

Survival after cancer diagnosis in Europe associated with amount governments spend on health care

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The more an EU (European Union) national government spends on health, the fewer the deaths after a cancer diagnosis in that country, according to new research to be presented to the 2013 European Cancer Congress (ECC2013) [1] on Sunday and published simultaneously in the leading cancer journal *Annals of Oncology* [2].

Researchers will tell the meeting that higher wealth and higher [health expenditure](#) are strongly associated both with increased [cancer incidence](#) and decreased cancer mortality. In the case of [breast cancer](#), increased health expenditure appears to be even more strongly associated with better outcomes.

Dr Felipe Ades, MD, a medical oncologist at the Breast European Adjuvant Studies Team (BrEAST), a clinical trials unit and data centre in Belgium, will say: "We have observed that the more spent on health, the fewer the deaths after a [cancer diagnosis](#) and this is specially marked in breast cancer. We have also noticed that, despite all the initiatives to standardise public health policies, there is significant variation between health expenditure and cancer incidence and mortality in the 27 EU member states. This [disparity](#) is more glaring between the Western and Eastern European countries." [3]

Dr Ades and his colleagues obtained information on populations, cancer incidence, and mortality from the World Health Organization, the

International Monetary Fund and the World Bank [4]. They looked at factors such as countries' [gross domestic product](#) (GDP), the percentage of GDP invested in healthcare and health expenditure per person per year, and compared these wealth and health expenditure indicators with their own estimates of the proportion of patients dying after a cancer diagnosis.

While the population of Western Europe – approximately 400 million inhabitants – is around four times larger than that of Eastern Europe, Western countries' total GDP is more than 10-fold higher than that of Eastern Europe [5]. The researchers also found a significant difference between the health expenditure of these countries.

"Not surprisingly, health expenditure per capita is strongly correlated with the GDP per capita and with the percentage of GDP spent on health," Dr Ades will say. "The cut-off point between Eastern and Western European countries for health expenditure per person per year is around 2,600 US dollars. For instance, among the Western European countries Portugal has the lowest per capita expenditure at 2,690 dollars, while among the Eastern European countries, Slovenia has the highest per capita expenditure at 2,551 dollars. In the West, Luxembourg spent the most per person per year – 6,592 dollars – while in the East, Romania spent the least – 818 dollars."

The researchers found that, proportionally, Eastern Europe had lower cancer incidence and higher cancer mortality, while the opposite was the case in Western Europe. Dr Ades will tell the congress: "From our results it is evident that Eastern European countries, except Cyprus, have higher mortality rates than the Western European countries for approximately the same range of incidence. This indicates that proportionally more patients die after a diagnosis of cancer in Eastern Europe than in Western Europe. This pattern is strongly associated with health expenditure; the more a country spends on health, the fewer

patients die after a cancer diagnosis.

"In countries spending less than 2,000 dollars per capita in health care, like Romania, Poland and Hungary, around 60% of the patients die after a diagnosis of cancer; in countries spending between 2,500-3,500 dollars this figure is around 40% and 50%, as in the case of Portugal, Spain and the United Kingdom; moving up to around 4,000 dollars, less than 40% of the patients die, as in the case of France, Belgium and Germany."

The research does not analyse the reasons for the higher incidence of cancer in Western European countries. However, it suggests that, as cancer deaths do not increase in the same proportion to incidence in these countries, it may be due partly to the existence of greater numbers of Western screening programmes, which detect more cancers at their early, more treatable stages, and to the availability of effective treatments in these countries.

Dr Ades and his colleagues also looked specifically at breast cancer. "We did this because breast cancer is the best example of an oncologic disease with effective screening methods. Also, in European populations it has been shown that breast cancer screening reduces mortality in comparison to non-screening," he will say. "We found that the association between greater wealth and higher health expenditure and the incidence of breast cancer was even stronger than in other cancers, a fact possibly linked to the inherent higher incidence of breast cancer in Western countries but also to the increased detection due to screening availability, although this was not the case for deaths from the disease as breast [cancer mortality](#) is similar across the European Union. However, when we divided the number of new cases of breast cancer by the number of deaths from breast cancer to establish the ratio of deaths to incidence, we found that a smaller fraction of patients died after diagnosis in Western Europe than in Eastern Europe, and this was also strongly associated with higher wealth and health expenditure."

Dr Ades will also say: "Although financing health systems is a responsibility of national governments, the European Union has enacted a Charter of Fundamental Rights to standardise public health policies. Our research demonstrates that despite the initiatives to render more uniform the health policy across the EU member states, there are still marked differences between Eastern and Western Europe in regards to cancer indicators. More research is needed to investigate these issues further."

ECCO president, Professor Cornelis van de Velde, commented: "This is an interesting study confirming that, just as overall life expectancy is higher in countries that spend proportionately more on health, so cancer patients' survival is also higher in these countries. It is interesting to see that this association is even stronger for patients with breast cancer as compared to other cancers, and that, despite the initiatives to standardise health care across Europe, disparities are still present.

"Factors such as the proportion of GDP spent on health, levels of employment and numbers of hospital beds are associated with a favourable prognosis for cancer patients, and previous studies have shown that these appear to be responsible for over 65% of the variations between countries in survival for breast cancer in Western Europe."

ESMO spokesperson, Professor José Martin-Moreno, Professor of Public Health at the Medical School at the Universidad de Valencia (Spain), commented: "Cancer is a leading cause of mortality in Europe, and yet there is an important deficit between the resources needed to control it and those deployed to do so. In this context, Dr Ades and colleagues have produced an important study, confirming that funding for health systems is crucial to ensuring good patient outcomes and warning over health inequalities across the EU countries. Given the ongoing economic recession, this is a message that European governments and citizens need to know. Public health expenditure, along

with adequate governance and accountability mechanisms, evidence-based guidelines, and proper capacity-building, are all essential ingredients for a strong health system and for a better society."

More information: [1] The 2013 European Cancer Congress is the 17th congress of the European Cancer Organisation (ECCO), the 38th congress of the European Society for Medical Oncology (ESMO) and the 32nd congress of European Society for Therapeutic Radiology and Oncology (ESTRO).

[2] "Discrepancies in cancer incidence and mortality and its relationship to health expenditure in the 27 European Union member states," by F. Ades, C. Senterre, E. de Azambuja, R. Sullivan, F. Popescu F. Parent & M. Piccart. *Annals of Oncology*. DOI: [10.1093/annonc/mdt352](https://doi.org/10.1093/annonc/mdt352). *Annals of Oncology* website: annonc.oxfordjournals.org/

[3] The study was performed before Croatia joined the European Union on July 1, 2013.

[4] Data extracted from the publicly available databases of the World Health Organization (GLOBOCAN 2008 and WHO World Health Statistics 2012), the International Monetary Fund Report 2009, and the World Bank Report 2011.

[5] Total Western countries GDP is US\$ 16,166,150,000,000. Total Eastern countries GDP is US\$ 1,375,320,000,000.

[6] This study received no external funding.

Abstract no: 1400, "Discrepancies in cancer incidence and mortality and its relation to health expenditure among the 27 European Union member states". Public Health and Epidemiology proffered papers session at 09.00 hrs CEST, Sunday 29 September 2013, Elicium 1 room.

Provided by ECCO-the European CanCer Organisation

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