

OREGON PUBLIC HEALTH DIVISION • OREGON HEALTH AUTHORITY

WHAT IS KILLING OREGONIANS: THE PUBLIC HEALTH PERSPECTIVE(S)

Death be not proud; though some have called thee mighty and dreadful...

John Dunne, 1572

In the United States, life expectancy at birth has increased dramatically over the past century — from 49.2* years in 1900 to 78.7 years in 2012.† Moreover, causes of death have also changed dramatically, from infectious diseases, such as pneumonia and influenza, tuberculosis, and diarrhea in 1900, to chronic diseases, such as heart disease, cancer, lung disease, and stroke in 2000.

Since, to our best knowledge, mortality remains 100%, we devote this *CD Summary* to the topic of “What is killing Oregonians?” and provide several answers to that question.

UNDERLYING CAUSES OF DEATH

The “underlying cause of death” listed on the death certificate and corresponding ICD-10 code serve as the basis for mortality statistics. The 10 leading causes of death for Oregonians are shown in Table 1. The top five — cancer, heart disease, chronic lower respiratory disease (CLRD), cerebrovascular disease, and unintentional injuries — accounted for 61% of all deaths in 2009.

Table 1 also presents the U.S. death rates (age-adjusted) and the Oregon death rates by sex for comparison purposes. Of note, Oregon’s death rates were higher than those of the U.S. for suicide (36% higher), liver disease (28%), diabetes (21%), stroke (13%), and chronic lower respiratory disease (10%). In contrast, Oregon’s death rates were lower than the U.S. rates for heart disease (21%) and pneumonia and influenza (26%).

While these numbers give us an idea of overall mortality in Oregon and how we compare to the rest of the country, we gain additional insight by comparing death rates by sex and age. With the exception of Alzheimer’s, the

* www.cdc.gov/nchs/data/dvs/lead1900_98.pdf

† See Volume 50 at

www.cdc.gov/nchs/products/nvsr.htm

Table 1. Leading causes of death, U.S. and Oregon residents, 2009^a

Cause of death in rank order	U.S. overall rate ^b	Oregon			
		Overall		Men	Women
		Rate ^b	No.	Rate ^b	Rate ^b
Malignant neoplasms	173.2	176.8	7,470	210.3	152.4
Heart disease	180.1	143.0	6,226	180.8	112.2
Chronic lower respiratory disease	42.3	46.4	1,935	51.0	43.6
Cerebrovascular disease	38.9	44.0	1,900	46.1	42.1
Unintentional injuries	37.3	38.3	1,577	50.6	27.0
Alzheimer’s disease	23.5	27.7	1,212	23.5	30.1
Diabetes melitus	20.9	25.3	1,069	29.7	21.4
Suicide	11.8	16.1	640	24.8	7.9
Influenza & pneumonia	16.2	12.0	509	13.8	10.5
Liver disease & cirrhosis	9.2	11.8	504	15.8	8.1
Total	741.1	739.7	31,547	860.4	637.8

^a 2009 is the most recent year for which U.S. data are available. U.S. data from CDC WONDER; Oregon data from Oregon death certificate data.

^b Age-adjusted rates per 100,000 population

age-adjusted death rates are higher for men than women, with the greatest disparities seen in deaths from suicide (213% higher), liver disease (95%), unintentional injury (87%), heart disease (61%), and cancer (38%).

Since most people who die are in the ≥75 age group, *overall* causes of death are skewed by age. Examining the leading cause of death by age group shows: perinatal conditions for infants; unintentional injuries for those aged 1–44 years; cancer for those aged 45–84 years; and heart disease for those ≥85 years of age.

SOCIETAL COST

Because leading causes of death can vary by age, mortality rates by underlying cause alone do not show the full impact of certain causes of death upon society. The causes of death that occur in younger age groups, such as injuries, have a greater “cost” to society in terms of years of potential life lost (YPLL).‡

‡ YPLL is a way of quantifying the cost of premature mortality by measuring the number of years between age at death and a set standard age. For instance, if the standard is set at 75 years, a death at age 21 results in 54 years of potential life lost.

Figure 1 (*verso*) compares causes of death by YPLL before age 75 years with the number of deaths. Injury ranks #3 in number of deaths but #1 in terms of YPLL. While injuries accounted for 7.7% of all Oregon resident deaths in 2009, they accounted for 25.3% of total YPLL.

RISK BEHAVIORS

Some risk factors for dying can’t be changed, like sex, increasing age and family history (genetics). However, some behaviors are risky, and those we *can* do something about. These risk behaviors have been described as “actual causes of death.”^{1,2}

Estimates for mortality related to risk factors are calculated using Oregon death certificate data in conjunction with cause attributable fractions, where applicable. The three leading risk factors that contribute to death in Oregon are tobacco use, obesity (including poor diet and physical inactivity), and alcohol use (see Figure 2, *verso*).

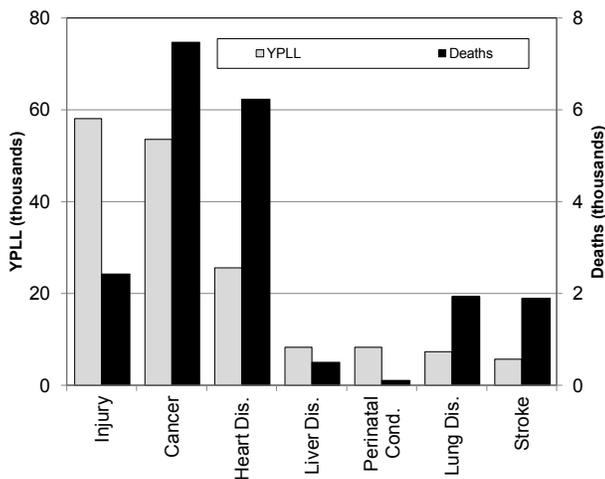
Tobacco use remains the leading cause of preventable death among Oregonians, accounting for approximately 7,000 fatalities in 2009 (22% of all deaths); these included 91% deaths from bronchitis



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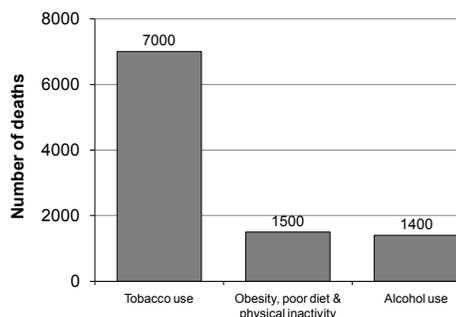
Figure 1. Leading causes of death and years of potential life lost (YPLL) before age 75, Oregon residents, 2009



and emphysema, 81% of deaths from chronic obstructive pulmonary disease and 79% of deaths from lung cancer. The percent of Oregonians who smoke is decreasing, which should result in a reduced number of premature deaths due to tobacco in the future.

Obesity, poor diet and physical inactivity contributed to an estimated

Figure 2. Leading fatal behaviors, Oregon residents, 2009



mental disorders due to alcohol use, motor vehicle crashes, suicide and fall injuries. Implementing evidence-based interventions aimed at curbing alcohol overconsumption is needed to prevent these premature deaths.⁴

CONCLUSION

The answer to the question “What is Killing Oregonians?” depends on what you are truly asking. The leading underlying causes of death are cancer, heart disease, chronic lung disease, stroke, and unintentional injuries. The leading cause of Years of Potential Life Lost (as a marker for societal burden) is

§ Considerable controversy surrounds estimates for obesity-related deaths. In the vein of dueling CDC experts, Mokdad, et al,^{1,2} estimated that approximately 15.2% of U.S. deaths were obesity-related, and Flegal, et al,³ reported a revised estimate of 4.7% using a more complete adjustment for confounding factors. We have elected to use the more conservative Flegal, estimate.

1,500 Oregon resident deaths in 2009; these included deaths from coronary artery disease, stroke, hypertension, diabetes and cancer.⁵ Because the prevalence of overweight and obesity is increasing in Oregon, we may expect to see more premature deaths due to obesity.

Alcohol use contributed to an estimated 1,400 Oregonians’ deaths in 2009; these included deaths from alcoholic liver disease,

injuries, followed by cancer. Finally, the leading risk behaviors that contribute to premature death are tobacco use, followed by obesity/poor diet/physical inactivity, and alcohol use. Each of these answers is “correct” and, used together, allow a more complete understanding of mortality in Oregon.

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3. Flegal KM, Graubard BI, Williamson DF, Mitchell HG. Excess deaths associated with underweight, overweight and obesity. *JAMA* 2005; 293:1861–7.
4. Community Preventive Services Taskforce. The Guide to Community Preventive Services: Preventing excessive alcohol consumption. www.thecommunityguide.org/alcohol/index.html

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