor-rected
Seattle	10.6	11.12	9.0	8.55	12.7	11.75
Portland	12.2	11.74	12.1	10.65	12.8	11.44
Los Angeles	14.3	12.95	11.3	10.24	12.0	9.99
San Francisco	14.3	14.06	13.1	12.18	13.3	11.65
Detroit	15.5	14.96	9.4	11.19	8.2	9.14
Baltimore	13.8	15.06	14.0	13.91	12.6	13.45

The question arises as to whether or not the differences in the incidence of mortality shown in the foregoing table are of significance. As a basis for concluding that the differences noted are real, it may be pointed out that no sampling procedures that might lead to chance errors have been used. The calculated rates are based on popu-

lation counts taken during census years that are as complete as can be obtained, and on death registrations which, in cities of the sizes of those under consideration, are known to be almost complete. It is therefore concluded that the differences in the incidence of mortality in the cities studied are significant.

It is not the purpose of this study to attempt to determine the reasons for the observed differences in mortality in these cities. However, the accumulated data and the rates based thereon afford an opportunity to make comparisons that seem to throw some light on this question. Conceivably, certain differences might be due to a sudden extensive movement of the population into or out of one city and not out of others. Or they might be due to a severe epidemic with a high case fatality rate occurring during a short period of time in one city and not in the others. As a matter of interest it will be noted that in the preparation of Tables VIII to XIII inclusive and of Tables XX and XXI, (pp. 23-28, 35 & 36), a procedure was followed which serves to check on this possibility with respect to the data for the six cities for 1940.[14] This procedure consisted of calculating age-corrected death rates on the combined population and mortality data for the years 1939, 1940 and 1941.

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[14] Procedure suggested by Mr. G. E. Cannon, Actuary, Standard Insurance Co., Portland, Oregon, January 1948.

The following derived table showing age-corrected death rates for 1940 for the six cities, together with age-corrected death rates for the same communities for the three years 1939, 1940 and 1941 combined, will facilitate the making of comparisons.

Table XLI

AGE-CORRECTED DEATH RATES PER 1000 POPULATION, BY CITIES, FOR 1940 AND FOR THE COMBINED YEARS 1939, 1940 AND 1941, AND THE DIFFERENCES BETWEEN THEM

CITIES	Rates (a) 1940	Rates (b) 1939, 1940 & 1941	Differences (b-a)
Detroit	9.14	9.16	≮ 0.02
Los Angeles	9.99	10.34	≮ 0.35
Portland	11.44	13.15	≮ 1.71
San Francisco	11.65	12.07	≮ 0.42
Seattle	11.75	11.92	≮ 0.17
Baltimore	13.45	13.78	≮ 0.33

It will be noted in the foregoing table that age-corrected death rates calculated on the basis of combined data for the three year period 1939-1941 for all six cities consistently show increases. The greatest increase was for Portland. In so far as this procedure is valid, the fact that increases are noted would indicate that no unusual migration or epidemic condition influenced the 1940 rates. A marked negative relationship in the case of one or more of the cities would, on the other hand, have been an indication of some such unusual occurrence. The validity of the procedure is open to some question since only the total deaths

for intercensal years were available. The total populations
and age distributions based thereon, and the age distributions
of the deaths had to be calculated on a theoretic basis.

Further light on possible partial explanations of the
observed differences in age-corrected death rates for the six
cities under consideration may be obtained by an examina-
tion of the color-specific death rates. The following derived
table will illustrate certain differences which may be of
significance.

Table XLII

COLOR-SPECIFIC DEATH RATES PER 1000 POPULATION, BY CITIES,
FOR THE YEARS 1920, 1930 AND 1940

	RATES					
	1920		1930		1940	
CITIES	White	Other	White	Other	White	Other
Seattle	10.41	19.04	10.94	11.26	13.69	11.26
Portland	11.68	38.90	11.75	33.80	12.38	36.39
Los Angeles	14.14	18.08	12.30	4.99	11.35	9.38
San Francisco	13.87	27.62	13.31	9.89	13.23	15.04
Detroit	13.29	24.99	7.99	12.57	7.92	11.40
Baltimore	14.04	23.68	12.72	19.78	11.68	16.51

It may be noted from the foregoing table that while the
color-specific death rates for whites are relatively uniform
for each city during each of the three years studied, the
rates for other races show some extreme variations in com-
parison to those for whites as well as during the different
years. It is at those points, where the death rates for
other races are much higher than those for whites, that par-

tial explanations for the differences in age-corrected rates
for the six cities may be sought.

As a further check on possible partial explanations for
the observed differences in age-corrected death rates for
the six cities under consideration, three types of cause-
specific death rates may be examined. These cause-specific
death rates are for Diarrhea and Enteritis, Malignant Tumors
and Pulmonary Tuberculosis. They are summarized in the
following derived table.

Table XLIII

CAUSE-SPECIFIC DEATH RATES FOR CERTAIN SPECIFIED DISEASES PER 10,000 POPULATION, BY CITIES, FOR THE YEARS 1920, 1930 AND 1940

CITIES	Rates								
	Diarrhea & Enteritis			Malignant Tumors			Pulmonary Tuberculosis		
	1920	1930	1940 *	1920	1930	1940	1920	1930	1940
Seattle	15.22	4.10	5.09	108.14	150.17	174.58	65.96	50.05	43.96
Portland	18.97	3.64	12.50	123.89	171.29	174.20	61.94	29.81	26.52
Los Angeles	56.14	12.51	38.10	138.03	141.83	154.29	168.89	69.30	52.51
San Francisco	25.46	3.15	19.17	152.36	211.06	196.67	114.27	84.17	59.88
Detroit	76.20	21.10	2.83	62.30	69.67	43.67	85.30	73.88	100.77
Baltimore	103.30	20.99	6.05	112.30	86.97	81.94	134.50	133.06	151.78

* Rates calculated from data of mortality and population under 2 years of age only.

The foregoing table shows some extreme variations in the cause-specific death rates selected for study from city to city and in the same city from year to year. These extremes in variation for Diarrhea and Enteritis may have significance in partially explaining the differences in the age-corrected death rates for the six cities. This is also true for Pulmonary Tuberculosis. In the light of present knowledge regarding Malignant Tumors, it is difficult to accept the differences as being other than differences in diagnostic standards.

CHAPTER V

SUMMARY AND CONCLUSIONS

In this study a comparison is made, by the use of age-corrected death rates and other criteria, of the incidence of mortality in the cities of Portland, Oregon, Seattle, Washington, Los Angeles, California, San Francisco, California, Detroit, Michigan and Baltimore, Maryland for the census years 1920, 1930 and 1940. These cities were selected for study because, as far as could be determined, no such study had been made of them before.

The basic data desired, with respect to population and deaths for the four Pacific Coast cities, was not available from the state or local health departments. All of the basic data used was obtained from the Census Bureau publications except for the estimated populations of the cities for the intercensal years 1939 and 1941.

The basic data was used to calculate crude death rates, age-corrected death rates, color-specific death rates and cause-specific death rates for certain specified diseases for each of the six cities studied for the years 1920, 1930 and 1940.

These rates indicate that there are differences in the incidence of mortality in the six cities. These differences vary from city to city and from year to year. Because of the

nature of the basic data, these are considered to be significant differences. Causes for the differences were not specifically of interest in this investigation, but the color-specific and the cause-specific death rates throw some light on where the causes for some of the differences might be found.

APPENDIX

COPY OF LETTER SENT TO EACH OF THE CITY HEALTH OFFICERS
OF PORTLAND, OREGON, SEATTLE, WASHINGTON, LOS ANGELES,
CALIFORNIA AND SAN FRANCISCO, CALIFORNIA

January 20, 1947

Dear Doctor ____:

I am interested in making a study of certain aspects
of the vital statistics of some of the larger western
cities. The data I am particularly interested in relates to
the census figures on population for the years 1920, 1930,
and 1940 together with the total deaths, deaths from certain
specified causes, and births for those same years.

Enclosed are five forms which, if filled in by your
statistician, would provide me with the data I am anxious to
work with. I would be most grateful to you if you would
refer these forms to your statistician with the request that,
if possible, they be filled in and returned to me as soon as
possible.

In explanation of my interest in this data, I should
tell you that I am a graduate student in Bacteriology and
Public Health at the University of Oregon Medical School, and
I have been given the assignment of making a limited study
of mortality and natality in certain cities.

Your help in this matter will be greatly appreciated.

Yours very truly,

P. Geiser

Enclosures

FACSIMILE OF REPLY FROM THE CITY OF PORTLAND BUREAU OF
HEALTH:

"We are returning the enclosed forms that
you mailed us. Sorry that we do not have the
breakdown that you requested, however, we have
given you the figures that we do have and hope
they will be of help to you.

                              Bureau of Health

          It is possible that the State Board of
Health, 1022 S. W. 11th Ave., could be of help."

REPLY FROM CITY OF SEATTLE DEPARTMENT OF PUBLIC HEALTH;

City of Seattle
DEPARTMENT OF PUBLIC HEALTH
Emil E. Palmquist, M.D.,M.P.H.
Director of Public Health
300 Public Safety Building
Seattle 4, Washington.

January 27, 1947

Miss Patricia Geiser
University of Oregon
Medical School
Portland, Oregon.

Dear Miss Geiser:

In answering your letter of January 20 requesting
information as to certain vital statistics concerning the
years 1920, 1930 and 1940, I am pleased to return the
blanks to you, which have been filled in as far as it is
possible by this department. Certain of the information
we do not have broken down as charted, and are therefore
unable to furnish it. I trust, however, it will be of
some value to you.

Very truly yours,

F. H. Underhill
Chief Clerk

FHU:gl
Enclosures

REPLY FROM CITY OF LOS ANGELES DEPARTMENT OF PUBLIC HEALTH:

City of Los Angeles
California
Department of Health
116 Temple Street
Los Angeles 12, California.

February 4, 1947

Miss Patricia Geiser,
University of Oregon,
Medical School,
Portland, Oregon.

Dear Miss Geiser:

The Vital Statistics data you requested can be found
in the Vital Statistics tables in the Los Angeles City
Health Department Annual Reports for the years mentioned
which are probably on file in your local library.

The population data is published by the United States
Bureau of the census in the Population Volumes.

I am sorry that the press of urgent work does not give
us sufficient time to fill in your tables.

Yours truly,

Geo. M. Uhl, M.D.,
Health Officer

by_____
E. A. A. Sohori,
Biostatistician
Division of General
Statistics

EAAS/jmc

REPLY FROM CITY OF SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH:

CITY AND COUNTY OF SAN FRANCISCO
Department of Public Health
Central Office
101 Grove Street

January 24, 1947

Miss Patricia Geiser
University of Oregon Medical School
Portland, Oregon.

Dear Miss Geiser:

We are returning the forms submitted for information on mortality and population of San Francisco. I regret that we are unable to supply the details which you requested.

The year 1920 in our records is on a fiscal year basis and we are not able to convert it to the age groups for that calendar year. Not until the last two years has this department made a segregation on age groups by color so that again we were not able to supply the information.

For population figures I would refer you to the reports published by the U. S. Bureau of the Census. We do not have the complete file from which to obtain the data requested.

I regret that we are not able to supply you with more detailed information.

Very truly yours,

(Mrs.) Roslyn C. Miller
Statistician

RCM:gj

FACSIMILE OF LETTER SENT TO NATIONAL OFFICE OF VITAL
STATISTICS, WASHINGTON, D.C.:

March 14, 1947

Halbert J. Dunn, M.D.
Vital Statistics Division
Federal Security Agency
Washington, D.C.

Dear Sir:

I am making a study of certain aspects of the
vital statistics of the larger west coast cities. The
data I am particularly interested in relates to the total
deaths and deaths from certain specified causes for these
four cities for 1920, 1930 and 1940 segregated by cer-
tain age groups, and, in the case of the total deaths,
segregated also by race.

I have not been able to obtain these figures
through either the local census bureau office or the
state health departments.

Enclosed are eight forms which, if filled in,
would provide me with the data I am anxious to work with.
I would be most grateful if these forms could be filled
in and returned to me as early as possible.

Very truly yours,

Miss Patricia Geiser
c/o Dr. Adolph Weinzirl
U. of O. Medical School
Portland 1, Oregon.

FEDERAL SECURITY AGENCY
U.S. PUBLIC HEALTH SERVICE
National Office of Vital Statistics
Washington 25, D.C.

March 27, 1947

Miss Patricia Geiser
c/o Dr. Adolph Weinzirl
University of Oregon Medical School
Portland 1, Oregon.

Dear Miss Geiser:

We have received your recent letter requesting mortality data for selected cities for specified years.

The data which will most nearly provide an answer to your request are given for both 1920 and 1930 in Table 9 of annual reports for each of these years. These reports are published under the title, "Mortality Statistics."

A two-year total is given in Table 6 of Part III, "Vital Statistics of the United States, Supplement, 1939-1940." These annual volumes should be on file at your Medical School Library or the Library Association of Portland.

The forms enclosed in your letter are herewith returned.

Sincerely yours,

Herbert P. Dunning
Administration Section.

For Halbert L. Dunn, M.D.
Chief, National Office of
Vital Statistics

Encl.

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