Combatting the Health Hazards of Smoking

The Editor interviews Luther Terry, M.D., former Surgeon General of the United States Public Health Service and presently Special Consultant on Tobacco and Cancer to the American Cancer Society.

Editor: What was the impact of your historic Surgeon General’s Report of 1964, linking cigarette smoking with an increased incidence of lung cancer, as well as emphysema and heart disease?

Dr. Terry: United States Government figures show that between 1965 and 1970 (the last year for which figures are available) the number of adult cigarette smokers in the population dropped from 41.6 percent to 36.7 percent. This amounts to about 10 million people who quit smoking.

Editor: Is this downward trend continuing?

Dr. Terry: Unfortunately, the curve has levelled off and may even be turning upward. Immediately after the 1964 Report was issued, the per capita cigarette consumption dropped and continued on a downward trend through 1970. In 1971, it rose slightly and this gradual rise has continued through the first half of 1973.

There is also evidence of a steady increase in smoking among teenage girls. In 1968, only about half as many teenage girls smoked compared to teenage boys, while today the percentage of young girls who smoke is almost as high as that of boys. If this trend continues during the next ten years, the proportion of adult...
females who smoke will catch up with that of adult males. As a matter of fact, this trend is already becoming manifest by a recent increase in the number of adult women smokers.

**Editor:** How do you account for these recent increases in the face of mounting evidence on the health hazards of smoking?

**Dr. Terry:** They are, we think, directly related to the unfortunate setback in the American Cancer Society's extensive educational television and radio campaign. To illustrate, between 1967 and 1971, when antismoking television messages were at their height, the per capita consumption of cigarettes fell steadily. Since 1971, when television stations were no longer able to carry cigarette advertising and thus no longer bound to carry our messages on the health hazards of smoking, the per capita consumption of cigarettes has increased.

**Editor:** Why, even at the height of your educational campaign, did so many people still continue to smoke?

**Dr. Terry:** We do not know all the reasons why people continue to smoke. However, some good evidence has come from behavioral studies showing a relationship between anxiety, depression and emotional insecurity with the need to smoke. We guess that during the past 15 years, vast sociological changes have intensified these subjective factors and thus the need to smoke.

Also, the motivations for smoking are frequently stronger than the threat of future disease or death. As physicians we know that it is easy for a patient to ignore a potential threat; only as the danger becomes imminent is remedial action taken. Another psychological mechanism, denial, often seen in patients with terminal disease, may operate to ward off unbearable anxiety. When the fear of developing lung cancer becomes intolerable, the smoker finds ways to question the validity of the evidence against smoking.

**Editor:** How does the American Cancer Society propose to offset the upward trend in cigarette smoking?

**Dr. Terry:** The American Cancer Society is attempting to persuade television networks of their moral responsibility to keep the public informed on the dangers of smoking, although our antismoking education program depends only in part on the media. The Society is constantly expanding the scope of its educational projects in colleges, high schools and even grade schools, and has recently begun implementing a nationwide program to provide millions of Americans with antismoking information in their places of employment. To actually help people stop smoking, the Society has set up smoking cessation clinics around the country in industrial plants, schools, health centers and hospitals. Several hundred clinics are already in operation and the goal has been set for at least one cessation clinic in each community.
Editor:  *How well do these clinics work?*

Dr. Terry:  The good ones are getting a long-term quitting rate of about 35-40 percent. This may not seem very high, but if 35 percent of all smokers stopped, it would be quite an achievement.

Editor:  *Do you have any other methods of reducing the risks of cigarette smoking?*

Dr. Terry:  Besides trying to change the smoker, we are also trying to alter the cigarette itself. For those people who will not or cannot stop smoking, it is at least possible to make the cigarette less lethal by reducing the tar and nicotine content.

Editor:  *How is this done?*

Dr. Terry:  One method is the cigarette filter. Effective filters can reduce the tar content of cigarette smoke by about 30 percent. Obviously, the public is quite sensitive to the reduced tar factor since about 85 percent of all cigarettes purchased are filter cigarettes.

Editor:  *Apparently the tobacco industry is also sensitive to this factor as witnessed by the advertising emphasis on low tar cigarettes.*

Dr. Terry:  That is true. The efforts of the American Cancer Society, the government and other health agencies have forced the tobacco industry to produce "lower tar" cigarettes. Low tar brands now constitute about six percent of the market and the number continues to increase steadily. Remember, however, that even the "regular" cigarette of today has a considerably lower tar yield than the cigarette of 15 years ago. In 1958, the average cigarette had a tar yield of about 33 milligrams while today it has approximately 19 milligrams. The low tar cigarettes range between one to 12 milligrams. We do not have sufficient evidence as yet on low tar cigarettes but studies by Bross and Wynder have already suggested reduced lung cancer death rates for smokers who have switched from nonfilter to filter cigarettes.¹ ²

Editor:  *Is the American Cancer Society now urging smokers to switch to a less hazardous cigarette, rather than give up smoking altogether?*

Dr. Terry:  Not at all. We insist that there is no such thing as a safe cigarette. The only way to have the same risk of lung cancer as people who have never smoked, is to stop smoking entirely. A one pack-a-day smoker who switches from a high tar cigarette to one with a low tar yield is cutting his risk, but it is still high compared to nonsmokers.

Editor:  *Does the risk of developing lung cancer rise proportionately with the amount smoked?*
Dr. Terry: The data from the Cancer Prevention Study conducted by Dr. Cuyler Hammond of the American Cancer Society show clear evidence of a dose-response relationship. Results of this study in which a million people filled out questionnaires in 1959 and were then followed for up to six years show that for those individuals who smoked a half-a-pack or less, the lung cancer mortality ratio was 4.60; in other words, the risk of dying of lung cancer is four and a half times as great for those who smoke less than a half-a-pack as it is for those who never smoked. Those who smoke 10 to 19 cigarettes a day have a lung cancer mortality ratio of 8.62; those smoking 20 to 30 cigarettes have a 14.69 ratio and those smoking 40 cigarettes or more have an 18.77 ratio.

Editor: Are the depth of inhalation and the age at onset of smoking also important factors?

Dr. Terry: Definitely. For instance, the mortality ratio for smokers who inhaled slightly was 8.42 as compared with 17.00 for those who inhaled deeply; the mortality ratio for those who started to smoke before 15 years of age was 16.77 compared with 4.08 for those who started to smoke after the age of 25 years.

Editor: How long does it take after one has stopped smoking before the risk of developing lung cancer is no greater than for people who never smoked?

Dr. Terry: This varies with the amount the individual regularly smoked before quitting. For those who smoked less than a pack-a-day, the risk of lung cancer becomes "normal" after about five years (that is, compared to those who never smoked); for those who smoked a pack-a-day or more, normalcy is reached after ten years. But for all smokers—heavy or light—the risk of death from lung cancer drops steadily with each year of nonsmoking. Every month of abstinence lowers the risk.

Editor: What actually happens during this rehabilitative period?

Dr. Terry: Laboratory experiments with chemically-induced cancer in the epithelial tissue of mice show that the onset of cancer is preceded by a number of nonmalignant, dysplastic changes which progress to malignant transformation. The speed with which this critical point is reached depends on how much and how frequently the carcinogen is applied. If the carcinogen is withdrawn before the critical point is reached, the dysplastic changes subside and the tissue reverts to normal.

Auerbach, et al. conducted autopsy studies on patients who died from causes other than lung cancer and found that the bronchial epithelium of smokers contains a large number of cells with atypical nuclei, comparable to the cells found in lung cancer, and that the number increases with amount of smoking. Few such cells
are found in the tissue of nonsmokers. Upon cessation of smoking, the number of cells with atypical nuclei diminishes and many years after smoking has stopped few such cells are found.

Editor: 

*How can physicians help their patients stop smoking?*

**Dr. Terry:** They can set a good example by stopping smoking themselves and then strongly advising their patients to do the same. Indeed, many physicians have done just this as evidenced by surveys conducted in 1972 showing a marked decrease in smoking among physicians and their spouses. In New York, only 19 percent of physicians and 25 percent of their spouses still smoke; nearly 75 percent of all New York physicians have given up the habit and 60 percent of the spouses who smoked have followed suit. In Florida, only 18 percent of physicians smoke, compared to 30 percent in 1964. We must constantly inform our patients of the dangers of cigarette smoking as we would warn them of any other major health hazard.

Editor: 

*Thank you, Dr. Terry.*

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**References**

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3. Auerbach, O.; Stout, A. P.; Hammond, E. C., and Garfinkel, L.: Changes in bronchial epithelium in relation to sex, age, residence, smoking and pneumonia. Bronchial epithelium in former smokers. New Eng. J. Med. 267: 111-125, 1962.

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**Our Information Gap**

Full use of our existing knowledge is extremely important, and we are not yet achieving this. For instance, only 20 to 25 percent of the children in this country so far have access to the very best treatment for leukemia, because information has not gotten out to enough physicians on the use and control of chemical treatment.

Even when information goes out, it's no guarantee that effective use will be made of it by the cancer victim. For instance, we've known about the Pap test for cervical cancer for about 25 years. Yet today, no more than 26 percent of American women in years of peak risk have ever had more than one Pap test in their lives—though they should have one every year. For that matter, 40 percent have never had a single Pap test. Meanwhile, we're losing about 12,000 women a year to cervical cancer. — Frank J. Rauscher, Jr., M. D., in an interview, "New Gains in War Against Cancer," in U.S. News and World Report, December 4, 1972, P. 42.