Table 2. Psychosocial factors regarding the pregnancy by type of health insurance coverage

Factor	Private (N=50)		Uninsured (N=49)		Medicaid (N=50)		Total (N=149)		Chi-square statistics
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Ambivalence about having baby	13	26	23	47	37	74	73	49	[1]23.17
Unplanned pregnancy	22	44	36	73	43	86	101	68	[1]21.27
Neutral or unhappy when learned of pregnancy	12	24	25	51	36	72	73	49	[1]23.17
Considered abortion	3	6	8	16	19	38	30	20	[2]16.58
Afraid to tell others about pregnancy	8	16	17	35	20	40	45	30	[3] 7.53
Felt lack of personal support during pregnancy	1	2	3	6	11	22	15	10	[4]12.30
Personal or family problems took priority over prenatal care	2	4	7	14	11	22	20	13	[3] 7.02
Depressed or unhappy during pregnancy	8	16	18	37	26	52	52	35	[2]14.37
Not always enough food to eat	1	2	2	4	12	24	15	10	[2]16.25
Did not always have a place to live during pregnancy	0	0	0	0	6	12	6	4	([5])

[1] $P<.0001$. [2] $P<.001$. [3] $P<.05$. [4] $P<.01$. [5] cell sizes too small for statistic test.

nurses, home visitors, and incentives for women to obtain care. Community based efforts are needed so that every woman knows where to get prenatal care as readily as she knows where to purchase groceries. Prenatal care would also be encouraged by the provision of comprehensive, risk-appropriate care for all women, regardless of insurance status. A recent report emphasized the importance of comprehensive care that includes psychosocial assessment and interventions in addition to medical care (*3*).

Unfortunately, in the current health care system in the United States, access to prenatal care and, consequently, its prevalence, varies significantly according to insurance coverage and income. It is evident that the health care system will have to be altered if maternity care is to be provided to all women, regardless of their ability to pay.

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Renal Cancer and Cigarette Smoking in a 26-Year Followup of U.S. Veterans

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Synopsis

The cigarette smoking habits of a cohort of almost 250,000 U.S. veterans were analyzed for their relationship to renal cancer. Information on smoking habits was collected in 1954 and in 1957 for nonrespondents to the first effort. Of the veterans, 84 percent returned their questionnaires. The cohort was followed for mortality until 1980, or 26 years.

The followup of these military veterans, mostly of World War I, revealed 719 deaths from renal cancer, making this the largest study of renal cancer and cigarette smoking to date. Current smokers had a 47 percent increase in risk relative to nonsmokers. The relative risk for renal cancer increased significantly with the number of cigarettes smoked per day, from 1.31 for 1–9, 1.37 for 10–20, 1.60 for 21–39, and 2.06 for 40 or more. This analysis was unable to separate the risks of cigarette smoking for tumors of the renal parenchyma from those for tumors of the renal pelvis and ureter. However, the results suggest that almost one-fifth of all renal cancer deaths are attributable to cigarette smoking.

Relative risks for renal cancer by cigarette smoking status and amount smoked among U.S. veterans, 1954–80

Smoking status	Renal cancer deaths	Relative risk	95 percent confidence interval
Nonsmoker	150	1.00	...
Cigar, pipe only	64	1.06	0.79–1.42
Other, unknown	110	1.18	0.92–1.51
Ever, cigarettes	395	1.33	1.10–1.61
Former smoker	111	1.09	0.85–1.40
Current smoker	284	1.47	1.20–1.80
Cigarettes per day[1,2]			
1–9 per day	43	1.31	0.93–1.83
10–20 per day	134	1.37	1.08–1.73
21–39 per day	88	1.60	1.23–2.09
40 or more per day	19	2.06	1.28–3.33

[1]Current cigarette smoker.
[2]P for trend = <0.001.

Several cohort studies have evaluated cigarette smoking and renal cancer (*1–4*), although the numbers of renal cancer deaths have been small—usually fewer than 100 (*5*). Except for earlier reports on U.S. veterans (*1, 6*), California labor union members (*3*), and British physicians (*4*), there have been limited data from cohort studies on risk of renal cancer by amount smoked. This study is the largest to date of renal cancer and cigarette smoking, with 26 years of followup of approximately 250,000 U.S. veterans.

Methods

The design and methods used to study this cohort of U.S. veterans have been described in detail elsewhere (*1, 7*); hence we will summarize procedures relating to this analysis. The cohort was defined as holders of U.S. Government insurance policies who served in the Armed Forces from 1917 to 1940 whose policies were active at the end of 1953. The cohort was followed for cause of death from January 1, 1954, to September 30, 1980, a period of 26 years and 9 months. In 1954, questionnaires were mailed requesting information on cigarette smoking among other items, and again in 1957 to the nonrespondents of the first mailing. Sixty-eight percent of the cohort responded to the first mailing, and 84 percent was the response for the two mailings combined. Our analysis includes the 248,046 veterans who responded to the questionnaire. A total of 4,531,000 person-years were accumulated among them during the followup period. No additional data on smoking were collected since the completion of the original questionnaires. The smoking categories used in the analysis are the same as those used in earlier reports (*1, 7*).

Mortality was determined by means of the Beneficiary Identification and Records Locator Subsystem (BIRLS) of the U.S. Department of Veterans Affairs (VA). BIRLS records the fact of death in connection with claims for burial allowance, submitted to the VA, which are independent of insurance status. For these persons, mostly World War I veterans, death ascertainment is thought to be about 96 percent complete (*8*). Mortality identification through BIRLS is different from the approach used in previous studies of this cohort (*1, 7*), which were based on insurance records. The new methodology resulted in the ascertainment of 1,093 additional deaths through 1969, which was the period of the previous followup. The seventh revision of the International Statistical Classification of Disease (ICD) was used to code the causes of death (*9*). An underlying cause of death was available for approximately 97 percent of the 198,353 deaths identified during the followup period.

A generalized Poisson regression program for modeling hazard functions with grouped data, AMFIT, was used to fit a multiplicative relative risk model (*10*). The fit was made by stratifying the background rates on age at followup (eleven 5-year age groups), calendar time (5 periods), and year of questionnaire response (1954, 1957). The relative risks (RR) presented are the exponentiated regression coefficients produced by the program. Attributable risk was also calculated (*11*).

Results

There were 719 deaths from renal cancer ascertained during the 26-year followup. The accompanying table presents the RRs for renal cancer by cigarette smoking habit. Statistically significant increased risks were observed for ever smokers and current smokers, with the first having a 33 percent excess risk and the second, 47 percent. The risk of renal cancer significantly increased with the number of cigarettes smoked per day. Heavy smokers (more than 40 cigarettes per day) had 2.1 times the risk of nonsmokers. The attributable risk of cigarette smoking for renal cancer was 17 percent.

Discussion

The increased risk of renal cancer among smokers is consistent with earlier reports on U.S. veterans (*1, 6, 7*) and other cohorts of cigarette smokers (*2–4*). A causal interpretation is supported by the finding of statistically significant risks that were higher for current than former smokers, and that increased by the amount smoked, reaching 2.1-fold among smokers of 40 or more cigarettes per day. The relative risks for smokers in our 26-year followup were similar to those reported in earlier followups of this cohort (*1, 7*), although the risk among the heaviest smokers was lower than that observed at 16

years (RR = 2.59) (*6*). This reduction probably reflects the change in smoking habits of U.S. men over the past 30 years. Based on these patterns, it is possible that as many as 40 percent of the subjects classified as cigarette smokers may have stopped this habit since 1954 or 1957, when the questionnaires were completed (*12*). Thus, the present risks may represent underestimates of the actual effect of cigarette smoking on the kidney.

Due to the classification practice of the seventh revision of the ICD, we were unable to separate cancers of the renal parenchyma from those of the renal pelvis and ureter, which have been conclusively linked to cigarette smoking (*13, 14*). There is little question that the excess risk observed in this analysis is due to, at least partly, renal pelvis and ureter tumors, which account for approximately 15–20 percent of incident cases of kidney cancers (*5*). However, in mortality data, renal pelvis and ureter cancers may account for a smaller proportion, since among men 66 percent of patients survive 5 years compared with 48 percent for those with renal cell cancer (*15*). Based on recent case-control studies (*16–19*), the risk for renal cell cancer among smokers is smaller than that for renal pelvis and ureter cancers, and some uncertainty exists about whether a causal relationship has been conclusively established (*14*).

Although the mechanism by which smoking may induce renal cancer is unknown, a number of studies have shown mutagenic activity in the urine of cigarette smokers, including a dose-response gradient (*14*). While future etiologic studies should focus on specific types of renal cancer to clarify the role of smoking and other factors, our cohort study indicates that about 20 percent of all renal cancer deaths can be ascribed to cigarette smoking.

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