

LIVING AFTER DIAGNOSIS MEDIAN CANCER SURVIVAL TIMES

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A research briefing paper
by Macmillan Cancer Support



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Introduction



This research is a huge breakthrough in seeing the real picture of how long people are living after a cancer diagnosis. For years we've counted the number of people who hit certain benchmarks: one, five or ten years since diagnosis, but it is median survival times that gives an accurate new picture of how long on average people might expect to live with different cancers, and how this has shifted over time.

Changes in median survival time¹ show the real progress in how long people are living after their cancer diagnosis, rather than increases in survivors at a point of time after diagnosis. That is why we measured the median cancer survival times – it gives us a clearer picture of survival times for people diagnosed with different cancers and some of the results are as shocking as others are good.

Shocking variations

First the good news: overall median survival time for all cancer types 40 years ago was just one year, now it is predicted to be nearly six years. This improvement is testament to the improvements in surgery, diagnosis, radiotherapy, and new drugs. There have been particularly dramatic improvements in survival time for breast cancer, colon cancer and Non-Hodgkin's Lymphoma – with many years added to median survival times.

But the good news is tempered by the woeful lack of improvement in other cancers. There has been almost no progress for cancers like lung and brain, where median survival times have risen by mere weeks. Shockingly pancreatic cancer median survival time has hardly risen at all. The NHS and cancer community must urgently look at why.

Bridging the gap

There has been great work on breast cancer treatments and this appears to have had a clear impact on breast cancer survival. But there has not been the same progress for brain, lung and pancreatic cancer and we need to up our game on these.

Research into breast cancer accounted for 20% of site-specific research funding in 2010, more than the combined spend on some of the cancers with the lowest median survival times – stomach, oesophagus, pancreas, brain and lung – which made up 13% of site-specific research funding in 2010.²

‘Survival time for all cancer types 40 years ago was just one year, now it is predicted to be nearly six years. This improvement is testament to the improvements in surgery, diagnosis, radiotherapy, and new drugs.’

Lessons for the NHS

It is wonderful news that more cancer patients are living longer overall, but whilst people are certainly living longer than ever with some cancers; they are not necessarily living well. Cancer treatment is the toughest fight many people will face and patients are often left with long-term health and emotional problems long after their treatment ended. Of those colorectal cancer patients still alive between five and seven years after their diagnosis, for example, two thirds (64%) will have an ongoing health problem.³

After treatment ends, many patients feel abandoned by the NHS and struggle to cope with the long-term effects of cancer and the impact cancer treatment has on their health, working lives and families.⁴ The NHS really needs to recognise cancer’s long-term impact on people’s lives, to plan better services and to develop more personalised care. We need services which keep people well and at home, not services which sort the problem when people arrive at A&E.

We have a massive challenge ahead if we are to keep up with the relentless toll cancer takes on people’s health, and the NHS must rise to it.

Ciarán Devane,

Chief Executive of Macmillan Cancer Support

Key findings

Median survival time is the time since diagnosis when relative survival is at 50% and we interpret this as the time when half of the patients have survived (or half have died). Median survival time¹ was calculated for people diagnosed in the periods 1971–72, 1980–81, 1990–91 and 2000–01, and predicted for those diagnosed in 2007.

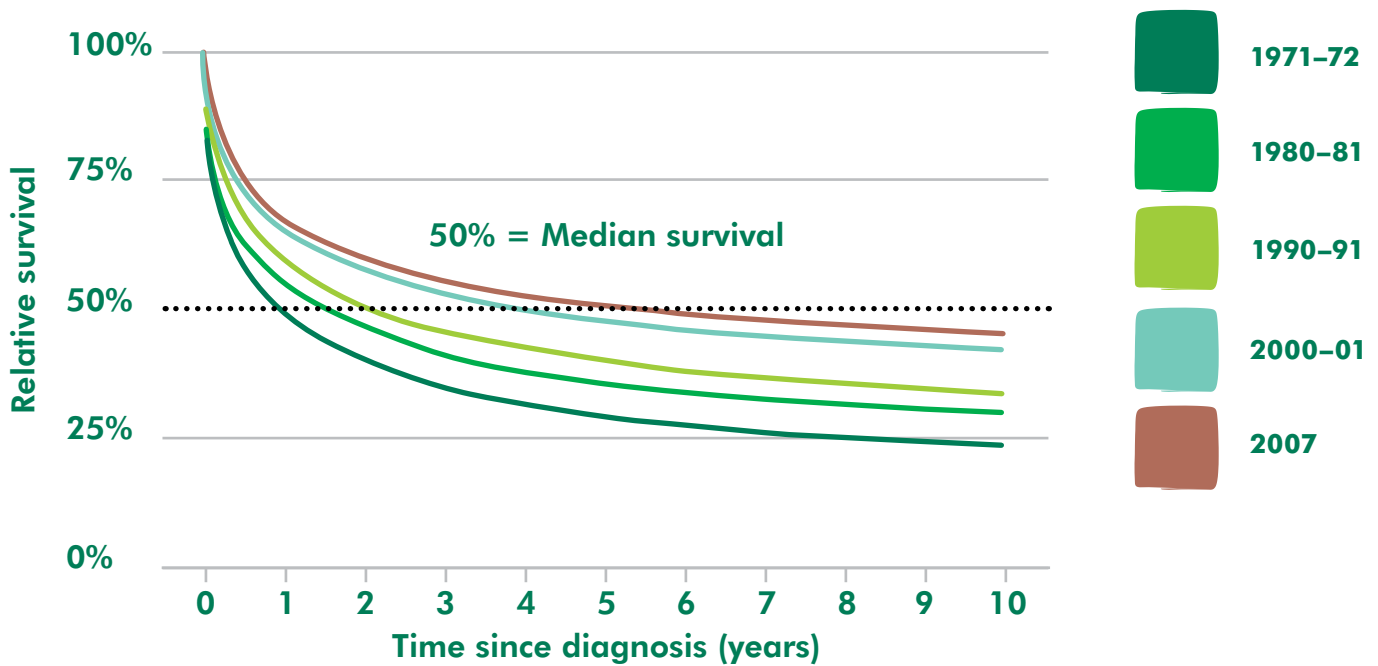
The key findings are:

- People now **live** nearly **six times longer** after their cancer diagnosis than was the case **40 years ago**.
- Overall **median survival time 40 years ago** was **one year**. These latest figures predict **median survival time** is now **nearly six years**.
- For **11 of the 20** cancers studied **median survival time** is now **over five years**.
- For **six cancers median survival time** has been **more** than **10 years** since the early 1970s.
- But for **nine of the 20 cancers** studied, **median survival time** is **three years or less**, with **little improvement** since the 1970s.
- The **biggest improvement** in **median survival time** has been for **colon cancer** with a **17-fold increase** from around **seven months to ten years**.
- **Breast cancer median survival time** has **doubled** since the 1970s and has been more than **10 years since** at least the early 1990s.
- **Lung cancer median survival time** has barely risen, from **11 to 20 weeks**.
- **Pancreatic cancer median survival time** has **hardly risen** at all.

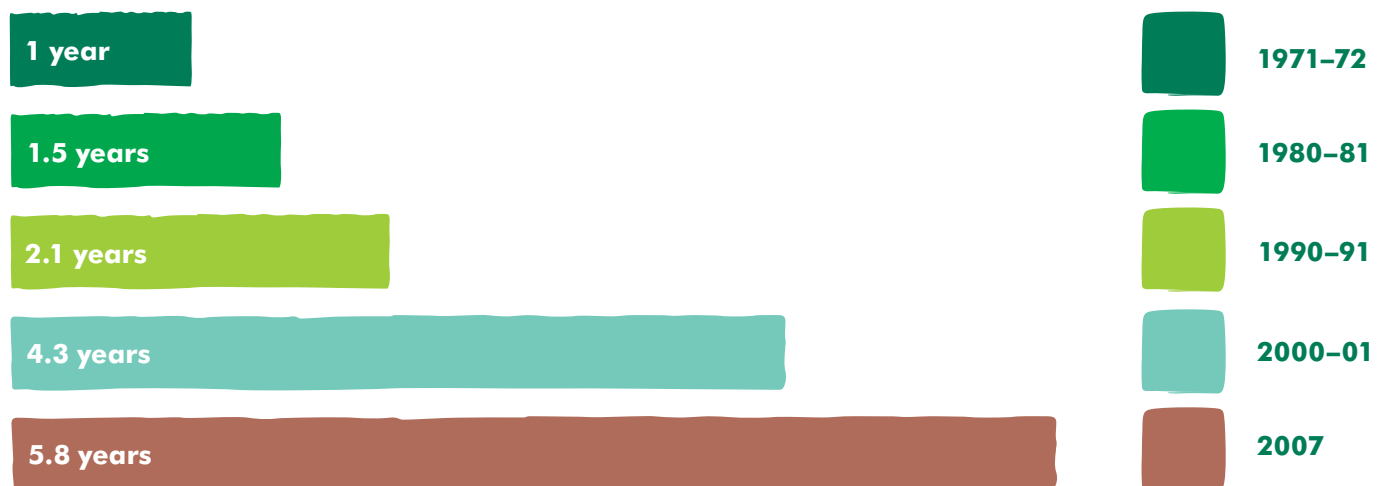
People with cancer are surviving longer

Median survival time is now nearly six times longer than it was 40 years ago. It rose from one year for those diagnosed in 1971–72, and is predicted to be nearly six years for those diagnosed in 2007.

Relative survival up to 10 years since diagnosis, by period of diagnosis, all cancers¹



Median survival time (years) by period of diagnosis, all cancers¹



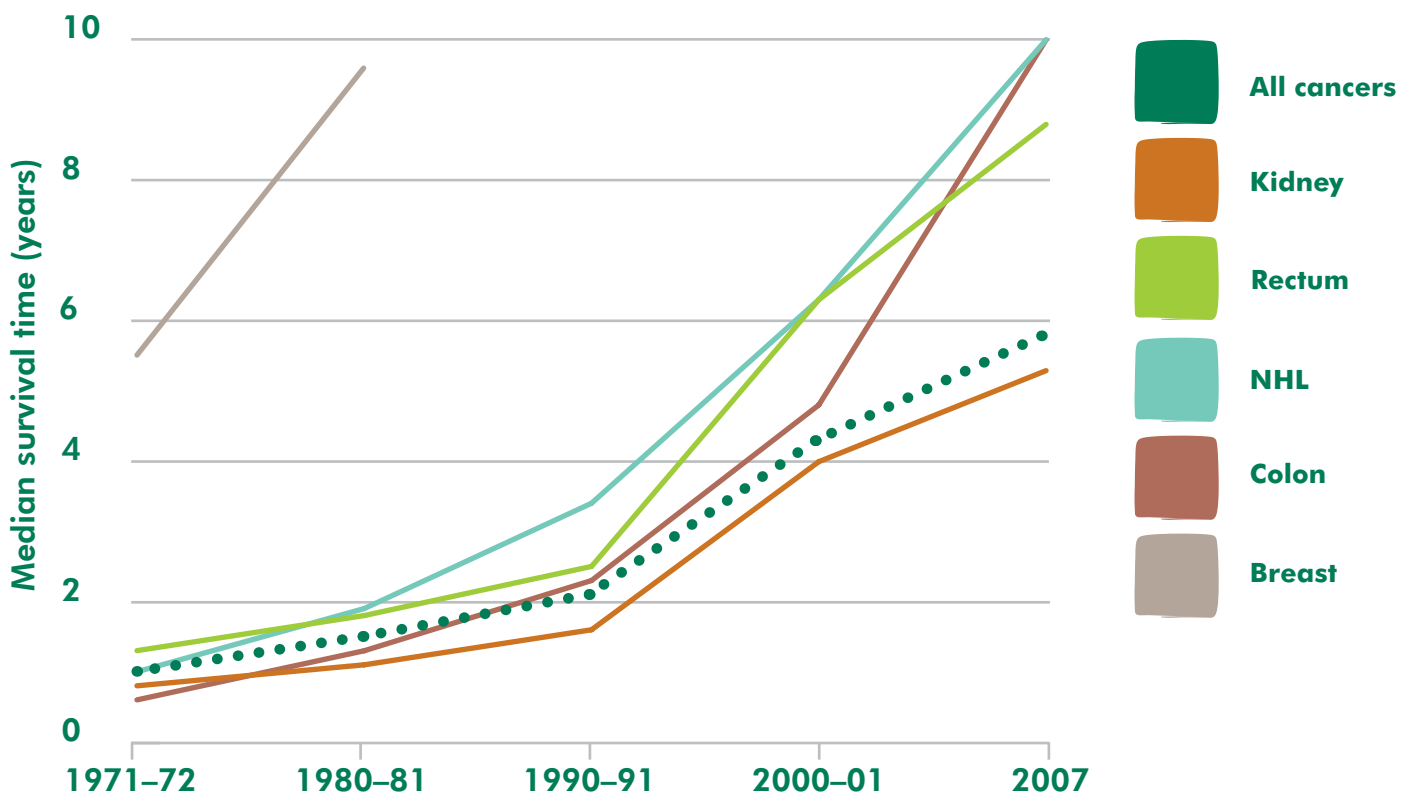
Many of the patients diagnosed in 2007 will survive substantially longer than the predicted six years.

¹ Data are for adults aged 15–99 diagnosed in England and Wales. 2007 data are predicted survival estimates. Prostate and Bladder cancer are excluded. See Appendix 1 & 2 for full details.

Median survival time has seen dramatic improvement for some cancers

For 11 of the 20 cancers studied, median survival time is over five years. Over the last 40 years, the biggest observed improvements have been for colon (17-fold increase), Non-Hodgkin's Lymphoma (10-fold increase) and rectum (7-fold increase). For breast cancer, median survival time doubled in the 1970s and since at least the early 1990s has been longer than 10 years.

Median survival time (years), by period of diagnosis and cancer¹



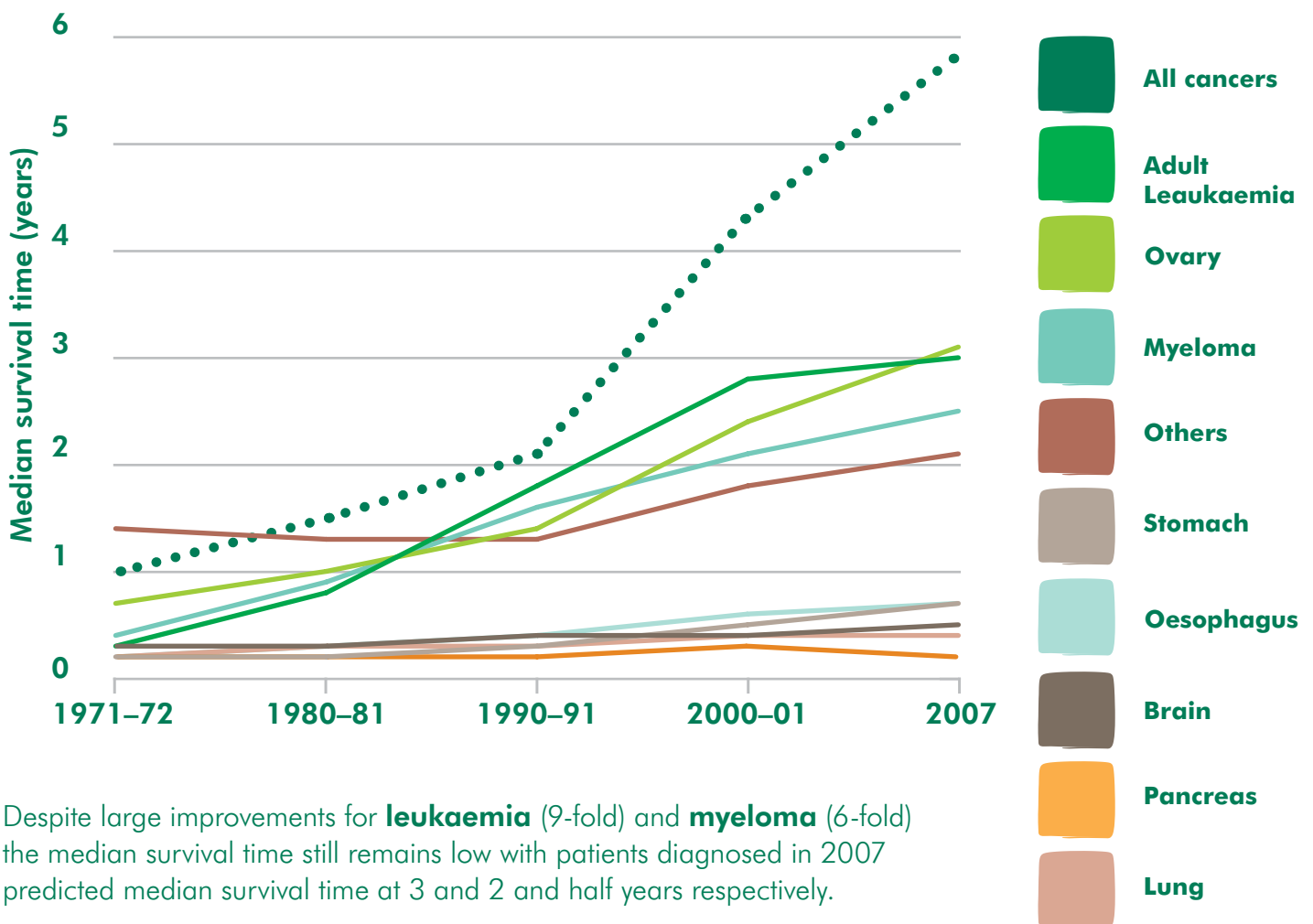
Median survival time has been more than 10 years since the early 1970s for **six cancers** (not presented in this graph): **testis, uterus, larynx, Hodgkin's lymphoma, melanoma and cervix.**

¹ Data are for adults aged 15-99 diagnosed in England and Wales. 2007 data are predicted survival estimates. Prostate and Bladder cancer are excluded. See Appendix 1& 2 for full details.

Median survival time has seen little improvement for some cancers

For nine of the 20 cancers studied, median survival time is three years or less. There has been little improvement over the last 40 years for stomach, oesophagus, pancreas, brain and lung cancers, with median survival time remaining less than a year.

Median survival time (years), by period of diagnosis and cancer¹



Despite large improvements for **leukaemia** (9-fold) and **myeloma** (6-fold) the median survival time still remains low with patients diagnosed in 2007 predicted median survival time at 3 and 2 and half years respectively.

¹ Data are for adults aged 15–99 diagnosed in England and Wales. 2007 data are predicted survival estimates. Prostate and Bladder cancer are excluded. See Appendix 1& 2 for full details.

Appendix 1: Method & Notes

Median survival time is the time since diagnosis when relative survival is at 50% and we interpret this as the time when half of the patients have survived (or half have died).

Median survival time greater than ten years cannot be calculated from these data as patients were not followed up beyond 10 years.

The data represents a population of cancer patients, as such the survival for an individual may vary considerably from the median survival time. The type of cancer, the characteristics and circumstances both of individuals and their tumour will influence and impact on the survival for that individual. For example, patients diagnosed with early stage disease are likely to have survival that is longer than 'average', whereas patients with advanced disease are likely to have survival that is shorter than 'average'.

Relative survival up to ten years after diagnosis was calculated by the Cancer Research UK Cancer Survival Group at the London School of Hygiene and Tropical Medicine. Relative survival was calculated for people (aged 15-99) diagnosed in the periods 1971–72, 1980–81, 1990–91 and 2000–01, and predicted for those diagnosed in 2007. Relative survival estimates have been adjusted to take into account changes over time in the distribution of age, sex and type of cancer among cancer patients.

Relative survival provides an estimate of the proportion of patients still alive at a point in time after diagnosis and takes into account the background mortality in the general population. It can be interpreted as the survival from cancer in the absence of other causes of death (or survival from the cancer after adjustment for all other causes of death).

Data are for adults aged 15-99 diagnosed in England and Wales.

Prostate and bladder cancers are excluded from the main analysis. Trends for prostate cancer should be treated with caution due to introduction of the PSA testing and subsequent increase in incidence of low stage tumours. Trends in bladder cancer should be treated with caution due changing coding practices in the late 1990s.

Source: *Macmillan Cancer Support identified median survival times based on research by the Cancer Research UK Cancer Survival Group at the London School of Hygiene and Tropical Medicine. Incidence and mortality data for the survival analysis are originally sourced from the Office for National Statistics.*

Acknowledgements

We thank the Cancer Survival Group at the London School of Hygiene and Tropical Medicine for providing data from their research funded by Cancer Research UK.

Appendix 2: Median survival time varies between cancers and by period of diagnosis

Median survival time (years) since diagnosis by period of diagnosis and cancer type¹

	1971–72	1980–81	1990–91	2000–01	2007
All cancers	1.0	1.5	2.1	4.3	5.8
Bladder*	2.4		10.0	9.8	9.0
Brain	0.3	0.3	0.4	0.4	0.5
Breast (Female)	5.5	9.6			
Cervix	7.7				
Colon	0.6	1.3	2.3	4.8	10.0
Hodgkin's	9.2				
Kidney	0.8	1.1	1.6	4.0	5.3
Larynx (Male)	10.0				
Leukaemia	0.3	0.8	1.8	2.8	3.0
Lung	0.2	0.3	0.3	0.4	0.4
Melanoma	9.0				
Myeloma	0.4	0.9	1.6	2.1	2.5
NHL	1.0	1.9	3.4	6.3	10.0
Oesophagus	0.2	0.3	0.4	0.6	0.7
Others	1.4	1.3	1.3	1.8	2.1
Ovary	0.7	1.0	1.4	2.4	3.1
Pancreas	0.2	0.2	0.2	0.3	0.2
Prostate*	2.2	3.5	4.0		
Rectum	1.3	1.8	2.5	6.3	8.8
Stomach	0.2	0.2	0.3	0.5	0.7
Testes					
Uterus					

*Prostate & Bladder cancer. Trends for prostate cancer should be treated with caution due to introduction of the PSA testing and subsequent increase in incidence of low stage tumours. Trends in bladder cancer should be treated with caution due changing coding practices in the late 1990s.

Source: Macmillan Cancer Support identified median survival times based on research by the Cancer Research UK Cancer Survival Group at the London School of Hygiene and Tropical Medicine.

¹ Data are rounded to one decimal place. Shading indicates where no data are available as median survival time is greater than 10 years. Data are for adults aged 15-99 diagnosed in England and Wales. 2007 data are predicted survival estimates. See Appendix 1 for full details.

Appendix 2: Median survival time varies between cancers and by period of diagnosis

Median survival time (months) since diagnosis, by period of diagnosis and cancer type¹

	1971–72	1980–81	1990–91	2000–01	2007
All cancers	13	19	26	51	69
Bladder*	29		120	118	108
Brain	3	4	5	5	7
Breast (Female)	66	115			
Cervix	92				
Colon	7	15	27	58	120
Hodgkin's	110				
Kidney	9	14	20	48	64
Larynx (Male)	120				
Leukaemia	4	10	22	34	36
Lung	3	3	4	5	5
Melanoma	108				
Myeloma	5	11	19	26	30
NHL	12	23	41	75	120
Oesophagus	2	3	5	7	8
Others	17	16	16	21	26
Ovary	8	12	17	29	37
Pancreas	2	2	2	3	3
Prostate*	27	42	49		
Rectum	15	21	30	75	106
Stomach	2	2	4	6	8
Testes					
Uterus					

*Prostate & Bladder cancer. Trends for prostate cancer should be treated with caution due to introduction of the PSA testing and subsequent increase in incidence of low stage tumours. Trends in bladder cancer should be treated with caution due changing coding practices in the late 1990s.

Source: Macmillan Cancer Support identified median survival times based on research by the Cancer Research UK Cancer Survival Group at the London School of Hygiene and Tropical Medicine.

¹ Data are rounded to nearest month. Shading indicates where no data are available as median survival time is greater than 10 years. Data are for adults aged 15-99 diagnosed in England and Wales. 2007 data are predicted survival estimates. See Appendix 1 for full details.

Appendix 2: Median survival time varies between cancers and by period of diagnosis

Median survival time (weekly) since diagnosis, by period of diagnosis and cancer type¹

	1971–72	1980–81	1990–91	2000–01	2007
All cancers	54	80	111	221	301
Bladder*	124		520	511	466
Brain	13	15	20	22	28
Breast (Female)	286	498			
Cervix	399				
Colon	30	65	119	249	520
Hodgkin's	477				
Kidney	39	59	85	208	275
Larynx (Male)	520				
Leukaemia	17	43	93	147	156
Lung	11	13	15	20	20
Melanoma	468				
Myeloma	22	46	82	111	129
NHL	52	98	178	327	520
Oesophagus	11	13	22	30	35
Others	74	69	69	91	111
Ovary	35	50	72	126	160
Pancreas	9	9	9	13	12
Prostate*	115	182	210		
Rectum	65	91	130	325	459
Stomach	9	11	17	28	35
Testes					
Uterus					

*Prostate & Bladder cancer. Trends for prostate cancer should be treated with caution due to introduction of the PSA testing and subsequent increase in incidence of low stage tumours. Trends in bladder cancer should be treated with caution due changing coding practices in the late 1990s.

Source: Macmillan Cancer Support identified median survival times based on research by the Cancer Research UK Cancer Survival Group at the London School of Hygiene and Tropical Medicine.

¹ Data are rounded to nearest week. Shading indicates where no data are available as median survival time is greater than 10 years. Data are for adults aged 15-99 diagnosed in England and Wales. 2007 data are predicted survival estimates. See Appendix 1 for full details.

References

1. Median survival time is the time since diagnosis when relative survival is at 50% and we interpret this as the time when half of the patients have survived (or half have died). See Appendix 1 for more details.
2. Figures are for research funded by National Cancer Research Institute partners only. National Cancer Research Institute. Cancer Research Database (CaRD) 2010 – Data on cancer research funding by NCRi partners. <http://www.ncri.org.uk/default.asp?s=1&p=3&ss=1> (Accessed November 2011)
3. Wells J., et al. Using clinical attendance patterns to determine likely survivorship journey in England. NCIN Conference 2011. Data analysis is provisional and subject to clinical validation. Data are for patients in England with a diagnosis of colorectal cancer in quarter 2 of 2001, followed up to the end of 2007. A sample of nearly 6,000 people were taken from the National Cancer Data Repository (NCDR).

These data relate to health problems as identified by NHS inpatient hospital activity. Through the NCDR patients' registry data are linked to NHS inpatient hospital activity data to ascertain if patients are admitted to hospital and for what condition. Data analysis is provisional and subject to clinical validation.

4. Macmillan Cancer Support. (2009) It's no life. Living with the long term effects of cancer. <http://www.macmillan.org.uk/Documents/GetInvolved/Campaigns/Campaigns/itsnolife.pdf> (Accessed November 2011)

Cancer is the toughest fight most of us will ever face. But you and your loved ones don't have to go through it alone. The Macmillan team is with you every step of the way.

We are the nurses and therapists helping you through treatment. The experts on the end of the phone. The advisers telling you which benefits you're entitled to. The volunteers giving you a hand with the everyday things. The campaigners improving cancer care. The fundraisers who make it all possible.

Together, we are Macmillan Cancer Support.

**Questions about living with cancer?
Call the Macmillan Support Line free on
0808 808 00 00 (Mon–Fri 9am–8pm)**

**Alternatively, visit [macmillan.org.uk](https://www.macmillan.org.uk)
Hard of hearing? Use textphone
0808 808 0121, or Text Relay.
Non-English speaker? Interpreters available**

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