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## Study Compares U.S. and European Survival Rates

### Multinational Research Team Compares U.S. and European Survival Rates

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U.S. patients have better survival rates than European patients for most types of cancer, according to a new study. The research also shows that as the age at cancer diagnosis increases, survival tends to decrease in both the U.S. and Europe, but more so in Europe.

The study published in the journal *Cancer* (Vol. 89, No. 4) reports on the survival rates of 738,076 European and 282,398 U.S. patients who were diagnosed between 1985 and 1989. A multinational team looked at survival rates for 12 different types of cancer, including lung, breast, stomach, colon, rectum, melanoma, cervical, uterine, ovarian and prostate. Only people with primary, first occurrence malignant tumors were included in the study. The researchers compared patients of similar age who had same type of cancer but race was not taken into account.

#### How the Study was Conducted

Data came from the National Cancer Institute's (NCI) Surveillance, Epidemiology and End Results (SEER) program, which includes information on about 10 percent of those diagnosed with cancer in the U.S. Its European counterpart, EUROCARE, provided data from 17 European countries.

Using complex statistical methods, the researchers calculated survival rates for each type of cancer for both groups. The results show Americans have significantly better five-year relative survival rates for cancers including:

- prostate (81 percent vs. 56 percent);
- melanoma (86 percent vs. 76 percent);
- colon (60 percent vs. 47 percent);
- rectum (57 percent vs. 43 percent);
- breast (82 percent vs. 73 percent), and
- uterine cancer (83 percent vs. 73 percent).

However, the reverse was true for stomach cancer. U.S. survival rates trail slightly behind those of European patients (19 percent vs. 21 percent).

#### Early Detection is Important

As the age of cancer diagnosis increased, survival rates fell, the

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researchers also reported. This was true for all cancers except breast and prostate in both Americans and Europeans and colon cancer in U.S. patients.

For breast, colon and uterine cancers, survival rates between Americans and Europeans were very similar in patients 45 or younger. They were much better for Americans in the 65 and older age group. This could be because more Americans are being screened more often, especially at older ages, according to Lynn Ries, M.S., a statistician at the NCI and a co-author of the study.

Screening increases the likelihood that cancers will be found at an early stage, and finding cancer at an earlier stage means patients usually have a better chance for successful treatment. "More research is needed to pinpoint why there are survival differences – when the reasons become clearer, steps can be taken to improve the cancer survival rates," Ries says.

More research is underway, including a project that will take a closer look at cancer survival differences between different countries. Researchers also plan to examine survival differences in relation to early detection, the stage of the cancer at the time of diagnosis and the type of treatment chosen.

### **Possible Reasons for Differences**

Ted Gansler, M.D., health content director for the American Cancer Society (ACS), says this follow-up research will be especially interesting, because the current study measured differences in survival rates but could not determine the reasons for those differences.

They are likely to be due to a combination of three factors – differences in treatment, differences in screening that causes "lead time bias" and different rates of screening that cause a real survival benefit, he adds.

The first factor is relatively straightforward – people in the US with certain cancers are likely to be treated more intensively with high-tech methods than are patients in some European countries.

### **Hypothetical Examples**

Dr. Gansler explains the second factor, known as lead time bias, by using an example of four hypothetical patients who developed cancers in 1990:

If two of the patients had cancers that could not be effectively treated and caused their deaths in five years, both would have died in 1995. If the American's cancer was detected by a screening test in 1991, the survival time since diagnosis would have been four years. If the European's cancer was found in 1993 at a late stage, when it started to cause symptoms, the survival time would have been only two years. Although the American's survival time after diagnosis was longer than the European's, both lived the same time after their cancer developed. This apparent increase in survival time is called lead time bias.

The third factor – differences in screening that can cause real survival benefit – can be understood by considering two other patients whose cancers developed in 1990, according to Dr. Gansler.

As in the other example, the American's early stage cancer was found in 1991 by screening and the European's was found at a late stage in 1993 when symptoms began to appear.

"This time, let's assume that a treatment was available that was more effective for early stages of this type of cancer. This treatment might help the American live much longer, until 1999 perhaps, because treatment was started one year after the cancer developed," Dr. Gansler says. "Treating the European's late stage cancer three years after it developed would be less effective, perhaps extending the patient's life until 1996. In this scenario, the combination of screening and treatment added four years to the American's life, but treatment without screening added only one year for the European."

### **Recommended Screening**

These examples should certainly not imply that screening for cancer is done only in the U.S. It's just done here more often than in most other countries, Dr. Gansler adds. "Determining whether screening tests for each type of cancer lengthens survival times by truly helping people live longer – not just by lead time bias – is important to the American Cancer Society and other organizations that recommend such tests," he says.

Based on this type of information, the ACS currently recommends screening tests and exams for early detection of cancers of the breast, prostate, cervix, colon and rectum. A cancer related check-up is also recommended that can help detect cancers of the skin, thyroid, mouth, ovaries, and testicles. As new information becomes available, these recommendations are continually updated and revised. Visit our [Prevention & Early Detection](#) information to learn more.

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