

# Involuntary Smokers Face Health Risks

*Smokers' children are more likely to have respiratory problems and spouses are more likely to get cancer, according to the National Academy of Sciences*

AMERICANS smoked 595 billion cigarettes last year. This comes to 3384 cigarettes per adult—fuel for plenty of damage. However, this is the lowest consumption figure since 1944, when the per capita figure hit 3039, still moving up toward its peak in 1963 of 4345.

This suggests that there has been some progress in educating the public since the famous surgeon general's warning on tobacco in 1964. Despite the tobacco industry's high-priced efforts to obscure it, the message may be getting through that smokers are far more likely than nonsmokers to get cancer or die prematurely.

On 14 November the National Research Council, the study branch of the National Academy of Sciences, released a new indictment of smoking that describes the injury done by tobacco smoke to nonsmokers. The report, *Environmental Tobacco Smoke: Measuring Exposures and Assessing Health Effects*, was written on contract for the Environmental Protection Agency and the Department of Health and Human Services, which may decide to regulate tobacco smoke as an air pollutant.

The report's main findings are that (i) young children are more likely to have respiratory problems and require medical attention if they are raised by smoking than nonsmoking parents, (ii) adults who have never smoked are significantly more likely to get lung cancer if married to smokers than if they are not, and (iii) many people suffer severe eye and nose irritation when exposed to tobacco smoke, an effect that can be relieved by a fivefold increase in ventilation.

Barbara Hulka, chairman of the study group and of the epidemiology department at the University of North Carolina's School of Public Health, presented these findings on 14 November to a packed news conference. She spoke just after pro- and antitobacco lobbyists had clashed in ritualistic fashion on the Academy's steps.

A tobacco industry spokesman had summoned reporters to let them know that he viewed this new report as a retreat from earlier warnings about tobacco. (His view was contradicted in the official press confer-

ence.) Then activist John Banzhaf, director of Action on Smoking and Health (ASH) intervened with his own vocal critique of the tobacco industry. When it was over, reporters filed inside, where camera gear lined the back of the lecture hall and technicians lolled impatiently. A group of them fell into a mock coughing fit when one lit a cigarette. An Academy staffer asked the smoker to put it out, which he did, saying in bewilderment, "They're serious."

The occasion was indeed serious, despite the antics, for it highlighted once again the frustrating set of problems posed by tobacco use. Hulka told the audience several times that the scientists had not been asked to make policy recommendations and did not intend to. Nevertheless, she said that the

---

***Wald concluded that there is clear evidence that nonsmokers who live with smokers face a 35% higher risk of getting lung cancer than those who do not.***

evidence on the damage to children's health was so strong that the group felt it had to speak up on this point. The report says: "Since children exposed to environmental tobacco smoke (ETS) from parental smoking have an increased frequency of pulmonary symptoms and respiratory infections, it is prudent to eliminate ETS exposure from the environments of small children."

On the basis of a review of epidemiological studies, the panel found that children of smokers had a 20% to 80% greater risk of respiratory problems than other children. It is not clear whether the smoke itself or proximity to a disease-prone parent causes these problems, but the report did find the illnesses more strongly associated with smoking by the mother than by the father. The panel also endorsed an earlier finding that smoking by the mother during preg-

nancy is associated with a low birth weight of the child. Finally, there is "some evidence" that exposure to tobacco smoke slows the rate at which a child's lungs grow.

The NAS panel treated the subject of lung cancer with caution. The study notes that lifelong nonsmokers married to smokers have a significantly greater risk of getting lung cancer than those with a nonsmoking spouse (about 30% greater). But it did not attempt to calculate the number of excess cancers induced by "passive smoking." For perspective, Hulka pointed out that the risk of getting cancer is 1000 times as great for the active smoker than for the nonsmoker.

An appendix by James Robins, an epidemiologist at the Harvard School of Public Health, did attempt to calculate the number of excess cancers. His work was not endorsed by the panel because it arrived late and was loaded with "potent math," as one observer said, apparently too potent to be deciphered in time for the press conference. But it was published. Robins estimated that of the 12,000 lung cancer deaths in 1985 among nonsmokers, over 2400 were caused by environmental tobacco smoke.

Robins' estimate fits with that of a British researcher, Nicholas Wald, who has published several papers recently on passive smoking and lung cancer. Wald, a member of the NAS panel, developed an effective way of detecting exposure to environmental tobacco smoke by measuring cotinine, a metabolite of nicotine, in the blood. This measure works well because there is no confusing the cotinine level of an active smoker with that of an involuntary smoker, the former being 100 times as great as the latter. Furthermore, people who do not work or live with smokers have a cotinine level of zero. The three exposure levels are thus easily distinguished by an objective measure.

Using the cotinine marker, Wald has now validated a number of epidemiological studies on smoker-nonsmoker couples. He also reviewed the risk results of 13 studies and concluded that, after bias is removed, there is clear evidence that nonsmokers who live with smokers face a 35% higher risk of getting lung cancer than those who do not live with smokers. He estimates that in the United Kingdom around 300 nonsmokers die each year of lung cancer induced by tobacco smoke. He thinks Robins' estimates for the United States are compatible with his own.

This is one of many areas in which the Academy panel saw a need for further research. Chief among the items on the agenda is the need for research on exposure to tobacco smoke in the workplace and on ways to reduce it.

Little is known about diseases other than lung cancer that may be stimulated by ambient tobacco smoke, although experience with active smokers suggests that there is reason for concern. This is another "important topic for future epidemiologic inquiries," according to the report.

Many issues remain unresolved, but one clear implication of this study is that smoking presents a public health threat broader than generally appreciated. It endangers not just the health of those who are competent to accept such risks, but also children, who are not. ■ **ELIOT MARSHALL**

## Russians Querying U.S. Sovietologists

Two representatives from the Soviet Academy of Sciences were in this country last month circulating a questionnaire, apparently the first of its kind, designed to gain information on the state of Soviet studies in the United States. Yuri K. Igritsky and Leonid K. Shkarenkov, from the Institute of Scientific Information for Social Sciences, visited a number of Soviet study centers and reportedly dropped off about 100 copies of the questionnaire.

The Russians, under General Secretary Mikhail Gorbachev, are "much more interested in the real state of the U.S. today than they were 5 or 10 years ago," says Bruce Parrott of the Johns Hopkins School for Advanced International Studies. He said, though, that he would not be answering the query because of the Soviets' habits of taking things out of context.

Peter Reddaway of the Smithsonian Institution's Kennan Institute for Advanced Russian Studies says the questionnaire has a "very definite political goal" which is "to find out if sovietologists in the U.S. influence American policy." He adds that the Soviets are getting more interested in trying to "discern the true facts about various aspects of their own economy and society," and they recognize that Americans have been studying these "much more objectively than the Soviets have."

A State Department official says the most interesting aspect of the query is that it reflects a softening of the Russians' "fairly intense hostility toward all sovietologists" that grew up with the Cold War expansion of Soviet studies in the United States. These experts have been seen as partly responsible for the government's animosity toward the Soviet Union. But now the Soviets seem prepared to recognize that scholars hold a variety of views and that hard-line anti-Soviet emigrés do not, as formerly perceived, dominate the field.

The questionnaire on "Soviet Studies in the USA in the 1980's," written on a manual typewriter, reads as follows:

"Dear sir,

to acquire more precise firsthand knowl-

edge of the aforementioned subject matter, we beg you at your will and choice answer the following questions. Thank you very much in advance.

1. What did the new Act of 1982/83 change in the scale and intensity of Soviet studies in the United States? [The reference is to a \$4.5-million annual increase in Soviet and East European studies.]

2. Can the study of the Soviet Union and Russia in the United States be a positive (or negative) factor in shaping American-Soviet relations?

3. Is it true today, as Peter Wiles remarked in 1964 (in the 'Survey' Journal), that the Soviet Union is studied in the NATO countries with prejudice that cannot be denied?

4. If yes, what can (or should) be done to lessen that prejudice?

5. Is there a public image (or set of images) of the Soviet Union prevalent in the

USA? Do American scholars of the USSR contribute in some way or other to the making and preservation of that image?

6. Has the conservative tide in the United States of the recent years exerted significant influence upon Soviet Studies in the United States? Where can this influence be most commonly traced?

7. If conservative ideology and conservative perception of the USSR loses its élan and influence in the States, what will succeed it?

8. Is the concept of totalitarianism (which seems to dominate again in the American views on the USSR) adequate to describe the Soviet Union? Are there any concepts that run counter to that one in American sovietology?

9. While some American scholars of the Soviet Union view it as a traditional great power succeeding Imperial Russia, others interpret it in the categories of 'world revolution' or 'communist expansion,' still others follow the theory of 'dualist' nature of the Soviet state. What version do you adhere to and why? Does conservative theory shed any light on this matter? Finally, which 'model' of the Soviet Union is most appealing to the average American?

10. Do you think there can be positive understanding between the United States and the Soviet Union leading to mutually satisfactory relations, and if so what ought to be done to promote it?" ■

**CONSTANCE HOLDEN**

## Xerox Launches Learning Institute

The Xerox Corporation, citing the vast cost to American businesses of retraining new workers who never learned to read, write, or count in school, has launched a new not-for-profit research institute to study how artificial intelligence and the cognitive sciences can be applied to human learning.

The Institute for Research on Learning will be associated with Xerox's Palo Alto Research Center (PARC) and with the University of California Graduate School of Education at Berkeley. It will be headed by George E. Pake, the founder and recently retired director of PARC, and it will build on PARC's pioneering research in computer-aided instruction.

"Learning isn't just a matter of pouring knowledge into a kid's head," says John Seely Brown, vice president of advanced research at PARC and an associate director of the new institute. "People come into learning with fragmentary concepts already

in place—like a set of eyeglasses for looking at the world in a certain way. So the question in education is, How do you reconceptualize the world? How do you craft a new set of eyeglasses. And that's not a passive process."

Thus the importance of the artificial intelligence and cognitive science approach to learning, he says. Instead of concentrating on rote memorization and drill, these disciplines ask very precise questions about how a student mentally processes information, how he or she structures knowledge, and how computers can best be designed to facilitate that processing.

"One of our hopes at the institute is to attract a new kind of theoretician who is interested in these questions," says Brown.

Xerox is investing \$5 million to start the institute and is seeking other companies to join as partners. Results will be published and made available to the public. ■

**M. MITCHELL WALDROP**