

THE CANCER RECORD OF 1933

By **FREDERICK L. HOFFMAN, LL.D.**

Consulting Statistician

Sharp Increased Mortality in 1933 Continues
Steady Advance Recorded Annually Since 1906

CANCER in 1933 exacted a heavier toll of lives in American cities than ever before. Compared with 1932 there was an increase in the rate for 50 American cities with uniform records dating back to 1906 from 122.7 per 100,000 to 124.7. During the first 14 years of the period under review the rate increased 36.2 per cent against 24.4 per cent for the second 14 years. The slight decrease in the proportionate increase is to be expected in view of the much higher rate prevailing at the present time than during former years.

Cancer is now the second leading cause of death, following diseases of the heart considered as a group. It is by far, however, the most important of our chronic diseases demanding more than ever the services of the physician, the surgeon, the radiologist and the research worker, for regardless of an immense amount of qualified attention the world over, the disease continues to baffle the imagination as to diagnosis, treatment and control. However disagreeable the conclusion, we apparently have not made the progress anticipated for the disease continues to increase regardless of strenuous efforts to stem its ravages in the American population. The colossal magnitude of the problem is better illustrated by the statement that in the 50 cities under review, with an aggregate population of about 32,000,000 in 1933, there have been 722,274 deaths from cancer since 1906, or during a period of 28 years. The details of the record for the 50 cities are given in the table following in the usual form, showing an increase in the rate from 71.6 per 100,000 in 1906 to 100.2 in 1920 and to 124.7 in 1933.

In more detail I give the returns for 177 American cities for the two years 1932 and 1933, showing the deaths and the rates per 100,000 of population. These cities, with a combined population in 1933 of about 44,000,000, show an increase in the rate from 117.1 per 100,000 in 1932 to 118.3 in 1933. The aggregate number of cancer deaths in these 177 cities in 1933 reached a total of 51,759 against 50,347 in the previous year. The details for these cities are given in the table on page three.

CANCER IN 50 AMERICAN CITIES—1906-1933

Year	No. of Cities	Population	Cancer	Death Rate per 100,000
1906	50	18,171,248	13,010	71.6
1907	50	18,688,635	14,030	75.1
1908	50	19,206,022	14,458	75.3
1909	50	19,723,409	15,851	79.9
1910	50	20,242,858	16,623	82.1
1911	50	20,744,686	17,174	82.8
1912	50	21,238,044	18,123	85.3
1913	50	21,751,386	19,344	88.9
1914	50	22,265,170	20,037	90.0
1915	50	22,784,935	20,594	90.4
1916	50	23,290,613	21,844	93.8
1917	50	23,798,434	22,576	94.9
1918	50	24,300,086	23,216	95.5
1919	50	24,812,889	24,188	97.5
1920	50	25,308,623	25,348	100.2
1921	50	25,795,490	26,424	102.4
1922	50	26,281,917	27,698	105.4
1923	50	26,801,570	29,279	109.2
1924	50	27,297,071	30,956	113.4
1925	50	28,053,988	31,809	113.4
1926	50	28,609,424	32,477	113.5
1927	50	29,110,586	33,385	114.7
1928	50	29,687,145	34,889	117.5
1929	50	30,231,732	35,598	117.8
1930	50	30,504,520	37,312	122.3
1931	50	30,987,422	37,487	121.0
1932	50	31,507,450	38,673	122.7
1933	50	31,982,703	39,871	124.7

Per cent increase 1906-1919—36.2.
Per cent increase 1920-1933—24.4.

According to this table, in 1933, there were 20 cities with a rate in excess of 150 per 100,000 as given below.

CITIES WITH CANCER DEATH RATES IN EXCESS OF 150 PER 100,000 IN 1933

Madison, Wis.	304.2	Minneapolis, Minn.	167.5
Concord, N. H.	217.5	Albany, N. Y.	165.4
Portland, Me.	211.8	Newport, R. I.	160.7
Pasadena, Cal.	207.6	Portland, Ore.	160.2
Gloucester, Mass.	178.9	Sacramento, Cal.	156.1
Troy, N. Y.	178.1	Seattle, Wash.	153.7
Boston, Mass.	176.2	Utica, N. Y.	152.7
New Haven, Conn.	175.3	Elmira, N. Y.	152.6
San Francisco, Cal.	174.2	Newburgh, N. Y.	152.1
Quincy, Ill.	173.9	Wheeling, W. Va.	151.5

This tabulation requires careful consideration in view of the unquestionable effect of local institutions serving cancer patients from surrounding communities, increasing considerably the local cancer death rate. It will be observed that Madison, Wis., heads the list as it did last year. How much of this represents the local population and how much the non-resident population, cannot be stated. The same conclusion applies to Concord, N. H. As explained to me in a letter from the Health Officer, dated March 29, 1934, "We have here a large state hospital for the insane, three old people's homes, the state prison and an orphan asylum. Although the inmates of these institutions come from all parts of the state, they are counted by the Bureau of the Census as residents of Concord." But after all when allowance is made for this factor, out of the 57 deaths from cancer

in 1933, only 10 were non-resident.

It is further explained by the Health Officer that, "The term non-resident is here employed to designate only deaths in two general hospitals and six institutions of patients or inmates who had come to Concord from other areas for the sole purpose of entering the hospital or institution; no further correction is made for residence for the reason that no information is at hand in regard to Concord people dying away from Concord." This complication also occurs in many other localities but for the time being it would be an utterly hopeless task on my part to attempt to make correction for non-residential deaths which would involve extended correspondence with health departments all over the country without much prospect of useful results.

I give below a list of 10 cities with the lowest cancer death rates in 1933 which challenges attention as possible sources of useful information. Some of

these cities have had low rates for many years and there must be some local explanation for these extraordinary differences. A range in rates from 17.0 for Hamtramck, Mich., to 304.2 for Madison, Wis., certainly demands attention as to underlying conditions which can only be revealed by an exhaustive study of local facts.

TEN CITIES WITH LOWEST CANCER DEATH RATES IN 1933

Rates per 100,000	
Hamtramck, Mich.	17.0
Cicero, Ill.	36.5
Winston Salem, N. C.	48.9
Gary, Ind.	50.6
Flint, Mich.	50.9
Portsmouth, Va.	55.8
McKeesport, Pa.	56.1
Bayonne, N. J.	59.2
Houston, Texas	60.4
Greensboro, N. C.	60.7

The table following shows the cancer deaths and death rates in 1932 and 1933 for the five largest cities of the country as a matter of exceptional interest.

CANCER IN FIVE LARGEST CITIES IN 1932 AND 1933

	Rates per 100,000			
	1932		1933	
	Deaths	Rate	Deaths	Rate
Chicago	3,904	110.8	4,055	113.0
Detroit	1,203	71.0	1,127	64.4
Los Angeles....	1,737	125.7	1,784	123.4
New York.....	8,573	118.8	8,932	121.8
Philadelphia ..	2,710	137.0	2,787	140.0
	18,127	114.8	18,685	116.0

In these five cities the number of cancer deaths increased from 18,127 in 1932 to 18,685 in 1933, or respectively an increase in the rate from 114.8 to 116.0. In all these cities strenuous efforts have been made to bring about better results in treatment and some effort has been made at local control in the direction of prevention. The comparatively low rate for Detroit is explained by the large proportion of young people in that city attracted by the motor industry and considerably below the average cancer age. Unquestionably the age factor in all these cities has some bearing on the local rate but this can only be revealed by extended statistical research which can only be made by the Census Office in Washington as its contribution to the cancer cause.

Extraordinary increases in the local rates are recorded, for example, for Allentown, Pa., from 110.6 per 100,000 in 1932 to 149.1 in 1933; Brockton, Mass., from 109.8 to 137.5; Galveston, Tex., from 112.1 to 144.1; Newburgh, N. Y., from 104.9 to 152.1; Scranton, Pa., from 112.7 to 141.2; Grand Rapids, Mich., from 98.7 to 120.6; Lexington, Ky., from 105.0 to 144.5; Pasadena, Cal., from 159.5 to 207.6; etc., etc.

When the cities are arranged according to the size of population, some very interesting results become apparent. I

CANCER MORTALITY IN MASSACHUSETTS—1900-1929

Age	Rates per 100,000			Age	Rates per 100,000		
	1900-09	1910-19	1920-29		1900-09	1910-19	1920-29
Under 5	3.4	3.8	4.1	40-49	105.1	118.5	118.8
5-9	1.3	2.0	2.1	50-59	239.8	277.7	306.5
10-14	1.2	1.4	1.9	60-69	420.6	520.4	607.6
15-19	2.8	3.0	3.3	70-79	617.1	823.2	1,001.3
20-29	5.3	7.4	7.2	80 & over	716.8	1,050.6	1,283.8
30-39	30.3	32.8	33.5	Total	79.2	101.3	125.7

CANCER MORTALITY IN ENGLAND AND WALES, 1901-1930

Age	Rates per 100,000					
	MALES			FEMALES		
	1901-10	1911-20	1921-30	1901-10	1911-20	1921-30
0-	2	2	2	2	2	2
15-	4	4	5	3	3	4
25-	11	11	12	17	16	16
35-	41	42	42	85	79	76
45-	155	168	163	232	227	214
55-	390	444	472	441	438	424
65-	668	800	955	666	711	774
75 and up	787	973	1,276	790	919	1,131

treated at 23 hospitals with consecutive records for the last decade.

It is shown by these hospital returns that the number of cancer patients treated increased from 2141 in 1923 to 2722 in 1932. The number of operations increased from 1247 in 1923 to 1679 in 1932, while the percentage of operations increased from 58.2 to 61.7. Cancer deaths from all causes increased from 480 in 1923 to 609 in 1932, while the number of cancer deaths from operations increased from 169 to 233, or respectively from 13.5 per cent to 13.4 per cent of all cancer cases operated upon.

After many years of thoughtful consideration and exhaustive statistical study, I am fully convinced that the apparent increase in cancer is real and not to be explained away by changes in the age, constitution or improvement in diagnosis. Both of these factors, no doubt, have some bearing upon long periods of time, and the conclusion as to an increase by no means applies to all

152,190 in 1931 and 157,682 in 1932. The returns for the first nine months of 1933 indicate a further increase proportionate to the increase observed in the last few years.

I have also tabulated the cancer mortality of Massachusetts since 1860 and give below the rates per 100,000 for both sexes combined for the last three decades ending with 1929.

This tabulation indicates a decided increase at ages over 60 and a varying rate of change at previous ages. It may be assumed, therefore, with a reasonable degree of assurance that cancer at the younger ages is still comparatively rare but at the older ages a decided increase has occurred.

I give a somewhat similar table for England and Wales comparing the three decades previous to 1930, separately for each sex.

I place more reliance upon specific death rates for selected periods of life than upon standardized death rates combining all ages. As observed in this connection by the Medical Superintendent of the Registrar-General's Office of England and Wales, in his annual report for 1931, just published,

"The trend of the sex death-rates at the several age-groups are widely different. The rates for each sex at ages over 75 have increased progressively since 1901-10, more rapidly for males than females. At 65-70 there has also been a progressive increase for males, but for females this has been recently arrested. At 45-65 there is evidence of an arrest in the increase of the male rates, commencing earlier at 45-55 than at 55-65, whilst the female rates at each age group from 25 to 65 have declined since 1901-10, the extent of this fall amounting to 13 per cent at ages 35-45, 8 per cent at 45-55 and 7 per cent at 55-65."

This is particularly well illustrated for San Francisco for which I have the rates for the last 12 years. The crude cancer death rate of San Francisco has increased from 147.4 per 100,000 in 1920-23 to 177.8 in 1928-31. The rate for cancer of the buccal cavity increased from 6.5 to 8.2; stomach and liver, from 52.0 to 57.1; intestines,

CANCER IN 176 AMERICAN CITIES IN 1932 AND 1933

Cities in Population Groups	No.	Rates per 100,000			Rates per 100,000		
		1932		Rate	1933		Rate
		Population	Deaths	Rate	Population	Deaths	Rate
25,000-100,000	87	5,621,075	6,071	108.0	5,704,486	6,391	112.0
100,000-500,000	76	15,660,938	18,087	115.5	15,941,306	18,396	115.4
Over 500,000	13	21,698,900	26,145	120.5	22,078,472	26,928	122.0

give above a table showing the rates per 100,000 for three groups of cities.

The higher rate for larger cities is quite possibly the result of local facilities for treatment attracting non-residents disproportionate to the total. I am able this year to add to the foregoing statistics a tabulation of cancer cases

age periods and all types of cancer, each and every one of which is subject to its own rate of fluctuation. Tabulating the returns, for example, for 21 European and other foreign countries, excluding the United States, there has been an increase in cancer deaths in these countries from 146,975 in 1930 to

CANCER IN 23 AMERICAN HOSPITALS—1923-1932

	Cancer Cases Treated			Cancer Deaths From Operation		
	Cancer Cases Treated	Per Cent	Per Cent	Cancer Deaths All Causes	Per Cent	Per Cent
1923	2,141	58.2	58.2	480	169	13.5
1924	2,322	57.0	57.0	489	162	12.2
1925	2,330	59.1	59.1	494	177	12.8
1926	2,416	52.1	52.1	537	163	12.9
1927	2,583	54.7	54.7	546	182	12.9
1928	2,585	54.1	54.1	536	162	11.8
1929	2,509	57.9	57.9	561	189	13.0
1930	2,748	57.3	57.3	587	238	15.1
1931	2,969	56.3	56.3	723	247	14.8
1932	2,722	61.7	61.7	609	233	13.9
1923-32	25,275	56.9	56.9	5,562	1,922	13.4

peritoneum and rectum, from 24.5 to 27.3; female genital organs, from 17.4 to 21.2; breast, from 12.3 to 17.4; skin decreased from 3.0 to 2.0, while cancer of other and nonspecified organs increased from 31.7 to 44.7. For more specific organs and parts the change in rate was as follows. For cancer of

the tongue, the rate increased from 3.2 per 100,000 in 1920-23 to 3.4 in 1928-31; oesophagus, from 4.4 to 6.1; stomach, from 33.3 to 37.1; intestines, from 14.5 to 16.6; rectum, from 7.9 to 9.5; bladder, from 3.4 to 5.0; larynx, from 2.5 to 2.6; lungs, from 4.7 to 7.5; prostate, from 5.1 per 100,000 male popu-

lation to 7.5; pancreas, from 4.0 to 4.7. Some unusual decreases in local rates are recorded for the following cities, selected from a considerable group. There was a decrease in the cancer death rate of Atlantic City from 127.9 per 100,000 in 1932 to 104.1 in 1933. In Kansas City, Kan., the rate de-

CANCER DEATH RATE IN 177 AMERICAN CITIES, 1932-1933

	1932			1933			1932			1933			
	Population	Deaths	Death Rate per 100,000	Population	Deaths	Death Rate per 100,000	Population	Deaths	Death Rate per 100,000	Population	Deaths	Death Rate per 100,000	
Akron, Ohio	265,192	193	72.8	269,704	164	60.8	77,185	121	156.8	77,841	110	142.2	
Albany, N. Y.	130,463	191	146.4	131,819	218	165.4	28,344	21	74.1	29,208	27	92.4	
Allentown, Pa.	96,721	107	110.6	98,569	147	149.1	272,907	282	103.3	281,691	273	96.9	
Altoona, Pa.	86,779	73	84.1	88,879	61	68.6	128,295	110	85.7	136,143	97	71.2	
Atlanta, Ga.	307,329	179	58.2	323,757	258	79.7	604,628	651	107.7	616,352	622	100.9	
Atlantic City, N. J.	69,573	89	127.9	71,073	74	104.1	482,608	727	150.6	490,720	822	167.5	
Auburn, N. Y.	36,760	54	146.9	36,808	45	122.3	69,822	79	113.1	70,542	93	131.8	
Augusta, Ga.	62,043	55	88.6	62,799	63	100.3	68,809	71	103.2	69,901	60	85.8	
Baltimore, Md.	820,345	1,139	138.8	827,221	1,185	143.3	64,665	57	88.1	65,566	48	73.2	
Bayonne, N. J.	91,652	57	62.2	92,840	55	59.2	161,538	164	101.5	165,020	172	104.2	
Berkeley, Cal.	87,779	83	94.6	90,299	85	94.1	448,385	481	107.3	451,973	525	116.4	
Bethlehem, Pa.	59,173	40	67.6	59,539	47	78.9	110,707	112	101.2	109,867	142	129.2	
Binghamton, N. Y.	78,822	88	111.6	79,782	101	126.6	70,045	74	105.6	70,897	67	94.5	
Birmingham, Ala.	277,282	190	68.5	285,106	200	70.1	31,464	33	104.9	31,548	48	152.1	
Boston, Mass.	788,397	1,351	171.4	791,601	1,395	174.2	162,685	282	173.3	162,697	286	175.8	
Bridgeport, Conn.	147,391	194	131.6	147,691	189	128.0	474,341	680	143.4	481,265	670	139.2	
Brockton, Mass.	63,737	70	109.8	63,977	88	137.5	57,001	58	101.8	57,857	48	83.0	
Buffalo, N. Y.	587,521	781	132.9	593,941	812	136.7	69,461	66	95.0	71,321	82	115.0	
Cambridge, Mass.	114,507	176	153.7	114,891	165	143.6	29,825	39	130.8	29,861	48	160.7	
Camden, N. J.	119,213	152	127.5	119,441	140	117.2	7,215,782	8,573	118.8	7,335,952	8,932	121.8	
Canton, N. Y.	108,794	119	109.4	110,522	111	100.4	Niagara Falls, N. Y.	80,833	53	65.6	83,221	57	68.5
Charleston, S. C.	62,127	61	98.2	62,679	59	94.1	131,734	94	71.4	133,078	87	65.4	
Chelsea, Mass.	55,779	65	116.5	60,207	47	78.1	Oakland, Cal.	298,832	346	115.8	305,896	368	127.0
Chicago, Ill.	3,523,345	3,904	110.8	3,588,637	4,055	113.0	Oak Park, Ill.	69,247	100	144.4	71,587	98	136.9
Cicero, Ill.	70,256	39	55.5	71,300	26	36.5	Oklahoma City, Okla.	205,882	60	29.1	214,990	144	67.0
Cincinnati, Ohio	462,041	681	147.4	466,877	676	144.8	Omaha, Neb.	218,893	317	144.8	221,065	292	132.1
Cleveland, Ohio	922,974	1,034	112.0	932,994	1,043	111.8	Orange, N. J.	35,958	34	94.8	36,062	33	91.5
Columbus, Ohio	302,228	445	147.2	307,412	417	135.6	Pasadena, Cal.	82,782	132	159.5	85,758	178	207.6
Concord, N. H.	25,993	57	220.1	26,203	57	217.5	Passaic, N. J.	62,771	62	98.8	62,686	65	103.7
Covington, Ky.	67,034	67	99.9	67,826	80	117.9	Paterson, N. J.	139,080	218	156.7	139,332	207	148.6
Dallas, Tex.	272,588	216	79.2	282,416	241	85.3	Peoria, Ill.	111,260	111	98.8	114,056	107	93.8
Davenport, Iowa	61,615	83	134.7	61,999	86	138.7	Petersburg, Va.	29,104	27	92.8	29,344	32	109.1
Dayton, Ohio	211,539	230	108.7	216,231	203	93.9	Philadelphia, Pa.	1,978,663	2,710	137.0	1,990,975	2,787	140.0
Decatur, Ill.	59,820	75	125.4	60,480	75	124.0	Pittsburgh, Pa.	686,462	755	110.0	693,252	797	115.0
Denver, Colo.	294,692	404	137.1	297,728	399	134.0	Pittsfield, Mass.	51,405	53	103.1	52,173	66	126.5
Des Moines, Iowa	146,069	188	128.7	147,629	178	120.6	Pontiac, Mich.	70,115	39	55.6	71,597	50	69.8
Detroit, Mich.	1,693,861	1,203	71.0	1,749,505	1,127	64.4	Portland, Maine	71,134	131	184.2	71,218	151	211.8
Duluth, Minn.	102,030	148	145.1	102,282	135	132.0	Portland, Ore.	310,992	454	146.0	315,204	505	160.2
E. Orange, N. J.	71,800	97	135.1	73,480	109	148.3	Portsmouth, Va.	43,814	28	63.9	42,974	24	55.8
E. St. Louis, Ill.	75,994	33	43.4	76,726	65	84.7	Providence, R. I.	256,329	412	160.7	257,817	381	147.8
Elizabeth, N. J.	118,693	95	80.0	120,517	117	97.1	Pueblo, Colo.	51,635	48	93.0	52,319	51	97.5
Elmira, N. Y.	47,733	67	140.4	47,829	73	152.6	Quincy, Ill.	39,943	63	157.7	40,255	70	173.9
El Paso, Tex.	107,821	81	75.1	110,221	83	75.3	Mass.	77,221	80	103.6	79,549	79	99.3
Erie, Pa.	120,881	151	124.9	123,065	161	130.8	Racine, Wis.	69,486	88	128.5	70,350	70	99.5
Evansville, Ind.	105,848	90	85.0	107,492	92	85.6	Reading, Pa.	111,900	134	119.7	112,224	114	101.6
Fitchburg, Mass.	40,611	42	103.2	40,575	39	96.1	Richmond, Va.	185,386	230	124.1	186,478	233	124.9
Flint, Mich.	170,613	97	56.9	176,889	90	50.9	Rochester, N. Y.	335,179	496	148.0	338,811	480	141.9
Fort Wayne, Ind.	121,129	118	97.4	123,877	104	84.0	Rockford, Ill.	90,265	77	85.3	92,221	87	94.3
Worth, Tex.	175,840	131	74.5	181,348	135	74.4	Roanoke, Va.	73,202	60	82.0	74,978	63	84.0
Fresno, Cal.	54,133	45	83.1	54,853	43	78.4	Sacramento, Cal.	99,825	148	148.3	102,252	160	156.1
Galveston, Tex.	54,408	61	112.1	54,828	79	144.1	St. Louis, Ill.	832,652	1,210	145.3	837,404	1,214	145.0
Gary, Ind.	110,227	64	58.1	114,583	58	50.6	St. Paul, Minn.	279,652	399	142.7	283,408	378	133.4
Gloucester, Mass.	24,476	44	179.8	24,598	44	178.9	Salem, Mass.	43,542	56	128.6	43,626	54	123.8
Grand Rapids, Mich.	175,342	173	98.7	178,342	215	120.6	Salt Lake City, Utah	145,100	194	133.7	147,248	151	102.5
Greensboro, N. C.	59,284	42	70.8	60,916	37	60.7	San Antonio, Tex.	246,824	231	93.6	253,616	202	79.6
Hamilton, Ohio	52,446	56	106.8	52,566	56	106.5	San Diego, Cal.	164,033	258	157.3	171,161	240	140.2
Hamtramck, Mich.	57,942	12	20.7	58,686	10	17.0	San Francisco, Cal.	662,204	1,097	165.7	674,564	1,175	174.2
Harrisburg, Pa.	81,281	106	130.4	81,713	121	148.1	San Jose, Cal.	61,566	59	95.8	63,306	44	69.5
Hartford, Conn.	169,742	178	104.9	172,262	194	112.6	Savannah, Ga.	85,402	70	82.0	85,570	76	88.8
Highland Park, Mich.	54,363	35	64.4	54,987	47	85.5	Schenectady, N. Y.	97,204	99	101.8	97,876	144	147.1
Hoboken, N. J.	61,205	56	91.5	62,069	67	107.9	Scranton, Pa.	144,673	163	112.7	145,225	205	141.2
Holyoke, Mass.	56,147	57	101.0	56,807	76	133.8	Seattle, Wash.	376,518	532	141.3	381,378	586	153.7
Honolulu, Hawaii	149,190	136	91.2	154,482	128	82.9	Sioux City, Iowa	80,911	103	127.3	81,679	120	146.9
Houston, Tex.	325,913	259	79.5	340,829	206	60.4	Somerville, Mass.	106,257	90	84.7	107,301	126	117.4
Indianapolis, Ind.	375,042	373	99.5	379,878	376	99.0	Springfield, Wash.	117,917	152	128.9	118,985	167	140.4
Jackson, Mich.	56,672	65	114.7	57,332	66	115.1	Springfield, Ill.	74,618	96	128.7	75,842	103	135.8
Jacksonville, Fla.	137,811	121	87.8	141,433	120	84.8	Mass.	154,828	218	141.3	156,296	215	137.6
Jersey City, N. J.	320,765	380	118.5	322,565	442	137.0	Ohio	70,471	86	122.0	71,239	74	103.9
Johnstown, Pa.	67,074	68	101.4	67,110	70	104.3	Syracuse, N. Y.	217,507	287	131.9	221,143	307	138.8
Kalamazoo, Mich.	56,163	57	101.5	56,775	82	144.4	Tacoma, Wash.	108,950	141	129.4	109,898	157	142.9
Kansas City, Kan.	126,368	178	140.9	128,372	127	98.9	Tampa, Fla.	111,772	111	99.3	116,488	111	95.3
Mo.	416,162	527	126.6	423,458	541	127.8	Terre Haute, Ind.	62,108	85	136.9	61,796	64	103.6
Kenosha, Wis.	51,921	43	82.8	52,395	43	82.1	Toledo, Ohio	301,086	350	116.2	305,694	363	118.7
Knoxville, Tenn.	111,904	77	68.8	114,616	91	79.4	Topeka, Kan.	67,198	79	117.6	68,566	82	119.6
Lakewood, Ohio	76,773	64	83.4	79,557	55	69.1	Trenton, N. J.	124,247	153	123.1	124,643	163	130.8
Lancaster, Pa.	61,434	123	200.2	62,094	92	148.2	Troy, N. Y.	72,925	154	211.2	72,997	130	178.1
Lansing, Mich.	82,987	72	86.8	85,027	87	101.1	Union City, N. J.	66,948	32	47.8	70,632	46	65.1
Lawrence, Mass.	87,066	82	94.2	87,954	88	100.1	Utica, N. Y.	103,387	135	130.6	104,119	159	152.7
Lexington, Ky.	46,654	49	105.0	47,062	68	144.5	Waco, Tex.	55,284	44	79.6	55,980	60	107.2
Lincoln, Neb.	80,496	116	144.1	82,524	108	130.9	Washington, D. C.	497,315	723	145.4	502,091	740	147.4
Little Rock, Ark.	84,872	104	122.5	85,670	97	113.2	Waterbury, Conn.	101,684	72	70.8	102,476	100	97.6
Long Beach, Cal.	160,851	176	109.4	169,215	136	80.4	Wheeling, W. Va.	62,847	86	136.8	63,875	96	151.5
Los Angeles, Cal.	1,382,066	1,737	125.7	1,446,074	1,784	123.4	Williamsport, Pa.	47,808	66	138.1	48,732	61	125.2
Louisville, Ky.	323,621	385	119.0	330,677	259	78.3	Wilmington, Del.	105,814	121	114.4	105,466	133	126.1
Lowell, Mass.	97,507	122	125.1	96,295	115	119.9	Winston-Salem, N. C.	82,597	33	40.0	85,93		

creased from 140.9 in 1931 to 98.9 in 1932; in Lancaster, Pa., the rate decreased from 200.2 to 148.2; in Salt Lake City, from 133.7 to 102.5; in Long Beach, Cal., from 109.4 to 80.4; in Troy, New York, from 211.2 to 178.1, etc.

Summarising the changes in the general death rate for cancer for certain countries, the following figures will be of interest. For the United States Registration area the death rate from cancer increased from 86.2 per 100,000 in 1922 to 107.1 in 1932, an increase of 20.9 per 100,000. For England and Wales the rate increased from 122.9 in 1922 to 151.0 in 1932, or 28.1 per 100,000. In the Irish Free State the rate increased from 83.5 in 1922 to 111.4 in 1932, or 27.9 per 100,000. In Northern Ireland, the rate increased from 100.2 in 1922 to 124.1 in 1932, or 23.9 per 100,000. In Scotland, the rate increased from 125.0 in 1922 to 153.0 in 1932, or 28.0 per 100,000. Thus while there are important variations in the rate of increase, the same trend is exhibited in all the countries utilised for the present purpose.

To make the international comparison as complete as possible for the time being, I give below a tabulation of cancer deaths in fifteen Canadian cities for the two years 1932 and 1933. The combined rate for these cities is shown to have increased from 118.5 per 100,000 in 1932 to 127.0 in 1933, a very marked increase when compared with the corresponding increase for American cities from 117.1 to 118.3 during the same two years. The rate of increase was heaviest for Montreal where the local rate increased from

	Average Per Cent		Average Per Cent		Average Per Cent
Stomach	1	Intestine	2	Tongue	10
Liver Gall Bladder	1	Rectum	2	Bladder	15
Prostate	1	Bone Sarcoma	2	Intraoral	15
Pharynx	1	Brain	2	Lip	50
Ovary	1	Larynx	5	Skin	60
Kidney Adrenal	1	Testis	5	Pancreas	?
Thyroid	1	Breast	9	Lung	?
Lymphosarcoma	1	Uterus	10	Esophagus	?

108.2 in 1932 to 121.4 in 1933. A marked decline in local rates occurred in Regina and in Saskatoon, but for this I can offer no explanation in the

to our American rates as was to be expected.

I amplify the foregoing with a tabulation of changes in the death rate for certain specified types of cancer for the United States and England and Wales, comparing the rates per 100,000 for the year 1927 with those for 1931.

CANCER DEATH RATES, UNITED STATES AND ENGLAND AND WALES, 1927 AND 1931

	United States		England and Wales	
	1927	1931	1927	1931
Lip	0.4	0.5+	0.79	1.06
Tongue	0.3	0.32	2.96	2.11
Mouth	0.0	0.0	1.1	1.57
Jaw	0.0	0.0	1.77	1.50
Pharynx	0.0	0.0	1.05	1.14+
Oesophagus	1.6	1.6	5.28	5.91+
Stomach	22.2	23.1	26.7	28.68+
Liver and Gall Bladder	9.2	9.6	9.46	8.89
Intestines (exc. rectum)	9.0	9.6	18.46	17.94
Rectum and anus	4.1	4.6+	11.25	12.26+
Ovary & Fallopian Tube	1.3	1.7+	2.78	3.26+
Uterus	12.1	12.1	11.27	10.86
Vulva and Vagina	0.4	0.4	0.88	0.96+
Breast	8.8	9.6+	14.55	16.11+
Skin	2.5	2.5	2.71	2.91
Larynx	0.7	0.8+	2.58	2.80+
Lungs & Pleura	1.9	2.4+	2.43	4.70+
Pancreas	2.2	2.6+	3.49	3.77+
Kidneys and Supraparenals	1.2	1.4+	1.36	1.54+
Prostate	3.5	4.1+	2.98	3.83+
Bladder	3.0	3.2+	2.82	3.31+
Brain	0.5	0.7+	0.39	0.54+
Bone (jaw excepted)	1.3	1.4+	1.79	1.79
Testes	0.2	0.3+	0.37	0.33

absence of complete statistical analyses of the local experience. But broadly speaking the Canadian rates conform

I have not the space to reflect upon the foregoing interesting comparison which shows some marked variations in the local incidence of cancer in the two countries compared. But it is only by such studies that light will be thrown upon the cancer enigma which becomes more puzzling as the facts become available for different areas and are tabulated in accordance with standardised methods of statistical practice.

I conclude this review with some interesting observations from the recent address by Prof. James Ewing on "The Prevention of Cancer" contributed to the Proceedings of the First International Congress for the Scientific and Social Fight Against Cancer, Madrid, 1933. Professor Ewing gives the estimated rate of five year cures for important organs and parts as shown in above table.

This table shows conclusively that cancer of the lip and skin offer at the present time the most hopeful outlook, while cancer of the stomach still yields a disappointing rate of only 1 per cent of cures after five years' duration. It requires to be said, however, that all these estimates are subject to correction in the light of local experience, certain institutions showing decidedly better results than indicated by the general averages as estimated by Professor Ewing. But even at its best the present outlook for a permanent cure in cancer is still very precarious. New methods of early diagnosis and new methods of treatment must be developed before much better results can be achieved.

CANCER IN 15 CANADIAN CITIES, 1932 AND 1933

	Rate per 100,000			1933		
	Population	Deaths	Rate	Population	Deaths	Rate
Brantford	30,122	35	116.2	30,184	41	135.8 +
Calgary	85,365	98	114.8	87,371	104	119.0 +
Edmonton	80,828	112	138.6	82,829	139	167.8 +
Hamilton	153,504	160	104.2	154,276	174	112.8 +
London	72,031	93	129.1	73,037	90	123.2 -
Montreal	830,167	898	108.2	849,409	1,031	121.4 +
Ottawa	126,698	140	110.5	128,412	146	113.7 +
Quebec	132,494	161	121.5	135,885	182	133.9 +
Regina	54,896	62	112.9	56,756	37	65.2 -
Saskatoon	44,750	45	110.6	46,479	26	55.9 -
Toronto	638,152	835	130.8	648,721	918	141.5 +
Vancouver	258,116	307	118.9	270,925	408	150.6 +
Victoria	61,239	111	181.3	61,239	93	151.9 -
Windsor	65,390	47	71.9	67,827	50	73.7 +
Winnipeg	221,437	280	126.4	225,287	268	119.9 -
	2,855,150	3,384	118.5	2,918,337	3,707	127.0 +