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The Incidence and Ecological Pattern of the Ten Leading Causes of Death for the City of Milwaukee in 1941

by

Evelyn Meyer Galinsky, Ph.B.

A Thesis Presented to the Faculty of the Graduate School, Marquette University, in Partial Fulfillment of the Requirements for the Degree of Master of Arts

Milwaukee, Wisconsin

April 1943

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Maps

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Preface

Preface

The writer wishes to thank all those who assisted in this study, particularly Mr. George A. Dundon, Bureau of Vital Statistics, Milwaukee Health Department, Miss Marguerite Reuss and Dr. Paul J. Mundie, Department of Social Sciences, Marquette University.

CHAPTER I

Introduction

Chapter I

Introduction

This is a study of the incidence and ecological pattern of the ten leading causes of death for the city of Milwaukee for the year 1941. The incidence will include marital status, nativity, age and sex distribution for each disease, whereas the ecological pattern will show areas in which deaths occur most frequently for each disease.

The word ecology is derived from the Greek root word οἶκος meaning house or home, and therefore represents a study of home or environment. It is derived from the same root οἶκία as that of economy and economics.

> "The science of economics is a whole century older than ecology. It was and is the science of social subsistence, of needs and their satisfactions, of work and wealth. It tries to elucidate the relations of producer, dealer and consumer in the human community and shows how the whole system carries on. Ecology broadens out this inquiry into a general study of give and take, the effort, accumulation and consumption in every province of life. Economics, therefore, is merely human ecology, it is the narrow and special study of ecology of the very extraordinary community in which we live."1

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1. Robert Ezra Park, Human Ecology, p. 11.

Ecology deals with all the intro-relationships of living organisms and their environment. It is impossible to have environment without life, just as it is impossible to have life without environment.

Since living organisms are either plant or animal, ecology can then readily be divided into plant ecology and animal ecology. Since man is different in so many ways from other animals, it is necessary to speak of human ecology in regard to man.

> "Man is not so immediately dependent upon his physical environment as other animals. As a result of the existing world wide division of labor, man's relation to his physical environment has been mediated through the intervention of other men. The exchange of goods and services have cooperated to emancipate him from dependence upon his local habitat." 2

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2. Ibid., p. 12.

Man has also by means of inventions and technical devices increased his capacity for reacting and remaking not only his habitat but also his world. Human ecology, therefore has to include the study of man's mental processes and their results as well as his physiological response.

> "In other words human ecology is the study of man as he is, and also os man in relation to his environment. It attempts to unify all the human sciences and enables each one to find its proper place in a generalized study of man." 3

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3. J. W. Bews, Human Ecology, p. 1.

Among the earliest studies on human ecology to be undertaken were the regional surveys of Le Play and of Sir Patrick Geddes. In human ecology regional surveys vary a good deal in their general method and scope. A considerable number have been undertaken as a preliminary to town planning. Other studies have been made of existing conditions by house

to house inquiries. More elaborate surveys have been made by piecing together information contained in various official reports combined with personal observations.

The ecological approach to study has stimulated a large number of regional studies. The ecological and cultural approaches to the study of institutions are being given much notice. In order to make an ecological study it is important for the individual to be able to handle statistics, to understand the mathematical theory underlying their use, and to know the value of the correlations.

> "The sociological importance of ecological position is its bearing on social contact and social interaction. The ecological pattern of distribution marks out physical distances between the units and determines the direction of social contacts." 4

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4. Dawson and Gettys, Introduction to Sociology, p. 225.

Ecological processes are those whereby individuals and population groups are distributed spatially and vocationally. It is through these processes that the growth and flow of city life is kept at a normal and natural fashion.

> "The ecological viewpoint regards life as an interaction between the environment and man as a living organism. Sometimes it concentrates on the environment itself, sometimes on man himself, sometimes on the interactions between the two, but finally it always endeavors to view the environment, function, organism triad as one definitely integrated whole. The result is a habit of mind, a mode of thinking, a general philosophy of life. For a healthy life the environment interactions with the organism must run smoothly. If they do not, the result is disease with accompanying pain, and it may mean death." 5

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5. Alle and Park, Concerning Ecological Principles, p. 284.

If they do not, the result is disease with accompanying pain, and it may mean death."5

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5. Alle and Park, Concerning Ecological Principles, p. 284.

The ten leading causes of death following the International Classification of Causes of Death for the city of Milwaukee for the Year 1941 in numerical importance were heart disease, cancer, apoplexy, accidents, nephritis, pneumonia, tuberculosis, diabetes, prematurity and cirrhosis of the liver.

The death rates were plotted according to census tracts. Forty years ago Dr. Walter Laidlow felt that in order to give a complete picture of neighborhoods it was important to have smaller populations rather than that of boroughs or wards and that it would be best to have an area that would be definitely more stationary than wards. The study was expanded by Clarence M. Botschelt and Howard Whipple Green.

The census tract was first used for the city of New York. Then seven other leading cities of 500,000 population or more tried it, and at the present time cities of 250,000 population or more are using the census tract system. Today sixty cities have put the census tract theory in operation.

A census tract is a small area of land ranging in population from 3,000 to 6,000. It has uniformity of population and uses the natural topography of the city as a guide. The census tract is considered stationary.

the population would increase greatly in any one tract, it could be broken down into two or more smaller tracts. The census tracts do not coincide with ward boundaries.

Census tracts are of special benefit to welfare organizations, agencies for social research, and city departments. They are a great help in determining ratios, for example in using records of births, deaths, contagious diseases, juvenile delinquency, relief, unemployment, housing, age, race, or any other factor of importance to the city.

This study was made possible through the records of the Bureau of Vital Statistics of the Milwaukee Health Department. The total number of deaths for each census tract, the marital status, the nativity, the age and sex distribution were secured from death certificates. General information regarding each disease, tables and maps are used to show the picture.

In order to find a rate to compare the total number of deaths, marital status, nativity, age and sex distribution for each disease to the total number in the city of Milwaukee, it was necessary to divide the deaths, marital status, nativity sex and age groups by the population and then multiply by one thousand. This determined rates to make comparisons that would have an accurate picture.

To determine the number of deaths for each census tract in each disease the specific death rate was found. In order to find this rate, the deaths of each disease of each census tract were divided by the 1940 population and then

multiplied by one hundred thousand. The 1940 population base was used rather the inaccurate 1941 estimates.

Tables were then made. Six equal divisions on the scale seemed to represent the data most accurately.

CHAPTER II

Total Death Rate for the City of Milwaukee for the Year 1941

Chapter II

Total Death Rate for the City of Milwaukee for the Year 1941

In 1941 the city of Milwaukee received the Award of Merit in the National Health Conservation Contest held annually under the auspices of the United States Chamber of Commerce for its outstanding health record during the year.

Health conditions for the year 1941 established a new all time record of achievement. The span of life had increased tremendously in the last thirty years. The average age at death for the year 1941 was 59.6 or about 25 years longer than in 1911. Since people are living to an older age the community is faced with many more health and social problems. As the span of life is increased people live to an old age and die from diseases of the heart, blood vessels, and kidneys.

The ten leading causes of death for the City of Milwaukee during 1941 in order of their numerical importance were heart disease, cancer, apoplexy, accidents, nephritis, pneumonia, tuberculosis, diabetes, prematurity, and cirrhosis of the liver.

In 1941 heart disease lead all deaths with 1773 cases. This is an increase of about 50 cases over 1940, increasing the death rate from 294.2 in 1940 to 299.5 in 1941.

Cancer had been increasing yearly but in 1941 a new low was found. There were 801 deaths from cancer in 1941

or a death rate of 136.3 in comparison to 145.7 for 1940. Cancer is a disease that is curable if it can be found in its early stages and then given immediate treatment.

Apoplexy caused death to 313 individuals. The death rate for apoplexy increased in 1941 over the 1940 death rate. In 1941 the death rate for apoplexy was 87.2 per 100,000 and for 1940 the death rate was 81.3 per 100,000.

The nephritis death rate for 1941, like the cancer death rate found a new low. In 1941 there were 264 deaths caused by nephritis. Most of the nephritis deaths occur in older individuals and is usually the result of degenerative changes in the arteries of the kidneys. The death rate of 44.9 for 1941 was lower than the death rate of 48.3 for 1940.

Accidents increased in 1941. There were 333 deaths as compared with 311 deaths in 1940. The death rate in 1941 was 56.6, in 1940 52.9. Automobile accidents caused the death rate to rise more than any other factor.

The year 1941 saw the lowest record of 212 deaths from pneumonia. In 1940 there were 219 pneumonia deaths.

Diabetes also had a reduced death rate. There were 191 deaths for the year 1941. We can keep on reducing this total number of deaths if we educate diabetics to give themselves proper care, and if we provide sufficient treatment to those suffering from this disease.

The tuberculosis death rate of a community is a general survey of its economic, health and social status.

There were 1941 deaths f rom pulmonary tuberculosis as compared with 237 ten years ago. Because of the higher mortality rate in the negro population an intensive program is being carried on in cooperation with the Wisconsin Anti Tuberculosis Assocaition in those areas of the city in which most of the negroes reside.

Table I

Total Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 1,000
Total	587,472	5,462	9.2
Male	289,118	2,988	10.3
Female	298,354	2,474	8.2

There was a total of 5,462 deaths for the city of Milwaukee for the year 1941. This is a death rate of 9.2 per 1,000. The rate was higher for men than women, for the rate was 10.3 for men in comparison to 8.2 for women.

Table II

Marital Status for Total Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	712	5.0
Married	268,940	2,518	9.3
Widowed	34,140	1,700	49.7
Divorced	8,980	165	18.3

The marital status is based on the population of 15 years and older. The rates for the marital status showed that the highest rate was for the widowed, and following in

their numerical order were divorced, married, and single

Table III

Nativity for Total Death Rate for the
City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	3,431	6.8
Foreign born	83,809	2,031	24.2

In comparing the death rate with those of native born to foreign born, the native born appear to be in better health than the foreign, as the rate of death for the native born is 6.8 and the rate of death for the foreign born is 24.2. The foreign born death rate is 17.4 points higher than that of the native born.

Table IV

Age and Sex Distribution for Total Deaths
for the City of Milwaukee
for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	2,988	2,474	10.8	8.2	5,462	9.2
Under 5 yrs.	178	134	8.8	6.8	312	7.8
5 - 9	23	11	1.1	0.5	34	0.8
10 - 14	15	13	0.6	0.5	28	0.6
15 - 19	30	20	1.2	0.8	50	1.0
20 - 24	35	27	1.5	0.9	62	1.2
25 - 29	47	40	1.4	1.4	87	1.4
30 - 34	52	52	2.1	2.0	104	2.0
35 - 39	84	48	3.6	1.5	132	2.5
40 - 44	117	89	5.1	4.0	206	4.5
45 - 49	195	108	8.7	5.2	303	6.9
50 - 54	258	164	12.9	9.1	422	11.1
55 - 59	330	209	22.4	14.1	539	18.6
60 - 64	334	223	30.4	20.0	557	25.2

Age and Sex Distribution for Total Deaths
for the City of Milwaukee
for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	2,988	2,474	10.8	8.2	5,462	9.2
65 - 69	334	282	44.1	33.5	616	38.1
70 - 74	326	305	67.7	51.3	631	58.7
75 and over	630	749	138.5	119.6	1379	127.5

The greatest increase in the death rate for both males and females starts at the 45 to 49 year age level. This table clearly shows that the death rate for males is higher at all ages than it is for females. The male death rate shows a decided greater jump after the 45 year age level than does the female. Under 5 years of age the death rate is as high as it is at the 45 to 49 age level. Therefore if a child lives to the age of 5 his chance of living to the average age is very good.

Table V

Total Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 1,000 pop.
1	2613	26	9.9
2	4032	69	17.1
3	4737	41	818
4	4228	46	10.8
5	4502	44	9.7
6	3872	33	8.8
7	4723	42	8.8
8	4145	33	7.9
9	3812	32	8.4

Total Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 1,000 pop.
10	4834	36	7.4
11	3851	69	17.9
12	3676	40	10.8
13	4353	46	10.5
14	3651	29	7.9
15	1862	22	11.8
16	2128	43	20;2
17	2633	27	10.2
18	4437	57	12.8
19	3270	48	14.6
20	1656	37	22.3
21	3395	43	12.9
22	3611	38	10.5
23	7038	73	10.3
24	3997	32	8.0
25	4837	47	9.7
26	3539	23	6.4
27	3138	35	10.9
28	3353	21	6.2
29	4498	37	8.2
30	3510	56	15:9
31	2303	18	7.8
32	3925	34	8.6
33	3421	28	8.1
34	2871	30	10.4
35	4603	52	11.2
36	6648	73	10.9
37	4560	30	6.5
38	3609	32	8.9
39	4024	48	11.9
40	2992	33	11.0
41	3340	49	14.7
42	4629	73	15.7
43	4000	38	9.5
44	3854	43	11.1
45	2834	29	10.2
46	3009	23	7.3
47	5790	55	9.4
48	4820	50	10.3
49	3407	38	11.1
50	3676	34	9.0
51	3828	40	10.4
52	5250	57	10.8
53	3596	31	8.6
54	2608	33	12.6
55	2892	33	11.4
56	4182	33	7.8

Total Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 1,000 pop.
57	3686	23	6.2
58	3632	29	8.0
59	3961	35	8.8
60	5730	47	8.2
61	4663	44	9.4
62	3788	35	9.2
63	5463	54	9.8
64	6534	55	8.4
65	4750	49	15.2
66	4514	50	11.0
67	4334	49	11.3
68	3504	29	8.2
69	4127	40	9.7
70	4666	38	8.1
71	4828	50	10.3
72	5241	65	12.4
73	5473	61	11.1
74	2765	28	10.1
75	2208	20	9.0
76	4392	40	9.1
77	5082	57	11.1
78	4249	48	11.2
79	4990	37	7.4
80	5788	42	7.2
81	4463	47	10.5
82	4720	44	9.3
83	3596	23	6.4
84	5757	42	7.2
85	3395	21	6.2
86	1464	10	6.8
87	2480	20	8.0
88	3872	30	7.7
89	4412	22	4.9
90	3082	11	3.5
91	3506	24	6.8
92	5628	39	6.9
93	3978	25	6.2
94	2821	19	6.7
95	4309	26	6.0
96	3561	18	5.0
97	3038	32	10.5
98	3833	35	9.1
99	2295	34	10.4
100	3426	28	8.1
101	3908	32	8.7
102	3102	41	13.2

Total Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 1,000 pop.
103	4033	25	6.2
104	2601	31	11.1
105	2869	20	6.9
106	1059	8	7.4
107	3133	15	4.7
108	4721	11	2.3
109	3520	29	8.2
110	3922	46	11.1
111	3959	34	8.8
112	4383	36	8.2
113	4408	26	5.8
114	3001	34	11.2
115	1140	14	12.2
116	6063	59	9.7
117	5318	53	9.9
118	6117	63	10.2
119	4139	31	7.4
120	3810	36	9.4
121	2731	27	9.8
122	6653	53	8.1
123	4964	40	8.0
124	6018	44	7.3
125	5003	57	11.1
126	4875	48	9.8
127	5225	45	8.6
128	4854	41	8.2
129	616	3	4.8
130	4450	45	10.1
131	4087	34	8.3
132	5700	58	10.1
133	4138	38	8.2
134	4139	50	12.5
135	2978	22	7.3
136	1809	15	8.1
137	1879	22	11.7
138	2764	28	10.1
139	4459	36	8.0
140	3859	28	7.2
141	1341	12	8.9
142	1778	10	5.6
143	3576	27	7.5
144	2411	25	10.3
145	2657	31	11.6
146	4379	23	5.2
147	2890	12	4.1
148	2707	21	7.7

Total Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 1,000 pop.
149	2837	19	6.6
150	3860	34	8.8
151	1581	7	4.4
152	452	1	2.2
153	2937	22	7.4

Table VI

Total Death Rate Frequency Distribution for
the City of Milwaukee for the Year 1941

Death Rate per 1,000	Total
0 - 3.9	3
4 - 7.9	42
8 -11.9	92
12 -15.9	12
16 -19.9	2
20 -23.9	2

Table VII

Frequency Array for Total Deaths for the
City of Milwaukee for the Year 1941

Array	Census Tract
2.2	152
2.3	108
3.5	90
4.1	147
4.4	151
4.7	107
4.8	129
4.9	89
5.0	96
5.2	146
5.6	142

Frequency Array for Total Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
5.8	113
6.0	95
6.2	28-57- 85- 93-103
6.4	83- 26
6.5	37
6.6	149
6.7	94
6.8	91- 86
6.9	105- 92
7.2	80- 84-140
7.3	124-135- 46
7.4	153-119-106- 10- 79
7.5	143
7.7	148- 88
7.8	56- 31
7.9	8- 14
8.0	24- 58- 87-123-139
8.1	33- 70-100-122-136
8.2	29- 60- 68-109-112-128-133
8.3	131
8.4	9- 64
8.6	32- 53-127
8.7	101
8.8	150- 3- 6- 7- 59-111
8.9	38-141
9.0	50- 75
9.1	76- 98
9.2	62
9.3	82
9.4	47- 61-120
9.5	43
9.7	5- 25- 69-116
9.8	63-121-126
9.9	1-117
10.1	74-130-132-138
10.2	17- 45-118
10.3	48- 71-144- 23
10.4	34- 51- 99
10.5	13- 22- 81- 97
10.8	4- 12- 52
10.9	36- 27
11.0	40- 66
11.1	44- 49- 73-104-110-125- 77
11.2	35- 78-114
11.3	67
11.4	55
11.6	145

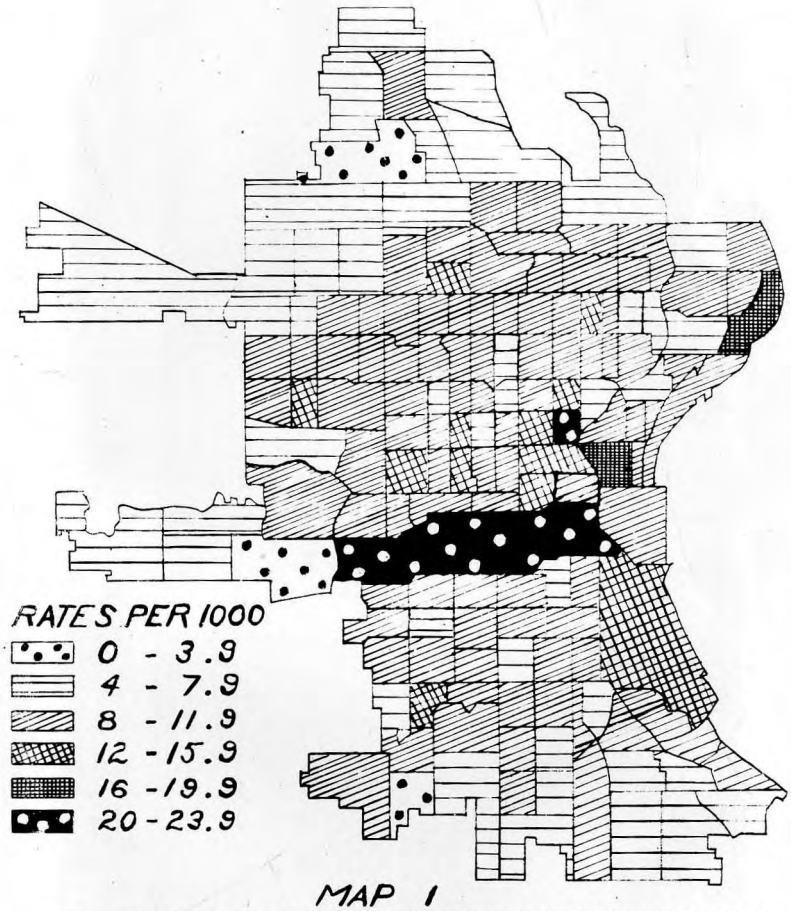
Frequency Array for Total Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
11.7	137
11.8	15
11.9	39
12.2	115
12.4	72
12.5	134
12.6	54
12.8	18
12.9	21
13.2	102
14.6	19
14.7	41
15.2	65
15.7	42
15.9	30
17.1	2
17.9	11
20.2	16
22.3	20

Map 1, Total Death Rate for the city of Milwaukee, shows census tracts 20 and 16 as having the highest death rate. Census tract 20 has the following limits, West Juneau Ave. on the south, West Galena on the north, North Third Street on the east, and North Seventh Street on the west. Most of the houses in this area are of a frame structure, with frame basement walls and with basements of wood flooring or no flooring.

This is an area which has been inhabited by a succession of different nationalities such as the Germans, Polish, and Italians. It is an area which has changed as the city grew.

The total population for this area is 1656, 975 males



MAP 1
TOTAL DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

and 681 females. In this area 67.5 percent are non white.

Census tract 16 is the Menomonee River Valley area. The limits for this area extend from West Pierce and West Florida on the south, to West Canal, West St. Paul and West Clybourn on the north, from South Fourty-fourth Street on the west to the Milwaukee River on the east.

This is an industrial and manufacturing area. The housing is very similar to that of census tract 20, and the same low economic level exists.

The total population for this area is 2,128 with a large proportion being male, for in this area the census reports 1330 males to 789 females. The age group shows a decided trend of 14 years or older. The percentage of males of 14 years and older is 87.4 and 31.6 for females 14 years and older.

Census tracts 2 and 11 have the next highest rate. Census tract 2 extends from East Wisconsin Ave. on the South to West Juneau on the north, from the Milwaukee River on the west to North Van Buren on the east. This is an area of rooming houses and apartments. It is not a family area. The native white population in this tract is 78.6 percent. The total population for this area is 4,032, and of this total 3,686 are 14 years and older, so there are very few young children in this area. Males 14 years and older, predominate the females by 72.5 percent to 38.9 percent.

Census tract 11 extending from East North Avenue on the south to East Park Place and East Kenwood Boulevard on

the north, and from North Maryland Avenue on the west to Lake Michigan on the east has a high death rate, for the area has many homes for the Aged, such as the Catholic Home for the Aged and the Protestant Home for the Aged. These people are registered in this area, and therefore their deaths are recorded in this area. The total population for this area is 3,851. In this area the 14 years and older age group there are 78.5 percent male and 41.1 percent female, the total population being 53.2 percent who are 14 years and older.

The lowest death rate for the city is in census tracts 90, 108, and 152. These are on the outer limits of the city. The outer edge of the north, west, and south boundaries of Milwaukee are low death rate areas, and as one goes closer to the crowded downtown area, rates are higher.

CHAPTER III

Heart Disease Death Rate for the City of Milwaukee for the Year 1941

Chapter III

Heart Disease Death Rate for the City of Milwaukee for the Year 1941

The importance of heart disease may be realized when one notes that this condition now leads all others as cause of death, being more frequent than tuberculosis, pneumonia or cancer. One out of every six or seven deaths is reported due to heart trouble. The nature of heart disease varies at different ages.

Rheumatic heart disease following attacks of inflammatory rheumatism is more frequent in the North than in the warmer climate of the South. Heart disease due to syphilis is more frequent among negroes than among whites and since the predominance of blacks is in the South is found more in the South.

There seems to be a definite hereditary influence in heart trouble, especially in heart disease resulting from essential hypertension.

Some infants are born with defects in the heart due to a failure of normal development. The most common defects are the narrowing of the pulmonary valves leading from the right ventricle to the pulmonary artery; a defect or hole between lesions due to retarded or abnormal development of the heart prior to birth are comparable to lesions elsewhere, such as club foot, extra toes, Siamese twins, etc. The familiar blue baby, the child more or less deeply cya-

nosed at birth, usually has a congenital defect of the heart.

Rheumatic heart disease is the most serious form of heart disease, usually attacking its victim in childhood or early adult life. This is the type of heart trouble which follows attacks of St. Vitus Dance or inflammatory rheumatism. The heart damage involves the heart muscle, the pericardium, and the endocardium. The extent to which the heart is damaged depends upon the frequency of recurrence of the causative disease.

Rheumatic heart disease is more frequent in cooler northern climates. This is true even in the north and south of the United States. The disease affects both sexes, being rather more frequent among females, usually beginning between ages of five and fifteen. Every civilized race and nationality is susceptible. There is definite family incidence indicating a low-grade tendency to contagiousness. The average age at death is about 30 and there are usually many years of invalidism before this age is reached.

Endocarditis is caused by an infection in the lining of the heart which may be caused by a variety of germs which float around in the blood stream and settle upon the endocardium especially that covering the valves. This is usually a disease of early adult life and is an important late complication of rheumatic disease. It is a serious disease and usually ends in death or recovery within two or three months. It is recognized by finding in the heart certain murmurs, which are accompanied by fever without other rec-

ognizable cause and when the germ can be cultured from the blood, the diagnosis is definite.

Hyperthyroidism otherwise known as Graves disease or exophthalmic goiter causes definite damage to the heart. The poison secreted by the thyroid gland makes the heart beat much too fast, thus wearing it out; the heart becomes enlarged, and finally loses its regular rhythm causing an absolute irregularity, it dams back into the veins producing a condition known as congestive heart failure. The appropriate treatment of this treatment lies in early recognition and its cure by either medical treatment or surgery.

Hypertensive heart or high blood pressure is one of the most common throughout the world. The heart is called upon to exert a great deal more effort in forcing the blood out into the arteries where the blood pressure is higher than normal, and as a consequence the heart muscles become abnormally large. This will last for a time, but eventually the muscles begin to wear out, the heart fails to expel the adequate amount of blood into the arteries and some of it backs into the veins after which the congestive heart failure develops.

Hypertensive heart usually begins around middle life. There appears to be an hereditary factor in that the disease tends to run in families. At one time it was believed the blood pressure should be 100 plus the age, but this is no longer held, the normal being anywhere from 110 to 145, and above 145 is considered hypertension.

Encarditis is an inflammation or degeneration of the heart muscle itself which may occur at any age but usually appears as a degenerative process of advancing years.

Pericarditis is an inflammation of the covering of the heart.

The normal heart beats slowly and regularly, resting for one-third of each cycle of the beat so that the total amount of rest for 24 hours, if all the short periods be added together would amount to eight hours. The heart rests just as much as the entire body does.

> "By using information obtained from mortality records and statistical divisions of large insurance companies it can be shown that the alleged increase in deaths from heart disease is less serious than it appears at first sight."1

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1. O. F. Medley, Studies of Heart Disease Mortality, Public Health Bulletin, 1936, No. 231, p. 1.

Heart disease should not be considered in the same category as other diseases, as it involves a number of etiological factors.

> "The ultimate responsibility for the accuracy of any scheme of tabulating vital statistics is dependent upon the integrity, interest, and training of those furnishing the designated authorities which the required information. Most physicians exhibit a high degree of honesty and a fair degree of accuracy in the preparation of death certificates. There is a tendency among some to use heart disease as a screen behind which to hide the true condition."2

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2. Ibid., p. 11.

Table VIII

Heart Disease Death Rate for the City of Milwaukee
for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	1,773	301.8
Male	289,118	1,006	347.9
Female	298,354	767	257.0

There were 1,773 heart disease deaths for the city of Milwaukee for the Year 1941. This is a death rate of 301.8 per 100,000. More men than women died by a rate of 90.0

Table IX

Marital Status for Heart Disease Death Rate
for the City of Milwaukee
for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	143,060	189	1.2
Married	268,940	815	3.0
Widowed	34,140	710	20.7
Divorced	8,980	44	4.7
Unknown		6	

Table Ix shows the highest death rate for the widowed. Following in the order of numerical importance are divorced, married, and single.

Table X

Nativity for Heart Disease Deaths for the
City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	1,000	1.9
Foreign born	83,809	768	9.1
Unknown		5	

Here again the foreign born have a higher death rate than the native born. There is a difference of 7.2 points between the foreign born death rate and the native born death rate.

Table XI

Age and Sex distribution for Heart Disease
For the City of Milwaukee
for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	1,006	767	347.9	257.0	1,773	301.8
Under 5 yrs.	0	1	0.0	0.05	1	0.02
5 - 9	0	1	0.0	0.05	1	0.02
10 - 14	2	5	0.08	0.22	7	0.15
15 - 19	2	6	0.08	0.22	8	0.16
20 - 24	3	3	0.12	0.10	6	0.11
25 - 29	5	1	0.20	0.03	6	0.11
30 - 34	6	6	0.25	0.23	12	0.24
35 - 39	20	5	0.86	0.20	25	0.52
40 - 44	34	20	1.4	0.90	54	1.12
45 - 49	58	21	2.6	1.0	79	1.83
50 - 54	92	28	4.6	1.5	120	3.17
55 - 59	120	52	8.15	3.68	172	5.96
60 - 64	125	70	11.4	6.2	195	8.82
65 - 69	129	89	17.1	10.6	218	13.7
70 - 74	126	113	26.1	19.0	239	21.3
75 and over	284	346	60.2	55.2	630	58.2

There were no heart disease deaths for the male up to the 10 year age level. The death rate for females is higher than the death rate for males from under five years to 20 years. From 20 year age level the male death rate is higher than the female death rate all the way to 75 years and over. The death rate is comparatively low to about 40 years, and from here it rises continually and at a great rate.

The rate at 75 years and over is almost three times greater than the second highest rate.

Table XII

Heart Disease Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census	Population	No. of deaths	Rate per 100,000 pop.
1	2613	11	420
2	4032	24	593
3	4737	14	299
4	4228	13	302
5	4502	18	399
6	3872	11	284
7	4723	7	148
8	4145	12	289
9	3812	9	236
10	4834	14	289
11	3851	34	882
12	3676	19	517
13	4353	16	367
14	3651	5	136
15	1862	8	429
16	2128	12	563
17	2633	6	227
18	4437	22	498
19	3270	14	428
20	1656	9	543
21	3395	13	383
22	3611	8	221
23	7038	22	311
24	3997	15	375
25	4837	16	330
26	3539	3	84
27	3138	10	318
28	3353	8	238
29	4498	9	204
30	3510	25	712
31	2303	4	173
32	3925	10	254
33	3421	9	266
34	2871	17	592
35	4603	20	434
36	6648	28	421
37	4560	13	285
38	3609	14	387
39	4024	14	347
40	2992	7	234

Heart Disease Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
41	3340	15	449
42	4629	26	561
43	4000	13	325
44	3854	15	415
45	2834	8	282
46	3009	8	265
47	5790	18	310
48	4820	17	352
49	3407	1	205
50	3676	7	462
51	3828	17	496
52	5250	19	419
53	3590	22	361
54	2608	13	651
55	2892	17	276
56	4182	8	334
57	3686	14	217
58	3632	8	247
59	3961	9	278
60	5730	11	366
61	4663	21	214
62	3788	10	348
63	5463	13	402
64	6534	22	360
65	4750	17	273
66	4514	13	487
67	4334	22	392
68	3504	17	228
69	4127	8	242
70	4666	10	214
71	4828	10	351
72	5241	17	343
73	5473	18	401
74	2765	22	361
75	2208	10	271
76	4392	6	159
77	5082	7	295
78	4249	15	400
79	4990	17	300
80	5788	15	259
81	4463	15	403
82	4720	18	230
83	3596	11	139
84	5757	5	138
85	3395	8	294
86	1464	10	204

Heart Disease Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
87	2480	3	362
88	3872	12	309
89	4412	7	154
90	3086	3	97
91	3506	6	171
92	5628	16	284
93	3878	9	226
94	2821	7	248
95	4309	7	162
96	3561	6	168
97	3038	11	362
98	3833	8	208
99	2295	13	566
100	3426	13	379
101	3908	5	127
102	3102	13	451
103	4033	5	123
104	2601	12	461
105	2869	5	174
106	1059	1	94
107	3133	7	220
108	4721	2	42
109	3520	7	224
110	3932	16	407
111	3959	5	126
112	4383	11	250
113	4408	8	181
114	3001	14	466
115	1140	5	438
116	6063	12	197
117	5318	19	357
118	6117	21	344
119	4139	11	265
120	3810	12	314
121	2731	7	256
122	6653	22	330
123	4964	7	141
124	6018	10	166
125	5003	16	319
126	4875	18	369
127	5225	14	267
128	4854	8	164
129	616	1	162
130	4450	13	292
131	4087	8	195
132	5700	12	210

Heart Disease Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
133	4138	13	314
134	4139	24	582
135	2978	4	133
136	1809	5	276
137	1870	8	425
138	2764	7	253
139	4459	9	201
140	3859	8	207
141	1341	2	149
142	1778	1	56
143	3576	8	223
144	2411	7	290
145	2657	13	489
146	4379	8	182
147	2890	3	103
148	2707	5	181
149	2837	6	211
150	3860	5	129
151	1581	3	188
152	452	0	0
153	2937	8	272

Table XIII

Heart Disease Death Rate Frequency Distribution
for the City of Milwaukee
for the Year 1941

Death Rate per 100,000	Total
0 - 147.9	16
148 - 295.9	69
296 - 443.9	48
444 - 591.9	15
592 - 739.9	4
740 - 888.9	1

Frequency Array for Heart Disease Deaths
for the City of Milwaukee
for the Year 1941

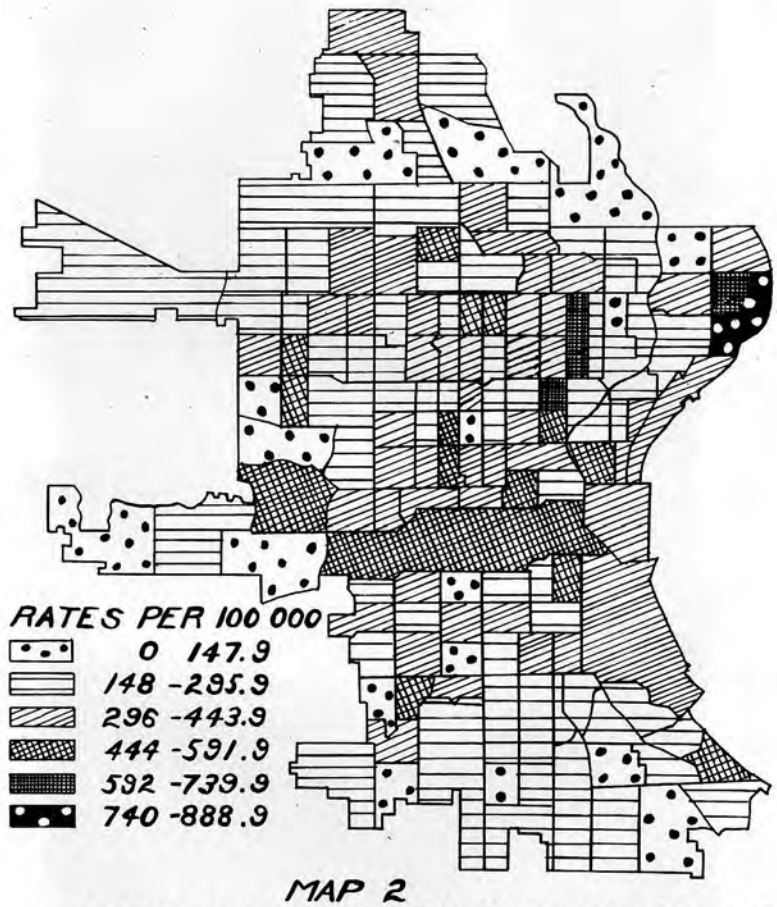
Array	Census Tract
0	152
42	108
56	142
84	26
94	106
97	90
103	147
123	103
126	111
127	101
129	150
133	135
136	14
138	84
139	83
141	123
148	7 7
149	141
154	89
159	76
162	95-129
164	128
166	124
168	96
171	91
173	31
174	105
181	113-148
182	146
188	151
195	131
197	116
201	139
204	29- 86
205	49
207	140
208	98
210	132
211	149
214	61- 70
217	57
220	22
221	107
223	143
224	109
226	93

Frequency Array for Heart Disease Deaths
for the City of Milwaukee
for the Year 1941

Array	Census Tract
226	93
227	17
228	68
230	82
234	40
236	9
238	28
242	69
247	58
248	94
250	112
253	138
254	32
256	121
259	80
260	64
265	46-119
266	33
267	127
271	75
272	153
273	65
276	55-136
278	59
282	45
284	6- 92
285	37
289	8- 10
290	144
292	130
294	85
295	77
299	3
300	79
302	4
309	88
310	47
311	23
314	120-133
318	27
319	125
325	126
328	43
330	25-122
334	56

Frequency Array for Heart Disease Deaths
for the City of Milwaukee
for the Year 1941

Array	Census Tract
343	72
344	118
347	39
348	62
351	71
352	48
353	21
357	117
361	53- 74
362	87
366	60
367	13
375	24
379	100
387	38
392	67
399	5
400	78
401	73
402	63
403	81
407	110
415	44
419	52
420	1
421	36
425	137
428	19
429	15
434	35
438	115
449	41
451	102
461	104
462	50
466	114
487	66
489	145
496	51
498	18
517	12
543	20
561	42
563	16
566	99
582	134



MAP 2
HEART DISEASE DEATH RATE FOR THE CITY
OF MILWAUKEE FOR THE YEAR 1941
BASED ON 1940 POPULATION

Frequency Array for Heart Disease Deaths
for the City of Milwaukee
for the Year 1941

Array	Census Tract
592	34
593	2
651	54
712	30
882	11

In map 2 census tract 11 has the highest death rate. The homes for the aged are in this area. It may be that it is hard to establish a real cause of death in older individuals, and physicians record the death as heart disease.

The next highest rates are found in census tracts 2, 30, 34 and 54. Census tract 11 and 12 are very similar in character. Census tract 30 is a negro area.

CHAPTER IV

Cancer Death Rate for the City of Milwaukee for the Year 1941

Chapter IV

Cancer Death Rate for the City of Milwaukee for the Year 1941

"Cancer in the general useage is a term of great antiquity used by the ancients as descriptive of the malignant tumors because the swollen veins about the center mass resembled the crabs extremeties."1

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1. Francis Carter Wood, "Cancer" Nelson Loose Leaf Medicine, Vol. III, Chap. X

Cancer occurs in all races of men and in all animals, as far down in the zoological scale as the reptiles.

"In man cancer has been recorded in the Papyrus Ebers of the Egyptians, in the Greek and Latin texts of Hypocrates and Galen, and in the medical writings of the early Hindoos."2

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2. Ibid., p. 1.

Despite the age-long studies of surgeons and pathologists on human cancer, plus the large amount of experimental work done since 1903 on animal cancer, the ultimate cause of the origin and the continuous growth of malignant tumors is not known. What is known is that there must be some biological alteration in a cell or a cell group which permits continuous growth despite the limitations to growth which the body imposes on its cells.

"It is an established fact that the age at which cancer most frequently occurs is limited to the older age groups, the curve rising

very slowly up to the age of 35. From 35 it begins to rise very rapidly until it reaches a maximum in women at about the age of 55 and in men at about the age of 65."3

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3. Ibid., p. 1.

A gradual decrease in the cancer death rate is found after the age of 70 which may mean that cancer is not likely to develop in old age. Then to, it may be that many times in old age people are allowed to die without skillful medical care as the expenditure does not seem to be a good investment considering the possibility of apparent death due to general senility. Age therefore, is not the only cause responsible for cancer.

Cancer is not believed to be hereditary. Hardly anyone in the medical field believes the disease itself can be transmitted.

More women than men die of cancer but this is due to the fact that cancer of the uterus and the breast are the two most common forms. If these two causes were eliminated, cancer would be more common in men.

While cancer occurs in all races, statistics show the highest rate is in the most civilized countries such as Switzerland, Holland, and Scotland, while a low rate is seen in Russia, Hungary, and Bohemia. This, however, may be due to a more accurate check on diagnosis, for it is also true that an increase in the published cancer death rate is occuring in most of the countries in which the census

death reports are as yet imperfectly recorded.

A reduction of body strength, loss of weight, anemia, and the reduction of the secretion of the gastric glands have been considered fair symptoms of cancer. However, psychic influences on the patient, when he has knowledge of serious illness, interfere with appetite and digestion so that symptoms cannot always be relied upon.

If the diagnosis of a malignant tumor could be made early, just after the beginning growth, most tumors could be taken care of surgically with every hope of cure.

However, this is rarely possible, except in the case of tumors on the skin and such portion of the mucous membranes as are capable of direct inspection by instrumental means.

The diagnosis of cancer, therefore, depends upon certain general symptoms, which, if not characteristic of any other disease, may raise a justifiable suspicion that cancer is present. Pain is one of the late symptoms and occurs only when some nerve trunk is involved or pressed upon by the new growth.

Inasmuch as the treatment of cancer is at present largely surgical and success depends almost entirely on early diagnosis, operations will be useless unless the general practitioner is able to recognize cancer in its very early phases.

Table XV

Cancer Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	801	136.3
Male	289,118	392	135.5
Female	298,354	409	135.0

The cancer death rate for male and female is just about the same. The male death rate is only 0.5 points higher than the female death rate. This is a very slight difference.

Table XVI

Marital Status for Cancer Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	85	0.5
Married	268,940	459	0.1
Widowed	34,140	225	6.4
Divorced	8,980	22	2.4

The death rates for the marital status showed that the highest rate was for the widowed, and following in numerical importance were divorced, single and married.

Table XVII

Nativity for Cancer Deaths for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	474	0.0

Nativity for Cancer Deaths for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Foreign born	83,809	319	3.6
Unknown		8	

The foreign born death rate is 2.7 points higher than the native born death rate.

Table XVIII

Age and Sex Distribution for Cancer Death Rate for the City of Milwaukee for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	392	409	135.5	135.0	801	136.3
Under 5 yrs.	4	1	0.19	0.05	5	0.12
5 - 9	2	1	0.09	0.05	3	0.07
10 - 14	1	1	0.04	0.04	2	0.04
15 - 19	3	3	0.12	0.12	6	0.12
20 - 24	2	0	0.08	0.0	2	0.04
25 - 29	2	7	0.08	0.25	9	0.17
30 - 34	1	13	0.04	0.50	14	0.28
35 - 39	10	10	0.43	0.41	20	0.42
40 - 44	10	30	0.43	1.3	40	0.89
45 - 49	22	32	0.98	1.5	54	1.2
50 - 54	34	32	1.7	1.8	66	1.7
55 - 59	51	58	3.4	4.1	109	3.4
60 - 64	52	40	4.7	3.5	92	4.1
65 - 69	70	57	9.3	6.8	127	7.9
70 - 74	58	58	12.0	9.7	116	10.7
75 and over	70	66	15.3	10.5	136	12.5

Under 5 years the male death rate is four times higher than the female death rate. At 5 to 9 years it is twice as high, and at age level 15 to 24 it is even. At 25 the female rate is three times higher than the male rate and at

30 it is about twelve times higher. At 35 the death rate is almost even. However, from 40 to 60 it is much greater for females than for males. From 60 to 75 and over the rate again becomes higher for males than females. Cancer is not a disease of the young but one that starts about the age of 40 and 45 for females and then jumps threefold, and from 40 to 45 for males it jumps twofold. After 40 the death rate increases very rapidly.

Table XIX

Cancer Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	2	76
2	4032	5	124
3	4737	5	105
4	4228	9	212
5	4502	8	177
6	3872	3	77
7	4723	5	105
8	4145	4	96
9	3821	5	130
10	4834	2	41
11	3851	4	103
12	3676	2	54
13	4353	6	136
14	3651	7	191
15	1862	1	53
16	2128	7	328
17	2633	2	74
18	4437	6	135
19	3270	6	183
20	1656	5	301
21	3395	10	294
22	3611	6	166
23	7038	5	71
24	3997	5	125
25	4837	9	186
26	3539	7	197
27	3138	9	286
28	3353	2	59

Cancer Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
29	4498	4	88
30	3510	4	113
31	2303	1	43
32	3925	8	203
33	3421	5	146
34	2871	2	69
35	4603	4	86
36	6648	11	165
37	4560	2	43
38	3609	4	110
39	4024	7	171
40	2992	3	100
41	3340	10	299
42	4629	13	281
43	4000	4	100
44	3854	6	155
45	2834	3	105
46	3009	2	66
47	5790	12	207
48	4820	5	103
49	3407	9	264
50	3676	4	108
51	3828	5	130
52	5250	7	133
53	3596	5	139
54	2608	7	264
55	2892	7	242
56	4182	4	95
57	3686	1	27
58	3632	7	192
59	3961	4	100
60	5730	5	87
61	4663	5	107
62	3788	5	131
63	5463	9	164
64	6534	11	168
65	4750	10	210
66	4514	5	110
67	4334	6	138
68	3504	3	85
69	4127	8	191
70	4666	5	107
71	4828	8	165
72	5241	11	209
73	5473	7	132
74	2765	5	180

Cancer Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
75	2208	3	135
76	4392	13	296
77	5082	13	255
78	4249	11	258
79	4990	3	60
80	5788	6	103
81	4463	4	89
82	4720	11	233
83	3596	4	111
84	5757	7	121
85	3395	1	29
86	1464	0	0
87	2480	2	80
88	3872	5	129
89	4412	3	67
90	3086	3	97
91	3506	8	222
92	5628	6	106
93	3978	5	125
94	2821	3	106
95	4309	8	183
96	3561	4	112
97	3038	6	197
98	3833	8	208
99	2295	4	174
100	3426	5	145
101	3908	8	204
102	3102	6	193
103	4033	7	173
104	2601	5	192
105	2869	4	139
106	1059	3	283
107	3133	2	63
108	4722	3	63
109	3520	2	56
110	3922	6	152
111	3959	3	75
112	4383	4	93
113	4408	5	113
114	3001	2	66
115	1140	1	87
116	6063	6	99
117	5318	8	150
118	6117	4	65
119	4139	9	217
120	3810	7	181

Cancer Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
121	2731	4	146
122	6653	2	30
123	4964	6	121
124	6018	3	49
125	5003	5	99
126	4875	8	164
127	5225	7	133
128	4854	5	103
129	616	0	0
130	4450	7	157
131	4087	3	73
132	5700	9	157
133	4138	1	24
134	4139	8	190
135	2978	4	134
136	1809	2	110
137	1879	4	212
138	2764	8	285
139	4459	5	112
140	3859	6	152
141	1341	4	297
142	1778	2	112
143	3576	3	83
144	2411	3	124
145	2667	7	263
146	4379	1	22
147	2890	2	69
148	2707	2	73
149	2837	3	105
150	3860	11	28
151	1581	2	126
152	452	0	0
153	2937	3	102

Table XX

Cancer Death Rate Frequency Distribution for the City of Milwaukee for the Year 1941

Death Rate per 100,000	Total
0 - 59.9	17

Cancer Death Rate Frequency Distribution for the City of Milwaukee for the Year 1941

Death Rate per 100,000	Total
60 - 119.9	56
120 - 179.9	40
180 - 239.9	24
240 - 299.9	14
300 - 359.9	2

Table XXI

Frequency Array for Cancer Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
0	152-129- 86
22	146
24	133
27	57
28	150
29	85
30	122
41	10
43	31- 37
49	124
53	15
54	12
56	109
59	28
60	79
63	107-108
65	118
66	46
67	89
69	147- 34
71	23
73	131-148
75	17-111
76	1
77	6
80	87
83	143
85	68

Frequency Array for Cancer Deaths for the City of Milwaukee for the Year 1941

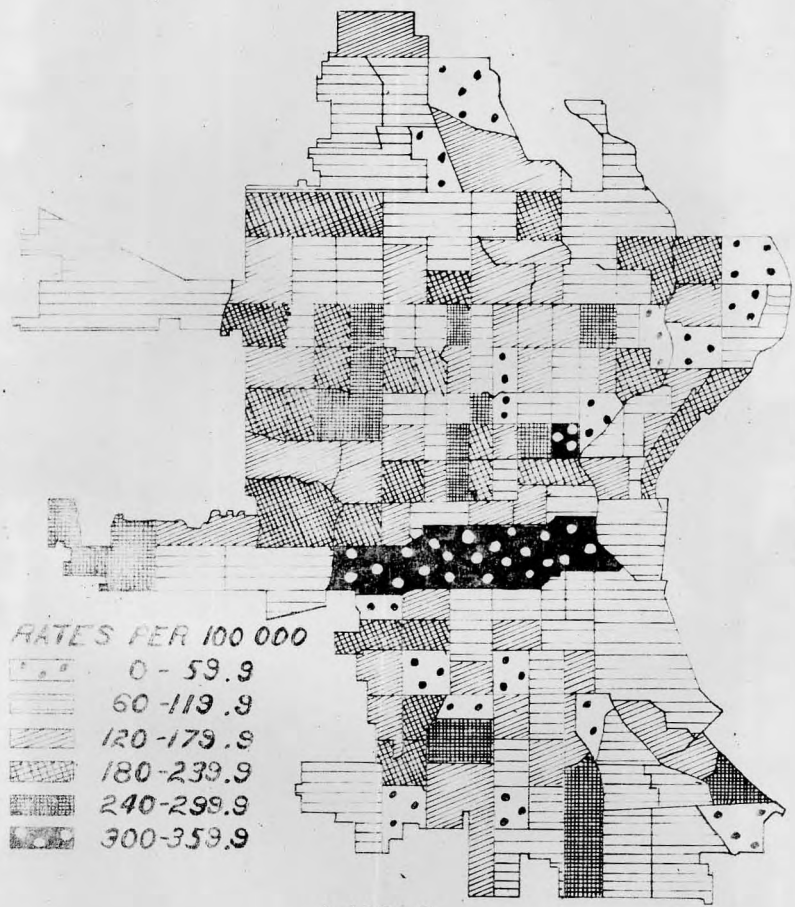
Array	Census Tract
86	35
87	60-115
88	29
89	81
93	112
95	56
96	8
97	90
99	116-125
100	40- 43- 59
102	153
103	11- 48- 80-128
106	3- 7- 45-149
106	92- 94
107	61- 70
108	50
110	136- 66- 38
111	83
112	96-139-142
113	30-113
121	84-123
124	2-144
125	24- 93
126	151
129	88
130	9- 51
131	62
132	73
133	52-127
134	135
135	75- 18
136	13
138	67
139	105- 53
145	100
146	33-121
150	117
152	110- 44-140
157	130-132
164	63-126
165	36- 71
166	22
168	64
171	39
173	103
174	99

Frequency Array for Cancer Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
177	5
180	74
181	120
183	19- 95
186	25
190	134
191	14- 69
192	58-104
193	102
197	26- 97
203	32
204	101
207	47
208	98
209	72
210	65
212	4-137
217	119
222	91
233	82
242	55
255	77
258	78
263	145
264	54- 49
281	42
283	106
285	138
286	27
294	21
296	76
297	141
299	20
328	16

Map 3 shows a very high death rate very much distributed throughout the city. Tracts 16 and 20 are again the leading areas, where we have the industrial and congested areas.

Census tracts 29 and 30 are also negro areas as is census tract 20, however it is interesting to not that the rate



MAP 3
CANCER DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

in these areas is considerably lower.

CHAPTER V

Apoplexy Death Rate for the City of Milwaukee for the Year 1941

Chapter V

Apoplexy Death Rate for the City of Milwaukee for the Year 1941

The word apoplexy was used by the Greeks and Romans and it meant to strike off or to be disabled by a stroke.

Apoplexy is often spoken of as a fit or a stroke. After it generally became known that the cause of apoplexy was usually a hemorrhage in the substance of the brain, the pathological condition itself began to be called apoplexy and in the early part of the last century the term was extended to signify any sudden interstitial hemorrhage, as pulmonary apoplexy, renal apoplexy, etc. Today the term stroke is frequently heard.

> "Apoplexy was used in medicine to signify a set of symptoms, a more or less sudden and complete obolition of consciousness with loss of feeling and motion, respiration being maintained."1

---

1. William Osler, M.D., Osler's Modern Medicine, p. 347.

The beginning of our modern knowledge of this disease dates back to the investigations of Wepfer in 1658 when he pointed out the association of cerebral hemorrhage with apoplexy. After Wepfer's study very little progress was made until Cullen in the 18th century maintained that "apoplexy is the disease in which the whole of the external and internal senses and the whole of the voluntary motions are in some degree abolished; while respiration

and the action of the heart continue to perform.

As the medical profession paid more attention to the disease as time went on, the idea that the condition of the blood vessels of the brain was an important predisposing factor in the production of apoplexy developed. It was obvious to observers that the symptoms associated and following an apoplexy varied, and that in all probability this was due to some differences in the location of the diseased focus.

The condition generally known as apoplexy arises from the disease of the cerebral vessels. This manifests itself in three different forms due to cerebral hemorrhage, cerebral thrombosis, or cerebral embolism. The symptoms are much alike as similar areas in the brain may be affected by each.

Slight cerebral symptoms may occur many months before apoplexy. These depend upon the vasular changes which lead up to the rupture or the occlusion of a vessel, and are important as indicating that such changes have taken place. The liability of an artery to rupture depends upon some weakness of the vessels wall, usually upon the presence of miliary aneurisms.

The patient is rendered unconscious, the face is purple or congested, there may be voiding of urine and feces, the breathing slow and snoring in character, the pulse is usually slowed to 50 and often soft and full, nausea and vomiting and lowered temperature may also occur. The

pupils may be dilated and the eyes may appear crossed. There is usually noted a difference in the two sides of the face, one side of the body is different from the other, and on lifting the limbs there is a change in resistance.

An apoplectic attack may occur under all conditions, during sleep, while awake in bed, in getting up, at work, at play, at table or at any other time. Overexertion does not often play its important role in exciting an attack, and it is rarely possible to discover from the history of cases any evident relation of the occupation to the stroke.

There seems to be a distinct tendency in the negro race to have diseases of the circulatory system and also to apoplexy.

The vascular changes upon which the apoplexy depend are in a large proportion of cases conditioned by incidents of the life of the individual.

> "Whether the patient has bled or is bleeding at the time he is first seen in a typical stroke is by no means easy to say, but it is the time-honored custom to assume that hemorrhage is occuring and that something must be done to stop it. To this end it is usual to raise the head and put an ice-bag on it and lower the feet and place them in a warm mustard bath. Most patients who have bled sufficient to have hemiplegia will die very soon and these measures will do nothing to stay the end. However, to merely stand by and do nothing seems heartless."2

---

2. Harry Beckman, M.D., Treatment in General Practice, p. 695.

The duration of unconsciousness varies, it may be very

short or persist until death. The period may vary from one to four hours or from one to two days depending upon on how severe the attack. From actual coma, patients very frequently pass into a state of dull consciousness, during which they have very little recollection of what passes around them, and it is not at all uncommon for such patients to insist that they were unconscious for a week or even longer.

The great majority of apoplectic attacks are curable. In cases where there appears to be immediate death, it usually follows that there had been other attacks, but they were not severe enough for individuals to pay much attention to them. The time between these attacks may vary from months to years, and the idea that the third stroke is fatal is not a proved fact.

Table XXII

Apoplexy Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	513	87.3
Male	289,118	222	76.1
Female	298,354	291	97.5

The apoplexy death rate for the city of Milwaukee shows a new picture for here the females have a higher death rate than the males. The female rate is 21.4 points higher than the male rate.

Table XXIII

Marital Status for Apoplexy Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	54	0.3
Married	268,940	233	0.8
Widowed	34,140	208	6.0
Divorced	8,980	14	1.5
Unknown		2	

The widowed death rate is again high with divorced, married and single following in numerical importance.

Table XXIV

Nativity for Apoplexy Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	326	0.6
Foreign born	83,809	185	2.2
Unknown		2	

The foreign born death rate is again higher than the native born death rate. The foreign born death rate is 1.6 points higher than the native born death rate.

Table XXV

Age and Sex Distribution for Apoplexy Death Rate
for the City of Milwaukee
for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	222	291	76.1	97.5	513	87.3
Under 5 yrs.	0	1	0.0	0.0	1	0.02
5 - 9	0	0	0.0	0.0	0	0.0
10 - 14	1	0	0.04	0.0	1	0.02
15 - 19	0	0	0.0	0.0	0	0.0
20 - 24	1	0	0.04	0.0	1	0.02
25 - 29	0	1	0.0	0.03	1	0.02
30 - 34	1	1	0.04	0.03	2	0.04
35 - 39	0	5	0.0	0.20	5	0.10
40 - 44	2	8	0.08	0.36	10	0.22
45 - 49	8	8	0.35	0.38	16	0.37
50 - 54	16	26	0.80	1.4	42	1.1
55 - 59	18	26	1.2	1.8	44	1.5
60 - 64	35	33	3.1	2.9	68	3.0
65 - 69	34	36	4.5	4.3	70	4.4
70 - 74	34	44	7.0	7.4	78	7.2
75 and over	72	102	15.8	16.2	174	16.0

Apoplexy is definitely not a disease of childhood but starts late in life. For the year 1941 the female rate was 21.4 points higher than that of the male rate. There does not seem to be a marked difference in the rates at the same age levels for the male and female, other than at the age level 35 to 39 where the male has no death rate, and the female has 0.20, and at age 40 to 44 where the male rate is 0.08 and the female rate is 0.36. In both the male and female death rates the rise is very rapid from 45 to 75 and over.

Table XXVI

Apoplexy Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	0	0
2	4032	5	124
3	4737	5	105
4	4228	8	189
5	4502	2	44
6	3872	2	51
7	4723	0	0
8	4145	3	72
9	3821	2	52
10	4834	3	62
11	3851	12	311
12	3676	7	190
13	4353	3	68
14	3651	2	54
15	1862	3	161
16	2128	6	281
17	2633	3	110
18	4437	3	67
19	3270	3	94
20	1656	3	181
21	3395	1	29
22	3611	4	110
23	7038	7	99
24	3997	2	50
25	4837	4	83
26	3539	3	84
27	3138	2	59
28	3353	2	63
29	4498	4	88
30	3510	2	56
31	2303	2	86
32	3925	3	76
33	3421	2	58
34	2871	2	69
35	4603	5	108
36	6648	2	30
37	4560	1	21
38	3609	5	138
39	4024	6	149
40	2992	5	167
41	3340	1	29
42	4629	7	151
43	4000	5	125

Apoplexy Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
44	3854	2	51
45	2834	6	211
46	3009	0	0
47	5790	6	103
48	4820	5	103
49	3407	5	146
50	3676	3	81
51	3828	7	182
52	5250	3	57
53	3506	2	58
54	2608	0	0
55	2892	8	276
56	4182	1	23
57	3686	0	0
58	3632	1	27
59	3961	4	100
60	5730	2	34
61	4663	6	128
62	3788	2	52
63	5463	3	54
64	6534	7	107
65	4750	6	126
66	4514	3	66
67	4334	5	115
68	3504	2	57
69	4127	8	191
70	4666	6	128
71	4828	4	82
72	5241	12	228
73	5473	8	147
74	2765	1	36
75	2208	1	45
76	4392	6	136
77	5382	6	113
78	4249	7	164
79	4990	2	40
80	5788	5	86
81	4463	3	67
82	4720	4	84
83	3596	0	0
84	5757	9	156
85	3393	0	0
86	1464	1	68
87	2480	1	40
88	3872	4	103

Apoplexy Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
89	4412	2	45
90	3086	0	0
91	3506	4	111
92	5628	3	53
93	3978	2	50
94	2821	1	35
95	4309	0	0
96	3561	4	112
97	3038	5	164
98	3833	5	130
99	2835	3	130
100	3426	2	57
101	3908	6	150
102	3102	6	193
103	4033	4	99
104	2601	0	0
105	2869	3	104
106	1059	1	93
107	3133	1	31
108	4722	0	0
109	3520	2	85
110	3922	4	101
111	3959	5	126
112	4384	5	114
113	4408	1	22
114	3001	1	33
115	1140	2	175
116	6063	7	115
117	5318	6	114
118	6117	5	81
119	4139	1	24
120	3810	6	154
121	2731	3	109
122	6653	4	60
123	4964	6	121
124	6018	9	149
125	5003	3	59
126	4875	2	41
127	5225	2	38
128	4875	3	61
129	616	0	0
130	4450	2	44
131	4087	4	97
132	5700	5	87
133	4138	3	72

Apoplexy Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
134	4139	4	96
135	2978	1	33
136	1809	1	55
137	1879	1	53
138	2764	2	72
139	4459	5	112
140	3859	0	0
141	1341	1	74
142	1778	3	168
143	3576	1	27
144	2411	6	248
145	2657	2	75
146	4379	2	45
147	2890	1	34
148	2707	5	184
149	2837	2	70
150	3860	2	51
151	1581	0	0
152	452	1	22
153	2937	0	0

Table XXVII

Apoplexy Death Rate Frequency Distribution for the City of Milwaukee for the Year 1941

Death rate per 100,000	Total
0 - 59.9	61
60 - 119.9	54
120 - 179.9	25
180 - 239.9	9
240 - 299.9	3
300 - 359.9	1

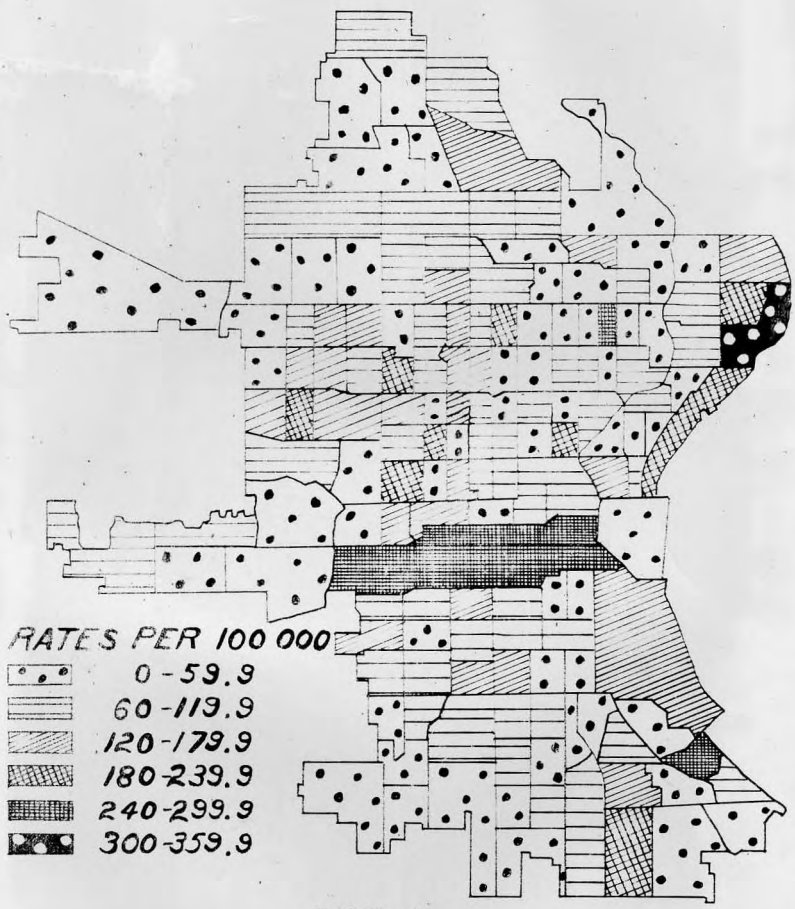
Table XXVIII

Frequency Array for Apoplexy Death Rate for the City of Milwaukee for the Year 1941

Array	Census Tract
0	1- 7- 46- 54- 83- 85- 90- 95-104-108-129 140-151-153
21	37
22	113-152
23	56
24	119
27	58-143
29	41- 21
30	36
31	107
32	114-135
34	60-147
35	94
36	74
38	127
40	79- 87
41	126
44	5-130
45	75- 89-146
50	24- 93
51	6- 44-150
52	9- 62
53	92-137
54	14- 63
55	136
56	30
57	52- 68
58	53- 33
59	28-125
60	122
61	128
62	10
63	27
66	66
67	18-81
68	13- 86
69	34
70	149
72	8-133-138
74	141
75	145
76	32
81	50-118
82	71
83	25

Frequency Array for Apoplexy Death Rate for the City of Milwaukee for the Year 1941

Array	Census Tract
84	26- 82
85	109
86	80
87	132
88	29
93	106
94	19
96	134
97	131
99	23-103
100	59
101	110
103	47
104	105
107	64
108	35
109	121
110	17-22
111	91
112	96-139
114	112-117
115	67-116
118	77
121	123
124	2
125	43
126	65-111
128	61- 70
130	98- 99
136	76
138	38
146	49
147	73
149	39-124
150	101
151	42
154	120
156	84
161	15
164	78- 97
167	40
168	142
175	115
181	20



MAP 4
APOPLEXY DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

Frequency Array for Apoplexy Death Rate for the City of Milwaukee for the Year 1941

Array	Census Tract
182	51
184	148
189	4
190	12
191	69
193	102
211	45
228	72
248	144
276	55
281	16
311	11

Map 4 shows that the apoplexy death rate is highest in census tract 11. This can be attributed to the same cause as that of heart disease.

The second highest death rates are found in census tracts 16, 55 and 144.

CHAPTER VI

Accident Death Rate for the City of Milwaukee for the Year 1941

Chapter VI

Accident Death Rate for the City of Milwaukee for the Year 1941

Milwaukee is considered the safest large city in the United States. Accident deaths include railway, motor vehicle, streetcar and other road transport, accidents in mines and quarries, agricultural and forestry, food poisoning, accidental absorption of poisonous gas, acute accidental poisoning by solids and liquids, conflagration, drowning, injury by firearms, injury by cutting or piercing instruments, injury by fall or crushing, cataclysm, injury by animals, hunger or thirst, excessive cold, excessive heat, lightning, electric currents, poisoning by venomous animals, and any other type of accidental death not listed.

There are more accidents in the home than in industry or any other accident producing unit except traffic.

If individuals would use a few preventive regulations as well as careful observation, many home accidents could be prevented. Among the most serious home accidents are: slipping, electrocution, poisons, burns, and asphyxiation.

Certain rooms in the home produce more accidents than other rooms. The bedroom for example causes about 4 out of 10 of all fatal accidents in the home. This is due usually because of darkness, and then too one frequently wanders in a half-conscious condition. The bathroom is also a room where many accidents occur. Broken glass, pins, ra-

zor blades, scissors and soap cause trouble in a bathroom, to say nothing of electrocution and the drinking of poisons. Groping in a medicine chest and getting the wrong bottle is another danger. Poisons should be marked in such a way that one can immediately tell them even in the dark, or else poisons should not be placed with other medicines.

Matches as well as the stove cause other accidents. Burns and inhalation of carbon monoxide bring about serious conditions and in many cases bring about death.

The dangers of the home can be fought only by education. Educational programs have been given by the Safety Commission with the hope that they could educate people to realize that accidents can happen in any home, regardless of econmic level. Accidents happen not only in the poorer homes, but in all homes.

Automobiles cause about as many accidents as the home does. The automobile is a convenience, a means of recreation, an occupational necessity, but it is also a dangerous weapon.

The greatest cause of automobile accidents is speed. Other causes include general carelessness, slippery pavement, poor visibility and poor brakes. Why people dawdle at home and then try to make time on the highway is something no one knows.

For the sake of safe and efficient service every car should be checked periodically. If the driver is not mechanically inclined, he should at least know what parts

a mechanic should check for him.

For the year 1941 the city of Milwaukee had 333 deaths as a result of accidents. Of these 333, deaths resulting from a fall or crushing lead all the rest. These deaths totaled 123. This was ten deaths less than 1940, but it is still too many. Automobile accidents caused 103 deaths in 1941, an increase of 14 over 1940. Accidental drownings were next high with a total of 17 for 1941 and 16 for 1940. Accidents involving machinery reached a new high in 1941 totalling 12 in comparison to 4 in 1940. Just what the total will be in 1942 is hard to say, what with so many more industrial plants operating because of the war.

Table XXIX

Accident Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	333	56.6
Male	289,118	210	72.6
Female	298,354	123	41.2

The accident death rate for males is 31.4 points higher than it is for females. This is a very great increase. Automobile fatalities may account for this increase.

Table XXX

Marital Status for Accident Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	82	0.5
Married	268,940	111	0.4
Widowed	34,140	92	2.6
Divorced	8,980	16	1.7
Unknown		2	

In table XXX the widowed death rate is again high with the divorced rate second high, however, the single rate is higher in this table than is the married.

Table XXXI

Nativity for Accident Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	223	0.4
Foreign born	83,809	108	1.2
Unknown		2	

The foreign born death rate is 0.8 points higher than is the native born death rate.

Table XXXII

Age and Sex Distribution for Accident Death Rate
for the City of Milwaukee
for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	210	123	72.6	41.2	333	56.6
Under 5 yrs.	7	6	0.34	0.30	13	0.32
5 - 9	11	2	0.50	0.10	13	0.32
10 - 14	4	0	0.17	0.0	4	0.08
15 - 19	11	1	0.47	0.04	12	0.24
20 - 24	16	6	0.67	0.21	22	0.42
25 - 29	8	5	0.32	0.18	13	0.24
30 - 34	8	6	0.33	0.23	14	0.28
35 - 39	12	2	0.51	0.08	14	0.29
40 - 44	13	2	0.56	0.09	15	0.33
45 - 49	12	1	0.53	0.04	13	0.30
50 - 54	19	5	0.95	0.27	24	0.63
55 - 59	15	6	1.0	0.42	21	0.72
60 - 64	18	3	1.6	0.26	21	0.95
65 - 69	21	13	2.7	1.5	34	2.1
70 - 74	19	12	3.9	2.0	31	2.8
75 and over	15	53	3.2	8.4	68	6.3

Accidents occur at all age levels. The accident death rate for males is higher than the death rate for females all the way from under five years to 75 and over. It is here the female rate exceeds the male rate very greatly by 5.2. The highest rate for accidental deaths for males start at 55 years, whereas for females it starts at 65 years.

Table XXXIII

Accident Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	3	114
2	4032	11	272
3	4737	3	63
4	4288	3	70
5	4502	0	0
6	3872	4	103
7	4723	4	84
8	4145	2	48
9	3821	2	52
10	4834	2	43
11	3851	2	51
12	3676	2	54
13	4353	2	45
14	3651	1	27
15	1862	2	107
16	2128	7	328
17	2633	5	182
18	4437	6	135
19	3270	2	61
20	1656	1	60
21	3395	3	80
22	3611	1	27
23	7038	7	99
24	3997	2	50
25	4837	2	45
26	3539	1	28
27	3138	4	124
28	3353	0	0
29	4498	3	60
30	3510	5	142
31	2303	2	86
32	3925	3	76
33	3421	2	58
34	2871	3	104
35	4603	3	65
36	6648	3	45
37	4560	3	65
38	3609	1	27
39	4024	1	24
40	2992	4	136
41	3340	4	116
42	4629	4	86
43	4000	1	25

Accident Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
44	3854	4	103
45	2834	3	105
46	3009	0	0
47	5790	4	68
48	4820	3	60
49	3407	2	61
50	3676	2	54
51	3828	0	0
52	5250	3	57
53	3596	2	58
54	2608	0	0
55	2892	1	34
56	4182	0	0
57	3686	1	27
58	3632	1	27
59	3961	3	75
60	5730	3	52
61	4663	1	21
62	3788	2	52
63	5463	4	73
64	6534	2	30
65	4750	2	42
66	4514	6	132
67	4334	5	115
68	3504	4	113
69	4127	1	24
70	4666	2	42
71	4826	4	82
72	5241	5	97
73	5473	3	54
74	2765	0	0
75	2208	1	45
76	4392	2	45
77	5082	5	98
78	4249	3	70
79	4990	1	20
80	5788	2	34
81	4463	2	44
82	4720	1	21
83	3596	1	27
84	5757	3	52
85	3395	0	0
86	1464	0	0
87	2480	2	80
88	3872	1	25

Accident Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
89	4412	2	45
90	3086	1	32
91	3506	0	0
92	5628	4	71
93	3978	0	0
94	2821	0	0
95	4309	2	46
96	3561	0	0
97	3038	2	65
98	3833	0	0
99	2295	2	87
100	3426	0	0
101	3908	0	0
102	3102	2	64
103	4033	0	0
104	2601	0	0
105	2869	2	69
106	1059	0	0
107	3133	1	31
108	4722	1	20
109	3520	2	56
110	3922	4	101
111	3959	3	75
112	4383	3	68
113	4408	4	90
114	3001	3	99
115	1140	1	88
116	6063	3	49
117	5318	4	75
118	6117	4	65
119	4139	1	24
120	3810	0	0
121	2731	2	73
122	6653	2	30
123	4964	4	80
124	6018	2	33
125	5003	6	119
126	4875	2	41
127	5225	3	57
128	4875	5	102
129	616	1	162
130	4450	4	89
131	4087	1	24
132	5700	3	52
133	4138	3	72

Accident Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
134	4139	4	96
135	2978	3	100
136	1809	1	55
137	1879	0	0
138	2764	0	0
139	4459	2	42
140	3859	0	0
141	1341	0	0
142	1778	0	0
143	3576	2	55
144	2411	1	41
145	2657	0	0
146	4379	0	0
147	2890	2	69
148	2707	2	73
149	2837	1	35
150	3860	1	25
151	1581	0	0
152	452	0	0
153	2937	2	68

Table XXXIV

Accident Death Rate Frequency Distribution
for the City of Milwaukee
for the Year 1941

Death rate per 100,000	Total
0 - 59.5	88
60 - 119.9	56
120 - 179.9	6
180 - 239.9	1
240 - 299.9	1
300 - 359.9	1

Table XXXV

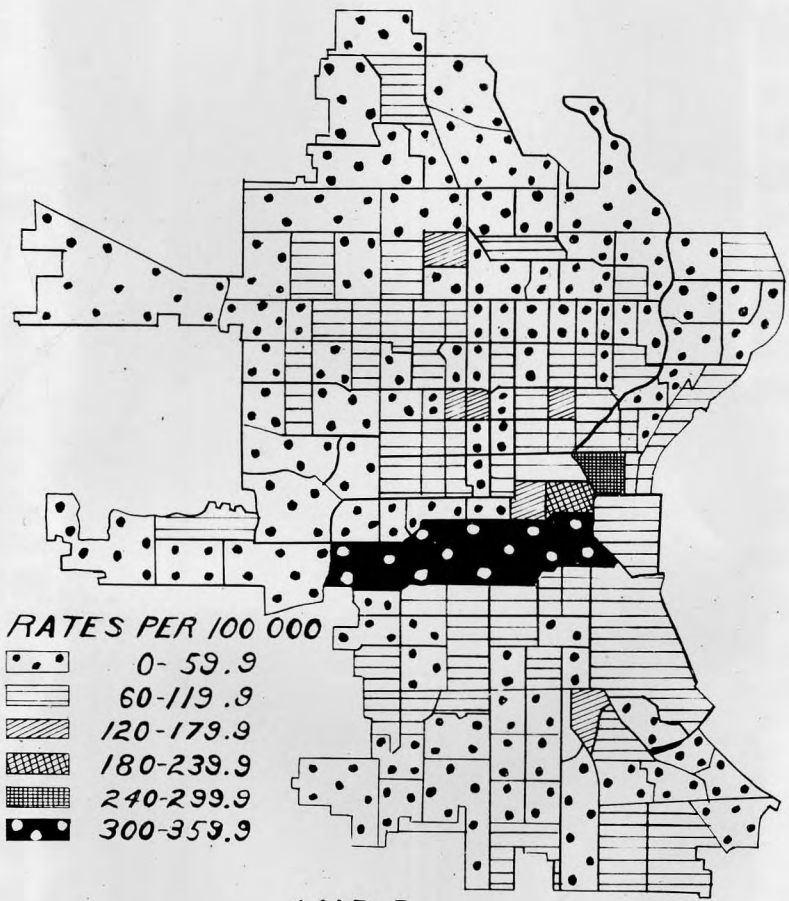
Frequency Array for Accident Death Rate for the City of Milwaukee for the Year 1941

Array	Census Tract
0	5- 28- 46- 51- 56- 74- 85- 86- 91 93- 94- 96- 98-100-101-103-104 106-120-137-138-140-141-142-145 146-151-152
20	79-108
21	82- 61
24	39- 69-119-131
25	43- 83-150
27	14- 22- 38- 57- 58- 83
28	26
30	64-122
31	107
32	90
33	124
34	55- 80
35	149
41	126-144
42	65- 70-139
43	10
44	81
45	13- 35- 36- 75- 76- 89
46	95
48	8
49	116
50	24
51	11
52	9- 60- 62- 84-132
54	50- 73- 12
55	136-143
56	109
57	127- 52
58	53- 33
60	20- 29- 48
61	19- 49
63	3
64	102
65	35- 37- 97-118
68	47-112-153
69	105-147
70	4- 78
71	92
72	133
73	63-121-148

Frequency Array for Accident Death Rate for the City of Milwaukee for the Year 1941

Array	Census Tract
75	59-111-117
76	32
80	87- 21-123
82	71
84	7
86	31- 42
87	99
88	115
89	130
95	113
96	134
97	72
98	77
99	23-114
100	135
101	110
102	128
103	6- 44
104	34
105	45
107	15
113	68
114	1
115	67
116	41
119	125
124	27
132	66
135	18
136	40
142	30
162	129
182	17
272	2
328	16

The accident death rate is very evenly distributed throughout the city. It is a low death rate, with only three areas having an outstanding death rate, and census tract 16 leads all others. In this area are the heaviest



MAP 5
ACCIDENT DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

#12-

traffic of large trucking, congestion and railroad transport.

Census tracts 2 and 17 are also industrial and manufacturing areas that would cause traffic accidents.

CHAPTER VII

Nephritis Death Rate for the City of Milwaukee for the Year 1941

Chapter VII

Nephritis Death Rate for the City of Milwaukee for the Year 1941

So far as is yet known the first description of kidney disease was that of Aetius (500 A.D.) who is said to have found at autopsy that certain cases of dropsy were associated with hardening of the kidney. Later Avicenna at the Court of Bagdad discovered that in dropsy the urine is considerably altered. In the middle of the 13th century Saliceto provided his description of edema associated with contracted kidney, and in the 17th century Malpighi who had benefited by Harvey's studies in the 16th century established the function of the capillaries. It was these men who laid the foundation for further study.

In 1694 Fredericus Dekkers of Leyden demonstrated the presence of albumin in the urine by boiling and adding acetic acid, a procedure that is still in use today. However, the discovery of albuminuria is generally credited to Cotugno in 1764. The term albuminuria is not strictly accurate for the usual coagulable urine contains not only albumin but also globulins and at other times proteins. Proteinuria would therefore be preferrable but the term albuminuria has become sanctioned by more than a hundred years use and would be difficult to change.

The first real step in the study of nephritis was the discovery of Cotugno that the urine of dropsical patients

is albuminous

Toward the end of the 18th century Cruikshank found that albumin is not present in the urine of all patients who have dropsy. He stated that coagulable urine occurs only in individuals with general dropsy while the urine is free of albumin in those whose dropsy depends on the disease of the liver.

About the same time Wells made important discoveries on the urine of patients with scarlet fever.

> "Wells found that the urine in postcarlatinal dropsy is often bloody. He observed lesions of the kidneys in some patients with dropsy and albuminous urine, but in other cases he did not find these renal changes and was therefore, unable to decide further whether the albuminuria and dropsy were actually results of renal disease."1

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1. Arthur M. Fishberg, Hypertension and Nephritis, p. 324.

All the above mentioned men laid the foundation for the epoch-making investigations of Bright. In 1827 Richard Bright presented his material on nephritis. He made the distinction of three groups among the cases of renal disease which he studied.

> "The first group includes cases in which a state of degeneracy seems to exist. The second form of diseased kidney is one in which the whole cortical part is converted into a granulated texture, and where there appears to be a copious morbid interstitial deposit of an opake white substance. The third form of disease is where the kidney is quite rough and scabious to the touch externally, and is seen to rise in numerous projections not much exceeding a large pin's head, yel-

low, red, and purplish."2

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2. Ibid., p. 324.

In 1836 Richard Bright wrote apologetically that after ten years of study, he still was unable to devise a method of permanent relief for the group of disorders then known by his name. Despite all the refinements developed for the recognition and appraisal of nephtitis, even the establishment of the diagnosis is at times almost impossible. Nevertheless significant progress has been made in recent years.

After Bright's study other medical men interested in the field made futher studies until today we find the disease divided into several sections such as hemorrhage, degenerative and arteriselerotic. Any means by which we can bring about an abnormal production or accumulation of acid in the kidney constitutes a method of producing the signs of nephritis.

The symptoms of acute Bright's disease are severe. Pain in the back, vomiting and fever commonly bring about an attack. Dropsy varing in degree from slight puffiness of the face to an accumulation of fluid sufficient to disend the whole body, and to occasion serious embarrassment to respiration, is a very common accompaniment. The urine is reduced in quantity, is of a dark, smoky or bloody colour, and when subject to chemicals the presence of large amounts of albumin are found, and under the microscope, blood cor-

puscles and casts are found in large quantities.

The symptoms of chronic Bright's disease usually develop very insidiously. In many instances the existence of the disease is not suspected until fatal complications set in. Usually there is loss of strength with increasing anemia. Digestion is impaired, headache and insomnia are often present. The patient may complain of failing vision, shortness of breath. The blood pressure is high, and dropsy may be a marked symptom, or there may be little or no dropsy.

Acute Bright's disease occurs most frequently as a complication of some infectious disease, particularly scarlet fever, less commonly tonsillitis, colds, infected wounds, measles, diptheria, chicken-pox, and malaria. It also shows up in syphilis, tuberculosis and endocarditis. The inflammation of the kidneys in these cases is not caused by germs growing in the kidnesy but by toxins or poisons produced by the germs elsewhere and carried to the kidneys by the blood.

Bright's disease is always dangerous. Acute nephritis is curable but the patient needs the best medical attention he can secure, and he must obey the doctor. The slightest disregard for the doctors directions may turn the scales against him.

Chronic Bright's disease is not curable. The kidneys have been permanently damaged and there is no possibility whatever of restoring normal structure or normal function. The patient is not necessarily doomed to an early death nor

to a life of invalidism. If the condition is discovered before it has reached an advanced stage, the patient may live for years, and lead a fairly active life. Practically every detail of his life, such as clothing, work, rest, exercise, food, and drink must be regulated by his physician.

The number of deaths from Bright's disease seems to be increasing steadily. We cannot hope to reduce the nephritis death rate very much by better methods of treatment, for chronic nephritis is a strictly incurable disease. The death rate can only be lowered by preventing the disease. The habitual use of alcohol causes many cases of Bright's disease. This of course could be preventable. Many of the cases of nephritis that occur during preganancy could be prevented by early medical care. The chronic Bright's disease that is associated with hardening of the arteries could usually be prevented by a more simple mode of life. Like the arteriosclerosis of which it is a part, it is the result of high living and excessive activity, of over-eating and the constant use of alcohol, coffee, and tobacco. It is peculiarly a disease of the well-to-do, of those who need not deny themselves anything they crave.

Table XXXVI

Nephritis Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	264	44.9
Male	289,118	126	43.5
Female	298,354	138	46.2

Table XXXVI shows that the female death rate is higher than is the male death rate, which is unusual, for in almost all cases the male rate is higher than the female rate.

Table XXXVII

Marital Status for Nephritis Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	29	0.2
Married	268,940	127	0.4
Widowed	34,140	100	2.9
Divorced	8,980	7	0.7
Unknown		1	

In this table the widowed death rate is at least 1.2 points higher than the divorced, married or single. The divorced rate is again higher than the married or single, and the married rate is higher than the single death rate.

Table XXXVIII

Nativity for Nephritis Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	166	0.3
Foreign born	83,809	98	1.1

The nephritis death rate is higher for the foreign born than it is for the native born. It is 0.8 points higher for the foreign born than for the native born.

Table XXXIX

Age and Sex Distribution for Nephritis Death Rate
for the City of Milwaukee
for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	126	138	43.5	46.2	264	44.9
Under 5 yrs.	0	0	0.0	0.0	0	0.0
5 - 9	0	0	0.0	0.0	0	0.0
10 - 14	0	0	0.0	0.0	0.0	0.0
15 - 19	2	1	0.08	0.04	3	0.06
20 - 24	3	1	0.12	0.03	4	0.07
25 - 29	3	1	0.12	0.03	4	0.07
30 - 34	4	1	0.16	0.03	5	0.10
35 - 39	4	4	0.17	0.16	8	0.16
40 - 44	5	6	0.21	0.27	11	0.24
45 - 49	10	5	0.44	0;24	15	0.34
50 - 54	7	13	0.35	0.72	20	0.52
55 - 59	11	13	0.74	0.92	24	0.76
60 - 64	14	12	1.2	1.0	26	1.1
65 - 69	5	15	0.66	1.7	20	1.2
70 - 74	20	19	4.1	3.2	39	3.6
75 and over	38	47	8.3	7.5	85	7.8

The city of Milwaukee for the Year 1941 had no deaths caused by nephritis until the age group 15 to 19. From this age group there is a gradual increasing in the death rate until age group 60 to 64, and from here on the increase is greater. The female rate was 2.7 points higher than that of the male rate. The female death rate was higher than the male death rate from age level 35 through 59, but at all other levels the male rate was higher.

Table XL

Nephritis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	1	38
2	4032	0	0
3	4737	4	84
4	4288	3	63
5	4502	4	88
6	3872	2	51
7	4723	6	126
8	4145	3	72
9	3821	2	52
10	4834	1	20
11	3851	4	103
12	3676	2	54
13	4353	3	68
14	3651	5	136
15	1862	2	107
16	2128	1	46
17	2633	2	75
18	4437	0	0
19	3270	4	121
20	1656	6	362
21	3395	0	0
22	3611	4	110
23	7038	6	81
24	3997	0	0
25	4837	0	0
26	3539	0	0
27	3138	1	31
28	3353	0	0
29	4498	2	44
30	3510	2	56
31	2303	1	43
32	3925	2	50
33	3421	0	0
34	2871	1	34
35	4603	1	21
36	6648	2	30
37	4560	0	0
38	3609	1	27
39	4024	1	24
40	2992	2	66
41	3340	3	89
42	4629	3	64
43	4000	2	50

Nephritis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
44	3854	2	51
45	2834	0	0
46	3009	0	0
47	5790	1	17
48	4820	2	41
49	3407	2	61
50	3676	2	54
51	3828	0	0
52	5250	1	19
53	3596	0	0
54	2608	3	115
55	2892	1	34
56	4182	2	47
57	3686	1	27
58	3632	3	85
59	3961	0	0
60	5730	2	34
61	4663	2	42
62	3788	4	105
63	5463	3	54
64	6534	2	30
65	4750	3	63
66	4514	5	110
67	4334	5	115
68	3504	2	57
69	4127	0	0
70	4666	3	64
71	4828	0	0
72	5241	1	19
73	5473	4	73
74	2765	1	36
75	2208	2	90
76	4392	3	68
77	5082	1	19
78	4249	0	0
79	4990	4	80
80	5788	2	34
81	4463	0	0
82	4723	3	65
83	3596	1	27
84	5757	0	0
85	3395	2	58
86	1464	1	68
87	2480	0	0
88	3872	1	25

Nephritis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
89	4412	0	0
90	3086	0	0
91	3506	2	57
92	5628	2	35
93	3978	2	50
94	2821	2	70
95	4309	0	0
96	3561	0	0
97	3038	0	0
98	3833	2	52
99	2295	3	130
100	3426	1	29
101	3908	3	76
102	3102	1	32
103	4033	0	0
104	2601	5	191
105	2869	1	34
106	1059	0	0
107	3133	0	0
108	4722	1	20
109	3520	1	28
110	3922	2	50
111	3959	3	75
112	4383	3	68
113	4408	0	0
114	3001	0	0
115	1140	0	0
116	6063	5	82
117	5318	3	56
118	6117	3	49
119	4139	1	24
120	3810	1	26
121	2731	1	36
122	6653	2	30
123	4964	3	60
124	6018	1	16
125	5003	3	59
126	4875	1	22
127	5225	0	0
128	4875	6	123
129	616	0	0
130	4450	4	89
131	4087	1	24
132	5700	4	70
133	4138	1	24

Nephritis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
134	4139	5	120
135	2978	0	0
136	1809	0	0
137	1879	0	0
138	2764	1	36
139	4459	1	22
140	3859	2	51
141	1341	0	0
142	1778	1	56
143	3576	3	83
144	2411	0	0
145	2657	0	0
146	4379	2	45
147	2890	1	34
148	2707	1	36
149	2837	2	70
150	3860	3	77
151	1581	1	63
152	452	0	0
153	2937	2	68

Table XLI

Nephritis Death Rate Frequency Distribution for the City of Milwaukee for the Year 1941

Death rate per 100,000	Total
0 - 61.9	107
62 - 123.9	41
124 - 185.9	3
186 - 247.9	1
248 - 309.9	0
310 - 371.9	1

Table XLII

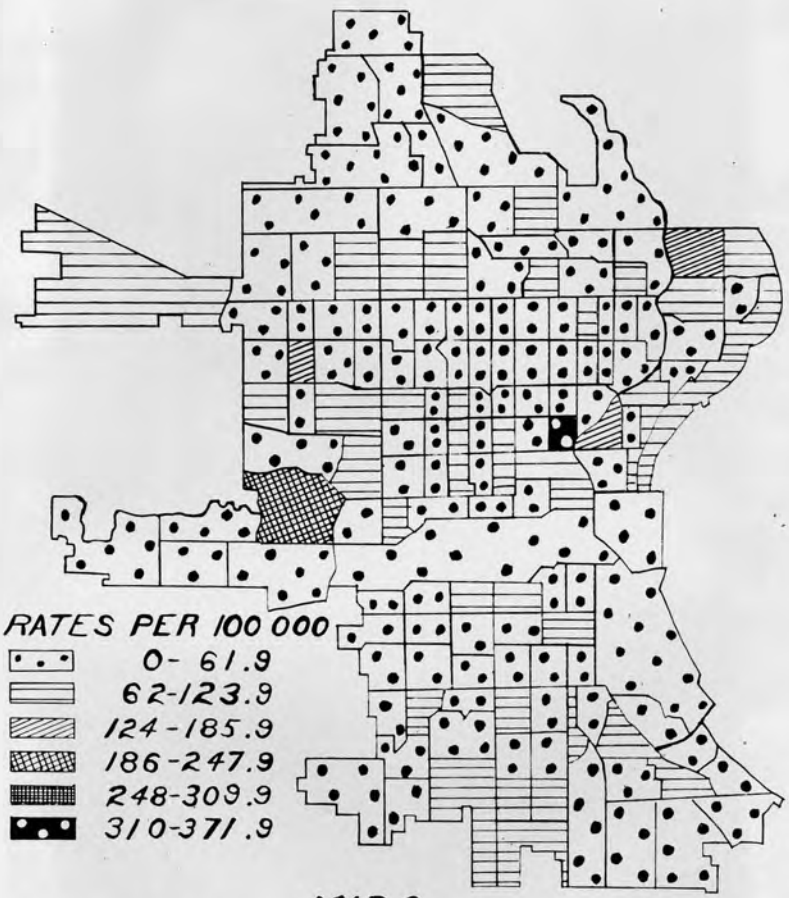
Frequency Array for Nephritis Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
0	2- 18- 21- 24- 25- 26- 28- 33- 37- 45 46- 51- 53- 59- 69- 71- 78- 81- 84 87- 89- 90- 95- 96- 97-103-106-107 113-114-115-127-129-135-136-137-141 144-145-152
16	124
17	47
19	52- 72
20	10-108
21	35
22	126-139
24	39-119-131-133
25	88
26	120
27	38- 57- 83
28	109
29	100
30	36- 64-122
31	27
32	102
34	34- 55- 60- 80-105-147
35	92
36	74-121-138-148
38	1
41	48
42	61
43	31
44	29
45	146
46	16
47	56
49	118
50	32- 43- 93-110
51	6- 44-140
52	98- 9
54	12- 50- 63
56	30-117-142
57	68- 91
58	85
59	125
60	123
61	149
63	4- 65-151

Frequency Array for Nephritis Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
64	42- 70
65	82
66	40
68	13- 76- 86-112-153
70	94-132-149
72	8
73	73
75	17-111
76	101
77	150
80	79
81	23
82	116
83	143
84	3
85	58
88	5
89	41-130
90	75
103	11
105	62
107	15
110	66- 22
111	54
115	67
120	134
121	19
123	128
126	7
130	99
136	14
191	104
362	20

Map 6 shows that the nephritis death rate is very evenly distributed throughout the city and shows a low death rate. It is again the negro area in census tract 20 that leads all other tracts, but this is the only tract that really shows the greatest rate, as the rate here makes



MAP 6
NEPHRITIS DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

a tremendous jump from 191 for census tract 104, which is second high, to 362 for census tract 20.

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CHAPTER VIII

Pneumonia Death Rate for the City of Milwaukee for the Year 1941

Chapter VIII

Pneumonia Death Rate for the City of Milwaukee for the Year 1941

Long before the days of anatomical study, physical diagnosis and bacteriology, pneumonia was recognized by its symptoms. Hippocrates and other members of the Greek school knew of pheumonia, but it was then known as peripneumony and was mistaken with pleuritus which was regarded a less severe form of affection of the lungs, heart and intestines.

Aretaeus gave a very outstanding description in the 2nd century of the Christian era of the clinical picture of pneumonia. He was the first to call attention to the fact that the sputum might be stained with bright red blood. Caelius Arrelianus in the 3rd century gave a more comprehensive description and distinguished between pleuritus and peripneumonia.

Very little progress was made in the next centuries other than that of Avicenna who was the first to state that bloody sputum is found only in pneumonia fever. Borsieri de Kanilfeld in his book which appeared in the 18th century explicitly stated that the inflammation of the lungs is of two varieties, peripneumonia and pleurisy, and that the two affections did not differ in their nature, but in the character of their symptoms.

Laennec in 1819, Cruverlhier in 1829 and Rokitansky in 1842 gave the first complete description of the gross morbid

anatomy of the disease. It was this same Rokitansky who first differentiated between lobar and lobular varieties. In 1843 Addison proved that the discharge in pneumonia is in the air cavity and not in the interstices of the lung.

The physical signs were first recognized by Auenbrugger and Laennec and it was Laennec who first distinguished clinically between pleuritis and pneumonia.

In the later part of the 19th century bacteriology made its appearance and in 1881 Louis Pasteur and Steinberg isolated the pneumococcus from the saliva, and three years later Fraenkel determined that this coccus of sputum blood-poisoning was the most frequent cause of pneumonia.

In 1910 Neufeld and Handel in Germany found that pneumonia could be subdivided into a number of different groups by the use of specific agglutinating sera. These contributions were important to the advancement of the study of pneumonia. In 1913 Dochez and Gillespie in the United States showed, contrary to the previous belief, that all pneumococci were not alike.

The successful treatment of certain types of pneumococcus pneumonia has been made possible through advances in the investigation of the pneumococcus and of antipneumococcic serum.

Though nearly all lobar pneumonia and approximately one-half or more of the bronchopneumonias are due to lung infections, there are many different types of pneumococci. These

types can be recognized only be appropriate tests.

Pneumonia should be regarded as a medical emergency and physicians should no longer be satisfied with the diagnosis until the identity of the organism causing the illness is found.

Lobar pneumonia, so called from the presence of an inflammatory process which more or less completely involves one or more lobes of the lung, is characterized by an explosive onset, short course, quick termination in about seven days in favorable cases, and relatively rapid restoration of the involved area to normal. A large proportion of the lobar pneumonias are typical cases and in these the diagnosis can be readily made. There is very often the history of a preceeding mild acute respiratory infection such as accompanies a cold. The onset of pneumonia is usually abrupt with pain in the side, cough and chill. The cough is dry at first, but very quickly becomes productive within twenty-four hours. In cases terminating favorably, the temperature falls by a crisis in five to ten days with such indications of beginning resolution as a change of the rusty sputum to a more resonant percussion note over the affected area.

Lobar pneumonia is always to be regarded as serious and even under the most favorable conditions threatens life. Lobar pneumonia is one of the most widespread and dangerous of all the infections of the temperate zone.

Bronchopneumonia presents an inconstant clinical picture, with less direct and uniform initial symptoms and a variable extent of lung involvement. It frequently occurs as a complication of conditions which may disguise or modify its manifestation.

The differentiation between bronchopneumonia from lobar is not ordinarily difficult. Bronchopneumonia as an apparent primary infection occurs chiefly in children under four years of age. In older children and in adults the disease is commonly secondary to the more severe types of infection of the respiratory trait, and in contrast to lobar pneumonia the onset is more insidious, without chill, pain in the side, rapid rise of temperature or rusty sputum. The temperature is more irregular and the physical signs less definite.

Of these two types of pneumonias, the lobar form comprises more than one-half of the fatal cases and has usually been seventh among the most common cause of death in the United States in recent years. It may be estimated that the average physician handling medical cases will be called upon to care for from two to six cases or more of the disease annually, though the number may vary from year to year.

It has come to be a practically universal custom to begin the administration of a sulfunomide in every case without exception in which the clinical diagnosis of pneumonia is made.

Type-specific antipneumococci serum was before the pro-

fession for many years prior to the advent of sulfanomides, but it never came to be widly used for the following reasons:

> "a. the relatively small proportion of patients considered suitable for this type of therapy,
> b. the general cumbersomeness of the procedure and the lack of reliable typing facilities in many metropolitan areas,
> c. the unwillingness of many physicians to impose the added burden of possible reactions upon their patients,
> d. both the obtaining of the material for typing and the administration of the serum were particularly difficult in infants and children,
> e. the expense."1

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1. Harry Beckman, Treatment in General Practice, p. 135.

Its effectiveness was undoubted in those instances in which all the criteria for its employment were fulfilled.

The chief reasons in the past for the administration of oxygen in pneumonia were that

> "a. proper aeration of the blood was difficult in the normal atmospheric content of oxygen because shallow breathing did not permit full ventilation of the lung and consolidation and edema fluid prevented ready diffusion of oxygen into the capillaries,
> b. cardiac effort is greater when there is a diminished supply of oxygen,
> c. the presence of fever calls for increased oxygen consumption."2

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2. Ibid., p. 139.

Difficulties in obtaining early bacteriologic diagnosis, cost of serum, lack of familiarity with the science of administration, and the undue fear of reactions have delayed

the wider adoption of sulfanomides. Specific treatment is, in consequence, used throughout the United States to only a limited extent outside of large medical centers and general hospitals. This restriction at best benefits only a small proportion of those with the disease and patients are often admitted to hospitals too late to be successfully treated.

The extent to which serum treatment is accepted depends to a considerable degree on an enlightened public opinion. Educational activities may well be directed to the spread of information to the laity by the distribution of official circulars and pamphlets, adresses by authorized speakers at public meetings, and on the radio, radio plays, motion pictures and releases of articles and editorials to the press.

The patient should be put to bed in a well ventilated room, however it is not necessary to force upon him or his nurse the extreme exposure still advocated by a few. Many physicians of long experience still advocate that whether exposed or not, the arms, shoulders, and chest should be continously covered in a flannel jacket, which can be easily made, however with the quick results being made nowadays by the sulfanomides, very few physicians will any longer advocate this measure. If the patient tires and becomes irritated when the bed is to be changed, it is best not to persist. No one has yet died from lying in bed for a few days without a bath or a stem to stern change of linens.

Liquids are essential for a pneumonia diet. Fruit

juices, preferably prepared as in the chloride and dextrose formula, may be given several times during the night, it should be presented with some persuasion at least twice if the patient is awake.

After the crisis is past, return should be made to the normal diet, by adding buttered toast, small serving of pureed vegetables, chicken or red meat and potatoes.

Pneumonias are frequent during the fall, winter and spring months when people go from dry warm atmospheres in their homes to colder temperatures and become chilled.

> "Pneumonia is common among miners who go from hot humid atmospheres and are chilled when they leave the shafts. Among steelworkers, those exposed to intense radiant heat are most frequently affected. Butchers when they are chilled going from shop to refrigerator predispose themselves to pneumonia. School children get their feet wet and stay in school all day and are exposed to pneumonia. Though women are less warmly clad than men fewer cases of pneumonia occur among them. Every summer a number of patients who had fallen asleep near an open window or under an electric fan are admitted to hospitals." 3

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3. Jesse G. M. Bullowa, The Management of the Pneumonias, p.6.

In the United States there are two pneumonia belts; on the North Atlantic seaboard and in the Southwest.

It is difficult to determine the effect of race upon the incidence of pneumonia. Sufficient data have not been collected to determine the relative importance of color in the incidence and prognosis of pneumonia though the impression is that negroes are slightly more susceptible but

no more vulnerable than the white population.

The chance of recovery for men is somewhat better than for women. The age of the patient is of special importance, the case fatality rate rising steadily from about six percent from the sixth to the twentieth year to over sixty percent in the seventh decade. The physical condition is also of importance, the fatality rate being low for individuals in vigorous health and higher for weak subjects, those with chronic disease or obesity, in pregnant women, and in alcoholics.

> "Statistics, whether from national, provincial, civic, hospital or private practice sources are of doubtful value because of the frequent confusion of lobar pneumonia with broncho-pneumonia, bronchitis, and various other specific types of inflammation of the lungs. The mortality returns too, are misleading not only for the above reasons, but also because of the majority that are compiled from hospital sources and because the severity of the disease differs considerably from year to year. Finally pneumonia is a very common terminal event in the various accute surgical conditions as well as in the majority of the chronic medical diseases, and hence often do not appear in the mortality returns." 4

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4. Campbell P. Howard, The Diagnosis and Treatment of Pneumonia, p. 7.

Pneumonias develop after operations because ether or other anesthetics depress resistance to viruses or to organisms carried by the patient or contracted from attendants or visitors.

Finland in 1940 felt that in the United States the

pneumonia mortality might be able to be cut to one fourth or even less; he makes a point that deaths still occuring are mainly in the very aged, in persons with complicating severe systematic disease, and in those whom treatment is delayed until they are in a dying state or focal infections have already become established.

However, other physicians miantain the frequency of pneumonia seems to be increasing steadily, which may be caused by the increased use of alcohol, the lessened amount of time spent out-of-doors, the increased facilities of travel and the increased over-crowding in the home, work-shop and places of amusement.

The situation is improving, but in the country as a whole there is no provision to make specific treatment generally available.

Table XLIII

Pneumonia Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	212	35.9
Male	289,118	130	44.9
Female	298,354	82	27.4

The death rate for the male is greater than for the female. It is 17.5 points greater than the female death rate.

Table XLIV

Marital Status for Pneumonia Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Poulation 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	27	0.1
Married	268,940	82	0.3
Widowed	34,140	61	1.7
Divorced	8,980	5	0.5
Unknown		1	

The death rate for the widowed is again high with divorced, married, and single following in their numerical importance.

Table XLV

Nativity for Pneumonia Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	138	0.2
Foreign born	83,809	74	0.8

The foreign born death rate is higher than that of the native born. It is 0.6 points higher for the foreign born death rate than for the native born death rate.

Table XLVI

Age and Sex Distribution for Pneumonia Death Rate
for the City of Milwaukee
for the Year 1941

Age	Sex				Total	
	Male	Female	Rate per 1,000 Male	Female	No.	Rate per 1,000
Total	130	82	44.9	27.4	212	35.9
Under 5 yrs.	18	15	0.89	0.77	33	0.83
5 - 9	0	1	0.0	0.05	1	0.02
10 - 14	1	1	0.04	0.04	2	0.04
15 - 19	0	0	0.0	0.0	0	0.0
20 - 24	1	0	0.04	0.0	1	0.02
25 - 29	5	1	0.20	0.03	6	0.11
30 - 34	3	0	0.12	0.0	3	0.06
35 - 39	4	3	0.17	0.12	7	0.14
40 - 44	5	2	0.21	0.09	7	0.15
45 - 49	8	3	0.35	0.14	11	0.25
50 - 54	10	6	0.50	0.33	16	0.42
55 - 59	8	5	0.54	0.35	13	0.45
60 - 64	13	5	1.2	0.44	18	0.81
65 - 69	14	8	1.8	0.95	22	1.3
70 - 74	11	8	2.2	1.3	19	1.7
75 and over	29	24	6.3	3.8	53	4.9

For the year 1941 we had no pneumonia deaths at the age level 15 to 19, no male deaths 5 to 9 and no female deaths 20 to 24, and 30 to 34. At all age levels other than 5 to 9, the rate for males is higher than for females. There is more possibility of dying of pneumonia before 5 years of age than there is all the way to the age of 60.

Table XLVII

Pneumonia Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	3	114
2	4032	1	27
3	4737	3	63
4	4228	1	23
5	4502	0	0
6	3872	1	25
7	4723	4	84
8	4145	1	24
9	3821	2	52
10	4834	2	43
11	3851	1	25
12	3676	3	81
13	4353	0	0
14	3651	3	81
15	1862	1	53
16	2128	2	93
17	2633	1	37
18	4437	2	45
19	3270	2	60
20	1656	3	181
21	3395	3	80
22	3611	2	55
23	7038	7	99
24	3997	1	25
25	4837	2	45
26	3539	0	0
27	3138	1	31
28	3353	0	0
29	4498	3	60
30	3510	2	56
31	2303	1	43
32	3925	1	25
33	3421	1	29
34	2871	1	34
35	4603	2	43
36	6648	2	30
37	4560	2	43
38	3609	0	0
39	4024	1	24
40	2992	3	100
41	3340	2	59
42	4629	6	129
43	4000	2	50

Pneumonia Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
44	3854	2	51
45	2834	1	35
46	3009	2	66
47	5790	2	34
48	4820	1	20
49	3407	2	61
50	3676	0	0
51	3828	0	0
52	5250	0	0
53	3596	1	27
54	2608	3	111
55	2892	1	34
56	4182	2	47
57	3686	2	54
58	3632	0	0
59	3961	2	50
60	5730	0	0
61	4663	0	0
62	3788	1	26
63	5463	0	0
64	6534	1	15
65	4750	3	63
66	4514	2	44
67	4334	1	23
68	3504	0	0
69	4127	3	72
70	4666	1	21
71	4828	3	62
72	5241	1	19
73	5473	4	73
74	2765	1	36
75	2208	0	0
76	4392	1	22
77	5082	2	39
78	4249	5	117
79	4990	0	0
80	5788	2	34
81	4463	1	22
82	4720	0	0
83	3596	2	55
84	5757	2	34
85	3395	0	0
86	1464	1	68
87	2480	1	40
88	3872	3	77

Pneumonia Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
89	4412	1	22
90	3086	2	64
91	3506	0	0
92	5628	0	0
93	3978	0	0
94	2821	0	0
95	4309	0	0
96	3561	0	0
97	3038	0	0
98	3833	0	0
99	2295	1	43
100	3426	2	57
101	3908	1	25
102	3102	1	32
103	4033	1	24
104	2601	3	115
105	2869	1	34
106	1059	0	0
107	3133	0	0
108	4722	0	0
109	3520	0	0
110	3922	4	101
111	3959	1	25
112	4383	1	22
113	4408	1	22
114	3001	4	132
115	1140	2	175
116	6063	1	16
117	5318	1	18
118	6117	2	32
119	4139	1	24
120	3810	2	52
121	2731	1	36
122	6653	2	30
123	4964	2	40
124	6018	4	66
125	5003	1	19
126	4875	2	41
127	5225	2	38
128	4875	3	61
129	616	1	162
130	4450	1	22
131	4087	3	73
132	5700	0	0
133	4138	1	24

Pneumonia Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
134	4139	1	24
135	2978	0	0
136	1809	0	0
137	1879	2	106
138	2764	1	36
139	4459	0	0
140	3859	2	51
141	1341	1	74
142	1778	0	0
143	3576	1	27
144	2411	0	0
145	2657	0	0
146	4379	0	0
147	2890	0	0
148	2707	2	73
149	2837	1	38
150	3860	2	51
151	1581	0	0
152	452	0	0
153	2937	0	0

Table XLVIII

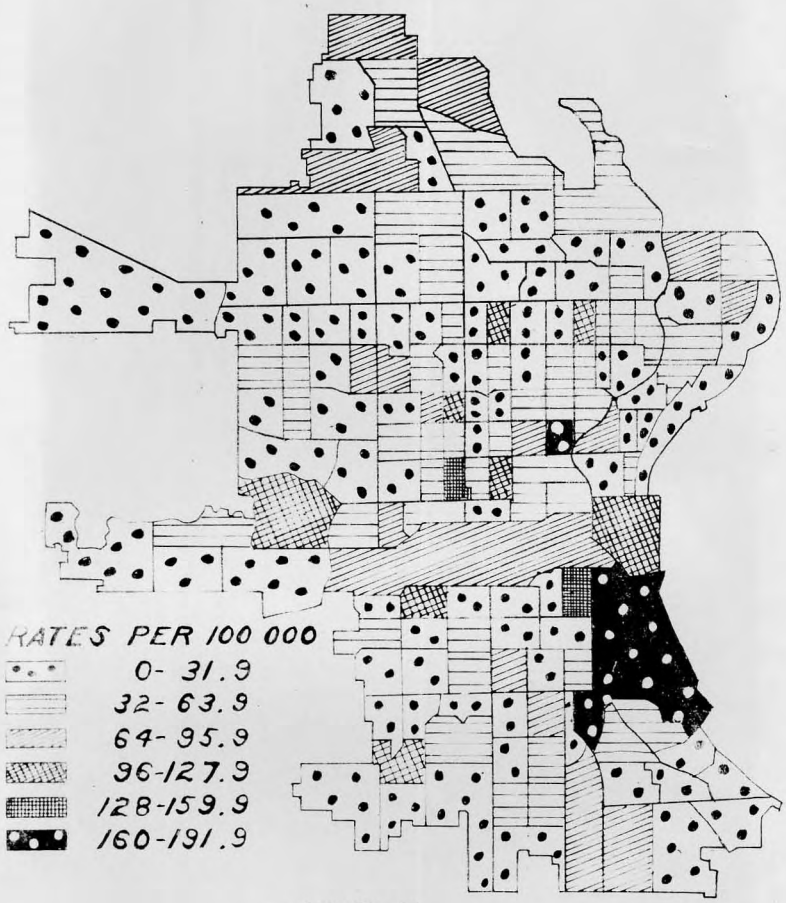
Pneumonia Death Rate Frequency Distribution
for the City of Milwaukee
for the Year 1941

Death rate per 100,000	Total
0 - 31.9	77
32 - 63.9	48
64 - 95.9	15
96 - 127.9	8
128 - 159.9	2
160 - 191.9	3

Table XLIX

Frequency Array for Pneumonia Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
0	5- 13- 26- 28- 38- 50- 51- 52- 58- 60 61- 63- 68- 75- 79- 82- 85- 91- 92 93- 94- 95- 96- 97- 98-106-107-108 109-121-133-135-136-139-142-144-145 146-147-151-152-153
15	64
16	116
18	117
19	72-125
20	48
21	70
22	76- 81- 89-112-113-130
23	4- 67
24	8- 39-103-119-133-134
25	6- 11- 24- 32-101-111
26	62
27	2- 53-143
29	33
30	36
31	27
32	102-118
34	34- 47- 55- 80- 84-105
35	45
36	74-138
37	17
38	127-149
39	27
40	87-123
41	126
43	10- 31- 35- 37- 99
44	66
45	18- 25
47	56
50	43- 59
51	44-140-150
52	9-120
53	15
54	57
55	22- 83
56	30
57	100
59	41
60	19- 29



MAP 7
PNEUMONIA DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

Frequency Array for Pneumonia Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
61	49-128
62	71
63	3- 65
64	90
66	46-124
68	86
72	69
73	73-131-148
74	141
77	88
80	21
81	12- 14
84	7
93	16
99	23
100	40
101	110
106	137
111	54
114	1
115	104
117	78
129	42
132	114
162	129
175	115
181	120

In map 7 census tract 20 again leads, but two new tracts are now added. These tracts are 115 and 129. Tracts 115 and 129 are in the old steel plant district. It is also a mooring base. It may be these facts that help make individuals more susceptible to cold and chill, and in this way bring about pneumonia.

The lowest rates are in the outer limits of the city.

CHAPTER IX

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941

Chapter IX

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941

Tuberculosis has occured in human beings in some parts of the world from the earliest times of which we have any records in exactly the same forms and with the same phenomena as in our own times.

> "Consumption, from the dawn of history to the present day, has been one of the worst scourages of mankind. Not only has it affected man himself, but every kind of brute creation with which man is closely associated. It strikes at man's life in a way that brings mental anguish as well as physical suffering, and it deals him out sorrow and want when it cannot reach him with death."1

---

1. Lawrence F. Flick, Consumption a Curable and Preventable Disease, p. 13.

Historically it can be established that consumption has existed as we knew it for at least three thousand years. Furthermore we may infer that it has existed for a long while before we read of it in historic writings.

Moses is credited with a knowledge of consumption by commentators of the Bible. Some claim that one of the plagues spoken of by Moses as having afflicted the Egyptians was consumption.

In the Code of Hammurabi, written 2250 years before the Christian era references to medicine have to do chiefly with the fees which physicians might receive for their services

and throw very little light upon the disease with which the people were afflicted. There are some things in the Code, however, which might reasonably be construed to indicate that tuberculosis was one of those diseases.

The classical Greek writers described its clinical features and were aware of its contagion, but the latter point was not proved scientifically until Villemin devised his great experiments in 1865. It was the Greeks who called it phythisis, which means wasting. Hypocrates in the 5th century before Christ gave a perfect description of consumption and described its ravages so well as to make the picture which he drew of it appear like an exaggerated drawing of what we see around about us at the present day.

Galen paints the disease as he saw it among the Romans in the 2nd century after Christ in even brighter colors than did Hypocrates. From Galen's day to modern times the story about the disease is much the same.

Back of the Egyptians we only surmise that the disease may have come from the East out of the findings of early civilization. The buried records which now are being unearthed and deciphered may give new light on the subject.

Between the third and seventeenth centuries there was little progress in the development of the knowledge of tuberculosis. Galen reigned supreme throughout that long period and it is questionable whether even his knowledge of the disease was the common possession of medical men.

In the 10th century Al Razzi, an Arabian physician put into a manuscript some of the views of Hypocrates and Galen on consumption. However, he recognized the disease only as an ulceration of the lungs.

Marmonides in the 12th century apparently recognized some relationship between the disease of cattle and tuberculosis of the lungs. This knowledge had gradually come from the supervision of the meat of animals by orthodox Jews.

Gradually the pagan superstition against opening the dead body gave way to the views of sane Christian minds and men seeking medical knowledge looked beyond what could have been seen at the bedside to clear up the mysteries of tuberculosis. In this way, little by little, new viewpoints were arrived at.

The first real step forward was made by Francis de la Boe Sylvius, a Professor of Clinical and Anatomical Medicine in the University of Leyden, Holland, between 1648 and 1672.

> "Francis de la Boe Sylvius, 1680, was the first writer who accurately described tubercles of the lung. Even at that early day, it was known to him that the center of these tubercles might soften or degenerate, and in this way give rise to cavities."2

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2. Eric E. Sattler, M.D., A History of Tuberculosis, p. 7.

In the latter part of the 17th century Richard Morton, a Fellow of the College of Physicians of London, wrote a book on phythisis. This is the most pretentious book on the subject written at so early a day. It gives one a fair idea

of the difficulties which thinking men of that day encountered in trying to reconcile what had come down to them from the Greeks and Romans with what was discovered at autopsy by the many men who were dissecting human bodies.

After the advances in the knowledge of tuberculosis made by Sylvius, Willes, Barbette, Morton and others in the latter part of the 17th century, there was a halt in the beginning of the 18th century. Hestancy between the teachings of Gallen and the revelations from the opening of the dead bodies was mainly responsible for it. There were those who followed the new light and those who shut their eyes to it and clung to the teachings of the past. It was really a division of the medical profession into adherents of Sylvius and adherents of Galen.

Among those who followed the teachings of Sylvius there was good work done by Manget, Sydenham, Mead and Savage. Those that followed Galen were Leigh, Hoffman, and Baerkane.

Auenbrugger's discovery of percussion is a milestone on the road of progress in the knowledge of tuberculosis, marking the next important point after Sylvius' work. This work was given to the world in 1761.

Other important discoveries were made by Hufeland, Portal, Nishet, Rush, Vetter and Boyle. This brings us to Rene Theodore Laennec in the 19th century. However Boyle's work and Laennec's work were not universally accepted by medical men. The 19th century gave us such men as Broussais, Becklar, Gendrin, Lobstein, Lombard, Andral, and Louis.

Laennec born in 1781 was a brilliant young French physician who stands out as a great discoverer. He himself had tuberculosis and devoted his life to the study of the disease.

Louis Pasteur about 1855 began his work which opened a new era in medical science through his discovery that tiny, microscopic germs are the carriers of many diseases. It was Pasteur who gave Robert Koch his great inspiration in 1882. Koch proved that the tubercle bacillus is the direct and only cause of tuberculosis. George Cornet six later showed that tubercle baccili are spread by the expectoration of careless consumptives.

Theobald Smith, who had previously done much work to show that insects and animals carry certain diseases, proved in 1898 that there are at least two types of tubercle bacilli. The bovine type causes the disease in cows, the human type, somewhat different, causes the disease in man. Later, however, it was shown that the bovine bacillus may also cause tuberculosis in man.

Carl Nageli announced his conviction that nearly every adult showed signs of tuberculosis in 1909. Many persons have slight attacks of the disease, from which they recover, without ever knowing they had the disease.

In 1907 Clemens Von Pirquet modified the tuberculosis test previously devised by Koch so that it could be appldd simply and safely on large numbers of persons. Widespread use of the tuberculin test which shows whether or not the tubercle bacillus has entered the body, demonstrated that

one may be infected with the germ and yet not have the disease.

While there have been no outstanding single discoveries within recent years, great strides have been made in putting together and applying existing knowledge. Diagnostic and treatment techniques are steadily being perfected and methods of control are becoming increasingly efficient. In order to gain more complete scientific knowledge with the aim to control tuberculosis the National Tuberculosis Association organized in 1920 a Medical Research Committee.

Consumption is a disease which is caused by the growth of certain micro-organisms in the tissues of our bodies. The micro-organisms concerned with the production of consumption are the tubercle bacillus, the streptococcus, and the staphylococcus. The tubercle bacillus is the chief or head of the house, and the streptococcus and staphylococcus are associates.

The disease is accompanied with burning fever and profuse sweats. The body melts away under the consuming fire. A racking cough goes with the disease and helps in the work of destruction by carrying off the wasted tissue. The hectic flush is but the glow of the burning fire within.

Tuberculosis, scientifically speaking, is the implantation and growth of the tubercle bacillus in the tissues of the human being or an animal. The tubercle bacillus is a rodshaped micro-organism, about one-six-thousandths of an inch in length and about one-hyndred-thousandth of an inch

in thickness.

The word tuberculosis is derived from the Latin word tuber, which means root or lump. It came to be applied to the disease which it now designates by reason of the manner in which certain facts about the disease gradually came to light.

As consumption was looked upon as an outward manifestation of the process which was going on inside it came to be known as tuberculosis. Gradually the laity likewise took up the name, and tuberculosis and consumption came to be known as the same thing.

Inaptitude for occupation and fatigue upon slight exertion, dyspepsia, malnutrition, sensitiveness to cold, want of appetite, dislike of certain kinds of food, irritability, pevishness and mental depression are characteristics of tuberculosis. The symptoms discoverable to the layman which arouse the strongest suspicion of the disease are loss of weight, slight increase in pulse-rate, and slight depression or rise of temperature.

Popularly speaking, consumption and tuberculosis are one and the same thing. Tuberculosis is carried by the implantation and growth of the tubercle bacillus. By itself this micro-organism does little harm and rarely causes death. Could the streptococcus and the staphylococcus be kept out it would run slowly through the lifetime of an individual without serious consequences.

Its growth in the tissue, however, invites the strep-

tococcus and staphylococcus to those tissues by the injury which it does to them. Sooner or later these microorganisms run through the guards which nature has set up to keep them out, and they get into the system. They at once associate themselves with the tubercle bacillus and form a destruction of the individual on whom they prey. The partnership is consumption.

Important factors to be remembered when taking care of a tubercular patient are: sanitorium regulation, either institutional or some analogous substitute, absolute rest in bed during the febrile periods, perhaps to be carried to the point of complete postural rest at times, and to be followed later by carefully graduated exercises; a sufficient dietary composed of nutritious and palatable foods, treatment to be carried out as nearly as possible in the open air; such changes of climate and general environment as afford the best opportunity of building resistance and skilled medical supervision at all times.

Artificial pneumathorax and the several surgical procedures for inducing partial or complete collapse of the diseased lung have rapidly advanced into the forefront of the battle against tuberculosis, but not even the most ardent enthusiast of collapse therapy, advocates the use of these measures indiscriminately in all forms of tuberculosis.

Light therapy has almost completely superseded roentgen therapy nowadays, but the later may still be the treatment of choice in the infiltrative stage of lymph-node tuberculosis.

Factors contributing to tuberculosis control are: slaughter of cattle that are positive tuberculin reactors; pasteurization of milk; isolation of individuals with open and infective lesions of pulmonary tuberculosis; education of the public to aid in preventing spread of bacilli; modern collapse therapy which checks dissemination of organisms; persistent efforts to detect and isolate unsuspected infective cases.

Many patients succeed in training themselves to control coughing comparatively well, only permitting themselves to indulge in a thorough so called cleaning out in the morning. When a wracking cough is disturbing the patients rest both day and night, some attempt must be made to check it.

If a patient is hemorrhaging keep him as quiet as possible with the head propped in such a way that the blood will easily flow out of the mouth. Icebags on the chest over the suspected site of the hemorrhage are reassuring, and small bits of ice are usually given to be swallowed.

In the terminal stages of many cases the suffering is very severe. Here the opiates in full doses are oftentimes truly a god-send for they will enable us to make the last days of these poor unfortunates much less terrible than they would be otherwise. However, the question of expediency often arises, for opium many times prolongs life in such patients, and a truly immense quantity of the costly drug may be required before the awful end is reached.

Consumption is a house disease. Its beginning and end usually are in the house. The house is well constituted as a breeding ground for consumption. Tubercular matter which gets upon the walls, furniture, carpet and hangings in the form dust, retains its life for a long time on account of the absence of sunlight and stagnation of the air.

Streets with one outlet have a higher death rate from consumption than have streets which are cut through. Houses which stand back to back have a higher death rate than houses which run from street to street.

The average death rate from the disease in Negroes is three and one half times that of whites, but this is only the average, and in many cities it is even higher. Relative poverty is one causative factor.

The death rate in males is higher than in females in almost sections of the country. Jews are relatively unsusceptible to the disease.

Table I

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	210	35.7
Male	289,118	141	48.7
Female	298,354	69	23.1

The tuberculosis death rate for the city of Milwaukee for the year 1941 was 35.7 per 100,000. The male death rate was more than again as much as the female death rate. The male rate was 25.6 points higher than the female rate.

Table LI

Marital Status for Tuberculosis Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	56	0.3
Married	268,940	115	0.4
Widowed	34,140	25	0.7
Divorced	8,980	12	1.3

The tuberculosis death rate shows a new picture for marital status. Here the divorced rate is high, with widowed next and the married and single death rate following in numerical importance.

Table LII

Nativity for Tuberculosis Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	152	0.3
Foreign born	83,809	58	0.6

The foreign born death rate is again higher than the native born death rate by 0.3 points.

Table LIII

Age and Sex Distribution for Tuberculosis Death Rate for the City of Milwaukee for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	141	69	48.7	23.1	210	35.7
Under 5 yrs.	3	0	0.14	0.0	3	0.07
5 - 9	0	0	0.0	0.0	0	0.0
10 - 14	0	1	0.0	0.04	1	0.02
15 - 19	1	4	0.04	0.16	5	0.10
20 - 24	3	5	0.12	0.18	8	0.15
25 - 29	10	15	0.40	0.54	25	0.47
30 - 34	6	9	0.25	0.34	15	0.30
35 - 39	8	4	0.34	0.16	12	0.25
40 - 44	15	3	0.65	0.13	18	0.40
45 - 49	23	6	1.0	0.28	29	0.67
50 - 54	13	8	0.65	0.44	21	0.55
55 - 59	30	2	2.0	0.14	32	1.1
60 - 64	16	3	1.4	0.26	19	0.85
65 - 69	6	3	0.79	0.38	9	0.59
70 - 74	5	4	1.0	0.67	9	0.83
75 and over	2	2	0.43	0.31	4	0.37

The male death rate under 5 years is as high at this age as it is at age group 20 to 24. There were no female deaths at this age level, and no male or female deaths at

the 5 to 9 year level. However, from 15 to 19 and from 30 to 34 the female rate is higher than the male rate. From 40 to 44 and from 75 and over the male death rate is higher at all ages than the female death rate. The highest death rate for women is at 70 to 74.

Table LIV

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	1	38
2	4032	7	173
3	4737	0	0
4	4224	1	23
5	4502	1	22
6	3872	0	0
7	4723	4	84
8	4145	2	48
9	3821	2	52
10	4834	3	62
11	3851	0	0
12	3676	0	0
13	4354	0	0
14	3651	1	27
15	1862	0	0
16	2128	2	93
17	2633	1	37
18	4437	3	67
19	3270	3	94
20	1656	5	301
21	3395	4	110
22	3611	0	0
23	7038	1	14
24	3997	1	25
25	4837	3	62
26	3539	2	56
27	3138	2	63
28	3353	1	29
29	4498	3	60
30	3510	3	85
31	2303	3	130
32	3925	2	50

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
33	3421	1	29
34	2871	0	0
35	4603	2	43
36	6648	2	30
37	4560	0	0
38	3609	0	0
39	4024	4	99
40	2992	2	66
41	3340	1	29
42	4629	0	0
43	4000	1	25
44	3854	1	25
45	2834	1	38
46	3009	3	99
47	5790	1	17
48	4820	2	41
49	3407	2	61
50	3676	1	27
51	3828	0	0
52	5250	0	0
53	3596	0	0
54	2608	0	0
55	2892	0	0
56	4182	2	47
57	3686	2	54
58	3632	0	0
59	3961	3	75
60	5730	4	69
61	4663	2	42
62	3788	0	0
63	5463	1	18
64	6834	0	0
65	4750	4	84
66	4514	0	0
67	4334	1	23
68	3504	1	28
69	4127	2	48
70	4666	1	21
71	4828	1	20
72	5241	2	38
73	5473	1	18
74	2765	1	36
75	2208	0	0
76	4392	2	46
77	5082	1	19

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
78	4229	0	0
79	4090	0	0
80	5788	0	0
81	4463	0	0
82	4720	2	42
83	3696	1	27
84	5757	0	0
85	3395	0	0
86	1464	2	136
87	2480	0	0
88	3872	0	0
89	4412	1	22
90	3086	0	0
91	3806	0	0
92	5628	2	35
93	3978	1	25
94	2821	1	35
95	4309	0	0
96	3561	0	0
97	3038	0	0
98	3833	0	0
99	2295	1	43
100	3426	1	29
101	3908	0	0
102	3102	0	0
103	4033	1	24
104	2601	0	0
105	2869	0	0
106	1059	0	0
107	3133	0	0
108	4722	0	0
109	3520	2	56
110	3922	1	25
111	3959	1	25
112	4363	1	22
113	4408	0	0
114	3001	6	196
115	1140	1	88
116	6063	5	82
117	5318	0	0
118	6117	2	32
119	4139	0	0
120	3810	1	26
121	2731	1	36
122	6653	0	0

Tuberculosis Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
123	4964	2	40
124	6018	4	66
125	5003	5	99
126	4875	1	22
127	5225	5	95
128	4875	0	0
129	616	0	0
130	4480	3	67
131	4087	7	171
132	5700	5	87
133	4138	3	72
134	4139	0	0
135	2978	1	33
136	1209	0	0
137	1879	0	0
138	2764	6	213
139	4459	4	89
140	3859	3	77
141	1341	1	74
142	1778	1	56
143	3576	0	0
144	2411	0	0
145	2657	1	37
146	4379	1	22
147	2890	1	34
148	2707	1	36
149	2837	1	38
150	3860	2	51
151	1581	1	63
152	452	0	0
153	2937	1	34

Table LV

Tuberculosis Death Rate Frequency Distribution
for the City of Milwaukee
for the Year 1941

Death Rate per 100,000	Total
0 - 51.9	112
52 - 103.9	33
104 - 155.9	3
156 - 207.9	3
208 - 259.9	1
260 - 311.9	1

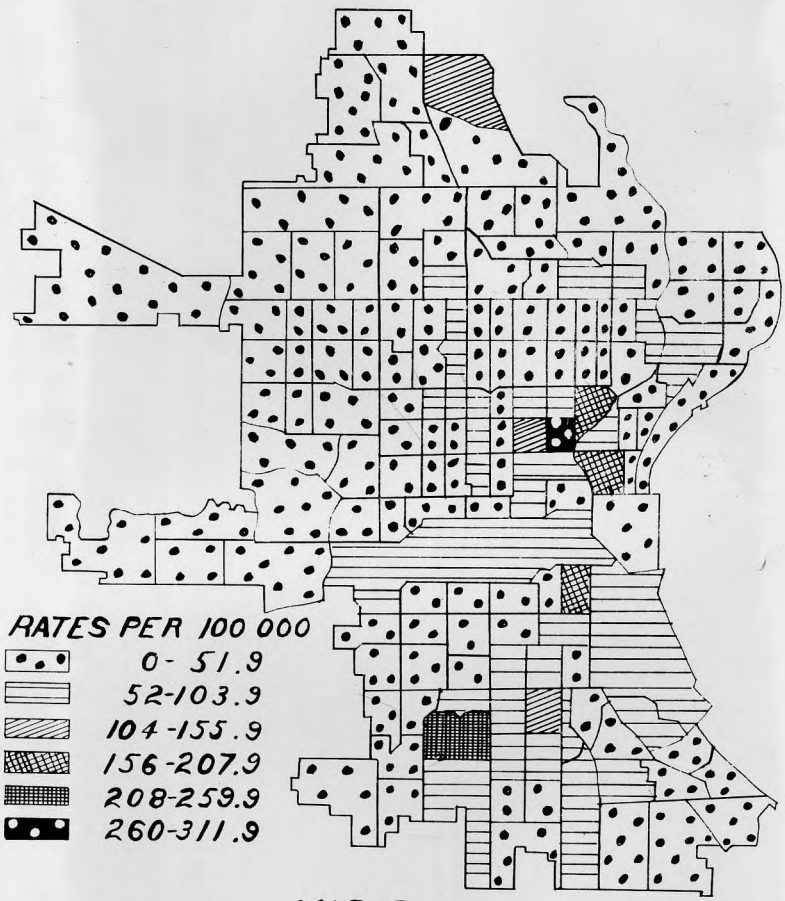
Table LVI

Frequency Array for Tuberculosis Deaths for the
City of Milwaukee for the Year 1941

Array	Census Tract
0	3- 6- 11- 12- 13- 15- 22- 34- 37- 38 42- 51- 52- 53- 54- 55- 58- 62- 64 66- 75- 78- 79- 80- 81- 84- 85- 87 88- 90- 91- 95- 96- 97- 98-101-102 104-105-106-107-108-113-117-119-122 128-129-134-136-137-143-144-152
14	23
17	47
18	63 -73
19	77
20	71
21	70
22	5- 89-112-126-146
23	4- 67
24	103
25	24- 43- 93-110-111- 44
26	120
27	14- 50- 83
28	08
29	28- 33- 41-100
30	36
32	118
33	135
34	147-153
35	92- 94

Frequency Array for Tuberculosis Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
36	74-121-148
37	17-145
38	1- 45- 72-149
40	123
41	48
42	61- 82
43	35- 99
46	76
47	56
48	8- 69
50	32
51	150
52	9
54	57
56	86-109-142
60	29
61	49
62	10- 25
63	27-151
66	40-124
67	18-130
69	60
72	133
74	141
75	59
77	140
82	116
84	7- 65
85	30
87	132
88	115
89	139
93	16
94	19
95	127
99	39- 46-125
110	21
130	131
136	86
171	31
173	2
196	114
213	138
301	20



MAP 8

TUBERCULOSIS DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

Map 8, the tuberculosis death rate map, shows a decided distribution throughout city. However census tract 20 again leads all the other census tracts. It is this area the Wisconsin Anti-Tuberculosis Association is trying to help cear up.

Census tract 138 is a new tract to have ahigh death rate. This area is bounded on the south by West Cleveland Avenue, on the north by West Lincoln Avenue, on the east by South 16th Street, and on the west by South 27th and Muskego Avenue.

CHAPTER X

Diabetes Death Rate for the City of Milwaukee for the Year 1941

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Diabetes Death Rate for the City of Milwaukee for the Year 1941

Diabetes is one of the earliest diseases described. During the first century one of Galen's contemporaries gave it its name from the Greek word siphon or "to pass through", as the essential feature of the disease is the rapid passing of sugar and fluid through the body.

In the early part of the seventeenth century an English physician named Willis found that the fluid secreted in diabetes is sweeter than normal. About 100 years later another physician showed that the sweetness was due to sugar. In 1889 Minkowski and Von Mehring found that the removal or inactivity of the gland called pancreas is followed by the development of this disturbance of the body.

Langerhans, an anatomist, discovered in the pancreas a group of cells which today bear his name, known as islets of Langerhans.

In 1895 Sir E. Sharpey suspected changes in these islets as the cause of diabetes, w orking on an hypothesis that they produced a liquid substance which controls the metabolism of carbohydrates.

After this many scientists tried to obtain this liquid substance from the islets of Langerhan for experimental purposes. However little progress was made until the newer discoveries of the present century brought suitable information

concerning the control of the disease by control of the diet and by the use of the medicine called insulin.

F. G. Banting in 1921 with the aid of Best, Callip and McLeod isolated the liquid and gave it the name of insulin hormone because it is an internal secretion being secreted directly into the circulation.

Before the discovery of insulin, it was customary to treat diabetes largely by lowering the amount of food, and particularly the amount of sugar taken into the body.

It is still customary to rest the diseased organ in this manner so that the dietary changes are made even when insulin is used. Insulin makes it possible to take part of the burden off the pancreas and to permit the patient to have a more varied diet.

After years of experimentation it is believed that the cause of diabetes is the pancreas.

> "The pancreas is a glandular organ prismatic in shape, five to seven inches in length, weighing on an average of two to three and one half ounces, situated transversely across the upper and back part of the abdominal cavity to the left of the center behind the stomach."1

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1. Anthony M. Sindoni, Diabetes, p. 42.

The pancreas is the gland of chief importance in diabetes. The exact cause of diabetes is not as yet known, but approximately 87 percent of those suffering from this disease are overweight. The factors leading up to the disease seem

to be overeating, obesity, and gallbladder diseases. It is not true that there is a direct relationship between the amount of sugar consumed and death from diabetes. It is believed the normal body can absorb a great amount of sugar without producing diabetes.

Occupation seems to have little influence in bringing about the disease, however, the highest mortality seems to be among the upper class, including teachers, physicians, judges, lawyers, and office workers. The lowest rate is among workers doing hard or manual labor.

> "Nervous disorders play an important part in helping to bring about diabetes. A severe nervous strain or mental shock will frequently precede diabetes and always aggravate existing diabetes. This accounts for the increased occurrence in persons who do much mental work. Emotional disturbances may help to produce increased blood sugar. When profits go down, the blood sugar goes up."2

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2. Ibid., p. 46.

Heredity plays a significant part in diabetes, as it is estimated that 25 percent of the cases of diabetes occur within families.

Diabetes is not infectuous nor do diabetics have pain or fever. It is because of this that the disease is able to get to such an advanced stage before individuals realize the nature of their illness.

The patient may or may not be overweight, but he usually will notice a rapid loss of weight, great thirst, excessive

urination and a tremendous appetite. The greater the intake of food, the more severe are the symptoms.

As the patient becomes more diabetic, the symptoms become more pronounced, such as muscular weakness, constipation, fatigue, shortness of breath, impairment of vision, and severe pain in the limbs, especially when overactive.

Diabetes usually comes on gradually, however it may attack without notice, and the patient may become unconscious. In diabetes there is a gradual loss of power to burn carbohydrates because the body lacks sufficient insulin or its insulin activity is being interfered with by internal disorders. The loss of power to burn sugar becomes greater and greater until the sugar in the blood flows through the kidneys into the urine.

If this condition is allowed to progress, the individual may get attacks which produce unconsciousness. It is then that insulin becomes the so called magic wand, as when it is administered the individual seems to be immediately brought back to life.

The life and physical condition of the diabetic depends on his own discretion. If he carefully follows medical advice he may live to an old age without severe suffering, however if he becomes discouraged and disregards discretion he may suffer such dreadful complications as cataracts and gangrene.

"Diabetes can only be controlled through diabetic measures. In all probability the food

> question both qualitatively and quantitatively will always remain of paramount importance in this disease. Insulin in no way decreases the necessity for properly prescribed and accurately weighed diets. Indeed it rather increases their importance if a proper balance is to be maintained between the food intake and the dose of insulin. The combination of diet with insulin makes it possible for all diabetics to take a diet sufficient in energy value to live a fairly normal life and to maintain themselves in a proper state of nourishment."3

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3. Gladys L. Boyd, Manual for Diabetics, p. 9.

It is the physicians duty to prescribe the diet that is suitable for each patient. However, a great deal depends on the patient, in using his own ingenuity in the preparation of his foods, if he takes any interest in food values.

The increased diabetic rate may be attributed to several factors. Carelessness or ignorance of the disease may be the outstanding factors. Individuals suffering from diabetes should find full cooperation in their physician so that they have a thorough understanding of the disease. It is in this way that the best results may be obtained.

Table LVII

Diabetes Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	191	32.5
Male	289,118	63	21.7
Female	298,354	128	42.8

Table LVII shows a very new picture. It is in diabetes that the female death rate is a great deal higher than the male death rate. The female rate is 21.1 points higher than the male rate. It is not known what the real cause is, but it may be any number of causes such as too many sweets, improper diet, as cooking tends to break down resistance to refrain from foods to be avoided.

Table LVIII

Marital Status for Diabetes Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	13	0.09
Married	268,940	107	0.3
Widowed	34,140	59	1.7
Divorced	8,980	9	1.0
Unknown		2	

The marital status for the diabetes death rate shows a decidely low death rate for the single. The widowed again are leading the death rate with divorced and married following.

Table LIX

Nativity for Diabetes Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	104	0.2
Foreign born	83,809	86	1.0

The fofeign born death rate is higher than the native born death rate by 0.8 points.

Table LX

Age and Sex Distribution for Diabetes Deaths for the City of Milwaukee for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	63	128	21.7	42.8	191	32.5
Under 5 yrs.	0	0	0.0	0.0	0	0.0
5 - 9	0	0	0.0	0.0	0	0.0
10 - 14	0	1	0.0	0.04	1	0.02
15 - 19	0	0	0.0	0.0	0	0.0
20 - 24	1	0	0.04	0.0	1	0.02
25 - 29	0	0	0.0	0.0	0	0.0
30 - 34	1	1	0.04	0.03	2	0.04
35 - 39	1	0	0.03	0.0	1	0.02
40 - 44	1	0	0.04	0.0	1	0.02
45 - 49	4	3	0.17	0.14	7	0.16
50 - 54	8	16	0.40	0.89	24	0.63
55 - 59	5	18	0.33	1.2	23	0.79
60 - 64	8	25	0.73	2.2	33	1.4
65 - 69	9	27	1.1	3.2	36	2.2
70 - 74	8	18	1.6	3.0	26	2.4
75 and over	17	19	3.7	3.0	36	3.3

In this disease the female death rate doubles the male death rate. There were no diabetes deaths for the male until the 20 to 24 age group. Age group 25 to 29 had no deaths The death rate is very low until age group 45 to 49 when it

jumps 0.13 points and from here on the increase is very noted. It more than doubles at 75 and over.

The female death rate shows only two age groups, 10 to 14, and 30 to 34 having a low rate and no other deaths until the 45 to 49 age group. However, after this age group it increases tremendously. The highest rate for the females is at age group 65 to 69 and then there is a very slight drop, but it never again goes below the other age groups.

Table LXI

Diabetes Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	0	0
2	4032	1	27
3	4737	0	0
4	4228	1	23
5	4502	2	44
6	3872	1	25
7	4723	0	0
8	4145	0	0
9	3821	2	52
10	4834	2	43
11	3851	1	25
12	3676	0	0
13	4353	4	91
14	3651	1	27
15	1862	2	107
16	2128	0	0
17	2633	1	37
18	4437	2	45
19	3270	1	30
20	1656	0	0
21	3395	2	58
22	3611	2	55
23	7038	2	28
24	3997	0	0
25	4837	1	20

Diabetes Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
26	3539	0	0
27	3138	0	0
28	3353	0	0
29	4498	1	22
30	3510	3	85
31	2303	0	0
32	3925	1	25
33	3421	0	0
34	2871	1	34
35	4603	3	65
36	6648	4	60
37	4560	2	43
38	3609	2	55
39	4024	2	49
40	2992	1	22
41	3340	1	29
42	4629	1	21
43	4000	1	25
44	3854	2	51
45	2834	1	38
46	3009	2	66
47	5790	1	17
48	4820	3	60
49	3407	1	29
50	3676	0	0
51	3828	2	52
52	5250	6	114
53	3596	1	27
54	2608	1	38
55	2892	1	34
56	4182	1	23
57	3686	2	54
58	3632	1	27
59	3961	1	25
60	5730	0	0
61	4663	5	107
62	3788	1	26
63	5463	3	54
64	6534	2	30
65	4750	2	42
66	4514	1	22
67	4334	1	23
68	3504	1	28
69	4127	2	48
70	4666	1	21

Diabetes Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
71	4828	2	41
72	5241	6	110
73	5473	2	36
74	2765	1	36
75	2208	2	90
76	4392	0	0
77	5082	1	19
78	4249	1	23
79	4990	0	0
80	5788	1	17
81	4163	1	22
82	4720	1	21
83	3596	0	0
84	5757	0	0
85	3395	0	0
86	1464	0	0
87	2480	1	40
88	3872	0	0
89	4412	1	22
90	3086	0	0
91	3506	0	0
92	5628	1	17
93	3978	1	25
94	2821	1	35
95	4309	1	23
96	3561	1	28
97	3038	2	65
98	3833	1	28
99	2295	2	87
100	3426	0	0
101	3908	0	0
102	3102	2	64
103	4033	1	24
104	2601	0	0
105	2869	0	0
106	1059	1	93
107	3133	0	0
108	4722	3	63
109	3420	0	0
110	3922	1	25
111	3959	4	101
112	4383	2	45
113	4408	0	0
114	3001	0	0
115	1140	0	0

Diabetes Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000
116	6063	2	32
117	5318	2	37
118	6117	2	32
119	4139	1	24
120	3810	3	78
121	2731	2	73
122	6653	1	15
123	4964	2	40
124	6018	2	33
125	5003	3	59
126	4875	3	61
127	5225	1	19
128	4854	1	20
129	616	0	0
130	4450	2	44
131	4087	1	24
132	5700	4	70
133	4138	2	48
134	4139	0	0
135	2978	0	0
136	1809	0	0
137	1879	1	53
138	2764	1	36
139	4459	3	67
140	3859	2	51
141	1341	0	0
142	1778	0	0
143	3576	1	27
144	2411	1	41
145	2657	2	70
146	4379	2	45
147	2890	0	0
148	2707	0	0
149	2837	2	70
150	3860	2	51
151	1581	0	0
152	452	0	0
153	2937	0	0

Table LXII

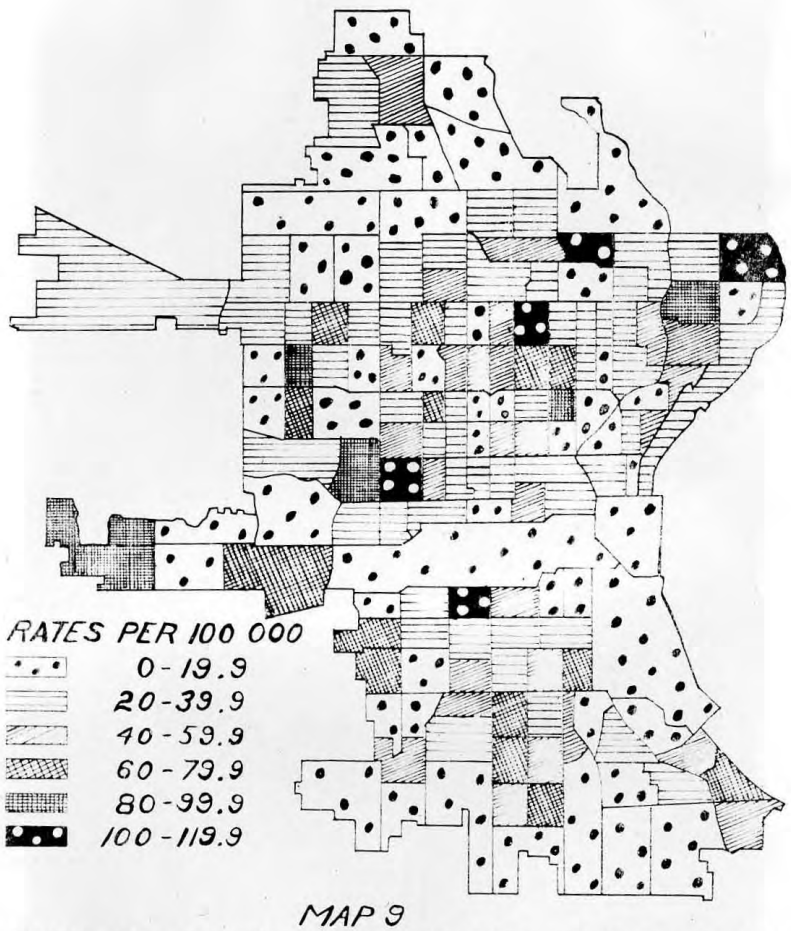
Diabetes Death Rate Frequency Distribution
for the City of Milwaukee
for the Year 1941

Death rate per 100,000	Total
0 - 19.9	50
20 - 39.9	52
40 - 59.9	27
60 - 79.9	14
80 - 99.9	5
100 - 119.9	5

Table LXIII

Frequency Array for Diabetes Deaths for the
City of Milwaukee for the Year 1941

Array	Census Tract
0	1- 3- 7- 8- 12- 16- 20- 24- 26- 27 28- 31- 33- 50- 60- 76- 79- 83- 84 85- 86- 88- 90- 91-100-101-104-105 107-109-113-114-118-129-134-135-136 141-142-147-148-151-152-153
15	122
17	47- 80- 92
19	77-127
20	25-128
21	42- 70- 82
22	29- 68- 81- 89
23	4- 56- 67- 78- 95
24	103-119-131
25	6- 11- 32- 43- 59- 93-110
26	62
27	2- 14- 53- 58-143
28	23- 68- 96- 98
29	41- 49
30	19- 64
32	116-118
33	40-124
34	34 -55
35	94
36	74- 73-138
37	17-117
38	45- 54
40	87
41	71-144



MAP 9
DIABETES DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

Frequency Array for Diabetes Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
42	65
43	10- 37
44	5-130
45	18-112-146
48	69-133
49	39
51	44-140-150
52	9- 51
53	137
54	57- 63
55	22 -38
58	21
59	125
60	36- 48
61	126-139
63	108
64	102
65	97- 35
66	46
70	132-149-145
73	121
78	120
85	30
87	99
90	76
91	13
93	106
101	111
107	15
110	72
114	52

The diabetes map shows a new picture entirely. Five census tracts have a high death rate and these are 15, 52 61, 72 and 111.

These areas have not been high in other chronic diseases. In fact these areas are otherwise a low death rate area.

CHAPTER XI

Premature Death Rate for the City of Milwaukee for the Year 1941

Chapter XI

Prematurity Death Rate for the City of Milwaukee for the Year 1941

Prematurity is a term that has been used vaguley by the average individual. It should have a definite meaning based on the following criteria: 1. Length of uterine gestation less than 260 days; 2. At birth, weight less than 2500 gm. and length less than 45 cm; 3. Poor functional capacity such as sucking, digestion, heat regulation; 4. General evidence of clinical weakness.

Early deaths from birth injuries have shown very little reduction in recent years. This is odd since we train medical students much more so in obstetrics than previously and the increased facilities for hospital care is more adequate now than ever. It has been noted that in some parts of the United States there has been a tendency to more operative obstetrics, especially in the way of so-called prophylactic forceps. The vogue for internal podalic version and extraction, about which was heard so much several years ago, apparently has died down. Many of the deaths from hemorrhage into the brain and injury to the cerebrospinal structures occur after spontaneous births and even after precipitated births of prematurity.

The economic barrier to adequate obstetrics service has been serious to a large number of women in the middle

and lower income groups. This has been especially true in certain rural areas. In many large cities skillful obstetric service has been made available to the lowest income groups, either free or on a part-time pay basis, in connection with obstetric clinics or maternity hospitals affiliated with medical schools. There still remains a considerable number of families willing to pay a modest fee for medical and hospital service but are unable to secure it.

The prematurity death rate could be reduced if adequate prenatal care would be given to the mother. If the mother would not have to overwork, be under constant strain, be sure of a proper diet, and be diagnosed early and thoroughly for acute infections, syphilis and tuberculosis, we would have many more births that would not be premature, and as a result less deaths.

A greater and greater percentage of the babies under one month of age are lost because of death. Evidently the same methods used in reducing the mortality from one to twelve months of age do not apply with equal force in the first month of life. If the infant mortality rate is to be reduced still further, our efforts in the prenatal and natal periods must be intensified.

Table LXIV

Prematurity Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	94	16.0
Male	289,118	51	17.6
Female	298,354	43	14.4

For the year 1941 there were more prematurity deaths for the male than for the female. The male death rate was 3.2 points higher than the female death rate.

Table LXV

Marital Status for Prematurity Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	94	
Married	268,940	0	
Widowed	34,140	0	
Divorced	8,980		

The marital status for the prematurity death rate could only be one thing and that is single. It is impossible to find a rate for prematurity deaths as the census only includes those 15 years and older in the marital status.

Table LXV

Nativity for Prematurity Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	94	o.1
Foreign born	0	0	0

Table LXVI is the only table in which the native born had a higher death rate than did the foreign born.

Table LXVII

Age and Sex Distribution for Prematurity Death Rate for the City of Milwaukee for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	51	43	17.6	14.4	94	16.0
Under 30 days	49	42			91	
30 days to 1 yr.	2	1			3	

The prematurity death rate is higher for the male than the female by 3.2 points. Many more premature babies died the first 30 days after birth than died after 30 days. From this it can be seen that if a premature baby lives the first 30 days after birth he has a very good chance of survival.

Table LXVIII

Prematurity Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	0	0
2	4032	0	0
3	4737	0	0
4	4228	1	23
5	4502	0	0
6	3872	2	51
7	4723	0	0
8	4145	0	0
9	3821	0	0

Prematurity Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
10	4834	0	0
11	3851	0	0
12	3676	0	0
13	4353	1	22
14	3651	1	27
15	1862	1	53
16	2128	0	0
17	2633	0	0
18	4437	1	22
19	3270	0	0
20	1656	0	0
21	3395	0	0
22	3611	0	0
23	7038	1	14
24	3997	1	27
25	4837	2	45
26	3539	0	0
27	3138	0	0
28	3353	1	29
29	4498	1	22
30	3510	0	0
31	2303	0	0
32	3925	1	25
33	3421	1	29
34	2871	0	0
35	4603	0	0
36	6648	2	30
37	4560	0	0
38	3609	0	0
39	4024	2	49
40	2992	1	33
41	3340	1	29
42	4629	0	0
43	4000	1	25
44	3854	0	0
45	2834	0	0
46	3009	1	33
47	5790	0	0
48	4820	0	0
49	3407	0	0
50	3676	0	0
51	3828	0	0
52	5250	0	0
53	3596	0	0
54			

Prematurity Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
54	2608	0	0
55	2892	0	0
56	4182	1	33
57	3686	0	0
58	3632	1	27
59	3961	3	75
60	5730	0	0
61	4663	2	42
62	3788	0	0
63	5463	0	0
64	6534	0	0
65	4750	1	21
66	4514	1	22
67	4334	1	23
68	3504	2	57
69	4127	0	0
70	4666	1	21
71	4828	0	0
72	5241	0	0
73	5473	3	54
74	2765	1	36
75	2208	0	0
76	4392	0	0
77	5082	1	19
78	4249	0	0
79	4990	3	60
80	5788	0	0
81	4463	2	44
82	4720	1	21
83	3596	0	0
84	5757	3	52
85	3395	2	58
86	1464	1	68
87	2480	0	0
88	3872	1	25
89	4412	2	45
90	3086	0	0
91	3506	2	57
92	5628	1	17
93	3978	0	0
94	2821	1	35
95	4309	1	23
96	3561	0	0
97	3038	0	0
98	3833	1	28

Prematurity Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
99	2295	0	0
100	3426	1	43
101	3908	0	0
102	3102	1	32
103	4033	0	0
104	2601	1	38
105	2869	0	0
106	1059	0	0
107	3133	1	31
108	4722	0	0
109	3520	1	28
110	3922	0	0
111	3959	1	25
112	4383	0	0
113	4408	0	0
114	3001	0	0
115	1140	0	0
116	6062	1	16
117	5318	2	37
118	6117	1	16
119	4139	0	0
120	3810	0	0
121	2731	1	36
122	6653	0	0
123	4964	1	20
124	6018	1	16
125	5003	4	79
126	4875	0	0
127	5225	0	0
128	4854	1	20
129	616	0	0
130	4450	1	22
131	4087	0	0
132	5700	0	0
133	4138	0	0
134	4139	1	24
135	2978	1	33
136	1809	0	0
137	1879	1	53
138	2764	0	0
139	4459	1	22
140	3859	1	25
141	1341	1	74
142	1778	0	0

Prematurity Death Rate for the City of Milwaukee
for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
143	3576	2	55
144	2411	0	0
145	2657	1	37
146	4379	1	22
147	2890	0	0
148	2707	0	0
149	2837	0	0
150	3860	0	0
151	1581	0	0
152	452	0	0
153	2937	0	0

Table LXIX

Prematurity Death Rate Frequency Distribution
for the City of Milwaukee
for the Year 1941

Death rate per 100,000	Total
0 - 13.9	84
14 - 27.9	31
28 - 41.9	17
42 - 55.9	13
56 - 69.9	5
70 - 83.9	3

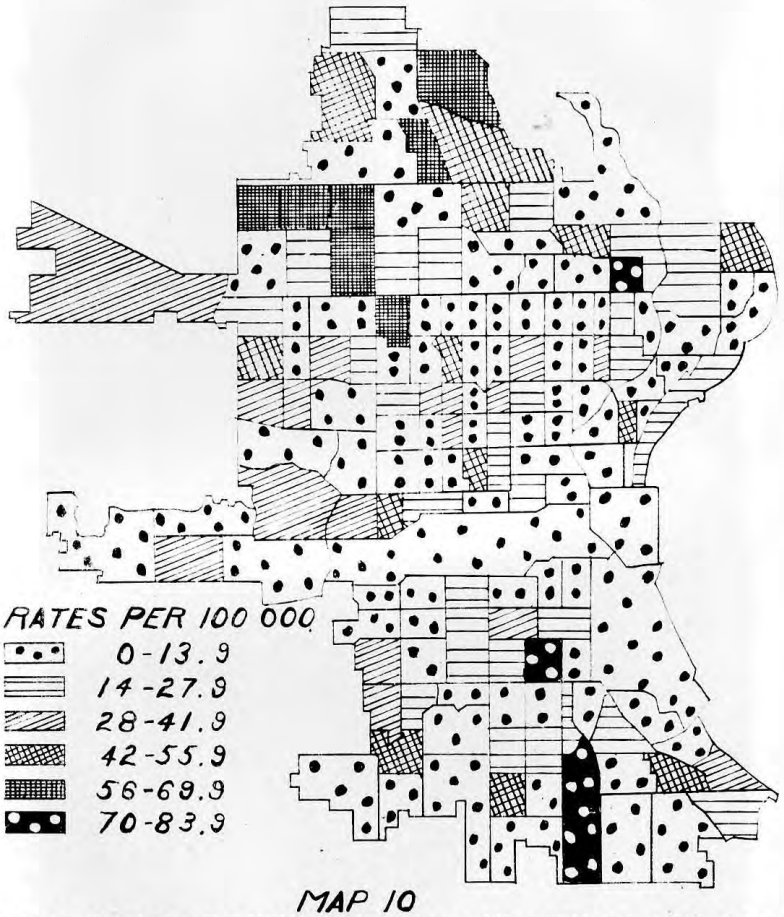
Table LXX

Frequency Array for Prematurity Deaths for the
City of Milwaukee for the Year 1941

Array	Census Tract
0	1- 2- 3- 5- 7- 8- 9- 10- 11- 12 16- 17- 19- 20- 21- 24- 26- 27- 30 31- 34- 35- 37- 38- 42- 44- 45- 47

Frequency Array for Prematurity Deaths for the City of Milwaukee for the Year 1941

Array	Census Tract
0	48- 49- 50- 51- 52- 53- 54- 55- 57 60- 62- 63- 64- 69- 71- 72- 75- 76 78- 80- 83- 87- 90- 93- 96- 97- 99 101- 103-105-106-108-110-112-113-114 115- 119-120-122-126-127-129-131-132 133- 136-138-142-144-147-148-149-151 152- 153
14	23
16	116-118-124
17	92
19	77
20	123-128
21	65- 70- 82
22	29- 18- 13- 66-130-139-146
23	4- 56- 67- 95
24	134
25	32- 43- 88-111-140
27	14- 22- 58
28	98-101
29	28- 33- 41
30	36
31	107
32	102
33	40- 46-135
35	94
36	74-121
37	117-145
38	104
42	61
43	100
44	81
45	25- 89
49	39
51	6-150
52	84
53	15-137
54	73
55	143
57	68
58	85
60	79
68	86
74	141
75	59
79	125



MAP 10
REMATURITY DEATH RATE FOR THE CITY OF MILWAUKEE
FOR THE YEAR 1941
BASED ON 1940 POPULATION

In map 10 there are a number of new census tracts leading the death rate. Census tracts 59, 125, 141, have the highest rate. These areas are low economic levels, and it has a large proportion of Polish element. Housing in census tracts 141 and 125 is very poor. Mothers in this area are either overworked or do not have the proper prenatal care.

Census tracts 68, 79, 85, 86, and 91 are next highest. Tracts 68, 79 and 91 are areas surrounding A. O. Smith Corporation and a few other industrial plants. It may be that mothers in this area have gone to work and given very little care to themselves.

Census tracts 85 and 86 are in the old North Milwaukee area which has very poor housing and the income level is low. Mothers in this area possibly did not have the proper prenatal care.

CHAPTER XII

Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941

Chapter XII

Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941

The study of the cirrhosis of the liver has only recently been taken up again with great enthusiasm after having been neglected for a very long time. Anyone who writes upon the subject today must do so with the knowledge that everything he has to say today may not be true tomorrow, for we are still in the experimental stage. The disease is ripe for investigation and the medical world is awaiting another Bright with the hope that this disease will be more fully understood.

Cirrhosis of the liver was first described by Vesalius, but had been known to Harvey and other clinicians. In 1685 John Brown described a case of cirrhosis, in 1788 John Andre gave his ideas on the disease, and in 1816 Matthew Baillie described a case. However, the disease did not get its name until 1819 when Laennec gave the disease the name of Cirrhosis of the liver. Because of the livers yellowish-red appearance he called the condition cirrhosis from the Greek kirrhos meaning tawney. In 1876 Honot described for the first time the hypertrophic form of cirrhosis which is accompaniedby chronic jaundice.

Cirrhosis may be divided into portal, syphilitic, Honot, and abstructive biliary.

"The clinical entity which we recognize

as portal cirrhosis results from prolonged inflammatory, degenerative or proliferative changes in the liver, which are believed to occur in the following sequence: a. degeneration of cells in the periphery of the portal vessels; b. proliferation and contraction of interstitial tissue about the remaining cells and the bile ducts, which attempt repair by means of a resort to dyperplasia and c. portal obstruction and the more or less successful attempt to overcome it by establishment of a collateral circulation."1

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1. Harry Beckman, Treatment in General Practice, p. 548.

Bloomfield's opinion in 1938, based on considerable study of cases over a period of years, is one in which most clinicians coincide, that is that cirrhosis is usually the terminal stage of a long disease which runs most of its early course without clinical symptoms. Excessive use of alcohol has long been blamed for the production of most of the cases, but Mallory in 1933 who investigated the matter both clinically and experimentally for many years believed that it might be phosphorus as a contaminant rather than alcohol itself, which causes the disease. Others have experimented with cases and found that in some cases alcohol played a large part and others found that other elements were factors. Patients who suffer from chronic alcoholism suffer from low intake of carbohydrates, greatly diminish the storage of glycogen, fatty replacement of the liver, and deficient intake of vitamins. These conditions render

the liver especially vulnerable so that the continued use of alcohol is followed by necrosis of liver cells and fibrosis, which in the susceptible patient after years results in cirrhosis.

However, cirrhosis does occur among non-drinkers. It is believed that beer is less prone to cause cirrhosis than is wines and hard liquors.

Portal cirrhosis occurs most frequently in the early forties and comes to an end in the early fifties. Men appear to be more affected than women in about the ratio of 2 to 1. The early symptoms are dyspeptic and are rarely recognized.

In fully established cases the patient has lost much weight and energy, his complexion is not clear, his eyes are sunken, and he usually complains of indigestion, and perhaps hemorrhoids and an intensely itching skin. In the advanced cases in which there is very great depression of liver function, such symptoms appear as loss of memory, delirium, convulsions and coma.

> "Tuberculosis has been held responsible for many cases of cirrhosis. It has been observed that cirrhosis like tuberculosis occurs more frequently in crowded cities. Hepatic insufficiency, which lowers the resistance of the organism renders it susceptible to tuberculosis infection. The tuberculosis element therefore may be considered a complication rather than a cause of the cirrhotic process."2

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2. Samuel Weiss, The Disease of the Liver, p. 395.

In giving a patient a diet to help his condition in cirrhosis of the liver, it is of course important that alcohol be denied, but in the case of habitual drinkers it may be sometime before this can be done, so in the meantime the drink should try to be withdrawn by rapid reduction in the quantities allowed rather than by the more rapid procedure of cutting off all the supply at once. A high carbohydrate-low protein diet, just the amount of fat which the patient would require to make the diet more desirous. Vitamin A and B, injection of liver extract and the preparation of brewer's yeast are helps.

Portal cirrhosis occurs frequently in children. The types of cirrhosis in children are qpt to attack several members of the same family, probably due to the same family habits with reference to alcohol and diet, and to the influence of syphillis.

Table LXXI

Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941

	Population	Deaths	Rate per 100,000
Total	587,472	90	15.3
Male	289,118	66	22.8
Female	298,354	24	8.7

The male death rate for cirrhosis of the liver is very high. It is about 150 times higher than the death rate for females.

Table LXXII

Marital Status for Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941

Marital Status	Population 15 yrs. & older	Deaths 15 yrs. & older	Rate per 1,000
Single	142,060	14	0.09
Married	263,940	56	0.2
Widowed	34,140	16	0.4
Divorced	8,980	4	0.4

The widowed and divorced death rate for cirrhosis of the liver is equal. It is 100 times greater than the death rate for the married, and about 400 times greater than for the single death rate.

Table LXXIII

Nativity for Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941

Nativity	Population	Deaths	Rate per 1,000
Native born	503,663	59	0.1
Foreign born	83,809	31	0.3

The foreign born death rate is three times greater than is the native born death rate.

Table LXXIV

Age and Sex Distribution for Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941

Age	Sex		Rate per 1,000		Total	
	Male	Female	Male	Female	No.	Rate per 1,000
Total	66	24	22.8	8.7	90	15.3
Under 5 yrs.	0	0	0.0	0.0	0	0.0
5 - 9	0	0	0.0	0.0	0	0.0
10 - 14	0	0	0.0	0.0	0	0.0
15 - 19	0	1	0.0	0.04	1	0.02
20 - 24	0	0	0.0	0.0	0	0.0
25 - 29	0	0	0.0	0.0	0	0.0
30 - 34	2	0	0.08	0.0	2	0.04
35 - 39	5	1	0.21	0.04	6	0.12
40 - 44	6	1	0.26	0.04	7	0.15
45 - 49	12	4	0.53	0.19	16	0.37
50 - 54	10	5	0.50	0.27	15	0.39
55 - 59	10	2	0.67	0.14	12	0.41
60 - 64	7	1	0.63	0.09	8	0.36
65 - 69	3	3	0.39	0.38	6	0.37
70 - 74	4	3	0.83	0.50	7	0.65
75 and over	7	3	1.5	0.47	10	0.92

For the year 1941 there were very few cirrhosis of the liver deaths and those that there were occured at 30 and after. Only one female dent at age group 15 to 19, otherwise there were no deaths for females until the 35 to 39 age group. The male death rate exceeds the female rate greatly. The male rate increases gradually from 45 to 65. It then drops, but makes a tremendous jump at 70.

Table LXXV

Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
1	2613	0	0
2	4032	3	74
3	4737	0	0
4	4228	0	0
5	4502	0	0
6	3872	1	25
7	4723	0	0
8	4145	2	48
9	3821	0	0
10	4834	2	43
11	3851	1	25
12	3676	1	25
13	4353	1	22
14	3651	0	0
15	1862	0	0
16	2128	0	0
17	2633	0	0
18	4437	1	22
19	3270	0	0
20	1656	0	0
21	3395	0	0
22	3611	1	27
23	7038	1	14
24	3997	0	0
25	4837	0	0
26	3539	0	0
27	3138	1	31
28	3353	2	59
29	4498	2	0
30	3510	0	0
31	2303	1	43
32	3925	0	0
33	3421	0	0
34	2871	0	0
35	4603	1	21
36	6648	1	15
37	4560	1	21
38	3609	0	0
39	4024	1	24
40	2992	1	33
41	3340	1	29
42	4629	0	0
43	4000	0	0

Cirrhosis of the Liver Death Rate for the
City of Milwaukee for the Year 1941
by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
44	3854	0	0
45	2834	1	38
46	3009	0	0
47	5790	0	0
48	4820	1	20
49	3407	1	29
50	3676	0	0
51	3828	0	0
52	5250	2	38
53	3596	0	0
54	2608	0	0
55	2892	0	0
56	4182	1	23
57	3686	0	0
58	3632	1	27
59	3961	1	25
60	5730	1	17
61	4663	1	21
62	3788	0	0
63	5463	2	36
64	6534	1	15
65	4750	1	21
66	4514	1	22
67	4334	1	23
68	3504	1	28
69	4127	1	24
70	4666	2	42
71	4828	2	41
72	5241	0	0
73	5473	0	0
74	2765	0	0
75	2208	0	0
76	4392	0	0
77	5082	0	0
78	4229	1	23
79	4990	1	20
80	5788	1	17
81	4463	1	22
82	4720	0	0
83	3696	1	27
84	5757	1	17
85	3395	1	29
86	1464	0	0
87	2480	2	80

Cirrhosis of the Liver Death Rate for the
City of Milwaukee for the Year 1941
by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
88	3872	1	25
89	4412	0	0
90	3086	0	0
91	3506	0	0
92	5628	0	0
93	3978	0	0
94	2821	0	0
95	4309	0	0
96	3561	0	0
97	3038	0	0
98	3833	2	52
99	2295	0	0
100	3426	1	43
101	3908	0	0
102	3102	0	0
103	4033	2	49
104	2603	1	38
105	2869	1	34
106	1059	0	0
107	3133	0	0
108	4722	0	0
109	3520	1	28
110	3922	0	0
111	3959	0	0
112	4383	0	0
113	4408	0	0
114	3001	0	0
115	1140	0	0
116	6063	3	49
117	5318	2	37
118	6117	1	16
119	4139	0	0
120	3810	0	0
121	2731	0	0
122	6653	1	16
123	4964	0	0
124	6018	1	15
125	5003	2	41
126	4875	2	41
127	5225	1	19
128	4854	1	20
129	616	0	0
130	4450	3	67

Cirrhosis of the Liver Death Rate for the City of Milwaukee for the Year 1941 by Census Tracts

Census Tract	Population	No. of deaths	Rate per 100,000 pop.
131	4087	0	0
132	5700	1	17
133	4138	0	0
134	4139	0	0
135	2978	0	0
136	1809	0	0
137	1879	0	0
138	2764	0	0
139	4459	0	0
140	3859	0	0
141	1341	0	0
142	1778	0	0
143	3576	2	55
144	2411	1	41
145	2657	0	0
146	4379	0	0
147	2890	0	0
148	2707	0	0
149	2837	0	0
150	3860	1	25
151	1581	0	0
152	452	0	0
153	2937	1	34

Table LXXVI

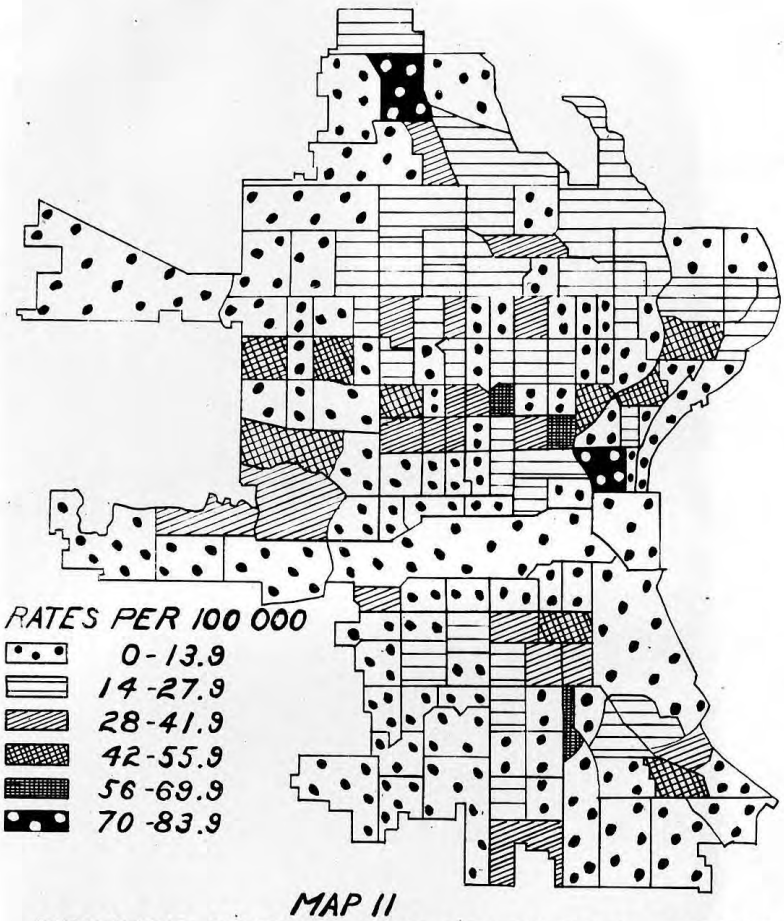
Cirrhosis of the Liver Death Rate Frequency Distribution for the City of Milwaukee for the Year 1941

Death rate per 100,000	Total
0 - 13.9	83
14 - 27.9	37
28 - 41.9	19
42 - 55.9	9
56 - 69.9	3
70 - 83.9	2

Table LXXVII

Frequency Array for Cirrhosis of the Liver Deaths
for the City of Milwaukee
for the Year 1941

Array	Census Tract
0	1- 3- 4- 5- 7- 9- 14- 15- 16- 17 24- 25- 26- 29- 30- 32- 33- 34- 38 42- 43- 44- 46- 47- 50- 51- 53- 54 55- 57- 62- 72- 73- 74- 75- 76- 77 82- 86- 89- 90- 91- 92- 93- 94- 95 96- 97- 99-101-102-106-107-108-110 111-112-113-114-115-119-120-121-123 129-131-133-134-135-136-137-138-139 140-141-142-145-146-147-148-149-151 152
14	23
15	36- 64-124
16	118-122
17	60- 80- 84-132
19	127
20	48- 79-128
21	35- 37- 61-65
22	13- 18- 19- 66- 81
23	56- 67- 78
24	39- 69
25	6- 11- 12- 59- 88-150
27	22- 58- 83
28	68-109
29	21- 41- 49- 85
31	27
33	40
34	105-153
36	63
37	117
38	45- 52-104
41	71-125-126-144
42	76
43	31-100
48	8- 10
49	103-116
52	98
55	143
59	28
60	20
67	130
74	2
80	87



MAP II
CIRRHOSIS OF THE LIVER DEATH RATE FOR THE CITY OF MILWAUKEE FOR THE YEAR 1941 BASED ON 1940 POPULATION

Map 11 shows that cirrhosis of the liver deaths are widely spread throughout the city, but two census tracts show decidely higher death rates. These tracts are 2 and 57. The next highest rates are found in census tracts 20, 28, and 130

CHAPTER XIII

Summary and Conclusions

Chapter XIII

Summary and Conclusion

The maps and tables, based on information secured through the cooperation of the Bureau of Vital Statistics, showed a complete picture of the incidence and ecological pattern of the ten leading causes of death for the city of Milwaukee for the year 1941. The ten leading causes of death were heart disease, cancer, apoplexy, accidents, nephritis, pneumonia, tuberculosis, diabetes, prematurity, and cirrhosis of the liver.

Heart disease lead all the other causes of death. There were more male than female deaths caused by heart disease by a rate of 90.9 points. The widowed rate was high leading by 16.0 points. The death rate for heart disease was comparatively low to about 40 years but from this age level it increased continually at a great rate and at 75 years there were 630 deaths out of 1773.

The cancer death rate showed the male and female death rate almost equal. The widowed death rate was higher than the single, married or divorced. Cancer is not a disease of the young but one that starts about the age of 40 and then increases very rapidly.

Apoplexy, most frequently heard of as stroke, was the cause of 513 deaths for the year 1941. The female death rate was 21.4 points higher than the male death rate. The

widowed death rate was very high leading the divorced death rate by 4.5 points. The apoplexy death rate did not show an early age death rate, but one that started at age 45 and then gained rapidly.

Milwaukee is considered one of the safest large cities in the United States but in 1941 there were 333 deaths caused by accident. There are more accidents in the home than in industry or any other accident producing unit except traffic. The male death rate was 31.4 points higher than the female death rate. The widowed death rate was higher than the divorced, married or single, however the divorced death rate was only 0.9 points lower than the widowed death rate. The accident death rate was higher for the male than the death rate for female under five years to 75 and over.

The number of deaths from nephritis seems to be increasing steadily. There were 264 deaths for the year 1941 caused by nephritis. The female death rate is higher than the male death rate by 2.7 points. The age at which the nephritis deaths started was from 15 to 19. There is then a gradual increase until age group 60 to 64, but from here on the increase is great.

Pneumonia caused 212 deaths for the year 1941. The male death rate was 17.5 points higher than the female death rate. This was a very marked increase. The male death rate was higher than the female death rate at all age levels

other than 5 to 9. The possibility of dying of pneumonia before 5 years was greater than all the way to 60 years.

The tuberculosis death rate of a community is a general survey of its economic, health and social status. The tuberculosis death rate shows the male rate far exceeding the female rate by 25.6 points. The divorced death rate was higher than the single, married or widowed. The highest death rate for the male was at 55 to 59 years, whereas the highest death rate for women was the 70 to 74 year age level.

There were 191 diabetes deaths for the year 1941. The female death rate greatly exceeded the male death rate by 21.2 points. The widowed death rate was high, with divorced, married and single following in numerical importance.

There were 94 prematurity deaths for 1941. More male than female babies died. Many more premature babies died the first 30 days after birth than died after 30 days. If a premature baby lives the first 30 days he has a very good chance of survival as 91 deaths were under 30 days and only 3 deaths from 30 days to one year.

Cirrhosis of the liver caused 90 deaths for the year 1941. The male death rate for cirrhosis of the liver was very high, leading the female death rate by 14.1 points. The widowed and divorced death rate was equal. There were no cirrhosis of the liver deaths until the age of 30. The

male death rate exceeded the female death rate at all age levels. The male death rate increased gradually from 45 to 65 and was higher at the age of 75 and over.

The maps showed two census tracts with high death rates for more than one disease. For example, census tract 20, a negro area is high in cancer, nephritis and pneumonia. Census tract 12, the Menomonee River Valley is high in cancer and accident and second high in apoplexy.

Census tract 20 is the greatest area of blight and poor housing. It is only one portion of the negro area, but it is this area that is surrounded by major business streets and one in which housing is of a widely uniformly low standard. A high percentage of dwellings in this district are ready for condemnation because of structural defects.

Bad housing handicaps family morale, breaks down self-respect, breeds discontentment and general discouragement. The environment created by poor housing is a most important contributing factor to delinquency, crime and other social irregularities which require tremendous public and private expenditures for care and cure.

Census tract 16 is very similar to census tract 20 but is not a negro area. It has had a succession of foreign elements. The area is very congested with industrial and manufacturing buildings. Housing is about the same as in census tract 20. With better housing probably many problems could be remedied.

Census tract 11 is also a tract that presents a high death rate. It is high in heart disease, apoplexy and second high in total death rate. As has been stated before the outstanding reason for this is that it is an area in which there are many homes for the aged. These people establish residence here, and therefore their death certificates are made out as residing here. If their place of former residence could be used this area would not have such a high death rate.

Tables I, VIII, XV, XXIX, XLIII, L, LXIV, and LXXI indicate that the male death rate is higher than the female death rate for total deaths, heart disease, cancer, accidents, pneumonia, tuberculosis, prematurity and cirrhosis of the liver.

Tables XXII, XXXVI, LVII indicate that the female death rate is higher than the male death rate for apoplexy, nephritis and diabetes. In looking at this picture it can be seen that the male death rate was higher than the female death rate in seven out of ten leading causes of death.

In all but three tables of marital status the widowed had the highest death rate. Table LI, tuberculosis, showed that the divorced had the highest death rate. Table LXV, prematurity of course showed single having the highest death rate, and Table LXXII showed that the widowed and divorced had an equal death rate. In all tables other than prematurity the single death rate was the lowest.

In all but one table on nativity the foreign born had a higher death rate than the native born. Table LXVI showed that the native born had a higher death rate than did the foreign born, but this is only natural since Table LXVI is the nativity death rate for prematurity.

Conclusions based on a one year study are not as reliable as would be a study covering a five or ten year period. However, the study was made to secure a pattern upon which further study could be based.

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Appendix

Marital Status for the City of Milwaukee for the Year 1941, Fifteen Years and Older

Marital Status	Total
Single	142,060
Married	268,940
Widowed	34,140
Divorced	8,980

Total Age and Sex Distribution for the City of Milwaukee for the Year 1941

Age	Sex		Total
	Male	Female	
Total	289,118	298,384	587,472
Under 5 yrs.	20,055	19,439	39,494
5 - 9	20,074	19,737	39,811
10 - 14	22,517	22,303	44,820
15 - 19	23,212	24,943	48,155
20 - 24	23,804	27,648	51,452
25 - 29	24,789	27,684	52,473
30 - 34	23,918	25,817	49,735
35 - 39	23,222	24,100	47,322
40 - 44	22,815	22,107	44,922
45 - 49	22,267	20,832	43,099
50 - 54	19,887	17,932	37,819
55 - 59	14,716	14,117	28,833
60 - 64	10,958	11,131	22,089
65 - 69	7,526	8,368	15,894
70 - 74	4,812	5,934	10,746
75 and over	4,546	6,262	10,808