A Standardized Rate for Mortality Defined in Units of Lost Years of Life

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THE recent publication of Dickinson and Welker [1] entitled *What is the Leading Cause of Death? Two New Measures,* which defines and discusses in detail the concepts of "life years lost" and "working years lost" has stimulated renewed interest in the problem of measurement of mortality. In rather loose terminology "life years lost" can be described as the total number of years lost through the failure of individuals to live some allotted life span, while "working years lost" refer to those falling between the productive ages between 20 and 65. It has long been recognized that a count of deaths alone did not give a complete picture of mortality and measures have been sought which would make some allowance for the widely held intuitive idea that death at age 70, for example, does not represent as great a loss to society as death at age 35. In a book published in 1936, Dublin and Lotka [2] devoted some space to a consideration of years of life forfeited as a result of individual causes. More recently, articles by Dempsey,[3] Greville,[4] and Robinson [5] have appeared, which set forth numerical statements of the potential years of life lost as represented by persons dying from certain causes. This approach is closely related to such questions as the total person-years of life experienced by a group of tuberculosis or cancer patients subsequent to onset or diagnosis of the disease.

So far as the writer can determine there has never been an attempt to tie in this concept of years of life lost with the computation of standardized death rates. It has seemed worth exploring the possibility, to see whether a serviceable new mutation of the standardized death rate can be developed, applicable to mortality from all causes and from certain specific causes. The object of this note is to discuss briefly some of the points which would bear on the construction of such a standardized rate of mortality (in units of lost years of life) by introduction of an allowance for years of life lost, to exhibit a few alternative sets of weighting factors which could be applied to age-specific death rates for this purpose, and to report on some results obtained from trial computations using these weighting factors.

For brevity, the proposed new family of rates will be referred to hereafter as standardized rates of lost years of life to distinguish them from the conventional standardized death rate.

The question Dickinson and Welker set out to answer was the number of life years and working years lost which could be attributed to certain causes of death in known populations—the population of the United States as constituted in 1930, 1935, 1940, and 1945. Their results were intended to take account of, and to be influenced by, the age distribution of the populations observed and would seem to be analogous to crude death rates, based on the number of deaths alone. To bind their figures even more closely to a specific time and place, they used in their calculations life expectancies derived from mortality rates prevailing at the time of observation.

GENERAL PRINCIPLES IN CONSTRUCTING STANDARDIZED RATES

If the concept of lost years of life is to achieve maximum usefulness, it should be incorporated in a method designed to facilitate comparisons between different areas and time periods, in the same manner as standardized death rates are used to supplement crude death rates. Three desirable qualities for standardized death rates would seem to apply also to standardized rates of lost years of life:

1. The use of constant weighting factors to eliminate sources of variation other than age-specific mortality rates
2. Ease of computation
3. A concept readily grasped by workers in public health and allied fields

One method of arriving at a set of constant weights is to duplicate the procedure now followed for computing standardized death rates (age adjusted rate, direct method) and deal not with the actual number of deaths distributed by age, sex, and cause, but with the number of deaths in a theoretical standard population obtained by multiplying the specific death rates by the standard population. The second step would be to weight the deaths in the theoretical standard population by a figure representing amount of life (in years) lost, for which purpose the value for expectation of life at age of death has been proposed. Since one arbitrary element —the standard population—has been introduced, the further selection of fixed standard values for expectation of life, instead of permitting the values to vary as observed, would not appear to present any great stumbling block. The justification for this procedure is the purpose of getting rates for comparison, an objective which must be firmly fixed in mind and not confused with the problem of getting a rate descriptive in all respects of the population observed.

MEASURING LOSS OF LIFE

For some purposes, the number of years of life lost up to some arbitrary age limit, say 65 or 75 years (possible retirement ages), may be more meaningful than the total number of years of life lost. Dickinson and Welker recognized this distinction in their definition of "working years lost," although the desirability of further fixing a lower limit at age 20 may be questioned. Such considerations can readily be introduced into the calculation of standardized rates. While age limits, marking cut-off points for years of life lost, could theoretically be fixed anywhere, the conventional age groupings for tabulating deaths and calculating death rates would make it impractical to set them at ages other than 65, 75, and 85 years.

Numerical examples shown in Table 4 demonstrate that the introduction of an upper age limit influences the ranking of important causes of death based on the criterion of years of life lost. The problem here is not on the mechanics of rate construction but in definition of terms and deciding what is to be measured. The choice of a rate based on one criterion would not necessarily preclude the use of another rate under different circumstances.

ALTERNATIVE APPROACHES TO MEASUREMENT OF LOSS OF LIFE

In allowing for years of life lost, it may be appropriate to ask whether life expectations taken from a life table must be used when an upper age limit is introduced in computing loss. When a total amount of years of life lost is desired without reference to an upper age limit, there is, of course, no alternative to the use of life table expectations.

Life expectations represent a projection from a definite schedule of age-specific mortality. A more direct value for years of life lost would be the difference between the highest age under consideration and the age at death. This difference can be construed to represent the maximum value for expectation of life attainable, if no mortality occurred in intervening ages. The maximum value is a stable figure and for the purposes of choosing a standard, might be preferred to a selection from any particular life table. The direct manner in which the maximum values can be obtained and the relative ease with which they can be explained to persons seeking information about the method and its assumptions, are also desirable attributes. The injection of life table computations for expectation of life unavoidably obscures a description of the method.

Inspection of the differences between life table values and the maximum attainable expectation (for fixed upper age limits) indicates that while there would be some changes in the absolute values for years of life lost, the relative ranking and position of causes of death would remain almost unaltered. This is illustrated in the following example which compares the years of working life lost between ages 20 and 65 in the United States (1945) as reported by Dickinson and Welker, using life table expectations, with alternate computations from the same basic data using the maximum attainable expectation. The percentage distributions were almost identical in the two sets of data. Further results in Tables 2 and 3 show that for standardizing rates to yield results for comparisons, the distinction between life table expectations and maximum possible expectations is of no great moment.

Working Years Lost (in thousands)

	Dickinson and Welker [1]		*Computation Based on Maximum Attainable Expectation*	
	Number	*Per cent*	*Number*	*Per cent*
All causes	13,913	100.0	15,720	100.0
Accidents	1,760	12.6	1,980	12.6
Heart	1,684	12.1	1,892	12.0
Pneumonia	1,123	8.1	1,274	8.1
Cancer	1,027	7.4	1,155	7.3
Tuberculosis	1,019	7.3	1,144	7.3
Nephritis	431	3.1	484	3.1
Cerebrovascular	414	3.0	465	3.0

ZERO MORTALITY ASSUMPTION

In estimating the years of life lost attributed to individual causes of death, the question of how to handle mortality at older ages from the same cause arises. There is some logical basis for disregarding mortality at older ages from the same cause in computing years of life lost, attributed to a specific cause, and such a procedure has been termed the zero mortality assumption.

However, the zero mortality assumption would require different sets of weights for individual causes, which would be incompatible with the general theory of standardized rates. With this assumption it would be quite possible in considering one cause of death to have an expectation of life at age x well in excess of the general expectation of life at age x. Also, the concept is meaningless when applied to deaths from all causes and a standardized rate of years of life lost for all causes is the one which would be most often desired. Dickinson and Welker felt that it was unnecessary to take account of zero mortality assumptions in arriving at estimates of loss of life for observed populations and it seems that for the purpose of computing standardized rates this question may be safely dismissed.

SUGGESTED WEIGHTING FACTORS

A standardized rate of lost years of life can be based on a system of double weighting of the age-specific death rates, one set of weights for the standard population and the other representing an amount of lost future life. The weights need not be applied in two separate operations, but can be combined for the purposes of computation, to reduce calculating machine labor by accumulating results in the dials and eliminating the need for posting individual cross-products.

In the following illustrations, all weighting factors were based on the same standard population derived from the *United States Life Tables for 1939–1941* [6] to facilitate comparisons. Needless to say, any other standard population could be selected.

The computations below show how weights used in connection with years of life lost up to age 65 were obtained, using the allowance for maximum expectation of life (both sexes combined for brevity):

Age	*Standard Population (1)*	*Maximum Expectation of Life (65 Yrs. Minus Class Midpoint) (2)*	*Total Potential Years of Life Lost (in thousands) Col. 1 × Col. 2 (3)*
All ages	1,000,000	—	30,059
Under 1 year	15,100	64.5	974
1–4	59,400	62	3,683
5–14	147,200	55	8,096
15–24	145,100	45	6,530
25–34	141,400	35	4,949
35–44	135,900	25	3,398
45–54	126,000	15	1,890
55–64	107,800	5	539
65–74	77,700	—	—
75–84	36,800	—	—
85 years and over	7,600	—	—

When life expectations (e^o_x) derived from a life table are taken in conjunction with a standard population (L_x) from the same life table, the combined weights may be interpreted in terms of another life table function (T_x) and found by reference to the tabulated values of T_x. It is well known that T_x is the total number of years lived after exact age x by the l_x persons reaching this exact age in the life table. In the problem at hand, the ages of persons would be distributed over each year of age instead of being concentrated at the start of a year of life. Therefore, the total number of years to be lived in the future by the L_x persons in the life table population between exact ages x and $x + 1$ is the average value of the "T" function over the year of age x to $x + 1$, which is approximately $\frac{1}{2}(T_x + T_{x+1})$ or $T_x - \frac{1}{2}L_x$.

A summation of $T_x - \frac{1}{2}L_x$ will thus give the desired weights for the various age periods after adjustment by a factor which scales down the total life table population to a figure of 1,000,000 used as the standard population for convenience in computation. Weights for total future years of life expected, or for

TABLE 1

Summary of Proposed Weights (Illustrative) Which Could be Applied to Age-Specific Death Rates for Purpose of Calculating Standardized Rate of Lost Years of Life

		Weights: Total Years of Life (in thousands) Remaining to Persons in Standard Population Between Indicated Age and				
		Age at Death	Age 75		Age 65	
Age	Standard Population * (in thousands)	Based on Life Table Expectation † 1	Based on Life Table Expectation † 2	Based on Maximum Value of Expectation ‡ 3	Based on Life Table Expectation † 4	Based on Maximum Expectation of Life ‡ 5
Both sexes	1,000.0	35,963	32,370	39,227	26,962	30,059
Under 1 yr.	15.1	993	948	1,125	870	974
1–4	59.4	3,820	3,643	4,277	3,332	3,683
5–14	147.2	8,518	8,073	9,568	7,296	8,096
15–24	145.1	7,056	6,610	7,981	5,834	6,530
25–34	141.4	5,622	5,177	6,363	4,400	4,949
35–44	135.9	4,235	3,789	4,757	3,013	3,398
45–54	126.0	2,919	2,475	3,150	1,697	1,890
55–64	107.8	1,742	1,297	1,617	520	539
65–74	77.7	803	358	389	—	—
75–84	36.8	227	—	—	—	—
85 and over	7.6	28	—	—	—	—
Males	497.8	17,490	15,994	19,905	13,503	15,292
Under 1 yr.	7.7	494	475	574	439	497
1–4	30.4	1,899	1,825	2,189	1,682	1,885
5–14	75.2	4,220	4,034	4,888	3,676	4,136
15–24	74.0	3,473	3,287	4,070	2,929	3,330
25–34	71.9	2,743	2,557	3,236	2,199	2,517
35–44	68.8	2,039	1,853	2,408	1,495	1,720
45–54	63.0	1,376	1,191	1,575	832	945
55–64	52.4	795	609	786	251	262
65–74	35.8	349	163	179	—	—
75–84	15.7	92	—	—	—	—
85 and over	2.9	10	—	—	—	—
Females	502.2	18,473	16,376	19,322	13,459	14,767
Under 1 yr.	7.4	499	473	551	431	477
1-4	29.0	1,921	1,818	2,088	1,650	1,798
5-14	72.0	4,298	4,039	4,680	3,620	3,960
15-24	71.1	3,583	3,323	3,911	2,905	3,200
25-34	69.5	2,879	2,620	3,127	2,201	2,432
35-44	67.1	2,196	1,936	2,349	1,518	1,678
45-54	63.0	1,543	1,284	1,575	865	945
55-64	55.4	947	688	831	269	277
65-74	41.9	454	195	210	—	—
75-84	21.1	135	—	—	—	—
85 and over	4.7	18	—	—	—	—

* Derived from life table population (L_x) of *United States Life Tables, 1939–1941.* An allowance for a sex ratio at birth of 106 males per 100 females was made.

† As calculated from *United States Life Tables, 1939–1941.*

‡ Assuming no mortality in intervening years. Values used are upper age limit (age 75 or 65) minus class mid-point.

future years of life up to some specified age, such as 65 or 75 years, can readily be obtained as desired.

Table 1 gives five sets of proposed weights which could be applied to age-specific death rates for the purpose of calculating a standardized rate of lost years of life. The weights represent the total years of life which would be lost (under certain assumptions), if everyone in each age and sex group within the standard population died. When multiplied by the age-specific death rates, the results are expressed as the number of years of life lost due to mortality in the standard population. The results are precisely those which would be obtained by multiplying the deaths in the standard population by the expectation of life for each death.

A standardized death rate analogous to the measure of loss of life between 20 and 65 years as proposed by Dickinson and Welker has not been attempted here. Since most public health workers, if not economists, would attribute equal importance to life prior and subsequent to age 20, the weighting factors for loss of life up to 65 and 75 years given in Table 1 take full account of years lost prior to age 20.

PRESENTATION OF SOME STANDARDIZED RATES OF MORTALITY

The weighting factors in Table 1 (both sexes combined) were applied to age-specific death rates selected from the publication, *Vital Statistics Rates in the United States, 1900–1940.*[7] Table 2 presents standardized rates of loss of life in terms of years of life lost per 1,000 persons in the standard population for mortality from all causes for Connecticut 1900–1940 and, as of 1940, for four states in different sections of the country. Since the standard population was fixed at 1,000,000 people, the standardized rates are obtained by rounding off the total years of life lost to the nearest thousand. The conventional standardized death rate per 1,000 population is also shown.

All five standardized rates of lost years of life exhibit much greater variation than the standardized death rate. Between 1900 and 1940, the standardized death rate dropped 37 per cent in Connecticut while the declines in the standardized rates of lost years of life ranged from 60 to 73 per cent. Similarly, the difference between the standardized death rates for Arizona and Minnesota was 24 per cent while for the other measures it ran from 44 to 56 per cent.

Such results are not surprising and could have been predicted *a priori* by persons familiar with the pattern of age-specific death rates. The percentage improvement in mortality at younger ages has exceeded that at older ages during the past 40 years. Similarly, the difference, percentagewise, between states with good and poor mortality records has been greatest at the younger ages. The introduction of an allowance for years of life lost increases markedly the influence of mortality at younger ages on the composite rate.

The weighting factors were also tried

TABLE 2

Standardized Rates of Lost Years of Life for Deaths from All Causes

		*Standardized Rate of Lost Years of Life * (per 1,000 Population)*				
			Years Lost to Age 75		*Years Lost to Age 65*	
	Standardized Death Rate (per 1,000 Population)	*Total Years Lost* 1	*From Life Table Expectation* 2	*From Maximum Value of Expectation* 3	*From Life Table Expectation* 4	*From Maximum Value of Expectation* 5
Connecticut						
1900	23.7	577	472	568	378	421
1910	22.0	497	398	479	311	346
1920	20.2	426	333	402	255	284
1930	16.9	300	219	266	156	174
1940	14.9	230	157	190	104	115
Per cent change from 1900 to 1940.....	—37%	—60%	—67%	—67%	—72%	—73%
Arizona, 1940.......	17.7	370	289	350	220	245
Florida, 1940.......	17.3	321	241	293	174	194
Oregon, 1940.......	14.7	229	157	190	108	120
Minnesota, 1940....	13.5	208	142	171	97	108
Per cent difference, Minnesota/Arizona.	—24%	—44%	—51%	—51%	—56%	—56%

* Column numbers correspond to numbers assigned to weighting systems in Table 1.

TABLE 3

Standardized Rates of Lost Years of Life for Deaths from Tuberculosis, Diseases of the Heart, and Pneumonia and Influenza

	Standardized Death Rate (per 100,000 Population)	Standardized Rate of Lost Years of Life * (per 1,000 Population)				
			Years Lost to Age 75		Years Lost to Age 65	
		Total Years Lost 1	From Life Table Expectation 2	From Maximum Value of Expectation 3	From Life Table Expectation 4	From Maximum Value of Expectation 5
			Tuberculosis			
U. S. Death Reg. Area						
1920	122.8	38.0	33.4	40.9	26.8	29.9
1940	49.8	13.7	11.7	14.4	9.0	10.1
Per cent change	—59%	—64%	—65%	—65%	—66%	—66%
Arizona, 1940	200.4	55.5	47.8	58.8	36.8	41.1
Minnesota, 1940	30.5	7.5	6.3	7.7	4.7	5.2
Per cent difference	—85%	—86%	—87%	—87%	—87%	—87%
			Diseases of the Heart			
U. S. Death Reg. Area						
1920	331.2	39.8	23.0	27.9	12.6	13.9
1940	485.4	53.9	29.2	35.5	14.2	15.6
Per cent change	+47%	+35%	+27%	+27%	+13%	+12%
Arizona, 1940	407.7	46.6	26.0	31.6	12.7	13.9
Minnesota, 1940	404.0	41.8	20.9	25.2	9.5	10.4
Per cent difference	—1%	—10%	—20%	—20%	—25%	—25%
			Pneumonia and Influenza			
U. S. Death Reg. Area						
1920	261.4	70.8	59.8	72.1	48.7	54.3
1940	101.0	21.9	17.4	20.8	14.0	15.6
Per cent change	—61%	—69%	—71%	—71%	—71%	—71%
Arizona, 1940	162.1	44.6	37.6	44.8	31.8	35.5
Minnesota, 1940	92.6	15.3	10.8	12.9	8.3	9.2
Per cent difference	—43%	—66%	—71%	—71%	—74%	—74%

* Column numbers correspond to numbers assigned to weighting systems in Table 1.

out on three causes with different patterns of age-specific mortality rates—tuberculosis, diseases of the heart, and pneumonia (all forms) and influenza. The U. S. Death Registration Area rates for 1920 and 1940 and the 1940 rates for Arizona and Minnesota were the examples selected for Table 3.

For tuberculosis, the per cent changes in the standardized death rates were almost the same as those determined from the various standardized rates of lost years of life.

The apparent increases registered in recent years for mortality from diseases of the heart have been concentrated in the older ages. For the death registration states there was actually a drop in the death rates from this cause for ages up to 35 between 1920 and 1940. Since the standardized rates of lost years of life are influenced in lesser degree by mortality at older ages, the per cent rise for the U. S. Death Registration Area, as indicated by the conventional standardized death rate, was greater than for the computation taking into account years of life lost. This relationship corresponds to the cases where the standardized rates of lost years of life showed greater declines than the standardized death rate. For instance, if the mortality increases at the older ages had been on a small enough scale to permit the standardized death rate for diseases of the heart for 1940 to be below that for 1920, the declines between 1920 and 1940 as shown by the standardized rates of lost years of life would have been of still greater magnitude. The standardized rates of lost years of life accentuate the differences between areas for mortality from disease of the heart.

The results for pneumonia and influenza followed those obtained for all causes and diseases of the heart.

With respect to the five alternate rates for lost years of life the percentage changes were greatest when age 65 was set as the upper limit for considering years of life lost, followed by age 75 as the upper limit, the total years of life lost ranking last. For ages 75 and 65 as upper limits, the use of life table expectations and the maximum possible values of life expectations led to almost identical comparisons.

The relative ranking of important causes of deaths is altered when standardized rates invoking the concept of lost years of life are employed. Table 4 summarizes the results obtained for the seven leading causes of death in the United States as of 1940. Diseases of the heart and cancer accounted for 30.4 and 11.3 per cent of the standardized death rate respectively, but contributed only 20.0 and 9.1 per cent of the standardized rate of total life years lost and even less to the years of life lost up to ages 75 and 65. For total life years lost, pneumonia (including influenza) and accidents ranked third and fourth respectively.

Considering years of life lost up to age 75, diseases of the heart retained first place, followed by accidents, pneumonia, and cancer. For years of life lost up to age 65, the margin between diseases of the heart and other causes diminishes further, and diseases of the heart, pneumonia, and accidents stand almost in a triple tie. The shifts in mortality since 1940, particularly the decline in the pneumonia death rate, would alter these standings, had they been computed as of 1948.

The percentage distribution of total life years lost in the population observed (United States, 1940) as reported by Dickinson and Welker has been given for comparison. The differences be-

TABLE 4

Standardized Rates of Lost Years of Life for Seven Leading Causes of Death. United States, 1940

	Standardized Rate of Lost Years of Life * (per 1,000 population)						
			Years Lost to Age 75		Years Lost to Age 65		
Cause of Death	*Total Years Lost* 1	*Total Years Lost as Taken from Dickinson and Welker* [1]	*From Life Table Expectation* 2	*From Maximum Value of Expectation* 3	*From Life Table Expectation* 4	*From Maximum Value of Expectation* 5	*Standardized Death Rate per 1,000 Population*
All causes	268		192	232	136	151	15.94
Diseases of the heart	53.9		29.2	35.5	14.2	15.6	4.85
Cancer	24.4		15.5	19.0	8.1	8.9	1.80
Pneumonia, influenza	21.9		17.4	20.8	14.0	15.6	1.01
Accidents	21.4		17.4	21.1	13.7	15.2	0.94
Nephritis	15.2		8.3	10.1	4.3	4.8	1.36
Intracranial lesions	16.2		8.2	9.9	3.7	4.0	1.54
Tuberculosis	13.7		11.7	14.4	9.0	10.1	0.50
			Per cent Distribution				
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Diseases of the heart	20.0	16.3	15.2	15.3	10.5	10.3	30.4
Cancer	9.1	8.0	8.1	8.2	6.0	5.9	11.3
Pneumonia, influenza	8.2	8.8	9.0	8.9	10.3	10.3	6.3
Accidents	8.0	9.3	9.0	9.1	10.1	10.1	5.9
Nephritis	5.7	4.7	4.3	4.3	3.2	3.2	8.5
Intracranial lesions	6.0	4.7	4.3	4.3	2.7	2.7	9.7
Tuberculosis	5.1	6.1	6.1	6.2	6.7	6.7	3.1

* Column numbers correspond to numbers assigned to weighting systems in Table 1.

tween their percentages and those for the corresponding standardized amount (No. 1) are due to the older age distribution of the standard population, the Dickinson and Welker figures being lower for diseases of the heart, cancer, nephritis, and intracranial lesions. Since the age distribution of the United States may be expected ultimately to approach that of the standard population, the desirability of standardizing is evident, if one wishes to eliminate the age distribution of the population as a source of variation in these rates.

COMMENT

The conventional standardized death rate is influenced by the relative stability of the mortality rates at the older ages and does not permit sufficient weight to be given to the differences in mortality at younger ages, which are so important when viewed from the aspect of amount of life lost. The suggested weighting factors for standardized rates of years of life lost have been based on a concept which is readily understood and appear just as legitimate for use in computations as the standard population itself. As is true of the standardized death rates, only the age-specific death rates are needed for the computation of these rates. All the assumptions are taken care of in the weighting factors and the method lends itself to straightforward computations which can be done by relatively untrained clerks. While there is nothing inherent in any adjusted rate which is not present in the detailed age-specific death rates, the standardized death rate has fulfilled a need for reducing detail into a summary figure and such a purpose can also be served by a standardized rate of lost years of life. Instead of replacing the standardized death rate with one of these new measures, it may prove helpful to present both types of standardized rates as complements to each other.

The proposed standardized rates of lost years of life, particularly those with cut-off points at 65 and 75 years, recognize implicitly that deaths are postponable but not preventable. One objective of medicine and public health is to postpone death. A rate which measures this objective and can approach zero as deaths are prevented until a time subsequent to a target age has appeal as an adjunct to death rates used for general demographic purposes.

Of the five different methods of calculating a standardized rate of years of life lost considered, the writer's preference is No. 3, with a cut-off point at 75 years and counting the entire difference between age 75 and age at death. This rate gives great weight to the postponement of death factor and age 75 is preferred to age 65, since the goal of keeping people alive until 65 might be thought too modest. Actually, the results obtained from any of the five suggested schemes are roughly comparable and all accentuate differences in time and between areas in a more pronounced manner than the standardized death. rate. The fine points as to the relative merits of any of the methods proposed or of the numerous others which could be invented are not of great significance compared to the benefits to be gained from uniform usage. In view of the inability to gain complete agreement on a standard population for calculating standardized death rates, no utopia of complete agreement on a method for standardizing for years of life lost can be expected. Ultimately, if there is any merit in the procedure, some common ground may be reached through the interchange of ideas and practices.

The unit of years of life lost and the unfamiliar numerical scale of values used should prove no great impediment. All scales are relative and with experience there is no reason why these results could not be interpreted as readily as those for standardized death rates.

Reference to a standardized rate of lost years of life may be an antidote for attitudes shaped unconsciously by reliance on rates dependent on a count of deaths alone. From the conventional death rates everyone now draws the conclusion that the most important public health problem of the day is the control of mortality from chronic diseases associated with old age. While this may be true, it should not be permitted to overshadow the fact that there is plenty of room for effecting savings of potential years of life at younger ages, particularly from deaths due to accidents.

SUMMARY

Methods for computing a standardized rate of mortality which takes into account age at death and potential years of life lost, have been discussed. Such rates may be obtained by developing weighting factors to be applied directly to age-specific death rates. Standardized rates (of lost years of life) have been computed for certain areas and time periods and found to reveal more striking differences than those obtained from comparisons of the conventional standardized death rates.

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