

Haematological malignancies in England Cancers Diagnosed 2001-2008

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Haematological Malignancies



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NYCRIS is the NCIN lead cancer registry for haematological cancers
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Northern and Yorkshire Cancer Registry and Information Service

The National Cancer Intelligence Network (NCIN) is a UK-wide initiative, working to drive improvements in standards of cancer care and clinical outcomes by improving and using the information collected about cancer patients for analysis, publication and research. Sitting within the National Cancer Research Institute (NCRI), the NCIN works closely with cancer services in England, Scotland, Wales and Northern Ireland. In England, the NCIN is part of the National Cancer Programme.

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This is the first report to present national haematological cancer analyses at individual disease group level. Many haematological malignancies are rare and as such are difficult to analyse in a meaningful way at a sub-national level. This report provides an opportunity to look at incidence, mortality and survival for these and other haematological malignancies. The incidence and mortality data reported cover the period 2001 to 2008. The survival analyses cover a range of different time periods commencing in 1995 in order to allow survival trends to be identified. These data have been quality assured against a number of existing data sources as far as is possible. However, as there are no other national analyses available for many of these disease groups, the nearest equivalents have been used. Further details of the quality assurance exercise are reported in Appendix 1.

Haematological malignancies are diseases originating in the bone marrow and lymph nodes and include leukaemias, lymphomas and myeloma. They are a very diverse group of diseases affecting people across the whole life course, but with their greatest incidence amongst the elderly. The prognosis and responsiveness to treatment of these conditions also varies very widely, and over the period covered in this report the positive impact of several new forms of treatment is apparent.

The aetiology of most haematological malignancies is not yet known. Ionising radiation, exposure to chemicals and dusts, industrial exposures including benzene, viral infections, genetic predisposition and Down's syndrome are associated with an increased risk for one or more of these diseases, but for most patients there is as yet no identifiable cause for their disease.

Haematological malignancies accounted for 8.3% of all malignant disease (excluding non-melanoma skin cancer) diagnosed in the years 2001 to 2008.

The diversity of haematological malignancies presents problems for the classification of these diseases for cancer registries. The categories available for these diseases within the 10th edition of the International Classification of Disease (ICD-10) are not a good fit to the current biological and clinical understanding of these cancers, and as a consequence reports have often grouped dissimilar disease together (for example presenting outcomes for 'leukaemia'). Continuing improvements to cancer registration in the UK will allow refinement of these categories, but for this report, haematological malignancies have been described in disease groups by combining ICD-10 codes where relevant (appendix 1). Information has not been presented in this report on some conditions which have historically been considered as having 'borderline malignant' behaviour: myelodysplastic syndromes, myeloproliferative disorders or pre-malignant conditions such as monoclonal gammopathy of undetermined significance (MGUS); although these are recorded by cancer registries ascertainment is known to be incomplete.

Key messages

- Population-based incidence rates (as estimated by cancer registrations) rose over the period 2001-2008 for some haematological cancers: Hodgkin lymphoma (females), non-Hodgkin lymphoma, myeloma. There are no haematological cancers for which incidence rates were in decline.
- Registration rates for haematological cancers are potentially subject to changes as a consequence of improvements in the ascertainment of cases and developments in diagnosis and classification of disease, therefore not all observed changes may represent true differences in underlying incidence.
- Population-based mortality rates fell over the period 2001-2008 for some haematological cancers: acute lymphoblastic leukaemia, chronic myeloid leukaemia, non-Hodgkin lymphoma, myeloma.
- Relative survival improved for individuals diagnosed between 1995 and 2007 for a number of haematological cancers: acute lymphoblastic leukaemia (0-14 years), chronic myeloid leukaemia, non-Hodgkin lymphoma, myeloma.
- For the most commonly encountered forms of leukaemia, acute myeloid leukaemia and chronic lymphocytic leukaemia, there was no evidence of significant change in the outcome for patients diagnosed and registered over this time period.
- Effective treatment options for patients with some haematological cancers have increased considerably for patients diagnosed since 2008. It is likely that the outcomes reported here underestimate contemporary survival patterns for chronic myeloid leukaemia, myeloma and some forms of non-Hodgkin lymphoma.

All Haematological Malignancies

Trends in incidence and mortality (2001-2008)

When considered overall, age-standardised rates of incidence for haematological malignancies have risen from 2001-2008 in both men and women. Conversely age-standardised mortality rates have fallen over this period, largely as a consequence of improvements in the management of some of the individual contributing haematological cancers.

Figure 1:1 Age-standardised incidence and mortality rates for haematological malignancies in the period 2001-2008 for England for males

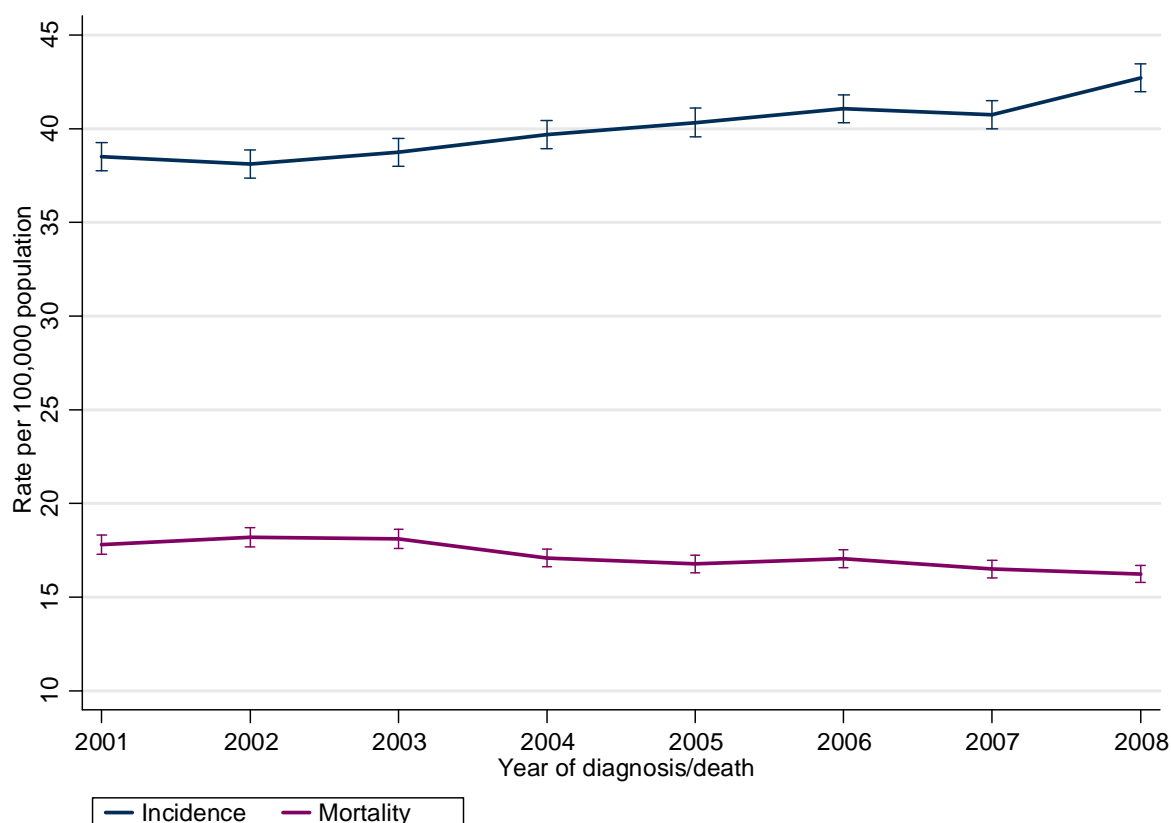


Table 1:2 Age-standardised incidence and mortality rates for haematological malignancies in the period 2001-2008 for England for males

Year	Incidence (males)				Mortality (males)			
	Cases	ASR	95% CI		Deaths	ASR	95% CI	
2001	10,431	38.5	37.8	39.3	5,043	17.8	17.3	18.3
2002	10,477	38.1	37.4	38.9	5,245	18.2	17.7	18.7
2003	10,824	38.8	38.0	39.5	5,315	18.1	17.6	18.6
2004	11,228	39.7	38.9	40.4	5,093	17.1	16.6	17.6
2005	11,576	40.3	39.6	41.1	5,120	16.8	16.3	17.2
2006	11,935	41.1	40.3	41.8	5,272	17.1	16.6	17.5
2007	12,013	40.7	40.0	41.5	5,266	16.5	16.0	17.0
2008*	12,884	42.7	42.0	43.5	5,319	16.2	15.8	16.7

*The increased incidence observed in 2008 for males and females is largely due to changes in coding. Please see note in Appendix One for full description of changes.

Figure 1:3 Age-standardised incidence and mortality rates for haematological malignancies in the period 2001-2008 for England for females

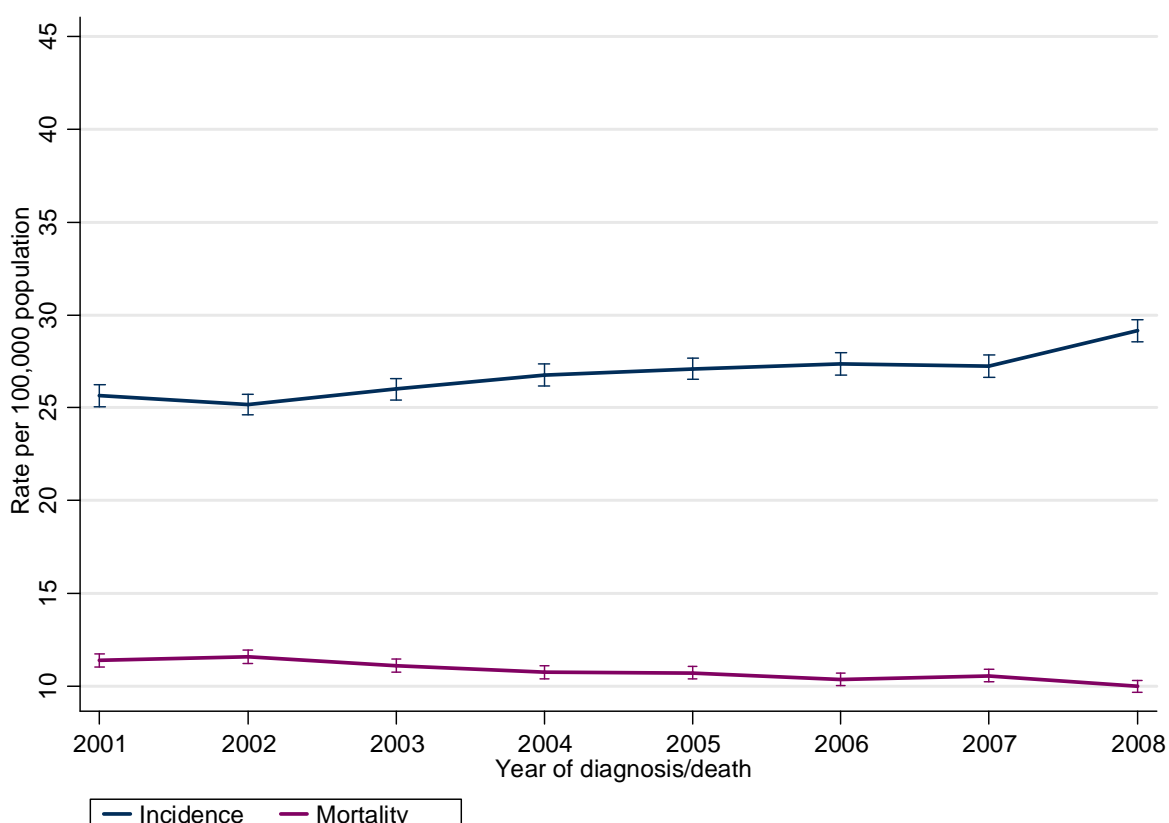


Table 1:4 Age-standardised incidence and mortality rates for haematological malignancies in the period 2001-2008 for England for females

Year	Incidence (females)				Mortality (females)			
	Cases	ASR	95% CI		Deaths	ASR	95% CI	
2001	8,727	25.6	25.1	26.2	4,421	11.4	11.0	11.8
2002	8,600	25.2	24.6	25.8	4,537	11.6	11.2	12.0
2003	8,892	26.0	25.4	26.6	4,468	11.1	10.7	11.4
2004	9,211	26.8	26.2	27.4	4,342	10.8	10.4	11.1
2005	9,419	27.1	26.5	27.7	4,346	10.7	10.4	11.1
2006	9,563	27.4	26.8	28.0	4,331	10.4	10.0	10.7
2007	9,582	27.2	26.7	27.8	4,482	10.6	10.2	10.9
2008*	10,476	29.2	28.6	29.8	4,319	10.0	9.67	10.3

*The increased incidence observed in 2008 for males and females is largely due to changes in coding. Please see note in Appendix One for full description of changes.

Proportion of incident cases by disease group

Non-Hodgkin lymphoma is the largest disease group in terms of number of new cases, accounting for over 40% of all haematological malignancies in both men and women. Myeloma is the second most commonly registered haematological cancer, accounting for 17% of all new haematological malignancies annually. Acute myeloid leukaemia and chronic lymphocytic leukaemia each account for about 10% of all haematological malignancies in both sexes, with acute lymphocytic leukaemia and chronic myeloid leukaemia together contributing a further 5% of the total.

Figure 1:5 Proportion of new cases of haematological malignancy by disease group in males (2006-2008)

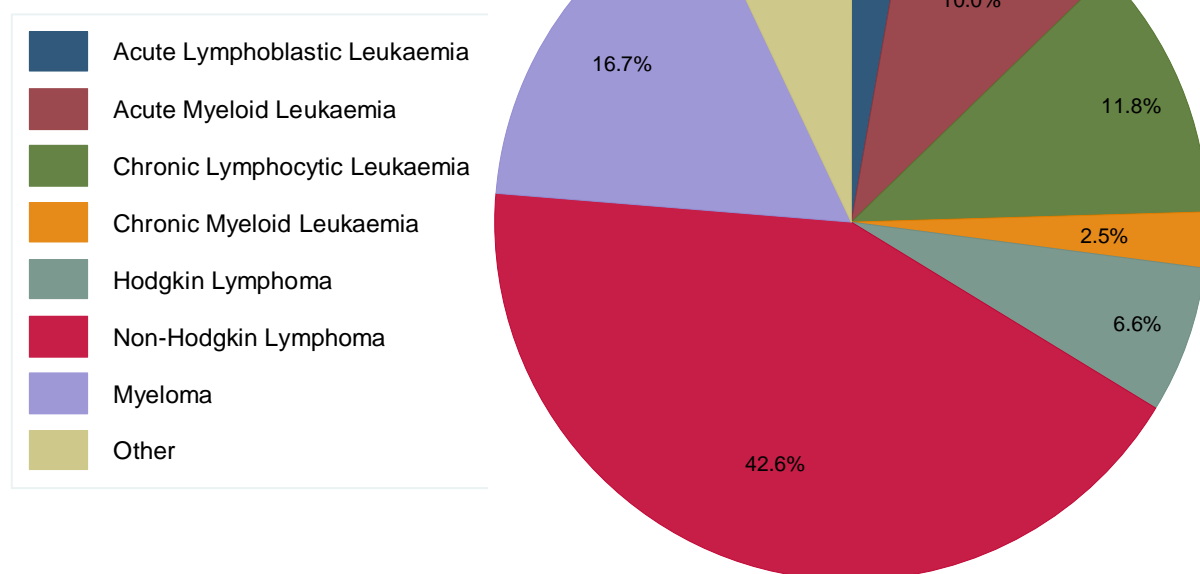
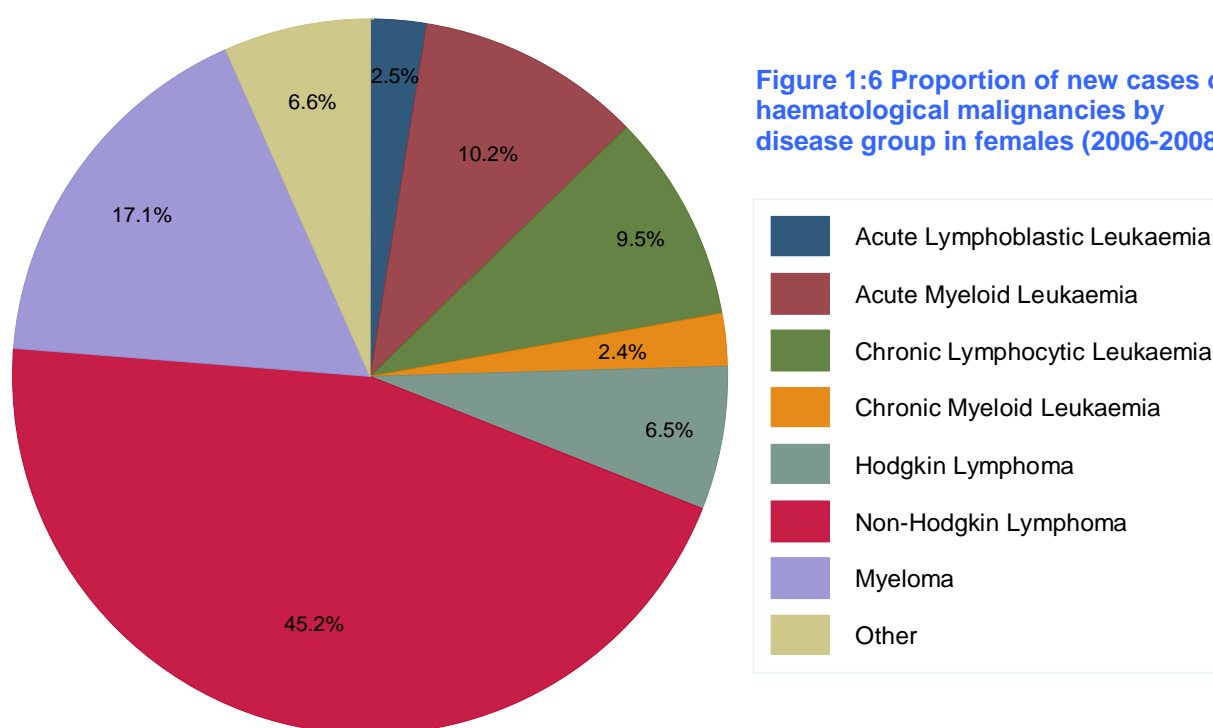


Figure 1:6 Proportion of new cases of haematological malignancies by disease group in females (2006-2008)



Proportion of deaths from haematological cancers by disease group

The contribution of individual haematological cancers to the overall numbers of deaths varies slightly from that seen for disease incidence as a consequence of differences in the prognosis for these cancers. Around 40% of deaths are attributed to non-Hodgkin lymphoma, making up the largest proportion of deaths. Disease groups with a poorer overall outcome such as acute myeloid leukaemia and myeloma make up a larger proportion of all deaths than they do of incidence. Hodgkin lymphoma, which has a much better prognosis, makes up only 3% of deaths in this time period.

Figure 1:7 Proportion of deaths from haematological malignancy by disease group in males (2006-2008)

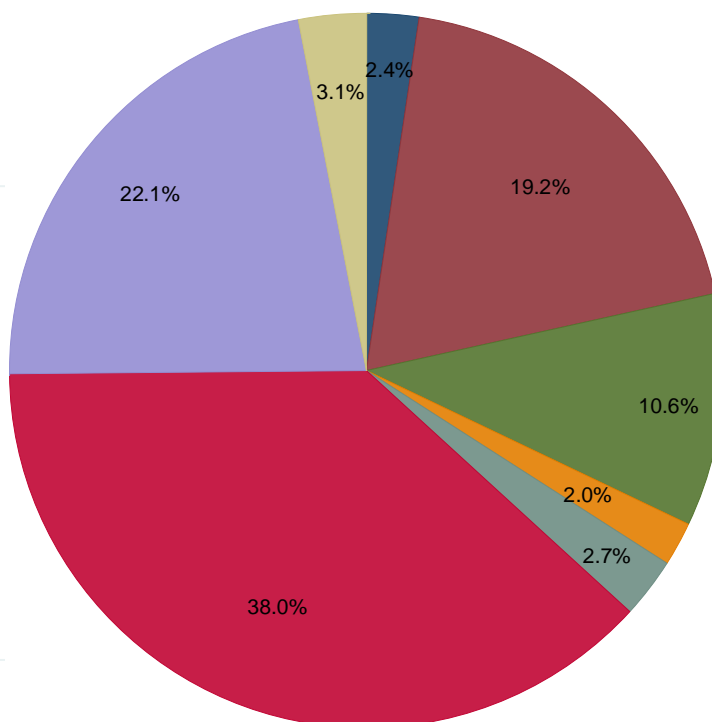
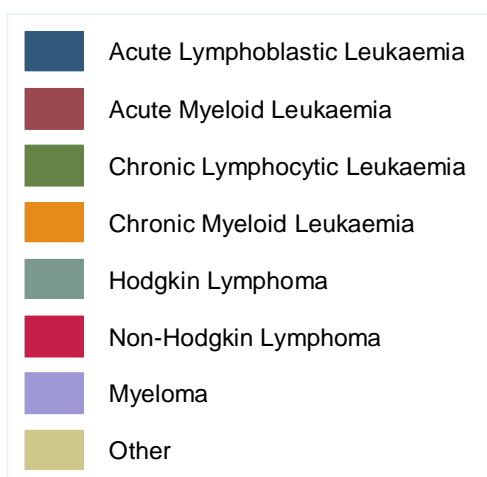
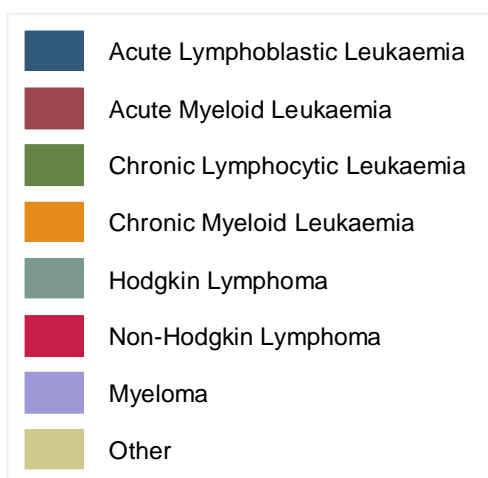


Figure 1:8 Proportion of deaths from haematological malignancy by disease group in females (2006-2008)



Age-standardised incidence by disease group and sex

Table 1:9 Age-standardised incidence rates for males for haematological malignancies diagnosed in the period 2006-2008 by diagnostic group

Site	Incidence				Mortality			
	Cases	ASR	95% CI		Deaths	ASR	95% CI	
Acute Lymphoblastic Leukaemia	342	1.5	1.4	1.6	124	0.5	0.4	0.5
Acute Myeloid Leukaemia	1,226	4.1	3.9	4.2	1,013	3.2	3.1	3.3
Chronic Lymphocytic Leukaemia	1,446	4.1	4.5	4.8	560	1.7	1.6	1.8
Chronic Myeloid Leukaemia	310	1.1	1.0	1.2	105	0.3	0.3	0.4
Hodgkin Disease	816	3.1	3.0	3.3	144	0.5	0.4	0.5
Non-Hodgkin Lymphoma	5,225	17.7	17.4	18.0	2,011	6.3	6.2	6.5
Myeloma	2,047	6.6	6.4	6.8	1,167	3.6	3.5	3.7
Other	866	2.8	2.7	2.9	162	0.5	0.4	0.5
All Haematological Malignancies	12,277	41.5	41.1	42.0	5,286	16.6	16.3	16.9

Table 1:10 Age-standardised incidence rates for females for haematological malignancies diagnosed in the period 2006-2008 by diagnostic group

Site	Incidence				Mortality			
	Cases	ASR	95% CI		Deaths	ASR	95% CI	
Acute Lymphoblastic Leukaemia	248	1.1	1.0	1.2	93	0.3	0.3	0.4
Acute Myeloid Leukaemia	1,005	2.8	2.7	2.9	805	2.0	1.9	2.1
Chronic Lymphocytic Leukaemia	935	2.3	2.2	2.4	378	0.7	0.7	0.8
Chronic Myeloid Leukaemia	234	0.7	0.6	0.7	96	0.2	0.2	0.2
Hodgkin Disease	641	2.3	2.2	2.4	125	0.4	0.3	0.4
Non-Hodgkin Lymphoma	4,466	12.7	12.4	12.9	1,724	4.0	3.9	4.2
Myeloma	1,689	4.4	4.2	4.5	1,045	2.4	2.3	2.5
Other	655	1.1	1.0	1.2	111	0.2	0.2	0.3
All haematological Malignancies	9,873	27.9	27.6	28.3	4,377	10.3	10.1	10.5

Table 1:11 Age-standardised incidence rates for persons for haematological malignancies diagnosed in the period 2006-2008 by diagnostic group

Site	Incidence				Mortality			
	Cases	ASR	95% CI		Deaths	ASR	95% CI	
Acute Lymphoblastic Leukaemia	590	1.3	1.2	1.4	217	0.4	0.4	0.4
Acute Myeloid Leukaemia	2,231	3.4	3.3	3.5	1,818	2.6	2.5	2.7
Chronic Lymphocytic Leukaemia	2,381	3.5	3.4	3.6	938	1.2	1.2	1.2
Chronic Myeloid Leukaemia	544	0.9	0.8	0.9	201	0.3	0.3	0.3
Hodgkin Disease	1,457	2.7	2.6	2.8	269	0.4	0.4	0.5
Non-Hodgkin Lymphoma	9,691	15.2	15.0	15.4	3,735	5.2	5.1	5.3
Myeloma	3,736	5.5	5.4	5.6	2,212	3.0	2.9	3.1
Other	1,521	2.3	2.2	2.3	273	0.4	0.3	0.4
All Haematological Malignancies	22,151	34.7	34.4	35.0	9,663	13.4	13.3	13.6

Leukaemias are a group of malignant diseases in which the bone marrow and other blood forming organs produce increased numbers of immature or abnormal white blood cells. This leads to an increased risk of infection, anaemia and bleeding.

Leukaemias are classified into acute or chronic depending on the rate of progression of the disease. Acute leukaemias are usually rapidly progressive and if untreated will be fatal within weeks or a few months. Chronic leukaemias progress more slowly; some patients may never require any treatment and may die of some other cause.

The cell type of origin, myeloid or lymphoid, distinguishes different types of leukaemia. Myeloid relates to the blood forming tissue of the bone marrow, and lymphoid to the tissues responsible for the formation of lymphocytes and antibodies.

Suspected risk factors include:

- ionising radiation
- benzene
- industrial exposures
- viral infections
- genetic conditions

Epidemiological characteristics differ with the type of leukaemia. The following subgroups of leukaemia are discussed in this report:

- **Acute lymphoblastic leukaemia (ALL)**

This affects mainly children. With intensive chemotherapy most of them are cured. Results of treatment in adults are not so good.

- **Acute myeloid leukaemia (AML)**

This affects patients of all ages. About 40% of young and middle aged patients may be cured by intensive chemotherapy, but this is much less effective in older patients.

- **Chronic lymphocytic leukaemia (CLL)**

This disease is rare in patients aged less than fifty years. Many patients never need treatment if the pace of the disease is slow. Treatment is usually as an outpatient.

- **Chronic myeloid leukaemia (CML)**

This is a disease of adults. Treatment is mainly with outpatient chemotherapy and average survival has been about five years. However, a new treatment option (imatinib) has improved the prognosis.

Acute Lymphoblastic Leukaemia

Acute lymphoblastic leukaemia (ALL) is most common in young people, with a higher incidence in males than females. Over the period of this report the age-standardised incidence has not changed whilst there has been a small decline in the mortality rate in both sexes.

Outcomes for ALL in children improved greatly over the second half of the 20th century. Over the time period reported here continued improvements in survival are apparent in patients aged 0-14, but not in older patients. The outcome from ALL is strongly influenced by the age at diagnosis, with poorer survival in older teenagers and adults.

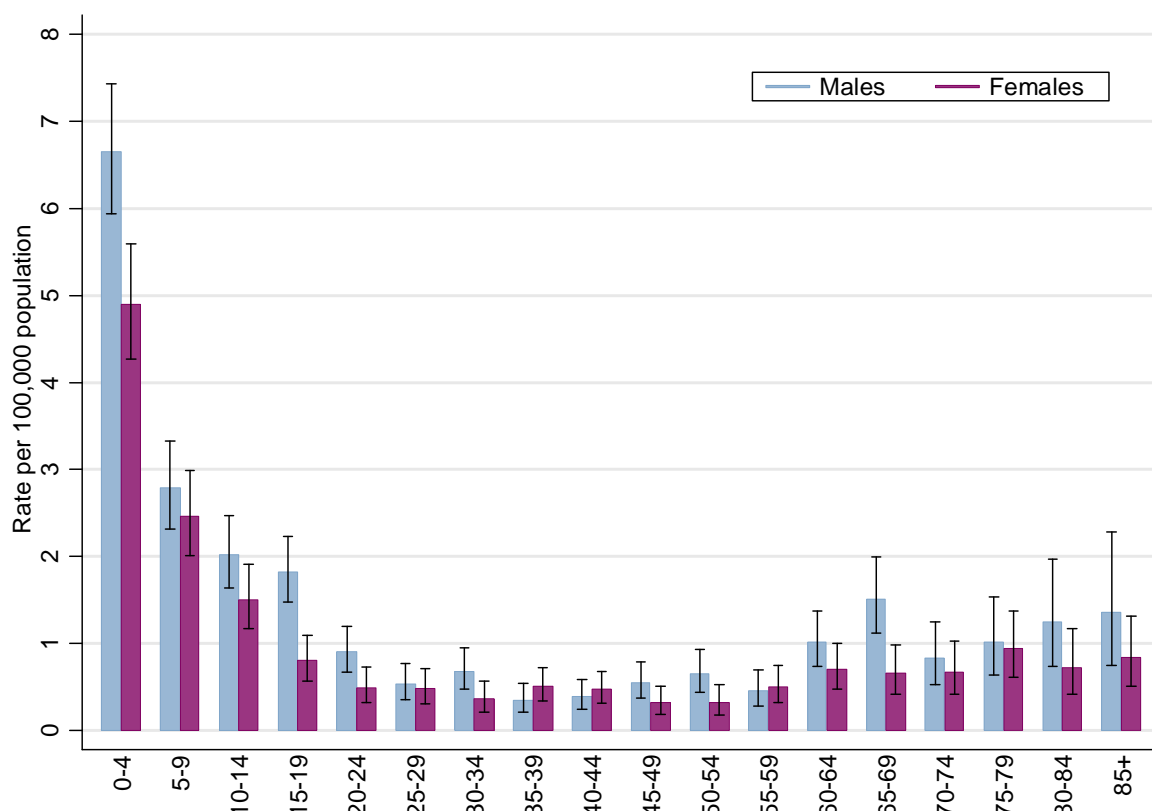
Treatment for ALL takes 2-3 years, and involves several drugs and extended stays in hospital. There were several changes in treatment protocols for children during the period 2001-2008. The changes in management included: increasing the length of treatment for boys from two years (standard for girls throughout) to three years; replacing prednisolone with dexamethasone; universal use of mercaptopurine; the phasing out of thioguanine and intensification of treatment both to children with high risk at diagnosis and those slow to respond to initial therapy.

The limited change in survival in adults with ALL over the reported period reflects limited therapeutic advance over this time. During this period allogeneic transplant (cells transplanted from a donor) was increasingly used in selected patients, with some evidence from trials that this was a better treatment option for selected patients. In contrast, autologous transplant (patient's own cells transplanted) was not shown to be beneficial and possibly less successful than conventional treatment, and was used less often in the later years reported.

Chemotherapy for the age group 15+ did not change significantly over this time, though patients aged 15-18 began to be treated with children's management protocols in the hope that this would improve survival. More recent evidence has since accumulated that this is an improvement in treatment, and indeed most patients aged up to 23 years are now treated with the current children's protocol.

Age distribution

Figure 2:1 Age-specific incidence rates by age group for acute lymphoblastic leukaemia in males and females between 2006-2008 in England



Trends in incidence and mortality (males)

Figure 2:2 Age-standardised incidence and mortality rates for acute lymphoblastic leukaemia in males in the period 2001-2008 in England (3 year moving average)

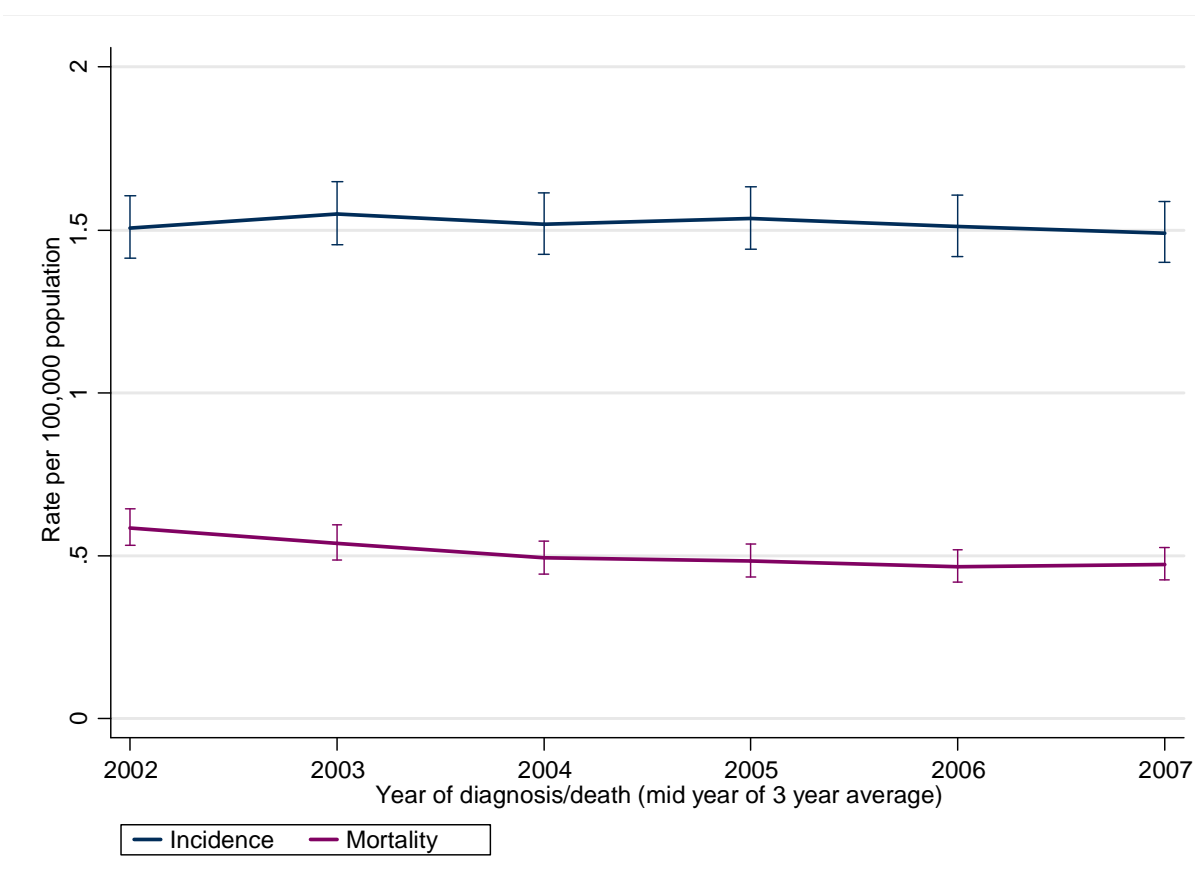


Table 2:3 Age-standardised incidence and mortality rates for acute lymphoblastic leukaemia in males in the period 2001-2008 in England (3 year moving average)

Year	Incidence			Mortality		
	Cases*	ASR	95% CI	Deaths*	ASR	95% CI
2001-2003	339	1.5	1.4 1.6	148	0.6	0.5 0.6
2002-2004	346	1.6	1.5 1.7	139	0.5	0.5 0.6
2003-2005	343	1.5	1.4 1.6	129	0.5	0.4 0.6
2004-2006	349	1.5	1.4 1.6	126	0.5	0.4 0.5
2005-2007	345	1.5	1.4 1.6	122	0.5	0.4 0.5
2006-2008	342	1.5	1.4 1.6	124	0.5	0.4 0.5

*3 year moving average

Trends in incidence and mortality (females)

Figure 2:4 Age-standardised incidence and mortality rates for acute lymphoblastic leukaemia in females in the period 2001-2008 in England (3 year moving average)

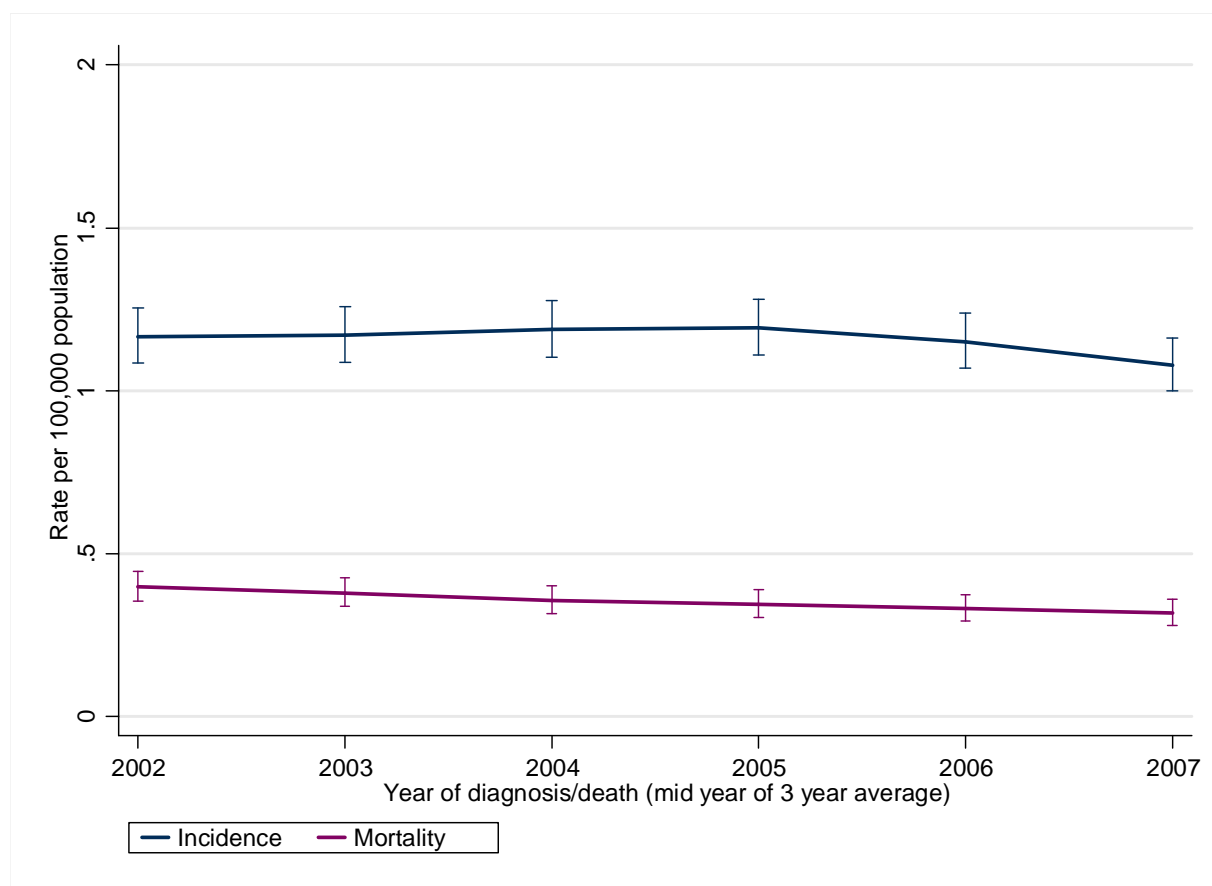


Table 2:5 Age-standardised incidence and mortality rates for acute lymphoblastic leukaemia in females in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	265	1.2	1.1	1.3	110	0.4	0.4	0.5
2002-2004	264	1.2	1.1	1.3	108	0.4	0.3	0.4
2003-2005	269	1.2	1.1	1.3	103	0.4	0.3	0.4
2004-2006	270	1.2	1.1	1.3	100	0.3	0.3	0.4
2005-2007	262	1.2	1.1	1.2	97	0.3	0.3	0.4
2006-2008	248	1.1	1.0	1.2	93	0.3	0.3	0.4

*3 year moving average

Trends in survival (males)

Figure 2:6 Trends in relative survival rates for acute lymphoblastic leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

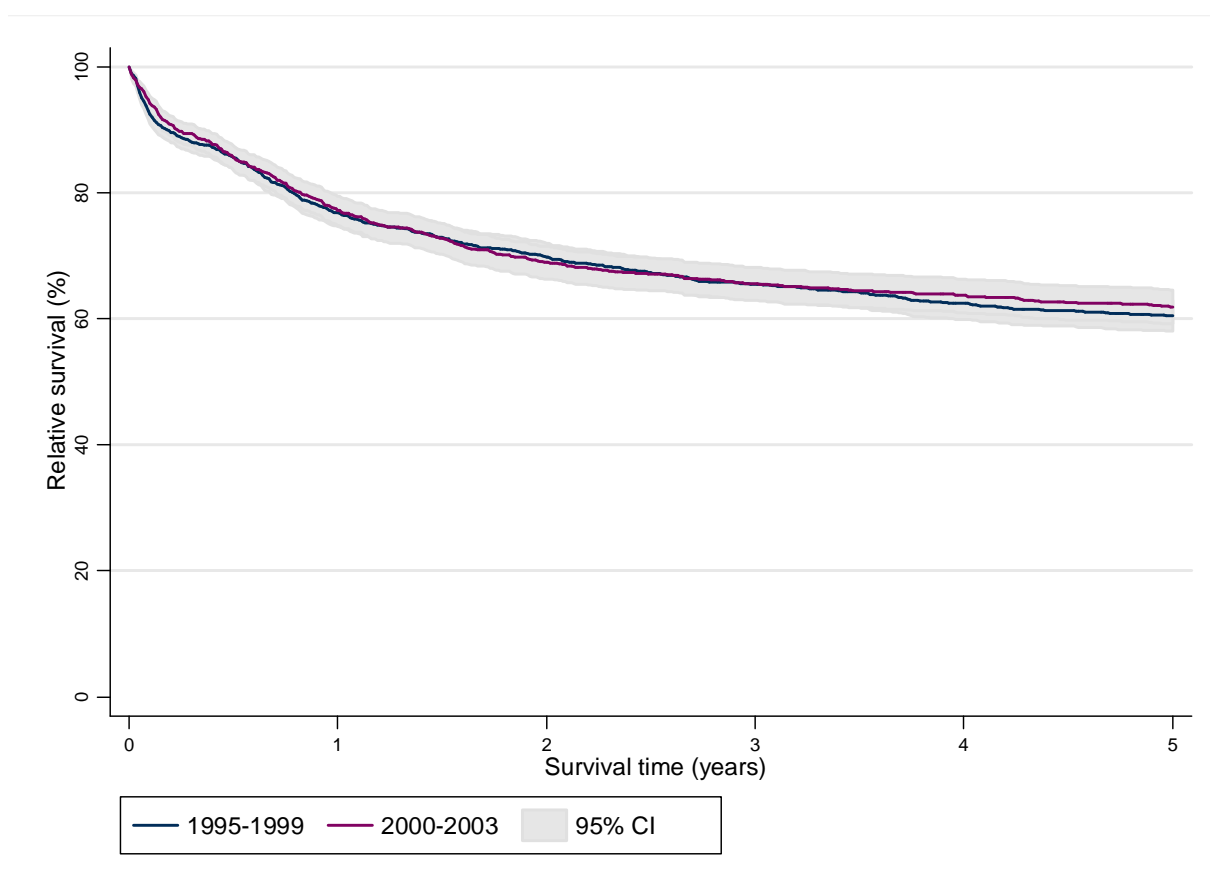


Table 2:7 Trends in relative survival rates for acute lymphoblastic leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	Cohort	Deaths		RS	95% CI	Cohort	Deaths	
1	76.9	74.7 78.9	1,635	396		77.3	74.9 79.5	1,344	325	
2	69.8	67.4 72.0	1,635	517		69.2	66.5 71.7	1,344	439	
3	65.6	63.1 67.9	1,635	588		65.8	63.1 68.4	1,344	489	
4	62.5	60.1 64.9	1,635	640		64.1	61.3 66.7	1,344	515	
5	60.6	58.2 63.0	1,635	672		62.4	59.6 65.0	1,344	540	

Figure 2:8 Trends for males (all ages) in relative survival rates for acute lymphoblastic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

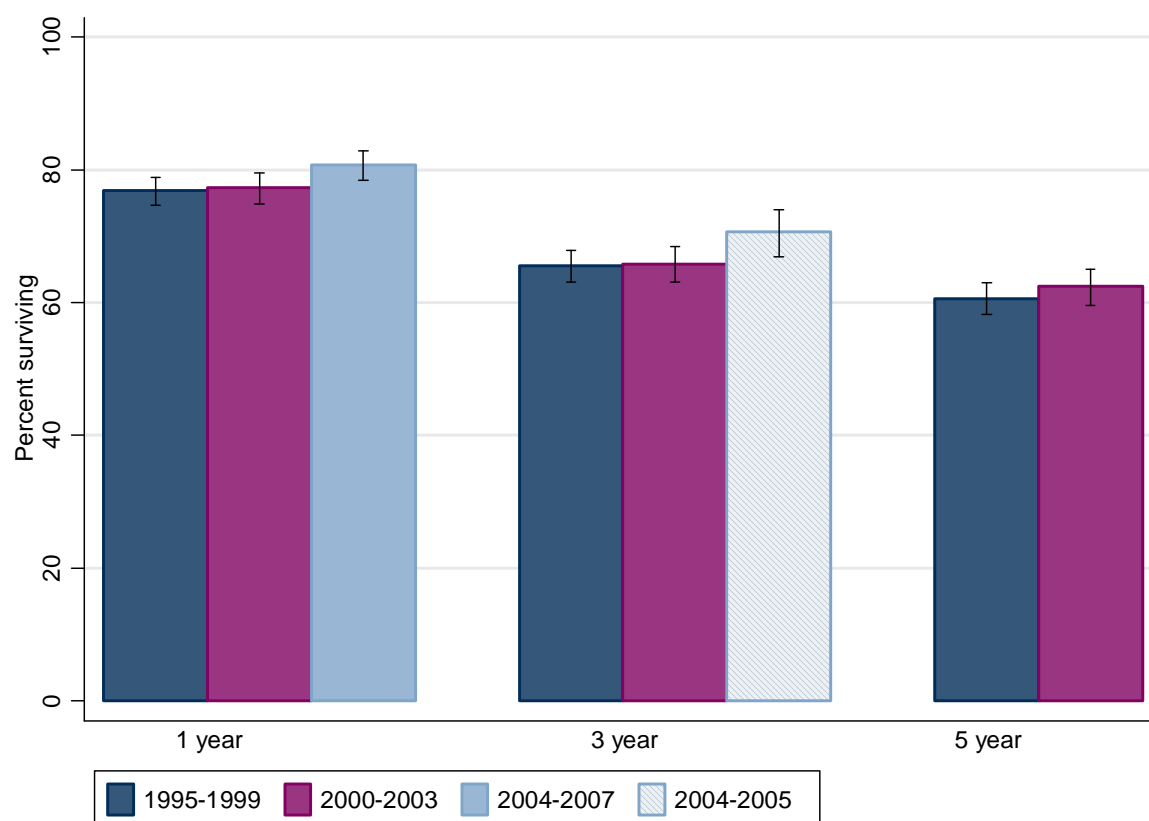


Table 2:9 Trends for males (all ages) in relative survival rates for acute lymphoblastic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI			Cohort	Deaths
1 year	1995-1999	76.9	74.7	78.9		1,635	396
	2000-2003	77.3	74.9	79.5		1,344	325
	2004-2007	80.7	78.4	82.8		1,355	281
3 year	1995-1999	65.6	63.1	67.9		1,635	588
	2000-2003	65.8	63.1	68.4		1,344	489
	2004-2005	70.6	66.9	74		678	213
5 year	1995-1999	60.6	58.2	63		1,635	672
	2000-2003	62.4	59.6	65		1,344	540

Trends in survival (females)

Figure 2:10 Trends in relative survival rates for acute lymphoblastic leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

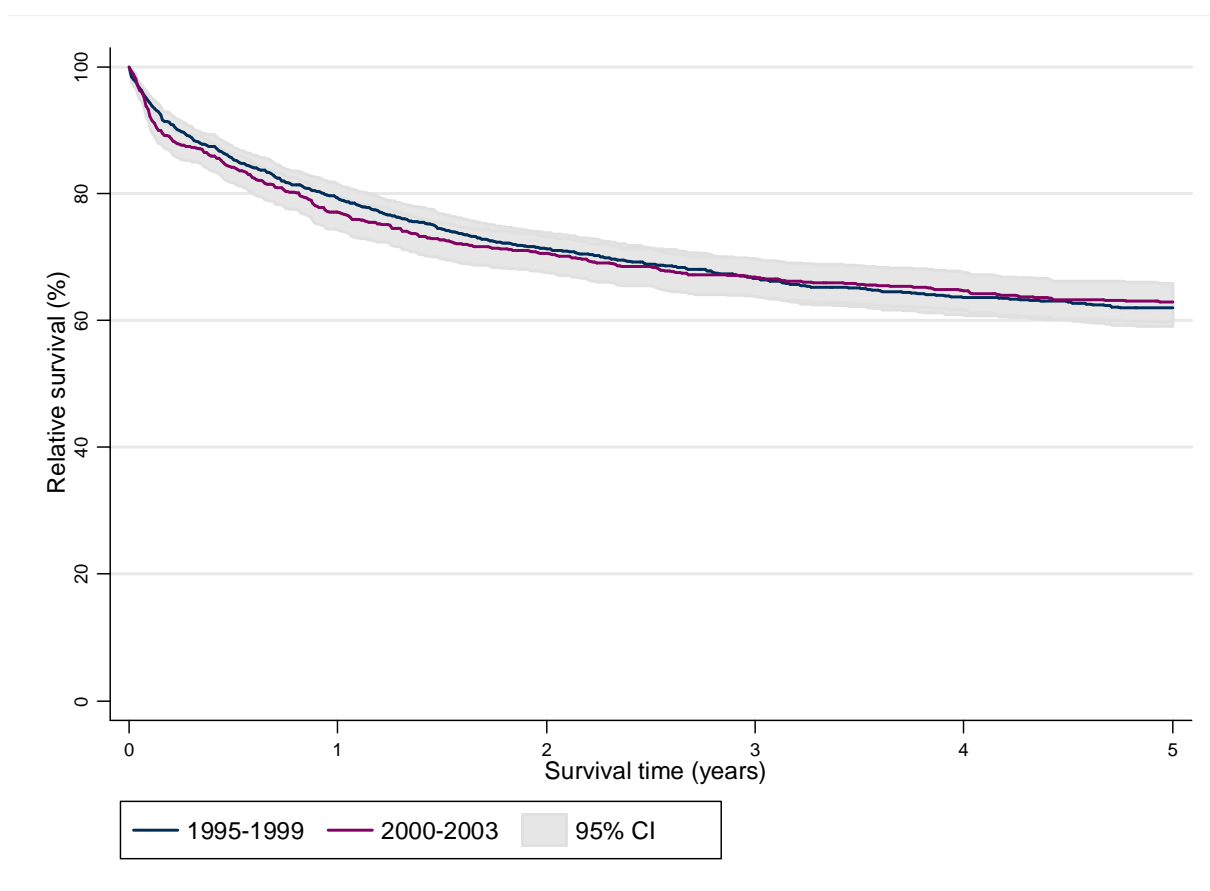


Table 2:11 Trends in relative survival rates for acute lymphoblastic leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	79.3	76.9	81.6	1,221	268	77.2	74.4	79.7	1,018	245
2	71.4	68.7	73.9	1,221	369	70.9	67.9	73.7	1,018	313
3	66.9	64.1	69.6	1,221	426	67.4	64.3	70.3	1,018	351
4	64.0	61.1	66.7	1,221	463	65.3	62.2	68.2	1,018	374
5	62.4	59.5	65.1	1,221	485	63.7	60.6	66.7	1,018	393

Figure 2:12 Trends for females (all ages) in relative survival rates for acute lymphoblastic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

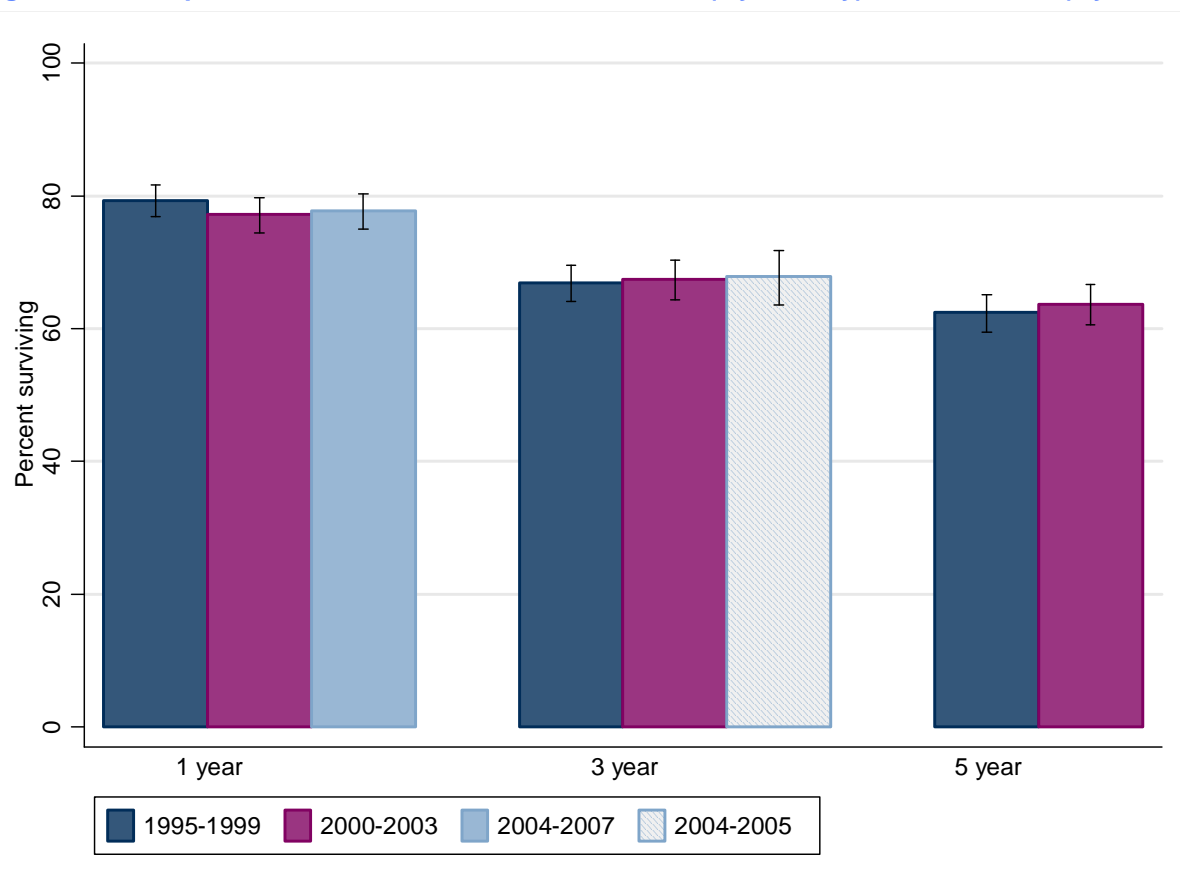


Table 2:13 Trends for females (all ages) in relative survival rates for acute lymphoblastic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	79.3	76.9	81.6	1,221	268
	2000-2003	77.2	74.4	79.7	1,018	245
	2004-2007	77.8	75.0	80.3	1,017	238
3 year	1995-1999	66.9	64.1	69.6	1,221	426
	2000-2003	67.4	64.3	70.3	1,018	351
	2004-2005	67.9	63.6	71.8	535	181
5 year	1995-1999	62.4	59.5	65.1	1,221	485
	2000-2003	63.7	60.6	66.7	1,018	393

Trends in survival by age (males)

Figure 2:14 Trends in relative survival rates for acute lymphoblastic leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

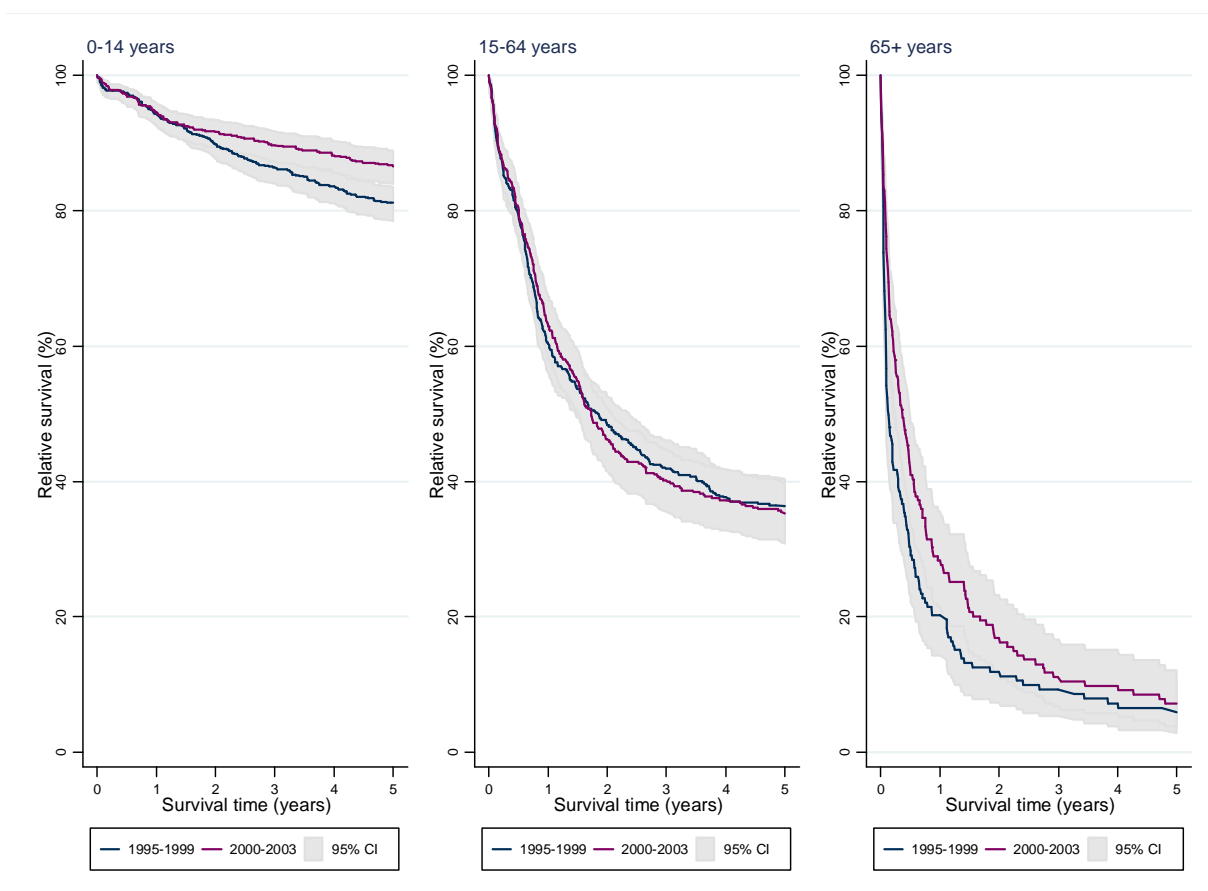


Table 2:15 Trends in relative survival rates for acute lymphoblastic leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	94.4	92.7	95.7	936	53	94.5	92.5	95.9	735	41
	2	89.9	87.7	91.6	936	96	91.6	89.3	93.4	735	62
	3	86.4	84.1	88.5	936	128	89.7	87.3	91.7	735	76
	4	83.7	81.1	85.9	936	154	88.2	85.7	90.4	735	87
	5	81.2	78.5	83.6	936	177	86.6	83.9	88.9	735	99
15-64 years	1	60.3	56.0	64.3	541	216	63.0	58.3	67.3	448	167
	2	48.3	44.0	52.5	541	281	46.3	41.6	50.9	448	242
	3	41.9	37.7	46.1	541	316	40.3	35.7	44.8	448	269
	4	37.8	33.7	41.9	541	339	37.5	32.9	42.0	448	282
	5	36.6	32.5	40.7	541	346	35.5	31.1	40.0	448	291
65+ years	1	20.9	14.8	27.7	158	127	28.9	21.9	36.3	161	117
	2	12.2	7.36	18.2	158	140	18.0	12.2	24.7	161	135
	3	10.2	5.73	16.2	158	144	12.7	7.72	19.0	161	144
	4	8.89	4.61	14.91	158	147	11.7	6.84	18.0	161	146
	5	7.86	3.77	13.92	158	149	9.02	4.76	15.0	161	150

Trends in survival by age (females)

Figure 2:16 Trends in relative survival rates for acute lymphoblastic leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

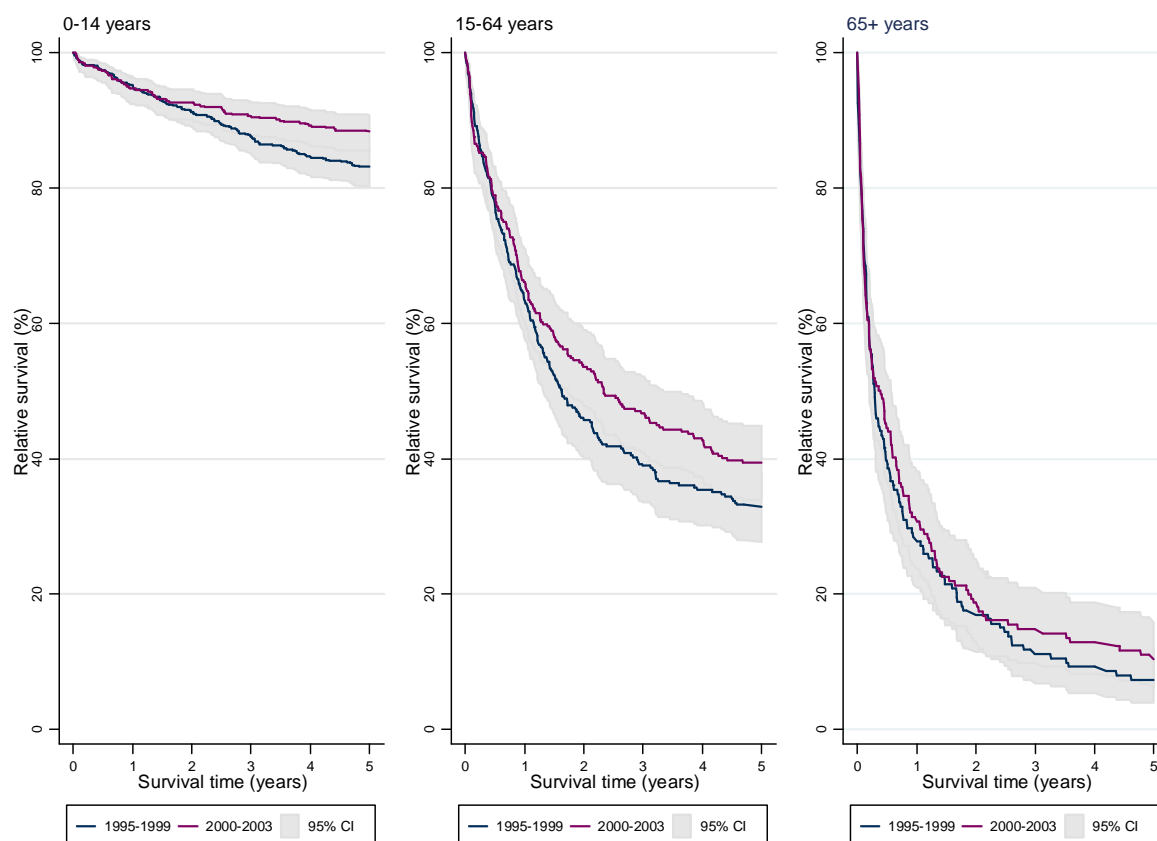


Table 2:17 Trends in relative survival rates for acute lymphoblastic leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	95.2	93.3	96.5	750	37	94.7	92.4	96.3	555	30
	2	91.3	89.0	93.1	750	66	92.7	90.2	94.6	555	41
	3	87.7	85.1	89.9	750	93	90.7	88.0	92.9	555	52
	4	84.7	81.9	87.1	750	116	89.3	86.4	91.6	555	60
	5	83.2	80.3	85.7	750	127	88.4	85.4	90.8	555	65
15-64 years	1	63.3	57.7	68.4	312	115	66.2	60.5	71.2	303	103
	2	45.5	39.8	50.9	312	170	53.5	47.7	59.0	303	141
	3	38.8	33.4	44.2	312	191	46.6	40.8	52.1	303	162
	4	35.3	30.0	40.7	312	202	42.7	37.0	48.2	303	174
	5	32.9	27.7	38.2	312	210	39.4	33.8	44.9	303	184
65+ years	1	28.1	21.1	35.4	159	116	31.4	24.1	38.8	160	112
	2	17.6	11.9	24.2	159	133	19.2	13.3	25.9	160	131
	3	12.2	7.47	18.2	159	142	15.6	10.2	22.1	160	137
	4	10.6	6.16	16.5	159	145	14.0	8.83	20.3	160	140
	5	9.06	4.84	14.9	159	148	11.8	7.05	17.9	160	144

Trends in survival by age (persons)

Figure 2:18 Trends in relative survival rates for acute lymphoblastic leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

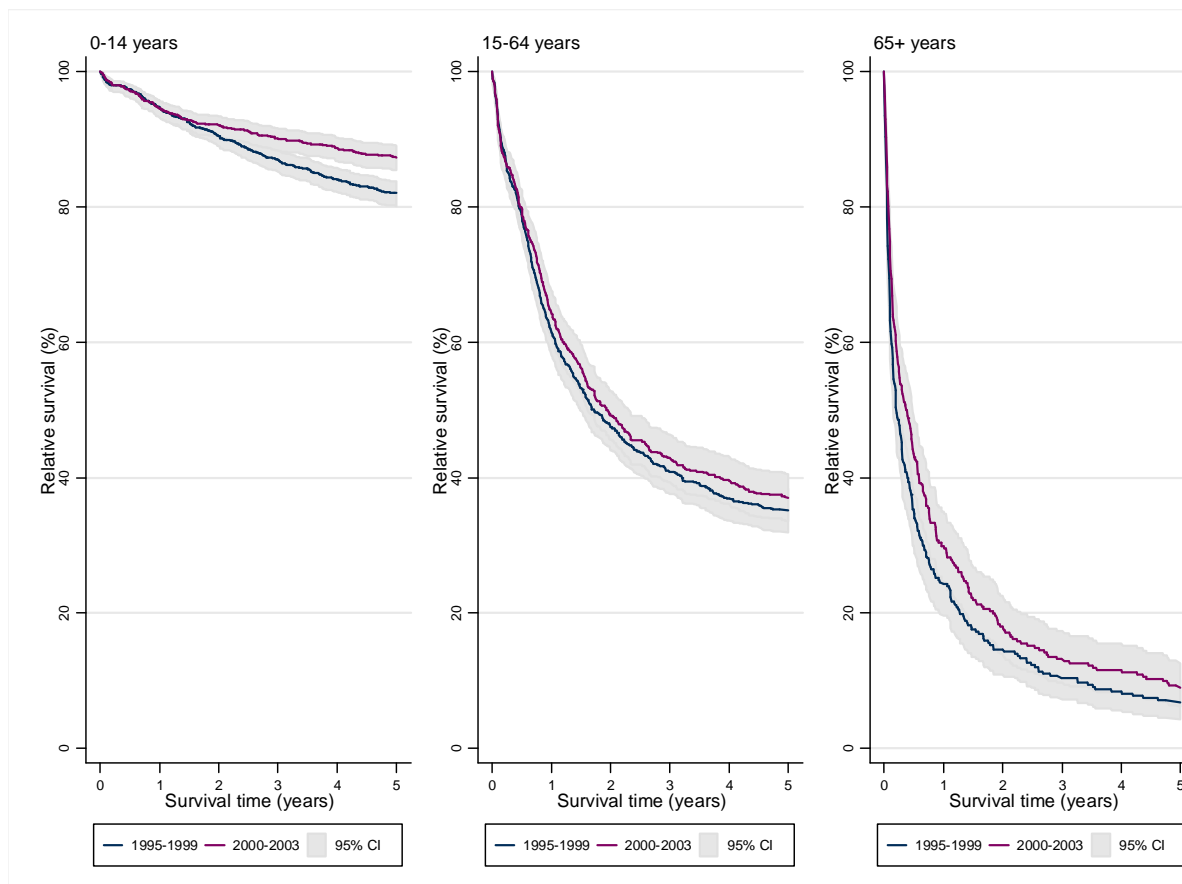


Table 2:19 Trends in relative survival rates for acute lymphoblastic leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	94.8	93.6	95.8	1,686	90	94.5	93.2	95.7	1,290	71
	2	90.5	89.0	91.8	1,686	162	92.1	90.5	93.4	1,290	103
	3	87.0	85.3	88.6	1,686	221	90.1	88.4	91.7	1,290	128
	4	84.1	82.3	85.8	1,686	270	88.7	86.8	90.3	1,290	147
	5	82.1	80.2	83.9	1,686	304	87.4	85.4	89.1	1,290	164
15-64 years	1	61.4	58.0	64.6	853	331	64.3	60.7	67.6	751	270
	2	47.3	43.9	50.6	853	451	49.2	45.5	52.7	751	383
	3	40.8	37.5	44.1	853	507	42.8	39.2	46.3	751	431
	4	36.9	33.6	40.1	853	541	39.5	36.0	43.1	751	456
	5	35.3	32.0	38.5	853	556	37.1	33.6	40.6	751	475
65+ years	1	24.5	19.8	29.5	317	243	30.2	25.1	35.4	321	229
	2	15.0	11.1	19.4	317	273	18.6	14.4	23.3	321	266
	3	11.2	7.77	15.2	317	286	14.2	10.4	18.6	321	281
	4	9.72	6.48	13.7	317	292	12.9	9.19	17.3	321	286
	5	8.42	5.32	12.4	317	297	10.5	7.11	14.6	321	294

Acute Myeloid Leukaemia

Acute myeloid leukaemia is most common in people over the age of 60 and age-standardised incidence is higher in men. Over the period 2001-2008 there was little or no change in the incidence, mortality or relative survival amongst adults diagnosed with AML and the outcome from this leukaemia remains generally poor.

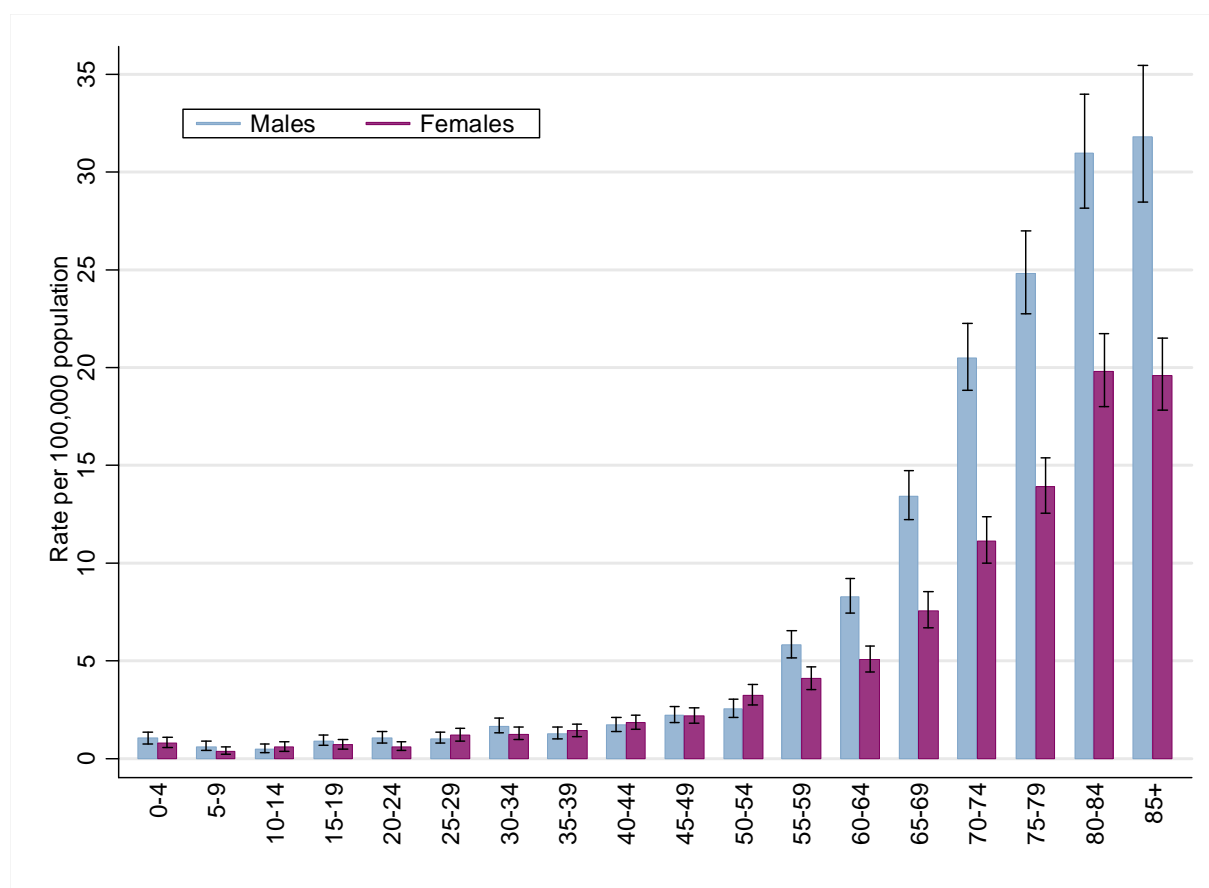
Treatment for AML takes several months, and involves several drugs and many days in hospital. There were some alterations to the standard treatment for adults over this time and many of the patients, especially younger patients, participated in clinical trials.

Some progress was made in identifying patients more likely to benefit from intensive chemotherapy – and those in whom this approach was likely to do more harm than good. Using this approach, decisions can be made at diagnosis about which patients have a reasonable chance of good response to standard chemotherapy, and which are unlikely to benefit.

New, more experimental approaches are being used in the younger patients. In older patients less toxic chemotherapy which offers a fair chance of prolonged survival with less toxicity may be selected, knowing that it will not produce “cure”.

Age distribution

Figure 3:1 Age-specific incidence rates by age group for acute myeloid leukaemia in males and females in the period 2006-2008 in England



Trends in incidence and mortality (males)

Figure 3:2 Age-standardised incidence and mortality rates for acute myeloid leukaemia in males in the period 2001-2008 in England (3 year moving average)

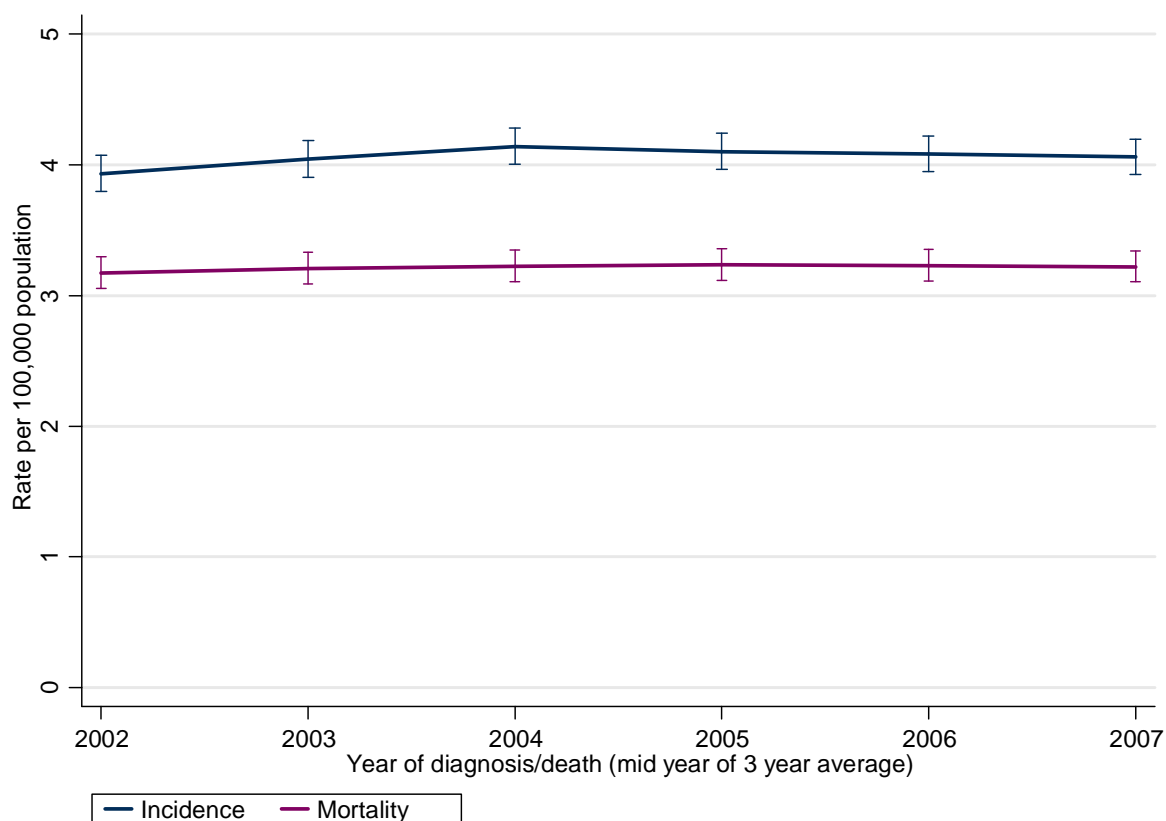


Table 3:3 Age-standardised incidence and mortality rates for acute myeloid leukaemia in males in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Cases*	ASR	95% CI	
2001-2003	1,100	3.9	3.8	4.1	914	3.2	3.1	3.3
2002-2004	1,146	4.0	3.9	4.2	941	3.2	3.1	3.3
2003-2005	1,192	4.1	4.0	4.3	962	3.2	3.1	3.4
2004-2006	1,198	4.1	4.0	4.2	980	3.2	3.1	3.4
2005-2007	1,214	4.1	4.0	4.2	999	3.2	3.1	3.4
2006-2008	1,226	4.1	3.9	4.2	1,013	3.2	3.1	3.3

*3 year moving average

Trends in incidence and mortality (females)

Figure 3:4 Age-standardised incidence and mortality rates for acute myeloid leukaemia in females in the period 2001-2008 in England (3 year moving average)

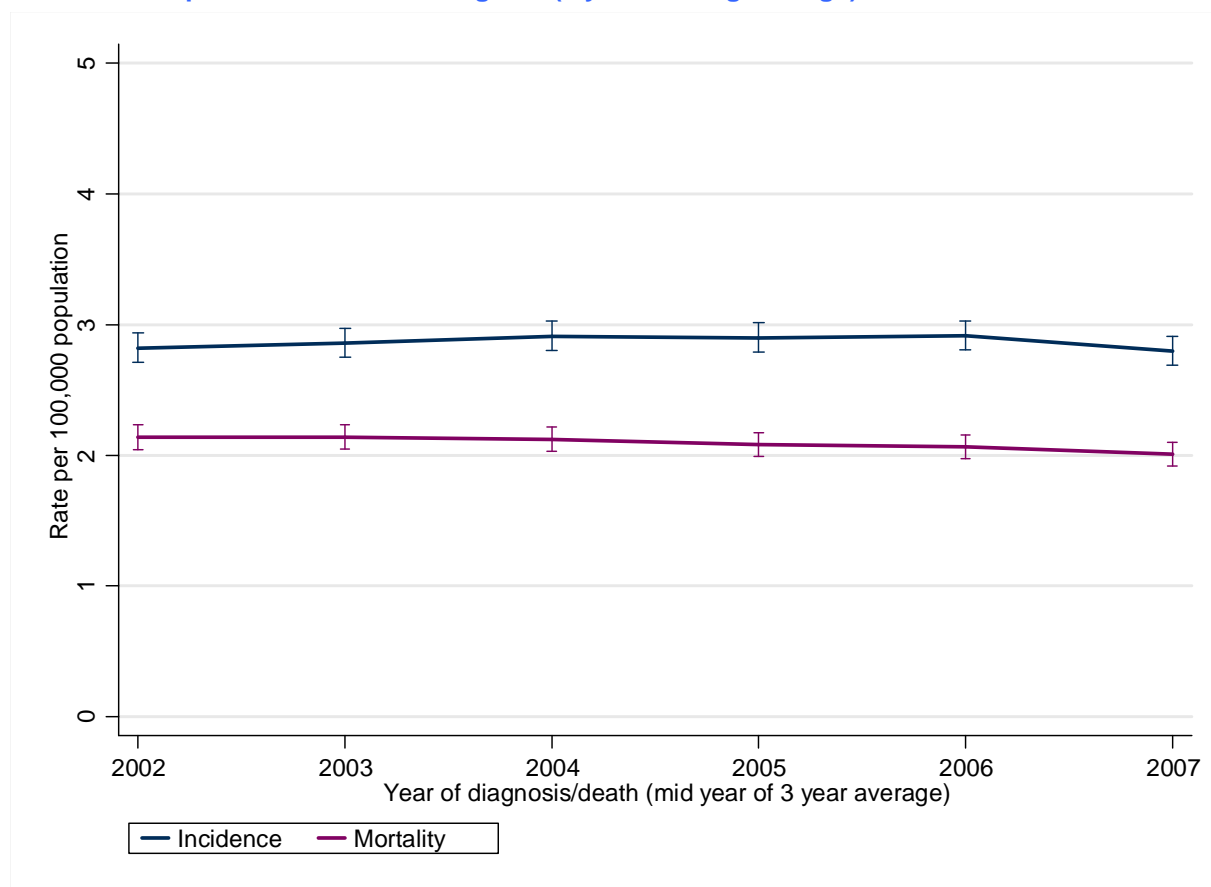


Table 3:5 Age-standardised incidence and mortality rates for acute myeloid leukaemia in females in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Cases*	ASR	95% CI	
2001-2003	952	2.8	2.7	2.9	778	2.1	2.0	2.2
2002-2004	980	2.9	2.8	3.0	792	2.1	2.1	2.2
2003-2005	1,004	2.9	2.8	3.0	799	2.1	2.0	2.2
2004-2006	1,017	2.9	2.8	3.0	800	2.1	2.0	2.2
2005-2007	1,027	2.9	2.8	3.0	807	2.1	2.0	2.2
2006-2008	1,005	2.8	2.7	2.9	805	2.0	1.9	2.1

*3 year moving average

Trends in survival (males)

Figure 3:6 Trends in relative survival rates for acute myeloid leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

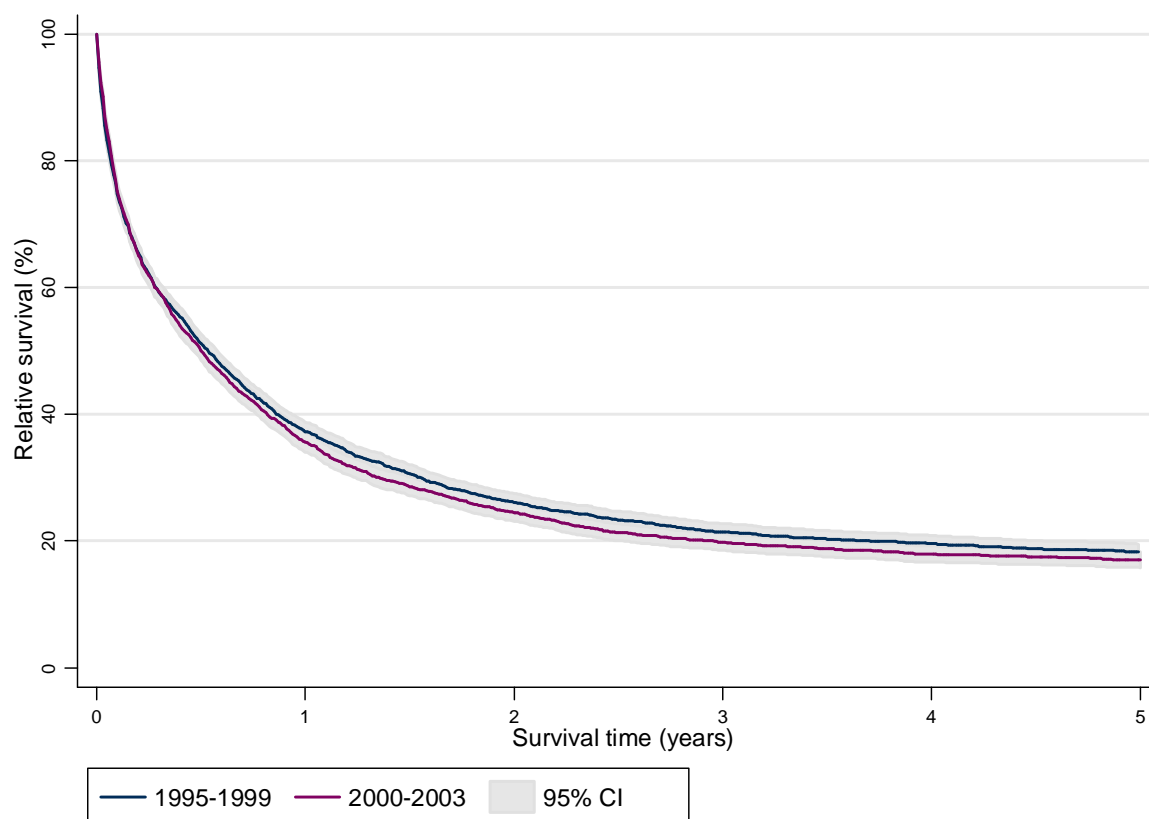


Table 3:7 Trends in relative survival rates for acute myeloid leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	Cohort	Deaths		RS	95% CI	Cohort	Deaths	
1	37.0	35.5 38.5	4,268	2,746		35.4	33.9 36.9	3,999	2,638	
2	25.9	24.6 27.3	4,268	3,230		24.4	23.0 25.8	3,999	3,086	
3	21.3	20.0 22.6	4,268	3,434		19.8	18.5 21.1	3,999	3,275	
4	19.6	18.4 20.9	4,268	3,517		18.1	16.8 19.3	3,999	3,352	
5	18.5	17.2 19.7	4,268	3,577		17.2	16.0 18.5	3,999	3,391	

Figure 3:8 Trends for males (all ages) in relative survival rates for acute myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

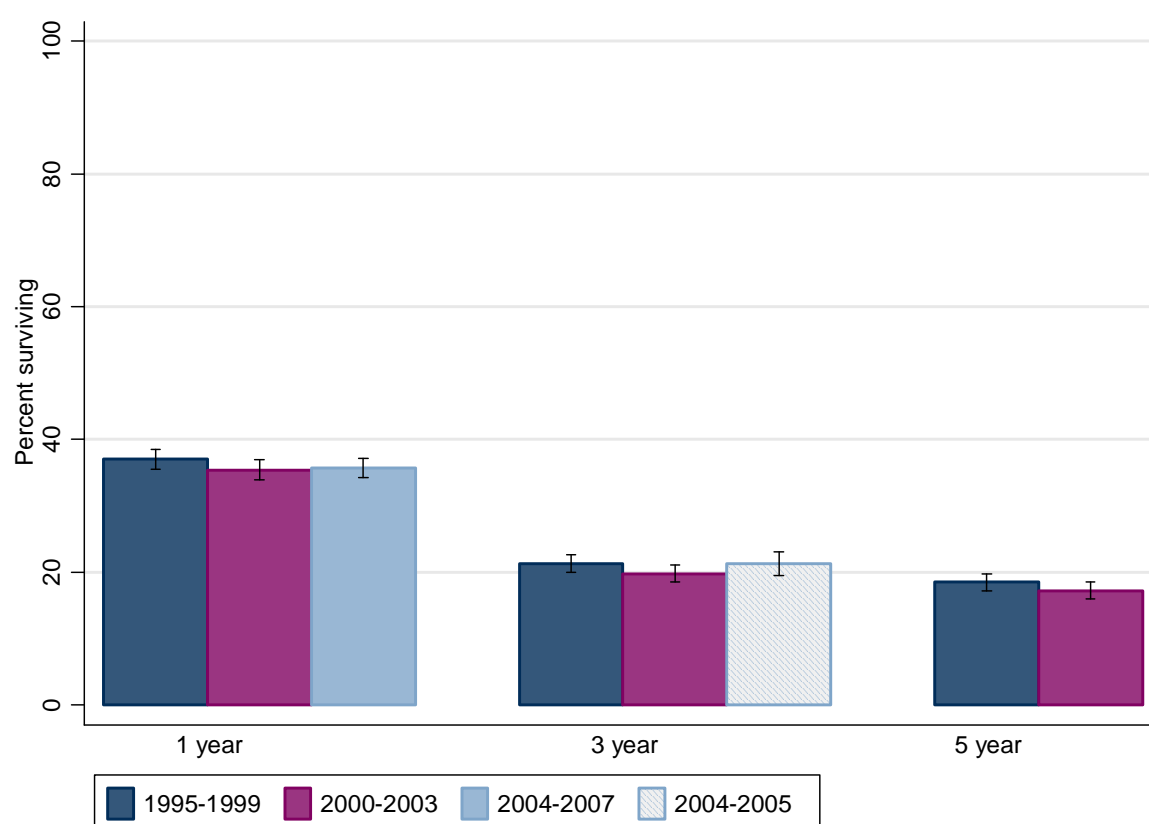


Table 3:9 Trends for males in relative survival rates for acute myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	37.0	35.5	38.5	4,268	2,746
	2000-2003	35.4	33.9	36.9	3,999	2,638
	2004-2007	35.7	34.3	37.2	4,470	2,930
3 year	1995-1999	21.3	20.0	22.6	4,268	3,434
	2000-2003	19.8	18.5	21.1	3,999	3,275
	2004-2005	21.3	19.5	23.1	2,182	1,755
5 year	1995-1999	18.5	17.2	19.7	4,268	3,577
	2000-2003	17.2	16.0	18.5	3,999	3,391

Trends in survival (females)

Figure 3:10 Trends in relative survival rates for acute myeloid leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

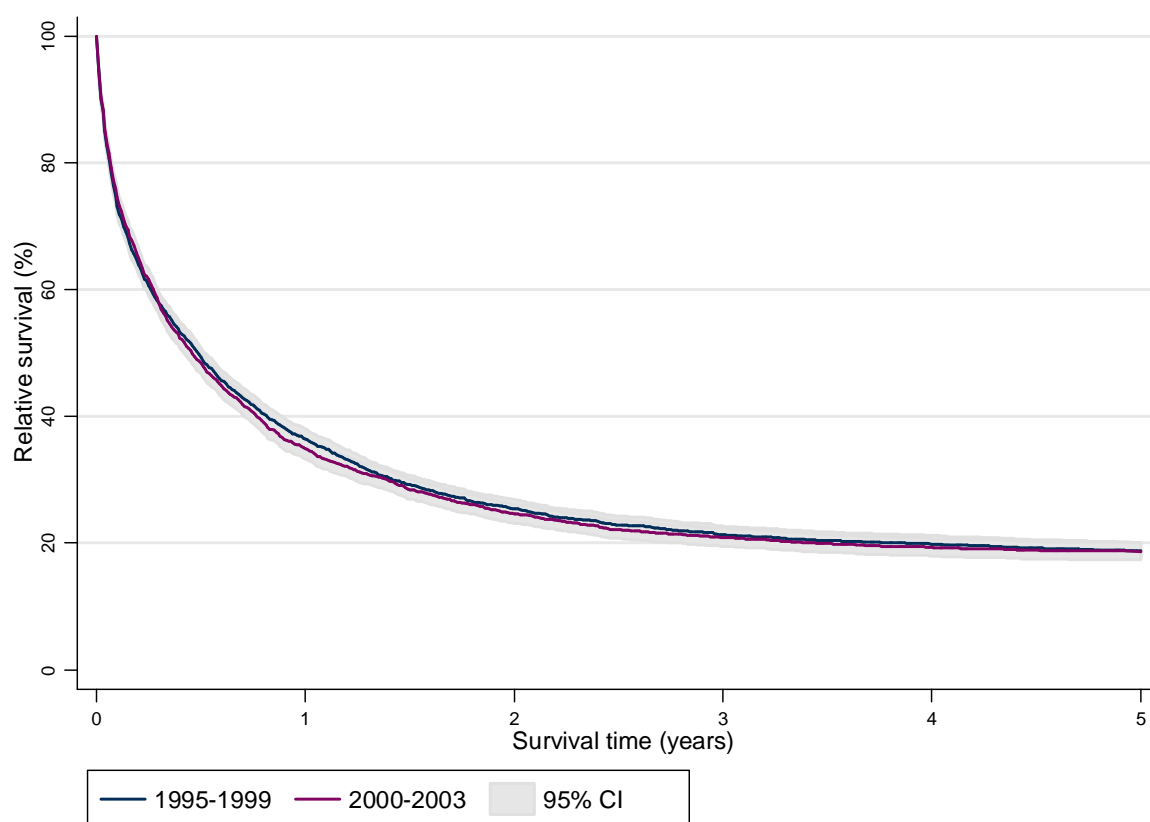


Table 3:11 Trends in relative survival rates for acute myeloid leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	Cohort	Deaths		RS	95% CI	Cohort	Deaths	
1	36.2	34.6 37.7	3,827	2,477		34.7	33.1 36.3	3,438	2,279	
2	25.3	23.8 26.7	3,827	2,902		24.4	22.9 25.9	3,438	2,639	
3	21.2	19.9 22.6	3,827	3,064		20.8	19.4 22.3	3,438	2,768	
4	19.9	18.6 21.2	3,827	3,121		19.4	18.0 20.8	3,438	2,825	
5	18.9	17.6 20.2	3,827	3,166		18.9	17.5 20.3	3,438	2,846	

Figure 3:12 Trends for females (all ages) in relative survival rates for acute myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

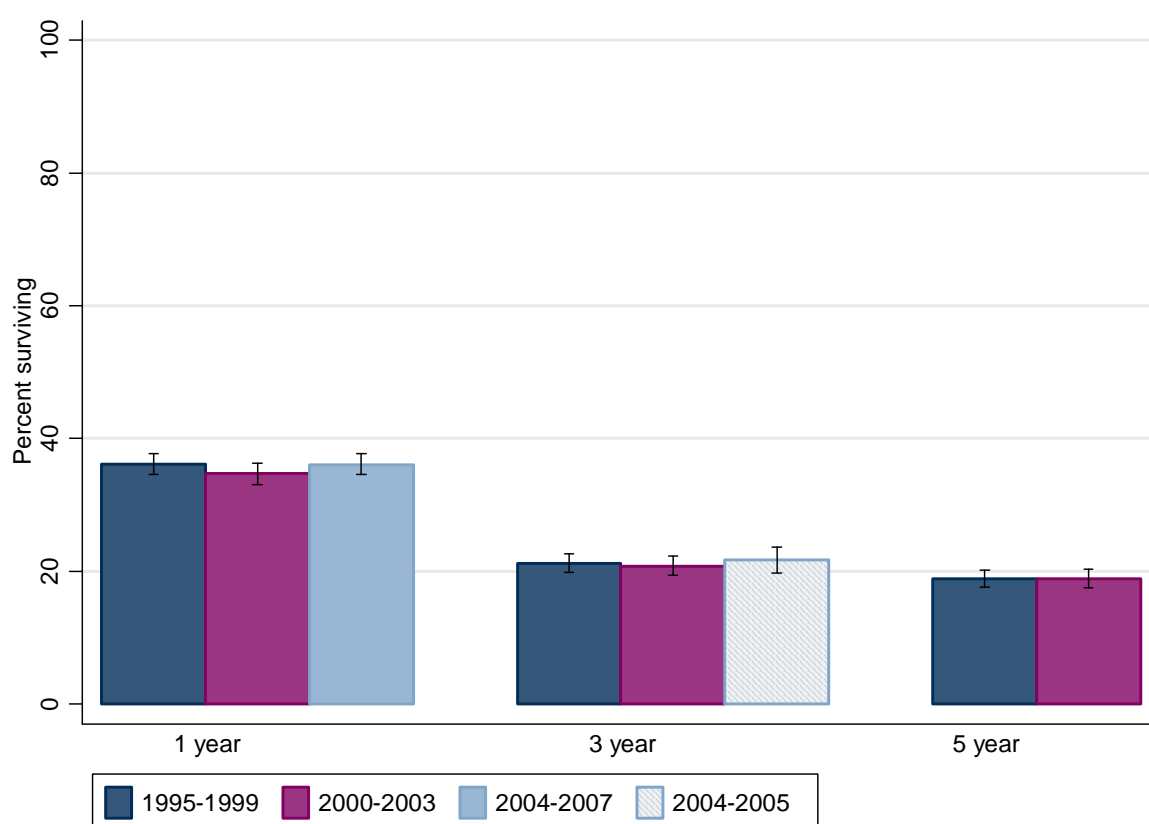


Table 3:13 Trends for females (all ages) in relative survival rates for acute myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	36.2	34.6	37.7	3,827	2,477
	2000-2003	34.7	33.1	36.3	3,438	2,279
	2004-2007	36.1	34.6	37.7	3,776	2,450
3 year	1995-1999	21.2	19.9	22.6	3,827	3,064
	2000-2003	20.8	19.4	22.3	3,438	2,768
	2004-2005	21.7	19.8	23.6	1,883	1,501
5 year	1995-1999	18.9	17.6	20.2	3,827	3,166
	2000-2003	18.9	17.5	20.3	3,438	2,846

Trends in survival by age (males)

Figure 3:14 Trends in relative survival rates for acute myeloid leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

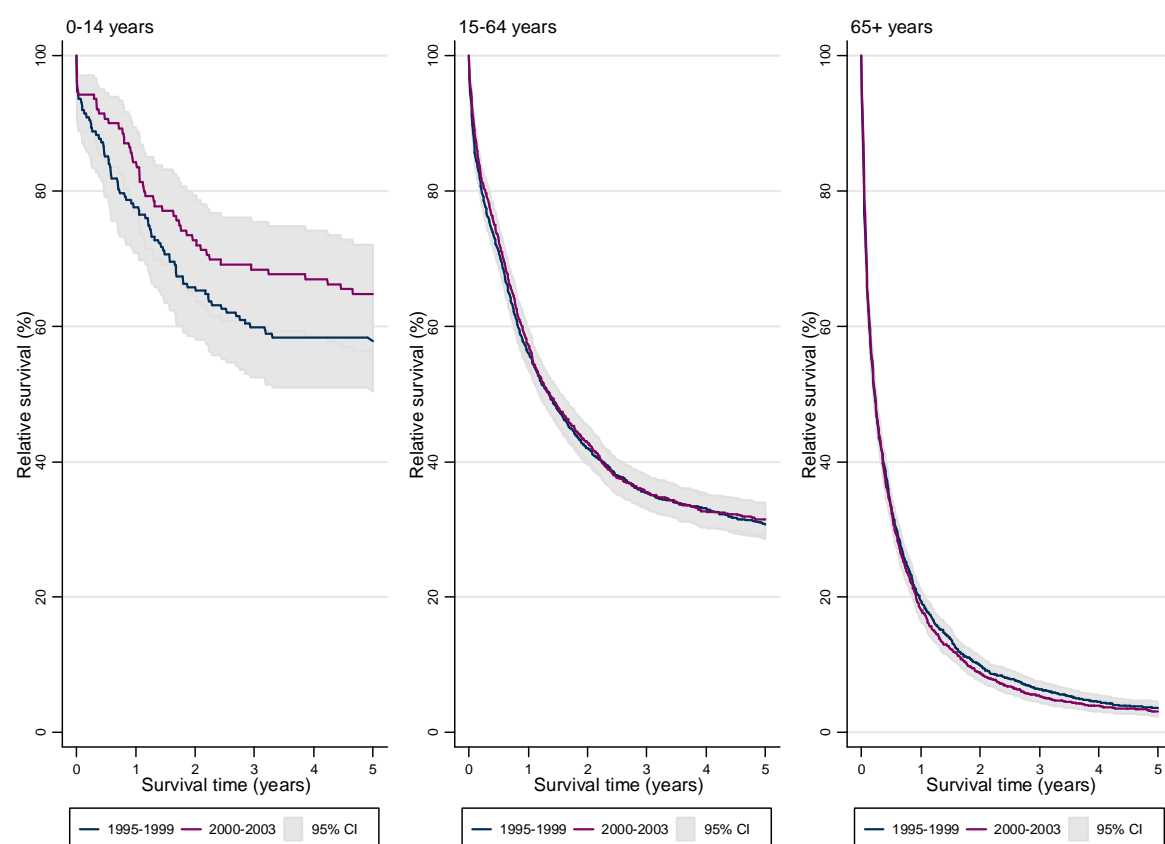


Table 3:15 Trends in relative survival rates for acute myeloid leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	77.5	70.8	82.9	187	42	84.1	76.8	89.2	139	22
	2	65.7	58.4	72.0	187	64	72.4	64.2	79.1	139	38
	3	59.8	52.4	66.5	187	75	68.1	59.6	75.2	139	44
	4	58.2	50.8	64.9	187	78	66.7	58.1	73.9	139	46
	5	57.7	50.3	64.4	187	79	64.5	55.9	71.9	139	49
15-64 years	1	55.8	53.4	58.2	1,706	759	57.0	54.4	59.5	1,480	641
	2	41.8	39.4	44.2	1,706	1,000	42.5	39.9	45.0	1,480	855
	3	35.2	32.9	37.5	1,706	1,115	35.2	32.7	37.7	1,480	964
	4	33.1	30.8	35.4	1,706	1,155	32.6	30.2	35.0	1,480	1,006
	5	30.9	28.7	33.2	1,706	1,195	31.5	29.1	34.0	1,480	1,024
65+ years	1	19.0	17.4	20.7	2,375	1,945	18.0	16.4	19.6	2,380	1,975
	2	9.65	8.45	10.9	2,375	2,166	8.78	7.50	9.86	2,380	2,193
	3	6.36	5.36	7.47	2,375	2,244	5.44	4.52	6.48	2,380	2,267
	4	4.64	3.77	5.64	2,375	2,284	4.01	3.20	4.94	2,380	2,300
	5	3.91	3.09	4.87	2,375	2,303	3.26	2.53	4.14	2,380	2,318

Trends in survival by age (females)

Figure 3:16 Trends in relative survival rates for acute myeloid leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

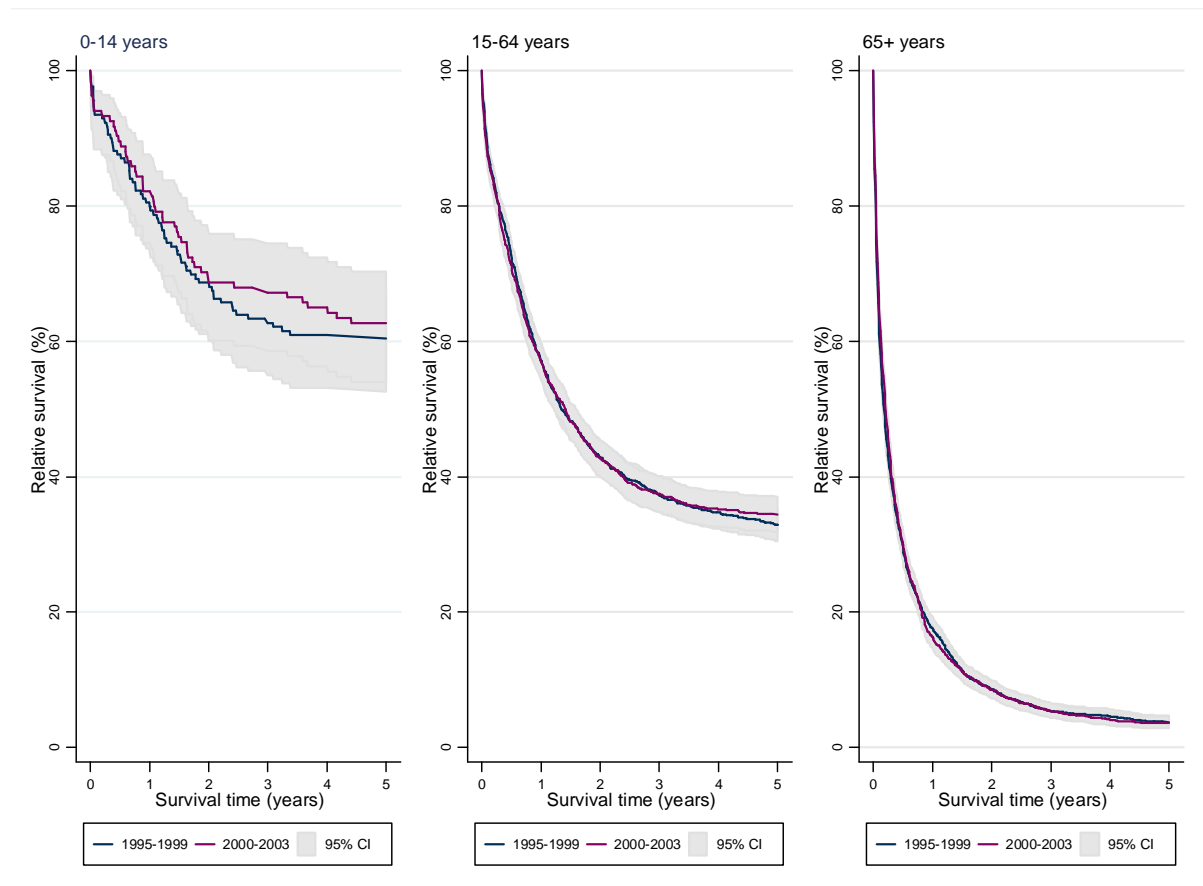


Table 3:17 Trends in relative survival rates for acute myeloid leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	79.9	73.0	85.2	169	34	82.1	74.4	87.6	134	24
	2	68.5	60.9	75.0	169	53	68.6	60.1	75.8	134	42
	3	62.5	54.7	69.4	169	63	67.2	58.5	74.4	134	44
	4	60.8	52.9	67.7	169	66	64.9	56.2	72.4	134	47
	5	60.2	52.3	67.1	169	67	62.7	53.9	70.3	134	50
15-64 years	1	57.1	54.6	59.6	1,502	647	56.8	54.0	59.4	1,306	566
	2	42.6	40.1	45.2	1,502	863	42.4	39.7	45.1	1,306	754
	3	37.1	34.6	39.6	1,502	948	37.3	34.6	39.9	1,306	822
	4	34.6	32.2	37.1	1,502	987	35.1	32.5	37.7	1,306	852
	5	32.9	30.5	35.3	1,502	1,015	34.4	31.8	37.1	1,306	862
65+ years	1	17.2	15.6	18.9	2,156	1,796	16.1	14.5	17.8	1,998	1,689
	2	8.23	7.08	9.48	2,156	1,986	8.27	7.07	9.59	1,998	1,843
	3	5.18	4.26	6.22	2,156	2,053	5.31	4.34	6.42	1,998	1,902
	4	4.62	3.74	5.63	2,156	2,068	4.17	3.30	5.18	1,998	1,926
	5	3.94	3.11	4.91	2,156	2,084	3.83	2.98	4.83	1,998	1,934

Trends in survival by age (persons)

Figure 3:18 Trends in relative survival rates for acute myeloid leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

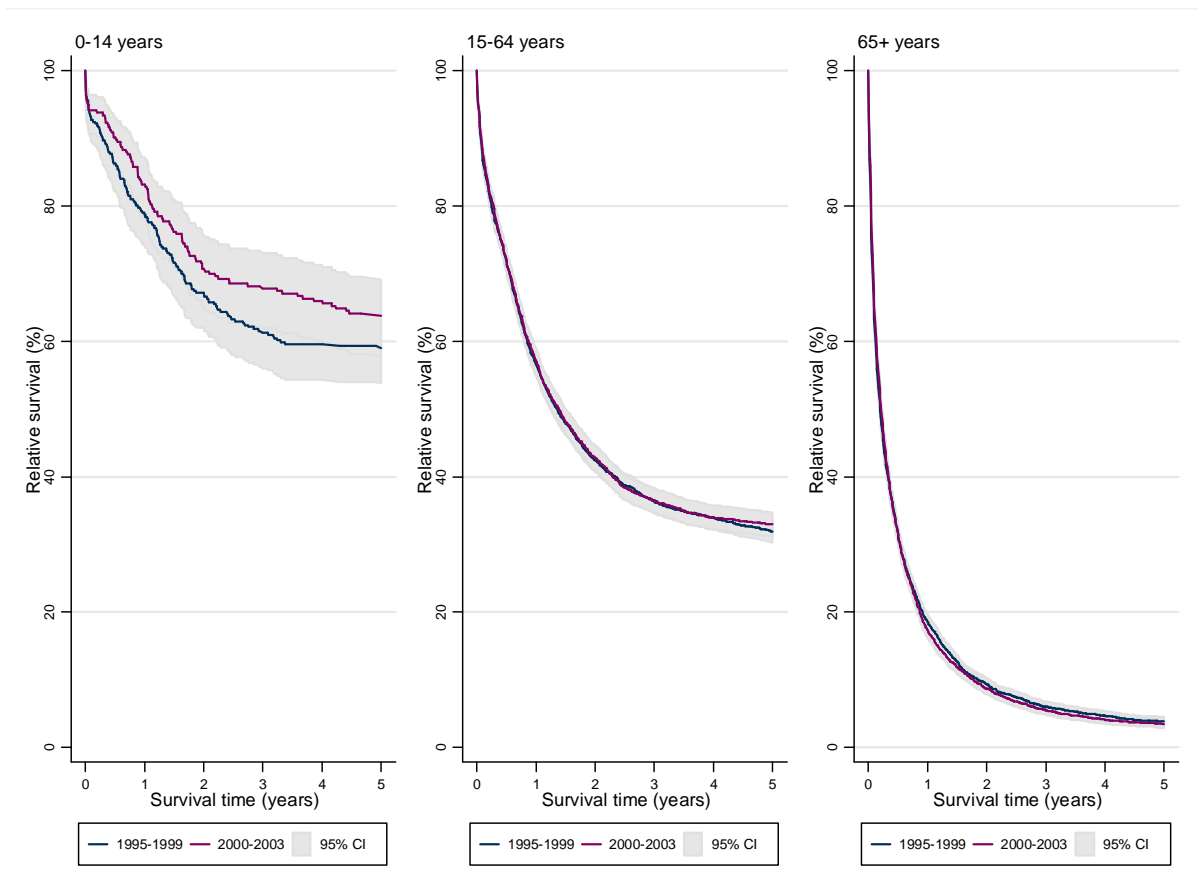


Figure 3:19 Trends in Relative survival rates for acute myeloid leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	78.7	74.0	82.6	356	76	83.1	78.1	87.1	273	46
	2	67.0	61.9	71.7	356	117	70.6	64.8	75.6	273	80
	3	61.1	55.8	66.0	356	138	67.6	61.7	72.9	273	88
	4	59.4	54.1	64.3	356	144	65.8	59.9	71.1	273	93
	5	58.9	53.6	63.8	356	146	63.6	57.6	69.0	273	99
15-64 years	1	56.4	54.7	58.2	3,208	1,406	56.9	55.0	58.7	2,786	1,207
	2	42.2	40.5	43.9	3,208	1,863	42.4	40.6	44.3	2,786	1,609
	3	36.1	34.4	37.8	3,208	2,063	36.2	34.4	38.0	2,786	1,786
	4	33.8	32.2	35.5	3,208	2,142	33.8	32.0	35.6	2,786	1,858
	5	31.9	30.2	33.5	3,208	2,210	32.9	31.1	34.7	2,786	1,886
65+ years	1	18.2	17.0	19.3	4,531	3,741	17.1	16.0	18.3	4,378	3,664
	2	8.97	8.12	9.86	4,531	4,152	8.47	7.63	9.36	4,378	4,036
	3	5.79	5.09	6.54	4,531	4,297	5.39	4.70	6.13	4,378	4,169
	4	4.65	4.01	5.35	4,531	4,352	4.09	3.48	4.76	4,378	4,226
	5	3.94	3.34	4.61	4,531	4,387	3.54	2.96	4.18	4,378	4,252

Chronic Lymphocytic Leukaemia

Chronic lymphocytic leukaemia (CLL) is predominantly a disease of the elderly, with higher age-standardised incidence in males. There were no marked changes across the period reported in the age-standardised incidence or mortality of CLL and no statistically significant improvement in survival.

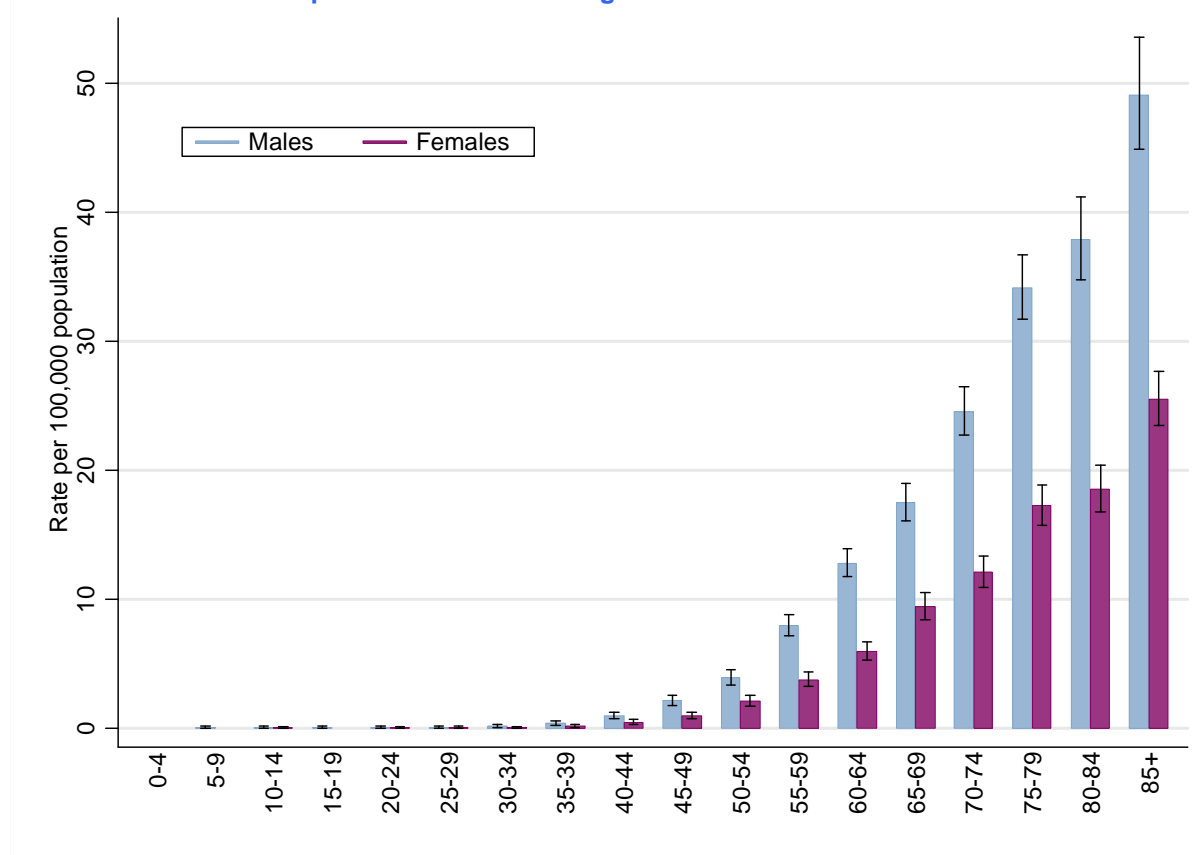
CLL is a relatively indolent cancer for which histopathology laboratories will not necessarily be involved in diagnosis and where treatment can be delivered in an outpatient setting, factors which combine to reduce the likelihood of notification to cancer registries. There is evidence of wide variation in registration rates at a sub-national level for CLL,¹ so both absolute levels of incidence and trends in incidence should be treated with caution. In addition, as variable levels of ascertainment of CLL may be related to the stage of disease at presentation (with the most indolent cancers probably those least likely to be registered), changes in survival may also be subject to artefact.

The time period covered by the analysis produced great advances in our understanding of this disease, but no overall improvement in survival is shown in the data in this report.

In more recent years clinical management has been changing for patients with CLL. Two important new drugs have been introduced into the treatment of CLL, Fludarabine and Rituximab. Fludarabine was being used in some patients in the period reported, sometimes for disease progression after first line therapy, and sometimes as initial treatment. Both treatments (usually given with cyclophosphamide) have now been shown to improve survival in randomised clinical trials and it is likely that patients diagnosed since 2008 will experience further improvements in long term survival. The use of autologous and allogenic transplantation as part of treatment gradually increased during the period reported, and their place in clinical practice is now clearer. Other drugs: alemtuzumab, bendamustine and ofatumumab have also now been introduced into clinical practice in the UK.

Age distribution

Figure 4:1 Age-specific incidence rates by age group for chronic Lymphocytic leukaemia in males and females in the period 2006-2008 in England



¹ http://www.ncin.org.uk/publications/data_briefings/understanding_outcomes_in_leukaemia.aspx

Trends in incidence and mortality (males)

33

Figure 4:2 Age-standardised incidence and mortality rates for chronic lymphocytic leukaemia in males (all ages) in the period 2001-2008 in England (3 year moving average)

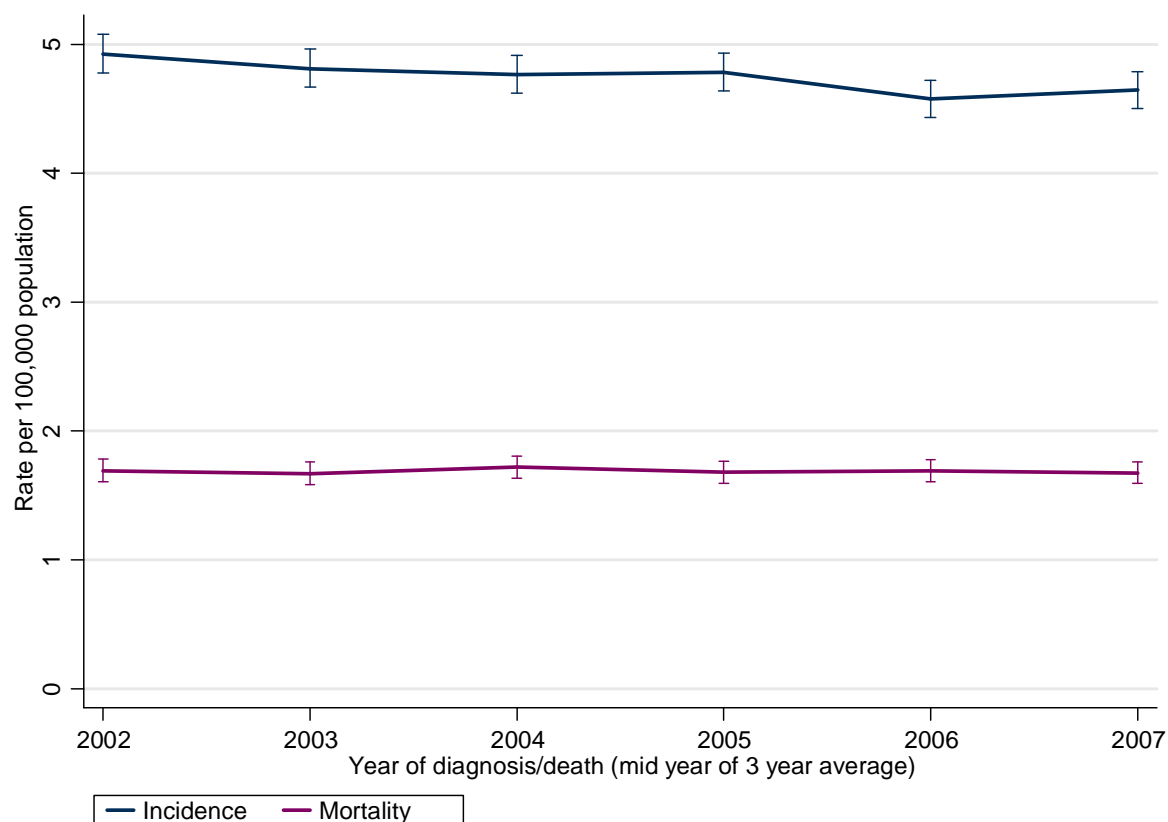


Table 4:3 Age-standardised incidence and mortality rates for chronic lymphocytic leukaemia in males (all ages) in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	1,408	4.9	4.8	5.1	509	1.7	1.6	1.8
2002-2004	1,401	4.8	4.7	5.0	508	1.7	1.6	1.8
2003-2005	1,408	4.8	4.6	4.9	534	1.7	1.6	1.8
2004-2006	1,435	4.8	4.6	4.9	535	1.7	1.6	1.8
2005-2007	1,394	4.6	4.4	4.7	552	1.7	1.6	1.8
2006-2008	1,446	4.7	4.5	4.8	560	1.7	1.6	1.8

*3 year moving average

Trends in incidence and mortality (females)

Figure 4:4 Age-standardised incidence and mortality rates for chronic lymphocytic leukaemia in females (all ages) in the period 2001-2008 in England (3 year moving average)

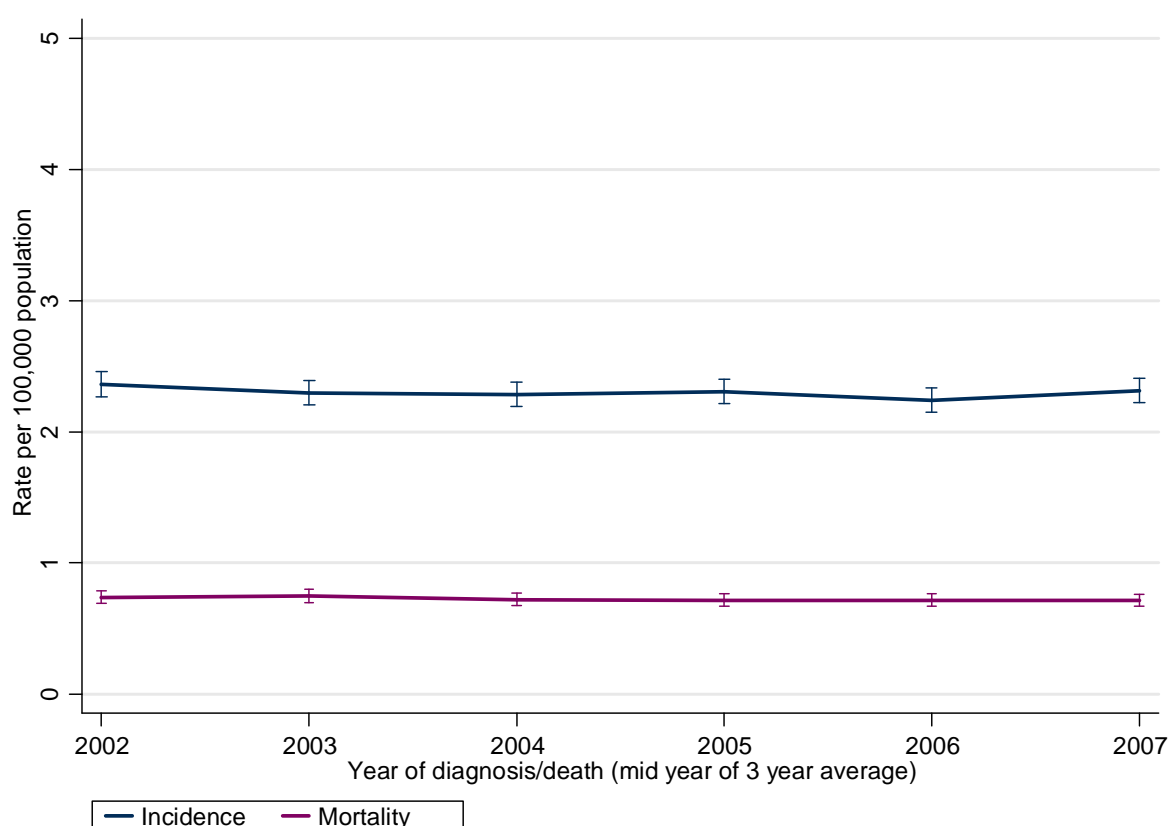


Table 4:5 Age-standardised incidence and mortality rates for chronic lymphocytic leukaemia in females (all ages) in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	942	2.4	2.3	2.5	371	0.7	0.7	0.8
2002-2004	913	2.3	2.2	2.4	374	0.8	0.7	0.8
2003-2005	916	2.3	2.2	2.4	366	0.7	0.7	0.8
2004-2006	933	2.3	2.2	2.4	366	0.7	0.7	0.8
2005-2007	905	2.2	2.2	2.3	378	0.7	0.7	0.8
2006-2008	935	2.3	2.2	2.4	378	0.7	0.7	0.8

*3 year moving average

Trends in survival (males)

Figure 4:6 Trends in relative survival rates for chronic lymphocytic leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

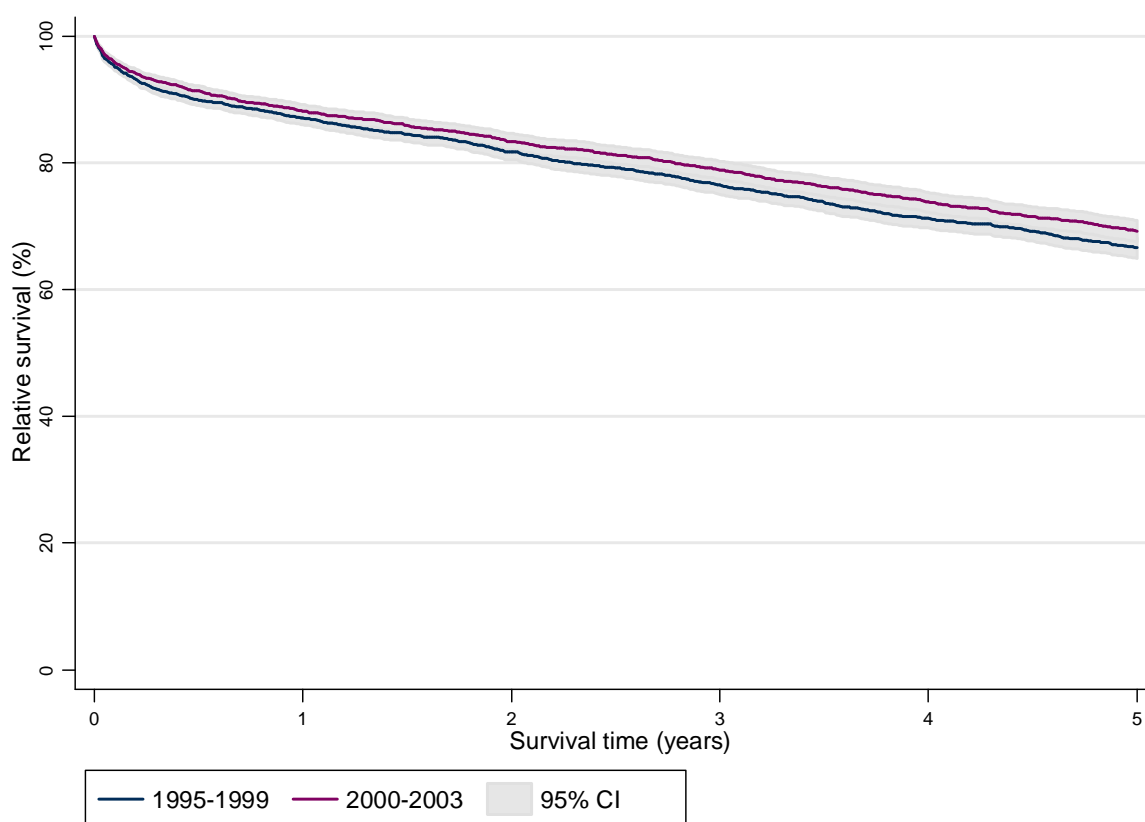


Table 4:7 Trends in relative survival rates for chronic lymphocytic leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	95% CI	Cohort	Deaths	RS	95% CI	95% CI	Cohort	Deaths
1	87.1	86.1	88.1	5,893	1,091	88.2	87.1	89.2	5,360	925
2	82.0	80.7	83.2	5,893	1,622	83.5	82.2	84.7	5,360	1,383
3	76.9	75.4	78.2	5,893	2,101	79.2	77.7	80.6	5,360	1,792
4	71.7	70.1	73.2	5,893	2,545	74.3	72.7	75.8	5,360	2,177
5	67.1	65.5	68.7	5,893	2,921	69.9	68.2	71.5	5,360	2,520

Figure 4:8 Trends for males (all ages) in relative survival rates for chronic lymphocytic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

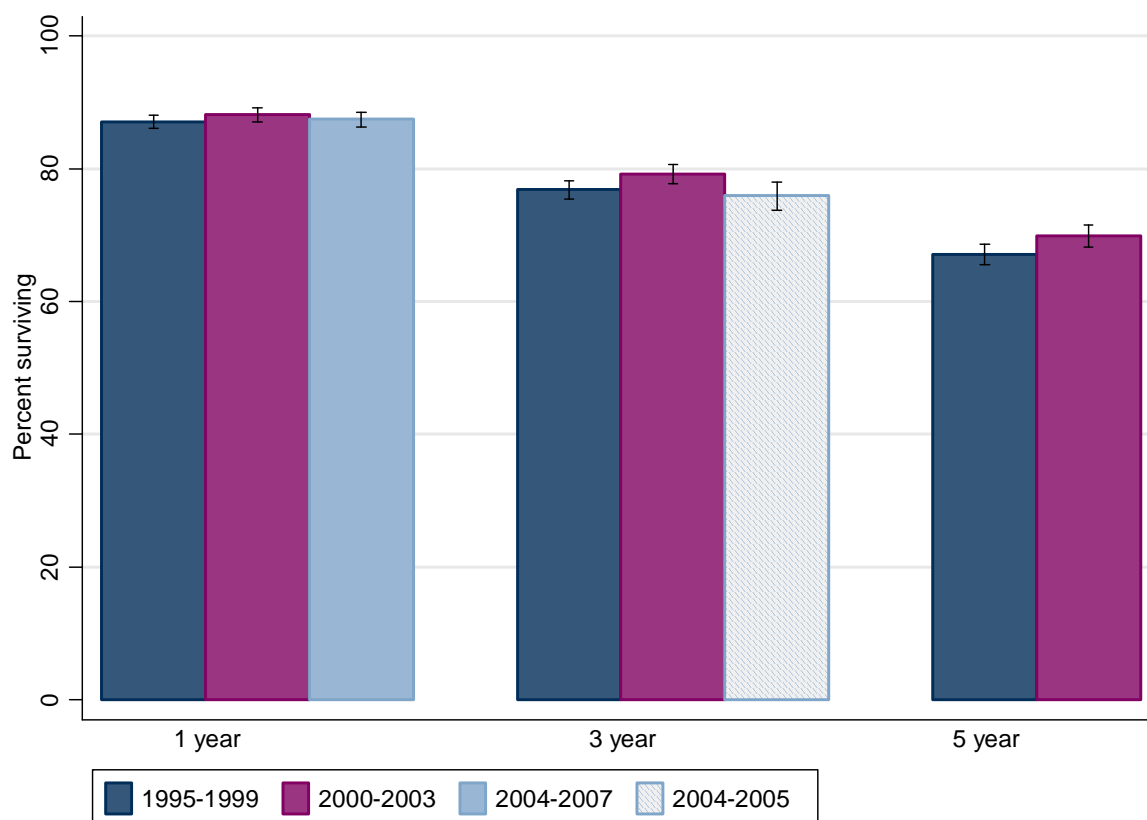


Table 4:9 Trends for males (all ages) in relative survival rates for chronic lymphocytic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	87.1	86.1	88.1	5,893	1,091
	2000-2003	88.2	87.1	89.2	5,360	925
	2004-2007	87.5	86.3	88.5	5,210	940
3 year	1995-1999	76.9	75.4	78.2	5,893	2,101
	2000-2003	79.2	77.7	80.6	5,360	1,792
	2004-2005	76.0	73.8	78.0	2,610	931
5 year	1995-1999	67.1	65.5	68.7	5,893	2,921
	2000-2003	69.9	68.2	71.5	5,360	2,520

Trends in survival (females)

Figure 4:10 Trends in relative survival rates for chronic lymphocytic leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

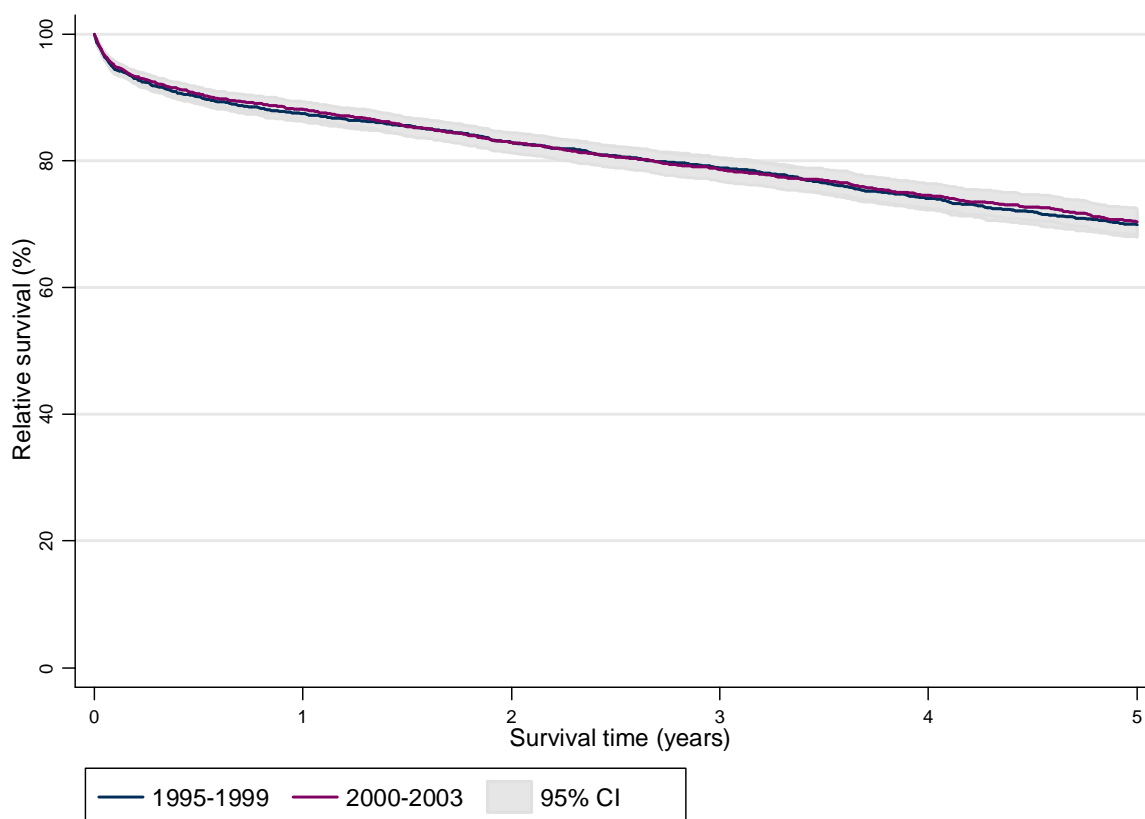


Figure 4:11 Trends in relative survival rates for chronic lymphocytic leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	Cohort	Deaths		RS	95% CI	Cohort	Deaths	
1	87.5	86.2 88.7	4,101	733		88.3	87.0 89.5	3,530	623	
2	83.2	81.7 84.5	4,101	1,082		83.4	81.7 84.9	3,530	941	
3	79.3	77.6 80.8	4,101	1,387		79.3	77.5 81.0	3,530	1,196	
4	74.5	72.7 76.2	4,101	1,686		75.6	73.6 77.4	3,530	1,426	
5	70.7	68.7 72.5	4,101	1,931		71.8	69.7 73.8	3,530	1,641	

Figure 4:12 Trends for females (all ages) in relative survival rates for chronic lymphocytic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

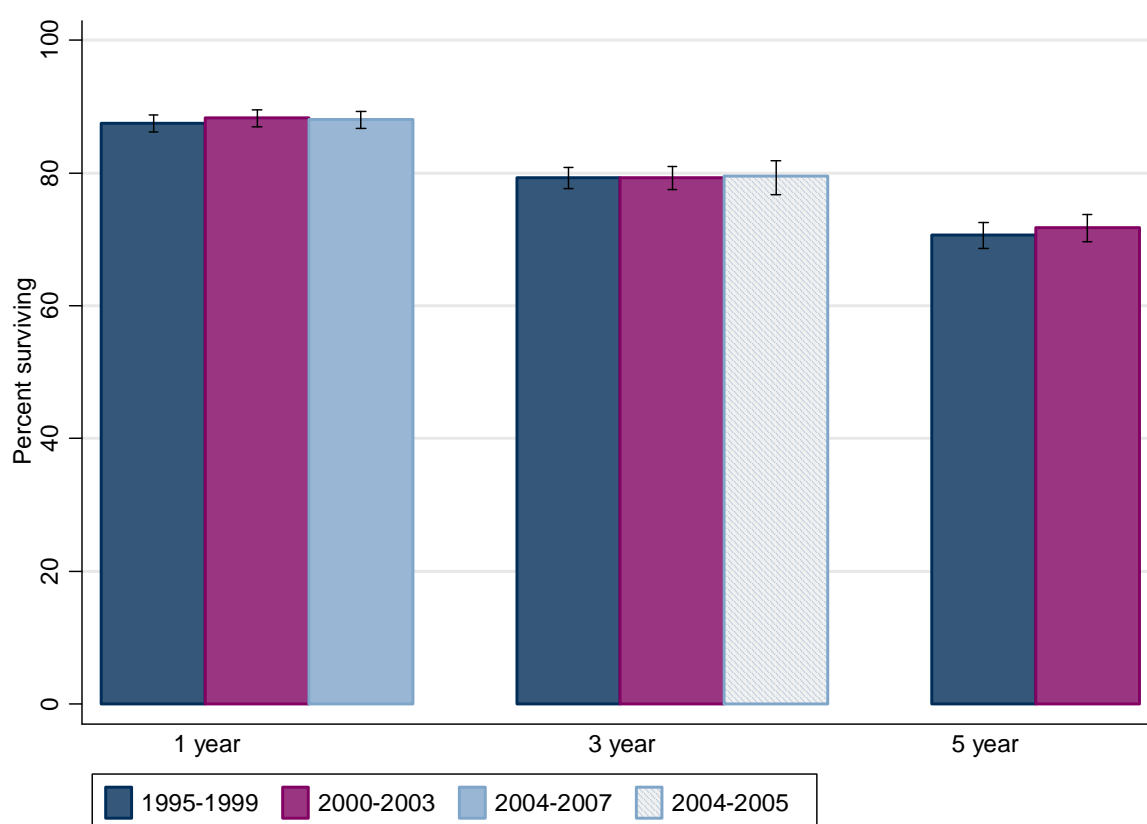


Table 4:13 Trends for females (all ages) in relative survival rates for chronic lymphocytic leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	87.5	86.2	88.7	4,101	733
	2000-2003	88.3	87.0	89.5	3,530	623
	2004-2007	88.1	86.7	89.3	3,364	596
3 year	1995-1999	79.3	77.6	80.8	4,101	1,387
	2000-2003	79.3	77.5	81.0	3,530	1,196
	2004-2005	79.5	76.8	81.9	1,714	576
5 year	1995-1999	70.7	68.7	72.5	4,101	1,931
	2000-2003	71.8	69.7	73.8	3,530	1,641

Trends in survival by age (males)

Figure 4:14 Trends in relative survival rates for chronic lymphocytic leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

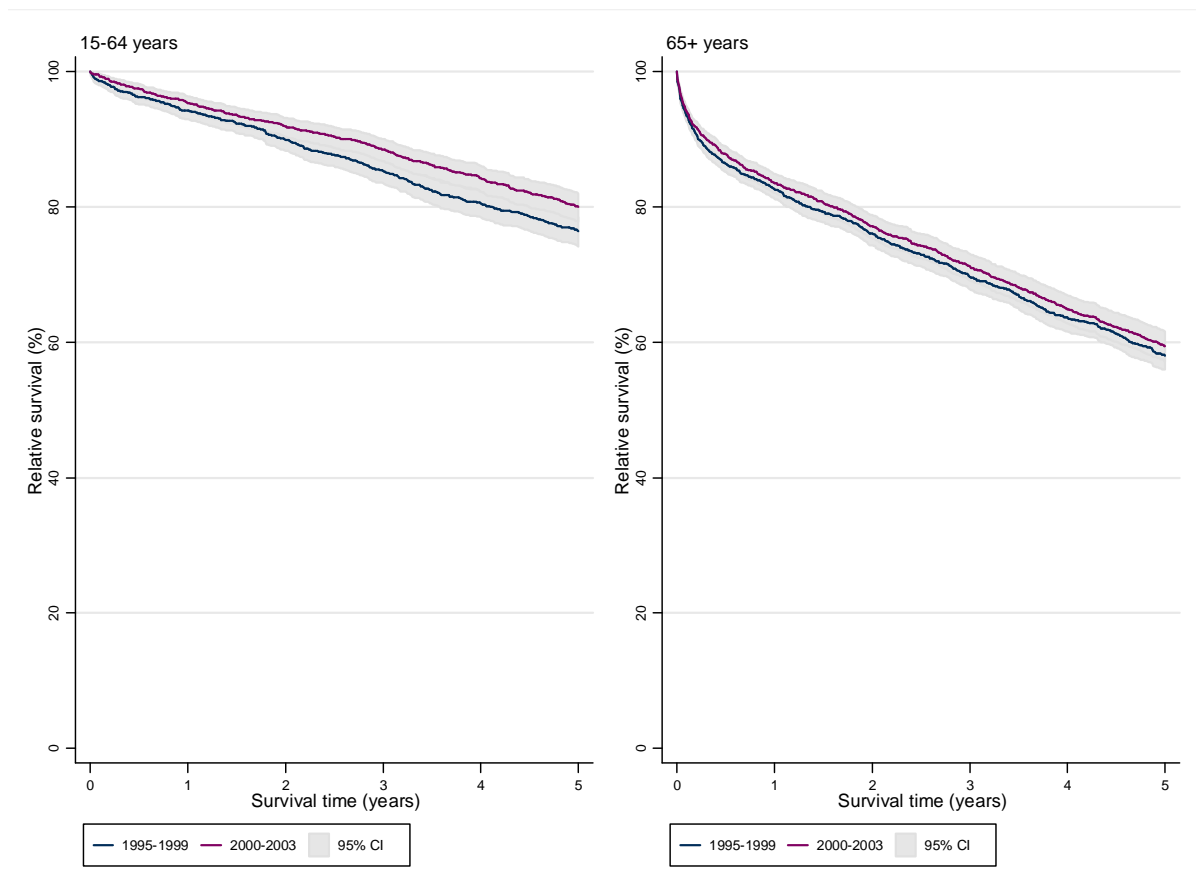


Table 4:15 Trends in relative survival rates for chronic lymphocytic leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	94.6	93.3	95.6	1,786	117	95.7	94.5	96.6	1,646	86
	2	90.7	89.1	92.1	1,786	205	92.6	91.1	93.9	1,646	151
	3	86.5	84.6	88.2	1,786	297	89.7	87.9	91.2	1,646	214
	4	82.1	79.9	84.0	1,786	392	85.8	83.8	87.6	1,646	291
	5	78.2	75.9	80.2	1,786	477	81.9	79.6	83.9	1,646	370
65+ years	1	82.6	81.2	84.0	4,105	974	83.5	82.0	84.9	3,713	839
	2	76.4	74.7	78.0	4,105	1,417	77.4	75.7	79.1	3,713	1,232
	3	70.4	68.5	72.2	4,105	1,804	71.8	69.8	73.6	3,713	1,578
	4	64.4	62.4	66.4	4,105	2,152	65.8	63.7	67.8	3,713	1,886
	5	59.2	57.0	61.3	4,105	2,443	60.7	58.4	62.8	3,713	2,150

Trends in survival by age (females)

Figure 4:16 Trends in relative survival rates for chronic lymphocytic leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

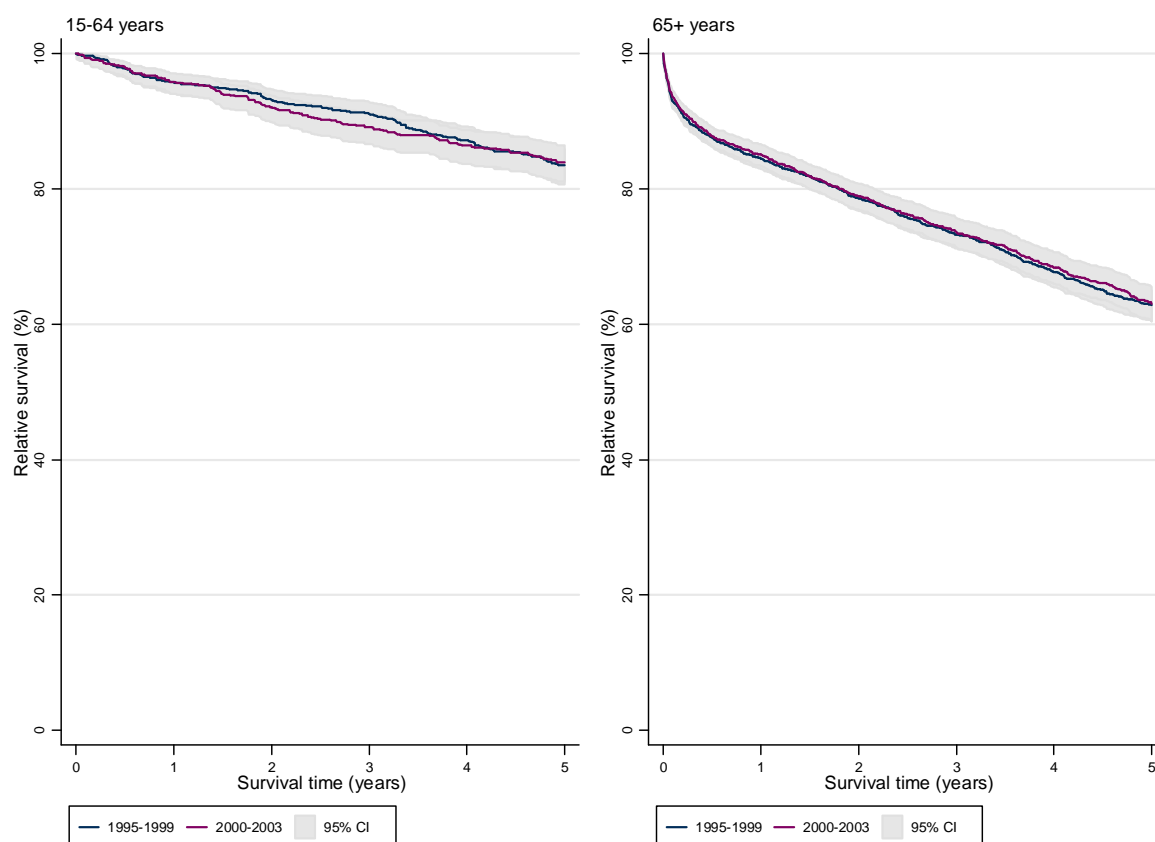


Table 4:17 Trends in relative survival rates for chronic lymphocytic leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	96.3	94.6	97.5	848	38	96.2	94.5	97.5	753	33
	2	94.2	92.1	95.7	848	61	93.0	90.7	94.7	753	62
	3	92.7	90.4	94.4	848	80	90.5	87.9	92.6	753	85
	4	89.1	86.5	91.3	848	115	88.1	85.3	90.5	753	107
	5	85.9	83.0	88.3	848	148	86.3	83.3	88.8	753	126
65+ years	1	84.5	83.0	85.9	3,252	694	85.3	83.7	86.8	2,777	590
	2	79.0	77.2	80.7	3,252	1,020	79.4	77.4	81.3	2,777	879
	3	73.8	71.8	75.7	3,252	1,306	74.4	72.2	76.5	2,777	1,111
	4	68.3	66.1	70.4	3,252	1,570	69.7	67.3	72.0	2,777	1,319
	5	64.0	61.6	66.2	3,252	1,782	64.8	62.2	67.2	2,777	1,515

Trends in survival by age (persons)

Figure 4:18 Trends in relative survival rates for chronic lymphocytic leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

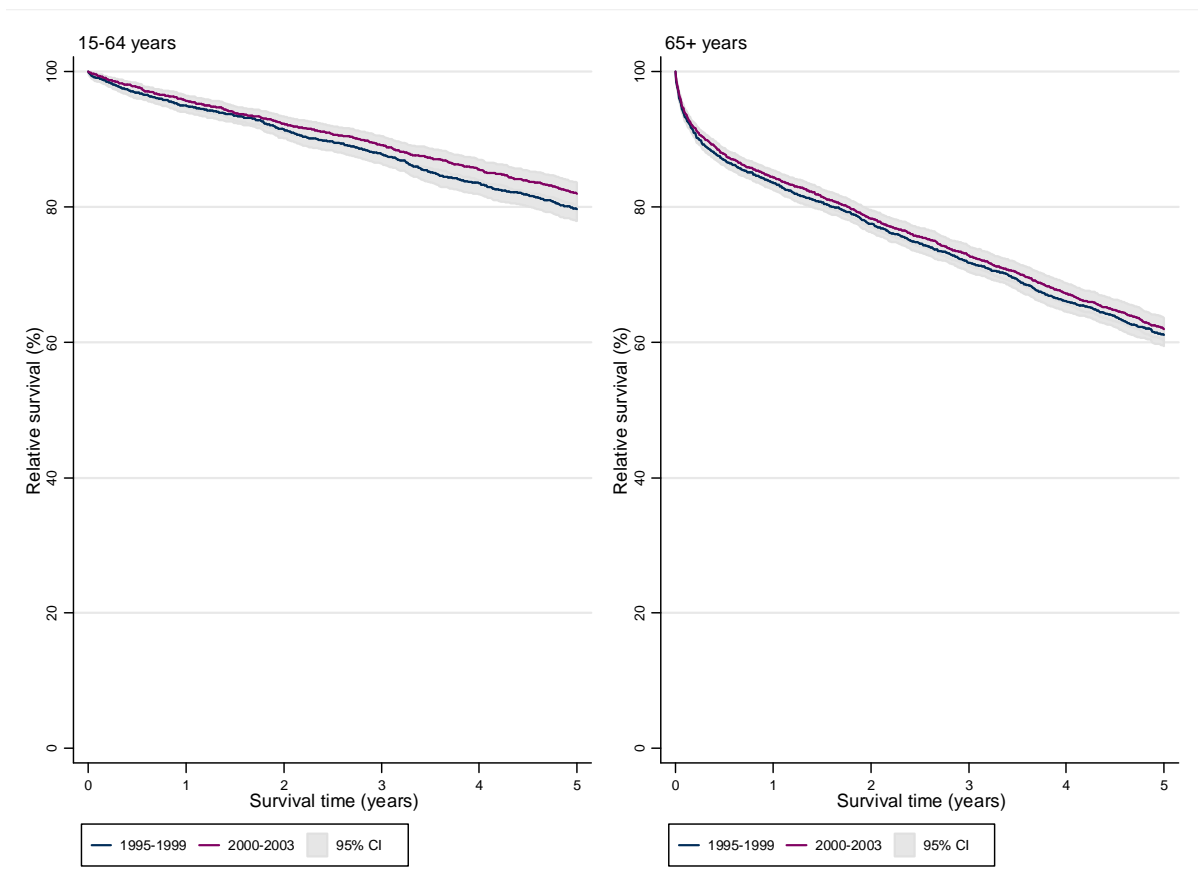


Table 4:19 Trends in relative survival rates for chronic lymphocytic leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	95.1	94.1	96.0	2,634	155	95.9	94.9	96.7	2,399	119
	2	91.9	90.6	93.0	2,634	266	92.7	91.5	93.8	2,399	213
	3	88.6	87.1	89.9	2,634	377	89.9	88.5	91.2	2,399	299
	4	84.5	82.8	86.0	2,634	507	86.6	85.0	88.0	2,399	398
	5	80.8	79.0	82.4	2,634	625	83.4	81.6	85.0	2,399	496
65+ years	1	83.5	82.5	84.5	7,357	1,668	84.3	83.2	85.3	6,490	1,429
	2	77.6	76.3	78.8	7,357	2,437	78.3	77.0	79.5	6,490	2,111
	3	71.9	70.6	73.3	7,357	3,110	72.9	71.4	74.3	6,490	2,689
	4	66.2	64.7	67.7	7,357	3,722	67.5	65.9	69.0	6,490	3,205
	5	61.4	59.8	62.9	7,357	4,225	62.5	60.8	64.1	6,490	3,665

Chronic Myeloid Leukaemia

Chronic myeloid leukaemia (CML) is a relatively rare cancer, predominantly affecting people over the age of 60, with higher age-standardised incidence in males. There were no changes in the incidence of CML between 2001 and 2008; but there have been marked changes in mortality and survival over this time.

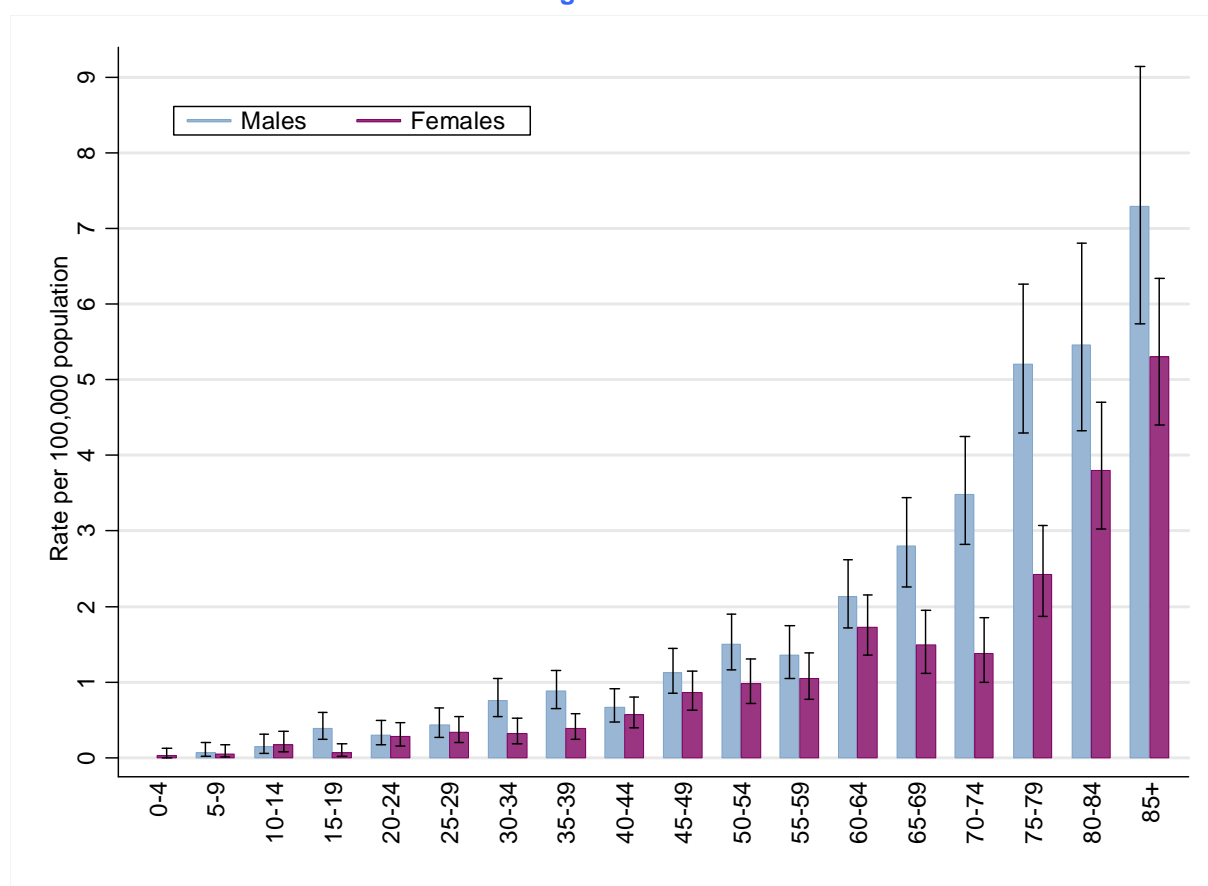
Relative survival curves comparing the two consecutive diagnostic cohorts (1995-1999) and (2000-2003) show a substantial improvement, in both males and females.

The improvement in prognosis seen is due to the introduction of a new drug – Imatinib which was being used increasingly to treat patients with CML over the period 2001-08. The drug received a license for use in the UK in November 2001, with NICE Technology appraisals in October 2002 and 2003 extending its use so that from 2003 onwards most newly diagnosed patients with CML were treated with imatinib, and most patients already on other drugs were switched to the new drug.

Until the 1990's cancer registrations for CML were not distinguished from chronic myelomonocytic leukaemia (CMML). Whilst CMML is now registered separately from CML there is a possibility, particularly in the elderly, that registrations for CML may include some cases of CMML. This may contribute to the high rates of incidence reported in the elderly, and, as CMML has a poorer prognosis than CML, may result in an under-estimate of relative survival in older patients following a diagnosis of CML.

Age distribution

Figure 5:1 Age-specific incidence rates by age group for chronic myeloid leukaemia in males and females between 2006-2008 in England



Trends in incidence and mortality (males)

Figure 5:2 Age-standardised incidence and mortality rates for chronic myeloid leukaemia in males in the period 2001-2008 in England (3 year moving average)

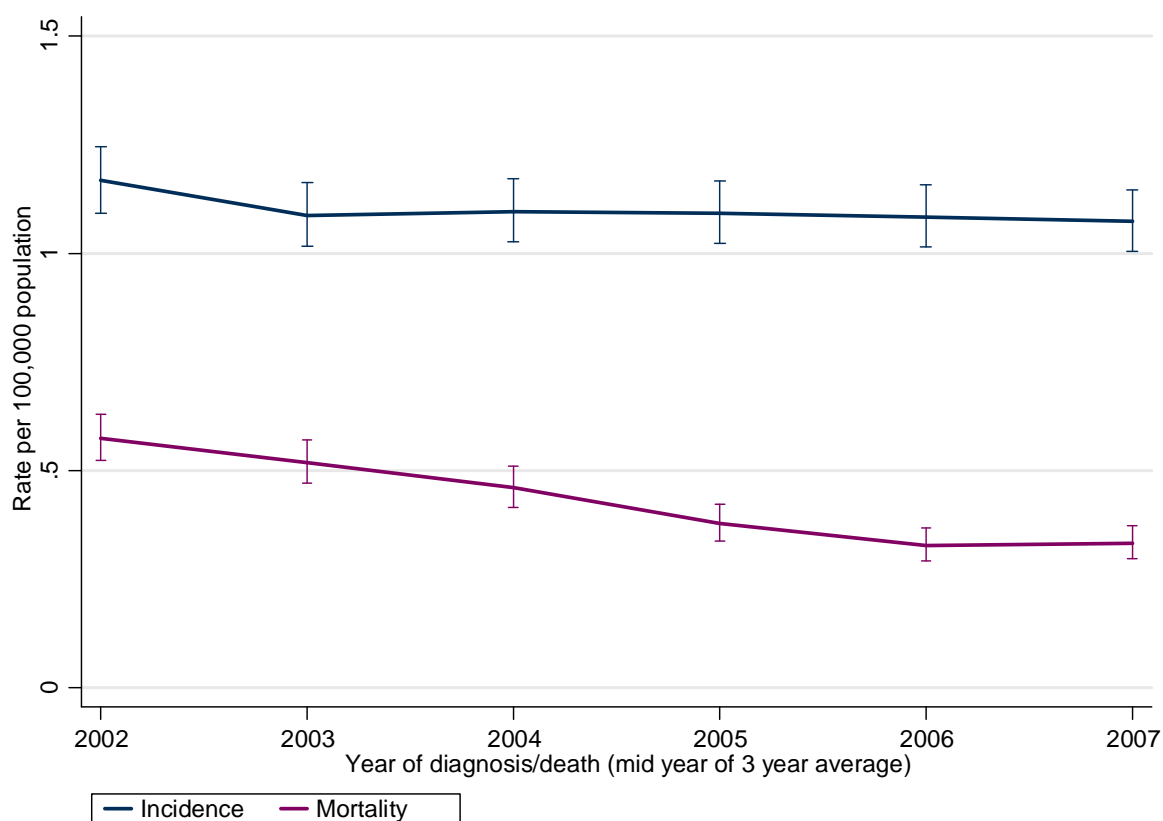


Table 5:3 Age-standardised incidence and mortality rates for chronic myeloid leukaemia in males in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	314	1.2	1.1	1.3	163	0.6	0.5	0.6
2002-2004	301	1.1	1.0	1.2	149	0.5	0.5	0.6
2003-2005	308	1.1	1.0	1.2	136	0.5	0.4	0.5
2004-2006	311	1.1	1.0	1.2	114	0.4	0.3	0.4
2005-2007	311	1.1	1.0	1.2	102	0.3	0.3	0.4
2006-2008	310	1.1	1.0	1.2	105	0.3	0.3	0.4

*3 year moving average

Trends in incidence and mortality (females)

Figure 5:4 Age-standardised incidence and mortality rates for chronic myeloid leukaemia in females in the period 2001-2008 in England (3 year moving average)

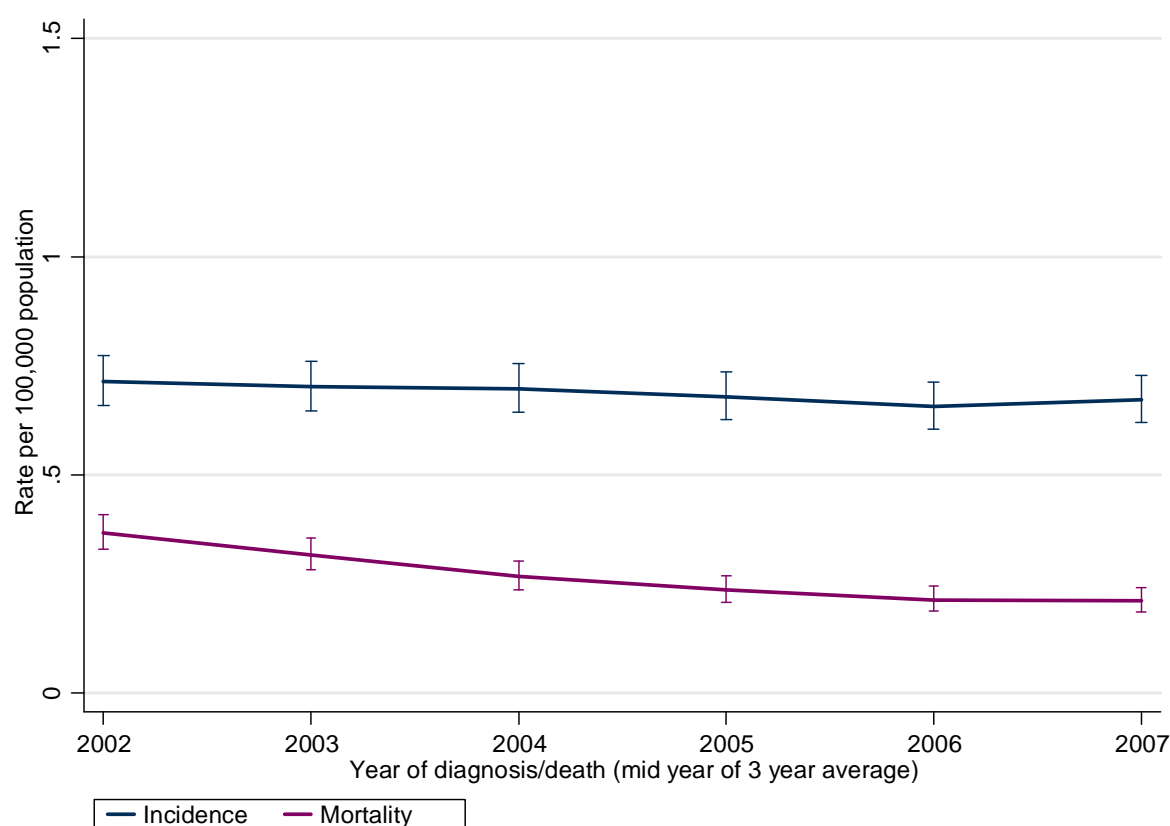


Table 5:5 Age-standardised incidence and mortality rates for chronic myeloid leukaemia in females in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	238	0.7	0.7	0.8	140	0.4	0.3	0.4
2002-2004	234	0.7	0.7	0.8	126	0.3	0.3	0.4
2003-2005	236	0.7	0.6	0.8	110	0.3	0.2	0.3
2004-2006	234	0.7	0.6	0.7	101	0.2	0.2	0.3
2005-2007	231	0.7	0.6	0.7	92	0.2	0.2	0.2
2006-2008	234	0.7	0.6	0.7	96	0.2	0.2	0.2

*3 year moving average

Trends in survival (males)

Figure 5:6 Trends in relative survival rates for chronic myeloid leukaemia in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

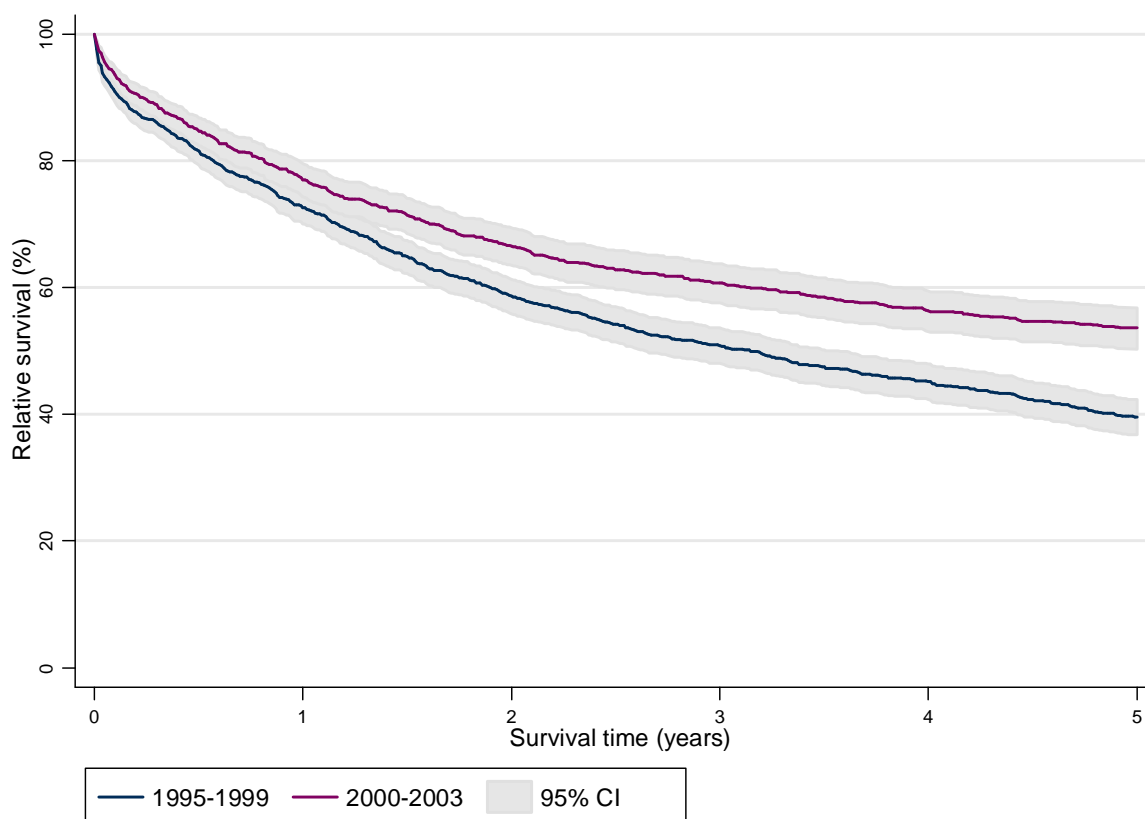


Table 5:7 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003, followed up to the end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	72.4	69.9	74.8	1,541	484	77.3	74.6	79.8	1,181	312
2	58.7	55.9	61.4	1,541	721	67.2	64.1	70.0	1,181	450
3	51.2	48.4	54.0	1,541	851	62.3	59.1	65.4	1,181	531
4	45.9	43.0	48.7	1,541	946	58.6	55.3	61.8	1,181	590
5	40.7	37.8	43.5	1,541	1,030	56.9	53.5	60.2	1,181	628

Figure 5:8 Trends for males (all ages) in relative survival rates for chronic myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

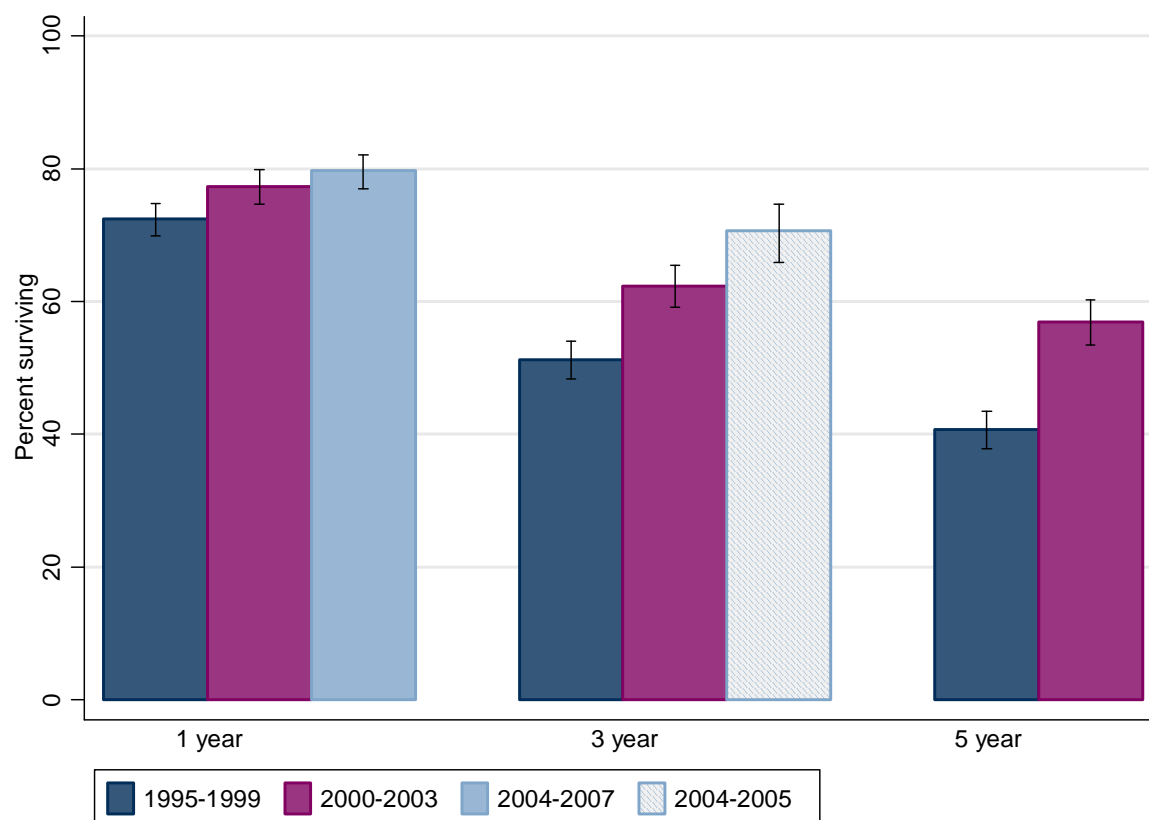


Table 5:9 Trends for males (all ages) in relative survival rates for chronic myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	72.4	69.9	74.8	1,541	484
	2000-2003	77.3	74.6	79.8	1,181	312
	2004-2007	79.7	77.0	82.1	1,161	284
3 year	1995-1999	51.2	48.4	54.0	1,541	851
	2000-2003	62.3	59.1	65.4	1,181	531
	2004-2005	70.6	65.9	74.7	568	215
5 year	1995-1999	40.7	37.8	43.5	1,541	1,030
	2000-2003	56.9	53.5	60.2	1,181	628

Trends in survival (females)

Figure 5:10 Trends in relative survival rates for chronic myeloid leukaemia in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

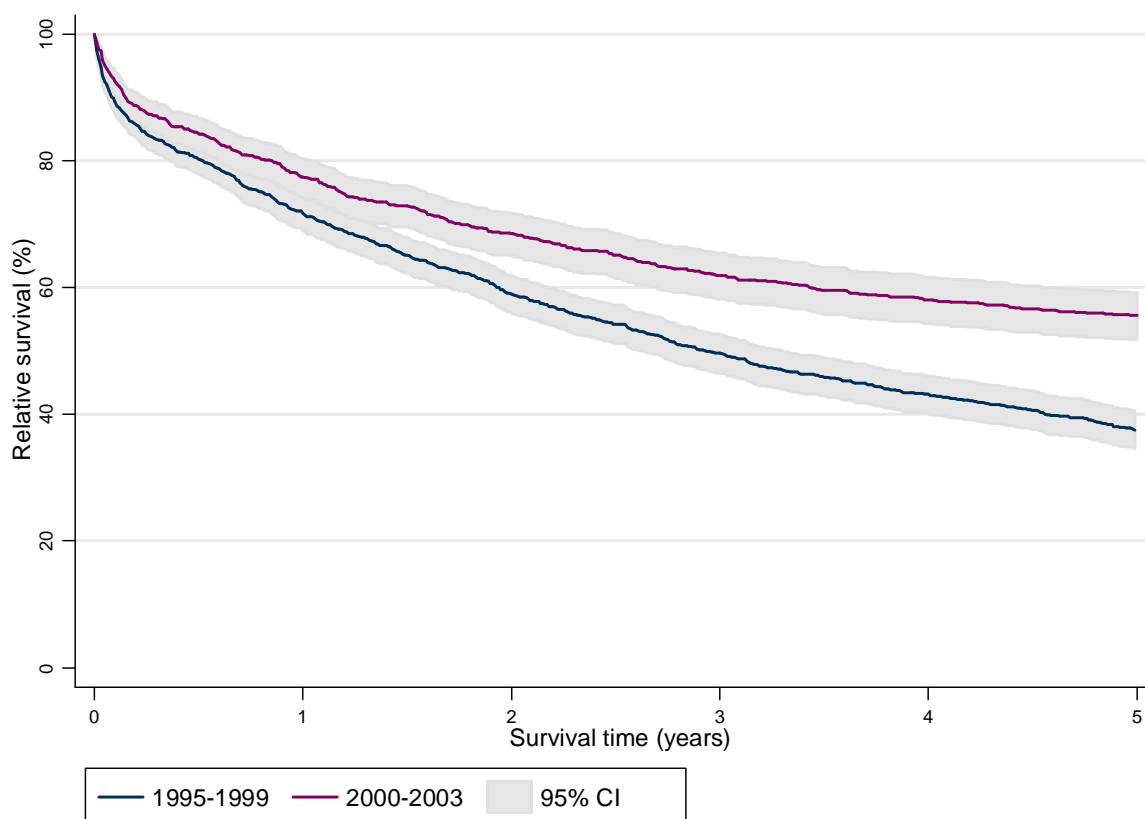


Table 5:11 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003, followed up to the end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	Cohort	Deaths		RS	95% CI	Cohort	Deaths	
1	71.5	68.8 74.0	1,310	419		77.5	74.3 80.4	889	237	
2	59.0	56.0 61.9	1,310	602		69.4	65.8 72.6	889	325	
3	49.8	46.7 52.7	1,310	737		63.4	59.7 66.9	889	393	
4	43.7	40.7 46.7	1,310	822		60.4	56.5 64.0	889	432	
5	38.4	35.4 41.4	1,310	892		58.7	54.8 62.4	889	457	

Figure 5:12 Trends for females in relative survival rates for chronic myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

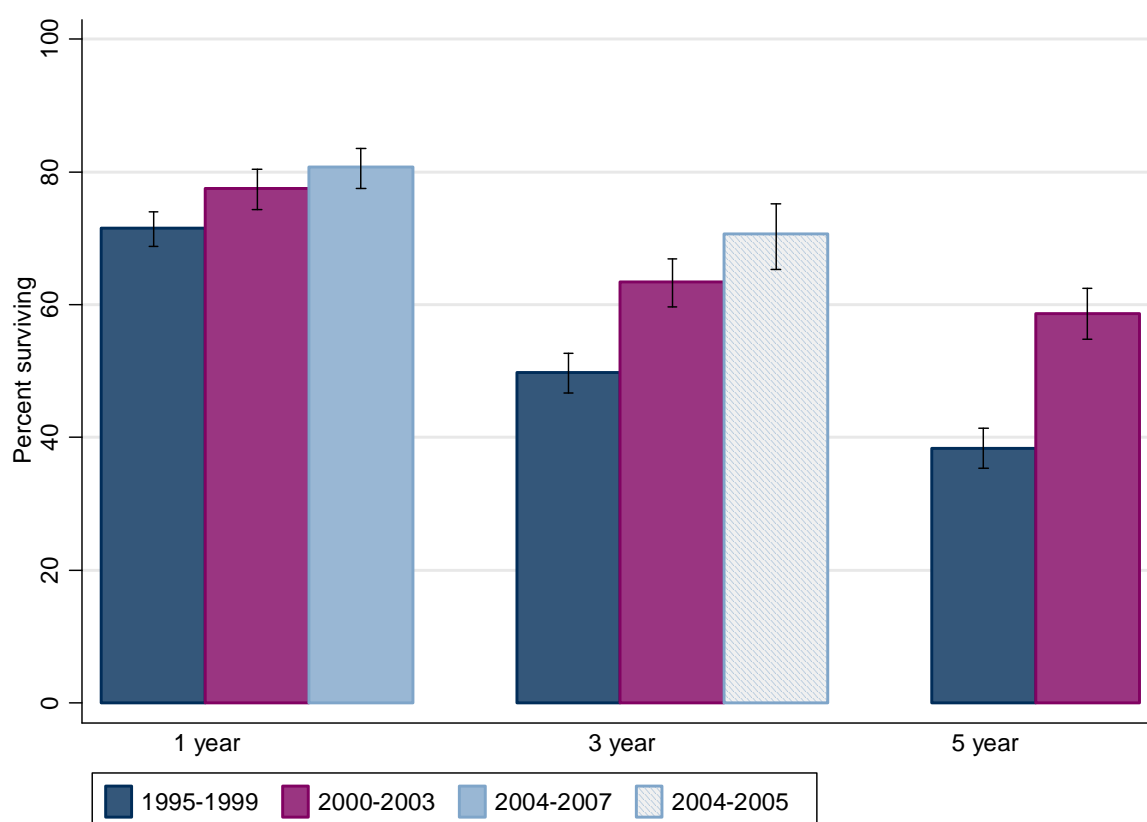


Table 5:13 Trends for females in relative survival rates for chronic myeloid leukaemia diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	71.5	68.8	74.0	1,310	419
	2000-2003	77.5	74.3	80.4	889	237
	2004-2007	80.7	77.5	83.5	854	203
3 year	1995-1999	49.8	46.7	52.7	1,310	737
	2000-2003	63.4	59.7	66.9	889	393
	2004-2005	70.6	65.3	75.2	429	159
5 year	1995-1999	38.4	35.4	41.4	1,310	892
	2000-2003	58.7	54.8	62.4	889	457

Trends in survival by age (males)

Figure 5:14 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

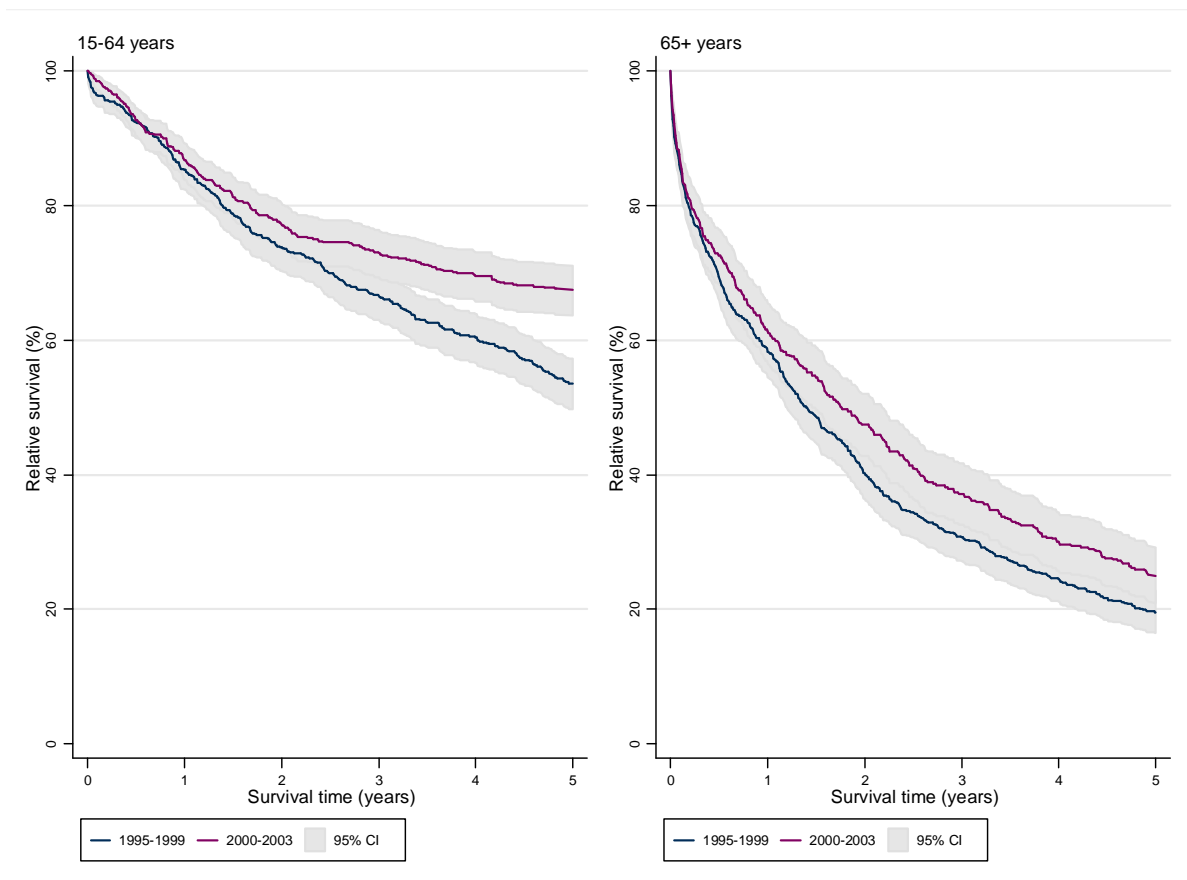


Table 5:15 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	85.5	82.6	88.0	712	108	87.0	84.0	89.4	635	86
	2	74.1	70.7	77.3	712	191	77.5	74.0	80.7	635	148
	3	67.3	63.6	70.7	712	243	73.7	70.0	77.1	635	175
	4	61.3	57.4	64.9	712	289	70.5	66.7	74.0	635	198
	5	54.7	50.8	58.5	712	338	69.0	65.0	72.6	635	211
65+ years	1	58.0	54.2	61.7	797	368	62.1	57.3	66.4	525	223
	2	40.7	36.9	44.5	797	518	49.5	44.6	54.3	525	299
	3	31.9	28.1	35.6	797	592	40.5	35.5	45.4	525	353
	4	26.6	23.0	30.3	797	639	34.4	29.5	39.3	525	389
	5	22.3	18.8	26.0	797	674	30.3	25.4	35.2	525	414

Trends in survival by age (females)

Figure 5:16 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

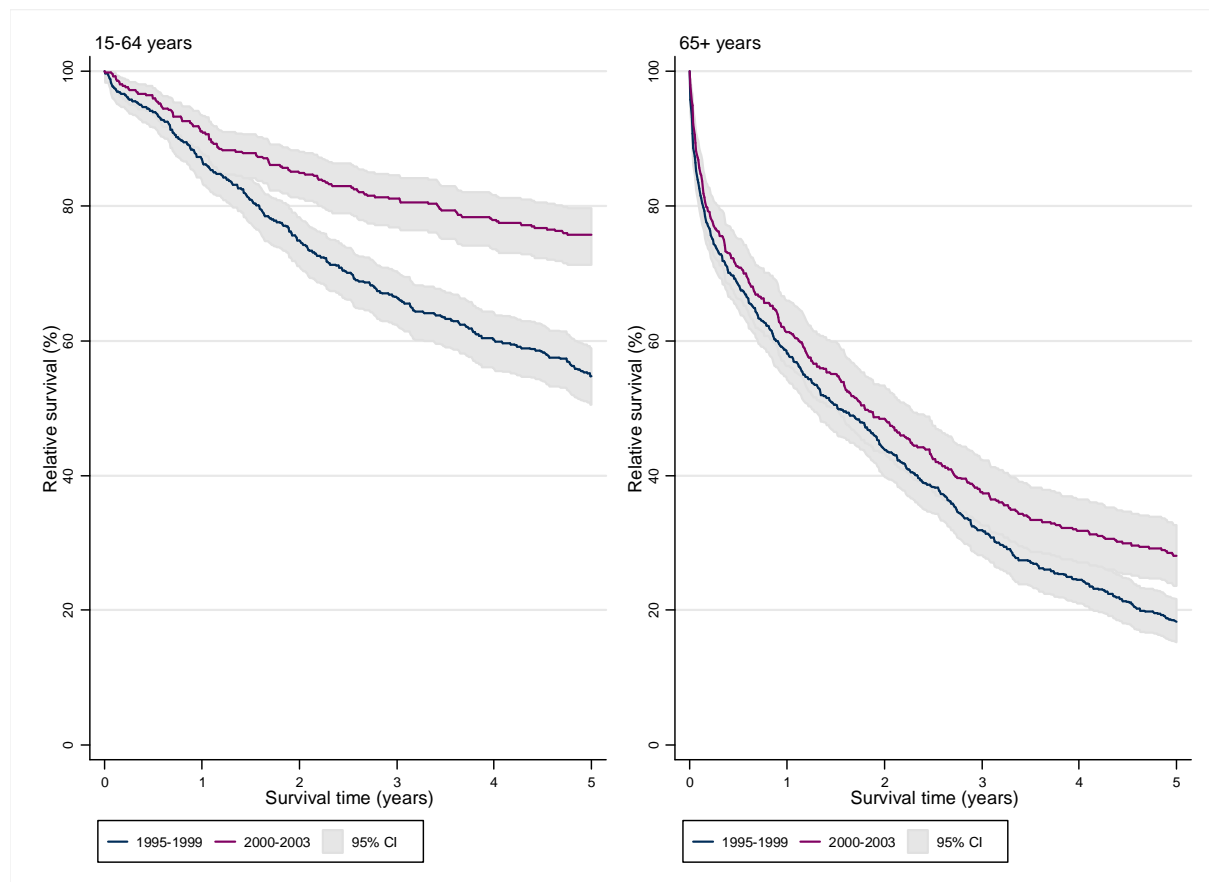


Table 5:17 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	87.1	84.0	89.7	551	73	91.3	88.1	93.7	412	37
	2	75.2	71.3	78.6	551	140	85.3	81.4	88.4	412	63
	3	66.9	62.7	70.7	551	187	81.6	77.4	85.1	412	79
	4	60.8	56.5	64.8	551	222	78.8	74.4	82.6	412	92
	5	55.6	51.3	59.8	551	252	77.0	72.5	81.0	412	101
65+ years	1	58.0	54.0	61.7	740	339	61.6	56.6	66.3	464	199
	2	44.5	40.4	48.4	740	453	50.1	44.8	55.1	464	260
	3	33.2	29.3	37.1	740	541	39.9	34.8	45.0	464	311
	4	26.1	22.5	29.9	740	591	35.3	30.1	40.4	464	337
	5	20.2	16.9	23.8	740	630	32.7	27.6	38.0	464	353

Trends in survival by age (persons)

Figure 5:18 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

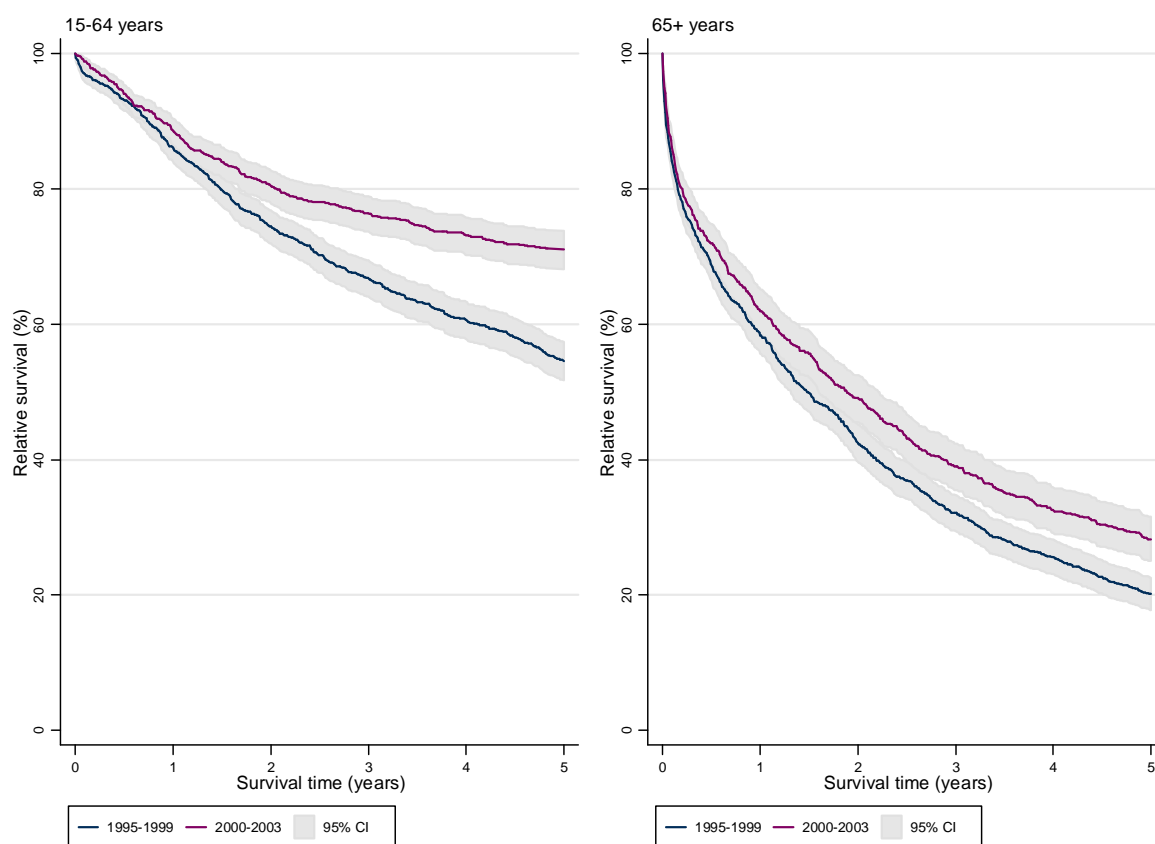


Table 5:19 Trends in relative survival rates for chronic myeloid leukaemia diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	86.2	84.1	88.0	1,263	181	88.7	86.6	90.5	1,047	123
	2	74.6	72.1	77.0	1,263	331	80.6	78.0	82.9	1,047	211
	3	67.1	64.4	69.7	1,263	430	76.9	74.1	79.4	1,047	254
	4	61.0	58.2	63.7	1,263	511	73.8	70.9	76.5	1,047	290
	5	55.1	52.2	57.9	1,263	590	72.2	69.2	74.9	1,047	312
65+ years	1	58.0	55.3	60.7	1,537	707	61.9	58.5	65.1	989	422
	2	42.5	39.8	45.3	1,537	971	49.8	46.2	53.3	989	559
	3	32.5	29.8	35.2	1,537	1,133	40.2	36.6	43.8	989	664
	4	26.4	23.8	29.0	1,537	1,230	34.8	31.2	38.4	989	726
	5	21.2	18.8	23.8	1,537	1,304	31.5	27.9	35.1	989	767

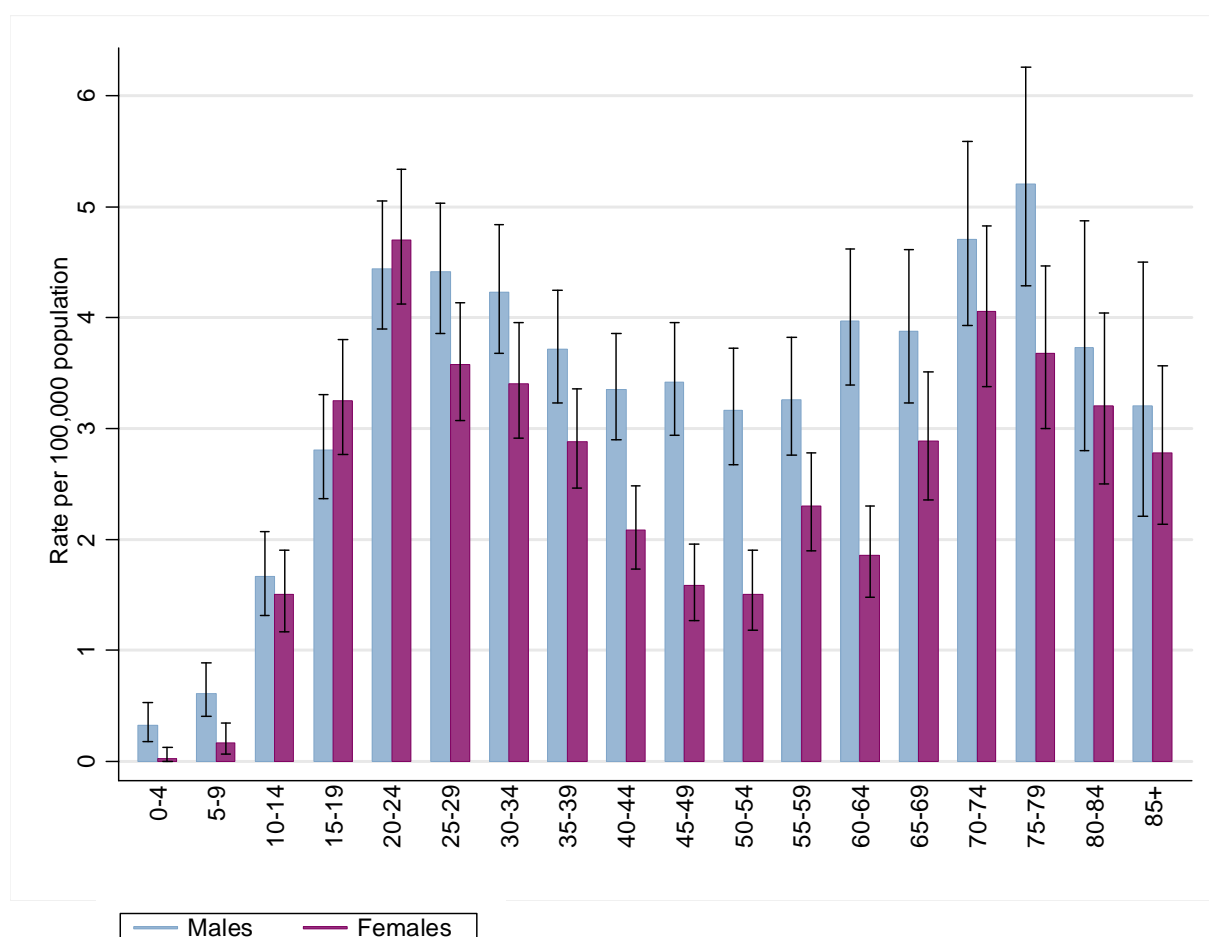
The age distribution for Hodgkin lymphoma has two peaks, the first in young adults and the second in old age. In the age range 15-24 years the incidence of disease is higher in females, but at all other ages the disease is more common in males,

Over the period reported, incidence has not changed in males, whilst there has been a rise in incidence in females. Mortality from Hodgkin lymphoma did not change between 2001 and 2008. Relative survival did not change for females, in males relative survival was very slightly lower in the later time period. Survival is good in children and young adults, but a poorer outcome is seen for elderly patients.

Treatment is with chemotherapy for most patients, radiotherapy with or without chemotherapy for a few. Whilst great advances were made in treatment of this disease in the 1970s and 1980s, progress has slowed since then. For younger patients, where survival is very good, there is considerable interest in minimising any long term adverse effects of treatment.

Age distribution

Figure 6:1 Age-specific incidence rates by age group for Hodgkin lymphoma in males and females between 2006-2008 in England



Trends in incidence and mortality (males)

Figure 6:2 Age-standardised incidence and mortality rates for Hodgkin lymphoma in males in the period 2001-2008 in England (3 year moving average)

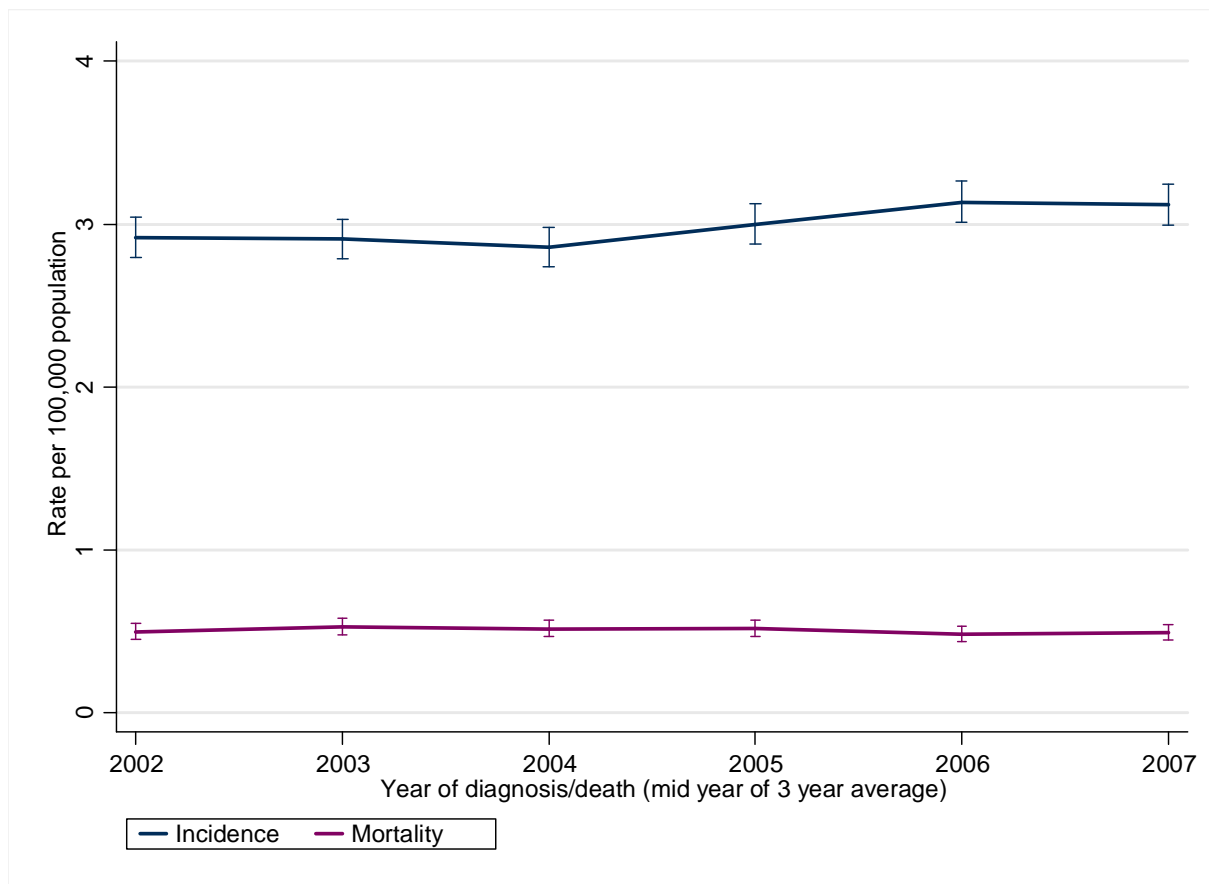


Table 6:3 Age-standardised incidence and mortality rates for Hodgkin lymphoma in males in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	729	2.9	2.8	3.0	135	0.5	0.5	0.6
2002-2004	735	2.9	2.8	3.0	147	0.5	0.5	0.6
2003-2005	733	2.9	2.7	3.0	146	0.5	0.5	0.6
2004-2006	772	3.0	2.9	3.1	148	0.5	0.5	0.6
2005-2007	814	3.1	3.0	3.3	140	0.5	0.4	0.5
2006-2008	816	3.1	3.0	3.3	144	0.5	0.4	0.5

*3 year moving average

Trends in incidence and mortality (females)

Figure 6:4 Age-standardised incidence and mortality rates for Hodgkin lymphoma in females in the period 2001-2008 in England (3 year moving average)

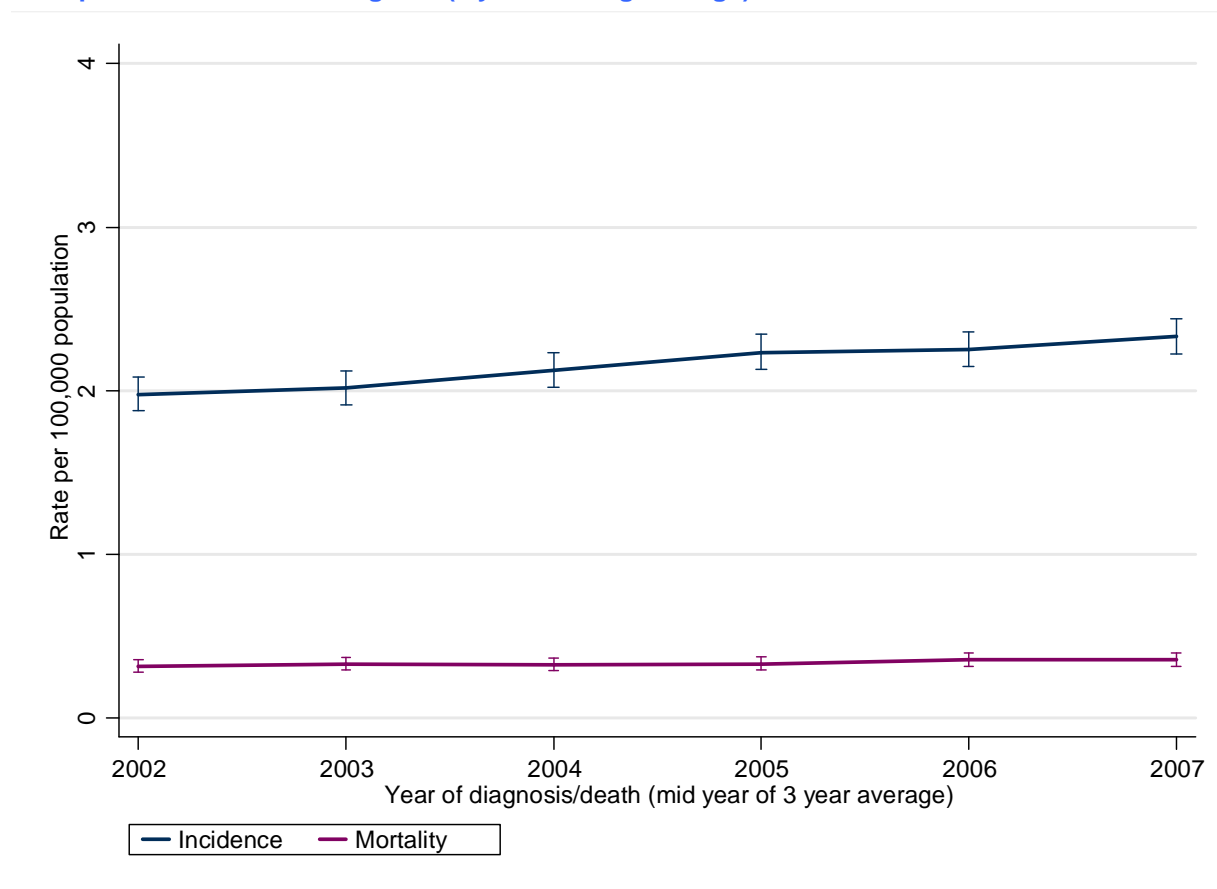


Table 6:5 Age-standardised incidence and mortality rates for Hodgkin lymphoma in females in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	521	2.0	1.9	2.1	103	0.3	0.3	0.4
2002-2004	531	2.0	1.9	2.1	108	0.3	0.3	0.4
2003-2005	563	2.1	2.0	2.2	107	0.3	0.3	0.4
2004-2006	604	2.2	2.1	2.3	111	0.3	0.3	0.4
2005-2007	617	2.3	2.2	2.4	120	0.4	0.3	0.4
2006-2008	641	2.3	2.2	2.4	125	0.4	0.3	0.4

*3 year moving average

Trends in survival (males)

Figure 6:6 Trends in relative survival rates for Hodgkin lymphoma in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

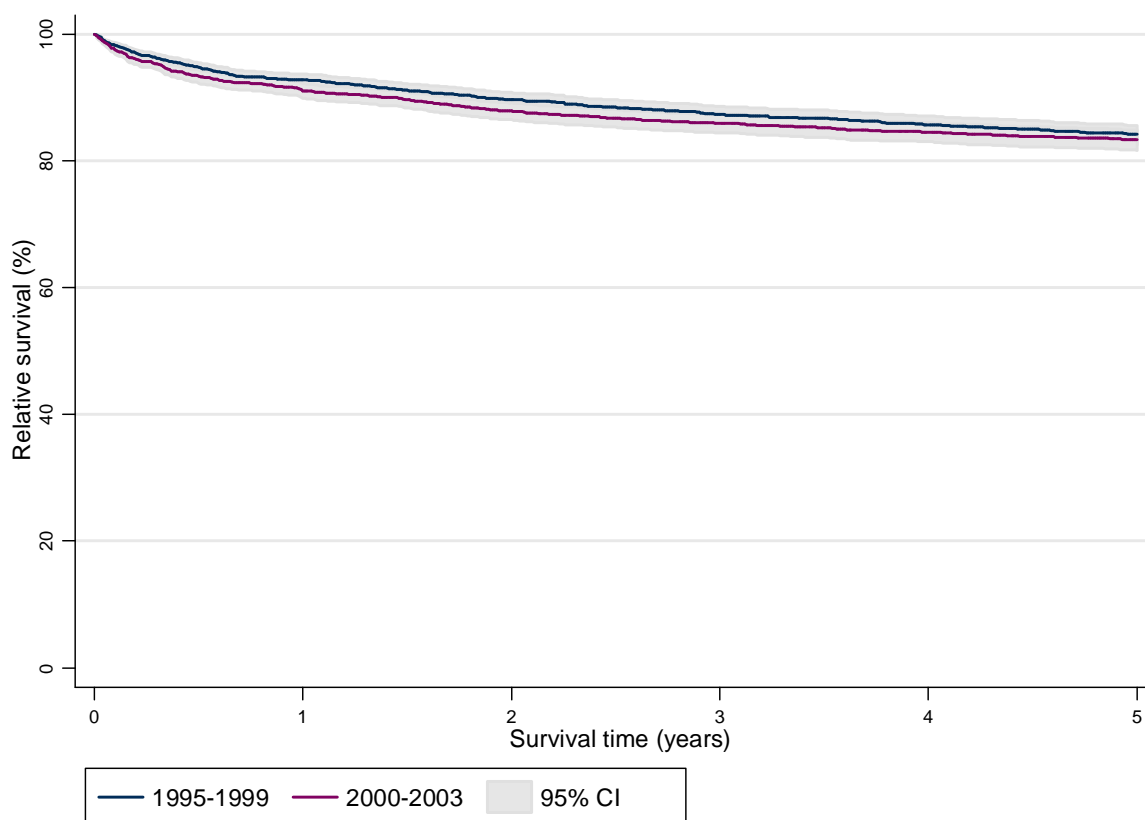


Table 6:7 Trends in relative survival rates for Hodgkin lymphoma in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	92.8	91.8	93.8	3,308	317	91.1	89.9	92.2	2,923	330
2	89.9	88.6	91.0	3,308	450	88.1	86.7	89.3	2,923	449
3	87.8	86.4	89.0	3,308	561	86.4	84.9	87.7	2,923	524
4	86.3	84.9	87.6	3,308	636	85.1	83.6	86.5	2,923	591
5	84.9	83.4	86.2	3,308	713	84.0	82.4	85.5	2,923	648

Figure 6:8 Trends for males (all ages) in relative survival rates for Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

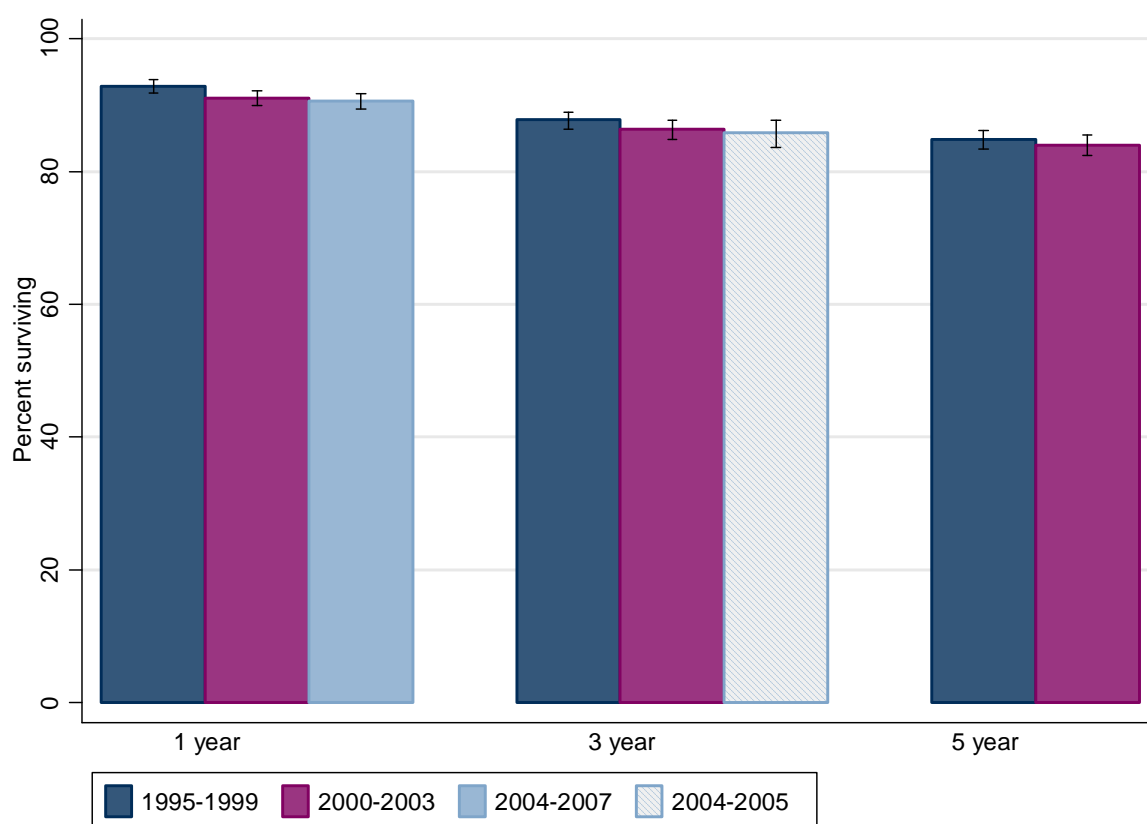


Table 6:9 Trends for males (all ages) in relative survival rates for Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	92.8	91.8	93.8	3,308	317
	2000-2003	91.1	89.9	92.2	2,923	330
	2004-2007	90.6	89.4	91.7	3,138	380
3 year	1995-1999	87.8	86.4	89.0	3,308	561
	2000-2003	86.4	84.9	87.7	2,923	524
	2004-2005	85.8	83.6	87.7	1,504	292
5 year	1995-1999	84.9	83.4	86.2	3,308	713
	2000-2003	84.0	82.4	85.5	2,923	648

Trends in survival (females)

Figure 6:10 Trends in relative survival rates for Hodgkin lymphoma in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

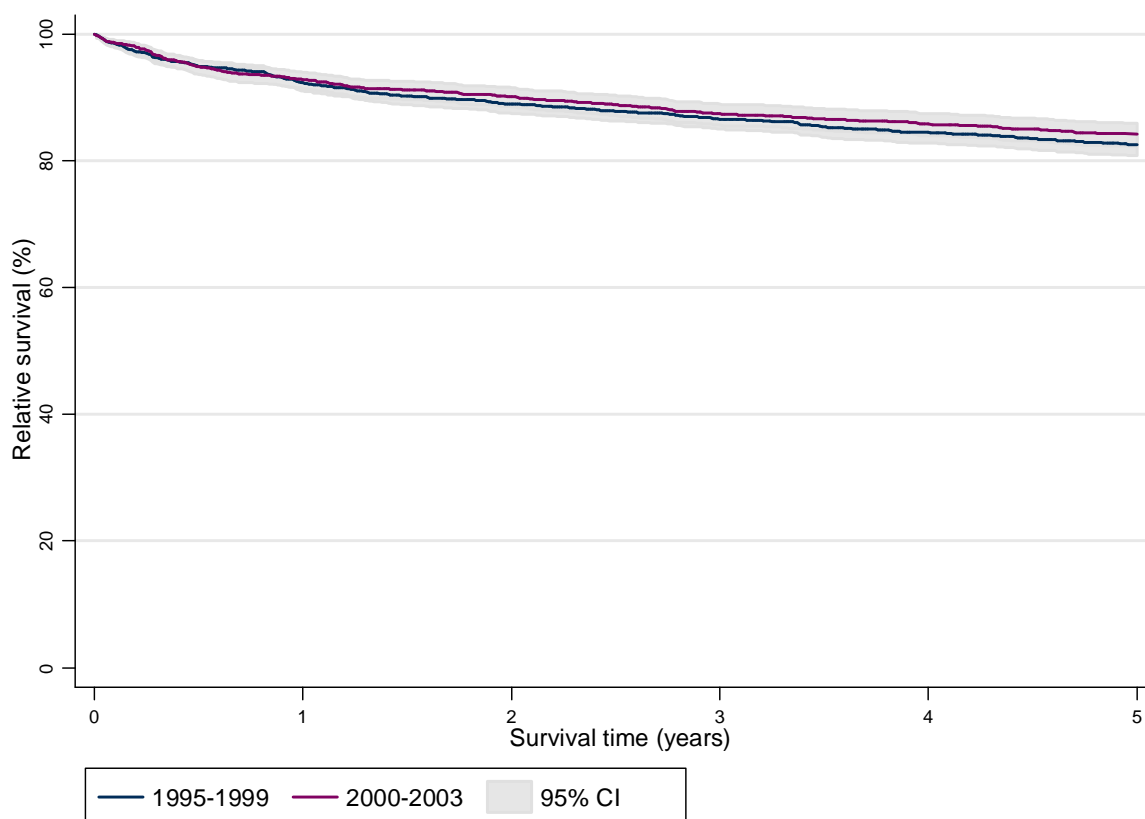


Table 6:11 Trends in relative survival rates for Hodgkin lymphoma in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	92.4	91.2	93.5	2,536	253	93.0	91.6	94.1	2,067	200
2	89.2	87.8	90.5	2,536	362	90.6	89.0	91.9	2,067	273
3	87.0	85.4	88.4	2,536	440	88.1	86.4	89.6	2,067	343
4	85.0	83.4	86.5	2,536	506	86.8	85.0	88.4	2,067	383
5	83.5	81.8	85.1	2,536	564	85.6	83.7	87.2	2,067	423

Figure 6:12 Trends for females (all ages) in relative survival rates for Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

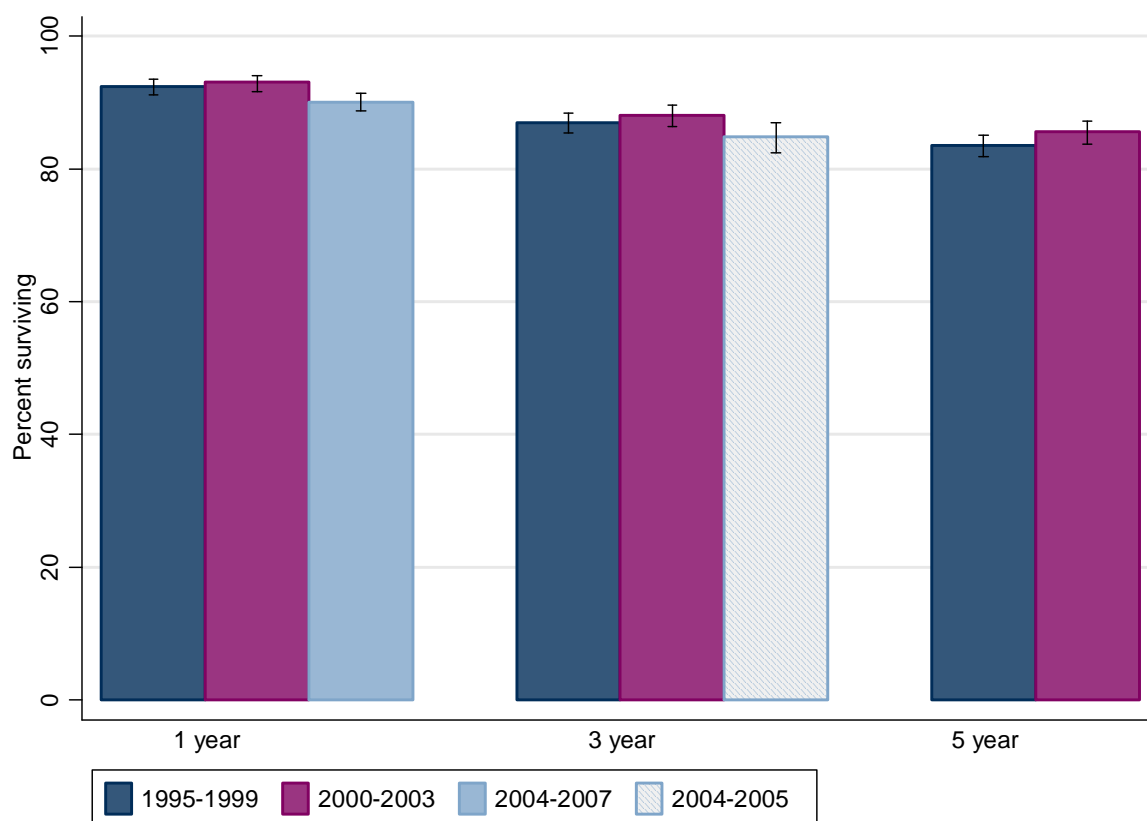


Table 6:13 Trends for females (all ages) in relative survival rates for Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI			Cohort	Deaths
1 year	1995-1999	92.4	91.2	93.5		2,536	253
	2000-2003	93.0	91.6	94.1		2,067	200
	2004-2007	90.1	88.7	91.4		2,412	296
3 year	1995-1999	87.0	85.4	88.4		2,536	440
	2000-2003	88.1	86.4	89.6		2,067	343
	2004-2005	84.8	82.4	87.0		1,156	223
5 year	1995-1999	83.5	81.8	85.1		2,536	564
	2000-2003	85.6	83.7	87.2		2,067	423

Trends in survival by age (males)

Figure 6:14 Trends in relative survival rates for Hodgkin lymphoma diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

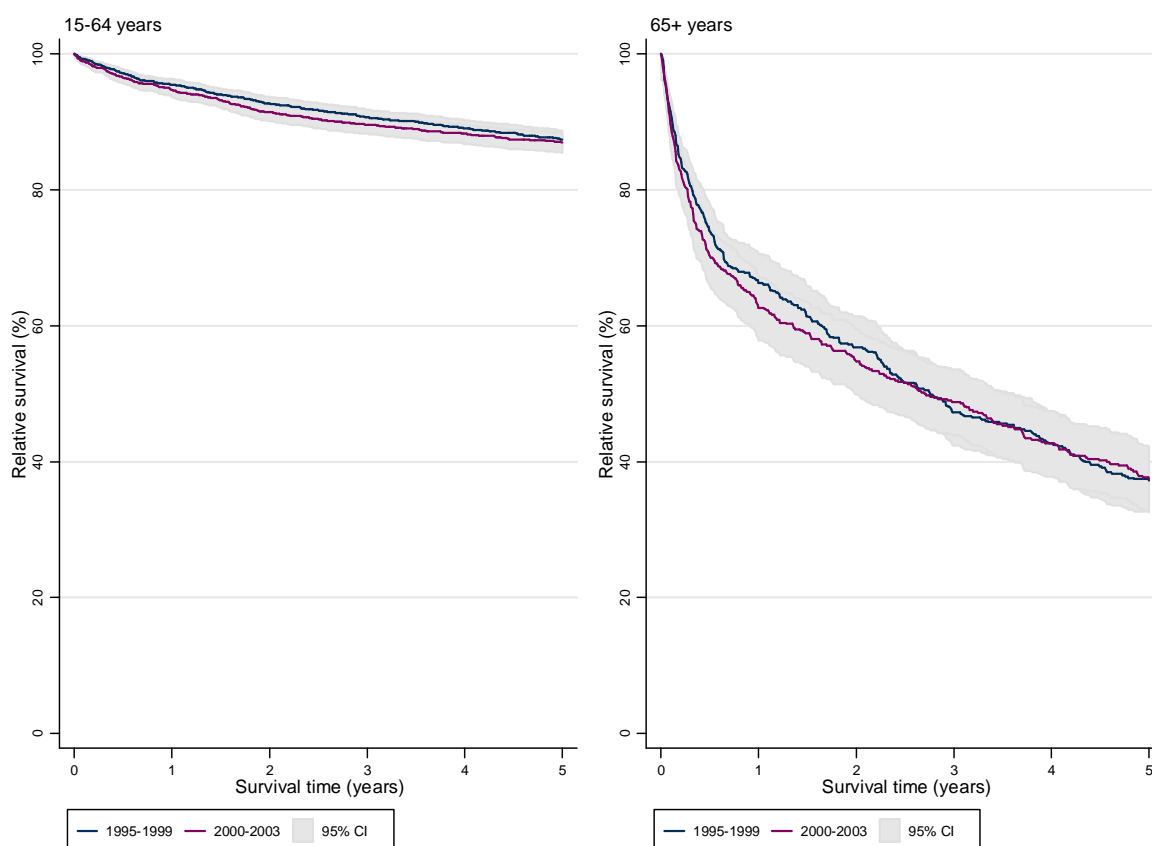


Table 6:15 Trends in relative survival rates for Hodgkin lymphoma diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	95.6	94.6	96.3	2,625	134	94.8	93.8	95.7	2,291	132
	2	92.9	91.7	93.8	2,625	214	91.8	90.5	92.9	2,291	211
	3	91.0	89.8	92.2	2,625	274	90.1	88.7	91.3	2,291	255
	4	89.7	88.3	90.9	2,625	321	89.0	87.6	90.3	2,291	290
	5	88.2	86.8	89.5	2,625	369	88.0	86.5	89.4	2,291	322
65+ years	1	66.8	62.1	71.1	495	183	63.2	58.4	67.7	477	193
	2	58.9	53.9	63.6	495	233	57.4	52.2	62.2	477	233
	3	50.9	45.7	55.8	495	282	52.7	47.4	57.7	477	263
	4	48.0	42.6	53.2	495	306	48.2	42.7	53.4	477	293
	5	43.8	38.3	49.1	495	333	44.2	38.6	49.6	477	318

NB. 0-14 age group is not reported because of small numbers

To enable smooth curves, the intervals adopted in the survival analysis are closer together than those used to produce the tables; hence the annual survival point estimates may vary between the graphs and tables.

Trends in survival by age (females)

Figure 6:16 Trends in relative survival rates for Hodgkin lymphoma diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

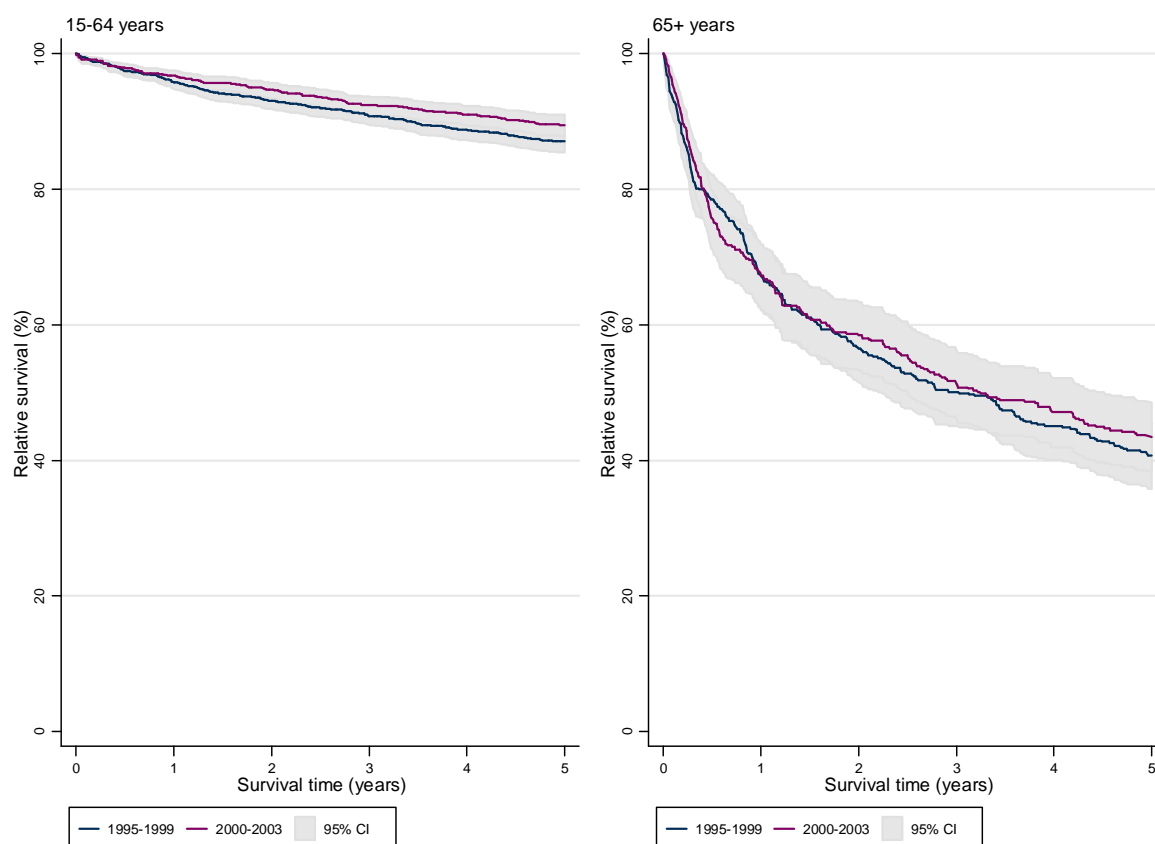


Table 6:17 Trends in relative survival rates for Hodgkin lymphoma diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	95.9	94.9	96.8	1,974	88	96.8	95.8	97.6	1,565	54
	2	93.3	92.1	94.4	1,974	144	95.0	93.7	96.0	1,565	87
	3	91.2	89.8	92.4	1,974	191	92.9	91.4	94.1	1,565	123
	4	89.3	87.8	90.7	1,974	232	91.6	90.0	92.9	1,565	146
	5	87.8	86.1	89.2	1,974	269	90.3	88.6	91.7	1,565	171
65+ years	1	68.0	63.1	72.4	455	162	68.1	63.0	72.6	413	146
	2	58.4	53.2	63.2	455	214	60.8	55.3	65.8	413	184
	3	53.2	47.9	58.3	455	244	55.0	49.4	60.3	413	215
	4	49.6	44.1	54.9	455	268	52.0	46.3	57.5	413	232
	5	46.7	41.1	52.1	455	288	49.6	43.7	55.2	413	247

NB. 0-14 age group is not reported because of small numbers

Trends in survival by age (persons)

Figure 6:18 Trends in relative survival rates for Hodgkin lymphoma diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

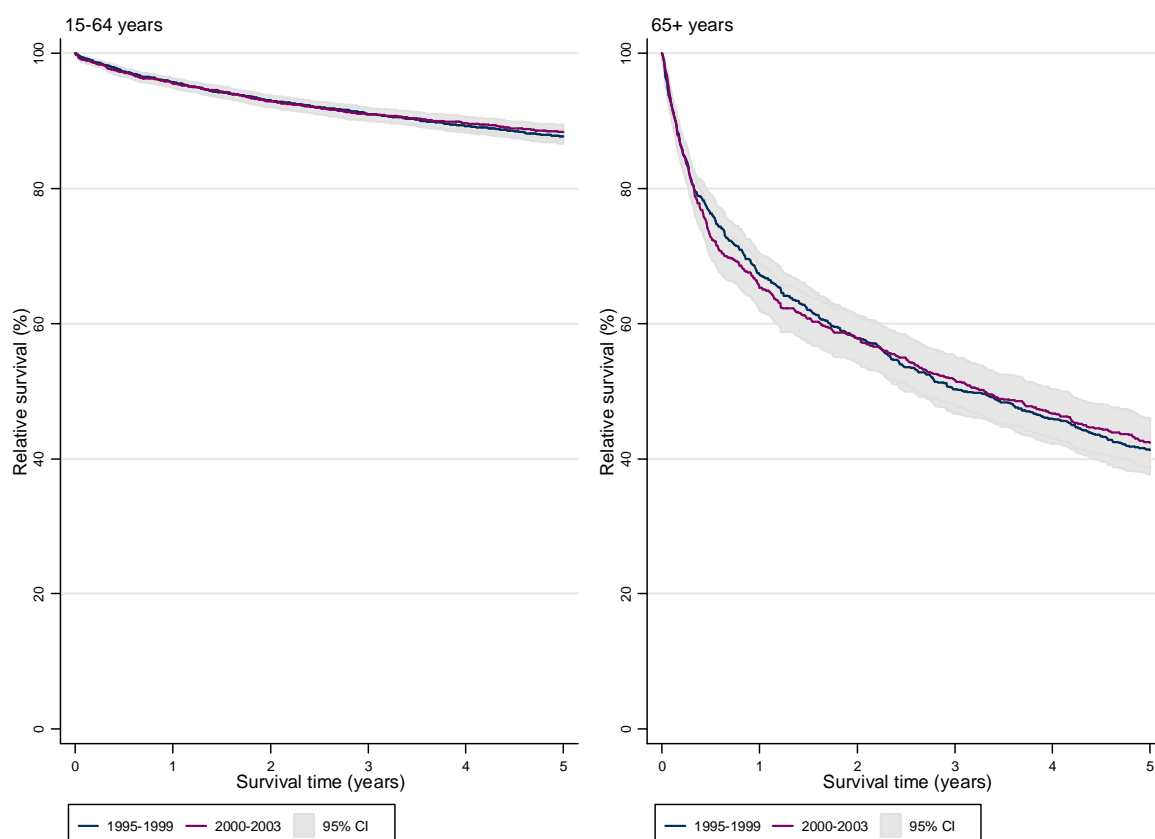


Table 6:19 Trends in relative survival rates for Hodgkin lymphoma diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	95.7	95.1	96.3	4,599	222	95.7	94.9	96.3	3,856	186
	2	93.1	92.2	93.8	4,599	358	93.1	92.2	93.9	3,856	298
	3	91.1	90.2	91.9	4,599	465	91.3	90.3	92.2	3,856	378
	4	89.5	88.5	90.4	4,599	553	90.1	89.0	91.0	3,856	436
	5	88.0	87.0	89.0	4,599	638	89.0	87.8	90.0	3,856	493
65+ years	1	67.4	64.1	70.5	950	345	65.5	62.0	68.7	890	339
	2	58.6	55.1	62.0	950	447	58.9	55.2	62.4	890	417
	3	52.0	48.3	55.6	950	526	53.8	49.9	57.4	890	478
	4	48.8	45.0	52.5	950	574	50.0	46.1	53.9	890	525
	5	45.3	41.4	49.1	950	621	46.8	42.8	50.8	890	565

NB. 0-14 age group is not reported because of small numbers

Non-Hodgkin Lymphoma

Non-Hodgkin lymphoma (NHL) is not one but several diseases, in this report they have been analysed together, but each of the different NHLs has different behaviour, prognosis and treatment and observed changes in incidence or outcome are unlikely to apply to all forms of NHL.

The incidence of NHL increases with age, with most cases occurring in the elderly, incidence rates are higher in men at all ages. Age-standardised incidence rates rose over the period reported in men and women and age-standardised mortality fell.

Relative survival improved over the period reported in both sexes and across all ages.

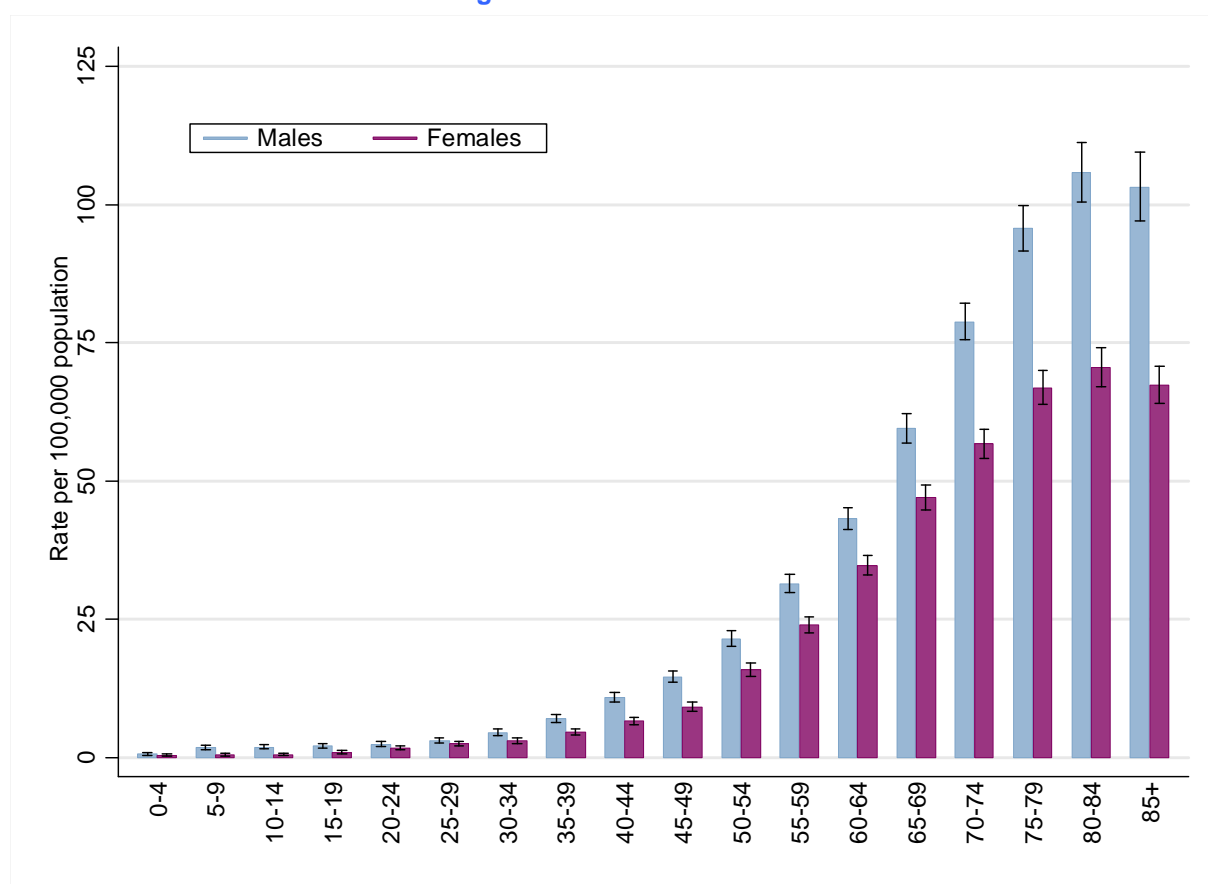
The improvement in survival is most likely to be due to the introduction of rituximab, which is now used in the treatment of the two commonest lymphomas: Diffuse large B cell lymphoma (DLBCL) and follicular lymphoma (FL) as well as some of the less common lymphomas. This drug was licensed in 1997 (USA) and 1998 (UK) and its use has increased as evidence of benefit in FL and DLBCL emerged.

NICE has released a number of Technology Appraisals (TAs), which have led to the widespread use of this drug in combination with other older chemotherapy drugs. This treatment will have begun to have an effect on survival during the period analysed in this report. It is likely that the improvement in survival has increased since then.

Registration rates for NHL have been rising since the 1970's; it is not clear exactly what the determinants of this apparent increase in incidence are. But it is important to recognise that improvements in the ascertainment of these cancers, with changing thresholds for diagnosis and greater access to diagnostic testing particularly in the elderly, is likely to contribute at least in part to this trend.

Age distribution

Figure 7:1 Age-specific incidence rates by age group for Non-Hodgkin lymphoma in males and females between 2006-2008 in England



Trends in incidence and mortality (males)

Figure 7:2 Age-standardised incidence and mortality rates for Non-Hodgkin lymphoma in males in the period 2001-2008 in England (3 year moving average)

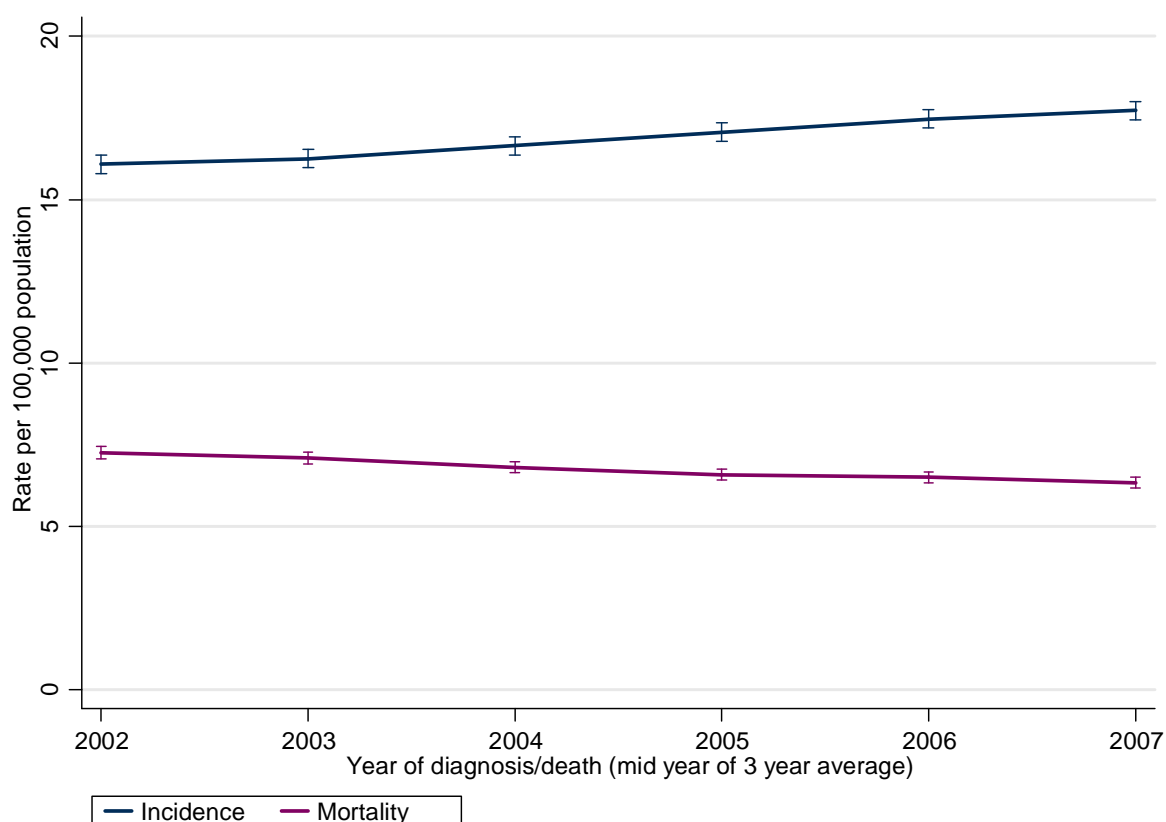


Table 7:3 Age-standardised incidence and mortality rates for Non-Hodgkin lymphoma in males in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	4,417	16.1	15.8	16.4	2,073	7.3	7.1	7.4
2002-2004	4,530	16.3	16.0	16.5	2,056	7.1	6.9	7.3
2003-2005	4,701	16.6	16.4	16.9	2,011	6.8	6.6	7.0
2004-2006	4,883	17.1	16.8	17.3	1,983	6.6	6.4	6.8
2005-2007	5,070	17.5	17.2	17.8	2,010	6.5	6.3	6.7
2006-2008	5,225	17.7	17.4	18.0	2,011	6.3	6.2	6.5

*3 year moving average

Trends in incidence and mortality (females)

Figure 7:4 Age-standardised incidence and mortality rates for Non-Hodgkin lymphoma in females in the period 2001-2008 in England (3 year moving average)

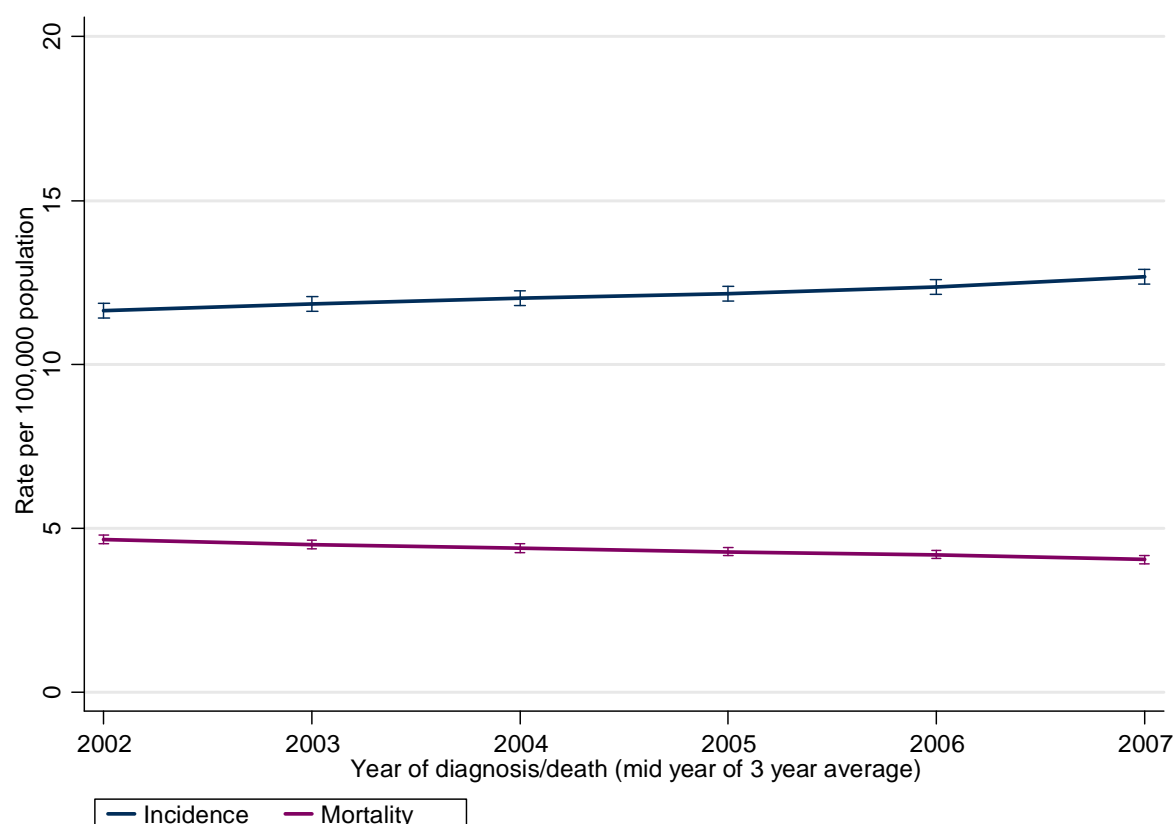


Table 7:5 Age-standardised incidence and mortality rates for Non-Hodgkin lymphoma in females in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Cases*	ASR	95% CI	
2001-2003	3,934	11.6	11.4	11.6	1,818	4.7	4.5	4.7
2002-2004	4,037	11.8	11.6	11.8	1,796	4.5	4.4	4.5
2003-2005	4,115	12.0	11.8	12.0	1,767	4.4	4.3	4.4
2004-2006	4,194	12.2	11.9	12.2	1,748	4.3	4.2	4.3
2005-2007	4,292	12.4	12.1	12.4	1,742	4.2	4.1	4.2
2006-2008	4,466	12.7	12.4	12.7	1,724	4.0	3.9	4.0

*3 year moving average

Trends in survival (males)

Figure 7:6 Trends in relative survival rates for Non-Hodgkin lymphoma in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

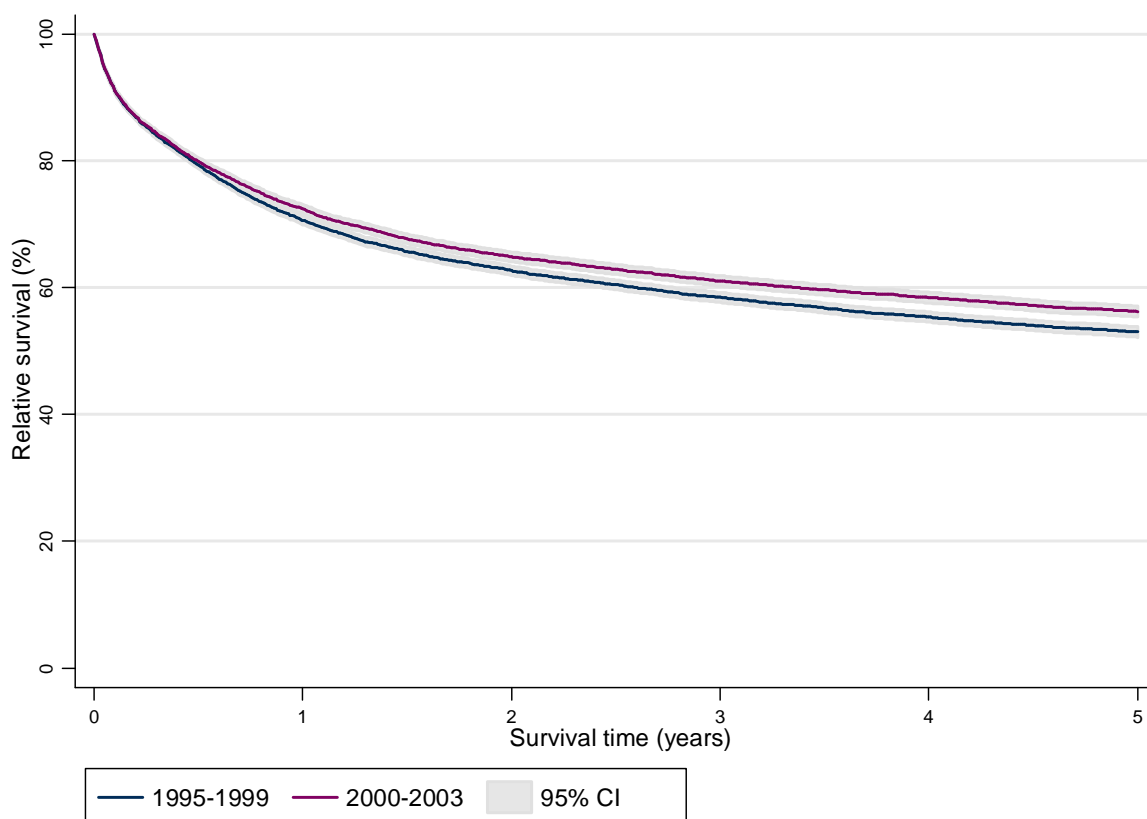


Table 7:7 Trends in relative survival rates for Non-Hodgkin lymphoma in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	70.6	69.9	71.3	18,563	6,008	72.5	71.7	73.2	16,831	5,156
2	62.7	61.9	63.4	18,563	7,814	64.9	64.1	65.7	16,831	6,748
3	58.4	57.6	59.2	18,563	8,902	61.1	60.2	61.9	16,831	7,677
4	55.4	54.6	56.2	18,563	9,740	58.5	57.6	59.3	16,831	8,379
5	53.0	52.1	53.8	18,563	10,417	56.3	55.4	57.2	16,831	8,983

Figure 7:8 Trends for males (all ages) in relative survival rates for Non-Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

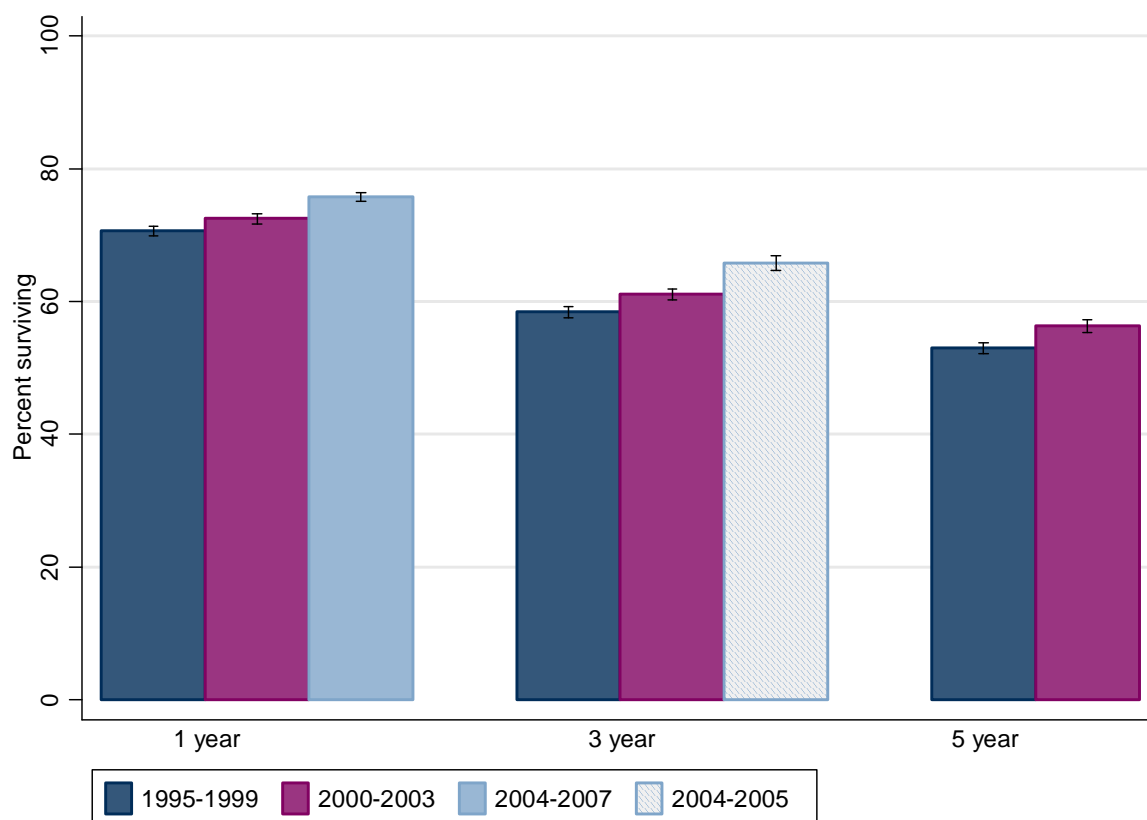


Table 7:9 Trends for males (all ages) in relative survival rates for Non-Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI		Cohort	Deaths
1 year	1995-1999	70.6	69.9	71.3	18,563	6,008
	2000-2003	72.5	71.7	73.2	16,831	5,156
	2004-2007	75.7	75.1	76.4	19,243	5,298
3 year	1995-1999	58.4	57.6	59.2	18,563	8,902
	2000-2003	61.1	60.2	61.9	16,831	7,677
	2004-2005	65.8	64.7	66.9	9,242	3,824
5 year	1995-1999	53.0	52.1	53.8	18,563	10,417
	2000-2003	56.3	55.4	57.2	16,831	8,983

Trends in survival (females)

Figure 7:10 Trends in relative survival rates for Non-Hodgkin lymphoma in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

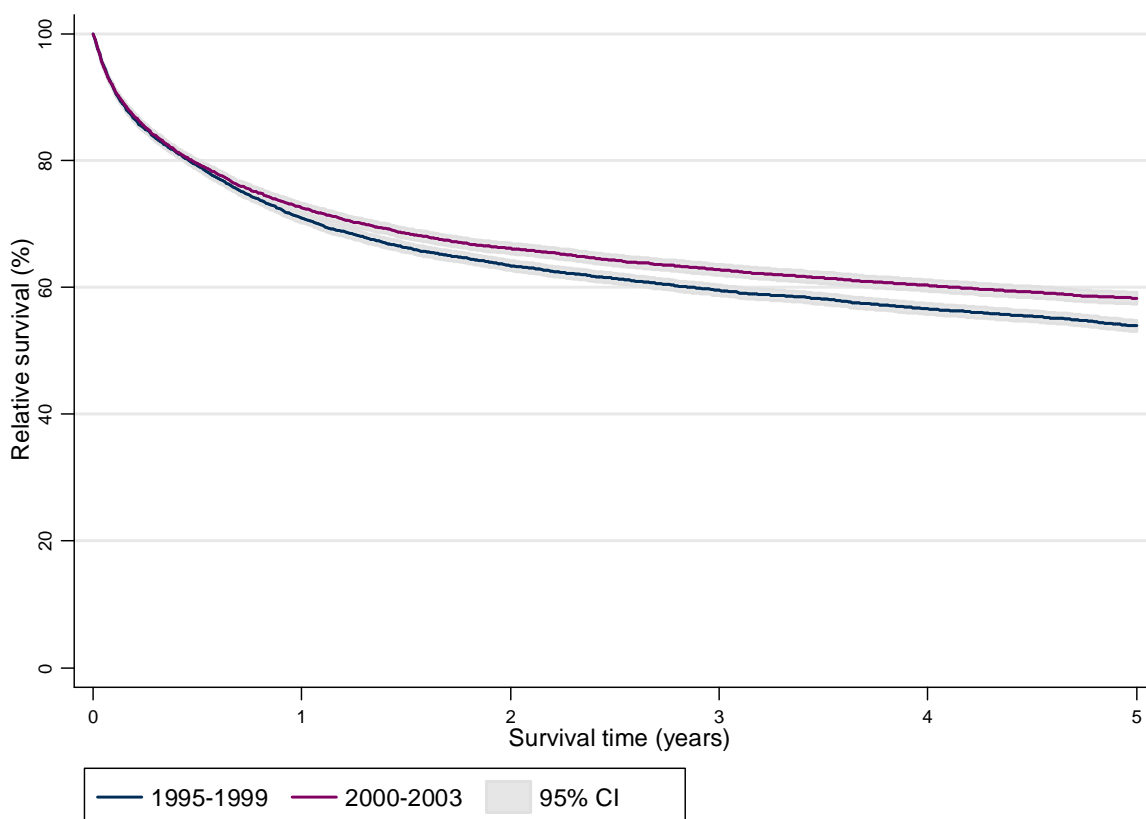


Table 7:11 Trends in relative survival rates for Non-Hodgkin lymphoma in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	70.9	70.1	71.6	16,372	5,246	72.6	71.8	73.3	14,950	4,558
2	63.4	62.6	64.2	16,372	6,755	66.1	65.3	67.0	14,950	5,783
3	59.5	58.7	60.4	16,372	7,645	62.8	61.9	63.6	14,950	6,543
4	56.6	55.8	57.5	16,372	8,345	60.4	59.5	61.2	14,950	7,119
5	53.9	53.0	54.8	16,372	8,982	58.3	57.4	59.3	14,950	7,630

Figure 7:12 Trends for females in relative survival rates for Non-Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

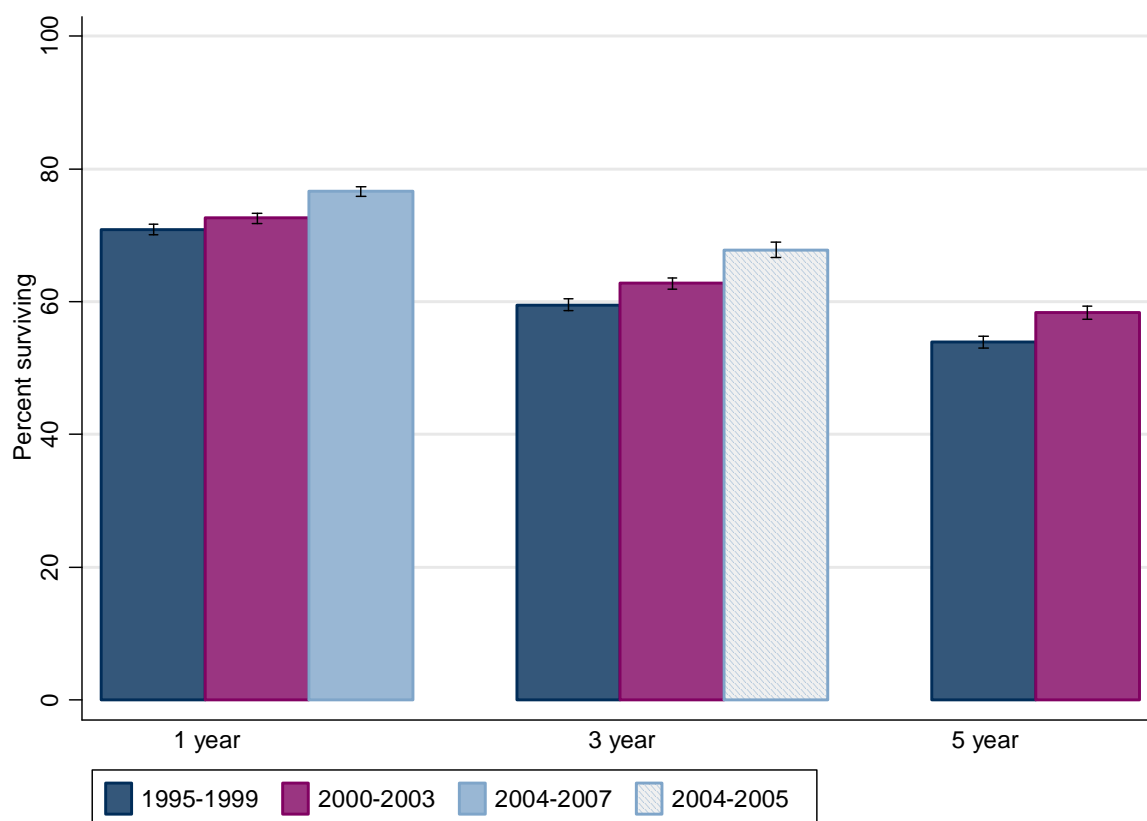


Table 7:13 Trends for females (all ages) in relative survival rates for Non-Hodgkin lymphoma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI			Cohort	Deaths
1 year	1995-1999	70.9	70.1	71.6		16,372	5,246
	2000-2003	72.6	71.8	73.3		14,950	4,558
	2004-2007	76.6	75.9	77.3		16,432	4,371
3 year	1995-1999	59.5	58.7	60.4		16,372	7,645
	2000-2003	62.8	61.9	63.6		14,950	6,543
	2004-2005	67.8	66.7	69.0		7,971	3,114
5 year	1995-1999	53.9	53.0	54.8		16,372	8,982
	2000-2003	58.3	57.4	59.3		14,950	7,630

Trends in survival by age (males)

Figure 7:14 Trends in relative survival rates for Non-Hodgkin lymphoma diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

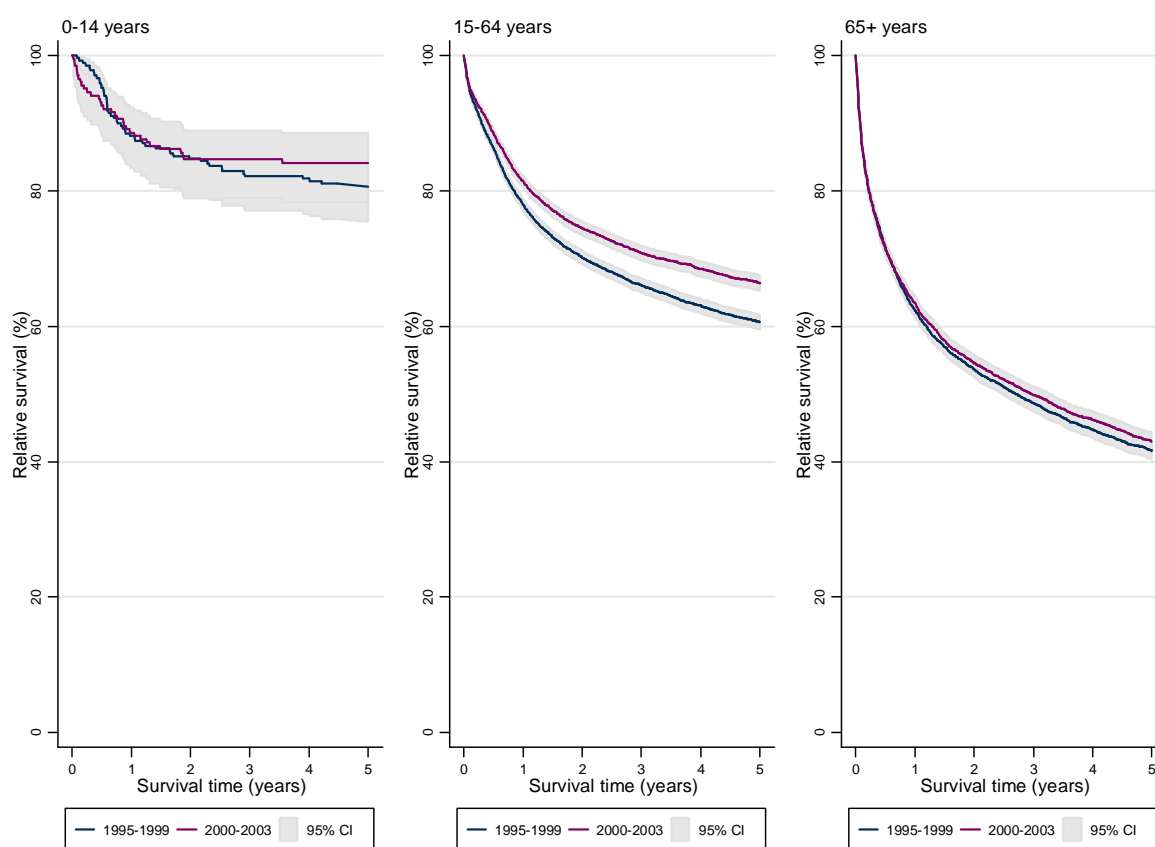


Table 7:15 Trends in relative survival rates for Non-Hodgkin lymphoma diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	88.1	83.7	91.5	269	32	88.6	83.4	92.3	202	23
	2	84.8	79.9	88.6	269	41	84.7	78.9	89.0	202	31
	3	82.2	77.1	86.3	269	48	84.7	78.9	89.0	202	31
	4	81.9	76.7	86.0	269	49	84.2	78.4	88.6	202	32
	5	80.8	75.5	85.0	269	52	84.2	78.4	88.6	202	32
15-64 years	1	77.9	77.0	78.8	8,811	2,000	81.4	80.5	82.2	7,589	1,459
	2	70.0	69.0	71.0	8,811	2,736	74.4	73.4	75.4	7,589	2,026
	3	65.9	64.9	67.0	8,811	3,143	70.8	69.7	71.8	7,589	2,346
	4	63.0	61.9	64.0	8,811	3,450	68.4	67.3	69.5	7,589	2,567
	5	60.6	59.5	61.7	8,811	3,709	66.4	65.2	67.5	7,589	2,765
65+ years	1	62.2	61.1	63.3	9,483	3,976	63.4	62.3	64.4	9,040	3,674
	2	53.5	52.3	54.6	9,483	5,037	54.5	53.3	55.6	9,040	4,691
	3	48.5	47.3	49.7	9,483	5,711	49.8	48.6	51.0	9,040	5,300
	4	44.6	43.4	45.9	9,483	6,241	46.3	45.0	47.5	9,040	5,780
	5	41.7	40.4	42.9	9,483	6,656	43.3	42.0	44.6	9,040	6,186

Trends in survival by age (females)

Figure 7:16 Trends in relative survival rates for Non-Hodgkin lymphoma diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

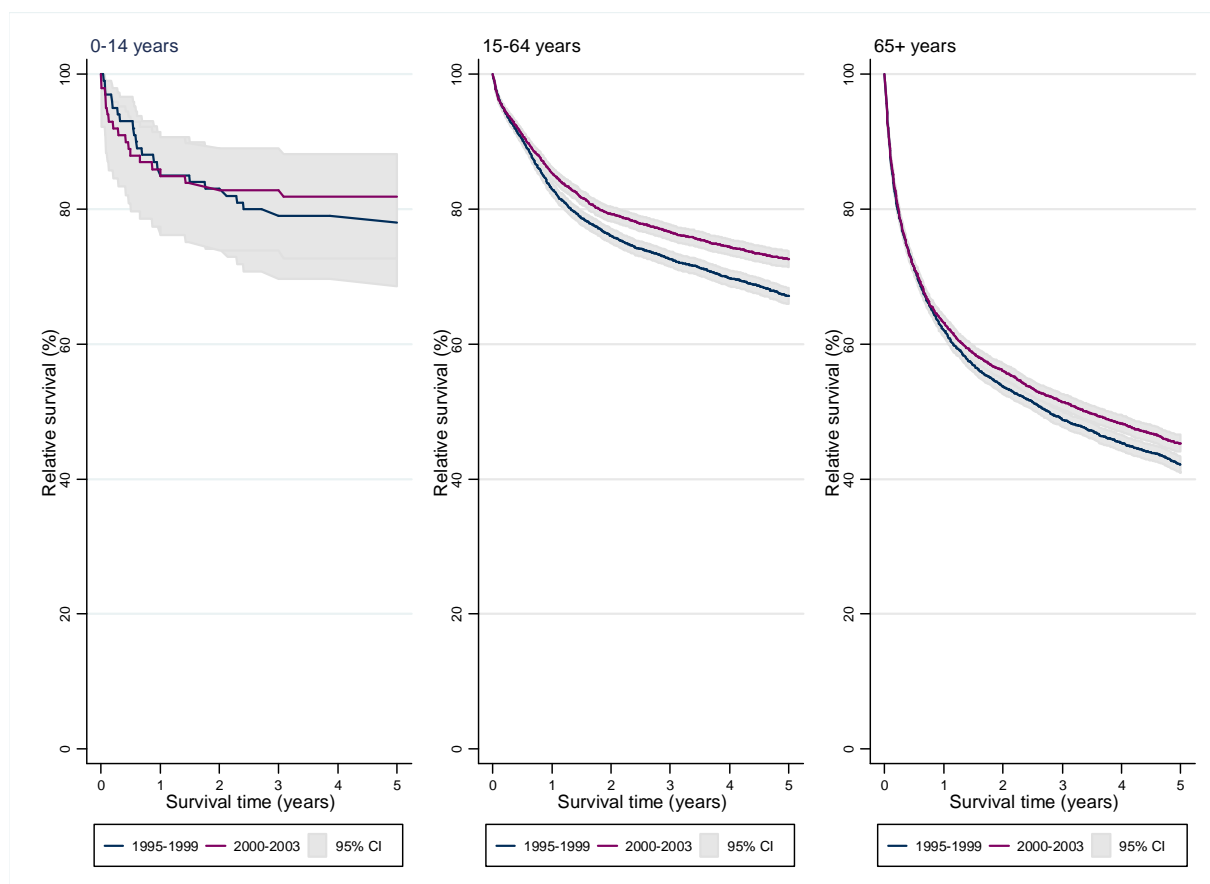


Table 7:17 Trends in relative survival rates for Non-Hodgkin lymphoma diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	85.0	76.4	90.7	100	15	85.9	77.3	91.4	99	14
	2	83.1	74.1	89.1	100	17	82.8	73.8	89.0	99	17
	3	79.0	69.7	85.8	100	21	82.8	73.8	89.0	99	17
	4	78.1	68.6	85.0	100	22	81.8	72.7	88.2	99	18
	5	78.1	68.6	85.0	100	22	81.8	72.7	88.2	99	18
15-64 years	1	82.9	81.9	83.8	6,341	1,109	85.3	84.3	86.2	5,767	873
	2	76.0	74.9	77.0	6,341	1,570	79.3	78.2	80.3	5,767	1,239
	3	72.6	71.4	73.7	6,341	1,810	76.6	75.5	77.7	5,767	1,414
	4	69.8	68.6	71.0	6,341	2,011	74.5	73.3	75.6	5,767	1,561
	5	67.2	66.0	68.4	6,341	2,202	72.8	71.5	73.9	5,767	1,687
65+ years	1	62.0	60.9	63.0	9,931	4,122	63.1	62.0	64.1	9,084	3,671
	2	53.6	52.5	54.7	9,931	5,168	55.8	54.7	57.0	9,084	4,527
	3	48.8	47.7	49.9	9,931	5,814	51.3	50.1	52.5	9,084	5,112
	4	45.4	44.3	46.6	9,931	6,312	48.2	47.0	49.4	9,084	5,540
	5	42.2	41.0	43.4	9,931	6,758	45.3	44.1	46.6	9,084	5,925

Trends in survival by age (persons)

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Figure 7:18 Trends in relative survival rates for Non-Hodgkin lymphoma diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

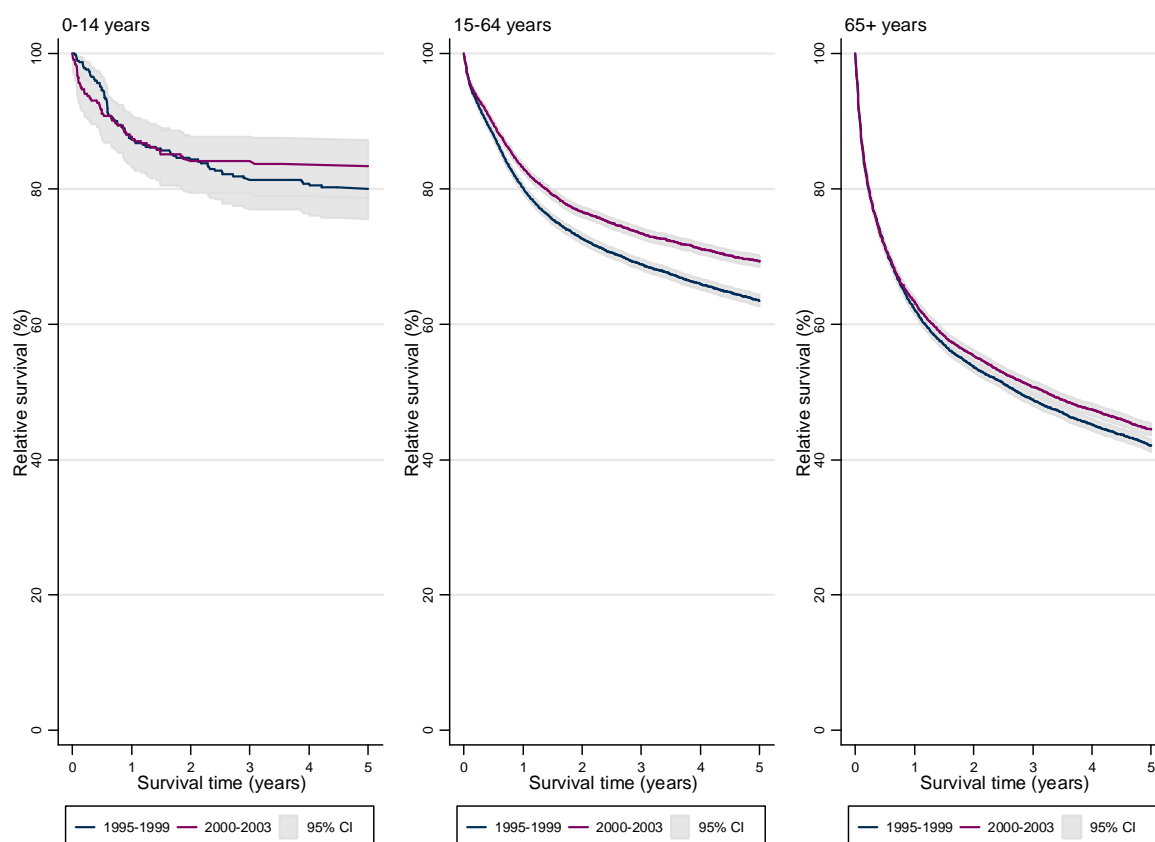


Table 7:19 Trends in relative survival rates for Non-Hodgkin lymphoma diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
0-14 years	1	87.3	83.5	90.3	369	47	87.7	83.5	91.0	301	37
	2	84.3	80.2	87.7	369	58	84.1	79.4	87.8	301	48
	3	81.4	77.0	85.0	369	69	84.1	79.4	87.8	301	48
	4	80.9	76.5	84.5	369	71	83.4	78.7	87.2	301	50
	5	80.1	75.6	83.8	369	74	83.4	78.7	87.2	301	50
15-64 years	1	80.0	79.4	80.7	15,152	3,109	83.1	82.4	83.7	13,356	2,332
	2	72.5	71.8	73.3	15,152	4,306	76.5	75.8	77.2	13,356	3,265
	3	68.8	68.0	69.5	15,152	4,953	73.3	72.5	74.1	13,356	3,760
	4	65.9	65.1	66.7	15,152	5,461	71.1	70.3	71.9	13,356	4,128
	5	63.4	62.6	64.2	15,152	5,911	69.2	68.4	70.0	13,356	4,452
65+ years	1	62.1	61.3	62.8	19,414	8,098	63.2	62.5	64.0	18,124	7,345
	2	53.5	52.7	54.3	19,414	10,205	55.2	54.3	56.0	18,124	9,218
	3	48.7	47.9	49.5	19,414	11,525	50.6	49.7	51.4	18,124	10,412
	4	45.1	44.2	45.9	19,414	12,553	47.3	46.4	48.1	18,124	11,320
	5	41.9	41.1	42.8	19,414	13,414	44.4	43.5	45.3	18,124	12,111

Myeloma is predominantly a disease of older people, with low incidence before the age of fifty; the incidence is greater in men at all ages. Over the reported period the age-standardised incidence of disease rose in men and women and age-standardised mortality fell slightly. The time period covered in this reports shows an improvement in relative survival in patients with myeloma.

The rising registration rates for myeloma may in part be due to greater ascertainment of cases, particularly in the elderly. The improvements in survival seen in the period reported are likely to be due to the increased use of autologous stem cell transplant in younger (mostly under 70 years) patients, and increasing use of the drug thalidomide.

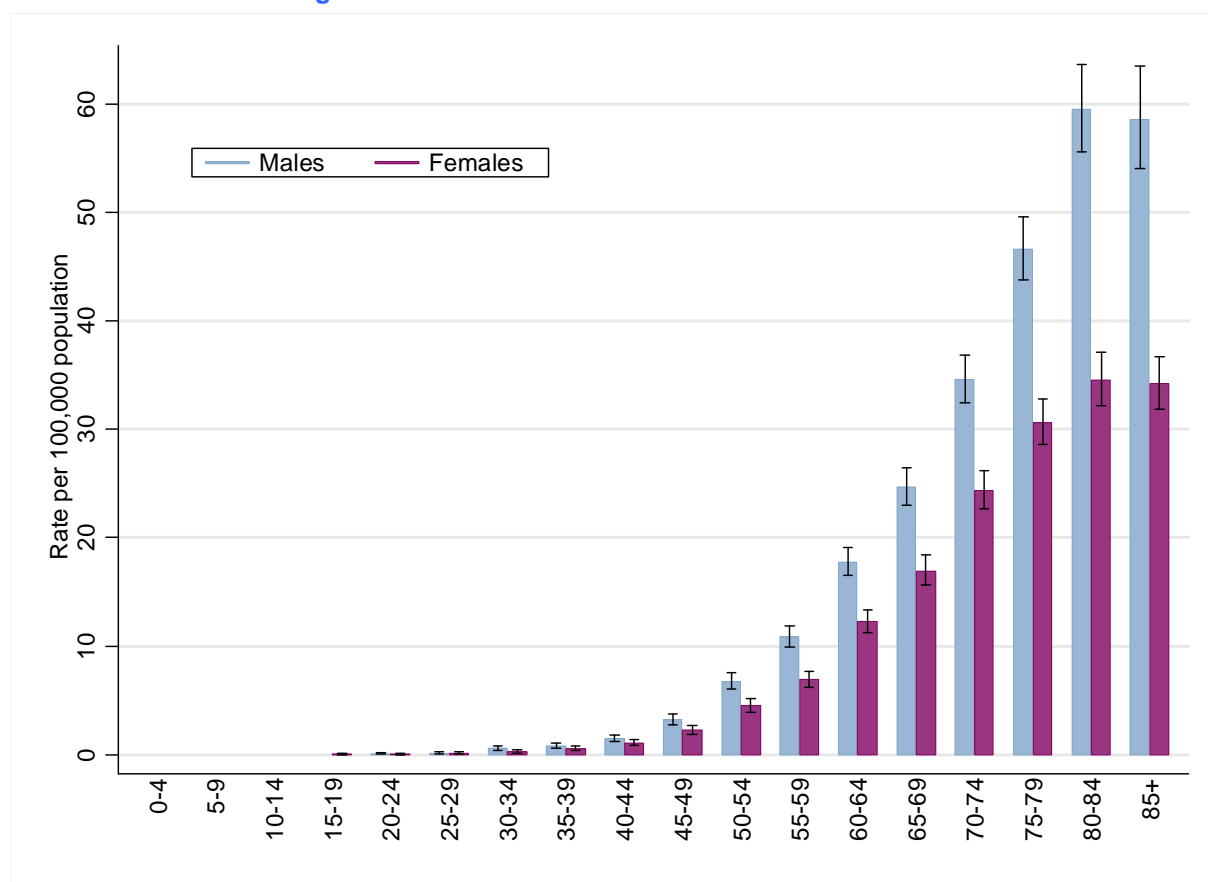
Clinical practice was influenced by three clinical trials which showed (in the relatively young patients, mostly age <70 in whom this potentially toxic treatment could be used) benefit from high dose chemotherapy with autologous stem cell transplant.

Thalidomide was increasingly used after first line chemotherapy had ceased to be beneficial, and Myeloma IX, the UK trial in which half the patients received thalidomide as part of their initial treatment (later shown, by the trial, to be beneficial) started in 2003.

More recently two more drugs bortezomib and lenalidomide have been introduced to clinical practice, with clinical trial evidence of effectiveness, and it is likely that current patient cohorts will have experienced further improvements in survival.

Age distribution

Figure 8:1 Age-specific incidence rates by age group for myeloma in males and females between 2006-2008 in England



Trends in incidence and mortality (males)

Figure 8:2 Age-standardised incidence and mortality rates for myeloma in males in the period 2001-2008 in England (3 year moving average)

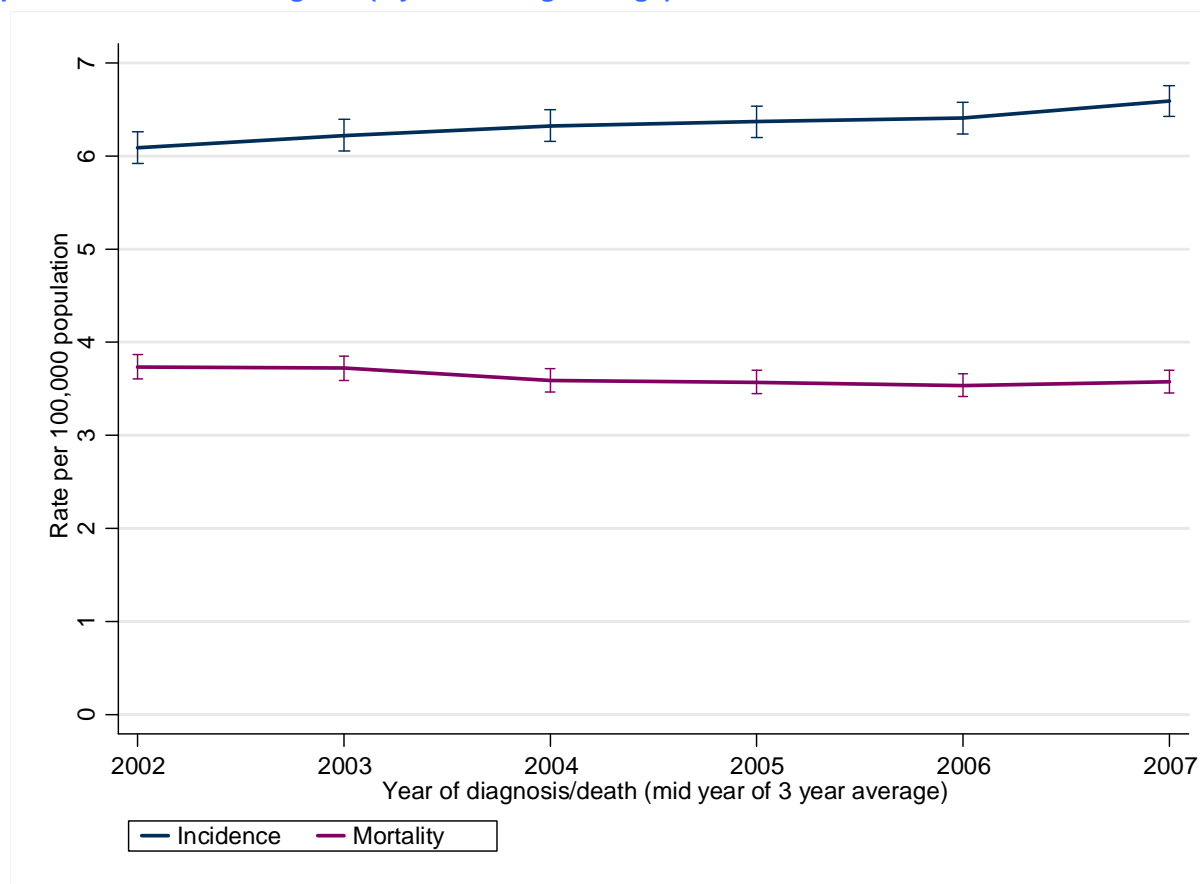


Table 8:3 Age-standardised incidence and mortality rates for myeloma in males in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	1,745	6.1	5.9	6.1	1,102	3.7	3.6	3.7
2002-2004	1,811	6.2	6.1	6.2	1,121	3.7	3.6	3.7
2003-2005	1,867	6.3	6.2	6.3	1,102	3.6	3.5	3.6
2004-2006	1,907	6.4	6.2	6.4	1,111	3.6	3.5	3.6
2005-2007	1,950	6.4	6.2	6.4	1,125	3.5	3.4	3.5
2006-2008	2,047	6.6	6.4	6.6	1,167	3.6	3.5	3.6

*3 year moving average

Trends in incidence and mortality (females)

Figure 8:4 Age-standardised incidence and mortality rates for myeloma in females in the period 2001-2008 in England (3 year moving average)

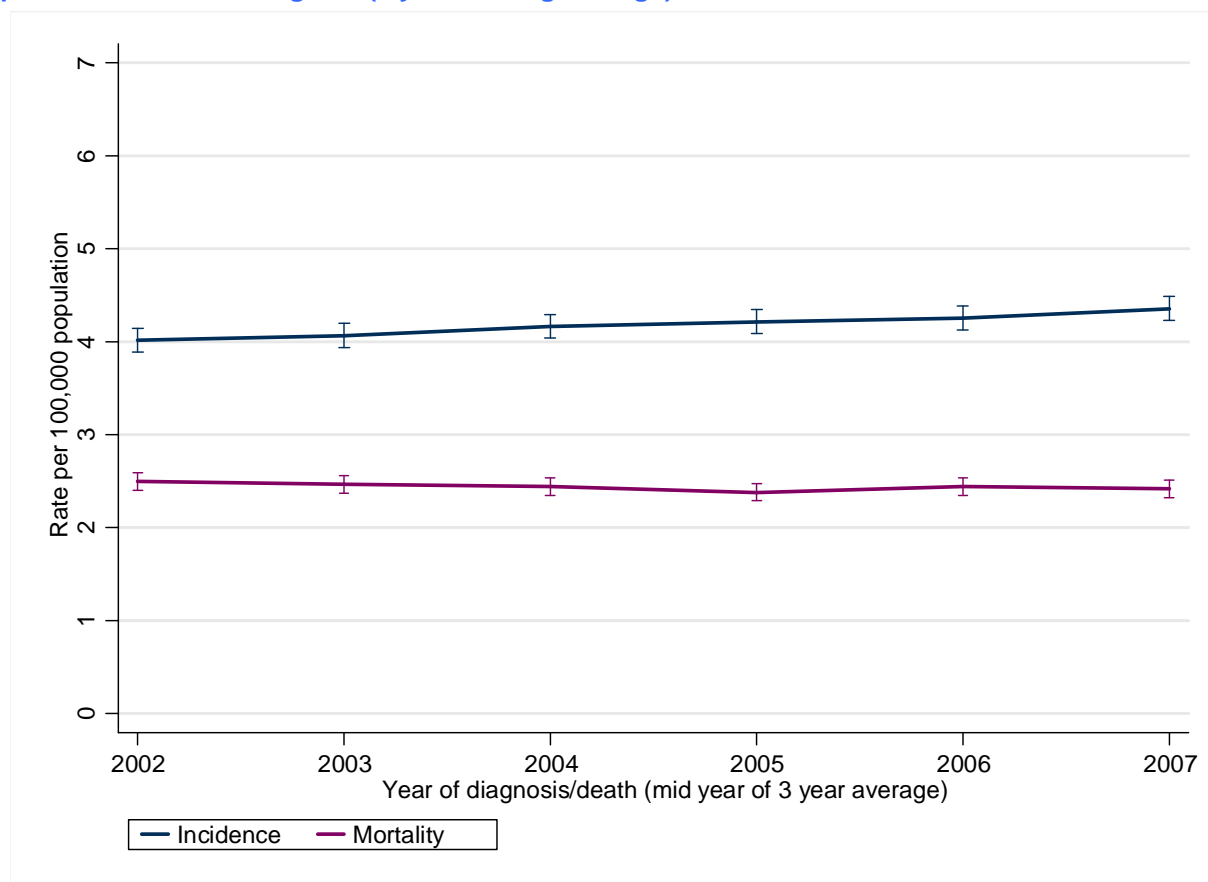


Table 8:5 Age-standardised incidence and mortality rates for myeloma in females in the period 2001-2008 in England (3 year moving average)

Year	Incidence				Mortality			
	Cases*	ASR	95% CI		Deaths*	ASR	95% CI	
2001-2003	1,519	4.0	3.9	4.0	1,043	2.5	2.4	2.5
2002-2004	1,537	4.1	3.9	4.1	1,031	2.5	2.4	2.5
2003-2005	1,585	4.2	4.0	4.2	1,024	2.4	2.4	2.4
2004-2006	1,608	4.2	4.1	4.2	1,006	2.4	2.3	2.4
2005-2007	1,643	4.3	4.1	4.3	1,044	2.4	2.4	2.4
2006-2008	1,689	4.4	4.2	4.4	1,045	2.4	2.3	2.4

*3 year moving average

Trends in survival (males)

Figure 8:6 Trends in relative survival rates for myeloma in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

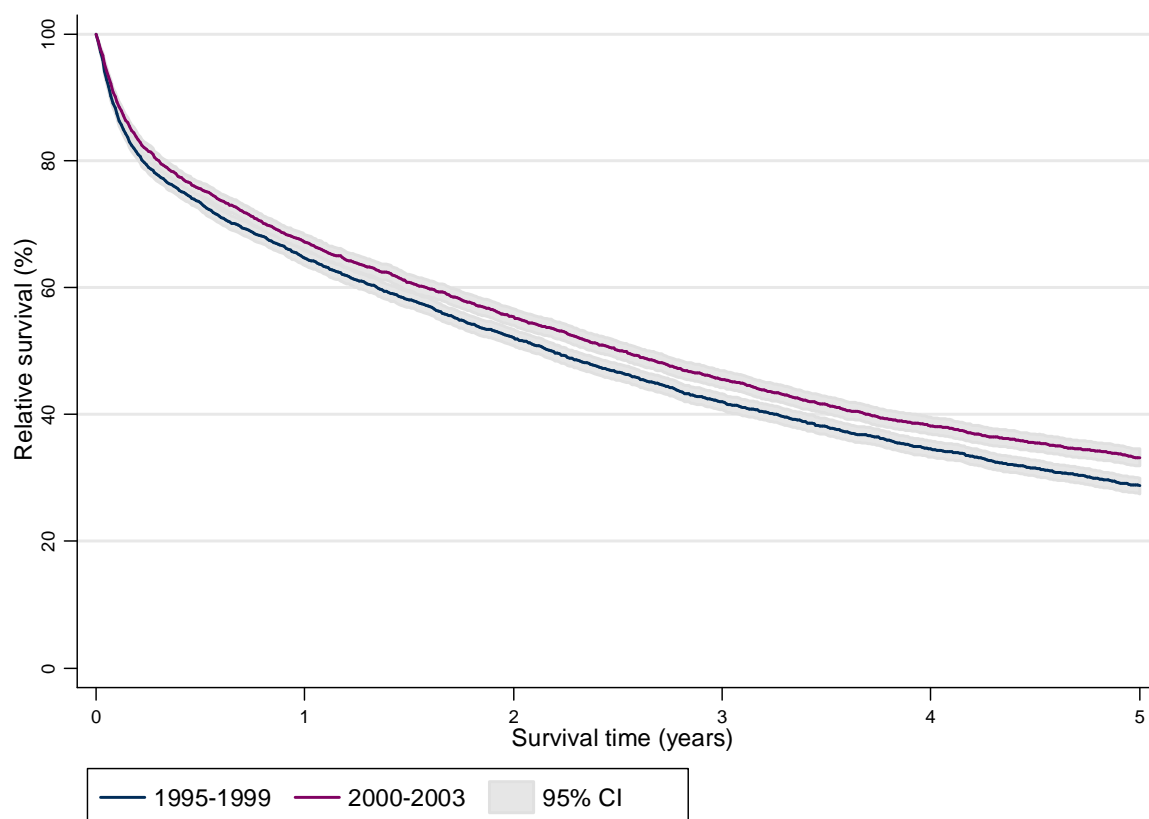


Table 8:7 Trends in relative survival rates for myeloma in males (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI	Cohort	Deaths		RS	95% CI	Cohort	Deaths	
1	64.6	63.4 65.8	7,226	2,820		67.2	66.0 68.4	6,592	2,409	
2	52.1	50.8 53.3	7,226	3,844		55.4	54.1 56.8	6,592	3,301	
3	42.0	40.7 43.3	7,226	4,630		45.6	44.2 46.9	6,592	4,010	
4	34.6	33.3 35.9	7,226	5,181		38.2	36.8 39.5	6,592	4,521	
5	28.8	27.6 30.0	7,226	5,594		33.1	31.8 34.4	6,592	4,867	

Figure 8:8 Trends for males (all ages) in relative survival rates for myeloma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

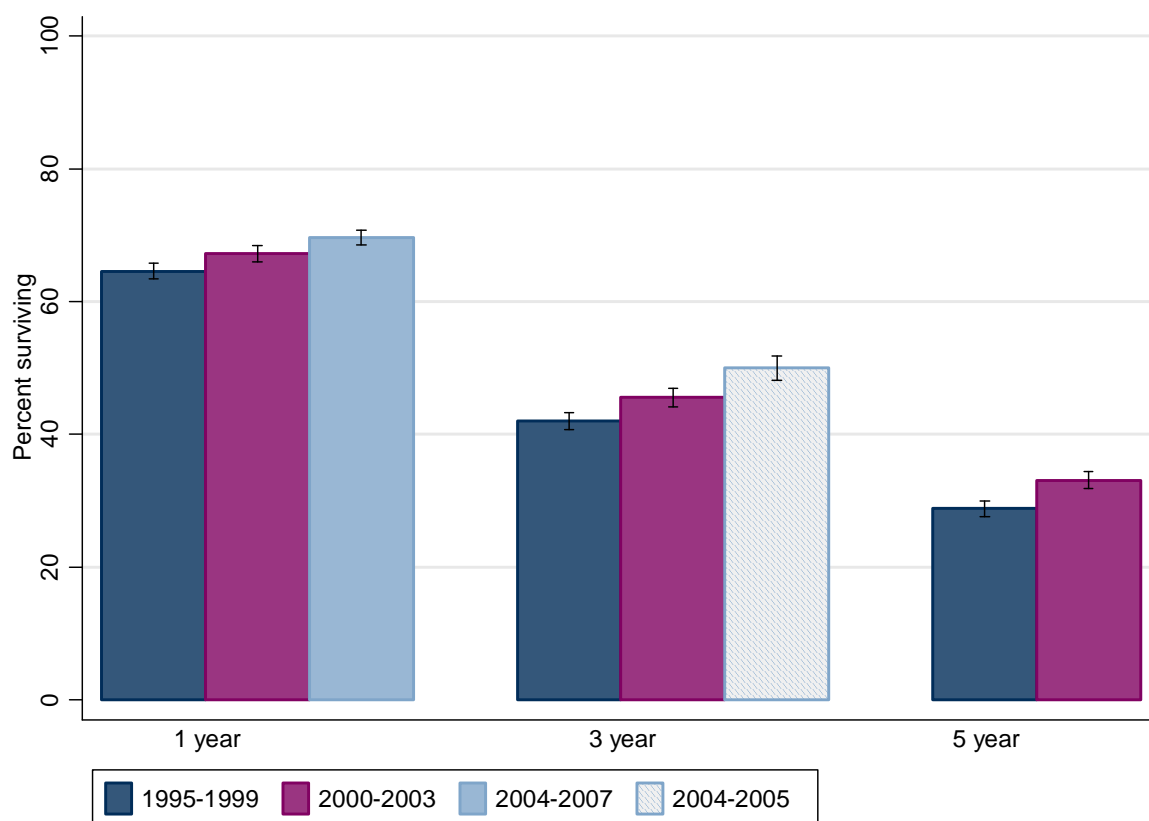


Table 8:9 Trends for males (all ages) in relative survival rates for myeloma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI			Cohort	Deaths
1 year	1995-1999	64.6	63.4	65.8		7,226	2,820
	2000-2003	67.2	66.0	68.4		6,592	2,409
	2004-2007	69.7	68.5	70.8		7,360	2,510
3 year	1995-1999	42.0	40.7	43.3		7,226	4,630
	2000-2003	45.6	44.2	46.9		6,592	4,010
	2004-2005	50.0	48.1	51.8		3,581	2,037
5 year	1995-1999	28.8	27.6	30.0		7,226	5,594
	2000-2003	33.1	31.8	34.4		6,592	4,867

Trends in survival (females)

Figure 8:10 Trends in relative survival rates for myeloma in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

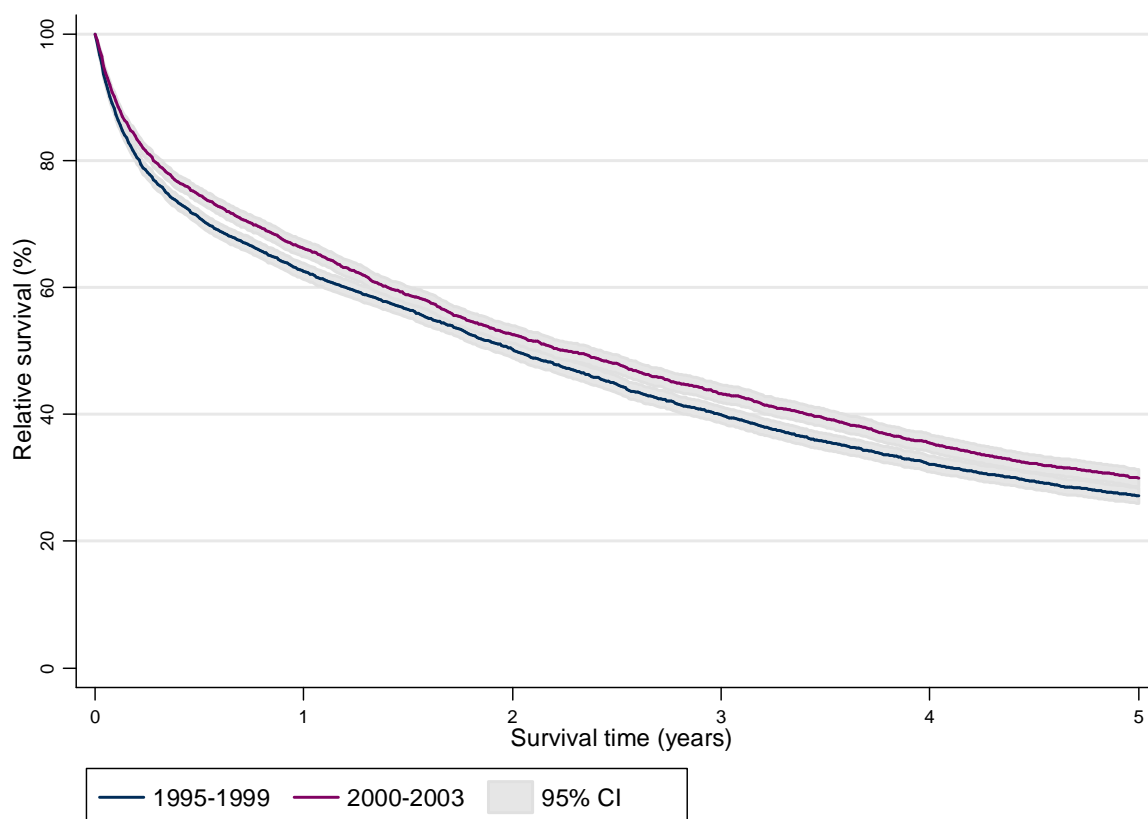


Table 8:11 Trends in relative survival rates for myeloma in females (all ages) diagnosed in the periods 1995-1999 and 2000-2003 followed up to end of 2008 in England

Survival Time (years)	1995-1999					2000-2003				
	RS	95% CI		Cohort	Deaths	RS	95% CI		Cohort	Deaths
1	62.6	61.3	63.8	6,590	2,663	66.2	64.9	67.5	5,806	2,154
2	50.2	48.9	51.5	6,590	3,568	52.6	51.2	54.0	5,806	3,031
3	39.9	38.6	41.2	6,590	4,285	43.2	41.8	44.6	5,806	3,616
4	32.1	30.9	33.4	6,590	4,815	35.5	34.1	36.9	5,806	4,081
5	27.1	25.9	28.4	6,590	5,149	29.9	28.6	31.3	5,806	4,408

Figure 8:12 Trends for females (all ages) in relative survival rates for myeloma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

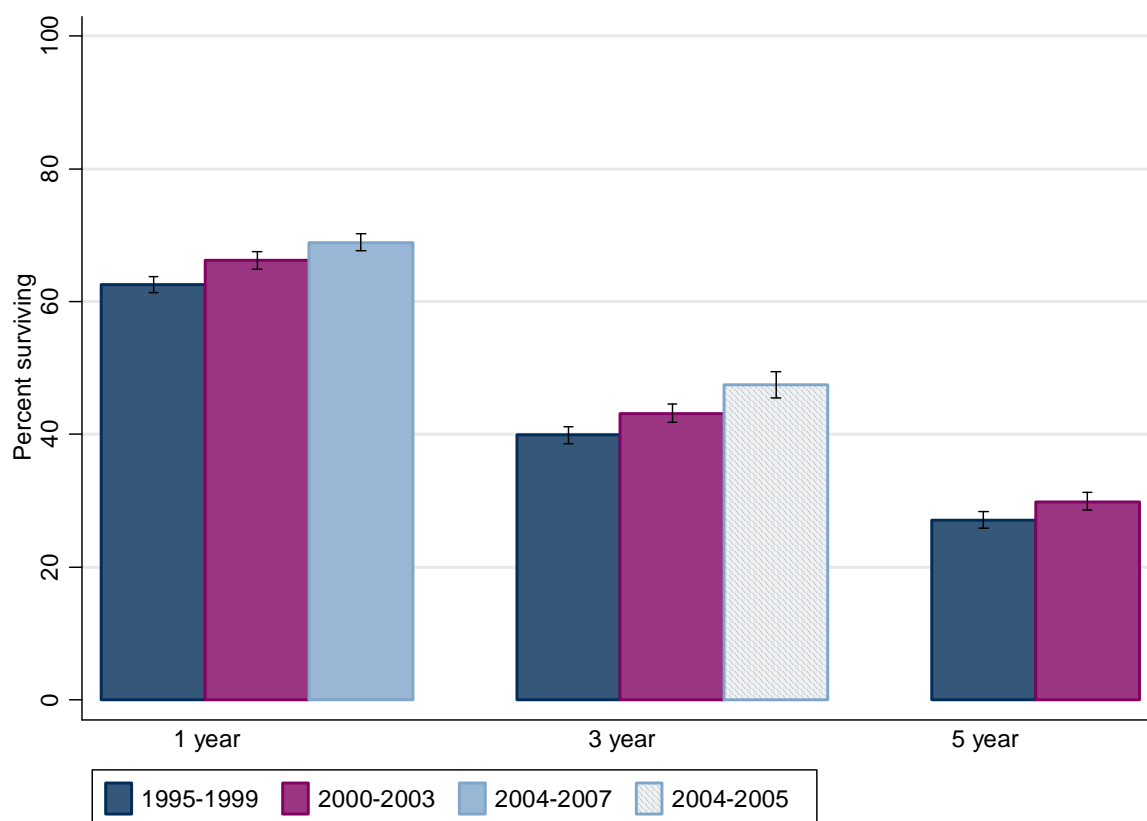


Table 8:13 Trends for females (all ages) in relative survival rates for myeloma diagnosed in the periods 1995-1999, 2000-2003, 2004-2007 (1 year only) and 2004-2005 (3 year only)

Relative Survival Time Period	Diagnosis cohort	RS	95% CI			Cohort	Deaths
1 year	1995-1999	62.6	61.3	63.8		6,590	2,663
	2000-2003	66.2	64.9	67.5		5,806	2,154
	2004-2007	68.9	67.7	70.2		6,132	2,112
3 year	1995-1999	39.9	38.6	41.2		6,590	4,285
	2000-2003	43.2	41.8	44.6		5,806	3,616
	2004-2005	47.5	45.5	49.5		3,008	1,768
5 year	1995-1999	27.1	25.9	28.4		6,590	5,149
	2000-2003	29.9	28.6	31.3		5,806	4,408

Trends in survival by age (males)

Figure 8:14 Trends in relative survival rates for myeloma diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

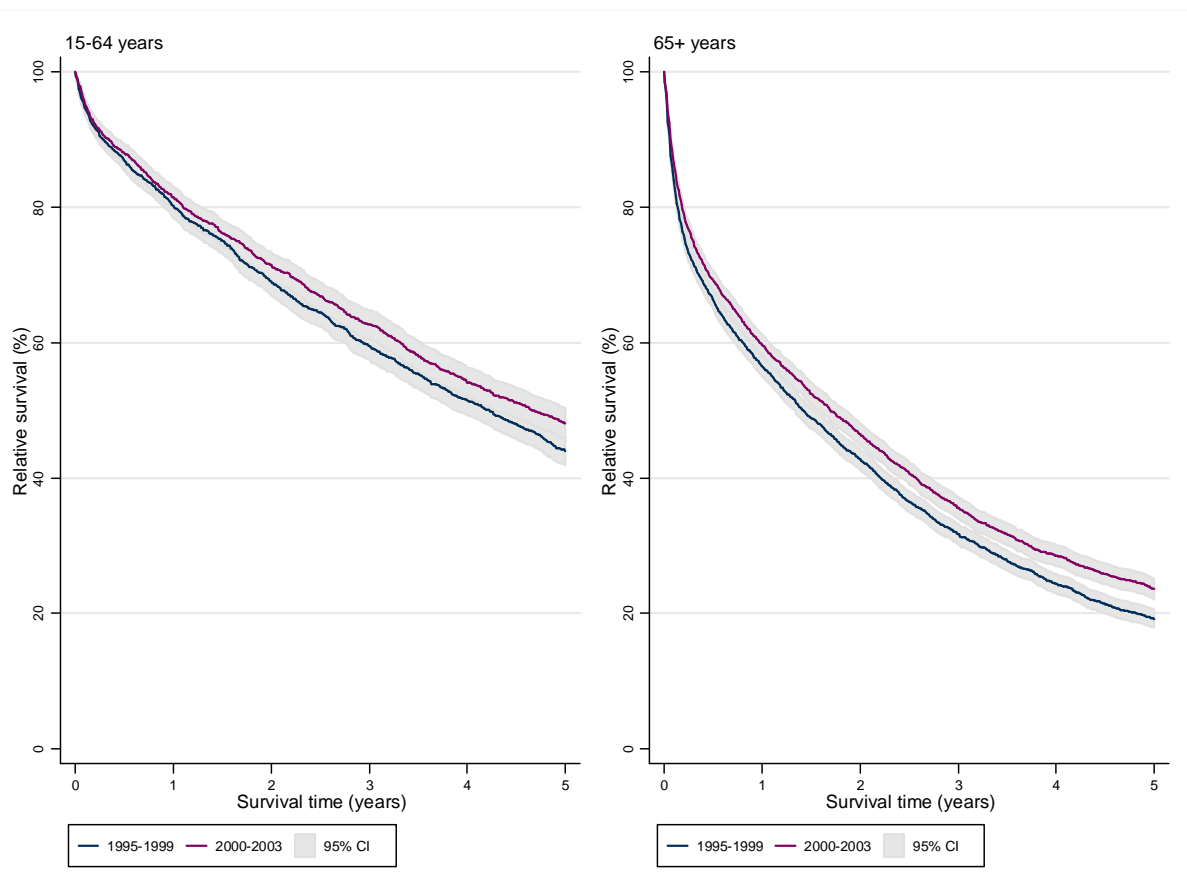


Table 8:15 Trends in relative survival rates for myeloma diagnosed in males in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	80.2	78.5	81.8	2,293	473	81.4	79.7	83.1	2,075	401
	2	69.0	67.0	70.9	2,293	744	71.6	69.5	73.5	2,075	618
	3	59.7	57.6	61.8	2,293	968	62.9	60.7	65.0	2,075	808
	4	51.6	49.5	53.7	2,293	1,162	54.4	52.1	56.6	2,075	991
	5	44.2	42.1	46.4	2,293	1,337	48.6	46.3	50.8	2,075	1,119
65+ years	1	56.3	54.8	57.8	4,932	2,347	59.6	58.1	61.2	4,517	2,008
	2	42.6	41.1	44.2	4,932	3,100	46.4	44.8	48.1	4,517	2,683
	3	31.6	30.2	33.1	4,932	3,662	35.5	33.9	37.1	4,517	3,202
	4	24.4	23.0	25.8	4,932	4,019	28.5	26.9	30.1	4,517	3,530
	5	19.3	18.0	20.7	4,932	4,257	23.6	22.1	25.1	4,517	3,748

Trends in survival by age (females)

Figure 8:16 Trends in relative survival rates for myeloma diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

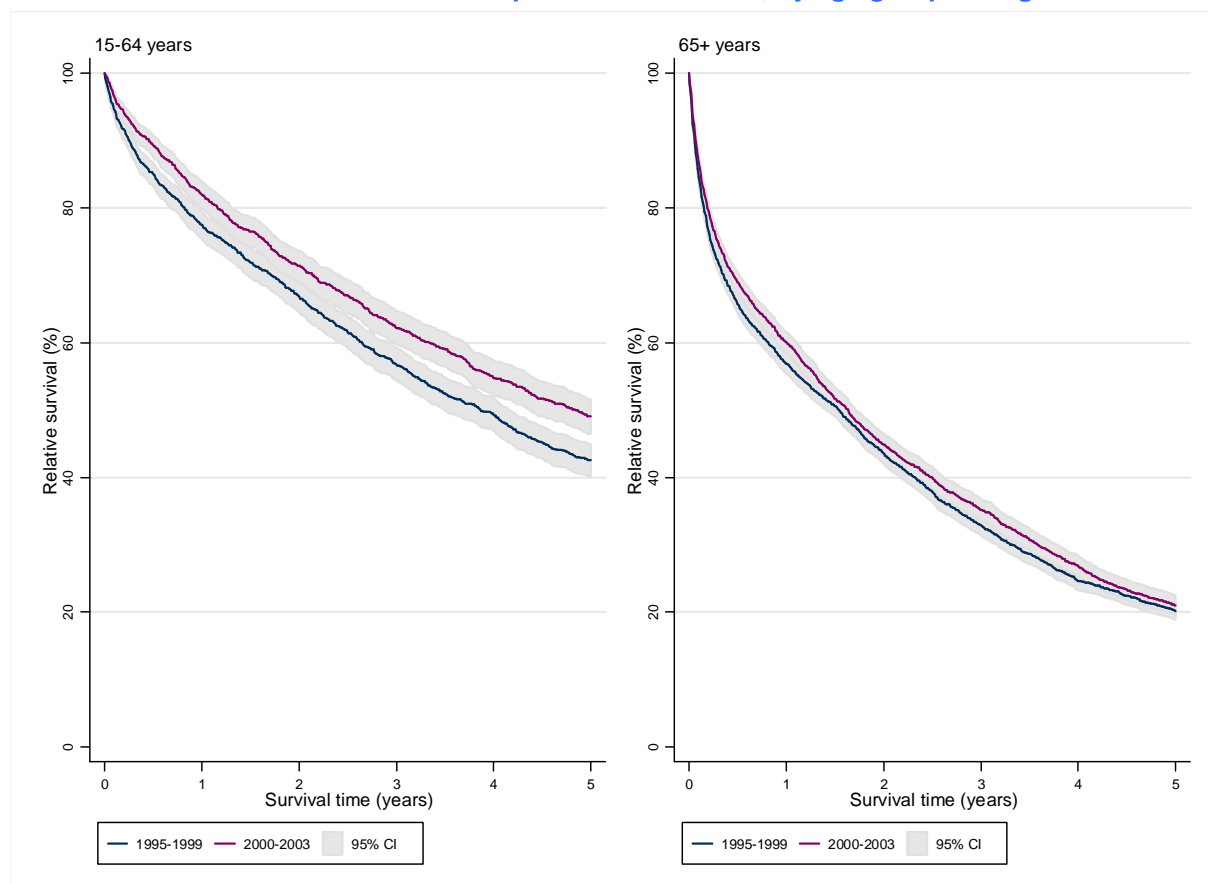


Table 8:17 Trends in relative survival rates for myeloma diagnosed in females in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	77.5	75.4	79.4	1,697	390	82.0	80.0	83.9	1,501	277
	2	66.9	64.6	69.2	1,697	576	71.4	69.0	73.7	1,501	441
	3	56.9	54.5	59.3	1,697	750	62.4	59.9	64.9	1,501	581
	4	49.5	47.1	52.0	1,697	879	55.1	52.5	57.7	1,501	696
	5	42.7	40.3	45.1	1,697	996	49.5	46.9	52.1	1,501	783
65+ years	1	56.8	55.3	58.3	4,893	2,273	60.0	58.4	61.5	4,304	1,876
	2	43.6	42.1	45.1	4,893	2,992	44.8	43.1	46.4	4,304	2,589
	3	32.9	31.4	34.4	4,893	3,535	35.0	33.4	36.6	4,304	3,034
	4	24.7	23.3	26.0	4,893	3,936	26.8	25.3	28.4	4,304	3,384
	5	20.3	19.0	21.6	4,893	4,153	20.9	19.5	22.4	4,304	3,624

Trends in survival by age (persons)

Figure 8:18 Trends in relative survival rates for myeloma diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

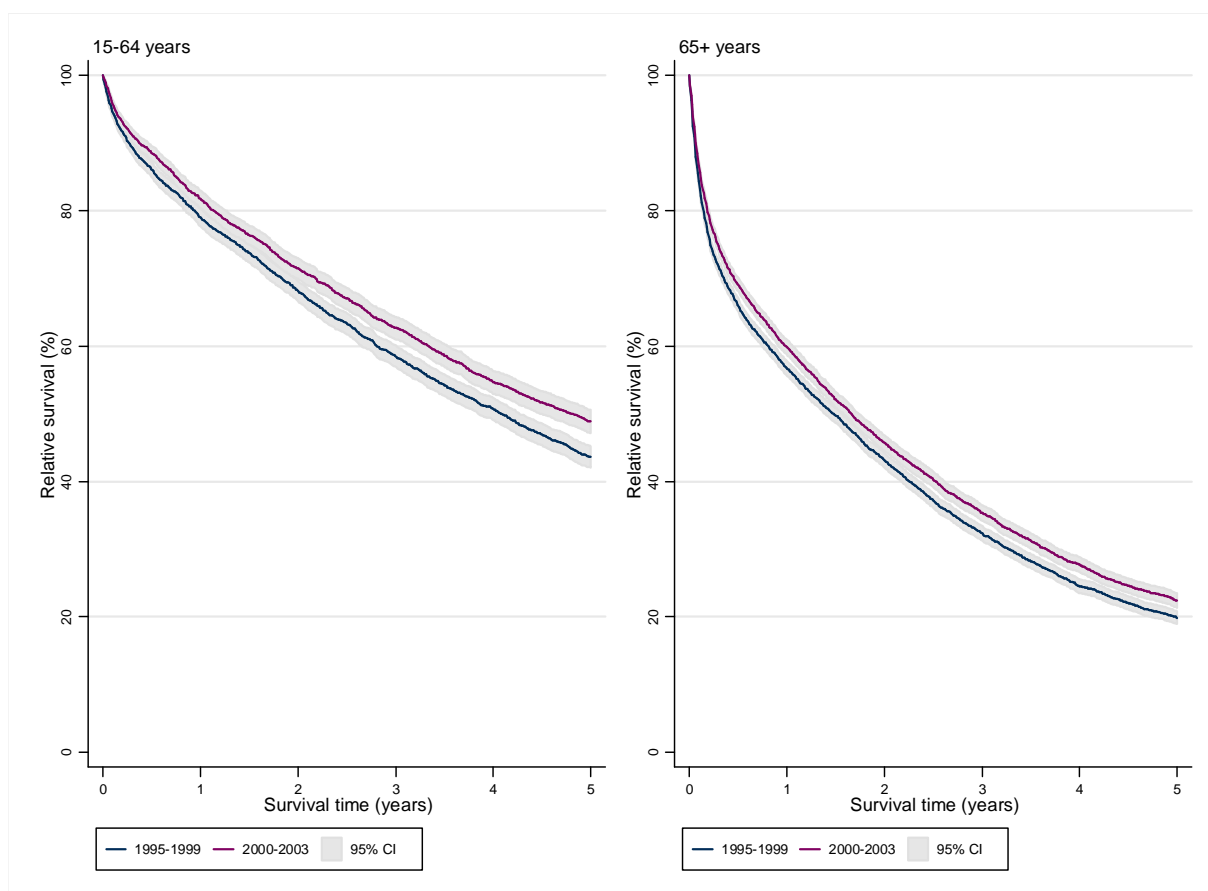


Table 8:19 Trends in relative survival rates for myeloma diagnosed in persons in the periods 1995-1999 and 2000-2003 and followed up to the end of 2008, by age group in England

Age Category	Survival (years)	1995-1999					2000-2003				
		RS	95 % CI		Cohort	Deaths	RS	95 % CI		Cohort	Deaths
15-64 years	1	79.0	77.7	80.3	3,990	863	81.7	80.4	82.9	3,576	678
	2	68.1	66.6	69.6	3,990	1,320	71.5	70.0	73.0	3,576	1,059
	3	58.5	56.9	60.1	3,990	1,718	62.7	61.0	64.3	3,576	1,389
	4	50.7	49.1	52.3	3,990	2,041	54.7	53.0	56.4	3,576	1,687
	5	43.6	42.0	45.2	3,990	2,333	49.0	47.3	50.7	3,576	1,902
65+ years	1	56.6	55.5	57.6	9,825	4,620	59.8	58.7	60.9	8,821	3,884
	2	43.1	42.0	44.2	9,825	6,092	45.6	44.5	46.8	8,821	5,272
	3	32.3	31.2	33.3	9,825	7,197	35.3	34.1	36.4	8,821	6,236
	4	24.5	23.5	25.5	9,825	7,955	27.7	26.6	28.7	8,821	6,914
	5	19.8	18.9	20.8	9,825	8,410	22.3	21.2	23.3	8,821	7,372

Appendix 1: Dataset and Histological Groups as Defined in this Report

Datasets for the analysis of incidence and survival carried out in this report were generated from an extract of the 2008 NCDR (National Cancer Data Repository). This extract was based on any haematological cancer diagnoses with the ICD10 codes of "C81.0" to "C96.9"

Data in the incidence dataset was restricted to cancer diagnoses between 2001 and 2008. However a survival dataset required extra data to generate results regarding 3 year and 5 year survival rates and for this reason; the survival dataset was restricted to any cancer diagnosis with a diagnosis year beyond 1995.

Figure 9:1 Classification of haematological malignancies used in this report

Disease Group	ICD10 code
Acute lymphoblastic leukaemia	C91.0
Acute myeloid leukaemia	C92.0, C92.4, C92.5, C93.0, C94.0, C94.2
Chronic lymphocytic leukaemia	C91.1
Chronic myeloid leukaemia	C92.1
Hodgkin lymphoma	C81
Non-Hodgkin lymphoma	C82, C83, C84, C85
Myeloma	C90
Other	C91.2, C91.3, C91.4, C91.5, C91.7, C91.9, C92.2, C92.3, C92.7, C92.9, C93.1, C93.2, C93.7, C93.9, C94.3, C94.4, C94.5, C94.7, C95.0, C95.1, C95.2, C95.7, C95.9, C96.0, C96.1, C96.2, C96.3, C96.7*, C96.9

Changes in coding of haematological malignancies

In ICD-O-3 a number of conditions where morphology was previously considered to be borderline have been categorised as malignant. For haematological malignancies this primarily affects conditions broadly referred to as Myelodysplastic Syndromes and Myeloproliferative Neoplasms. For registries recording morphology in ICD-O-2 these conditions have been mapped to the ICD10 disease codes D45-47, but for registries using ICD-O-3 the malignant nature of these conditions has been reflected in mapping them to code C96.7. The consequence of this change is for the overall number of haematological malignancies to be increased. The migration from ICD-O-2 has occurred at different times in different cancer registries and so users are advised to consult their local registry when interpreting local and national trends in haematological cancers.

Morphology codes

The grouping of haematological malignancies has been done on the basis of the ICD 10 code associated with each registration. Information is also recorded on the morphology of each cancer, a breakdown of the WHO International Classification of Diseases for Oncology (ICD-O) codes associated with each disease group is available from the report's authors (over this time period both the second and third editions of the ICD-O were in use)

Quality assurance of dataset

NYCRIS undertook a quality assurance exercise to verify both allocation of ICD10 site codes to disease groups and the resulting outputs for incidence, mortality and survival. There are limited sources of national data available for direct comparison with the disease groups included within this report. A number of comparisons were made with the UK Cancer Information Service (UKCIS) where some similar disease groups could be created. Direct comparisons could be made for Hodgkin Lymphoma (C81) and Myeloma (C90). A separate Quality Assurance report is available from the authors, detailing both methods and results.

Age-Standardised Rate (ASR)

The direct method of age standardisation was used to produce the theoretical rate that would occur if the observed age specific incidence/mortality rates applied in a standard population. In this report the European Standard Population was used. The European Standardised Rate (ESR) was calculated using the formula:

$$ESR = \frac{\sum_{i=1}^A a_i w_i}{\sum_{i=1}^A w_i}$$

Where
 A = the number of age intervals
 a_i = the incidence/mortality rate per 100,000 in age group i
 w_i = the European Standard Population in age group i

Survival

In a cohort of cancer patients, overall (observed) mortality can be divided into two components, the background mortality, also known as the expected mortality representing all-cause deaths in the general population and the excess mortality due to cancer. Background mortality is calculated from life tables for England.

excess mortality = observed mortality – expected mortality

$$\lambda_c(t) = \lambda(t) - \lambda_e(x+t, z) = \sum_{k=1}^m \alpha_k I_k(t)$$

where α_k = the excess mortality hazard in the k^{th} interval and $I_k(t) = \begin{cases} 1 & k^{th} \text{ interval} \\ 0 & \text{otherwise} \end{cases}$

Relative survival reflects the excess mortality among cancer patients, over and above the background mortality in the country or region where they live. It is the ratio of the observed survival rate and the expected survival rate of the general population with a similar age/sex structure to the cancer patients in the study.

The analyses undertaken in this report use relative survival estimated using the maximum likelihood method for individual records, developed by Estève *et al* using the *strel* command in Stata version 11. This method assumes that the hazard is constant within each interval. The cumulative relative survival at time t using the ML method is given by:

$$S_t = \exp - \left(\sum_{k=1}^{i-1} \alpha_k (t_k - t_{k-1}) + (t - t_{i-1}) \right)$$

All cases were followed up for at least five years (unless otherwise stated) or until death. Registrations with zero survival were excluded from the analysis. The age at diagnosis for cases ranged between 0 and 108 years. Age-stratified relative survival analyses for disease groups Chronic Lymphocytic Leukaemia, Chronic Myeloid Leukaemia and Myeloma excluded those persons aged less than 15 years at diagnosis.

To enable smooth curves, the intervals adopted in the survival analysis are closer than those used to produce the tables; hence the annual survival point estimates may vary between the graphs and tables. This is most pronounced for age- & sex-stratified analyses of CML and Hodgkin lymphoma.

Confidence Intervals

The estimated rates presented (for incidence, mortality and survival) have 95% confidence intervals attached. There is a 95% chance that the true value of the estimated rate will lie within the interval given. The width of the interval is influenced by the number of cases used to estimate the rate. The more cases in the group, the more precise will be the estimate of the rate and the narrower the confidence interval. When comparing two different estimated rates, if their respective confidence intervals overlap, then the true value of both rates could be the same. The apparent difference in the estimates is due to chance. If the two confidence intervals do not overlap, there is evidence to suggest that the difference in the true values of the rates is real. If the difference in two rates could be due to chance (intervals overlap), it is described as not significant. If the intervals suggest that the true rates are different (intervals do not overlap) the difference is described as significant.

FIND OUT MORE:

Northern and Yorkshire Cancer Registry and Information Service (NYCRIS)
NYCRIS is the NCIN lead cancer registry for haematological cancers
<http://www.nycris.nhs.uk>



Northern and Yorkshire Cancer Registry and Information Service

The National Cancer Intelligence Network (NCIN) is a UK-wide initiative, working to drive improvements in standards of cancer care and clinical outcomes by improving and using the information collected about cancer patients for analysis, publication and research. Sitting within the National Cancer Research Institute (NCRI), the NCIN works closely with cancer services in England, Scotland, Wales and Northern Ireland. In England, the NCIN is part of the National Cancer Programme.