Office for National Statistics

Statistical bulletin

Cancer Survival for Children in England- Patients Diagnosed: 1990-2006 and Followed up to 2011

Long-term trends in the number of children (aged 0 to 14) surviving cancer 5 years after diagnosis.

Contact:
Sarah Whitehead
cancer.newport@ons.gsi.gov.uk

Release date:
10 December 2013

Next release:
28 April 2015

Table of contents

1. Key findings

2. Summary

3. Results

4. User and uses

5. Policy context

6. Authors

7. Acknowledgements

8. Additional information

9. References

10. Background notes

1 . Key findings

- Five-year survival has gradually increased for children (aged 0–14 years) diagnosed with cancer from 66.6% in 1990 to 81.3% in 2006
- Increases in survival over this period have been slightly larger in those aged 5–9 years at diagnosis than in those aged 0–4 years or 10–14 years
- Five-year survival has consistently been above 80% for all childhood cancers combined since those diagnosed in 2004

2 . Summary

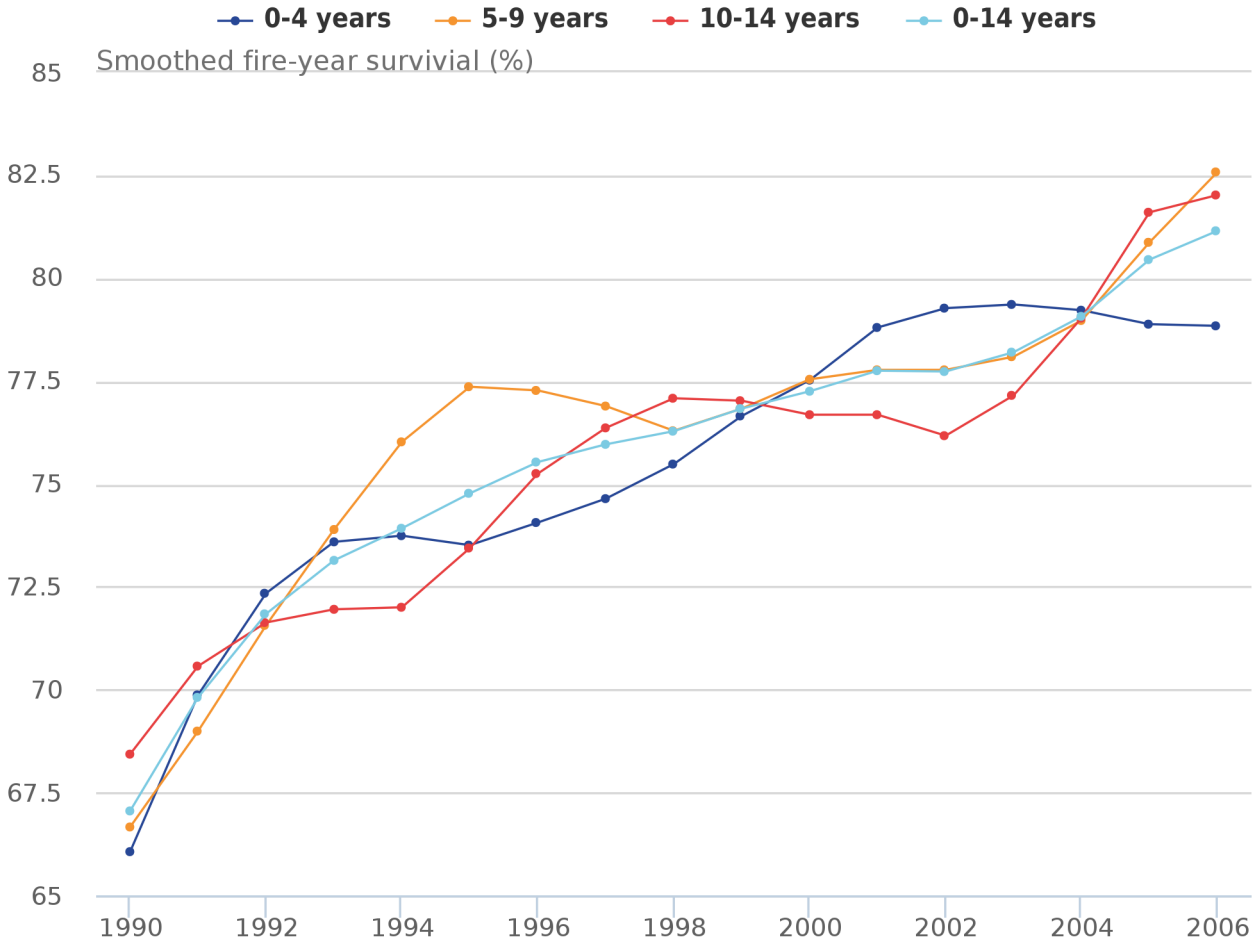
This is the first statistical bulletin on childhood cancer survival in England. It was prompted by the recent introduction of an indicator on 5-year survival from all cancers in children aged under 15 years in the NHS Outcomes Framework for 2013–2014. The NHS Outcomes Framework was established to monitor overall changes in performance of the NHS and the quality of health outcomes.

This bulletin includes data on survival for all children (aged 0–14 years) diagnosed with cancer in England during 1990-2006, followed up to 31 December 2011 (see Background Note 1). Five-year survival estimates are presented for all cancers combined, for each year from 1990 to 2006 (see Background Note 2). Survival estimates are reported by age group and for all ages combined, both unstandardised and age-standardised (see Background Note 3).

3 . Results

Figure 1 shows smoothed five-year survival estimates for children diagnosed with cancer in England between 1990 and 2006, for age groups 0–4, 5–9, and 10–14 years, and age-standardised survival for all ages combined (see Background Note 4).

Figure 1: Smoothed five-year survival (%) for children diagnosed with cancer in England between 1990 and 2006, by age at diagnosis, and age-standardised survival for all ages combined



Source: Office for National Statistics

Notes:

1. Smoothed survival trends are presented because of the instability of annual estimates (see Background Note 4)

2. Children aged 0–14 years

For all children (0–14 years) diagnosed with cancer in 2006 and followed up to the end of 2011, overall age-standardised five-year survival was 81.3% (Table 1 (105.5 Kb Excel sheet)). Five-year survival among those aged 5–9 years was 83.5%, slightly higher than for children aged 0–4 years (79.0%) or 10–14 years (81.3%).

For all childhood cancers combined, five-year survival has increased fairly steadily, from 66.6% for children diagnosed in 1990 to 81.3% for children diagnosed in 2006. This is an absolute increase of 14.7% over a 17-year period, or about 1% each year.

The increase of 17.0% in five-year survival for children aged 5–9 years at diagnosis was somewhat larger than the increases seen among children aged 0–4 years (12.5%) and children aged 10–14 years (14.6%).

Gradual increases in survival over the period 1990–2006 are likely to be a result of improvements in treatment and supportive care (Stiller, 2007). These increases occurred in parallel with improvements in outcomes reported by relevant clinical trials of treatments for childhood cancers (Stiller et al., 2012). The increase was slightly greater for those aged 5–9 years at diagnosis than for children who were younger or older at diagnosis. This is probably due to variation in the relative frequency of the different types of cancer with age. For example, the 5–9 years old age group contains relatively few cases of neuroblastoma (mainly found in younger children) and bone sarcoma (more frequent in older children), two types of cancer for which increases in survival have been relatively small.

More than half of all the childhood cancers diagnosed during the period 1990–2006 were leukaemias (32%) and malignant neoplasms of the brain and central nervous system (26%).

Detailed results are presented in Table 1 (105.5 Kb Excel sheet) in the associated data section of this publication.

4 . User and uses

Key users of cancer survival estimates include the Department of Health, academics and researchers, cancer charities, cancer registries, other government organisations, researchers within ONS, the media, and the general public. The Department of Health uses cancer survival figures to brief parliamentary ministers, and as part of the evidence base to inform cancer policy and programmes, for example in drives to improve survival rates. Cancer survival estimates will also be used to measure progress against NHS Outcomes Framework indicators. Academics and researchers use the figures to inform their own research. Similarly cancer registries and other government organisations use the figures to carry out individual and collaborative projects to apply subject knowledge to practice. Charities use the data so they can provide reliable and accessible information about cancer to a wide range of groups, including patients and health professionals via health awareness campaigns and cancer information leaflets/web pages. Researchers within ONS use the data to support further research and to publish alongside other National Statistics.

5 . Policy context

In 'Improving Outcomes: A Strategy for Cancer' (January 2011), the Department of Health stated that although improvements have been made in the quality of cancer services in England, a significant gap remains in survival compared with the European average. The strategy document sets out how the Department of Health aims to improve outcomes for all cancer patients and improve cancer survival, with the aim of saving an additional 5,000 lives every year by 2014/15.

Outcomes strategies set out how the NHS, public health and social care services will contribute to the ambitions for progress agreed with the Secretary of State in each of the high-level outcomes frameworks. The indicator set for the NHS Outcomes Framework 2013–2014 includes five-year survival from all cancers in children under 15 years. This indicator on childhood cancer survival has been introduced to the NHS Outcomes Framework for the first time in 2013–2014. Cancer is responsible for 21% of all deaths in children aged 1–14 and causes more death of children in this age group than any other cause, so an indicator for this group is clearly important.

6 . Authors

Tsion Solomon[a], Sarah Whitehead[b], Michel P Coleman[a], Charles Stiller[c]

Notes for authors

1. [a]Cancer Research UK Cancer Survival Group, London School of Hygiene and Tropical Medicine

   [b]Cancer Analysis Team, Office for National Statistics

   [c]Childhood Cancer Research Group, University of Oxford

7 . Acknowledgements

The National Cancer Registry at the Office for National Statistics, the Childhood Cancer Research Group and the London School of Hygiene & Tropical Medicine wish to acknowledge the work of the regional cancer registries in England, which provided the raw data for these analyses.

8. Additional information

Further information about cancer survival estimates published by the Office for National Statistics (ONS) can be found in the Cancer Survival Quality and Methodology Information paper. Quality and Methodology Information papers are overview notes which pull together key qualitative information on the various dimensions of the quality of statistics as well as providing a summary of the methods used to compile the output. Information about key users of these statistics is also provided.

The Scottish Cancer Registry produces statistics on cancer in Scotland.

Statistics on cancer in Wales are produced by the Welsh Cancer Intelligence and Surveillance Unit.

The Northern Ireland Cancer Registry produces statistics on cancer in Northern Ireland.

9. References

Cleveland WS (1979). Robust Locally Weighted Regression and Smoothing Scatterplots. Journal of the American Statistical Association, 74: 829-836.

Steliarova-Foucher E, Stiller C, Lacour B, Kaatsch P (2005). International Classification of Childhood Cancer, third edition Cancer, 103: 1457-1467.

Stiller C (2007). Childhood cancer in Britain: incidence, survival, mortality. Oxford: Oxford University Press.

Stiller CA, Kroll ME, Pritchard-Jones K (2012). Population survival from childhood cancer in Britain during 1978-2005 by eras of entry to clinical trials. Annals of Oncology, 23: 2464-2469.

10. Background notes

1. All children (aged 0–14 years) resident in England who were diagnosed during 1990–2006 with a malignant neoplasm or a non-malignant neoplasm of the central nervous system (CNS), as defined in the third edition of the International Classification of Childhood Cancer (Steliarova-Foucher et al., 2005), were considered eligible for analysis. Children whose tumour was only reported on a death certificate were excluded, because their duration of survival is unknown.

2. We report the cumulative probability of all-cause (overall) survival up to 5 years after diagnosis using the actuarial method. This means that all deaths are included in the analysis, whatever the cause of death written on the death certificate. For adults, the net survival indicator is used to compensate for mortality from other causes, which may be considerable. For children, overall survival is considered a reliable estimator of cancer survival because, unlike in adults, death within five years of diagnosis is almost always due to the cancer.

3. Survival varies with age at diagnosis, and the age profile of patients can change over time. To enable comparison of overall survival for the age range 0–14 years over long periods of time, age-standardised

estimates are calculated as a weighted sum of the age-specific survival estimates. For children, it is conventional to use equal weights for the three five-year age groups, 0–4, 5–9 and 10–14 years, by taking the simple arithmetic mean of the age-specific survival estimates

4. For the line graph showing trends in survival estimates over time, we present smoothed survival trends. These have been done using lowess (locally weighted scatterplot smoothing) because of the year-to-year variation in the survival estimates. Lowess is one of many techniques used to smooth unstable estimates in order to highlight patterns in the data such as temporal trends. Because the survival estimates in Figure 1 are smoothed, they are not identical to the corresponding survival estimates in Table 1. (Cleveland, 1979).

5. When the data for this report were extracted for analysis on 10 April 2013, childhood cancer registrations for 2005–2010 in England were believed to be 99.7% complete, and the patient's vital status at 31 December 2011 was known for 98.7% of cancers registered for the period 1990–2006. As in other countries, cancer registration is a dynamic process: a small number of late registrations may arrive up to five years after the end of a given calendar year, whereas other registrations may be amended or deleted.

6. A list of the names of those given pre-publication access to the statistics and written commentary is available in Pre-release Access List: Cancer Survival for Children in England: Children Diagnosed 1990–2006 and Followed up to 2011. The rules and principles which govern pre-release access are featured within the Pre-release Access to Official Statistics Order 2008.

7. Special extracts and tabulations of cancer data for England are available to order for a charge (subject to legal frameworks, disclosure control, resources and agreement of costs, where appropriate). Such enquiries should be made to: Cancer and End of Life Care Analysis Team

   Life Events and Population Sources Division
   Office for National Statistics
   Government Buildings
   Cardiff Road
   Newport
   NP10 8XG
   Tel: +44 (0)1633 651620
   Email: cancer.newport@ons.gsi.gov.uk

8. We would welcome feedback on the content, format and relevance of this release. Please contact cancer.newport@ons.gsi.gov.uk.

9. Follow ONS on Twitter and Facebook.

10. Next publication date: December 2014.

11. Details of the policy governing the release of new data are available from the UK Statistics Authority website or from the Media Relations Office.

12. **Issued by:**
    Office for National Statistics
    Government Buildings
    Cardiff Road
    Newport
    NP10 8XG

    Media contact:
    Tel: Media Relations Office +44 (0)845 6041858
    Emergency on-call +44 (0)7867 906553
    Email: media.relations@ons.gsi.gov.uk

    Statistical contact:
    Tel: Sarah Whitehead +44 (0)1633 651620

Email: cancer.newport@ons.gsi.gov.uk
Website

Produced in partnership with

13. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk