

# Large differences in cancer survival between European countries still remain despite major improvements in cancer diagnosis

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Cancer survival still varies widely between European countries despite major improvements in cancer diagnosis and treatment during the first decade of the 21st century, according to the latest EUROCARE-5 reports covering over 50% of the adult and 77% of the childhood population of Europe.

The findings, published in *The Lancet Oncology*, analysed data from cancer registries covering all or part of 29 countries to compare 5-year survival from diagnosis for more than 9 million adults and 60 415 children diagnosed between 2000 and 2007.

"The good news is that the number of adults surviving for at least 5 years after diagnosis has risen steadily over time in all European regions, reflecting major advances in cancer management such as organised cancer screening programmes and improved treatments. But there continues to be big disparities between countries, and international survival differences are narrowing for only a few cancers such as breast, rectum, prostate, and melanoma of the skin", explains study co-leader Dr Roberta De Angelis from the Istituto Superiore di Sanità in Rome.

Countries with lowest survival for most cancers (Bulgaria, Estonia, Latvia, Lithuania, Poland, and Slovakia) are in eastern Europe. Here survival is below the European average, particularly for cancers with a better prognosis. For example: colon (49% vs 57%), rectum (45% vs

56%), non-Hodgkin's lymphoma (NHL; 50% vs 59%), and melanoma of the skin (74% vs 83%).

But the gulf in survival between east and west is closing, with evidence that some eastern European countries with previously poorer survival are catching up. For example, improvements in breast [cancer survival](#) in eastern Europe between 1999 and 2007 (70% to 75%) have reduced the gap with the best performing countries (northern Europe) over the same time periods (82% to 85%).

Adults in the UK and Ireland continue to have shorter survival than the European average for many common cancers, particularly colon (52% vs 57%), ovary (31% vs 38%), and kidney (48% vs 61%), but have about average survival rates for rectum, breast, prostate, melanoma of the skin, and lymphomas.

Nordic countries (with the exception of Denmark), central European countries such as Austria, Belgium, France, Germany, Switzerland, and Netherlands, and some countries in southern Europe, particularly Italy, Portugal, and Spain, have the best survival for most cancers. For more detailed findings for 10 common cancers in adults by country and European area see table 2 pages 5-6.

Some cancers showed particularly large increases in survival between 1999 and 2007— prostate (73% to 82%), rectum (52% to 58%), and NHL (54% to 60%)—reflecting better cancer management.

According to Dr De Angelis, "The most likely reasons for improved survival for NHL and rectal cancer are more effective drugs and better surgical techniques, whilst earlier diagnosis, as well as detection of indolent cancers and over-diagnosis, owing to the increasing use of prostate-specific antigen (PSA) testing, explains the dramatic increase in numbers of patients surviving prostate cancer".

In a second study of children aged 0–14 years, survival at 5 years from diagnosis for all cancers combined is generally good with 79% now surviving (2005–2007), up from 76% in 1999–2001.

"The most striking increases in childhood cancer survival have been in eastern Europe where survival rose from 65% in 1999–2001 to 70% in 2005–2007", explains study co-leader Dr Gemma Gatta from the Istituto Nazionale Tumori in Milan, Italy. "But we still found large survival differences within European areas, ranging from a low of 70% in eastern Europe to 80% or more in northern, central, and southern Europe."

For cancers of the blood (eg, leukaemias) and for NHLs, that account for more than a third of childhood cancers, the risk of death within 5 years of diagnosis fell by an average 4-6% each year. But not all the major childhood cancers have seen such improvements. For example, survival for tumours of the central nervous system, the second most common type, remains poor (58%). "No survival gains were observed for other relevant childhood cancers such as neuroblastoma, nephroblastoma, Hodgkin's lymphomas and osteosarcoma (the most common type of bone cancer)", adds Dr Gatta.

The authors suggest a number of possible reasons for the considerable between-country variation in survival rates, saying that, "The main factors influencing poorer survival in eastern Europe include a shortage of public funding for cancer control, lack of national cancer plans, and inadequate access to screening programmes and up-to-date [treatment](#) protocols. The main cause of suboptimum survival for UK and Danish adult patients seems to be delayed diagnosis."

They add, "Developing and extending twinning programmes and pairing medical institutions in high-income countries with those in low-income and middle-income countries could help narrow the survival gaps across Europe for [childhood cancers](#)."

They conclude: "Interpreting cancer survival differences is complex. Longer survival may be due to better treatments or to earlier diagnosis that improves the efficacy of existing treatments. However other factors such as tumour biology, lifestyle, presence of other concomitant diseases, and diagnostic intensity (increasing the frequency of indolent tumours) can directly or indirectly influence [survival](#). Accurate clinical information is necessary for rigorous assessment of cancer care and to inform health interventions. Routine collection of clinical information by population-based [cancer](#) registries should be sustained and facilitated by adequate legislation."

Writing in a linked Comment, Professor Alastair Munro from the University of Dundee School of Medicine in the UK points out that in order to understand the patterns that emerge we need more detailed information, "Registries should record more sociodemographic information and more details about investigation, staging, treatment, recurrences, and second-line treatment. Investigators should actively seek information about long-term consequences of treatment and precise information about causes of death... Until more is known about the individual attributes of patients, the interpretation of the EURO CARE studies will be far from straightforward."

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