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CANCER PROGRESS: ARE THE STATISTICS TELLING THE TRUTH?

By PHILIP M. BOFFEY Published: September 18, 1984

WASHINGTON, Sept. 17— A small but growing band of distinguished analysts is challenging proclamations by Government officials and leading cancer scientists that great advances have been made in "curing" cancer patients.

The analysts suggest that the highly touted gains in "survival rates" among cancer patients in recent years are partly, or perhaps even largely, a statistical mirage, caused more by changes in the way cancer is detected and defined than by any real gains in the ability of doctors to cure cancer once it is detected.

However, leaders of the nation's cancer research and treatment establishment dismiss the criticism as the undocumented assertions of analysts who do not fully understand the latest advances in the clinical detection, diagnosis and treatment of cancer.

"I think it's a bunch of nonsense," said Vincent T. DeVita Jr., director of the National Cancer Institute. "We're saving thousands of lives today that weren't saved 20 years ago. To me, that's pretty damn exciting."

Same Numbers, Opposite Views

The disagreement over the extent of progress in treating and curing cancer reflects several factors. In some cases, analysts are looking at different sets of numbers that show differing degrees of progress in curing cancer. In other cases, they are looking at the same set of numbers but disagree on whether the apparent gains are "real" or caused by statistical artifacts. And in many cases they are not even arguing over the numbers but are simply reaching opposite subjective judgments as to whether the apparent gains in survival rates are encouraging or disappointing.

The issue has implications for patients, doctors and planners of national cancer policy. If cancer treatments are less effective than officially portrayed, some doctors and patients might have second thoughts about the wisdom of resorting to treatments with high risk or severe side effects and little prospect of success. Moreover, if treatment results have shown little improvement over time, policy planners might want to emphasize other approaches to curbing cancer, such as more extensive efforts to find and eliminate the causes of cancer so as to prevent the disease before it needs to be treated.

Small Group of Skeptics

Those skeptical of the degree of progress appear to be a relatively small group of analysts bearing distinguished credentials. Among them are these men:

- Richard Peto, a British epidemiologist who is the author of a major study of cancer mortality for the Congressional Office of Technology Assessment, contends, "There has been disappointingly little progress in curative treatment since the middle of this century." He said in a telephone interview that he saw no reason to expect substantial progress for the rest of this century.
- John Cairns, a cancer analyst at the Harvard School of Public Health, likens the statistical advances reported by official cancer agencies and leading cancer scientists to the inflated and meaningless body counts used to measure progress in the Vietnam War. "Their body counts are way too high," he said in an interview. "It's like interrogating a general in Saigon. They come up with statistics that don't add up."
- John C. Bailar 3d, a Harvard biostatistician who is the statistical consultant for The New England Journal of Medicine, one of the nation's most prestigious medical journals, said he "tends to agree that survival rates for cancer victims are not going up very much" and that statistical measures of those

gains often turn out to be "rubber numbers" by which people are "very seriously misled."

- Haydn Bush, director of a regional cancer center in London, Ontario, wrote in the September issue of *Science* 84, a magazine published by the American Association for the Advancement of Science, "We're not curing much more cancer than we were a generation ago. There has been very little progress on the biggest cancer killers of the last 25 years."

These views stand in sharp variance to the tone of Dr. DeVita's assertion, in a major speech two years ago, that "the best kept secret today is that cancers, as a group, are among the most curable of chronic diseases."

Some scientists on each side of the debate attack the motives of their opponents. Dr. Bush asserted, "The more cures the press releases claim, the more money cancer organizations raise." And Dr. DeVita retorted that some skeptics were so eager to promote more money for prevention of cancer that they deliberately tried to "knock down" the effectiveness of treatment programs. He said the skeptics did not realize that the cancer institute was already spending a third of its \$1.8 billion annual budget on activities related to prevention.

But Dr. Cairns and Mr. Peto stressed repeatedly that they were not attacking the integrity of cancer officials or attempting to be "confrontational," but were simply expressing a professional disagreement over how to interpret the numbers.

The argument is complicated by the fact that cancer is a very large and diverse group of diseases, with more than 100 variants that affect different parts of the body, progress at different rates and respond differently to cancer treatments. Thus, generalizations about cancer as a whole are difficult to make. "Progress has been remarkable in some cancers," said Frank J. Rauscher Jr., vice president for research at the American Cancer Society. "In others, it is anything but remarkable and we haven't made much progress at all."

Virtually everyone agrees there have been major gains in treating and "curing" some forms of cancer, including testicular cancer, Hodgkin's disease and a vast array of childhood cancers and leukemias, among others. The gains are so great in these cases that virtually all analysts agree they must reflect improvements in the treatment and management of cancer victims.

But it is a perverse fact that the cancers that are now the most "curable" are statistically among the most rare. There has been far less progress in coping with cancers of the lung, gastrointestinal tract and breast, which are among the most prevalent of the cancers, and little progress on such rarer cancers as those that afflict the brain, stomach and esophagus.

The chief statistic used to measure progress in "curing" cancer patients is the five-year relative survival rate, the percentage of patients who are still alive five years after their disease was first diagnosed, adjusted to eliminate other causes of death than cancer. By this yardstick, both the National Cancer Institute and the American Cancer Society contend there has been substantial progress. In the 1950's, Dr. DeVita says, only about 33 percent of all cancer patients were surviving five years. Now it is 50 percent.

The chief reasons for the gain, he contends, are advances in the treatment and management of cancer patients, including the discovery and demonstration that drugs could be used to eradicate cancers that had spread from their initial site to distant parts of the body, the stage of cancer that is typically the most lethal.

Major Reasons for Doubt

However, various skeptics cite three major reasons for doubting that the apparent gains are real.

First, advances in the ability to detect and diagnose tumors mean that doctors are now finding more things that look like cancer to a pathologist but would not actually kill anyone. Thus when these people survive for five years they are counted among those who have been "cured" of cancers, even though their tumors would probably have escaped detection in the past and would never have killed them anyway.

Dr. Bailar said he was "quite convinced" that this was happening for prostate cancer, to a lesser extent breast cancer, and possibly cancer of the lung, ovary, thyroid and other sites as well. "We are including more and more lesions that have some of the characteristics of cancer and look bad microscopically but

do not have the biologic behavior we associate with cancer," he said. "When you just look at survival rates, you may be very seriously misled. It looks like substantial progress when it isn't."

The second argument cited by skeptics is that the ability to detect some cancers at an earlier stage in their development is artificially improving the survival rates. Dr. Bush contends that the apparent improvement in breast cancer survival, which is not all that great to begin with, probably reflects the fact that screening programs are detecting the disease in women at an earlier stage than in the past.

"Thus, even if these women received no treatment at all and their disease followed its natural course, they would automatically be more likely to survive five years," he wrote. "All that has happened is that the survival clock is being started sooner."

This factor would primarily affect only slow-moving cancers like those of the breast; it would not greatly affect the five-year survival statistics for quick-acting cancers that kill people well before the five-year mark.

The third reason for doubting reports of successes is because changes in the way cancers are recorded and registered may be exaggerating the apparent gains in survival rates.

Mr. Peto argues that there has been little change over the past 30 years in the accuracy of recording cancer deaths but there has been significant improvement in registering nonfatal cancer cases. This inadvertently makes it seem as if a greater proportion of the cancer victims are surviving today, he said, but some of this apparent gain is simply a result of the fact that many of the survivors were not recorded 30 years ago. "There has been some improvement," he acknowledged, "but it's less extreme than the crude relative survival rates would suggest."

Extent of Effect Is Disputed

High officials of public and private cancer agencies acknowledge that all these factors may be affecting the statistics to some degree, but they doubt that the effect is large enough to seriously distort the amount of progress being made. Dr. DeVita said he had seen no evidence to support the assertions of skeptics that advances in detection ability are either starting the survival clock earlier or finding many benign tumors that would previously have gone undetected. "I don't see any evidence for it at all," he said. "I don't think they have the data to back it up."

Dr. Rauscher, of the cancer society, said there might be "some validity" to the skeptics' assertions, but not much. "Unfortunately, our means of detecting cancer early haven't improved that much over the past 20 or 30 years," he said.

Dr. DeVita also said that "good solid data" from the most up-to-date registry of cancer patients - the Cancer Institute program that monitors the annual occurrence of cancer in some 10 percent of the population - shows a steady increase in survival rates in recent years, over a short period of time in which it is unlikely that changes in reporting practices would have an enormous effect.

However, the monitoring data cannot yet definitively answer the key questions raised by the skeptics. Earl S. Pollack, chief of the biometry branch at the cancer institute, said the program had not yet followed patients long enough to be able to tell whether the survival rates were being inflated simply because early detection was starting the survival clock sooner. He also said he knew of no documentation of the extent to which the survival statistics might be improving because doctors today were finding more and more tumors that would not kill people. But on a subjective basis, Dr. Pollack said he believed such statistical artifacts were not the main driving force behind better survival rates.

"My feeling is that most of these survival changes are real," he said. "They reflect real improvements in the handling of the disease."