Experts Debate Message
Sent by Increased Cancer Survival Rates

Three new federal reports say that the number of cancer cases in the United States has reached a new high, and more people are alive after a diagnosis of cancer than ever before. These reports, the first to specifically focus on cancer survivorship, suggest that there has been marked progress in the treatment of cancer and that a more comprehensive research and clinical focus is needed for post-treatment care of survivors.

Among the findings: The number of people living with cancer increased from 3 million in 1971 to 9.8 million in 2001, and 5-year survival of adult cancer has increased from 50% to 64% within that rough time frame. Changes in 5-year survival rates were even greater in childhood cancer: 79% in 2001 compared with 56% three decades ago.

But some experts question whether the data reflect widespread treatment success in adults, saying that the numbers are inflated by increased detection of nonlethal cancers by screening and that they provide no information on quality of life—longstanding objections that the authors say they understand and are working to further refine. Others raise the question of whether the survival statistics are an accurate measure of treatment success.

Nevertheless, the numbers send a message about where survivorship research should be focused. “The number of people diagnosed with cancer and still living is large and continuing to increase,” said Michael Thun, M.D., chief epidemiologist for the American Cancer Society. “And these recent reports make a convincing case that survivorship programs are needed to support these individuals.”

Key Findings

The three reports were issued within weeks of each other. The Annual Report to the Nation on the Status of Cancer was published in the journal Cancer on July 1 and contained a special section on survival trends; a report on cancer survivorship in 1971–2000 was published in Morbidity and Mortality Weekly Report on June 25; and “Living Beyond Cancer: Finding a New Balance,” was issued by the President’s Cancer Panel in early June. All of the reports used data from the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) program. Cancer mortality information was collected by states and consolidated in a national database by the Centers for Disease Control and Prevention.

The authors of the Report to the Nation examined data from 1975–2001 and concluded that cancer incidence has fallen in the past decade (1991–2001), although when adjusted for a delay in reporting, rates from 1995–2001 appear to have stabilized (see News, Vol. 96, No. 13, p. 988). They also found that since 1993, death rates have decreased at a rate of 1.1% per year for all cancers combined.

Then, for the first time, the report compared 5-year survival rates in two different 5-year periods decades apart (1975–1979 and 1995–2000). They found that between those two periods, the 5-year relative survival rates improved for all cancers combined, and for most, but not all, specific cancers. Between those two time periods, 5-year survival after diagnosis was substantially prolonged for most of the top 15 cancers in both men and women, and the top 10 sites in children, the authors say. For men, large increases in cancer survival rates (more than 10%) were seen in cancers of the prostate, colon, and kidney, and non-Hodgkin lymphoma, melanoma, and leukemia. For women, the largest increases in 5-year survival rates were seen for colon, kidney, and breast cancers and non-Hodgkin lymphoma.

More people than ever are living with cancer, but more are “surviving,” which “shows considerable progress in reducing the cancer burden in the United States,” said the report’s lead researcher, Brenda Edwards, Ph.D., associate director of the NCI’s Surveillance Research Program.

But the most fatal forms of cancer in adults showed little improvement, according to Edwards. There was limited improvement in 5-year survival for cancers of the lung, pancreas, and liver, which are often diagnosed when they are nearly untreatable. Survival gains were also not seen in the cancers that are most treatable and therefore highly survivable: larynx, thyroid, and uterine cancers.

Childhood cancers showed some of the largest improvements in 5-year survival, with an absolute survival rate increase of 20% in boys and 13% in
The current 5-year survival rate for childhood cancer is more than 75%.

The CDC report was also based on SEER data from roughly the same period (1971–2001) but presented the findings in a way meant to highlight what is labeled “survivorship”—a word whose alternate form, “survivor,” is controversial because it is used as a proxy for prevalence and does not indicate health status (see related story, p. 1414). “It doesn’t reflect the kind of life patients have,” said the study’s primary author, Julia Rowland, Ph.D., director of the NCI’s Office of Cancer Survivorship.

The report found that the number of people living with cancer substantially increased from 1971 (3 million people, or 1.5% of the population) to 2001 (9.8 million, or 3.5% of the population). But the number of people who lived 5 years after their diagnosis also increased, from 50% for people diagnosed in the mid-1970s to 64% for people diagnosed in the late 1990s, the authors say.

In fact, the researchers found that one of every six people older than age 65 alive today is a cancer survivor, and an estimated 14% of cancer survivors were diagnosed with cancer 20 or more years ago.

“The most important message from the report is that we are changing fatal disease into chronic illness, for better or worse,” Rowland said. “We should be both alarmed because we haven’t eradicated this disease but reassured because many people with it are still alive,” she said.

The President’s Cancer Panel, which used the same statistics, emphasizes the “glass half empty” approach, highlighting the lack of understanding of long-term and late effects of cancer and its treatment. It recommends steps to alleviate the “severe burdens experienced by cancer survivors and their families” but expresses “serious concerns about the ability of the health care system to meet this challenge.”

The Caveats

Both Edwards and Rowland freely admit to the limitations of the data they used to compile the reports—that they are descriptive surveillance data that merely reflect the number of people diagnosed with cancer and the number of people who die from it.

“We don’t know how to answer the question everyone has: how do people specifically fare from their cancer now versus in the past,” said Rowland. “It doesn’t tell you where people are in the cancer trajectory. We do not know how many of the estimated 9.8 million survivors are newly diagnosed, in active treatment, post-treatment, cured, or dying of their illness.”

In addition, the data do not account for increases in incidence that result from detecting nonlethal cancers by screening, particularly early prostate cancer and early breast cancer. The effect of including those cancers in the data pool is that 5-year survival rates increase because more people who may never have otherwise known they had cancer are now considered survivors, thereby masking the more important question of whether progress has been made in treating advanced solid tumors.

For example, the absolute change in survival for all cancer sites in the last 20 years was substantially greater for men than for women, Edwards said, but much of the increase in survival for men reflects the increasing incidence and survival rates for prostate cancer during that period.

“There is a lot of evidence that the rapid and dramatic increase in prostate [cancer] incidence is related to [prostate-specific antigen] screening, and there is also a lot of debate about whether that represents overdiagnosis,” Edwards said. “There is overdiagnosis, but others will say cancers that are found early reduce the death rate.”

Given the potential for overdiagnosis by increased screening, it makes no sense to directly compare “survival” between two different time frames decades apart, as both the CDC and the Report to the Nation studies do, said John Bailar III, M.D., Ph.D., a professor emeritus of health studies at the University of Chicago. “Incidence in prostate, breast, and lung cancer[s] has been inflated a good bit from screening what are essentially benign tumors, but if you factor those out, you may get a picture that shows that we are not making that much progress in treating invasive cancers,” said Bailar.

Edward Benz, M.D., president of the Dana-Farber Cancer Institute, noted that the CDC’s reported 14% improvement in 5-year survival over the decades is due in part to “a mix of treatment and diagnosis when cancer is at a more treatable stage,” Benz said. “I think there is good news in there, but like a lot of things in medicine, it is increasingly harder to see what the news is.”

Some of the issues on screening are now being addressed by the Cancer Intervention and Surveillance Modeling Network (CISNET), a consortium of NCI-funded investigators who are using modeling to understand the impact of screening on incidence and mortality, Edwards said. The first projects, funded in 2000 by NCI, are focused on breast, prostate, and colorectal cancers, and a second round, funded in 2002, is focused on screening for lung cancer.

Current statistics about breast cancer survival include a mixture of “screening for breast cancers, some of which will never become lethal, and the effect of treatment,” and the CISNET is designed to “take out biases associated with screening, so that we can clearly investigate a treatment benefit,” said Donald Berry, Ph.D., chair of the Department of Biostatistics and Applied Math at the University of Texas M. D. Anderson Cancer Center in Houston. Berry said he will present work later this year that shows “incredibly impressive survival benefits” in a subset of patients for whom treatment was thought to be marginal, he said.

“Hopefully, CISNET will provide some clarity,” said Edwards, “because everything that is not clear cut can be subjected to differences in points of view.”

—Renee Twombly