



Cancer Survival in England: Patients Diagnosed 2007–2011 and Followed up to 2012

Coverage: **England**

Date: **29 October 2013**

Geographical Area: **Country**

Theme: **Health and Social Care**

Key findings

- The trend of increasing survival continued for patients diagnosed during 2007–2011.
- Survival is generally lower among older patients than younger patients, even after adjusting for death from other causes.
- Five-year survival is over 80% for cancers of the breast (women), prostate and testis, and for Hodgkin lymphoma and melanoma of skin.
- Five-year survival for cancers of the brain, lung, oesophagus, pancreas and stomach in both sexes is 21% or less; five-year survival from pancreatic cancer remains the lowest in both sexes (5%).

Summary

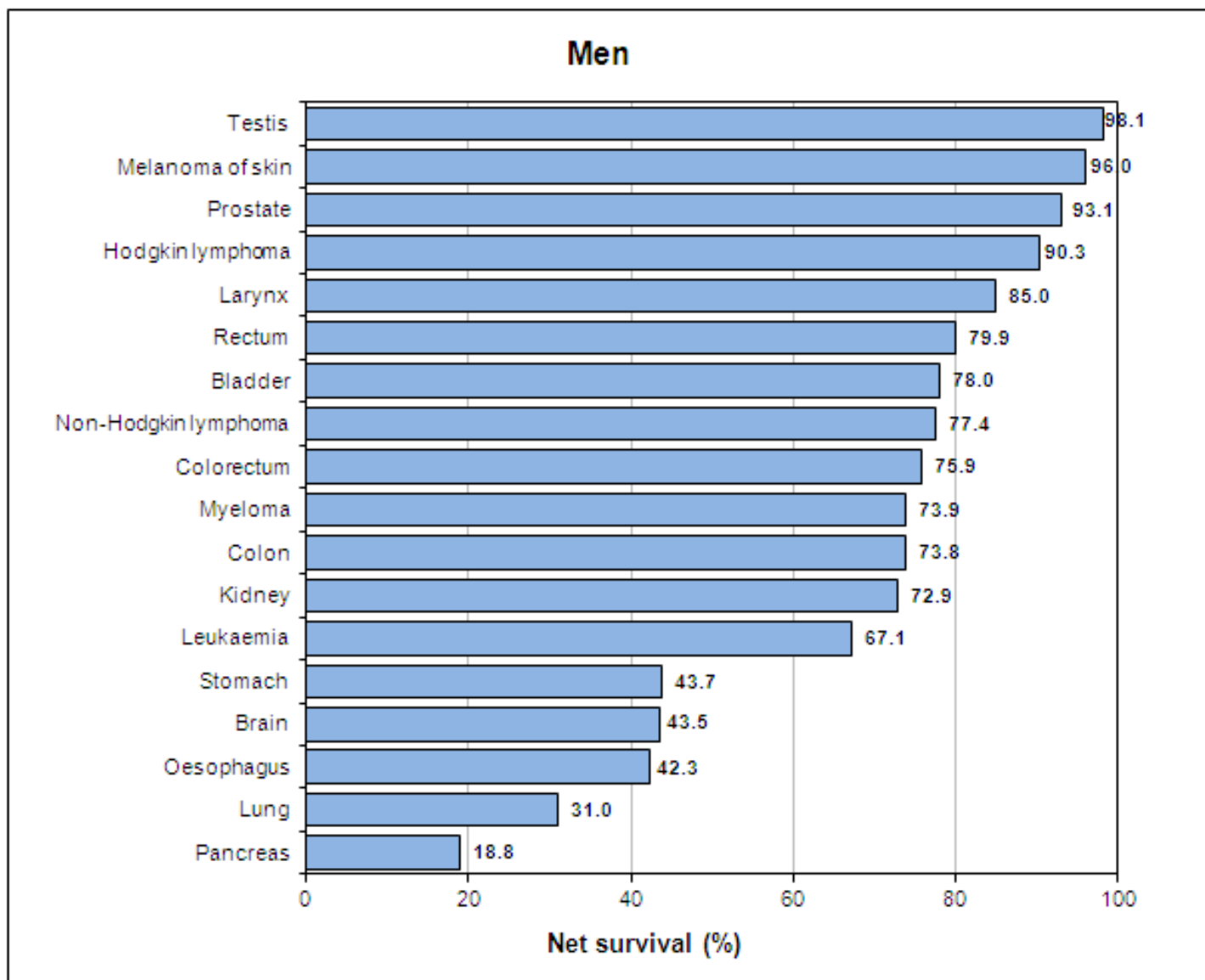
This bulletin presents one-year and five-year net survival (%) for adults (aged 15–99 years) diagnosed with one of the 21 most common cancers in England during 2007–2011 and followed up to 31 December 2012 (see Background Notes 1–5). These cancers comprise over 90% of all newly diagnosed cancers. Data are presented by sex, by age group and for all ages combined, both un-standardised and age-standardised (see Background Note 1).

Results

Figures 1 and 2 show age-standardised one-year net survival estimates for men and women respectively diagnosed during 2007–2011. Figures 3 and 4 show five-year net survival for these same cancers. These estimates are presented in rank order for the 21 most common cancers.

Five-year net survival estimates are presented in [Table 1](#) in the associated data section of this publication, with 95% confidence intervals (see Background Note 6), and compared with the corresponding values for patients diagnosed during 2006–2011 ([Office for National Statistics, 2012](#)) (see Background Note 7).

Figure 1: One-year age-standardised net survival (%) for men diagnosed during 2007–2011 and followed up to 2012: England, 21 common cancers



Source: Office for National Statistics

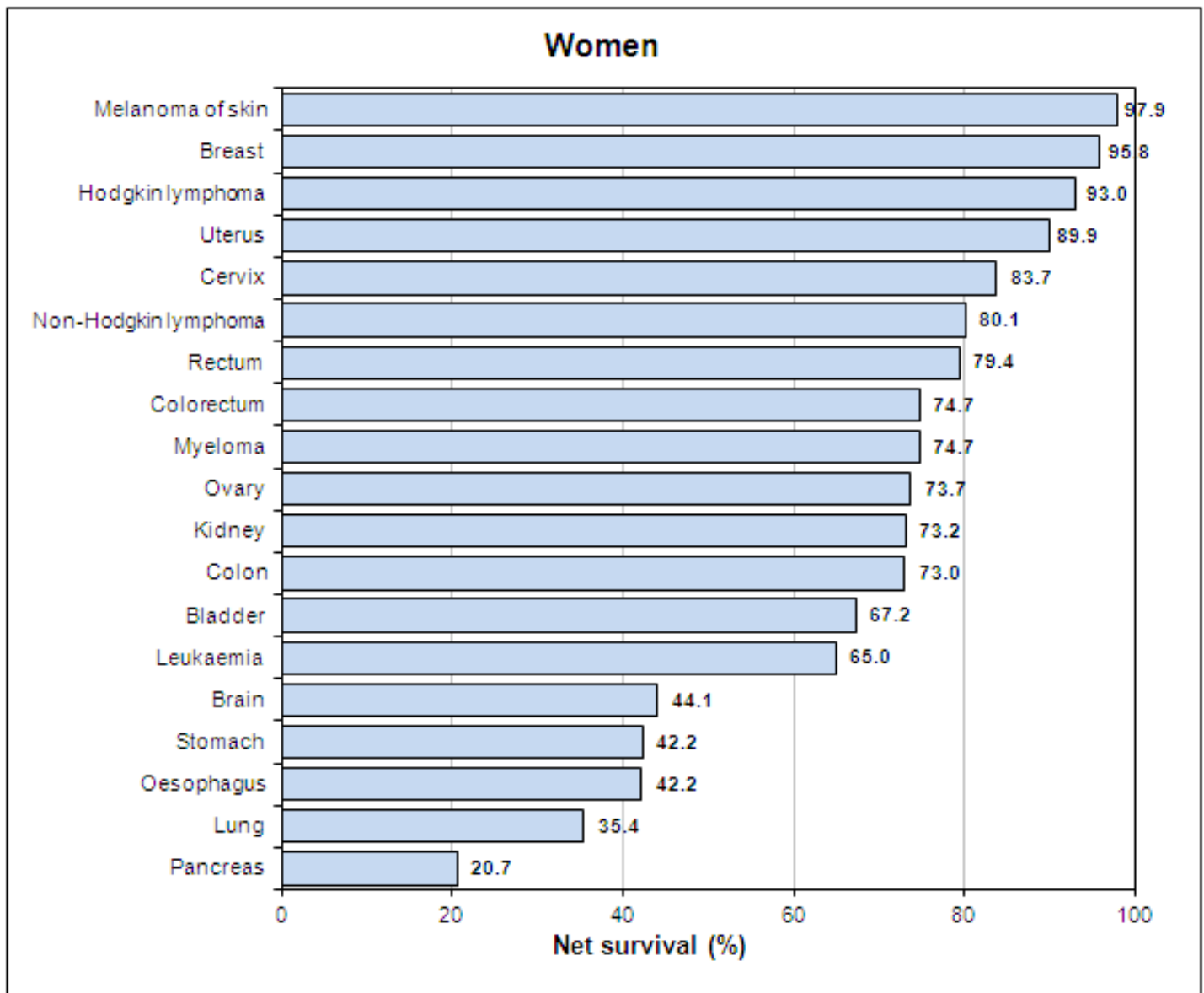
Notes:

1. Adults aged 15–99 years

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Figure 2: One-year age-standardised net survival (%) for women diagnosed during 2007–2011 and followed up to 2012: England, 21 common cancers



Source: Office for National Statistics

Notes:

1. Adults aged 15–99 years.

Download chart

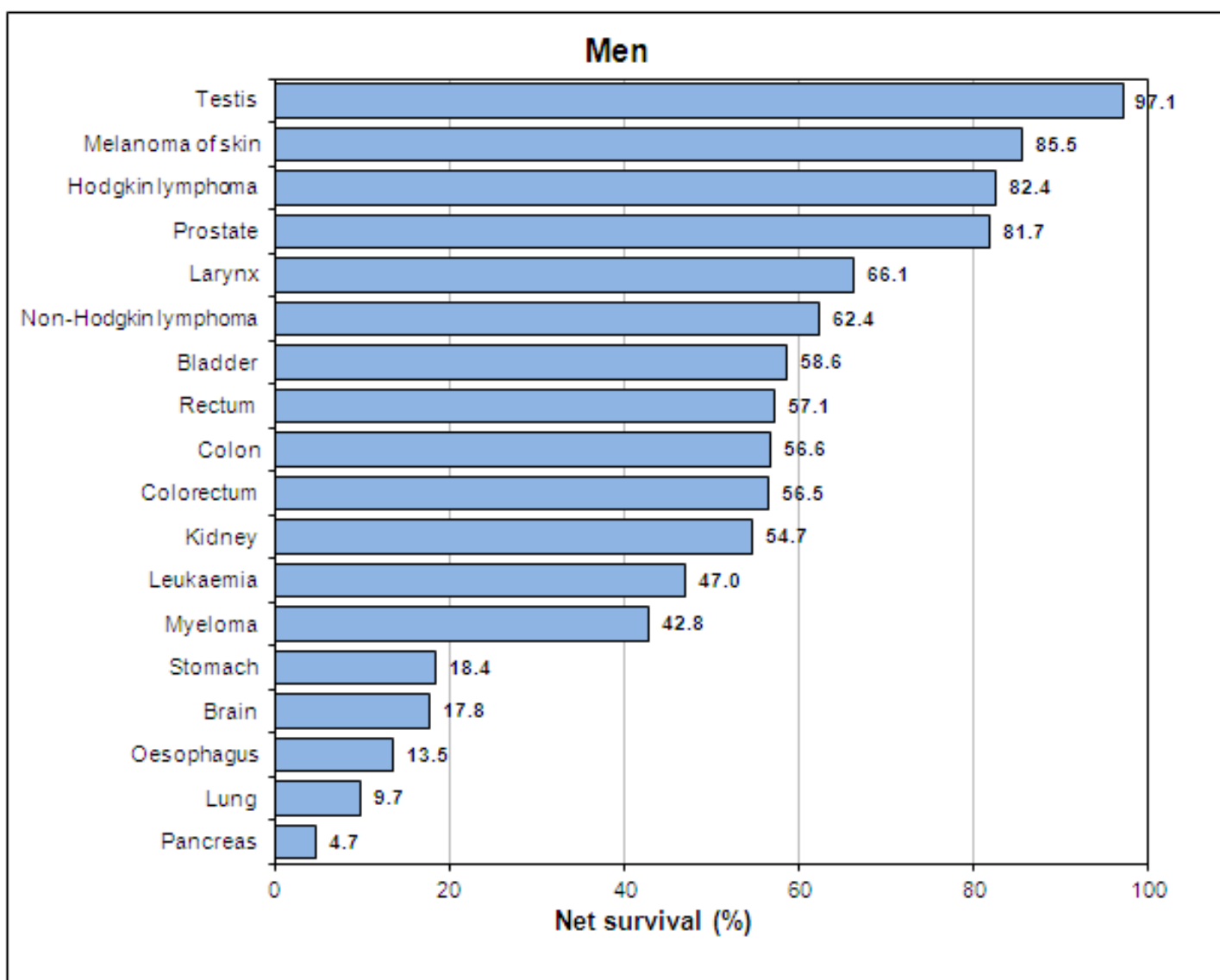
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The general trend of increasing five-year net survival (Rachet et al., 2009) continued for patients diagnosed during 2007–2011, with survival improving for most of the 21 most common cancers. There were four exceptions: laryngeal cancer in men (66.8% for patients diagnosed during 2006–2010, 66.1% for those diagnosed during 2007–2011), stomach cancer in women (19.9% and 19.6% respectively), Hodgkin lymphoma in men (unchanged at 82.4%) and brain cancer in women

(unchanged at 20.4%). For cancers that occur in both sexes, survival is generally higher in women, with two notable exceptions: bladder cancer (49.1% in women, 58.6% in men) and myeloma (41.6% in women, 42.8% in men).

The five-year survival estimate for women diagnosed with myeloma during 2007–2011 was 41.6%, an increase of 3.3% from the value for those diagnosed during 2006–2010. Since the two periods overlap by four years, this is a large increase. Other large increases were seen for cancers of the kidney in women (up 2.4% to 56.9%) and ovary (up 2.3% to 46.3%), and for men with leukaemia (up 2.1% to 47.0%) and rectal cancer (up 2.1% to 57.1%). Generally increasing trends were also seen for one-year survival (data not presented).

Figure 3: Five-year age-standardised net survival (%) for men diagnosed during 2007–2011 and followed up to 2012: England, 21 common cancers



Source: Office for National Statistics

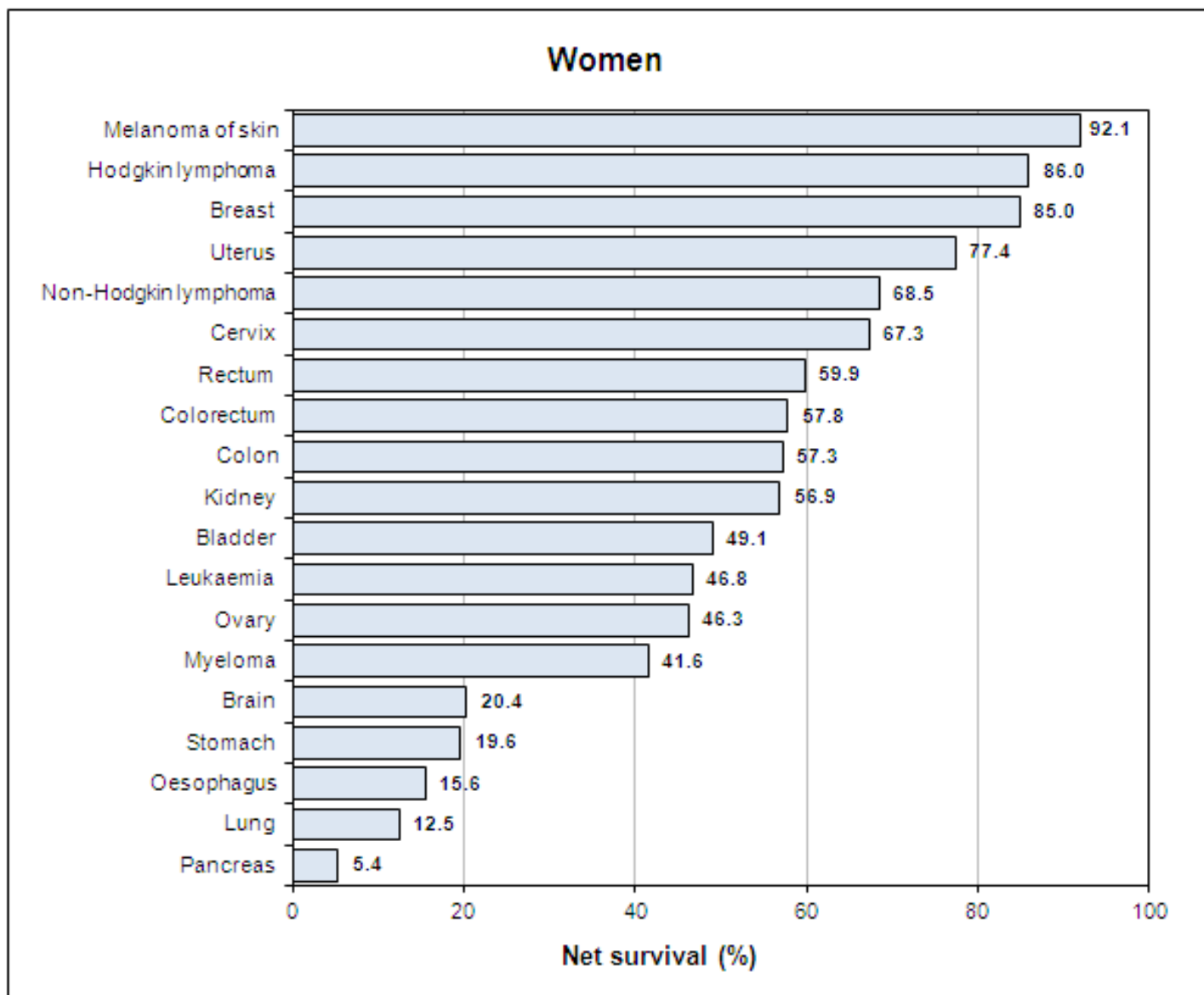
Notes:

1. Adults aged 15–99 years.

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Figure 4: Five-year age-standardised net survival (%) for women diagnosed during 2007–2011 and followed up to 2012: England, 21 common cancers



Source: Office for National Statistics

Notes:

1. Adults aged 15–99 years.

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There is a clear separation in five-year survival between the five cancers with the poorest prognosis and all other cancers. Estimates are below 19% in men and 21% in women for cancers of the oesophagus, stomach, pancreas, lung and brain, while for all other cancers, five-year survival ranges from 41.6% for myeloma in women to 97.1% for testicular cancer. Five-year survival ranges from 4.7% and 5.4% for pancreatic cancer in men and women, respectively, up to 17.8% and 20.4% respectively for brain tumours ([Table 1](#)). Prognosis from these cancers remains dramatically poor, despite some encouraging recent improvements in one-year survival (see previous [Office for National Statistics publications](#) for one-year survival estimates for patients diagnosed in earlier time periods).

Five-year net survival is over 80% for cancers of the breast (women) and prostate, and for Hodgkin lymphoma, and above 90% for testicular cancer and for women diagnosed with melanoma of skin. However, because of increasingly intensive diagnostic activity, an increasing proportion of patients with prostate cancer and, to a lesser extent, breast cancer, are diagnosed with tumours at an early stage. These patients are more likely to die from causes other than the cancer ([Pashayan et al., 2009](#)). Estimating survival for patients with such cancers whose tumour is diagnosed at an advanced stage (with regional spread or distant metastases) is therefore of increasing public health importance. When information on stage at diagnosis is routinely collected for cancer patients in England, it will be possible to estimate stage-specific survival, in order to monitor progress more effectively at a national level.

[Table 2](#) presents net survival at one and five years after diagnosis for each of the 21 most common cancers, by sex and age group, and for all ages combined, both un-standardised and age-standardised.

There are distinct patterns in net survival by age, with generally lower survival among older patients and often higher survival among younger patients, even after taking account of the higher background mortality in the elderly. Breast cancer is a well-known exception to this pattern ([Rachet et al., 2008](#)); five-year net survival is lower for women aged 15–39 years at diagnosis (85%) than for women aged 40–69 years (89–91%) because of screening activity in middle-aged women and differences in tumour characteristics between the age groups (Fredholm et al., 2009). Similarly, for prostate cancer, five-year survival is slightly higher for men aged 50–69 years (92–93%) than for men aged 15–49 years (90%). This is probably attributable to more widespread use of the prostate-specific antigen (PSA) test in older men ([Pashayan et al., 2006](#)).

International comparisons

Overall, cancer survival has been improving steadily in England. However, a recent international study showed that, while one-year and five-year survival from breast, colorectal, lung and ovarian cancers improved between 1995 and 2007 in Australia, Canada, Denmark, Norway, Sweden and the United Kingdom (England, Northern Ireland and Wales) (Coleman et al., 2011), survival in England at one and five years was generally lower than in these other comparably wealthy countries.

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.

Users 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.

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. Survival estimates for cervical, colorectal and breast cancer are some of the lowest among Member States of the Organisation for Economic Co-operation and Development (OECD) (figures for cancer survival in OECD countries are available from the [OECD website](#)). 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 to 2014 – focus on measuring health outcomes](#) include one- and five-year cancer survival indicators for all cancers combined, and for colorectal, breast and lung cancers combined.

References

Coleman MP, Babb P, Damiecki P, Grosclaude P, Honjo S, Jones J, Knerer G, Pitard A, Quinn MJ, Sloggett A, De Stavola BL (1999). Cancer survival trends in England and Wales, 1971–1995:

deprivation and NHS Region. Studies in Medical and Population Subjects no. 61. London: The Stationery Office.

Coleman MP, Forman D, Bryant H, Butler J, Rachet B, Maringe C, Nur U, Tracey E, Coory M, Hatcher J, McGahan CE, Turner D, Marrett L, Gjerstorff ML, Johannesen TB, Adolfsson, Lambe M, Lawrence G, Meechan D, Morris EJ, Middleton R, Steward J, Richards MA, the ICBP Module 1 Working Group (2011). Cancer survival in Australia, Canada, Denmark, Norway, Sweden, and the UK, 1995–2007 (the International Cancer Benchmarking Partnership): an analysis of population-based cancer registry data. *The Lancet*, 377 (9760), 127-138.

Fredholm H, Eaker S, Frisell J, Holmberg L, Fredriksson I, Lindman H (2009). Breast cancer in young women: poor survival despite intensive treatment. *PLOS One*, 4(11), e7695.

Pashayan N, Pharoah P, Neal DE, Hamdy F, Donovan J, Martin RM, Duffy SW (2009). [Stage shift in PSA-detected prostate cancers—effect modification by Gleason score](#). *Journal of Medical Screening*, 16(2), 98-101.

Pashayan N, Powles JW, Brown C, Duffy SW (2006). [Excess cases of prostate cancer and estimated overdiagnosis associated with PSA testing in East Anglia](#). *British Journal of Cancer*, 95, 401-405 [[Erratum](#) in: *British Journal of Cancer*, 95, 660].

Rachet B, Woods LM, Mitry E, Riga M, Cooper C, Quinn MJ, Steward JA, Brenner H, Estève J, Sullivan R, Coleman MP (2008). [Cancer survival in England and Wales at the end of the 20th century](#). *British Journal of Cancer*, 99 (Suppl. 1), 2-10.

Rachet B, Maringe C, Nur U, Quaresma M, Shah A, Woods LM, Ellis L, Walters S, Forman D, Steward JA, Coleman MP (2009). Population-based cancer survival trends in England and Wales up to 2007: an assessment of the NHS cancer plan for England. *The Lancet Oncology*, 10, 351-369.

Office for National Statistics (2012). [Cancer survival in England: patients diagnosed 2006–2010, followed up to 2011](#).

Pohar Perme MJ, Stare J and Estève J (2012). On estimation in relative survival. *Biometrics*, 68, 113-120.

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Background notes

1. Net survival is an estimate of the probability of survival from the cancer alone. It can be interpreted as the survival of cancer patients after taking into account the background mortality that the patients would have experienced if they had not had cancer. Background mortality is derived from life tables of all-cause mortality rates in the general population. Net survival varies with age, and the age profile of cancer patients can vary with time and between geographical areas, so the estimates are age-standardised to facilitate comparison. Estimates are shown with their 95% confidence intervals (see Background Note 6). For convenience, net survival is expressed as a percentage in the range 0–100%.
2. The two changes implemented for the 2012 publication of the national cancer survival statistics have been maintained this year, namely: (i) we estimate net survival, using an unbiased estimator (Pohar Perme et al., 2012), instead of relative survival; (ii) patients with zero follow-up time are included: these are patients known to have died on the same day as they were diagnosed. Patients for whom a death certificate was the only information available are excluded, because their duration of survival is unknown.
3. All adults (aged 15–99 years) in England who were diagnosed during 2007–2011 with one of the 21 most common cancers were eligible for inclusion in the analyses. Ineligible patients were those whose tumour was benign (not malignant) or in situ (malignant but not invasive) or of uncertain behaviour (uncertain whether benign or malignant), or for which the organ of origin was unknown. Details of the eligibility and exclusion criteria have been published (Coleman et al., 1999).
4. Cancers were defined by anatomic site codes in the International Classification of Diseases, Tenth Revision (ICD-10) and by morphology and behaviour codes in the International Classification of Diseases for Oncology, Second Edition (ICD-O-2) ([Table 3](#)).
5. Data presented for the 21 most common cancers are for cancer of the colon and cancer of the rectum separately. Combined data for colorectum cancer are also presented.
6. A 95% confidence interval is a measure of the uncertainty around an estimate. It provides a range around the estimated value within which we have a 95% level of confidence that the true value for the population is likely to fall.
7. Differences between survival estimates for the two periods are taken as the arithmetic difference: for example, 12% is shown as 2% (not 20%) higher than 10%. Survival figures are rounded to one decimal place, but the differences are based on the exact underlying figures.

8. When the data for this report were extracted for analysis on 2 July 2013, cancer registrations for 2011 were believed to be at least 98% complete, and each patient's vital status at 31 December 2012 was known for 99% of cancers registered during the period 2007–2011. 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. The figure of 98% completeness is based on the average number of cases for the three previous years (2008–2010), including late registrations received after publication of the data for those years.
9. 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 in England: Patients Diagnosed 2007–2011 and Followed up to 2012](#) . The rules and principles which govern pre-release access are featured within the [Pre-release Access to Official Statistics Order 2008](#).
10. 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:

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11. We would welcome feedback on the content, format and relevance of this release. Please contact cancer.newport@ons.gsi.gov.uk.
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- are well explained and readily accessible;
- are produced according to sound methods; and

- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

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