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FATAL BEHAVIORS: WHAT'S REALLY KILLING OREGONIANS

"Because I could not stop for Death
He kindly stopped for me.
The Carriage held but just Ourselves
and Immortality."

— Emily Dickinson

In 2003, 30,813 Oregonians died.[¤] Most of these deaths were attributed to cancer (7,217), heart disease (7,008), cerebrovascular disease (2,548), and chronic lower respiratory disease (1,818). These diseases reflect the primary pathophysiological process at the time of death, but obscure the importance of the underlying behavioral factors that cause the diseases. In 2004, Mokdad and other CDC researchers used a technique which was developed by McGinnis and Foege to estimate the number of deaths in and resulting from major external modifiable factors.[1–3] These nongenetic factors were called the "actual causes" of death, and included tobacco, diet/activity patterns (obesity), alcohol, microbial agents, toxic agents, firearms, sexual behavior, illicit drug use, and motor vehicles. In this *CD Summary*, we review the "actual causes" of death of Oregonians and note controversies surrounding certain methodologies.

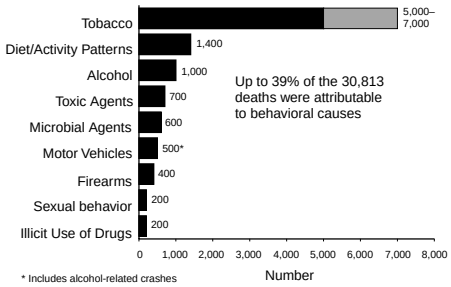
METHODOLOGY

In recent national studies, prevalence and relative risk data were identified from epidemiological, clinical, and laboratory studies linking risk behaviors and mortality. The estimates of actual causes of death were computed by multiplying the cause-attributable fraction of preventable deaths with the appropriate mortality data. We applied this methodology to Oregon mortality data and also provide estimates based on alternative methodology for tobacco-related deaths.

Besides using CDC's SAMMEC (smoking-attributable mortality, moribidy and economic costs) model to calculate the number of smoking-attributable-deaths (as did Mokdad) we provide a higher count (7,000 versus 5,000)[*] based on physician/medical certifier responses on the Oregon death certificate.

Considerable controversy accompanied the estimated number of obesity-related deaths calculated by Mokdad, et al.[2–3] Last month, a revised estimate by CDC staff (that adjusted for age and other confounding factors, and used more recent data) was reported.[4] In it, 111,909 U.S. deaths were estimated to be obesity-related in 2000 vs. 365,000 estimated by Mokdad et al. We used the more conservative adjusted estimate.

Actual causes of death of Oregonians, 2003



TOBACCO

The pre-eminent cause of premature death among Oregonians is tobacco use, accounting for 5,000–7,000 fatalities, 16%–22% of all deaths. Tobacco contributes substantially to deaths from cancer, coronary artery disease, stroke, hypertension, chronic lower respiratory disease, and pneumonia. In 2003, 21% of Oregonians smoked, 23% of men and 19% of women.[†]

DIET AND ACTIVITY PATTERNS

An estimated 1,400 Oregonians die prematurely as a consequence of poor diet and/or sedentary lifestyle. Dietary/activity factors are associated with coronary artery disease, stroke, hypertension, cancer and diabetes. Six in 10 Oregonians (58%) were overweight (i.e., a Body Mass Index of 25–29) or obese (i.e., a BMI ⩾30); 50% of women and 66% of men. One-fifth of all residents were considered obese.

ALCOHOL

Alcohol misuse resulted in the deaths of an estimated 1,000 Oregonians, 71% of them among males.[‡] Motor vehicle crashes, liver cirrhosis, cancers, cerebrovascular disease, and suicide were the most common alcohol-related causes of death. In 2003, 61% of Oregonians reported having had at least one alcoholic drink during the previous 30 days, 67% of males and 56% of females. Sixteen percent of Oregonians binged (consumed ⩾5 drinks on one occasion) at least once during the prior 30 days; binging was more common among males (22%) than females (9%). Binging prevalence was inversely related to age with 35% of 18- to 24-year-olds reporting having binged during the previous month versus 2% of persons ⩾65.

TOXIC AGENTS

Mokdad et al. considered this the most challenging of the nine categories to estimate, but concluded that 2.3% of all deaths resulted from toxic agents. Among Oregonians, that would represent 700 deaths. Particulate air pollution accounts for the majority (about 60%) of the fatalities related to toxic agents, with the remainder resulting from indoor air pollution, radon, lead in drinking water, and food contamination.

¤ That's life.

* SAMMEC methodology is limited because smoking-related causes of death may be listed on death certificates but not selected as the underlying cause. For example, if diabetes and ASHD were both listed on the certificate and diabetes chosen as the underlying cause of death due to its order on the certificate (e.g., line 1a diabetes mellitus; line 1b ASHD), that death would not be included in the SAMMEC-generated number of deaths even though the certifier checked "yes" to the question "Did tobacco contribute to this death?" Oregon's count gives a more complete picture of the impact of smoking on the state's residents.

† Data on the health behavior of Oregonians are from the Behavioral Risk Factor Surveillance System (BRFSS), an ongoing random-digit dialed telephone survey of residents 18 or older. All data are from 2003, unless otherwise specified.

‡ During 2001, the most recent year for which data are available.

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MICROBIAL AGENTS

Infectious diseases, although no longer the leading cause of death as they were a century ago, still cause many deaths, particularly among the elderly. Six hundred deaths were attributable to microbial agents, principally pneumonia and septicemia. (Deaths due to AIDS and viral hepatitis are included under the rubric of sexual behavior.) Seven in ten (71%) Oregonians ⩾65 surveyed during 2003 reported that they had received influenza vaccinations during the previous 12 months while 72% had received a pneumococcal vaccination during their lifetime.

MOTOR VEHICLES

Five hundred Oregonians died in motor vehicle crashes (including 150 estimated to be alcohol-related). Lap and shoulder belts have been shown to reduce the risk of significant injury/death by about 45%–50%. The good news is, most Oregonians do buckle-up; 88% of Oregon adults reported always using their seat belt (in 2002), although females were more likely to do so than males, 91% versus 84%. Residents age 18–25 buckled-up 80% of the time compared to 90% of those ⩾65.

FIREARMS

Four hundred Oregonians were shot to death during 2003, mostly with handguns (66%). Death rates were highest among middle-aged and older residents. Suicide is the leading manner of firearm death, accounting for almost three-fourths of these deaths. Since suicide is often an impulsive act, the ready availability of a firearm makes it possible for many to choose a permanent solution for what is often a temporary problem. In 2004, firearms were present in 40% of Oregon households and in 7%, weapons were kept loaded and unlocked. Twenty-three percent of Oregonians who kept their firearms loaded and unlocked reported binge drinking, a potentially dangerous combination. In 12% of homes where both children and guns were present, the guns were kept loaded and unlocked.

SEXUAL BEHAVIOR

Unprotected sexual intercourse led to 200 deaths, mostly from viral hepatitis and HIV, but also from cervical cancer. In 2000, 5% of Oregonians' most recent sexual intercourse was with someone other than their regular or steady partner, 8% of men and 3% of women. Among 18- to 24 year-olds, the figures were 15% for both sexes, 21% for males, and 9% for females. Thirteen percent of all BRFSS respondents reported having been tested for an STD during the previous 12 months. In 2003, 8,553 new cases of sexually transmitted diseases were reported in Oregon.

ILLICIT USE OF DRUGS

An estimated 200 Oregonians died from the illicit use of drugs, both street drugs and prescription medicines. Included in this category are deaths resulting from certain mental disorders, AIDS and hepatitis C, although the toll is probably higher since violent deaths, such as homicide and motor vehicle crashes, are not included.

CONCLUSIONS

Pursuit of risky behaviors leads to the early demise of many Oregonians.

As many as 39% of all resident deaths were attributable to potentially preventable causes. Although the mortality figures presented here are approximations, they provide a sense of the relative impact of various behaviors on the health of the state's citizenry.

Clearly, reductions in premature mortality necessarily result in increases of equal magnitude later from other causes. Still, it is equally apparent that reducing risky behaviors among Oregonians could lead to substantial improvement in both the longevity and quality of life. For your patients who smoke, probably the single, most important thing you can do for them is help them quit. Setting up a "five A's" system at your office is one way (see *CD Summary*, vol. 53, no. 8), advising patients to quit and referring them to the Oregon Quit Line is another (1-877/270-STOP; 1-877/2NO-FUME for Spanish speakers). The American Academies of Pediatrics and Family Physicians have each issued policy statements emphasizing the importance of preventing, recognizing, and treating overweight and obesity. In these areas and others, health care providers are the front line in promoting good health practices.

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Erratum

Our April 5, 2005, issue erroneously reported 181 outbreaks logged in Oregon in 2004. The true number (removing 18 unsubstantiated reports) is 163; 102 (63%) of these were due to Norwalk-like viruses.