

The sounds of silence

No news about cancer prevention is good news.

Robert C. Young

For centuries, hepatitis has exacted a devastating worldwide toll, not only from the ravages of the disease itself, but in the later development of cirrhosis of the liver and the nearly always fatal primary liver cancer. Now, as the new millennium begins, that devastation is abating. Thirty years ago, Baruch S. Blumberg discovered the hepatitis B virus and invented a vaccine that has protected millions. The vaccine has also brought about a dramatic decline in hepatocellular carcinoma in places where the disease was endemic, such as Taiwan. This withering away of what was once one of the commonest terminal cancers is happening quietly, without the publicity associated with the complex interventions we have come to equate with medical progress.

Cancer researchers have long sought effective prevention and screening methods, but, with the exception of tobacco avoidance, cervical smears, mammography and a handful of others, there have been few advances. Nevertheless, even these efforts have produced substantial benefits. For the first 90 years of the twentieth century, a progressively greater proportion of people died from cancer in the United States, as in most other developed countries. But US cancer mortality has been falling since 1990, as a result of advances in prevention, screening and treatment.

With the revolution in molecular biology and the development of tools to define genetic and environmental risks, to determine molecular targets for drugs and vaccines, and to identify at-risk populations, science has an unprecedented opportunity to make this new century the age of cancer prevention.

Although there have been dramatic advances in our understanding of cancer, and marked improvements in our ability to treat it, the disease continues to take a gigantic toll. Globally, more than 10 million people develop cancer each year and over 7 million will die because of it — almost 20,000 people each day. Although surgery, radiation and drug treatments will continue to be important, research is identifying a growing number of effective cancer prevention strategies.

Two years ago, tamoxifen, a drug com-



Unhealthy lifestyle: *Skull With A Burning Cigarette*, by Vincent Van Gogh.

monly used to treat breast cancer, was shown to reduce the incidence of that cancer in high-risk women by 49%. Within a year, scientists were trying to work out whether raloxifene, an osteoporosis drug, would produce the same benefit with fewer side effects — two more examples of discoveries for one purpose finding applications elsewhere.

More and more preventive agents are being evaluated. Aspirin, non-steroidal anti-inflammatory drugs, folate and oestrogens all guard against colon cancer. Celecoxib, a cyclooxygenase-2 inhibitor, appears to decrease the incidence of recurrent polyps in patients with familial adenomatous polyposis. These discoveries push us even closer to the identification of agents that will prevent or delay cancer development.

Evidence that particular subtypes of papilloma virus lead to premalignant lesions and cervical cancer has led to clinical trials using recombinant virus capsid proteins to induce immunity. Vaccinating high-risk populations of young women should reduce

the 250,000 deaths worldwide each year, 80% of which occur in developing countries.

Increasingly, cancer research centres are integrating many disciplines to focus on prevention — genetics, epidemiology, chemoprevention, drug and vaccine development, risk assessment, behavioural research and bioinformatics — to support a growing network of prevention-related clinical trials.

This shift towards prevention should, paradoxically, produce less fanfare than the medical breakthrough *du jour*. Just as in the past millennium each generation had difficulty perceiving the cost to their forebears of diseases such as smallpox, polio and syphilis, so the spectre of cancer should recede from public view. Success is to be measured by the absence of disease, and less and less by its cure. It is rarely news when nothing happens: to borrow a phrase from a Simon and Garfunkel song, "The words of the prophets are whispered in the sounds of silence".

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