

PASSIVE SMOKING: THE ISSUE IN THE NEWS

Jerome R. Adams

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ABSTRACT

A review of the academic and institutional research on passive smoking during the five years 1980 - 1984 and its consequent media coverage shows (1) that the issue is an emotional one, tied in many people's minds to active smoking, (2) one or two studies purporting to demonstrate the harmful effects of passive smoking receive the overwhelming bulk of media attention each year and (3) the range of studies on the subject remains unexplored by reporters. The dominance in the news of certain studies suggest that the emotional characteristics of the issue outweigh the scientific and that certain publicity-conscious researchers are taking their case to receptive reporters.

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This is an examination of newspaper and television coverage of "passive smoking" from January 1, 1980 to December 31, 1984, attempting to shed some light on the five-year flow of information from academic and institutional studies of the issue to the American public. Passive smoking is the measurement of smoke carried from the smoker to the nonsmoker inside the same room. Measured are one or several of the thousands of chemical components of tobacco smoke, and assertions are made as to the effect of those chemicals on the nonsmoker. At issue is a combination of "sidestream" smoke from the burning end of the cigarette and exhaled smoke.

Such an examination cannot be simply quantitative -- counting the inches of newspaper columns, for example -- for several reasons. First, as will be shown, this is a highly emotional issue. Thus, opinions are being bolstered or, occasionally, weakened, but not changed. Furthermore, "measurement," as used above, is not a simple matter of calibrations on a ruler. In fact, it is measurement and its modern progeny, statistics, on which much of the early research turns. The measurement itself is in question as far as some academics are concerned, though it would be a mistake to think that the public shares, or even understands, that concern. Finally, as will be seen, passive smoking is inextricably tied to active smoking in many nonsmokers' perception. Even if icy-calm consideration were the rule at the

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research end of the information chain, the issue would still evoke certain gut responses among the public.

Consider, as an example, this 102-word report by Dan Rather on the CBS Evening News, February 22, 1982:

"The government today issued its strongest indictment yet of so-called passive smoking, saying nonsmokers, quote, should avoid being in a smoke-filled room.

As for cigarette smoking itself, the Surgeon General's annual report says smoking causes 30 percent of all cancer deaths in this country. The report says smoking this year will be responsible for 340,000 deaths, \$13 billion worth of health care, and another \$25 billion in lost production and wages.

The report also linked cigar and pipe smoking and long-term use of snuff with cancer.

The Tobacco Institute, an industry group, said today's figures, quote, are not essentially news."

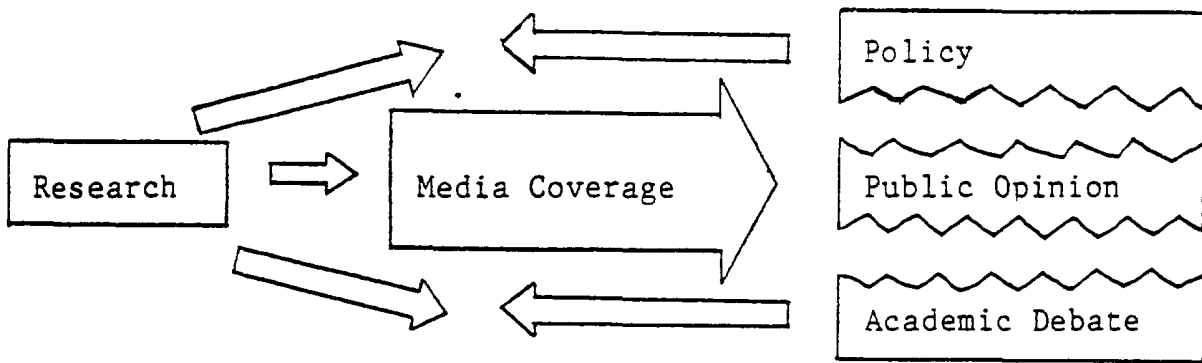
The word "smoke" or some derivative is used seven times, "cancer" twice, and "death" once. To repeat, it would be a mistake to equate research into passive smoking with news about that research.

This paper examines press coverage of passive smoking by dividing consideration of the subject five ways:

1. The "universe" that constitutes "coverage" is explained.
2. The "science" as it has developed is described.
3. Academic debate on the subject is described in contrast to public perceptions.
4. How the press has treated the subject is demonstrated.
5. Some speculation as to what the future holds is ventured.

A. The universe: What makes news?

For the purposes of this study, it is suggested that the flow of information has four phases: Research, either suggesting that passive smoking is harmful, that it is not, or that we don't know; Academic Debate, typically over methodology; Media Coverage; and Public Opinion and Policy Initiatives. Schematically, it might look like this:



Note that policy and public opinion are, in a democracy, closely linked. Note also that placing "debate" with them implies that this neat schema is, in the real world, confused, sometimes angry, never perfectly clear. That is the way the issue of passive smoking has evolved.

The function of academic debate is to distill knowledge. It tells us what science is. It tests research over the fire of standards. Once again, however, that is a theory that does not

always survive the pressures of the real world, and this has had some effect on the issue of passive smoking.

In 1980, a representative of the news bureau of the Stanford University Medical Center said in a letter to the New England Medical Journal, "For years many scientists have maintained that science journalists are frequently inaccurate, that they oversimplify, and that in their rush for deadlines and headlines they fail to wait for completion of the orderly process of scientific review and publication.

"In recent months, however, we have begun to witness a reversal unheard of in the annals of scientific communication: the phenomenon of scientists publishing research data by press conference.

"It is not entirely clear what is causing this departure from the established norms; however, there is evidence that competition and the increasing involvement of academic scientists in the field of commercial application may be part of the problem. Free inquiry and the pressures of competition associated with the application of technology are not necessarily compatible."

The writer was concerned about such research areas as that related to recombinant DNA, but the problem of science-by-press conference is a real one. Ironically, the letter ran one column away from remarks by Claude Lenfant and Barbara Marzetta Liu of the National Heart, Lung and Blood Institute of the National Institutes of Health. Their statement that "the evidence that passive smoking in a general environment has health effects

remains sparse, incomplete and sometimes unconvincing" caused them embarrassment because they were loudly criticized by academics. This was the equivalent of shouting them down, something less associated with ivy-covered walls than with grammar school playgrounds, but so intense did the issue of passive smoking become in the 1980s.

The Tobacco Institute library is assumed to be capable of gathering virtually all information published in North America, Europe and Asia on the subject of passive smoking during the five-year period under study. As for the media universe, it here means:

CBS Inc. and its affiliated television stations, the New York Times and its affiliated wire service, the Washington Post and the Los Angeles Times and their affiliated wire service, Newsweek magazine and the Associated Press.

The CBS Evening News is broadcast to more than three million people in metropolitan New York and transmitted to 202 local stations. Its "60 Minutes", which in January 1984 did a story on passive smoking, is one of the most viewed programs in America.

Circulation figures are:

The Washington Post	Daily	718,842
	Sunday	996,621
The Los Angeles Times	Daily	1,038,499
	Sunday	1,294,274

The New York Times	Daily	910,538
	Sunday	1,523,113
	Daily total	2,667,879
Newsweek	Weekly	3,022,727
	Total	5,690,606

Representatives of the two wire services say that the LA Times-Washington Post service has some 500 subscribers, the NY Times service from 250 to 300. Although no total circulation figures were available, it may be assumed that despite overlap the full circulation capability is huge.

More significantly, AP claims 1,500 U. S. newspapers and 8,500 foreign papers. The widely used AP radio service reaches afternoon "drive time" in America, when a significant percentage of Americans hear news for the first time.

Some things should be kept in mind about these figures. First, the numbers are big enough to imply totality. These organizations don't just carry the news, they define it. Second, not all news, whatever the numbers associated with it, is equal in the minds of readers. The two newspaper-operated wire services add the weight of their medical reporters -- Jane Brody comes to mind -- and thereby add some legitimacy to the news. While bylines hardly sway the unconvinced, they operate as a kind of conversation handle, as in "Did you see what Jane Brody said about passive smoking this morning?" Indeed, when the Hirayama¹ study was turned into news in 1981, Jane Brody carried its assertions to her readers as part of a general survey on the question of passive smoking.

Finally, it is important to recognize the universe of news as one of impressions. Newspapers are supermarkets of information,

in which customers browse, squeezing headlines, pinching a few paragraphs, rarely following the "jump" to another page. So, too, the television viewer is subject to distraction, remembering little beyond key words and concepts. Did Dan Rather say something "good" or "bad" about smoking?

Words and symbols are not transmitted into a vacuum. Arnold E. Reif observed in a 1981 article in Scientific American that "cancer remains a dreaded disease." Americans are aware that the American Cancer Society estimates that more than 400,000 Americans die each year of the disease and that it is the second most common cause of death. That knowledge forms attitudes, and Marshall McLuhan, the granddaddy of all who would analyze the media, noted:

Our very word 'grasp' or 'apprehension' points to the process of getting at one thing through another, of handling and and sensing many facets at a time through more than one sense at a time....The 'common sense' was for many centuries held to be the peculiar human power of translating one kind of experience of one sense into all the senses, and presenting the result continuously as a unified image to the mind.

It becomes clear as one examines media coverage of the issue of passive smoking during the 1980s that a "unified image," the public perception, exists. That image, at least for the sixty-seven per cent of Americans who don't smoke, is that smoking in any form is bad and that any suggestion to the contrary suggests evil motivation.

B. Science and Perception: the history of the issue

The first surgeon general's statement suggesting a link between smoking (active) and lung cancer was in 1955, and since

then various Members of Congress have attacked smoking and tobacco, cigarette advertising has been banished from television, warnings have been required on each pack and advertisement, and some 33 million Americans have quit. On the other hand, the industry has survived, several manufacturers have flourished, and sales remain above 600 billion cigarettes a year.

Rumblings of the passive-smoking issue can be traced back to the mid-1970s, and it is interesting to note the attitude reflected back then. In June 1975, the Journal of Breathing touched on passive smoking, saying:

There are some data that children of parents who smoke may have more respiratory illness than children of nonsmokers, but these studies have not been well controlled for the effect of children themselves smoking. A recent study from Israel showed that children of mothers who smoked during the pregnancy were more likely to be admitted to the hospital for bronchitis and pneumonia between the ages of 6 and 9 months. It is not clear whether this should be attributed to the smoke pollution in the infant's environment...

The question also arises as to the importance of involuntary smoking exposure in the development of heart and lung disease....it would seem unlikely that there would be an increase in the risk of developing lung cancer....

Articles at that time portrayed a three-pronged theme: Pregnant women and young children might be at risk from passive smoking. Likewise, people afflicted with bronchial problems might also be affected. Beyond those concerns, however, there was nothing. In the 1980s the issue came of age.

Early research on ambient smoke reported two things no longer mentioned, but which affect research by perverting its results. Researchers found that some people -- without regard to "health" -- have sensitive eyes and that airborne chemicals far below environmentally acceptable limits may cause irritation when there is no more than a whiff of smoke in a room. Further, psychological research reported that some people complain upon seeing cigarette smoke -- perhaps at the other end of a fairly big room. These are the modern counterparts of King James I, who complained in 1604 about smoking at court. Beginning about 1980, however, concerns became much more serious, though researchers continued to manifest a petulance and a sense of being driven by something other than attention to pure science.

1980

In 1980, among six studies of passive smoking, one was destined to define how the debate is to be conducted.² It was joined by the Hirayama study in 1981 and these seminal works began to develop the issue, determined how it is to be regarded by the media, and established the pattern likely to continue.

In March 1980, the New England Journal of Medicine published the results of a study by two men associated with the University of California campus in San Diego, an academic, James R. White of the department of physical education, and a physician, Herman F. Froeb. Their paper had been given the year before at the annual meeting of the American College of Sports Medicine, meeting in Hawaii, but it was the NEJM that made their research "news."

During 1980, there were thirteen news stories inspired by the White and Froeb study, supported later in the year by a report from two researchers associated with the federal government.³ Although there was much discussion that year about Proposition 10 in California, a referendum to segregate smokers in public buildings, the White-Froeb study had an obvious momentum beyond that. Across the county, it was as though the media had been waiting for such a study. White and Froeb asserted that smokey atmosphere tends to cause obstructed airways in nonsmokers if they are exposed for extended periods. "Beware Smoky Rooms," Newsweek warned its three million readers.

The supporting study by Repace and Lowery, which suggested that particulates in smoke in public places might be harmful, failed to attract the attention of the White-Froeb research. It would become, however, part of a growing corpus of information that would be advanced as "proving" a link between passive smoking and health problems.

In addition to exciting press coverage, the White and Froeb also caused academic controversy. In the British-American publication Lancet, but mostly in the NEJM, researchers flailed back and forth over the validity of the study. In simple scoring, seven letters criticized the study, six supported its conclusions. So intense was the debate that it reached the popular press. Briefly, White and Froeb filled unusual roles as academic media stars.

Such normally arcane arguments as the legitimacy of the FEF (forced mid-expiratory flow) and FEV (volume, as opposed to flow) measurements and the reliability of the spirometer (which measures respiration) spilled into the popular press. And, had the White-Froeb study been the last of its kind, the criticism might have thoroughly discredited the study. But the debate's having moved to the mass media had the effect of rallying support for the idea that all smoking is bad. Science was following opinion.

Apart from the academic criticism, White and Froeb had provided anti-smoking forces with what the Washington Post called "hard evidence," and they were not going to be dissuaded by questions of methodology. The next year, 1981, would see this phenomenon in full flower.

1981

That was the year of what television talk-show hosts seemed to know only as "the Japanese study." That was enough. Takeshi Hirayama⁴ published in the British Medical Journal his study suggesting that nonsmoking Japanese wives of heavy-smoking husbands got cancer from the smoke in the house. Again, serious questions were raised about his methodology. Again, it made no difference in the popular mind. (Hirayama's views on passive smoking are strong enough that he once suggested in an interview that some nonsmoking wives of smoking husbands might be driven, by their plight, to suicide.)

Hirayama drew to his support a study done by Dimitrios Trichopoulos⁵ for which the methodology was, if possible, even more suspect. But the two studies, which came to be closely associated, enjoyed widespread mention in the news without serious discussion of alleged methodological flaws.

At the same time as Hirayama and Trichopoulos were being discussed in the media, there were six other studies published on passive smoking, indicating the interest, the availability of grant money -- and the likelihood that methodological shortcomings would eventually be solved if interest were maintained. At least three of these studies were effectively reviews of other studies. This is the same as when a newspaper reporter looks back through the clips in the morgue, repeating certain things until they become conventional wisdom. In addition to such original work as "Parental Smoking At Home And The Height Of Children "⁶ there were such seat-of-the-pants efforts as "Can You Afford To Hire Smokers?"⁷

Also in 1981 was one of the most significant occurrences with regard to understanding the flow of information about passive smoking. From the unlikeliest quarter of all, the American Cancer Society, came a study that suggested that ambient smoke was not a problem. In the embarrassment it apparently caused its author, Lawrence Garfinkel, and in the academic community's rush to "explain" its finding, the study⁸ demonstrated how far afield from scientific concerns the issue had wandered.

If one were once again to think of the year in pure numbers, Hirayama beat Garfinkel, 15-1. Hirayama's study emerged in the public print in January; Garfinkel's came five months later. Of sixteen news stories, all but one focused on the Hirayama findings. Garfinkel's study appeared on page one of the New York Times -- "Study Puts Doubt on Smoking Hazard" -- and was swept away, although AP did use the Garfinkel study to balance Hirayama's findings. When The Tobacco Institute weighed in with a statistical expert to cast doubt on the Hirayama research, that, too, failed to excite much notice. A UPI story that Hirayama's figures had been "miscalculated" appeared inside the second section of the New York Times.

On the one hand, there was enough discussion of the issue that the Times assigned its medical reporter, Lawrence K. Altman, a physician. On the other hand, the discussion led to this exchange on New York City's Channel 2, which claims an average daily audience of 3.8 million people:

Karen Monaco: Then there's the whole issue of second-hand smoking, which is the effect your smoking has on your children, and the studies show that, in fact, during the first year or two of life, children of smoking parents have many more respiratory conditions. So it doesn't stop at birth, you know.

Nancy Tigue: I can't imagine...I've seen women having... feeding the baby the bottle and the cigarette in their hand. I mean, that, to me...

Indeed, the studies published in 1980 and 1981 about the possible effects of passive smoking on children -- respiratory problems, height reduction -- made it thoroughly impossible for many people to separate active and passive smoking in their minds. The issue had reached from the hospitals of Greece and Japan into the most intimate place in America, the Ann Landers column. "I am going with a terrific man. George wants to marry me, but one thing is holding me back. He is a very heavy smoker." Ann cited Hirayama.

At the other end of the journalistic spectrum, a New York Times editorial also cited Hirayama. "The smell of stale tobacco can turn off even the most ardent suitor. But now it turns out that there may also be sound medical reasons for shunning the smoker. A major study in Japan..."

1982-1983

In 1982 and 1983, there was a relative paucity of news on passive smoking, although occasional news kept the issue alive. The Los Angeles Times and the Washington Post, and their news service, carried a story about a Boston study⁹ under the headline (in the Post) "Smoking By Mother Said to Peril Child." In the story, an advertisement by The Tobacco Institute was mentioned:

In a half-page advertisement in yesterday's Washington Post and in several magazines, The Tobacco Institute said "no claim of adverse effect of cigarette smoke on a healthy nonsmoker has yet been proved"...and "even the U. S. Surgeon General, an outspoken critic of smoking, said in 1982 that the available evidence is not sufficient to conclude that other people's smoke causes disease in non smokers."

The Post story did not end on that note, however. In a final paragraph, the story said:

"Surgeon General Everett Koop was discussing three studies indicating that breathing others' smoke may increase the risk of lung cancer. And he added in the same sentence that "the evidence does raise concern about a possible serious public health problem."

This exchange is important. A time-honored goal of reporting is "balance." The Post reporter provided balance by quoting The Institute. The Institute, however, placed itself in the embarrassing position of appearing to deceive. The reporter simply quoted The Institute's disclaimer, knocked it over, and ended the story. Balance was preserved, but at the expense of The Institute's credibility. The same thing happened in the Rather newscast quoted in the beginning. A point might be reached when The Institute does itself more harm than good by saying anything at all.

One interesting news event occurred in 1983 in Anne Browder's appearance on "Night Watch" with Rhoda Nichter, an anti-smoking activist. It was one of the most thorough discussions of the issue, allowing expression of psychological aspects of the question (from those who called in) and covering research. However, it was on the air at three o'clock in the morning.

The Browder-Richter exchange serves as an example of how the issue has evolved in the 1980s. As more evidence has been introduced, the discussion has become more informed. On the other hand, there is little evidence that public opinion has been dramatically affected -- news reports tend to cover the same

ground, supporting the notion that passive smoking is bad, even if no one can say precisely why.

This is beginning to change. Despite the lack of news stories in 1982-83 period, our research identified twelve research projects, not counting two reviews of the research of others. Predictably, ten studies supported the view that passive smoking is harmful -- now even studies of active smoking were beginning to discuss passive smoking -- and two studies took issue with the prevailing opinion.

P. N. Lee, in 1982, wrote in Food and Chemical Toxicology¹⁰ "Before 1980, the argument that passive smoking was a serious health hazard was rather tenuous....(No) claims provided convincing evidence relevant to the normal healthy nonsmoker."

Citing White and Froeb, Hirayama and Trichopoulos, he then asserted that things have not changed:

"A review of the detail of these studies suggests that none provides conclusive evidence."

Given prevailing attitudes, such a remark is an academic straw in the wind. More sensibly, a suggestion was made in 1982 by Gary B. Friedman¹¹ in a study published in the American Journal of Public Health. He advised making passive smoking but one variable along with other atmospheric and ingested measures in any consideration of what causes disease. Smoking as the guilty party is not as clear when smoking is considered a part of a constellation of variables, Friedman wrote.

1984

In 1984, passive smoking returned to the public consciousness more strongly than ever. G. H. Miller¹² presented his evidence that was designed to solve the methodological problems of Hirayama and Trichopoulos and show that women get cancer from their husbands' smoking. The Institute tried to show that Miller's statistics should be turned on their head. Miller's side was carried in an AP story in April, The Institute's side in a story in May. There was balance, but nothing changed.

In the meantime, a wider variety of research than ever before was coming to light. It seems to have lent a new sophistication to media coverage just by virtue of its variety. Clearly, what has happened is that the issue has been kept aloft long enough for additional support to be gathered to hold it up. In 1984 and early 1985 there have been five major studies supporting the idea that passive smoking is harmful while two suggest there is no evidence of such an effect.¹³ (Much information on the subject went into testimony before the Civil Aeronautics Board.) The activity generated no fewer than eighteen news stories, most focusing on a few of the studies. In a sense, the issue has come of age.

Now, cotinine, a metabolite of nicotine, is being measured in nonsmokers' urine. Research is being sharpened in attempts to demonstrate that some smoke is making its way to nonsmokers' metabolic systems.

In the press, the issue is chic. "CBS has obtained the study," announced Bernard Goldberg on the CBS Evening News about Shigeru Matsukura's research, which replaced Hirayama's as "the Japanese study" even though Hirayama continues his efforts. In that CBS report, Repace appeared as a talking head.

Finally, the Surgeon General, responding to public discussion and wanting to lay to rest any notion that he entertains doubt on the question, has pronounced the evidence that passive smoking is harmful "very solid." The phrase had the simple thud of news, and it was used by both Dan Rather and Newsweek.

C. Conclusions

1. Imagine reaching into a bag of half a dozen eels, pulling one out and presenting it to the media. Now imagine, in the interest of fairness, dumping the whole bag.

Obviously, neither of these is happening. Each year, one eel is slithering out of the bag on its own. It is helped into the light by either the New England Journal of Medicine or the British Medical Journal. Other eels get stepped on.

Something other than scholarly rigor is elevating "research" to "news." It may be the assertiveness of the researcher, the simplicity of the conclusions, a buddy system, the prevailing mindset, or some combination of all these. Whatever it is, it makes people focus on something like Hirayama's "five cigarettes a day" rather than the fractional cigarettes (assumed to be inhaled by passive smokers) suggested by three parallel studies. (See Footnote 3)

2. To state the obvious, the emotional character of the overall issue of smoking infects consideration of passive smoking. Related to this is the fact that one's eyes and nose literally lead to one's conclusions about others' smoking. This influences research, making people believe that what smells bad is bad.
3. The Institute has tended to react to research. An alternative might be either to sponsor research with some adversary agency or to sponsor a seminar that brings together disparate views. The idea would be to respond to the reality of Point 1, to let several eels out of the bag at once. Reacting has not worked; a more aggressive, but fair, tactic might lead to a more two-sided presentation.

It is with this last point in mind that the footnotes point to research, which has never seen the light of daily newspapers, where the conclusions are tentative, or, in some instances, actually refute the prevailing findings. (See Footnote 13)

FOOTNOTES

¹Non-smoking Wives of Heavy Smokers have a Higher Risk of Lung Cancer: A study from Japan, Takeshi Hirayama, Jan. 17, 1981, British Medical Journal.

²The one that caught the media's eye was Small-Airways Dysfunction in Nonsmokers Chronically Exposed to Tobacco Smoke, Jas. R. White and Herman F. Froeb, March 27, 1980, New England Journal of Medicine. The others were Passive Smoking at work, Annetta Weber and Toni Fischer, Vol. 47, No. 3 (Aug. 11) 1980, International Archive of Occupational and Environmental Health; Reflection of Passive Exposure to Smoking in the Home on the Prevalence of Chronic Bronchitis in Nonsmokers. C. Simcek, 3, No. 4, 1980, Czechoslovak Medicine; and Indoor Air Pollution... Jas. L. Repace and A.H. Lowery, 208, 1980, Science, with regard to passive smoking. The two others were directed at active smoking, but one (Effect of Cigarette Smoke Inhalation during Pregnancy in Sprague-Dawley rates, Gerd Reznik and Gerhard Marquard, Nov. 1980, Journal of Environmental Pathology and Toxicology) signaled the way active and passive smoking were becoming intertwined.

³This is the Repace and Lowery study, which, while listed in 1980, entered discussion later. It should be noted that while this effort provoked discussion in Washington, presumably because of the authors' relation to public policy, it is unmentioned in press accounts of the issue. Furthermore, it is an example of how scientific measurement can change as it becomes news. Whereas Repace and Lowery calculated passive smoking in terms of fractions of cigarettes -- as had Hinds and First in 1975 and Hugod et. al. in 1979 -- Hirayama would calculate the effect as five cigarettes a day. He did this, apparently, by "creating" a .55 mg-tar cigarette.

⁴The published report came early in the year and was picked up by the NY Times in January. Coverage continued into June, however, and the effect of the Garfinkel study mentioned below was to give new life to the Hirayama study.

⁵Lung Cancer and Passive Smoking, Dimitrios Trichopoulos et. al., 1981 International Journal of Cancer.

⁶R. J. Rona et. al., Nov. 21, 1981, British Medical Journal.

⁷Wm. L. Weis, May 1981, Personnel Administrator. The others were Passive Smoking and Lung Cancer with Comments on Two Newspapers, E. Cuyler Hammond and Irving J. Selikoff, 1981, Environmental Research; Respiratory Effects of Household Exposure to Tobacco Smoke and Gas Cooking, M.B. Meyer et. al. (presented at the Society for Epidemiological Research, 1981) Society for Epidemiological Research Abstracts; The Problem of Passive Smoking, Jas. L. Repace (presented at the Symposium on Health

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Aspects of Indoor Air Pollution, May 1981) Bulletin of the New York Academy of Medicine; Time Trends in Lung Cancer Mortality among Nonsmokers and a note on Passive Smoking, Lawrence Garfinkel, June 1981, Journal of the National Cancer Institute.

It should be noted that Garfinkel was not the only researcher to find that passive smoking's problems might be exaggerated. The Meyer study, in addition to finding "significant problems regarding gas cooking," concluded:

"Analysis showed: 1) No significant association between the frequency of major respiratory symptoms and living in a house with other cigarette smokers; 2) A non-significant increase in frequency of impaired forced expiration with exposure to other cigarette smokers in the household..."

⁸"There was no evidence of any trend...No time trend was observed in nonsmokers for cancers of other selected sites except for a decrease (emphasis added) in cancer of the uterus. Compared to nonsmoking women married to nonsmoking husbands, nonsmokers married to smoking husbands showed very little if any, increased risk of lung cancer."

⁹Longitudinal Study of the Effects of Maternal Smoking on Pulmonary Function in Children, Ira B. Tager et. al. (a joint study of three Boston-area facilities, 1981). Other studies from the period were: The Etiology, Epidemiology and Prevention of Lung Cancer, Ernst L. Wynder, Jan. 1982, Seminars in Respiratory Medicine; Nicotine Concentrations in Urine and Saliva of Smokers and Nonsmokers, Colin Feyerabend et. al. April 3, 1982, British Medical Journal; Irritants in Cigarette Smoke Plumes, Howard E. Ayer and David W. Yeager, Nov. 1982, American Journal of Public Health; Passive Smoking, P.N. Lee, 1982, Food and Chemical Toxicology; Epidemiological Aspects of Lung Cancer in the Orient, T. Hirayama, 1982, Excerpta Medica; The Health Effects of Involuntary Smoking, Scott T. Weiss et. al., 1983, American Review of Respiratory Diseases; Smoking and Lung Cancer: Some Unresolved Issues, Ernest L. Wynder and Marc T. Goodman, 1983, Epidemiological Reviews; Adult Passive Smoking in the Home Environment: A Risk Factor for Chronic Airflow Limitation, Francine Kauffman et. al., 1983, American Journal of Epidemiology; Prevalence and Correlates of Passive Smoking, Gary B. Friedman et. al., April 1983, AJPH; Lung Cancer: A Comparison of Incidence between the Amish and non-Amish in Lancaster County, G.H. Miller, Feb. 1983, Journal of the Indiana State Medical Association; Maternal Passive Smoking and Fetal Serum Thiocyanate Levels, Sidney F. Bottoms et. al., 1982, American Journal of Obstetrics and Gynecology; Ventilation Requirements in Buildings -- I: Control of Occupancy Odor and Tobacco Smoke Odor, Wm. S. Cain et. al., 1983, Atmospheric Environment; An Experimental Study on Irritation and

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Annoyance due to Passive Smoking, Tsuneji Muramatsu, April 1983, International Archives of Occupational and Environmental Health.

¹⁰Lee, op. cit.

¹¹Friedman, op. cit.

¹²Cancer, Passive Smoking and Nonemployed and Employed Wives (presented in Winnipeg, July 7, 1983) Western Journal of Medicine, published in 1984.

¹³Effects of Environmental Tobacco Smoke on Urinary Cotinine Excretion in Nonsmokers, Shigeru Matsukura et. al., Sept. 27, 1984, NEJM; Risk Factors for Childhood Respiratory Disease, Sverre Vedal et. al., American Review of Respiratory Disease; Smoking and Lung Cancer: An Overview, Lawrence A. Loeb et. al., December 1984; Cancer Research; Passive Smoking in Adulthood and Cancer Risk, Dale P. Sandler et. al., 1985, American Journal of Epidemiology; Active and Passive Smoking in Married Couples: Results of a 25-year Followup, J. P. Vandebroucke et. al., June 16, 1984, BMJ; and Lung Cancer in Nonsmokers, Geoffrey C. Kabat and Ernst L. Wynder, March 1984, Cancer.

The last two studies cited included hesitations about what evidence was showing.

Vandebroucke: "...passive smoking was not associated with an increase in total mortality.

"(while the result) does not necessarily contradict those of other studies...Nevertheless, our findings are reassuring to the extent that the possible absolute risk carried by passive smoking is probably small."

Kabat and Wynder: "The plausibility of a role of passive inhalation in lung cancer can be questioned on several grounds. Although sidestream cigarette smoke contains higher concentrations of toxic components than mainstream smoke, it is diluted in the ambient air to varying degrees..."

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