

## Tobacco and Health in Alaska: Borough/Census Area Profiles

The Alaska Borough/Census Area Tobacco Profiles provide the most current local-level information on tobacco use and exposure, as well as attitudes and policies regarding tobacco prevention and control. The information comes from multiple sources, including public health surveys, vital statistics (birth and death), cancer reporting, and population data collected and maintained by the State of Alaska. These Profiles are designed as a quick reference for health advocates, community leaders, and others who want to know more about the impact of tobacco use and exposure and the role of tobacco prevention and control programs in promoting health and reducing disease.

The Profiles were commissioned by the Tobacco Prevention and Control Program, Section of Chronic Disease Prevention and Health Promotion, Division of Public Health, Alaska Department of Health and Social Services. Major contributors to the development of the Profiles are:

Erin Peterson, MPH, Alaska Tobacco Prevention and Control Program  
Kathryn Pickle, MPH, Program Design and Evaluation Services  
Chris Bushore, Program Design and Evaluation Services  
Vanessa Hiratsuka, MPH, Alaska Tobacco Prevention and Control Program

In addition, we would like to acknowledge the following individuals and organizations for their contributions to this report:

Alaska Department of Health and Social Services

Division of Public Health

Section of Chronic Disease Prevention and Health Promotion

Charles Utermohle, PhD, Programmer/Analyst

Rebecca Wells, SM, Alaska BRFSS Coordinator

David O'Brien, PhD, GISP, Alaska Cancer Registry

Section of Women's, Children's, and Family Health

Kathy Perham-Hester, MS, MPH, Alaska PRAMS Coordinator

Bureau of Vital Statistics

Phillip Mitchell, MS, Section Chief

Andrew Jessen, Research Analyst

Alaska Department of Labor and Workforce Development

Section of Research and Analysis

## Appendix A: Primary Data Sources

---

### Overview

Data represented in the January 2009 Alaska Borough/Census Area Tobacco Profiles were obtained from a variety of sources. The following provides a brief description of each data system. Analyses for this report were completed using Intercooled Stata 9.2 and SUDAAN 10.0. Some estimates and information were obtained from previously published reports. Four of the Borough Profiles represent combined regions: 1) Aleutians East Borough and Aleutians West Census Area, 2) Bristol Bay Borough and Lake & Peninsula Borough, 3) Haines Borough and Skagway-Hoonah-Angoon Census Area, and 4) Yakutat Borough and Valdez-Cordova Census Area.

### Adult Survey Data

The Behavioral Risk Factor Surveillance System (BRFSS) is a data collection system that compiles information on health information such as health care use and access, preventive practices, attitudes, and behaviors related to risk for premature morbidity and mortality. Survey data are collected monthly through telephone interviews of adults (age 18 or older). The BRFSS was first implemented in Alaska in 1991, and is supported in part by the national Centers for Disease Control and Prevention (CDC). The survey includes core questions designed by the CDC and used in all states, as well as state-added questions which may be specific to Alaska. The survey sample is stratified into five regions, ensuring adequate representation from some of the more rural areas of Alaska. In order to report information by Borough/Census Area, the Borough/Census Area Tobacco Profiles primarily use combined BRFSS data from 2004-2007. For one indicator, the proportion of current and former smokers who started smoking regularly before age 18, the question was only asked in 2001, 2004, and 2007 BRFSS surveys, and so the information reported reflects data from those years.

BRFSS data were also used in estimating the number of adults who use tobacco and the number of adults and youth who are exposed to secondhand smoke in their homes. BRFSS data are generally weighted to adult respondents. However, because the survey includes information about the number of children age 17 or younger in the household, the weight unit can be changed to number of children, and this child weight (which adjusts for number of children within region, as well non-coverage and non-response) was used to calculate the prevalence of smoke exposure in the home among children. BRFSS estimates were applied to 2007 population estimates by age group (18 or older, and 0-17); the resulting numbers were rounded to the nearest 10.

There are some standard limitations to the survey methods that may affect the representativeness of the data. The Alaska BRFSS includes a sample of adults in households with landline telephones and is conducted in English. It may underestimate some health behaviors associated with non-English-speaking populations, and transient populations. The sample frame did not include residents in group quarters such as nursing homes, college dormitories, or military housing. In addition, households with no landline but cell phone only are not in the sampling frame. Because all data are self-reported, there may be some underestimation of risk factors that are seen as socially unacceptable.

For more information on the Alaska State BRFSS, go to:

<http://www.hss.state.ak.us/dph/chronic/hsl/brfss/default.htm>

For more information on the national BRFSS, go to: [www.cdc.gov/brfss](http://www.cdc.gov/brfss)

### **Pregnancy Risk Assessment Monitoring System (PRAMS)**

PRAMS is an ongoing, population-based data collection system designed to identify and monitor selected maternal behaviors and experiences that occur before and during a woman's pregnancy and during the early infancy of her child. The survey data supplement information from birth certificates, and provide state-specific information used for planning and evaluating prenatal health programs. PRAMS has been conducted in Alaska since 1990 and uses a mixed mode system of mailed surveys with phone follow-up (of mail non-respondents) within 2 to 6 months of the date of birth to mothers of any age who have delivered a live birth. Pregnancies that result in stillbirth, fetal death, or induced abortion are not included in PRAMS. The sample of Alaska-resident mothers is drawn from birth records and is stratified by mother's race and birth weight of the infant.

Prenatal tobacco use accounts for 20-30% of all low birth weight births in the United States. According to the 2004 Surgeon General's Report, eliminating maternal smoking may lead to a 10% reduction in all sudden infant deaths and a 12% reduction in deaths from perinatal conditions.<sup>i</sup> On average, about 10,000 babies are born each year in Alaska; annually, about 16% are exposed prenatally to tobacco smoke (during the last 3 months of pregnancy).

In order to report information by Borough/Census Area, the Profiles use 2000-2006 combined years of PRAMS data, in regional groups as noted in Appendix B. To calculate an average annual number of infants exposed prenatally to tobacco smoke during the last 3 months of pregnancy, PRAMS estimates were applied to the number of births 2002-2006 for the area, and the result was divided by five years to get an annual number, which was then rounded to the nearest 5. For Borough/Census Areas that were further grouped in regions, the annual estimated number of babies born to mothers who smoke was calculated using a regional percentage applied to Borough/Census Area numbers of births.

### **Youth Survey Data**

Data to describe youth tobacco use were obtained from the Alaska Youth Risk Behavior Survey (YRBS), a school-based survey of high school students administered in cooperation with the Department of Education and Early Development. This anonymous survey examines several categories of adolescent behavior. The Alaska YRBS survey is administered every other year to randomly selected classes of high school students in a random sample of Alaska's public schools, which are organized within 53 school districts, including 34 city and Borough school districts.

Alaska has only achieved statewide representative samples in 1995, 2003, and 2007. The 2007 sampling frame included 159 schools, from which 43 were sampled and 41 participated. The frame of schools focused on "traditional" schools, and did not include correspondence or alternative schools, or correctional institutions. In addition, schools with less than 10 high school students were excluded from the sampling frame. Overall participation rate was above 60%. A total of 1,318 Alaska high school students participated in the 2007 survey. Data are not available by Borough or Census Area level. Further information is available at this site:

<http://www.hss.state.ak.us/dph/chronic/school/YRBSresults.htm>.

School-based surveys do not estimate risk behaviors associated with youth who drop out of school or do not attend school. The prevalence of some risky behaviors may be underestimated because they are self-reported by the youth on a questionnaire.

### **Population Data and Borough/Census Area Maps**

Population data and maps used in this report come from the Alaska Department of Labor and Workforce Development website, <http://laborstats.alaska.gov/>. Year 2007 population estimates are reported for the borough/census area as a reference. Year 2007 population estimates by age group and borough were used to calculate estimates of the number of adults and youth who smoke, adults who use smokeless tobacco, and adults and youth exposed to secondhand smoke. Maps for the grouped boroughs were pieced together; where necessary, more than one distance legend was included to indicate differences in scale. Maps may be found at this site: <http://146.63.75.50/research/cgin/cenmaps/statemap.htm>.

### **Birth Certificate System**

The Bureau of Vital Statistics Information System contains records on all births in Alaska and all births to Alaska residents. The Birth Certificate System provides public health information about births and newborns, and establishes legal rights associated with birth, paternity, and adoption. Information for the birth certificate is collected in hospitals and birthing centers from worksheets completed by parents or medical staff, from medical charts, or a combination of these sources. Midwives and family members who deliver a baby also collect information to complete the birth certificate. The average annual number of births in Boroughs and Census Areas was calculated from the 2002-2006 total births by Borough/Census Area. This information is available on the web at:

[http://www.hss.state.ak.us/dph/bvs/birth\\_statistics/Profiles\\_Census/frame.html](http://www.hss.state.ak.us/dph/bvs/birth_statistics/Profiles_Census/frame.html).

### **Death Certificate System**

The Bureau of Vital Statistics Information System contains records on all deaths in Alaska and all deaths to Alaska residents. The system provides demographic information as well as the underlying cause and contributing causes of death. Cause of death is generally provided by the attending physician or the coroner/medical examiner.

Beginning in 1999, all states began using the International Classification of Disease, Tenth Revision (ICD-10) to code cause of death. Bureau staff members type the narrative causes of death into the computer system and use SuperMICAR, a program produced, maintained and provided by the National Center for Health Statistics (NCHS), to code 85-90% of causes of death. Data are sent to NCHS, where the remaining records are coded by nosologists. This coding is then returned to the Bureau and uploaded into its database. Bureau staff researchers perform computer checks for missing, out-of-range, and duplicate data. For more information, see <http://www.hss.state.ak.us/dph/bvs/data/default.htm>.

### **Cancer Registry**

The Alaska Cancer Registry (ACR) is a population-based cancer surveillance system and is funded by the Centers for Disease Control and Prevention (CDC). ACR collects data on all newly diagnosed cases of cancer for the State of Alaska with the goal of reducing, controlling and understanding cancer in Alaska. Cancer cases are reported from hospitals, pathology laboratories, radiation oncology centers, ambulatory surgical centers, cancer treatment centers, and physicians. Once the case is identified, an abstract of cancer information is completed within six months.

For the last eight years, ACR has received the highest level of certification available (Gold Standard) from the North American Association of Central Cancer Registries (NAACCR). The certification is based on an annual review of data quality, completeness, and timeliness of cancer information collected for the diagnosis years 1996-2005. For more information, see

<http://www.hss.state.ak.us/dph/chronic/cancer/registry.htm>.

## **Municipal and Regional Government in Alaska**

Alaska local government structure includes Boroughs, Municipalities, Cities, and Village Councils. Some but not all local government entities have health and safety powers that affect the ability to establish tobacco taxes, clean indoor air policies, and other local tobacco prevention and control efforts.

Organized Boroughs are intended to reflect a natural regional grouping of an area and population with common interests, but they generally include more than one community (such as a village or city). Organized Borough types include Unified Home Rule Municipalities (where the city or municipality is the same as the Borough), Home Rule Boroughs, and First and Second Class Boroughs. Likewise, City types include Home Rule Municipalities or Cities, and First and Second Class Cities. In addition, there is the Unorganized Borough, which is not a government entity in itself but is administered directly by the State of Alaska. The Unorganized Borough covers over 50% of the geographic area but represents under 15% of the state's population.<sup>ii</sup> In these Profiles, the Unorganized Borough is divided into Census Areas, which may include various types of local City or Village Council governments.

Tribal governments of many Alaska Native villages have authority to establish local health-related policies, such as clean indoor air rules and other smoking-related policy. Some Alaska Native Village Councils and City governments may operate together; in some cases they govern the same area but have different governing bodies and areas of focus.

The information in the Borough/Census Area Tobacco Profiles includes notations about the types of Borough and City governments of the area because health and safety powers differ according to type of local government. These powers determine the types of local governance as well as duties to collect taxes, provide services and utilities, operate school districts and develop local planning, platting and land use regulations. The level of health and safety powers may affect the types of tobacco-related policies and taxes that can be enacted for the area.

Typically, Home Rule and First Class Boroughs and Cities have broader powers and responsibilities than other local governing entities. Cities within Organized Boroughs may have powers and responsibilities that are delegated by the borough. In general, Cities within the Unorganized Borough are likely to have more local powers because the Unorganized Borough is technically a unit of the state and has no separate local powers. For more information on Borough and Municipal government, see these sites:

[http://justice.uaa.alaska.edu/rlinks/government/ak\\_local.html](http://justice.uaa.alaska.edu/rlinks/government/ak_local.html) and  
<http://www.commerce.state.ak.us/dca/LOGON/home.cfm>

It is important to note that the information in the profiles does not reflect some other types of legal entities that could be important partners or resources for local tobacco prevention and control activities. These include tribal (village) governments, consolidated health districts, and Regional Educational Attendance Areas.

**Local Tobacco Taxes and Clean Indoor Air Policies**

Information about local taxes and Clean Indoor Air policies established by Alaska communities and Boroughs is collected by the Alaska Tobacco Prevention and Control Program with assistance from local grantees and other partners. Program staff also verified the information by checking posted statute and legislative information. This information was last updated in February 2008. The information is provided by a contractor to the Alaska Tobacco Prevention and Control Program.

## Appendix B: Technical Notes

---

### *Data Management Protocols*

#### **Boroughs/Census Areas**

Boroughs and Census Areas were chosen as the regional unit for this report because they are the best compromise between precision of estimates and usefulness for local tobacco prevention and control activities (see "Small Numbers" section below). In some cases, there were not enough numbers in the data by Borough or Census Area; four of the Borough Profiles represent combined regions. Therefore, there are 23 Profiles representing the 27 Boroughs and Census Areas in Alaska.

The combined areas include:

- 1) Aleutians (which includes Aleutians East Borough and Aleutians West Census Area),
- 2) Bristol Bay Borough and Lake & Peninsula Borough,
- 3) Haines Borough and Skagway-Hoonah-Angoon Census Area,
- 4) Yakutat Borough and Valdez-Cordova Census Area.

The geographic areas above reflect the regional grouping of BRFSS and population data used in reporting most community indicators. Further combinations of Borough/Census Areas were necessary in order to obtain estimates from PRAMS data. These regional groups include:

- Aleutians East Borough, Aleutians West Census Area, Bristol Bay Borough, Lake & Peninsula Borough and Dillingham Census Area
- Haines Borough, Skagway-Hoonah-Angoon Census Area, and the Juneau Borough
- Denali Borough and Yukon-Koyukuk Census Area
- Fairbanks North Star Borough and Southeast Fairbanks Census Area
- Ketchikan Gateway Borough, Prince of Wales-Outer Ketchikan Census Area and Wrangell-Petersburg Census Area

For other areas, PRAMS information was run for the specific Borough or Census Area.

#### **Confidence Intervals and Margins of Error**

Confidence intervals are commonly used with survey data to account for the differences due to random factors or chance, between prevalence estimates computed with a sample from the population and the population itself. Confidence intervals are typically expressed as a range between an upper and lower value which will contain the population or "true" prevalence 95% of the time.

For prevalence estimates reported in the Borough Profiles, we report the half width of the 95% confidence interval, or margin of error, as plus or minus a value in parentheses after the indicator description ( $\pm x\%$ ). The margin of error can be interpreted as indicating the precision of the estimate reported.

Although margins of error are not reported for the estimated numbers of people in the "People Affected" section of the Borough Profiles, it should be noted that these indicators also reflect survey data and have similar precision to the prevalence or percentage estimates.

#### **Small Numbers**

Since data systems that provide a statewide sample, such as BRFSS, were not designed specifically to capture a significant sample from each Borough or Census Area, some of the smaller areas did not have enough respondents to validly report proportions (e.g. “percent tobacco users”). Weighted estimates based on a small unweighted number of respondents can be misleading; the precision of the estimate generally increases if the sample size is larger and decreases if the sample size is smaller.

For this document, when reporting most indicators from BRFSS data, we combined four years of data (2004-2007), and in some cases we also had to combine Boroughs and Census Areas for reporting. For the early initiation of smoking indicator (the proportion of current and former smokers who started smoking regularly before age 18), we combined data from 2001, 2004, and 2007. Smoking and smokeless tobacco prevalence estimates were all calculated on sample sizes of 150 or more respondents. All other indicators from BRFSS data were reported on regional unit sizes of 50 or larger. The smallest numbers of respondents occurred for items asked of subsets of the sample, such as people who work indoors, or smokers. As noted earlier, for reporting maternal smoking during pregnancy from PRAMS data, we combined seven years of data (2000-2006), and further combined Boroughs and Census Areas for reporting so that all estimates were calculated on samples of 80 or more respondents.

In the past few years, the CDC Behavioral Surveillance Branch has suppressed reporting on their BRFSS website if the unweighted sample size for the denominator was less than 50 or the confidence interval half width was greater than 10 for any cell in the given data table. In this report, we follow the guideline regarding sample size, but we have not used a suppression guideline for CI half width. It should be noted that larger half widths, or margins of error, generally reflect a smaller sample or subsample total, as well as less precision about the prevalence estimate reported.

### **Smoking-Attributable Disease and Death**

Smoking-attributable fractions (the proportion of any particular illness in a population that is determined to be caused by cigarette smoking) were used in combination with Alaska Death Certificate data to estimate deaths attributed to cigarette smoking in the state summary. For this report, 19% of deaths overall (21% among men and 16% among women) were estimated to have been caused by cigarette smoking. The total number of deaths by Borough and gender for the ten-year period of 1997-2006 was used to estimate the average number of smoking-related deaths by Borough/Census Area for a five-year period.

For cancer incidence, 19% of all cancers diagnosed (23% among men and 13% among women) were estimated to have been caused by cigarette smoking. The total number of cancer diagnoses in Alaska for 1996-2005 by Borough and gender was used to estimate the average number of smoking-related cancer diagnoses by Borough/Census Area for a five-year period.

Smoking-attributable deaths and cancer diagnoses by Borough/Census Area estimates reported in the Profiles are rounded to the nearest 5.

Smoking attributable fractions were calculated using the CDC’s Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC), an online application that allows people to estimate the health and health-related economic consequences of smoking to adults.<sup>iii</sup> The Adult SAMMEC programs derive smoking-attributable mortality (SAM) using an attributable-fraction formula (Lilienfeld and Lilienfeld, 1980)<sup>iv</sup> originally described by Levin (1953)<sup>v</sup>. The smoking-attributable fractions (SAFs) of deaths for 19 diseases where cigarette smoking is a cause are calculated using sex-specific smoking prevalence (for Alaska, from BRFSS 2001) and national relative risk (RR) of death data for current and former smokers age 35 or older.

The estimates in Adult SAMMEC do not account for deaths from cigar smoking, pipe smoking, and smokeless tobacco use.

The external validity of the smoking-attributable death estimates calculated from SAMMEC has been tested twice with data from Oregon. McAnulty et al. (1994)<sup>vi</sup> and Thomas et al. (2001)<sup>vii</sup> conducted separate analyses of Oregon death certificate data and compared the number of deaths for which smoking was cited as a contributing factor with state estimates of the number of smoking-attributable deaths generated by SAMMEC. Differences were less than 3% of the total.

For further information on the SAMMEC software, see <http://apps.nccd.cdc.gov/sammecc/index.asp>

### *Calculation of Tobacco Use Indicators in the Profiles*

#### **Adult Tobacco Use**

An adult is classified as a "current smoker" if he or she reported having smoked more than 5 packs (100 cigarettes) in his/her lifetime, and also reported currently smoking cigarettes "every day" or "some days" in the past 30 days. An adult is classified as a "current smokeless tobacco user" if he or she reported using smokeless tobacco "every day" or "some days" in the past 30 days. Data for these indicators come from the BRFSS combined data, 2004-2007.

#### **Youth Tobacco Use**

A youth is classified as a "current smoker" or "current smokeless tobacco user" if he or she reported using tobacco on one or more days within the past 30 days. Data for the youth indicators come from the 2007 YRBS.

#### **Maternal Smoking During Pregnancy**

The proportion of women who smoked during pregnancy comes from the PRAMS combined data, 2000-2006. Women who reported smoking at least 100 cigarettes in the past two years and reported smoking any cigarettes (from less than 1 cigarette up to multiple packs) in an average day during the last 3 months of their pregnancy were classified as having smoked during pregnancy.

## Appendix C: Disparities in Tobacco Use and Exposure: Comparing Boroughs or Census Areas to the State of Alaska

---

The Borough/Census Area Tobacco Profiles do not include state-level estimates. State-level information is generally reported on an annual basis, whereas the Borough/Census Area reports used combined years of data in order to report more robust regional estimates of adult tobacco use and exposure. However, in this section, we discuss state-level information for four key indicators that are included in the “Tobacco Use and Exposure” graphs in the Borough/Census Area Tobacco Profiles, using the same combined years of data that were reported for the Borough/Census Areas.

A significant difference between a population sample (such as a state-level sample) and a sub-population sample (such as a county-level sample) is most often observed when the confidence intervals do not overlap. When the two confidence intervals do not overlap, then we can be very sure that the two values are not equal; this is what we call a “statistically significant” difference. When the confidence intervals overlap, additional tests for significance would be needed to provide information about whether the values differ significantly. In this section, we note which Borough/Census Areas or regional groupings differ from the state based on a comparison of confidence intervals, without conducting additional tests for significance.

Readers should note that “statistically non-significant” differences can still be very important – a non-significant but continued elevation above the state average for maternal smoking during pregnancy, for example, might indicate an important area for program focus. Although many area estimates have overlapping confidence intervals with the state estimate, there may be area estimates which are truly different from the state, but are simply not significant given the sample sizes and information available at the time of this report.

### Adult Smoking

When we compare the 2004-2007 Alaska Borough/Census Area estimates to statewide data from the same period, state adult smoking prevalence is 23.6% ( $\pm 0.9\%$ ; that is, 95% CI: 22.7%-24.5%). Borough/Census Areas with a significantly higher smoking prevalence than the state include the Aleutians (East & West), Bethel, Bristol Bay/Lake & Peninsula, Dillingham, Matanuska-Susitna, Nome, North Slope, Northwest Arctic, Prince of Wales-Outer Ketchikan, Wade Hampton, and Yukon-Koyukuk. Areas with significantly lower smoking prevalence than the state prevalence include Anchorage and Juneau.

### Adult Smokeless Use

Prevalence of adult smokeless tobacco use statewide for the same period is 4.8% ( $\pm 0.5\%$ , or 95% CI: 4.3%-5.3%). Borough/Census Areas with significantly higher smokeless tobacco use than the state include Bethel, Bristol Bay/Lake & Peninsula, Nome, and Wade Hampton. Anchorage is the only area for which the smokeless tobacco use estimate is significantly lower than that for the state.

### **Adult Exposure to Secondhand Smoke in the Home**

The proportion of adults who are exposed to secondhand smoke in their homes is 14.0% ( $\pm$  1.1%), or ranging from 12.9% to 15.1%. Borough/Census Areas with significantly lower adult secondhand smoke exposure in the home include Bethel and Juneau; none of the other area estimates show significant differences from the state estimate.

### **Maternal Smoking During Pregnancy**

Using combined 2000-2006 PRAMS data, the statewide prenatal tobacco use prevalence, or the proportion of women who smoked during the last three months of pregnancy, is 16.3% ( $\pm$  0.8%), or between 15.5% to 17.1%. Areas with significantly higher prevalence than the state include the regional grouping of Aleutians East Borough, Aleutians West Census Area, Bristol Bay Borough, Lake & Peninsula Borough and Dillingham Census Area; Denali Borough and Yukon-Koyukuk Census Area, the regional grouping of Ketchikan Gateway Borough, Prince of Wales-Outer Ketchikan Census Area and Wrangell-Petersburg Census Area; and the Borough/Census Areas of Nome, North Slope, and Northwest Arctic. Only the regional grouping of Haines Borough, Skagway-Hoonah-Angoon Census Area, and the Juneau Borough had a significantly lower prenatal tobacco use prevalence than the state.

## References

---

- i U.S. Department of Health and Human Services. The Health Consequences of Smoking: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.
- ii Bockhorst, D. Local Government in Alaska. Alaska Department of Community and Economic Development, February 2001. Accessed September 2008 at <http://www.dced.state.ak.us/dca/LOGON/muni/muni-structure.htm#resources>.
- iii Centers for Disease Control and Prevention. Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC): Adult SAMMEC and Maternal and Child Health (MCH) SAMMEC software, 2008. Accessed October 2008 at <http://apps.nccd.cdc.gov/sammecc/index.asp>.
- iv Lilienfeld, AM, Lilienfeld, DE. *Foundations of Epidemiology*. New York: Oxford University Press, 1980.
- v Levin ML. The occurrence of lung cancer in man. *Acta Unio Internationalis Contra Cancrum* 1953;9:531–541.
- vi McAnulty JM, Hopkins DD, Grant-Worley JA, Baron RC, Fleming DW. A comparison of alternative systems for measuring smoking-attributable deaths in Oregon, USA. *Tobacco Control* 1994;3:115–119.
- vii Thomas AR, Hedberg K, Fleming DW. Comparison of physician based reporting of tobacco attributable deaths and computer derived estimates of smoking attributable deaths, Oregon, 1989 to 1996. *Tobacco Control* 2001;10:161–164.