

## References

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## Pesticides and Birth Defects

### To the Editor:

I read with interest the editorial "Pesticides and Birth Defects," by Rowland.<sup>1</sup> I agree that the evidence for the teratogenic-mutagenic effect of pesticides is weak. I was disappointed, however, that one of the most obvious and known findings related to this topic, a unique cluster of congenital abnormalities in Hungary, was not mentioned.<sup>2</sup> Of 15 births in a small village in 1989-1990, 11 (73%) were affected by congenital abnormalities, and 6 were twins. Of the 11, 4 had Down syndrome. We ruled out known teratologic factors, familial inheritance, and consanguinity. A case-control study and environmental investigations pointed the finger of suspicion at the excessive use of trichlorfon at local fish farms. Trichlorfon, an organophosphorus insecticide [(2,2,2-trichloro-1-hydroxyethyl)-phosphonic acid dimethyl ester, also known as chlorofos, metrifonate, and trichlorophene; brand names include Flibol and Diptorex], slowly releases dichlorvos, which is estimated to be at least 100 times more potent an anticholinesterase agent than trichlorfon itself. The content of this chemical was very high in fish (100 mg per kg), and several pregnant women, including all mothers of babies with Down syndrome, had consumed contaminated fish in the critical period for the congenital abnormalities observed. The cluster ceased when this chemical treatment of farmed fish was banned in March 1991, and all 10 children born in 1991 and 1992 in this village were healthy.

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## The Rewards of Smoking Cessation

### To the Editor:

In developed countries, smoking remains the major preventable cause of death.<sup>1</sup> Public health messages about smoking cessation emphasize the health risks of the practice, and some smokers overestimate the likelihood of dying from a smoking-related illness.<sup>2</sup> Even so, the benefits of quitting may seem obscure to the healthy smoker facing the immediate and severe effects of quitting nicotine. Furthermore, the benefits for a particular individual are difficult to quantify because they are influenced by many factors, including age, duration of smoking, and large differences in risk reduction for various diseases.

How can smokers best be informed of these benefits? Information on risk reduction, mortality ratios, or the probability of death are informative to the epidemiologist but are of limited utility in counseling smokers. Consequently, they receive unsatisfying information like "quitting smoking at any age reduces risk of death." More compelling messages that remain understandable are needed.

We developed information to maximize the impact of smoking cessation messages. We used existing data to estimate the average remaining life expectancy of never-smokers, continuing smokers, and smokers who quit. In addition, we provide information for individuals who quit smoking but continue to use nicotine via the alternative of smokeless tobacco.<sup>3</sup>

The average remaining life expectancy was estimated at ages 40, 50, and 60 years for white men and women for four categories of tobacco usage: never-smokers, continuing smokers, smokers who quit, and smokers who quit by switching to smokeless tobacco. For never- and continuing smokers, life expectancy was derived from mortality rates in the American Cancer Society's second Cancer Prevention Study (CPS II) of smoking and mortality.<sup>4</sup> For quitters, the life table for the first 20 years of nonsmoking was based on data from a supplemental analysis<sup>5</sup>; for subsequent years, we used the mortality rates of never-smokers. The switchers' mortality rates were those of the quitters with the addition of the excess mortality from smokeless tobacco-related oral cancer.<sup>6</sup>

Table 1 shows that a smoker of any age who quits will appreciably increase his/her life expectancy compared with continuing to smoke. For example, a man who quits at age 40 will live on average 99% as long as a man who never smoked and 21% longer than a continuing smoker. A 40-year-old woman who quits has the same remaining life expectancy as a never-smoker. The benefits of quitting understandably decrease with age, but smokers of either sex who quit even at age 60 will live about 10% longer on average than persistent

TABLE 1. Average Years of Life Remaining According to Tobacco Usage and Age\*

Sex and Age† (Years)	Never- Smoker	Continuing Smoker	Quitter	Switcher
Males				
40	41.2	33.5	40.7	40.7
50	31.7	24.6	29.9	29.8
60	22.5	16.5	18.4	18.4
Females				
40	44.3	40.0	44.4	44.4
50	34.8	30.6	34.6	34.6
60	25.5	21.9	24.1	24.0

\* White persons in the United States.

† At quitting, switching, or continuing to smoke.

smokers. The impact of lifelong smoking on life expectancy is not as great for women; the benefits of quitting, although appreciable, are less pronounced than those experienced by men, especially at ages 40 and 50 years.

Lifelong smokeless tobacco use has little impact on life expectancy,<sup>6</sup> and this analysis shows that switching to smokeless tobacco has essentially the same effect on life expectancy as does quitting smoking. This finding is important because new options are needed for smoking cessation programs. The National Cancer Institute's Community Intervention Trial for Smoking Cessation confirms that existing resource- and labor-intensive quit smoking programs are not very successful,<sup>7</sup> largely because conventional approaches offer no alternative to giving up nicotine entirely, an unattainable goal for many smokers. Furthermore, these programs are unnecessarily limited, as they do not accommodate the fact that there are now several ways to satisfy a tobacco user's desire for nicotine without the health effects of smoking. Smoking cessation programs may become more successful when their providers recognize that the benefits of quitting smoking can be achieved without quitting nicotine altogether.

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