Two Studies of Health and Religion in Utah:

Tobacco Smoking and Cancer in Utah

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CHRONIC ILLNESS IS WIDESPREAD in society and touches all our lives. Behind cardiovascular diseases, cancer is the second leading form of chronic illness in the United States.[1] Considerable health resources have been utilized to prevent and control cancer. Although genetic predisposition and age are leading risk factors for cancer, lifestyle behaviors can also influence its occurrence. For example, tobacco smoking has been linked to cancers of the oral cavity and pharynx, esophagus, pancreas, larynx, lung and bronchus, urinary bladder, kidney and renal pelvis, and cervix.[2] Perhaps no single behavioral change is known that would have as great an impact on deaths attributed to cancer, particularly of the lung, as abstention from tobacco.[3]

The first epidemiological reports suggesting a link between tobacco smoking and lung cancer appeared in the early 1950s.[4] By the time of the 1964 Surgeon General's Report, there had been twenty-nine case-control studies and seven prospective cohort studies published indicating a sig-

1. Robert T. Greenlee, et al., "Cancer Statistics, 2000," *CA Cancer Journal for Clinicians* 50 (2000): 7-33.

2. United States Department of Health and Human Services, *Reducing the Health Consequences of Smoking: 25 Years of Progress: A Report of the Surgeon General, 1989*, DHHS Publication no. (CDC) 89-8411 (Rockville, Md.: Centers for Disease Control, Office on Smoking and Health, 1989).

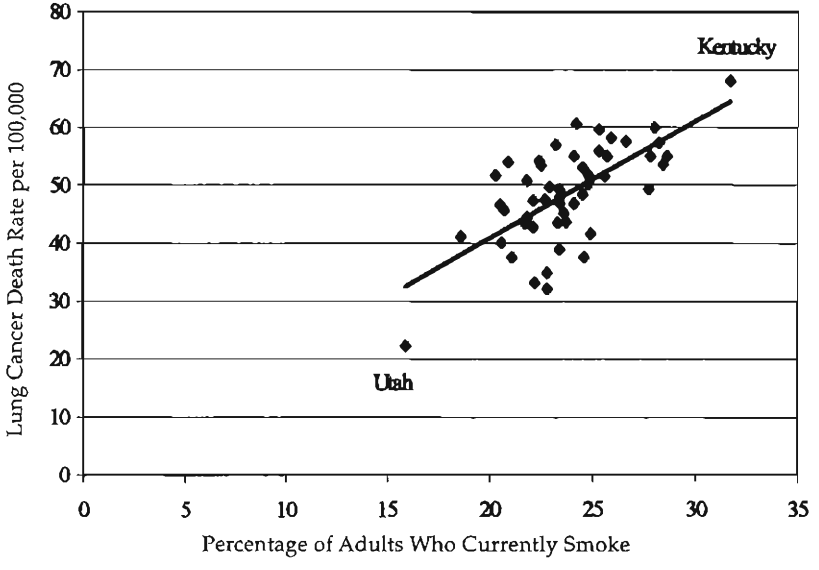
3. Richard Doll and Richard Peto, "The Causes of Cancer," *Journal of the National Cancer Institute* 66 (1981): 1191-1308.

4. Richard Doll and A. B. Hill, "Smoking and Carcinoma of the Lung: Preliminary Report," *British Medical Journal* (1950) 2: 739; Roy Norr, "Cancer by the Carton," *Reader's*

nificantly increased risk of lung cancer among tobacco smokers.[5] In Utah, the percentage of adults eighteen years of age and older who smoke cigarettes has historically been considerably lower than in the rest of the United States.[6] Consequently, Utahns experience the lowest overall cancer incidence and mortality rates in the nation. *Figure 1* shows the positive association between tobacco smoking and lung cancer mortality among the fifty United States, with Utah having the lowest and Kentucky the highest levels of smoking and lung cancer mortality.

A number of studies have looked at the influence of church activity

FIGURE 1: Currently Smoke



Data sources: Behavior Risk Factor Surveillance System and the National Center for Health Statistics, 1996. Rates age-adjusted to the 1970 United States standard population

Digest (December 1952): 7-8; "Cigarettes. What CU's Test Showed: The Industry and Its Advertising; and How Harmful Are They?" *Consumer Reports* 18 (February 1953): 58-74; Lois M. Miller and James Monahan, "The Facts Behind the Cigarette Controversy," *Reader's Digest* (July 1954): 1-6; "Tobacco Smoking and Lung Cancer," *Consumer Reports* 19 (February 1954): 54, 92.

5. United States Department of Health and Human Services, "Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service," P.H.S. Publication no. 1103. (Washington, D.C.: U.S. Government Printing Office, 1964).

6. Ray M. Merrill, Gordon B. Lindsay, and Joseph L. Lyon, "Tobacco-related Cancers in Utah Compared to the United States: Quantifying the Benefits of the Word of Wisdom," *BYU Studies* 38, no. 4 (1999): 91-114.

on cancer among Latter-day Saint men and women.[7] In each of these studies, religiously active Latter-day Saints showed lower levels of cancer and longer life expectancy than did less active members. In order to obtain a current report of religious preference, church activity, and tobacco smoking prevalence in Utah, we added two questions on religion and church attendance to the Utah Behavior Risk Factor Surveillance System (BRFSS).[8] The results presented in this report were based on 782 respondents in February through April 2000.

Respondents to the Utah survey indicated their religious preferences as: 69 percent LDS, 21 percent other religions, and 10 percent no religion. Church attendance for those who specified having a religious preference is shown in Table 1. In general, Latter-day Saints are comparatively very active in church. Women attend church more frequently than men, regardless of religious preference.

Table 1
Summary of Church Attendance by Religious Preference
Among Adults 18 Years of Age or Older in Utah

	Religious Preference by Gender			
Church	LDS		Other Religions	
Attendance	Men	Women	Men	Women
Weekly	71%	81%	15%	37%
Monthly[a]	12%	6%	32%	18%
Yearly[b]	6%	8%	24%	13%
Not at All	11%	5%	29%	32%

Data source: Utah Behavior Risk Factor Surveillance System, 2000.
[a]Between one and three times monthly.
[b]Between one and eleven times yearly.

A strong association between religious preference and smoking was observed. About 6 percent of Latter-day Saints are current smokers. In contrast, 22 percent of people with other religious preference and 46 percent of those with no religious preference are current smokers. Table 2 shows that tobacco smoking among Latter-day Saints occurs almost exclusively in less active members. People of other religious preference who

7. James E. Enstrom, "Cancer and Total Mortality Among Active Mormons," *Cancer* 42 (1978): 1943-51; John W. Gardner and Joseph L. Lyon, "Cancer in Utah Mormon Men by Lay Priesthood Level," *American Journal of Epidemiology* 116 (1982): 243-57; John W. Gardner and Joseph L. Lyon, "Cancer in Utah Mormon Women by Church Activity Level," *American Journal of Epidemiology* 116 (1982): 258-65.

8. Since 1984, the Centers for Disease Control and Prevention have collaborated with states such as Utah to collect survey data on disease risk factor behaviors like tobacco smoking.

smoke are also less religiously active. Compared with Latter-day Saints, the percentage of tobacco smokers is considerably higher in men and women of other religious preference or in those with no religious preference. As a matter of comparison, in 2000 the national percentages of current tobacco smoking were 24 percent for men and 21 percent for women.[9]

Table 2
Percentage of Current Smokers according to Religious Preference, Church Attendance, and Gender among Adults 18 Year of Age or Older in Utah

	Religious Preference by Gender					
Church Attendance	LDS		Other Religions		No Religion	
	Men	Women	Men	Women	Men	Women
Weekly	1%	0.3%	10%	13%		
Monthly[a]	21%	10%	32%	—[c]		
Yearly[b]	31%	33%	14%	23%		
Not at All	21%	52%	38%	35%		
Total	6%	6%	25%	19%	49%	41%

Data source: Utah Behavior Risk Factor Surveillance System, 2000.
[a]Between one and three times monthly.
[b]Between one and eleven times yearly.
[c]Insufficient numbers to compute.

Although the focus of this paper has been tobacco-related cancers, cigarette smoking is also a major contributor to other chronic conditions, such as diseases of the heart and stroke.[10] There are also several other causes of cancer, some of which can be moderated through behavior such as diet and exercise, but many of which cannot (e.g., those resulting from genetic predisposition and age). Certainly Latter-day Saints are not immune to cancer and other chronic illnesses, but a recent study showed that during 1991-1995, lower tobacco-smoking prevalence in Utah compared with the rest of the country resulted in an estimated 4,294 fewer cancer deaths in men and 3,047 fewer cancer deaths in women.[11]

9. Nationwide Tobacco Use, Behavior Risk Factor Surveillance System, 2002. Available at http://apps.nccd.cdc.gov/brfss/index.asp.

10. Nancy A. Rigotti and Richard C. Pasternak, "Cigarette Smoking and Coronary Heart Disease: Risks and Management," *Cardiology Clinics* 14 (1996): 51-68; Roger Shinton, "Lifelong Exposures and the Potential for Stroke Prevention: The Contribution of Cigarette Smoking, Exercise, and Body Fat," *Journal of Epidemiology and Community Health* 51 (1997): 138-43; United States Department of Health and Human Services, "The Health Benefits of Smoking Cessation: A Report of the Surgeon General 1990," DHHS Publication no. (CDC) 90-8416 (Rockville, Md.: Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1990).

11. Merrill, Lindsay, and Lyon, "Tobacco-related Cancers in Utah."

In 1833, members of the LDS church were first taught that "tobacco. . . is not good for man." This instruction appeared as part of a health code called the Word of Wisdom (D&C 89). Originally many members treated this as a guideline and not necessarily a commandment. Previous works have identified certain events resulting in the widespread adoption by the church of the Word of Wisdom as a commandment.[12] Not until May 5, 1898 did the First Presidency and the Twelve agree that the Word of Wisdom was a commandment that should be followed explicitly. However, it took several more years before this doctrine was fully enforced. In June 1902, Joseph F. Smith urged church leaders to refuse to authorize temple recommends for flagrant violators of the Word of Wisdom, but to be liberal with old men using tobacco. In December 1915, President Smith said that abstention from tobacco among men with experience in the church was a prerequisite to being ordained to the priesthood or permitted to enter the temple. In 1921, after Heber J. Grant became president of the church, adherence to the Word of Wisdom became less flexible, and over the next decade refraining from tobacco and other substances was required of all members for full fellowship and admittance to the temple.

Studies linking tobacco smoking with a number of cancers and other diseases has led to a decrease in the percentage of adults who currently smoke in the United States, from nearly 45 percent in the 1960s to about 25 percent in the 1980s and 1990s.[13] In 1985, the first year cigarette-smoking prevalence was recorded in Utah, the number of adults smoking was 15.6 percent.[14] This rate has varied only slightly to the present time. As a result, substantial differences exist between the tobacco-related cancer burden in Utah versus the United States. As the nation forms its health policy goals and standards, Utah's low tobacco use and relatively low cancer burden serves as a model, with the influence of religious forces clearly evident.

12. Thomas G. Alexander, "The Word of Wisdom: From Principle to Requirement," *Dialogue* 14 (Fall, 1981): 78-88. Thomas G. Alexander, *Mormonism in Transition: A History of the Latter-day Saints, 1890-1930* (Urbana and Chicago: University of Illinois Press, 1986).

13. Merrill, Lindsay, and Lyon, "Tobacco-related Cancers in Utah."

14. Ibid.