



July 30, 2009

St. Louis Board of Aldermen:

I have been asked to write a letter describing my epidemiologic research on the topic of exposure to environmental tobacco smoke and chronic disease. I am writing as an academic epidemiologist who, for the past thirty years, has done research on the causes of cancer and other chronic diseases. I am not being compensated for writing this statement. I am a lifelong non-smoker and have no position regarding the adoption of a smoking ban by St. Louis City. My focus is solely on what can reasonably be concluded from epidemiologic studies of exposure to environmental tobacco smoke (ETS) and serious disease, such as heart disease and lung cancer. I believe that in order to arrive at best policy regarding a proposed smoking ban, it is essential to evaluate the relevant science dispassionately.

In the course of my career, I have published numerous studies showing that active smoking is a risk factor for various cancers. My involvement with the question of the long-term health effects of ETS exposure dates from the early 1980s. Following publication of the first study linking spousal smoking to increased risk of lung cancer (by Takeshi Hirayama of Japan, in 1981), together with Dr. Ernst Wynder, I carried out one of the early studies of ETS and lung cancer (1). In the 1990s I published two additional articles on ETS (2, 3). In 1990 and 1992 I served as a member of the EPA's Scientific Advisory Board and participated in the review of the document *Respiratory Health Effects of Passive Smoking* (4).

In the late 1990s I agreed to collaborate with Professor James Enstrom of UCLA on his analysis of the California portion of the American Cancer Society's first prospective study, Cancer Prevention Study I, or CPS I. Due to the 39-year follow-up of the California portion of the cohort, this study is the largest study to address the association between spousal smoking and heart disease in a detailed manner. (The number of lung cancer cases is smaller because lung cancer occurs at a much lower rate than heart disease).

Our analysis indicated that there was no association between spousal smoking and the risk of either heart disease or lung cancer in never smokers in the California cohort (5). We did note that exposure to spousal smoking was associated with a modestly increased risk of chronic obstructive lung disease. The strengths of this study include its size; the detailed information on smoking habits (allowing us to focus on the association of spousal smoking in nearly 36,000 never smokers) and other factors; and the availability of information allowing us to gauge the reliability of the active smoking and ETS exposure data.

I want to stress that, of all the studies of secondhand tobacco smoke carried out in the U.S., the American Cancer Society (ACS) prospective studies are by far the largest and most informative. Prospective studies are generally believed to be superior to case-control studies because in this type of study one obtains information about the exposure of interest (in this case, ETS) from healthy people

before the onset of illness. This means that the self-reported exposure information is unlikely to be biased by the presence of illness. In contrast, case-control studies, in which one is querying patients who have recently been diagnosed with heart disease or lung cancer (or their next-of-kin) and controls about their exposure to ETS, run the risk of producing biased information on exposure.

Although our paper was fiercely criticized by groups and individuals who were upset with our results, what needs to be emphasized is that our results are quite consistent with those of other analyses of the ACS prospective studies carried out by ACS scientists, as well as by others. A comparison of our results with those of other analyses of the ACS prospective studies is presented in references 6 & 7.

I believe that the appropriate way to interpret the results of the ACS studies of ETS exposure is to conclude that, even in studies which are methodologically the most robust and trustworthy, we are not able to detect unambiguous evidence of an effect of ETS on the risk heart disease or lung cancer. This does not mean that there might not be an effect, but that any effect is apt to be small and close to the limits of what epidemiologic studies can detect. (The eminent British epidemiologist, Sir Richard Peto, voiced a similar view in his 2006 testimony before the economic affairs committee of the House of Lords). This is not too surprising when one realizes that the average exposure of a non-smoker to ETS in the mid-1990s was roughly one-thousandth that of the average smoker (8). Of course, exposure to ETS has continued to decrease since the mid-1990s.

In a second paper, Dr. Enstrom and I carried out a meta-analysis of U.S. prospective studies of the association of ETS exposure and heart disease (6). This analysis indicated that, when one abstracted the results of different studies using consistent criteria, ETS exposure was associated with a smaller risk of heart disease (summary relative risk 1.05) than was reported in several previous meta-analyses, including one by the ACS, which reported relative risks on the order of 1.25.

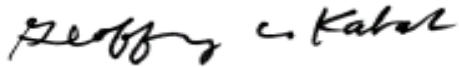
The way in which the results of studies of ETS have been interpreted uncritically and taken as providing strong (even ironclad) evidence for fatal effects is just one instance of how the results of epidemiologic studies can be over-interpreted (7, 9). Given the well-documented effects of active smoking and anti-tobacco sentiment generally, it is hardly surprising that the weak and inconsistent data regarding the health effects of ETS exposure have been pushed beyond what science would sanction.

It should be noted that, in contrast to many of the articles on the effects of ETS, some review articles addressing the range of risk factors for lung cancer occurring in people who have never smoked give a more accurate assessment of the evidence regarding ETS and lung cancer and help put the issue in perspective (10, 11).

I should say that, personally, I feel strongly that non-smokers should not have to be exposed to cigarette smoke. While the available evidence does not suggest that average exposure to environmental tobacco smoke is an important cause of heart disease or lung cancer in people who do not smoke, cigarette smoke is irritating, can trigger allergic reactions in some people, and can exacerbate asthma and other chronic respiratory conditions.

Yet, since the available evidence suggests that the effects of environmental tobacco smoke, particularly for coronary heart disease, are considerably smaller than generally believed, lawmakers may therefore have greater latitude than generally believed to consider the segregation of smokers and nonsmokers and the use of air filtration as adequate and responsible ways to address the health concerns of environmental tobacco smoke in workplaces such as bars and restaurants. If it is possible, through segregation of smokers and nonsmokers and the use of air filtration, to reduce all components of environmental tobacco smoke in establishments where smoking is permitted to the level of the air in non-smoking establishments, there is reason to believe that any risk would be undetectable.

Sincerely yours,



Geoffrey C. Kabat, Ph.D

References

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