Smoking and Lung Cancer in New Mexico

In an earlier Journal article[1] we described the similarity of risks for lung cancer between New-Mexican Hispanic and non-Hispanic white cigarette smokers based on a subset of cases and controls from our study. Additional interviewing among the sex-ethnic subgroups with fewer subjects has increased the size of our case series among Hispanic males (from 101 to 124) and females (from 45 to 58) and non-Hispanic females (from 128 to 193). Age-adjusted analysis of our data by standard stratified and logistic methods has confirmed our earlier finding of no difference in the effect of cigarette smoking between these ethnic groups (Table 1). When models limited to current and never smokers were run separately for Hispanics and non-Hispanics, the coefficients for average number of cigarettes smoked per day and duration of smoking were similar for the two ethnic groups (Table 1). Thus, effect modification of cigarette smoking by ethnicity appears unlikely as the explanation for the differences in lung cancer rates between these groups.[2]

TABLE 1—Regression Coefficients (B) and their Standard Errors (SE) from Logistic Models Estimating Lung Cancer Risk in Current Smokers Relative to Never Smokers, by Ethnic Group

	Non-Hispanic		Hispanic	
Independent variable	B	SE	B	SE
Cigarettes/day	0.047	0.010	0.063	0.017
Total years smoked	0.061	0.013	0.078	0.021

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Natural Disasters

I have some comments on your recent supplement of March 1986 on the health effects of volcanoes.[1] I am sorry that your supplement was not published earlier since it could have been of invaluable help in the Armero disaster when Nevado del Ruiz erupted last year.

What occurred in Armero raises many questions regarding a volcano, particularly where snow is a factor to be reckoned with. The article states that "Volcanologists will predict the way a particular volcano will behave . . ." I do not agree entirely with this statement; natural disasters, like the weather, can only be estimated. In the case of Nevado del Ruiz, international as well as local volcanologists predicted the eruption. Yet they failed in determining the effect of melted snow and the resulting mud flows. Armero's sad experience illustrates that the effect of a volcano is devastating even at great distances. Since the Nevado del Ruiz continues to be active, it is necessary to resettle all villages in the adjacent valleys to hilly areas. This is also true for many other villages in the Andes that are in potential danger.

The coordination of rescue teams after the volcanic eruption, as well as other disasters, is a difficult task, considering that a number of bodies took part in the rescue and during the aftermath. In my opinion, the police, army, Red Cross, civil guard (Guardia Civil), air force, Ministry of Health, local authorities, etc., did not have adequate plans that clearly defined duties and avoided task duplication. I believe more lives could have been saved. It was also clear that the regional authorities of the Ministry of Health had no emergency plans for their inpatient facilities. One must wonder why tent-hospitals were organized in the capital city, when most local and regional hospitals have low occupancy rates.

Let us hope the lives lost in Armero were not in vain, and we learn something in the prevention and management of the inevitable natural disasters.

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Further Comments on 'State Trends in Infant Mortality'

I would like to address the three concerns raised by Dr. Zemach in her comments[1] on my article, "State Trends in Infant Mortality."[2] Many of Dr. Zemach's remarks fail to distinguish between trends and levels. A State may have experienced a steady decline in infant mortality rates (IMRs) of about 4–5 per cent per year but stil have a relatively high level of infant mortality. Clearly, the methodology presented in my article was not intended to detect such a situation.

Dr. Zemach's first concern is that "use of significance tests could lead to serious misinterpretation" because of "the tendency to take nonsignificant findings as proof of 'no problem'."[1] While this may be a possibility, the use of a single year increase in the IMR as proof of a crisis is no less serious a misinterpretation.

The real issue regarding nonsignificant findings is the inherent instability of IMRs due to small numbers of deaths. Whether assessing trends or levels in IMRs, the lack of statistically significant findings always raises the possibility that a problem exists but the numbers are too small to detect it. I tried to emphasize this limitation by including a table explicitly showing the low power of the methodology. Confidence intervals were also presented since they clearly show when an estimate is so imprecise that the data are consistent with both "good" and "bad" values. When analysis of IMRs is equivocal (e.g., nonsignificant findings or wide confidence intervals), I would strongly encourage the analysis of any related data which might help to guide decision makers.

However, if one takes the position that "State health officials know where the problems are"[1] then data are superfluous. Data can be a valuable aid to decision making only when we are willing to admit uncertainty. In these situations, appropriate statistical analysis may reduce uncertainty and provide strong evidence for action. In many cases, however, the analysis will be inconclusive and decisions will ultimately be based on intuition, judgment, or politics. When this occurs, it is important to be cognizant of the limitations of the data.

Dr. Zemach is also concerned about the possibilities for follow-up studies given the small number prob-