

Cancer in Ireland 2013: Annual report of the National Cancer Registry



ABBREVIATIONS

Acronyms	
95% CI	95% confidence interval
APC	Annual percentage change
ASR	Age standardised rate (European standard population)
CSO	Central Statistics Office
ECO	European Cancer Observatory
ICD	International Statistical Classification of Diseases and Related Health Problems
NCR	National Cancer Registry
NHL	Non-Hodgkin's lymphoma
NMSC	Non melanoma skin cancer
RS	Relative survival
YLL	Year of life lost

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SUMMARY

Incidence:

- An average of 18,500 invasive (excluding non-melanoma skin) cancers was diagnosed per year between 2008 and 2010, equivalent to an incidence rate of 423 cases per 100,000 per year.
- Incidence rate was 26% higher in men than in women and cumulative lifetime risk of diagnosis was 1 in 3 for males and 1 in 4 for females.
- Excluding non-melanoma skin cancers, prostate (3014 cases per year) and female breast cancer (2767 cases per year) were the most frequently diagnosed cancers in men and women respectively. Colorectal (2387 cases per year) and lung (2110 cases per year) cancers were the 2nd and 3rd most commonly diagnosed cancers in both sexes.

Mortality:

- A total of 8,316 deaths from cancer were recorded in 2010, equivalent to a mortality rate of 175 deaths per 100,000 per year. Cancer was the second leading cause of death in Ireland after diseases of the circulatory system.
- Cancer mortality rate was 35% higher in men than in women and cumulative lifetime risk of death from cancer was 1 in 8 for males and 1 in 10 for females.
- Lung cancer (1693 total deaths in 2010) was the leading cause of cancer death in both sexes representing 18% of female and 22% of male cancer deaths. Female breast, colorectal and prostate cancers represented the next most common cancer deaths and together with lung cancer made up almost half (46%) of all cancer deaths in 2010.

International comparisons in incidence and mortality:

- For all invasive cancers combined and the 4 most common cancers, incidence rates in Ireland ranked amongst the top 10 highest in Europe.
- Mortality rates in Ireland ranked lower generally and were close to values recorded in the UK for all cancers combined and similar to the EU average for colorectal cancers.
- Lung cancer incidence and mortality in Irish females was substantially higher than the EU average but rates in Irish males were lower than average.

Prevalence:

- A total of 104,300 cancer patients diagnosed since January 1994 were still alive at the end of 2010, representing 47% of all females and 40% of all males diagnosed.
- 38,000 of these patients had been diagnosed within the previous 3 years which provides an estimate of the number of patients likely to be either still undergoing active therapy or clinical follow-up.

Trends in incidence and mortality:

- Total cancer case numbers in 2010 were 56% higher than in 1994, equivalent to an annual percentage change in incidence rate of 1.1% in females and 1.2% in males. Since 1994, cancer mortality has declined by 1% in males and 1.4% in females annually resulting in a reduction in all cancer mortality/incidence ratios from 6 to 4 deaths for every 10 cases diagnosed.
- All-cancer mortality rates increased from the early 1950's to maximum levels during late 1980's-mid 1990's and subsequently declined in recent years; a pattern observed for most individual cancer types and in both sexes. Lung cancer mortality rates in females however have continued to increase.

Treatment:

- Little difference was observed in treatment between males and females, but patients aged less than 65 were more likely to have surgery, chemotherapy and radiotherapy. Older patients aged 75 years and over were less likely to have tumour-directed treatment.
- The proportion of patients having chemotherapy increased for a wide range of cancers from 2000-2004 to 2005-2009 while percentages of patients undergoing radiotherapy fell for testicular cancer and Hodgkin's lymphoma.

Survival:

- Significant improvements in survival have been observed over time in both sexes, particularly in males. This has resulted in an almost equalisation of overall 5 year relative survival rates between males and females in recent years.
- Cancer of the testis, prostate, female thyroid and female melanoma had the best survival, all with 5 year relative survival rates of over 90%. In contrast patients with pancreatic cancer had the poorest survival overall, with 5 year survival rates of less than 10%. Cancers of the liver, lung, oesophagus, brain and stomach also had poor survival rates, all less than 20%.

Person Years of Life Lost (YLL):

- It is estimated that an average of 16 years of life were lost for females and 13 for males dying from cancer in 2010.
- Although average age at death increased for most cancers from 1995 to 2010, the average person years of life lost increased, reflecting increased life expectancy of the population generally.

1. INCIDENCE

An annual average of approximately 32,500 cancers was registered between 2008 and 2010 inclusive, representing an overall incidence rate of 727 cases per 100,000 per year (Table 1). Over 18% of these were non-invasive cancers (in-situ tumours, cancers of uncertain behaviour and benign brain and CNS tumours) and almost 25% were non-melanoma skin cancers (NMSC, 7,986 cases per year). Figures for all invasive cancers, excluding NMSC, represented 57% of all registered cases and over 18,500 were registered annually; equivalent to an incidence rate of 423 cases per 100,000 per year. Incidence rate for all invasive cancers excluding NMSC was 26% higher for men than for women (as was previously observed in 2007-2009 figures), and cumulative lifetime risk, although slightly increased compared to previously published data, remains approximately 1 in 3 for men and 1 in 4 for women. Summary incidence data for 2008-2010 for individual cancers by ICD10 code is listed in Appendix I.

Table 1: Annual average incidence for the main cancers, 2008-2010

	cases			rate/100,000			risk (%) to age 75 years			% all invasive [‡]		
	females	males	total	females	males	total	females	males	total	females	males	total
mouth & pharynx	119	227	346	5.2	11.3	8.1	0.4	1.0	0.7	1.4	2.3	1.9
oesophagus	130	242	372	5.1	11.9	8.4	0.4	1.0	0.7	1.5	2.5	2.0
stomach	191	332	523	7.6	16.1	11.5	0.5	1.2	0.9	2.2	3.4	2.8
colorectal	998	1,389	2,387	41.1	67.8	53.4	3.1	5.2	4.1	11.4	14.2	12.9
pancreas	227	248	475	9.0	12.3	10.5	0.6	1.0	0.8	2.6	2.5	2.6
lung	879	1,231	2,110	36.9	60.0	47.3	2.9	4.6	3.7	10.0	12.5	11.4
melanoma	463	349	812	19.8	16.7	18.2	1.6	1.3	1.4	5.3	3.6	4.4
breast	2,767	22	2,789	127.0	1.1	65.5	10.0	0.1	5.2	31.6	0.2	15.0
cervix	308	-	308	13.5	-	-	1.0	-	-	3.5	-	-
corpus uteri	389	-	389	18.0	-	-	1.6	-	-	4.4	-	-
ovary	345	-	345	15.2	-	-	1.2	-	-	3.9	-	-
other gynaecological cancers*	99	-	99	4.2	-	-	0.3	-	-	1.1	-	-
prostate	-	3,014	3,014	-	149.4	-	-	12.7	-	-	30.7	-
testis	-	175	175	-	7.2	-	-	0.5	-	-	1.8	-
kidney	174	312	486	7.5	15.2	11.2	0.6	1.2	0.9	2.0	3.2	2.6
bladder	124	310	434	4.8	15.2	9.4	0.3	1.0	0.7	1.4	3.2	2.3
brain & CNS	151	193	344	6.7	9.2	7.9	0.5	0.8	0.7	1.7	2.0	1.9
all lymphomas	363	420	782	15.7	20.0	17.7	1.3	1.6	1.4	4.1	4.3	4.2
<i>Hodgkin's lymphoma</i>	57	71	128	2.5	3.2	2.9	0.2	0.3	0.2	0.7	0.7	0.7
<i>non-Hodgkin's lymphoma</i>	306	349	654	13.2	16.8	14.9	1.1	1.3	1.2	3.5	3.6	3.5
multiple myeloma	101	137	238	4.1	6.7	5.3	0.3	0.5	0.4	1.2	1.4	1.3
leukaemia	191	279	470	8.1	13.4	10.5	0.6	1.0	0.8	2.2	2.8	2.5
non-melanoma skin (NMSC)	3,575	4,410	7,986	147.4	214.7	177.6	10.7	15.1	12.9	-	-	-
other invasive cancers, not listed	742	930	1,672	29.9	45.0	37.0	2.1	3.4	2.7	8.5	9.5	9.0
all invasive cancers (excluding NMSC)	8,761	9,809	18,570	379.6	478.2	422.8	26.2	32.5	29.3	100	100	100
non-invasive cancers	4,563	1,381	5,944	186.3	67.0	126.6	13.3	5.1	9.3	-	-	-
all registered cancers	16,899	15,600	32,499	713.3	759.9	727.0	42.9	45.6	44.2	-	-	-

rate: number of cases per 100,000 population per year (European standard population)

risk: cumulative lifetime risk of cancer diagnosis to age 75 years, expressed as a percentage

‡ all invasive cancers excluding non melanoma skin cancers (NMSC)

*****cancers of the vulva, vagina, uterus (NOS), other female genital and placenta

Figure 1: Relative frequency of the main invasive cancers diagnosed, 2008-2010

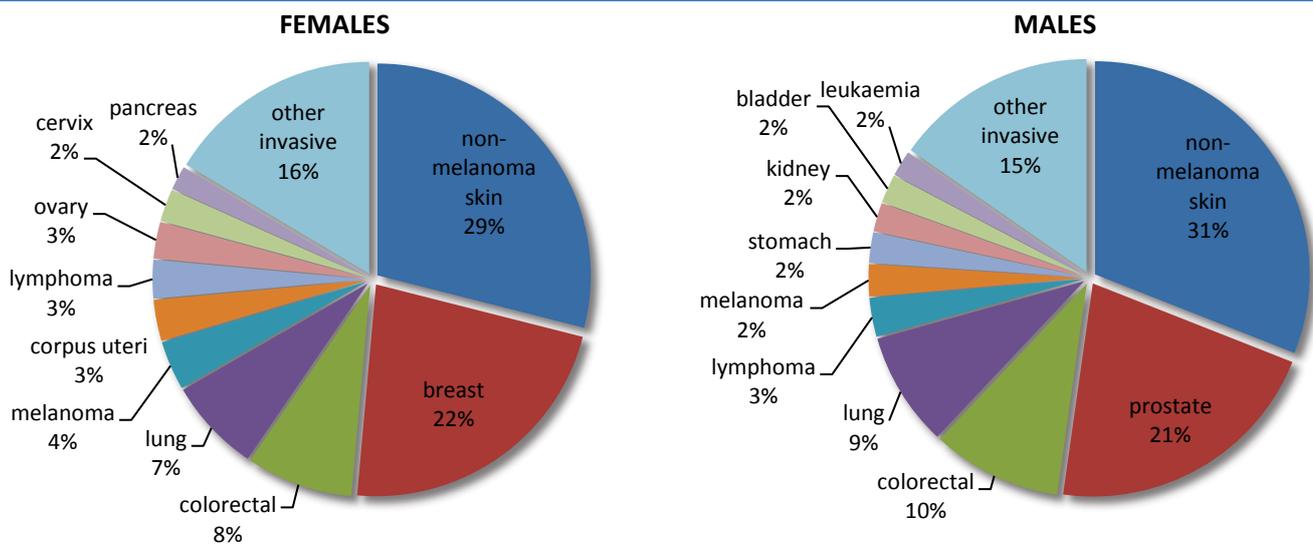


Table 2: Ranking of the most commonly diagnosed invasive cancers (excluding NMSC), 2008-2010

	females		males	
	%	rank	%	rank
breast	31.6	1	0.2	16
prostate	-	-	30.7	1
colorectal	11.4	2	14.2	2
lung	10.0	3	12.5	3
melanoma	5.3	4	3.6	5
corpus uteri	4.4	5	-	-
all lymphomas	4.1	6	4.3	4
stomach	2.2	10	3.4	6
pancreas	2.6	9	2.5	10
bladder	1.4	15	3.2	8
kidney	2.0	12	3.2	7
leukaemia	2.2	11	2.8	9
oesophagus	1.5	14	2.5	11
ovary	3.9	7	-	-
brain & CNS	1.7	13	2.0	13
cervix	3.5	8	-	-
mouth & pharynx	1.4	16	2.3	12
multiple myeloma	1.2	17	1.4	15
testis	-	-	1.8	14
other invasive cancers, not listed	9.6		9.5	

Of all invasive cancers registered, non-melanoma skin cancer (NMSC) represented by far the most common cancer, representing 29% and 31% of all cases in women and men respectively (Figure 1).

If figures are examined where NMSC are excluded, female breast and prostate cancer were the most commonly diagnosed cancers overall and comprised almost one-third of all cancers in women and men respectively (Table 2). Between 2008 and 2010, colorectal and lung cancer were ranked as the 2nd and 3rd most common cancers in both sexes respectively – as previously reported. However it is worth noting that their combined relative proportion of all invasive cancers is still less than that for breast and prostate alone. The remaining cancers in both sexes formed a much smaller proportion of the total, with melanoma and corpus uteri representing the next most common cancers in women and melanoma and lymphoma (all subtypes combined) in men.

2. MORTALITY

In 2010, cancer was the second most common cause of death, after diseases of the circulatory system, and a total of 8,316 deaths from cancer were reported. This represented approximately 30% of all deaths in 2010 and a mortality rate of 175 deaths per 100,000 per year (Table 3). Almost all cancer deaths were from invasive cancers (98%). All-cancer mortality rates were approximately 35% higher in men than in women and the lifetime risk of dying from cancer was 1 in 8 for men and slightly over 1 in 10 for women. Lung cancer was the single most common cause of cancer death overall with a mortality rate of 36.5 deaths per 100,000 per year, representing 20% of all cancer deaths overall, 18.1% in females and 22.4% in males. Summary mortality data for cancer deaths by ICD10 code is listed in Appendix II.

Table 3: Number of deaths and mortality from the main cancers, 2010

	deaths			rate/100,000			risk (%) to age 75 years			% all cancer deaths		
	females	males	total	females	males	total	females	males	total	females	males	total
mouth & pharynx	45	79	124	1.7	3.8	2.7	0.1	0.3	0.2	1.1	1.8	1.5
oesophagus	113	220	333	4.1	10.4	7.1	0.2	0.8	0.5	2.9	5.0	4.0
stomach	136	180	316	5.1	8.4	6.7	0.3	0.6	0.5	3.4	4.1	3.8
colorectal	407	535	942	15.2	25.3	19.7	0.9	1.7	1.3	10.3	12.2	11.3
pancreas	228	244	472	8.6	11.6	10.0	0.6	0.9	0.8	5.8	5.6	5.7
lung	716	977	1693	28.6	46.4	36.5	2.2	3.4	2.8	18.1	22.4	20.4
melanoma	60	85	145	2.3	4.0	3.1	0.2	0.3	0.2	1.5	1.9	1.7
breast	649	10	659	26.5	0.5	14.3	2.1	0.0	1.1	16.4	0.2	7.9
cervix	88	-	88	3.8	-	-	0.3	-	-	2.2	-	-
corpus uteri	73	-	73	2.9	-	-	0.3	-	-	1.8	-	-
ovary	286	-	286	11.8	-	-	1.0	-	-	7.2	-	-
other gynaecological cancers*	55	-	55	2.1	-	-	0.1	-	-	1.4	-	-
prostate	-	533	533	-	25.3	-	-	1.0	-	-	12.2	-
testis	-	5	5	-	0.2	-	-	0.0	-	-	0.1	-
kidney	57	127	184	2.1	6.1	3.9	0.1	0.4	0.3	1.4	2.9	2.2
bladder	65	120	185	2.3	5.6	3.7	0.2	0.2	0.2	1.6	2.7	2.2
brain & CNS	96	139	235	4.2	6.5	5.3	0.3	0.5	0.4	2.4	3.2	2.8
all lymphomas	106	144	250	4.0	6.7	5.3	0.3	0.4	0.4	2.7	3.3	3.0
<i>Hodgkin's lymphoma</i>	8	10	18	0.3	0.5	0.4	0.0	0.0	0.0	0.2	0.2	0.2
<i>non-Hodgkin's lymphoma</i>	98	134	232	3.8	6.3	4.9	0.3	0.4	0.3	2.5	3.1	2.8
multiple myeloma	85	67	152	3.0	3.2	3.1	0.2	0.2	0.2	2.2	1.5	1.8
leukaemia	87	128	215	3.2	6.1	4.5	0.2	0.4	0.3	2.2	2.9	2.6
non-melanoma skin (NMSC)	26	57	83	0.8	2.7	1.6	0.0	0.1	0.1	0.7	1.3	1.0
other invasive cancers, not listed	487	620	1,107	17.8	29.3	23.2	1.2	2.0	1.6	12.3	14.2	13.3
all invasive cancers	3,865	4,270	8,135	150.2	202.2	171.7	10.4	12.6	11.5	97.9	97.7	97.8
non-invasive cancers	82	99	181	2.7	4.5	3.4	0.1	0.2	0.1	2.1	2.3	2.2
all cancer deaths	3,947	4,369	8,316	152.9	206.7	175.2	10.5	12.7	11.6	100	100	100

rate: number of deaths per 100,000 population per year (European standard population)

risk: cumulative lifetime risk of cancer death to age 75 years, expressed as a percentage

*Cancers of the vulva, vagina, uterus (NOS), other female genital and placenta

Mortality data provided by the Central Statistics Office (www.cso.ie)

Figure 2: Relative frequency of the main cancer deaths, 2010

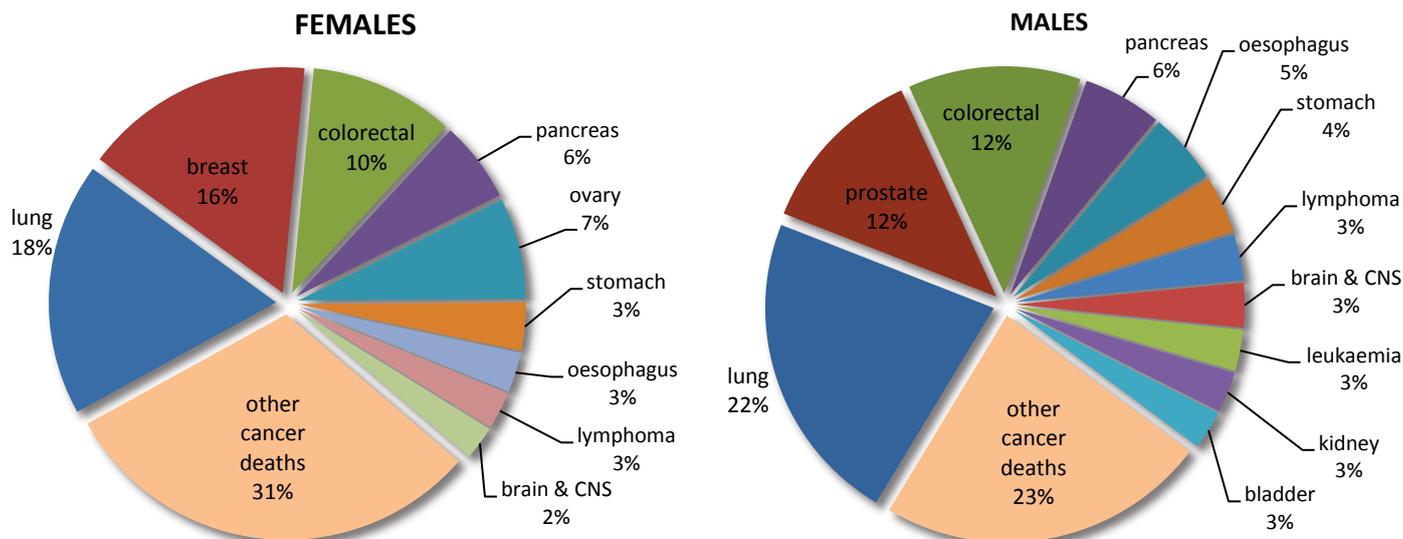


Table 4: Ranking of the most common cancer deaths, 2010

	females		males	
	%	rank	%	rank
lung	18.1%	1	22.4%	1
breast	16.4%	2	-	-
colorectal	10.3%	3	12.2%	2
prostate	-	-	12.2%	3
ovary	7.2%	4	-	-
pancreas	5.8%	5	5.6%	4
stomach	3.4%	6	4.1%	6
oesophagus	2.9%	7	5.0%	5
lymphoma	2.7%	8	3.3%	7
brain & CNS	2.4%	9	3.2%	8
cervix	2.2%	10	-	-
leukaemia	2.2%	11	2.9%	9
multiple myeloma	2.2%	12	1.5%	14
kidney	1.4%	16	2.9%	10
bladder	1.6%	14	2.7%	11
corpus uteri	1.8%	13	-	-
melanoma	1.5%	15	1.9%	12
mouth & pharynx	1.1%	18	1.8%	13
other cancer deaths	16.5%		18.1%	

Mortality data provided by the Central Statistics Office (www.cso.ie)

As previously reported, lung cancer is now the leading cause of cancer death in women as well as in men, and together with breast and colorectal cancer, made up 44% of all female cancer deaths in 2010 (Figure 2). In men, prostate and colorectal cancer both comprised approximately 12% of all cancer deaths and together with lung cancer represented nearly half of all deaths from cancer in 2010. Deaths from cancers of the ovary, pancreas, stomach and oesophagus were ranked between the 4th and 7th most common cancer deaths in women and men (Table 4) – their comparatively greater proportion of cancer deaths compared to cancer incidence (Table 3) indicating their relatively high mortality rates compared to other cancer types.

3. PERSON YEARS OF LIFE LOST (YLL) DUE TO CANCER

Estimates of the years of life lost due to cancer (YLL) are generated by comparing the life expectancy at each single year of age with the number of deaths from cancer that occurred at that age. Results for deaths in 1995 and in 2010 are shown, separately for females and males, in Table 5.

Table 5: Comparison of the years of life lost (YLL) due to cancer, 1995 and 2010

(a) Females	1995				2010			
	Average age at death	Total YLL	average YLL	% of all years lost	Average age at death	Total YLL	average YLL	% of all years lost
breast	65.9	11,798	18.0	22.8%	68.5	11,864	18.3	19.0%
lung	71.0	7,438	13.9	14.4%	71.5	11,117	15.5	17.8%
colorectal	73.0	5,450	12.9	10.5%	73.8	5,803	14.3	9.3%
ovary	67.4	3,320	16.7	6.4%	69.8	4,853	17.0	7.8%
pancreas	74.1	2,079	12.0	4.0%	74.8	3,018	13.2	4.8%
brain & CNS	62.9	1,882	20.5	3.6%	62.8	2,175	22.7	3.5%
stomach	73.7	1,881	12.5	3.6%	72.3	2,121	15.6	3.4%
leukaemia	65.4	1,542	19.3	3.0%	71.6	1,448	16.6	2.3%
oesophagus	74.0	1,496	11.9	2.9%	75.2	1,479	13.1	2.4%
lymphoma	70.2	1,394	14.8	2.7%	73.0	1,558	14.7	2.5%
kidney	68.4	735	16.7	1.4%	73.1	840	14.7	1.3%
bladder	76.5	487	10.6	0.9%	75.2	890	13.7	1.4%
all cancer deaths	70.0	51,693	15.0	100%	71.7	62,471	15.8	100%
diseases of the circulatory system						40,315	8.5	
diseases of the respiratory system						13,945	8.0	
(b) Males	1995				2010			
	Average age at death	Total YLL	average YLL	% of all years lost	Average age at death	Total YLL	average YLL	% of all years lost
lung	70.0	11,943	11.6	24.6%	71.0	12,995	13.3	22.4%
colorectal	70.3	6,363	11.6	13.1%	72.0	6,844	12.8	11.8%
prostate	76.9	4,031	7.8	8.3%	79.3	4,473	8.4	7.7%
brain & CNS	56.7	3,022	21.7	6.2%	59.7	3,092	22.2	5.3%
stomach	70.7	2,949	11.4	6.1%	68.9	2,693	15.0	4.6%
pancreas	69.2	2,180	12.5	4.5%	70.9	3,268	13.4	5.6%
lymphoma	62.6	2,177	17.3	4.5%	70.9	1,970	13.7	3.4%
oesophagus	69.5	1,970	12.1	4.1%	68.9	3,267	14.9	5.6%
leukaemia	66.2	1,532	15.3	3.2%	68.3	2,053	16.0	3.5%
bladder	76.6	937	8.1	1.9%	77.0	1,168	9.7	2.0%
kidney	69.6	777	12.1	1.6%	70.1	1,818	14.3	3.1%
all cancer deaths	70.2	48,568	11.8	100%	71.5	57,996	13.3	100%
diseases of the circulatory system						53,579	11.0	
diseases of the respiratory system						13,758	9.0	

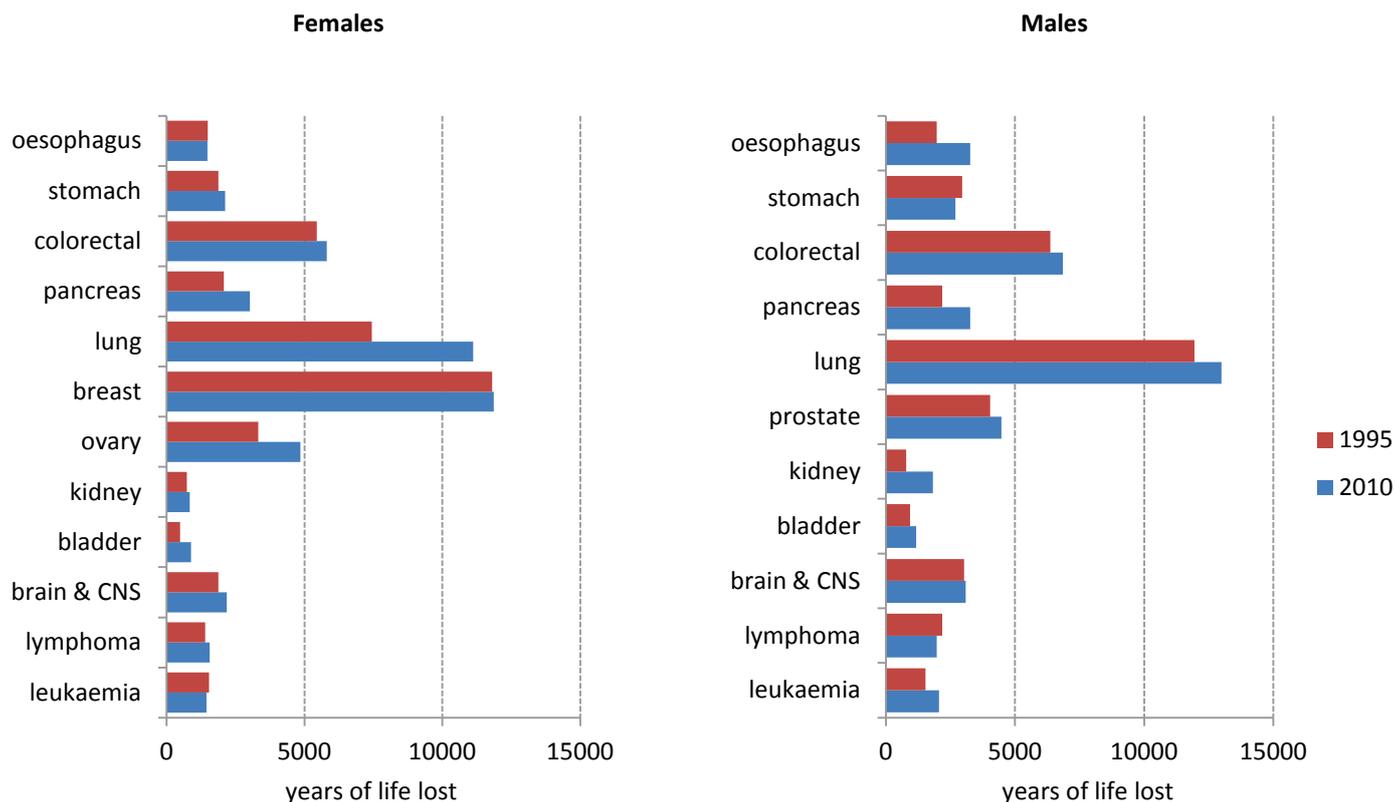
A total of 51,693 YLL was estimated for women who died from cancer in 1995, an average of 15 years per person (Table 5a). This increased to 62,371 YLL in 2010, although the average per person changed little (15.8 years). The greatest percentage of YLL in women was from breast cancer, making up almost 23% of all YLL in 1994 and 19% in 2010. Lung and colorectal cancers, the

other most common causes of cancer death, together represented over 25% of all YLL in women in 1995 and 27% in 2010, with the proportion of years lost due to lung cancer in particular increasing substantially. For most cancers, the average YLL increased between 1995 and 2010, probably a reflection of the generally greater life expectancy for women in 2010 compared to 1995 as the average age at death from cancer increased during this time (with the exception of stomach, bladder and brain & CNS cancers). A decline in the YLL for leukaemia and kidney cancers in females between 1995 and 2010 is a likely indicator of improved survival rates for these cancers. It is worth noting that deaths from brain and CNS cancers represented the single greatest average YLL in women in 1995 and again in 2010. Although contributing less than 4% of YLL from all cancers, their comparatively young age at incidence (compared to some other more common cancers) and poor prognosis resulted in an average of over 20 years of life lost for these patients. Finally, in 2010, although the total number of female deaths from cancer ranked second, after diseases of the circulatory system, it is interesting to note that the total YLL for the latter in 2010 was 40,315 (35% less than that for all cancer deaths).

An overall average of 11.8 YLL was estimated for men who died from cancer in 1995 and this increased to 13.3 years per person or almost 58,000 total YLL in 2010 (Table 5b). As for females, the most commonly diagnosed cancers comprised the bulk of all years of life lost; with prostate, lung and colorectal cancers together representing 46% of all YLL in 1995 and 42% in 2010. It is notable that, contrary to observations in females, the percentage YLL from lung cancer in males decreased between 1995 and 2010 (from 24.6% to 22.4%). As observed for females, the average YLL for most individual cancers increased in 2010 despite increases in the average age at death from most cancers (except for oesophagus and stomach), reflecting the greater life expectancy for males in 2010 compared to 1995. A fall in average YLL was observed for male lymphoma - from 17.3 to 13.7, a result of increased average age at death in 2010 (70.9) compared to 1995 (62.6) and significant improvements in survival. As with females, brain and CNS represented the single greatest average YLL of 22 years approximately, considerably higher than that for the 3 most common cancers. Although total YLL for all cancer deaths in men in 2010 (57,996) was also higher than that estimated for deaths from circulatory disease (53,579), this was to a much lesser extent than that observed for females.

In the 15 year period from 1995 to 2010, total YLL increased from 100,261 to 120,467 (an increase of 20% approximately). Greatest relative increases in total YLL were observed for deaths from cancers of the pancreas, lung, ovary and bladder in women and for deaths from cancers of the oesophagus, pancreas and kidney in men (Figure 3). The large increase in YLL for female lung cancer between 1995 and 2010 is notable – although total YLL for lung cancer in men increased by less than 10%, female total YLL from lung cancer increased by 49%, an indicator of the increasing importance of lung cancer mortality in women.

Figure 3: Years of life lost (YLL) due to common cancers, 1995 and 2010



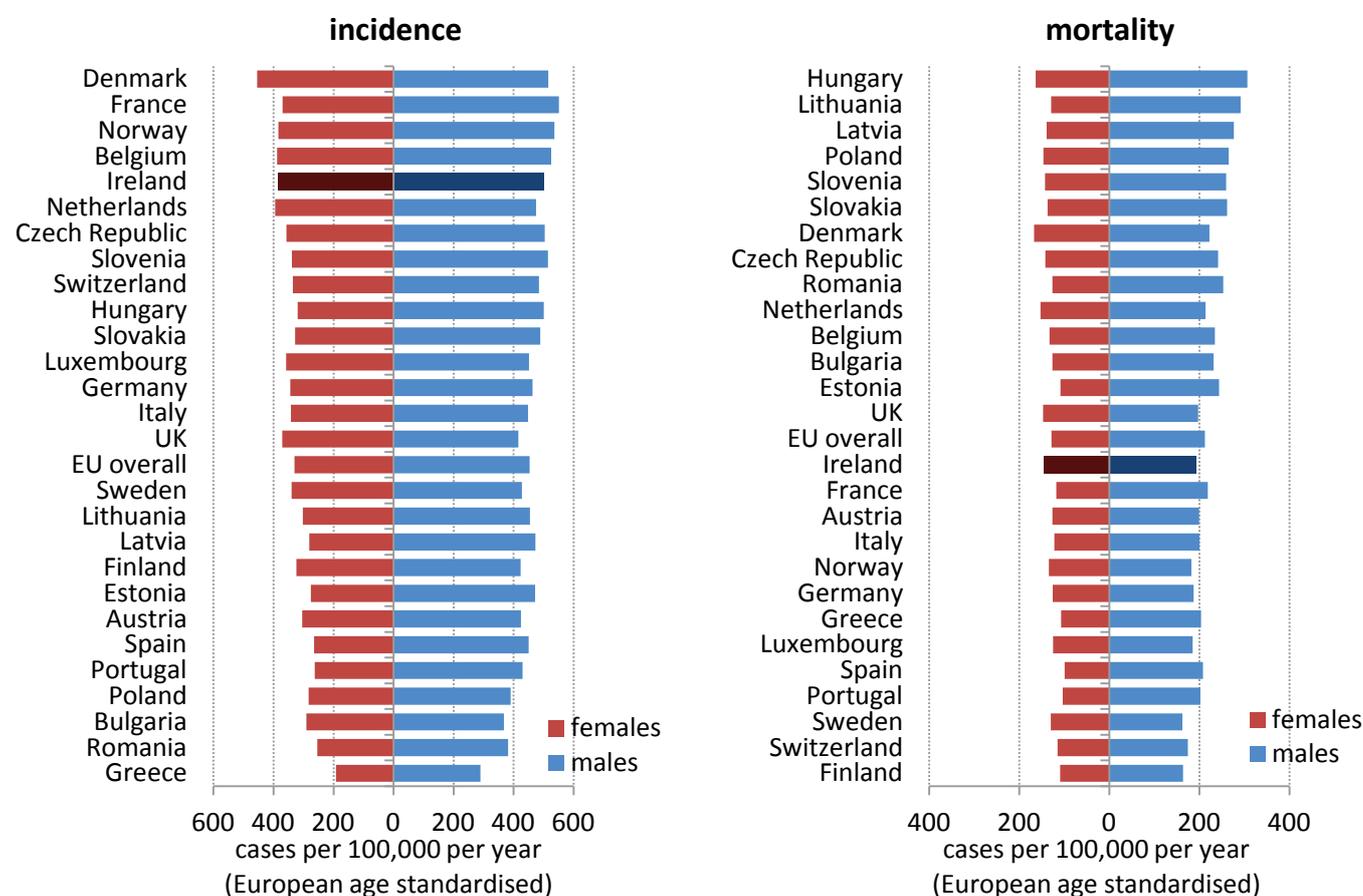
4. INCIDENCE AND MORTALITY: IRELAND AND OTHER EUROPEAN COUNTRIES, 2012

The European Cancer Observatory (<http://eco.iarc.fr/Default.aspx>) has recently produced estimates of national cancer incidence and mortality for all European countries for 2012. ⁽¹⁾ A standard methodology was used so that all countries could be included in the estimates. Although rates generated may differ to those produced by individual countries, it is the only standard by which cancer incidence and mortality can be compared directly between countries. A series of bar-charts showing the incidence and mortality for some of the main cancers are shown in Figure 4. Data is shown for 25 of the current EU-27 countries with Norway and Switzerland (both outside EU) also included. The 'EU overall' figure shown in the graphs refers to the average for the 27 EU countries (i.e. the 25 EU countries listed plus Cyprus and Malta). Additional graphs for other common cancers are shown in Appendix III.

All invasive cancers

Estimates for Ireland indicate that cancer incidence here was amongst the highest in Europe, with females ranked 5th and males 8th of 27 countries (Figure 4a). Incidence rates were 15% and 10% higher than the overall EU average respectively. However variability between countries was low and Irish incidence rates were generally close to those found in several other north western European countries. Mortality rates tended to vary to a greater degree than incidence with Irish females ranked 6th and males 21st highest overall. Both female and male mortality rates in Ireland were close to those found for the UK - female rates in Ireland were 13% higher and male rates 9% lower than the EU average. The Irish mortality/incidence ratio was similar to that for the EU overall with approximately 4 deaths for every 10 incident cases.

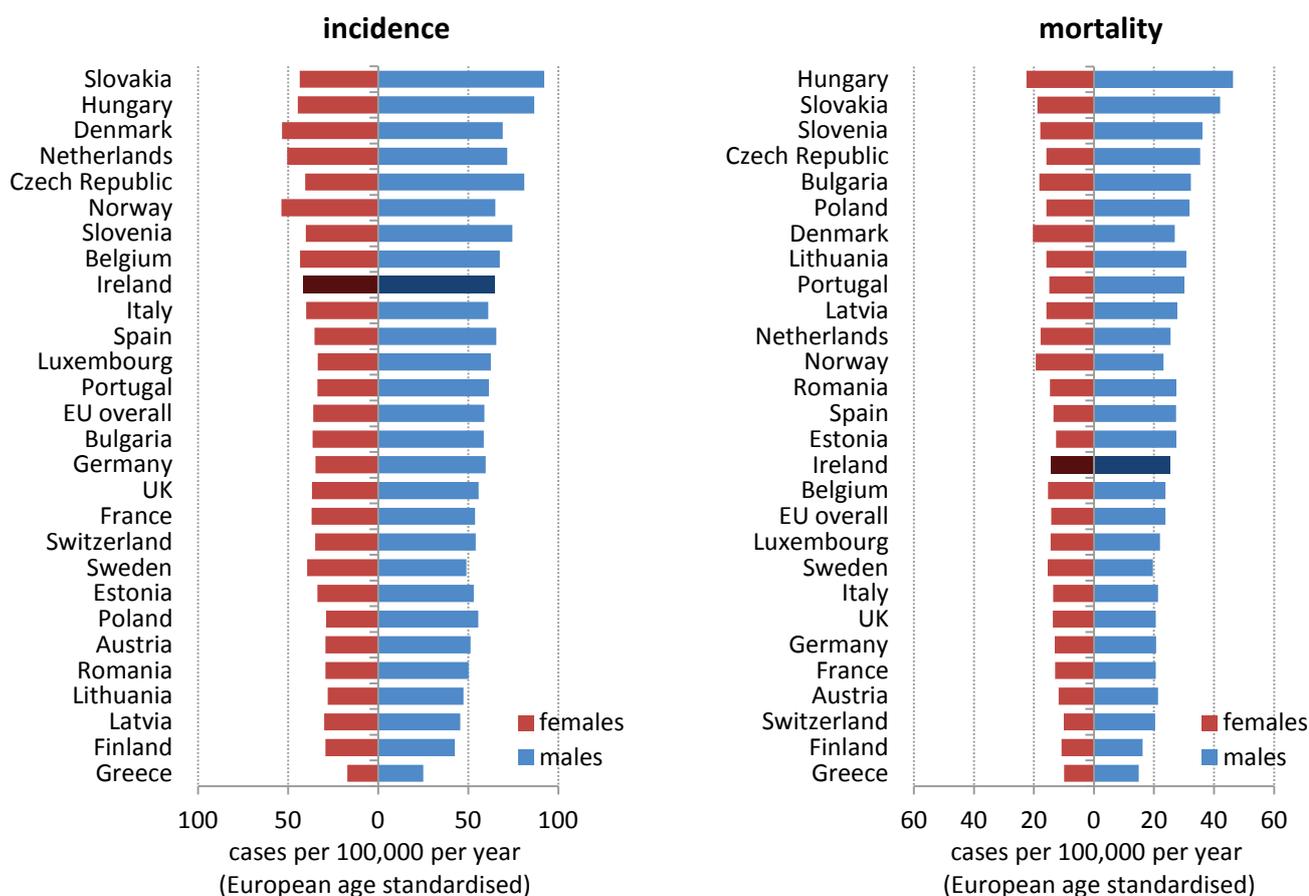
Figure 4a: Estimated cancer incidence and mortality in Europe 2012, all invasive cancers (excluding non-melanoma skin)



Colorectal cancer

Colorectal cancer incidence rates for females and males in Ireland ranked 7th and 9th highest respectively of 27 European countries (Figure 4b). Female rates were 14% higher than the EU average and male rates were 10% higher. However Irish mortality rates were comparatively lower; female rates were the same as those calculated for the EU overall and ranked 17th out of 27, while male rates ranked 15th. Mortality/incidence ratios for Irish males were the same as that calculated for the EU overall; 4 deaths for every 10 incident cases, but Irish female ratios were lower than the EU average; 3 deaths (compared to 4) for every 10 diagnosed cases.

Figure 4b: Estimated cancer incidence and mortality in Europe 2012, colorectal cancer

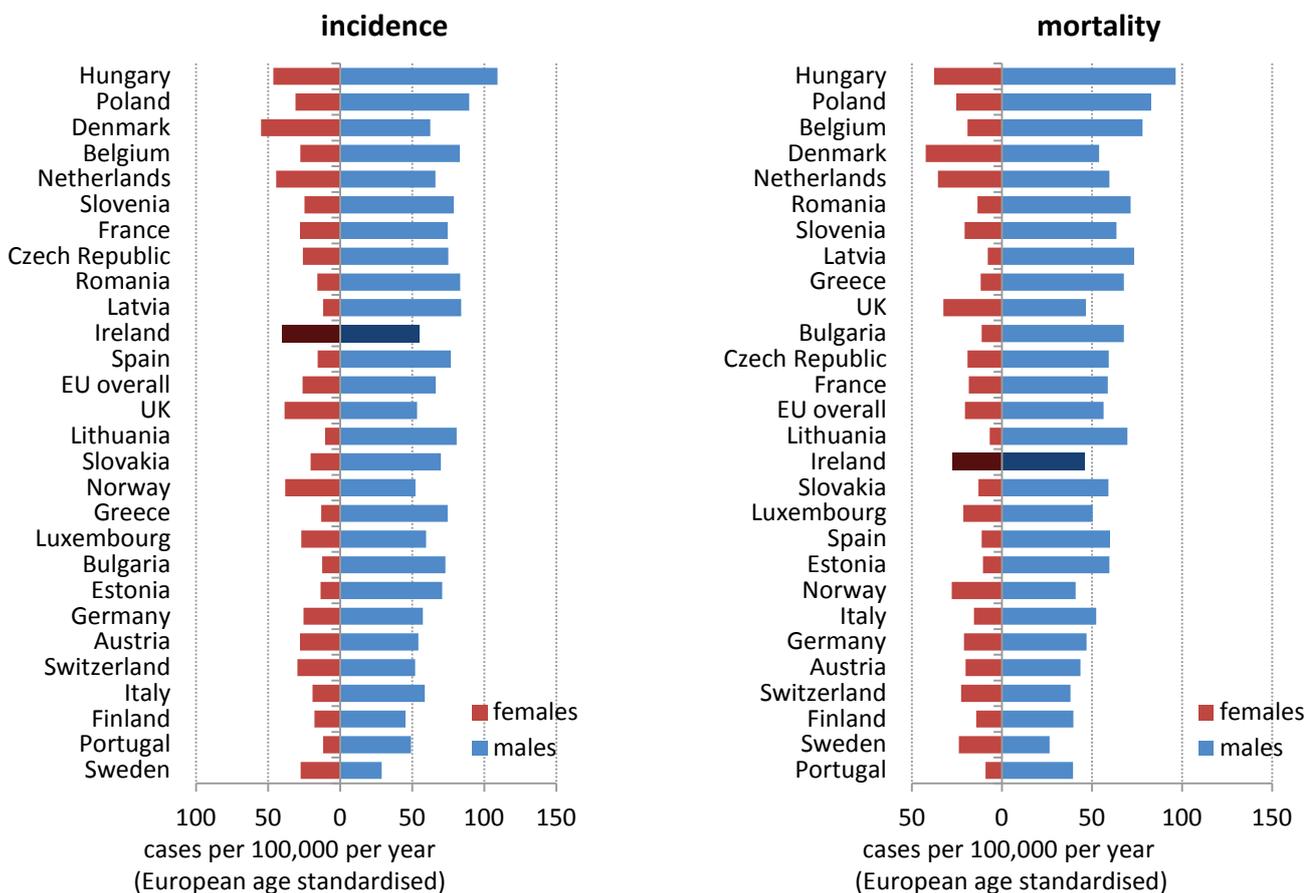


Lung cancer

Incidence and mortality rates for lung cancer across Europe were very variable and national comparisons between the sexes were quite different (Figure 4c). Irish females ranked amongst the highest in Europe in terms of both incidence and mortality, with incidence rates 55% higher than the EU average - 4th highest in Europe after Denmark, Hungary and Netherlands. Irish female mortality rates were 6th highest overall, 34% higher than the EU average. Incidence and mortality rates for Irish males were in the lower third of the 27 countries examined and were 17% and 19% lower than the EU average respectively. For most countries, male incidence and mortality rates were between 2 and 5 times higher than that for females. However in Ireland and

in a number of other north European countries, particularly Sweden, Norway, Denmark, Netherlands and UK, the ratio between males and females was much lower – which may be an indicator of different smoking prevalence patterns in males and females. Mortality/incidence ratios for both sexes in Ireland were lower than the EU average however with 7 female deaths in Ireland for every 10 cases (compared to 8 deaths in the EU) and 8 male deaths in Ireland for every 10 cases diagnosed (9 deaths in the EU).

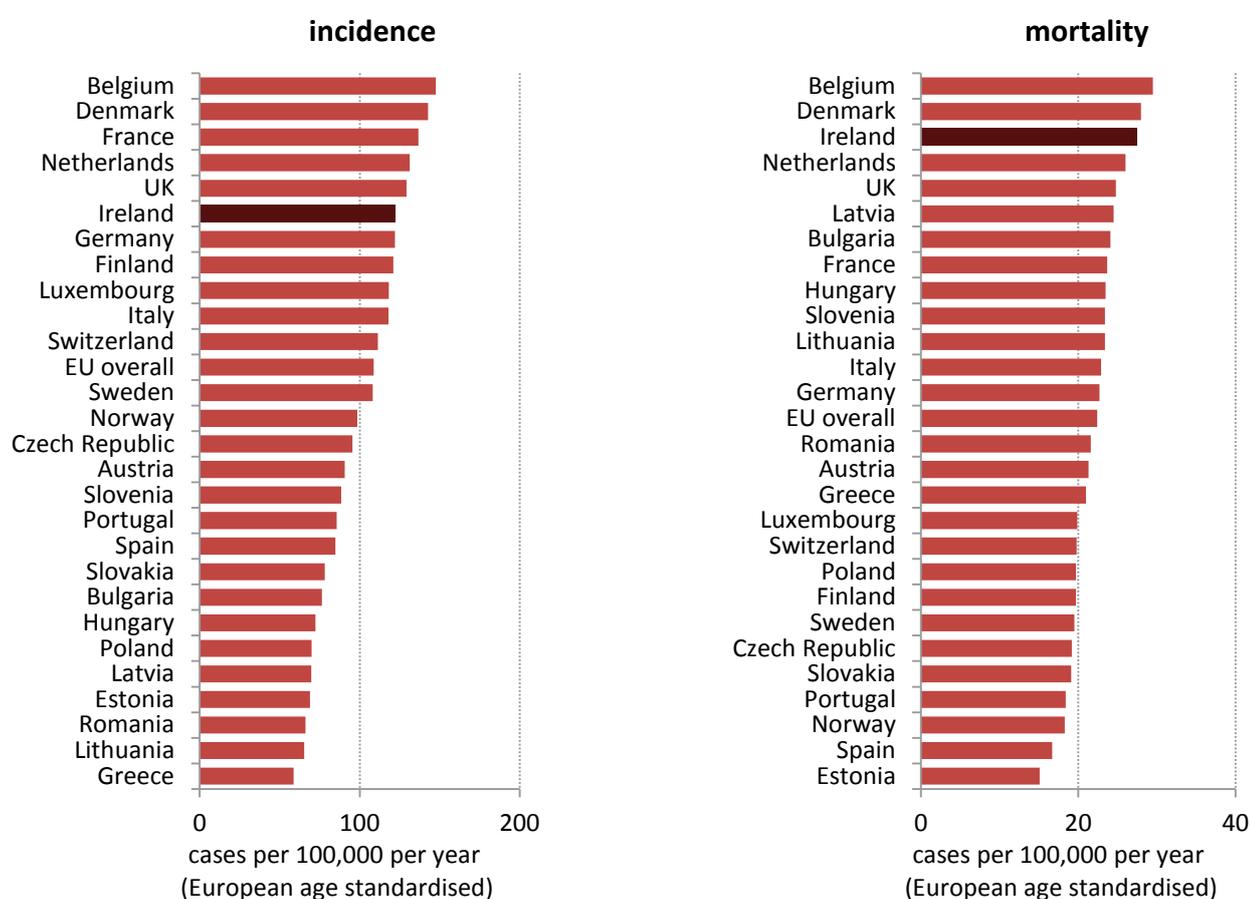
Figure 4c: Estimated cancer incidence and mortality in Europe 2012, lung cancer



Female breast cancer

Female breast cancer incidence in Ireland was 12.5% higher than the EU average and ranked 6th highest of 27 countries overall (Figure 4d). In general highest incidence rates were found in northern and western Europe and lowest incidence in eastern European countries. This may reflect variation in national breast cancer screening activities between countries. Irish mortality rates were 3rd highest, after Belgium and Denmark and were 22% higher than the EU overall. However despite this, Irish mortality/incidence ratios were the same as that found for the EU overall with 2 deaths for every 10 women diagnosed. Highest mortality/incidence ratios were found in Greece, Latvia and Lithuania and lowest ratios in Finland, Luxembourg and France.

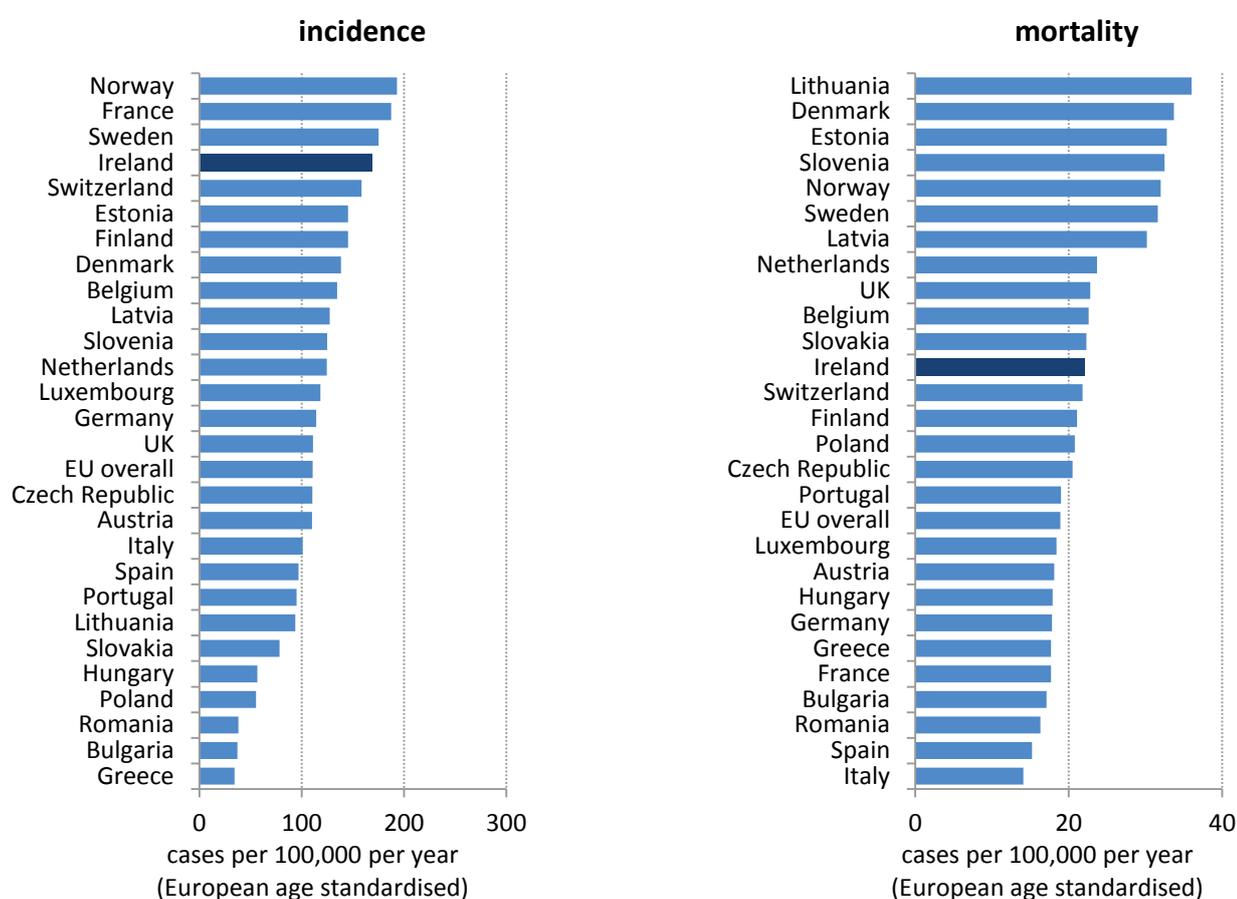
Figure 4d: Estimated cancer incidence and mortality in Europe 2012, female breast cancer



Prostate cancer

Incidence of prostate cancer in Ireland was 4th highest of 27 European countries, after Norway, France and Sweden with rates over 50% higher than the EU average (Figure 4e). Fairly widespread PSA testing and screening in Ireland in recent years probably accounts for much of the higher incidence observed here. Mortality rates in Ireland were comparatively lower, although still 17% higher than the EU average and ranked 12th highest overall. Mortality/incidence ratios in Ireland however were second lowest after France, with 1 death for every 10 men diagnosed. Mortality/incidence ratios tended to be higher in eastern Europe with 4 or 5 deaths for every 10 diagnosed cases in Romania, Bulgaria and Greece.

Figure 4e: Estimated cancer incidence and mortality in Europe 2012, prostate cancer



See Appendix III for estimated cancer incidence and mortality for other sites.

5. PREVALENCE

Follow-up of all registered patients (through matching of registrations to death certificates) is currently complete to the end of 2010. From the beginning of 1994 (when national cancer registration commenced) to the end of 2010, a total of 116,081 females and 125,977 males were diagnosed with cancer (each individual counted once only, regardless of how many cancer diagnoses they may have had). Total prevalence for this 17 year period shows that just over 104,300 of these patients were still alive at end 2010, representing 47% of all female and 40% of all male patients (Table 6). As prevalence takes all patients into account, the majority of those still alive are patients diagnosed in recent years. However prevalence can be a good indicator of cancer burden – particularly when shorter time periods are examined; for example 1 year prevalence provides an estimate of the number of patients currently undergoing treatment or just recently completing their treatment, 3 year prevalence gives an indication of the number of these patients together with those who may have completed treatment but are still under clinical surveillance or follow-up. Prevalence for various periods for all cancers as well as for lung, breast, prostate and colorectal cancers is listed in Table 6.

Table 6. Prevalence of all cancers and the main cancers in Ireland at end 2010

Prevalence	17 years		10 years		5 years		3 years		1 year	
	diagnosed from Jan 1994		diagnosed from Jan 2001		diagnosed from Jan 2006		diagnosed from Jan 2008		diagnosed during 2010	
all cancers excluding NMSC	total	% of all patients diagnosed	total	% of all patients diagnosed						
females	54,145	47%	42,144	56%	26,883	65%	18,533	72%	7,228	83%
males	50,222	40%	42,426	51%	28,369	62%	19,554	68%	8,017	81%
‡all <65	47,459	71%	39,617	75%	27,119	80%	19,007	84%	7,618	92%
‡all 65+	56,908	32%	44,953	42%	28,133	53%	19,080	60%	7,627	74%
total	104,367	43%	84,570	53%	55,252	64%	38,087	70%	15,245	82%
LUNG										
females	1,620	14%	1,446	19%	1,151	27%	937	36%	528	57%
males	1,878	10%	1,652	15%	1,362	23%	1,165	32%	681	53%
‡all <65	1,177	27%	1,075	29%	895	35%	746	44%	440	68%
‡all 65+	2,321	9%	2,023	13%	1,618	21%	1,356	29%	769	50%
total	3,498	12%	3,098	16%	2,513	25%	2,102	33%	1,209	55%
BREAST										
females	24,236	68%	18,837	79%	11,506	88%	7,690	93%	2,653	98%
males	147	57%	122	71%	85	83%	59	91%	25	100%
‡all <65	13,577	83%	11,290	89%	7,350	94%	5,078	97%	1,817	99%
‡all 65+	10,806	55%	7,669	68%	4,241	79%	2,671	85%	861	94%
total	24,383	68%	18,959	79%	11,591	88%	7,749	93%	2,678	98%
PROSTATE										
females	-	-	-	-	-	-	-	-	-	-
males	21,551	62%	19,393	76%	12,495	87%	8,276	92%	3,061	97%
‡all <65	5,186	94%	5,094	95%	4,044	97%	2,924	98%	1,202	99%
‡all 65+	16,365	56%	14,299	70%	8,451	83%	5,352	88%	1,859	95%
total	21,551	62%	19,393	76%	12,495	87%	8,276	92%	3,061	97%
COLORECTAL										
females	6,222	42%	4,797	52%	3,117	64%	2,125	71%	843	84%
males	7,805	40%	6,339	51%	4,327	65%	3,015	73%	1,188	86%
‡all <65	3,991	66%	3,488	71%	2,539	79%	1,780	84%	723	94%
‡all 65+	10,036	36%	7,648	46%	4,905	59%	3,360	68%	1,308	81%
total	14,027	41%	11,136	52%	7,444	64%	5,140	72%	2,031	85%

‡ refers to age category of patient at end of 2010

A total of 1,209 patients diagnosed with lung cancer during 2010 were still alive at the end of that year (1 year prevalence) (Table 6). This represents 55% of all patients diagnosed who are likely to be still undergoing or just completed treatment. 3 year prevalence for lung cancer indicated that 2,102 patients (33% of all those diagnosed) were likely to be still undergoing treatment or follow-up clinical surveillance for lung cancer at the end of 2010.

A total of 14,027 colorectal cancer patients, 24,383 breast cancer patients and 21,551 prostate cancer patients diagnosed since 1994 were still alive at the end of 2010, representing 41%, 68% and 62% of all patients diagnosed during the 17 year period respectively. These cancers all have a better prognosis than lung cancer and just taking those patients who are likely to be still under active treatment or clinical follow-up (3 year prevalence), the percentages of all patients diagnosed are higher than those observed for lung cancer. Three year prevalence for colorectal cancer was 5,140 (72% of all patients diagnosed), for breast cancer 7,749 (93% of all patients diagnosed) and 8,276 for prostate cancer (92% of all patients diagnosed).

Table 7: 17 year prevalence of most common cancer sites, end 2010

	females	males	<65‡	65+ ‡	Total
breast	24,236	147	13,577	10,806	24,383
prostate	-	21,551	5,186	16,365	21,551
colorectal	6,222	7,805	3,991	10,036	14,027
melanoma	4,241	2,501	3,732	3,010	6,742
lymphoma*	2,701	2,948	3,411	2,238	5,649
<i>Hodgkin's lymphoma</i>	596	705	1,155	146	1,301
<i>NHL</i>	2,106	2,244	2,258	2,092	4,350
lung	1,620	1,878	1,177	2,321	3,498
bladder	1,034	2,421	852	2,603	3,455
leukaemia	1,294	1,840	1,723	1,411	3,134
corpus uteri	3,089	-	1,302	1,787	3,089
kidney	1,079	1,631	1,281	1,429	2,710
cervix	2,395	-	2,071	324	2,395
testis	-	2,102	2,044	58	2,102
mouth & pharynx	669	1,104	973	800	1,773
ovary	1,746	-	1,021	725	1,746
stomach	519	881	435	965	1,400
thyroid	1,009	317	1,037	289	1,326
brain & CNS	546	614	963	197	1,160
multiple myeloma	463	574	391	646	1,037
oesophagus	301	520	302	519	821
pancreas	236	218	167	287	454

* 2 patients had both Hodgkin's disease and NHL so totals do not equal that shown for all lymphoma

NHL: non-Hodgkin's lymphoma

‡ refers to age category of patient at end of 2010

The total number of patients in the population at the end of 2010 diagnosed with the most common cancers since 1994 (17 year prevalence) is listed in Table 7.

Some patients had more than 1 cancer diagnosis and these patients are counted once only for each cancer type. The majority of patients in the population in 2010 were those diagnosed with breast, prostate and colorectal cancers. Other cancers with generally good prognoses, such as melanoma, also contributed a large proportion of the total.

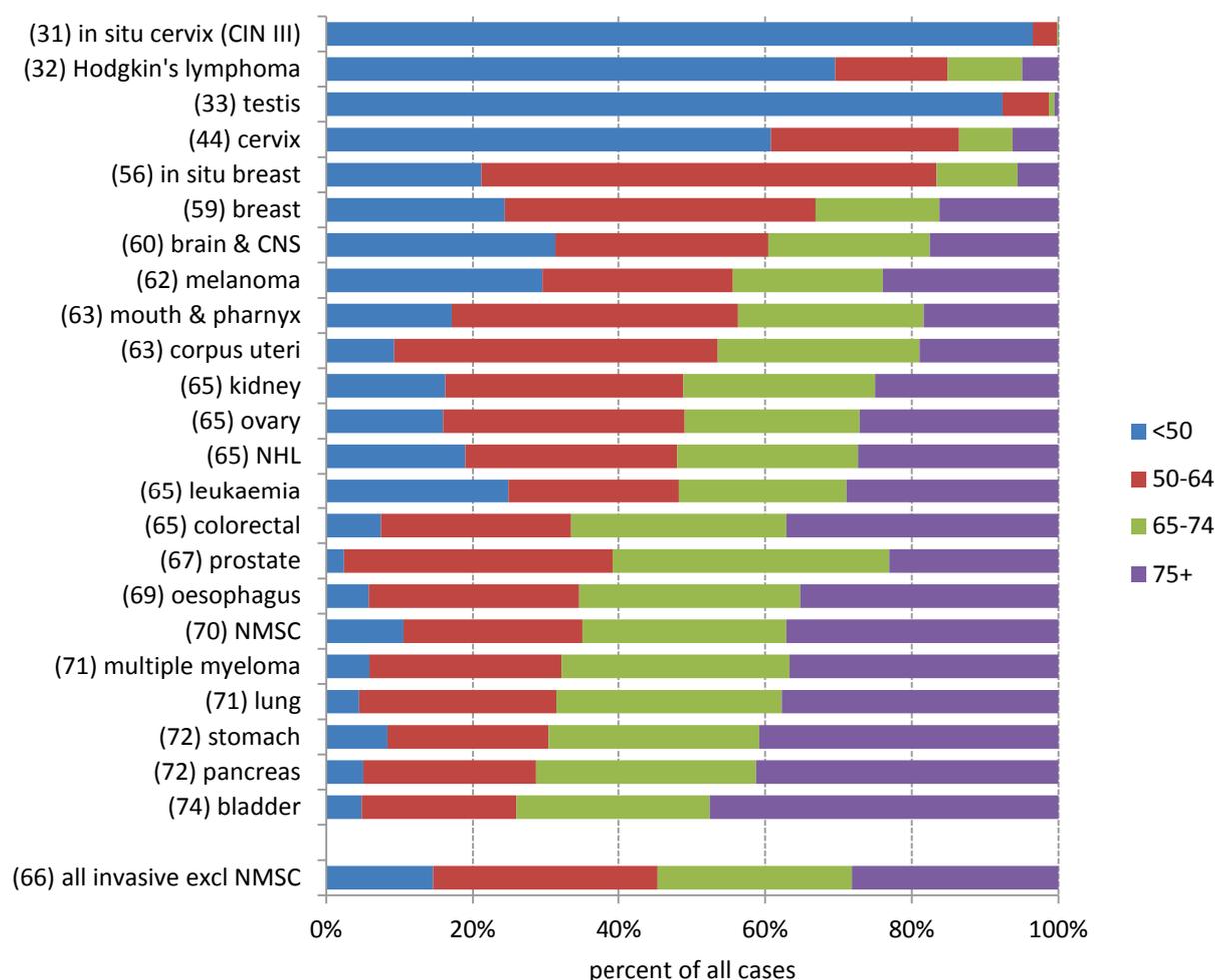
Cancers with generally poor survival, such as pancreas and oesophagus represented fairly low numbers in the prevalent population while there were much greater numbers of patients still alive who had been diagnosed with comparatively rarer cancers with good prognoses, such as testis. Over 70% of living prostate, colorectal and bladder cancer patients were over 65 at the

end of 2010 reflecting their generally older age at diagnosis. Less than 15% of patients diagnosed with cancers of the testis, cervix and Hodgkin's lymphoma were over 65, also indicative of their much younger age at diagnosis.

6. AGE PROFILES OF PATIENTS AT DIAGNOSIS AND DEATH

Less than 15% of all patients were under 50 years of age when diagnosed with invasive cancer (Figure 5). The proportion of all patients aged between 50 and 64, between 65 and 74 and aged over 75 was fairly similar and the median age overall was 66 years. The age profile of individual cancer types varied considerably however. Over two-thirds of patients with cancers of the stomach, oesophagus, pancreas, bladder, lung, prostate and colorectum as well as multiple myeloma were diagnosed when aged 65 or over. In contrast patients diagnosed with in situ cervical cancer, invasive testicular cancer and Hodgkin's lymphoma were very young by comparison, with mean ages of 31, 33 and 32 respectively. 62% and 43% of invasive and in situ breast cancer patients respectively were aged between 50 and 64 when diagnosed. This corresponds to the age band at which patients can avail of the national breast screening service and a greater proportion of patients was diagnosed in this age group than in the other age groups shown. The median age of these patients at diagnosis was 59 (invasive) and 56 (in situ).

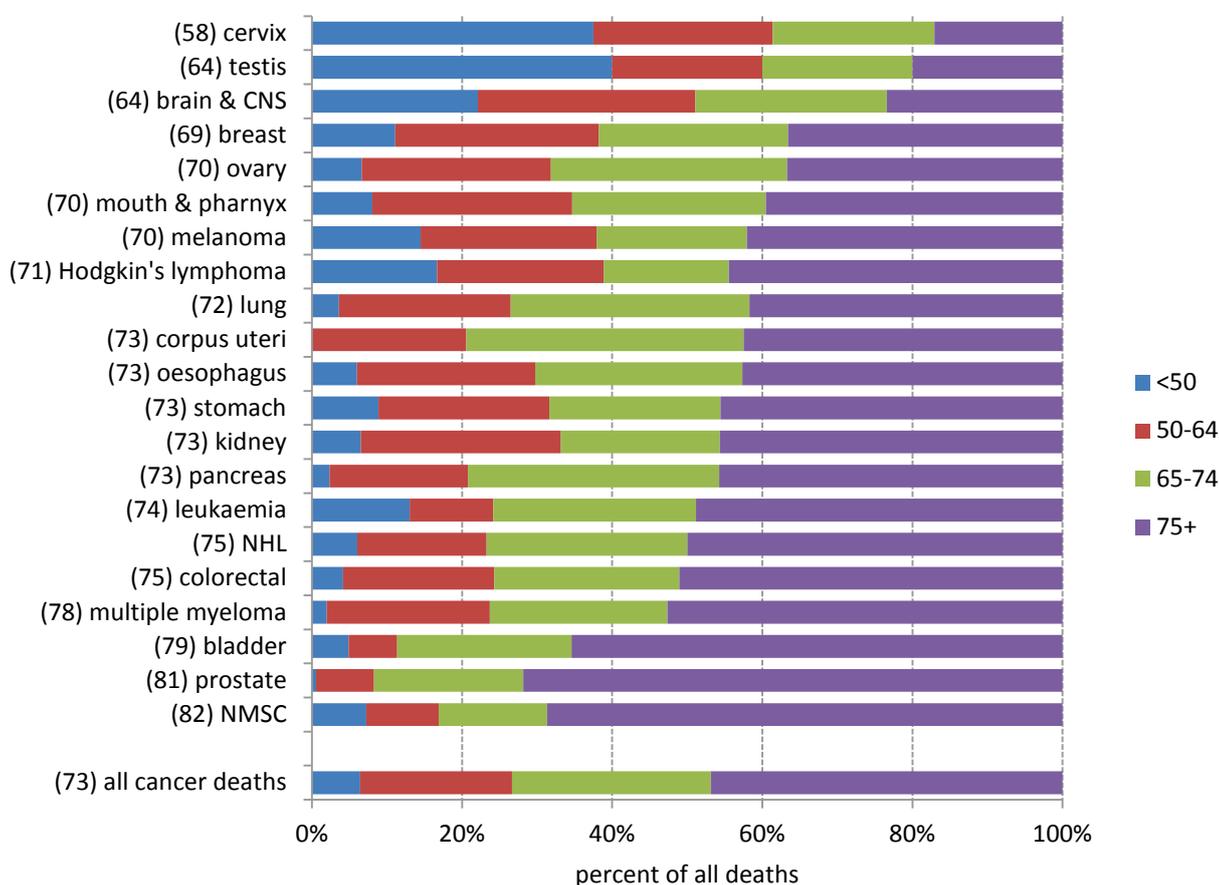
Figure 5. Age profile of cancer patients at diagnosis: 2008-2010



Figures in parentheses indicate median age at diagnosis
 NHL: non-Hodgkin's lymphoma, NMSC: non-melanoma skin cancer

The median age at death from cancer in 2010 was 73 years and almost half of all patients were aged over 75 when they died (Figure 6). Median age at death for patients dying from non-melanoma skin cancer (NMSC) was 82 years, representing the oldest group overall, although they comprised just 1% of all cancer deaths (83 NMSC deaths in 2010). Prostate and bladder cancer patients had the next highest median ages at death overall (81 and 79 years respectively) and over two-thirds of these patients were aged 75 or older at death. For the most part, those cancers that were diagnosed at older ages tended to have a similar age profile at death and patients with stomach, pancreas and lung cancer had very similar median ages at diagnosis and death. The greatest differences between median ages at diagnosis and death were observed for patients with testicular cancer and Hodgkin's lymphoma. Although over 92% of all testicular cancer patients were under 50 when diagnosed; only 40% of patients were in this age group at death, where the median age was 64. Similarly for Hodgkin's lymphoma patients, median age at diagnosis was 31 but at death was 71 and 44% of patients were aged over 75 when they died.

Figure 6. Age profile of cancer patients at death: 2010



Figures in parentheses indicate median age at death
 NHL: non-Hodgkin's lymphoma, NMSC: non-melanoma skin cancer
 mortality data provided by the Central Statistics Office (www.cso.ie)

Table 8. Percentage of all deaths in Ireland in 2010 where cause of death was cancer or diseases of the circulatory or respiratory systems

	Total deaths	Cancer	Circulatory	Respiratory
females				
<50 years	815	35%	10%	2%
50-64 years	1,430	56%	16%	5%
65-74 years	1,943	50%	24%	9%
75+ years	9,439	20%	42%	16%
all ages	13,627	29%	35%	13%
males				
<50 years	1,618	15%	13%	2%
50-64 years	2,253	39%	32%	5%
65-74 years	2,952	42%	34%	10%
75+ years	7,511	27%	39%	15%
all ages	14,334	30%	34%	11%
both sexes				
<50 years	2,433	22%	12%	2%
50-64 years	3,683	46%	26%	5%
65-74 years	4,895	45%	30%	9%
75+ years	16,950	23%	41%	15%
all ages	27,961	30%	34%	12%

Three out of every four deaths in Ireland in 2010 were caused by cancer or by diseases of the circulatory or respiratory systems. Cancer accounted for 30% of all deaths and was the second most common cause of death overall.

The relative proportion of patients dying from cancer varied substantially with patient age and sex (Table 8). Cancer represented 35% of all deaths in women aged under 50 but only 15% in males of the same age group. Similarly for patients in middle age (50-64 years), cancer represented a greater proportion of female deaths (56%) compared to males (39%). For males in this age group, diseases of the circulatory system represented almost one-third of all deaths, compared to 16% of all female deaths.

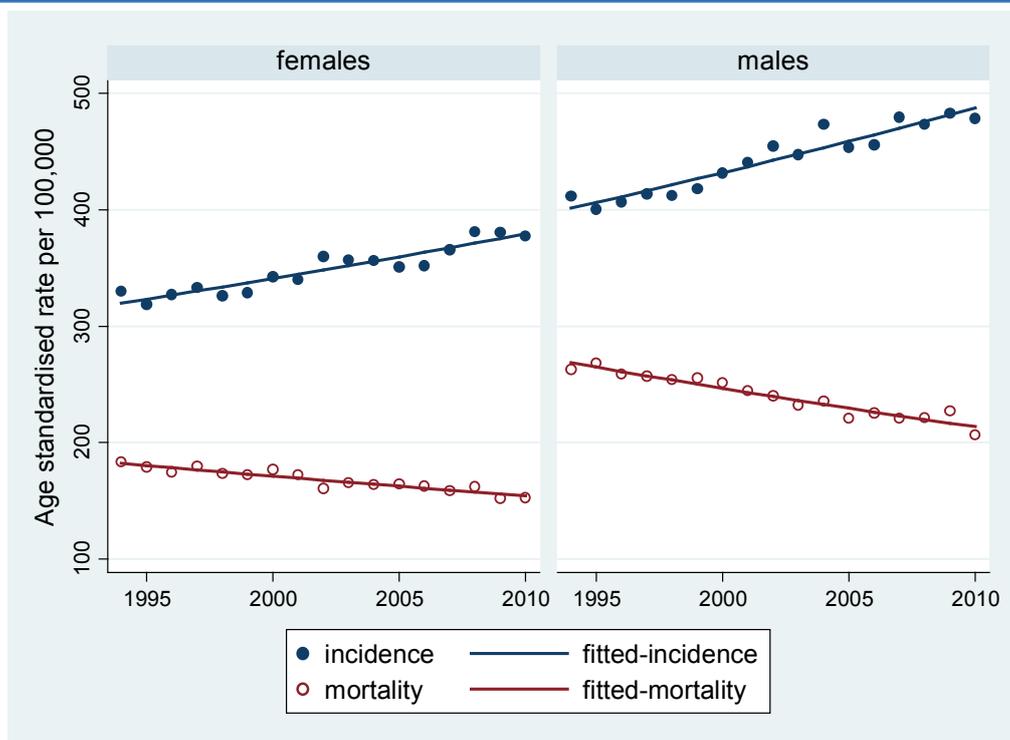
The relatively greater proportion of cancer deaths among young women compared to men (aged under 50) may be due to the fact that many cancers diagnosed in women tend to have a younger age profile than those more commonly diagnosed in men; for example cancer of the breast and corpus uteri compared to prostate and lung cancer. In both sexes, deaths from cancer outnumbered deaths from diseases of the circulatory system except in those patients aged over 75 years.

7. TRENDS

7.1 Incidence and mortality trends: 1994-2010

Since 1994, case numbers of all invasive cancers, excluding non-melanoma skin cancers, have increased by 56% overall (from 12,099 in 1994 to 18,920 in 2010), representing an annual percentage change (APC) of 3% (2.9% in women and 3.3% in men). However much of this increase is due to population growth and ageing, and all-cancer incidence rates have shown a lower, although still significant, degree of increase (1.1% in women and 1.2% in men) (Figure 7a, Table 9). Although the number of all-cancer deaths has also increased during this time (from 7,433 in 1994 to 8,316 in 2010), mortality rates have declined, significantly so for both sexes, with an annual percentage decline of 1% in females and 1.4% in males. This has resulted in all-cancer mortality/incidence ratios declining from 0.6 (6 deaths for every 10 incident cases) in 1994 to 0.4 (4 deaths for every 10 cases) in 2010 for both males and females.

Figure 7a. Time trends in incidence and mortality rate (European age standardised) 1994-2010: all invasive cancers, excluding non-melanoma skin cancer



Mortality data provided by the Central Statistics Office (www.cso.ie)

Trends in incidence and mortality for both males and females are illustrated for the main 4 cancers (colorectal, lung, female breast and prostate) as well as for cervix and melanoma in Figure 7(b-g). Details of these observed trends (annual percentage change) are listed in Table 9. Additional graphs showing trends for other cancers listed in Table 9 are shown in Appendix IV.

Table 9. Time trends-annual percentage change (APC) in age standardised rate (ASR) of incidence and mortality

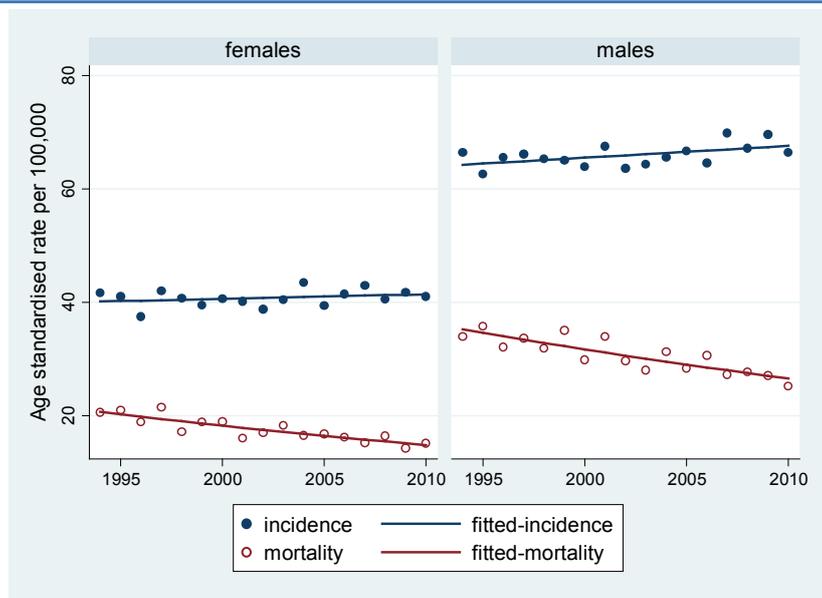
	FEMALES						MALES					
	INCIDENCE			MORTALITY			INCIDENCE			MORTALITY		
	period	APC	trend	period	APC	trend	period	APC	trend	period	APC	trend
all invasive-excluding NMSC	[1994-2010]	1.1	↑	[1994-2010]	-1.0	↓	[1994-2010]	1.2	↑	[1994-2010]	-1.4	↓
mouth & pharynx	[1994-2008]	1.1	↔	[1994-2010]	-1.6	↓	[1994-2001]	-4.1	↓	[1994-2010]	-2.6	↓
	[2008-2010]	23.3	↔				[2001-2010]	2.4	↑			
oesophagus	[1994-2010]	-1.0	↓	[1994-2010]	-1.9	↓	[1994-2010]	0.3	↔	[1994-2010]	-0.8	↓
stomach	[1994-2010]	-1.6	↓	[1994-2010]	-3.3	↓	[1994-2003]	-3.0	↓	[1994-2010]	-3.4	↓
							[2003-2010]	0.3	↔			
colorectal	[1994-2010]	0.2	↔	[1994-2010]	-2.1	↓	[1994-2010]	0.3	↑	[1994-2010]	-1.7	↓
pancreas	[1994-2010]	0.6	↔	[1994-2010]	0.5	↔	[1994-2010]	0.8	↔	[1994-2005]	-1.5	↓
									[2005-2010]	3.6	↔	
lung	[1994-2010]	2.2	↑	[1994-2010]	0.5	↑	[1994-2010]	-0.7	↓	[1994-2010]	-1.9	↓
melanoma-skin	[1994-2010]	2.9	↑	[1994-2010]	1.8	↔	[1994-2010]	5.1	↑	[1994-2010]	6.0	↑
non-melanoma skin	[1994-2000]	-0.9	↔				[1994-2001]	-1.9	↓			
	[2000-2010]	2.5	↑				[2001-2010]	3.3	↑			
breast	[1994-2010]	1.9	↑	[1994-2010]	-1.9	↓						
cervix	[1994-2010]	2.1	↑	[1994-2010]	-0.6	↔						
corpus uteri	[1994-2010]	2.4	↑	[1994-2010]	2.0	↑						
ovary	[1994-2010]	-0.7	↔	[1994-2010]	-0.5	↔						
prostate							[1994-2004]	7.6	↑	[1994-2001]	-0.1	↔
							[2004-2010]	1.4	↔	[2001-2010]	-2.8	↓
testis							[1994-2010]	3.2	↑	[1994-2010]	-4.5	↓
kidney	[1994-2010]	3.3	↑	[1994-2010]	0.6	↔	[1994-2010]	2.9	↑	[1994-2010]	1.1	↔
bladder	[1994-2010]	-2.1	↓	[1994-2010]	-0.7	↔	[1994-2010]	-2.6	↓	[1994-2010]	-1.2	↓
brain-spinal cord	[1994-2010]	0.6	↔	[1994-2010]	-1.1	↔	[1994-2008]	0.4	↔	[1994-2010]	-0.4	↔
							[2008-2010]	-7.7	↔			
thyroid	[1994-2010]	6.9	↑	[1994-2010]	-4.7	↓	[1994-2010]	5.1	↑	[1994-2010]	-0.3	↔
lymphoma (total)	[1994-2010]	1.7	↑	[1994-2010]	-1.4	↔	[1994-2010]	1.7	↑	[1994-2010]	-1.1	↓
Hodgkin's lymphoma	[1994-2010]	1.8	↑	[1994-2010]	-2.9	↔	[1994-2010]	1.9	↑	[1994-2010]	-5.4	↓
non-Hodgkin's lymphoma	[1994-2010]	1.6	↑	[1994-2000]	4.2	↔	[1994-2010]	1.7	↑	[1994-2010]	-0.6	↔
				[2000-2010]	-3.6	↓						
multiple myeloma	[1994-2010]	0.3	↔	[1994-2010]	-2.0	↓	[1994-2010]	0.0	↔	[1994-2008]	-1.2	↓
									[2008-2010]	-15.0	↓	
leukaemia	[1994-2010]	0.0	↔	[1994-2001]	3.1	↔	[1994-2004]	3.1	↑	[1994-2004]	2.9	↑
				[2001-2010]	-4.2	↓	[2004-2010]	-4.5	↓	[2004-2010]	-7.2	↓
in situ breast	[1994-2010]	9.9	↑									
in situ cervix	[1994-2010]	6.8	↑									

APC: ↑=significant increase, ↓=significant decrease, ↔=change was not significant, at the 95% level

APC was calculated using Joinpoint program (2; 3)

Mortality data provided by the Central Statistics Office (www.cso.ie)

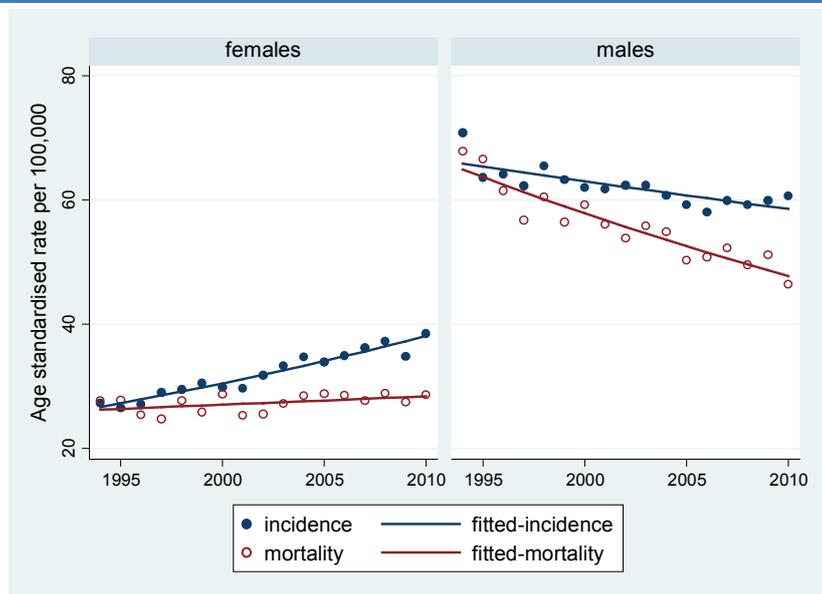
Figure 7b. Time trends in incidence and mortality rate (European age standardised) 1994-2010: colorectal cancer



Similar to all cancers, colorectal cancer incidence rates have increased since 1994, although at a lower level (APC 0.2% for females, 0.3% for males) (Figure 7b, Table 9).

However, mortality rates have declined significantly for both sexes, resulting in a reduction in mortality/incidence ratios from 0.5 (5 deaths for every 10 cases) to 0.4 (4 deaths for every 10 cases) for both males and females.

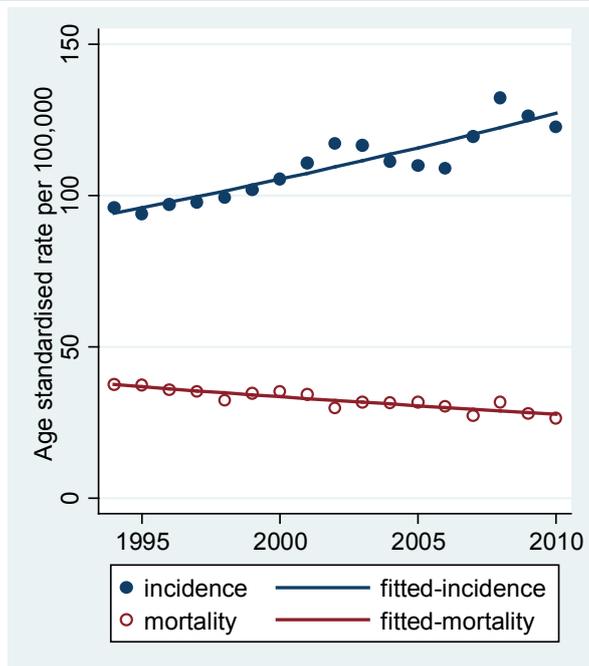
Figure 7c. Time trends in incidence and mortality rate (European age standardised) 1994-2010: lung cancer



Lung cancer trends showed very different patterns between males and females (Figure 7c). Although incidence and mortality rates in males have been higher than in females throughout 1994 to 2010, this difference has declined over time. While both incidence and mortality rates in males have declined significantly since 1994, lung cancer incidence in females has increased substantially, with a statistically significant APC of 2.2% (compared to -0.7% in males) (Table 9).

Female lung cancer mortality rates have also increased significantly by 0.5% annually. In contrast, male mortality rates have fallen significantly by 1.9% per year.

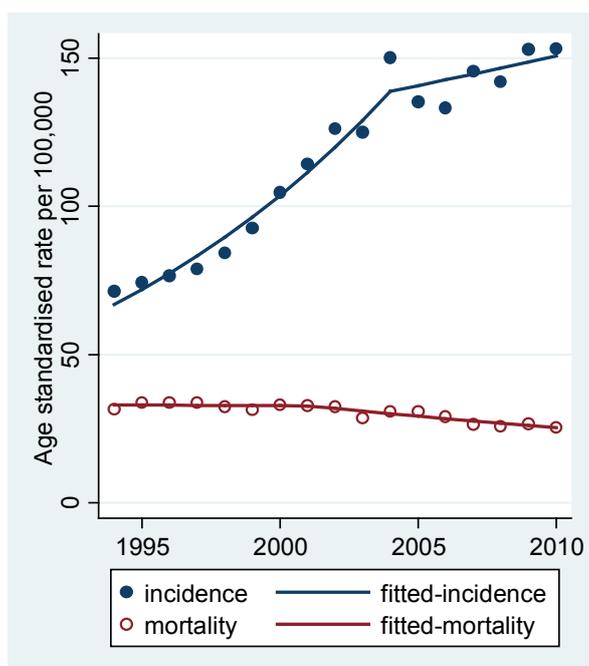
Figure 7d. Time trends in incidence and mortality rate (European age standardised) 1994-2010 female breast cancer



Although female breast cancer has increased significantly in incidence since 1994, mortality rates have declined, also significantly and by the same factor (APC 1.9%) (Figure 7d, Table 9). As a result mortality/incidence ratios have fallen from 0.4 (4 deaths for every 10 cases) to 0.2 (2 deaths for every 10 cases).

The influence of screening is evident from the increases in incidence rates observed from 2000 to 2002 and again from 2006 to 2008 corresponding to the periods when BreastCheck, the national screening programme, commenced screening in the eastern part of the country and then extended on a national level.

Figure 7e. Time trends in incidence and mortality rate (European age standardised) 1994-2010 prostate cancer



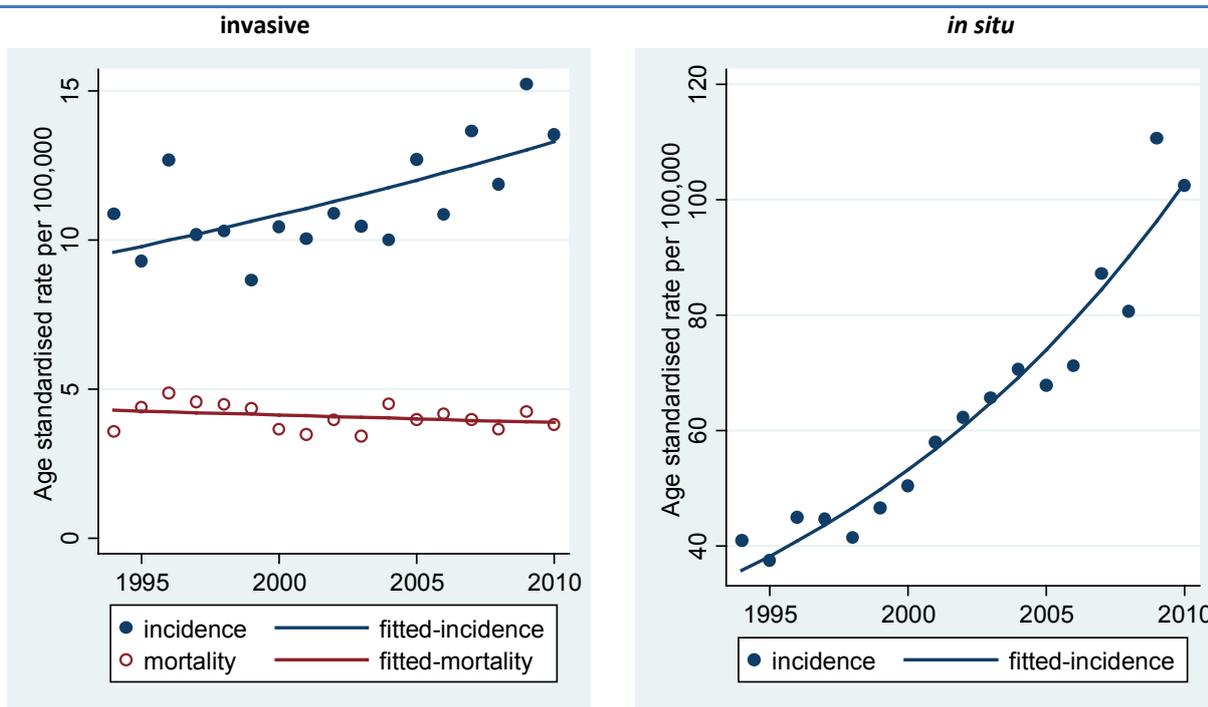
The result of diagnostic testing is evident when looking at the trends in prostate cancer incidence, which reached a peak in 2004 (Figure 7e). Incidence increased annually (and significantly) by 7.6% up to 2004, consistent with increases in PSA testing. Since 2004, although incidence has continued to increase, it is at a lower rate (1.4% per year) and the trend is not significant (Table 9).

Prostate cancer mortality rates have declined since 1994, particularly since 2001 with an APC of -2.8%. Similar to female breast cancer, mortality/incidence ratios have fallen from 0.4 in 1994 to 0.2 in 2010.

Screening activity has also had an impact on cervical cancer incidence; case numbers of invasive tumours increasing from 176 in 1994 to 310 in 2010 (equivalent to an annual percentage increase in incidence rate of 2.1%) (Table 9, Figure 7f). The number of in situ (CIN III) cancers diagnosed per year increased considerably during this time, from 717 cases in 1994 to 2,618 in 2010, an overall increase in case numbers of 265% or an annual percentage increase in incidence rate of 6.8%.

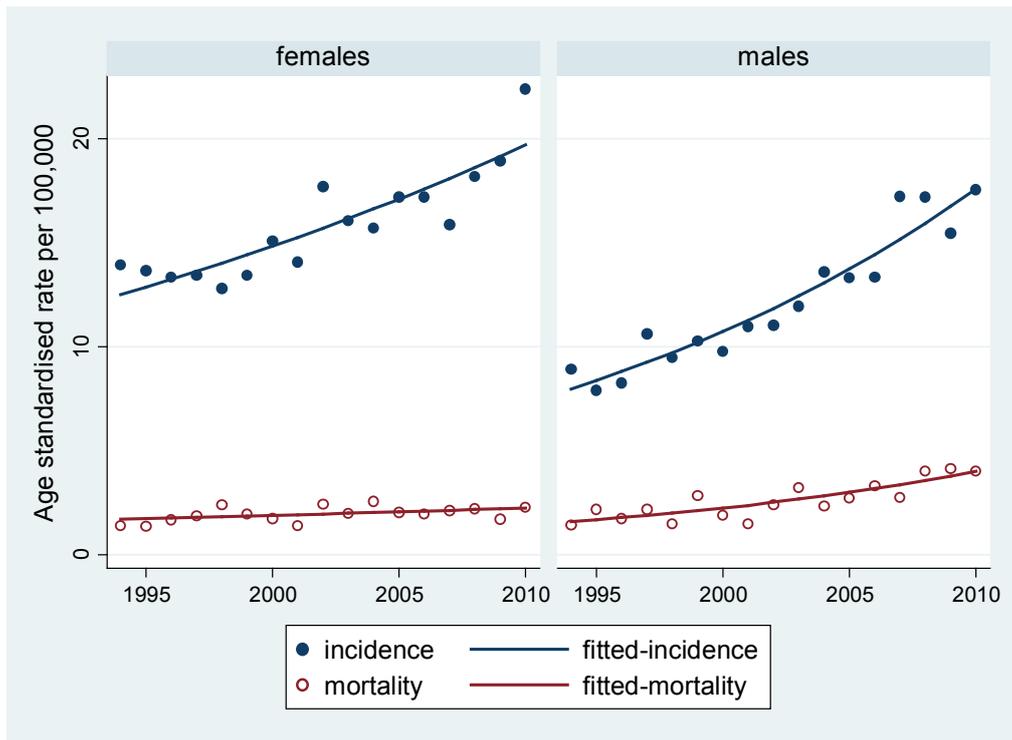
An annual average of 78 deaths from cervical cancer has occurred since 1994 and although mortality rates have declined somewhat, this was not statistically significant and mortality/incidence ratios have remained the same at 0.3 (3 deaths for every 10 incident cases).

Figure 7f. Time trends in incidence and mortality rate (European age standardised) 1994-2010: invasive and *in situ* cervix



In 1994, incidence of melanoma was 56% higher in females than in males. Although incidence has increased significantly in both sexes over time, greater increases in males (APC in males 5.1% compared to 2.9% in females) have resulted in a decline in the difference between the sexes and female rates in 2010 were 28% higher than males (Table 9, Figure 7g). Mortality rates in males have also increased significantly, with an APC of 6%. Female mortality rates have also increased somewhat, although not significantly. Despite these changes, mortality/incidence ratios have remained the same over time for both sexes; 0.1 in females and 0.2 in males.

Figure 7g. Time trends in incidence and mortality rate (European age standardised) 1994-2010: melanoma skin cancer



See appendix IV for time trends for other major sites

7.2 Long term mortality trends: 1950-2010

Data on cancer mortality is available from the early 1950's (provided by the Central Statistics Office, www.cso.ie). Mortality rates for all cancer deaths in both sexes increased gradually from the early 1950's to 1990's but have shown a clear decline during the last 2 decades (Figure 8, Table 10). Greater increases in male mortality rates compared to females between 1950 and the early 1990's, resulted in an initial divergence in mortality curves between the sexes. However subsequent greater decreases in male mortality rates compared to females have resulted in a decline in this difference. Male mortality rates are currently approximately 35% higher than females.

Figure 8. Trends in mortality: age standardised rate (ASR), 1950-2010: all cancer deaths

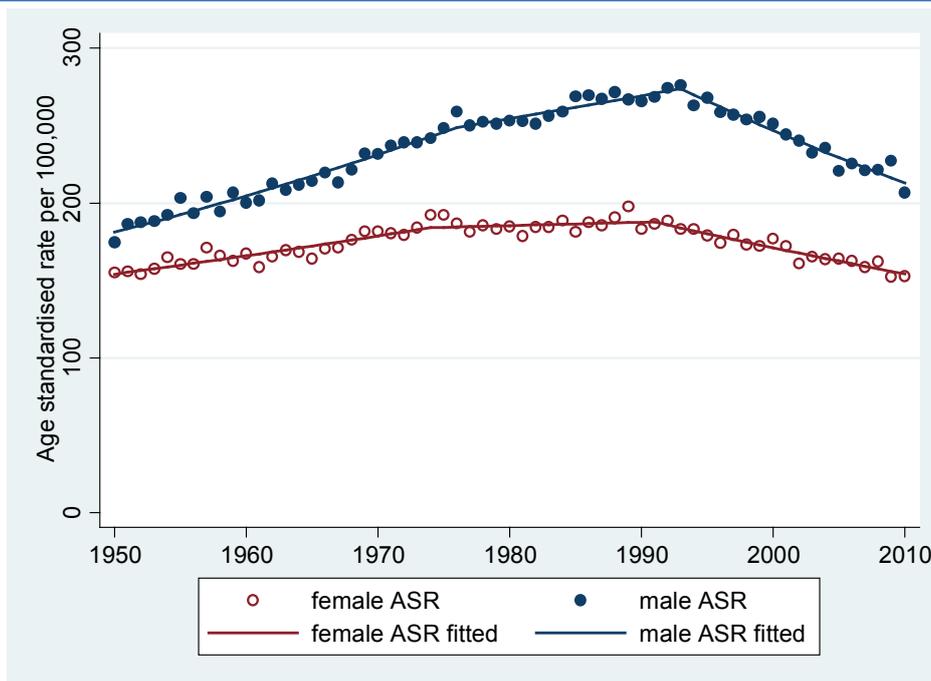
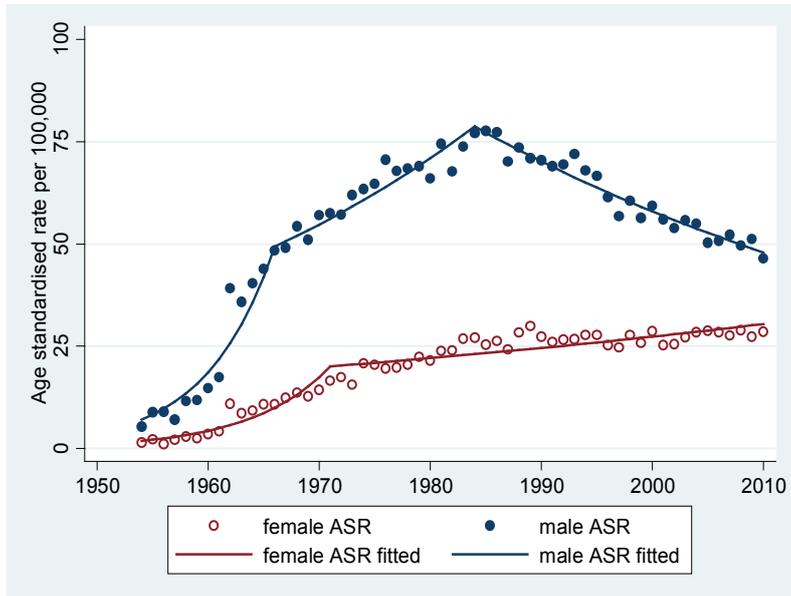


Table 10. Annual percentage change (APC) in age standardised rate (ASR) mortality: 1950-2010

site	FEMALES			MALES		
	Period	APC	trend	Period	APC	trend
all cancer deaths	[1950-1974]	0.7	↑	[1950-1976]	1.2	↑
	[1974-1991]	0.1	↔	[1976-1993]	0.6	↑
	[1991-2010]	-1.0	↓	[1993-2010]	-1.5	↓
lung	[1950-1971]	15.0	↑	[1950-1966]	17.6	↑
	[1971-2010]	1.1	↑	[1966-1984]	2.6	↑
				[1984-2010]	-1.9	↓
colorectal	[1950-1976]	0.7	↑	[1950-1961]	-0.9	↔
	[1976-2010]	-2.0	↓	[1961-1988]	0.8	↑
				[1988-2010]	-1.4	↓
breast	[1950-1989]	1.2	↑	-	-	-
	[1989-2010]	-1.8	↓	-	-	-
prostate				[1950-1969]	3.1	↑
				[1969-1998]	1.7	↑
				[1998-2010]	-2.3	↓

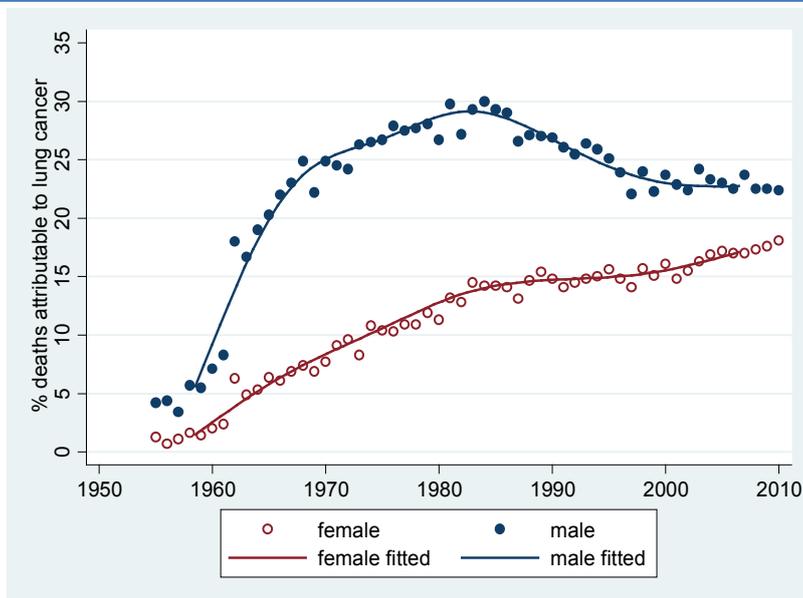
APC: ↑=significant increase, ↓=significant decrease, ↔=change was not significant, at the 95% level

**Figure 9a. Time trends in mortality: age standardised rate (ASR)
1950-2010: lung cancer**



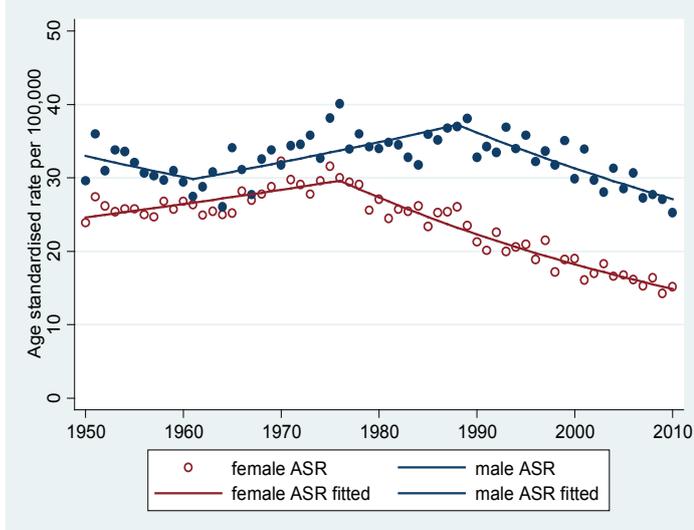
Much of the increase in all cancer mortality rates over time was due to lung cancer deaths, and annual percentage change in mortality rates for this cancer alone was 15% in females and 17.6% in males between 1950 and the mid 1960's-early 1970's (Table 10). Mortality rates for males reached a peak in the early 1980's with approximately 78 deaths per 100,000 per year (Figure 9a). At this time, lung cancer represented approximately 30% of all cancer deaths in males (Figure 9b). However mortality rates in males have declined subsequently, by almost 2% per year, and current mortality rates are 46 deaths per 100,000 per year. Lung cancer now represents 22% of all cancer deaths in males.

Figure 9b. Percentage of cancer deaths attributable to lung cancer:1955-2010



In contrast, female lung cancer mortality rates have shown a slower increase over time (Figure 9a) but unlike males, mortality rates have continued to increase over time and reached 28 deaths per 100,000 in 2010. Lung cancer deaths now represent 18% of all female cancer deaths, compared to less than 5% in the late 1950's early 1960's (Figure 9b).

Figure 10. Time trends in mortality: age standardised rate (ASR) 1950-2010: colorectal cancer



Mortality data provided by the Central Statistics Office (www.cso.ie)

Between 1950 and the mid 1980's, colorectal cancer mortality rates were variable, particularly in males (Figure 10). After an initial decline, male mortality rates subsequently increased to a peak of 40 deaths per 100,000 in the mid 1970's. Following a period of generally lower but fluctuating mortality from the late 1970's to late 1980's, male mortality rates have declined significantly over the last 20 years or so (Table 10) and current rates are approximately 25 deaths per 100,000 per year.

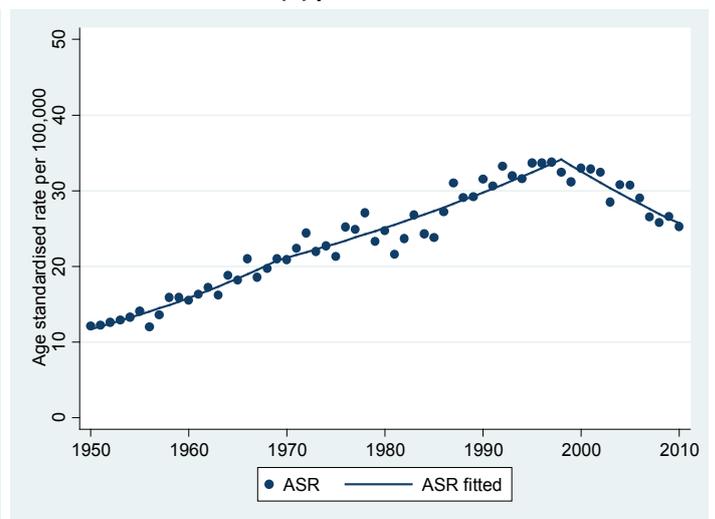
Mortality rates in females were on average 18% lower than males between 1950 and the mid 1970's and reached a peak of 32 deaths per 100,000 in 1975. Female mortality rates declined significantly from 1976 to 2010 (APC -2.0%), and currently at 15 deaths per 100,000 per year, are 67% lower than male mortality rates.

Female breast and prostate cancer mortality rates have shown similar patterns in long term mortality (Figure 11 a & b). Mortality rates for both cancers increased significantly from 1950, reaching a peak of 42 breast cancer deaths per 100,000 per year in 1989 and 34 prostate cancer deaths per 100,000 per year in the mid 1990's. Mortality rates for both have declined significantly in recent years (Table 10). Current female breast cancer mortality rates are close to those values observed in the early 1950's (27 deaths per 100,000 per year). Current mortality rates for prostate cancer are similar, at 25 deaths per 100,000 per year, but are still substantially higher than those observed in the 1950's and 1960's.

Figure 11. Time trends in mortality: age standardised rate (ASR) 1950-2010: female breast cancer and prostate cancer

(a) female breast

(b) prostate



8. TREATMENT

8.1 Treatment summary

Table 11: Percent of patients that received tumour-directed surgery, chemotherapy, radiotherapy and no-tumour directed therapy for the most common cancer sites, 2005-2009 inclusive

	all cases	surgery	chemotherapy	radiotherapy	no treatment
mouth & pharynx	1,533	57.9%	33.3%	63.9%	11.4%
oesophagus	1,820	25.8%	41.5%	44.8%	30.2%
stomach	2,471	40.6%	35.0%	13.8%	37.8%
colorectal	11,384	77.4%	42.5%	17.1%	13.7%
<i>colon</i>	7,285	79.4%	38.1%	3.5%	14.4%
<i>rectum</i>	3,912	75.1%	50.4%	40.2%	12.2%
pancreas	2,308	13.0%	31.1%	9.8%	61.1%
lung	9,816	15.8%	33.8%	39.8%	36.8%
melanoma	3,493	93.7%	5.7%	3.6%	4.9%
breast	12,642	85.3%	49.7%	65.6%	4.5%
cervix	1,400	63.6%	41.4%	54.9%	5.3%
corpus uteri	1,698	93.8%	12.4%	44.8%	4.1%
ovary	1,710	67.3%	59.4%	2.7%	20.6%
prostate	13,612	27.0%	1.6%	41.1%	22.0%
testis	862	97.0%	37.1%	28.3%	1.5%
kidney	2,198	66.7%	14.9%	10.1%	23.8%
bladder	2,299	73.8%	21.9%	15.1%	20.1%
brain & CNS*	1,642	51.2%	24.7%	55.2%	26.6%
thyroid	727	88.7%	2.6%	45.3%	8.1%
Hodgkin's lymphoma	565	20.5%	82.8%	26.5%	9.6%
NHL‡	3,015	19.3%	65.3%	17.2%	23.3%
multiple myeloma	1,196	2.2%	65.6%	26.6%	25.2%
leukaemia	2,379	1.1%	44.1%	2.6%	54.2%
all invasive cancers	86,434	49.9%	31.2%	33.1%	22.8%

NHL‡: non-Hodgkin's lymphoma, CNS*: central nervous system

During the period 2005-2009, 50% of all invasive cancers (excluding non-melanoma skin) had tumour-directed surgery, 31% chemotherapy, 33% radiotherapy and 23% no tumour-directed treatment. However the proportion of cases that received each treatment varied considerably by cancer type (Table 11).

As expected, rates of tumour-directed surgery were highest for solid tumours; over 75% of patients with cancers of the colorectum, breast, corpus uteri, testis and thyroid as well as melanoma underwent surgery to either completely remove or reduce the tumour. Rates of surgery were low for cancers such as pancreas, lung and oesophagus where either the site of the tumour can prove difficult for surgery or patients frequently present with already late stage cancers.

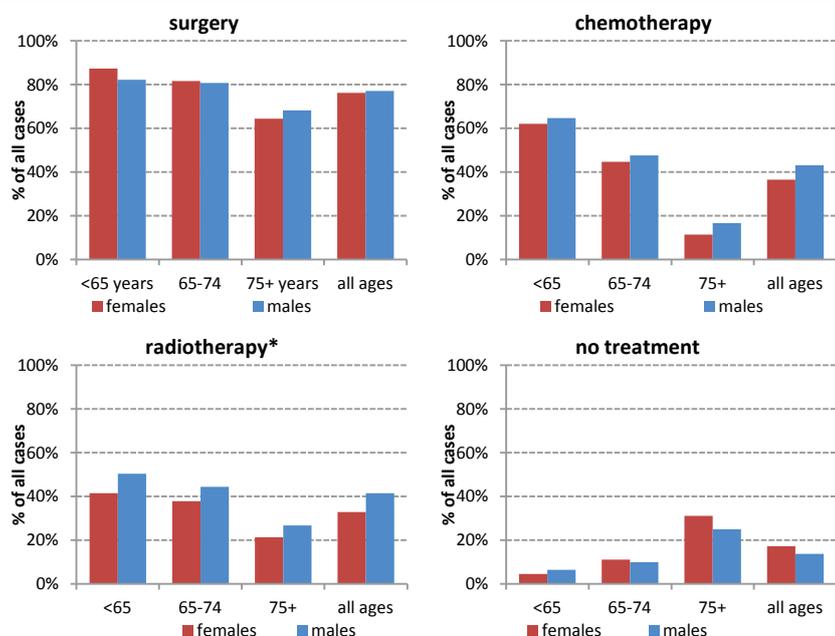
Chemotherapy rates were highest for cancers of the blood and lymphatic systems but also for cancers of the rectum, breast and ovary. Highest rates of radiotherapy were found for cancers of

the mouth & pharynx, breast, cervix and brain & CNS. Just over 40% of rectal cancer patients had radiotherapy compared to only 3.5% of those with colon cancer. Chemotherapy was also more frequent in rectal than in colon cancer patients. A substantial proportion of patients had no cancer-directed treatment, although many of these patients had other procedures, such as palliative treatment to relieve symptoms. Over 60% of pancreatic cancer patients had no tumour directed therapy. Watchful waiting for some cancers may result in apparently high percentages of untreated cases, as was the case for leukaemia, where overall 54% were classed as untreated. Over two-thirds of these untreated cases were chronic lymphocytic subtypes where watchful waiting is a recognized management. Watchful waiting is also a common management for prostate cancers and 22% of these patients were also classified as untreated. Hormonal therapy (not shown in Table 11) was only administered to substantial numbers of patients with breast and prostate cancer, where 52% and 35% were treated respectively. In addition 12% of myeloma patients and 5% of patients with brain & CNS tumours had hormonal therapy. It should be noted that

hormonal therapy is sometimes administered at outpatient level and it is possible that some patients that did not have hormonal therapy as a first line, inpatient procedure may not be registered. For this reason, the figures quoted on hormonal therapy should be regarded as conservative estimates only.

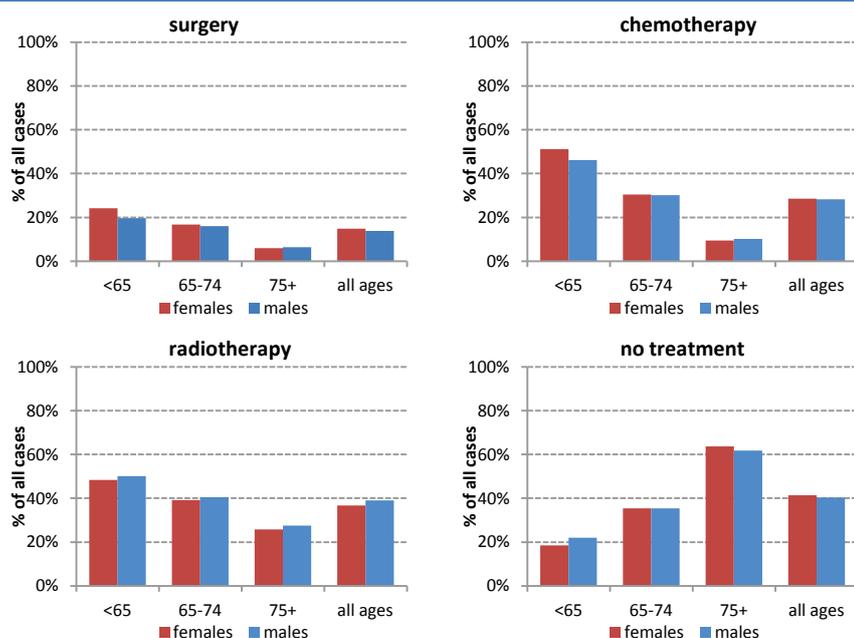
8.2 Treatment of cancer by age and sex

Figure 12. Percentage of colorectal patients who received each treatment category: 2005-2009



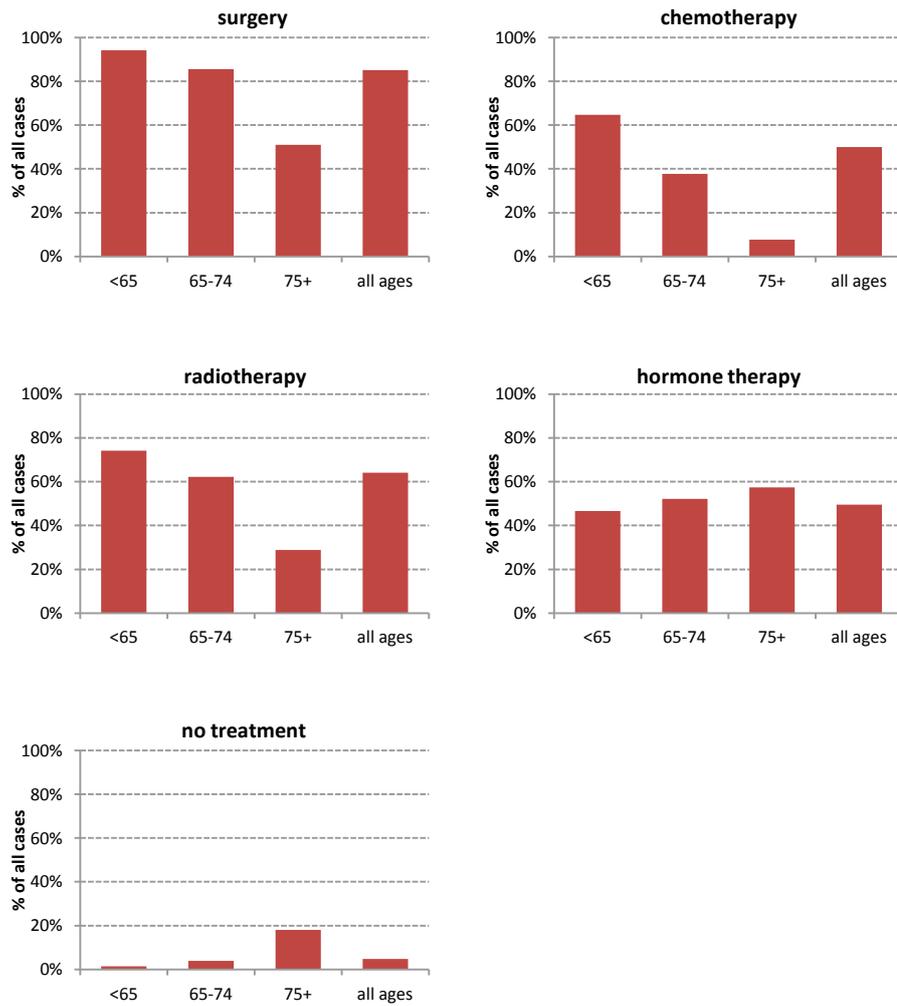
*refers to patients with rectal cancer only

Figure 13. Percentage of lung cancer patients who received each treatment category: 2005-2009



Figures 12-15 show details of treatments received by sex and age group for the 4 most commonly diagnosed cancers between 2005 and 2009 inclusive. For all four sites, there was a clear drop in treatment rates for patients aged 75 and over. For patients with colorectal cancer, 31% of females and 25% of males aged 75 years or older had no tumour directed therapy (compared to 17% and 14% overall respectively) (Figure 12). Rates of surgery, radiotherapy and particularly chemotherapy were lower in this age group compared to younger patients. Males were more likely than females to have chemotherapy and radiotherapy (the latter for rectal cancers only) for all age groups. As already indicated, rates of surgery were low for lung cancer patients, but were highest in those patients aged under 65 (Figure 13). Slightly more females than males in this age group underwent surgery. There was little difference between the sexes in terms of the relative proportion of patients having chemotherapy or radiotherapy but as seen for colorectal cancers, a much higher proportion of elderly patients (aged 75 or over) had no treatment compared to other age groups (64% of females and 62% of males were untreated compared to approximately 40% overall).

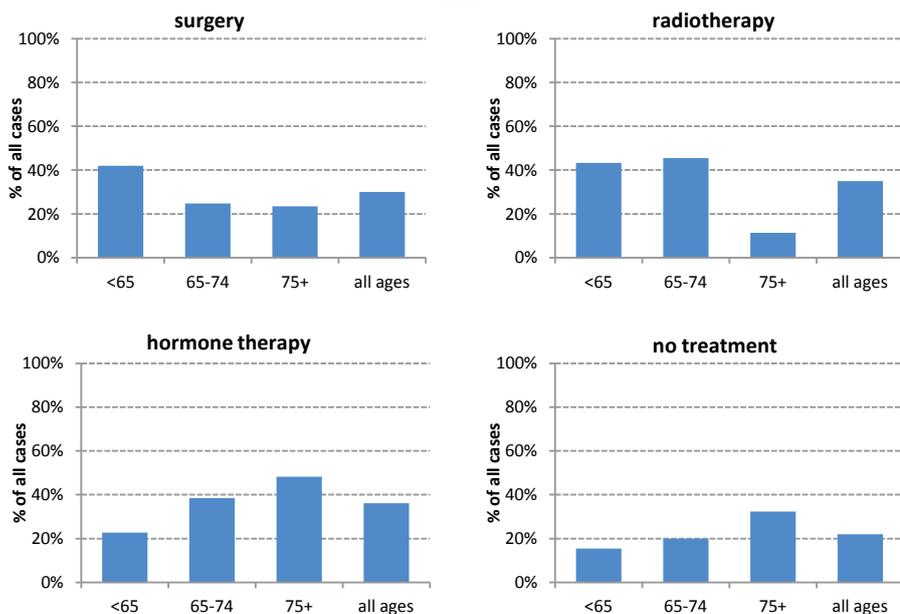
Figure 14. Percentage of female breast cancer patients who received each treatment category: 2005-2009



Although overall rates of tumour-directed surgery were high for breast cancer patients compared to some other sites, only half of those patients in the oldest age group had surgery (Figure 14).

Similar to the pattern seen for colorectal and lung cancer patients, there was a drop in the relative proportion of patients having chemotherapy and radiotherapy with age. However hormonal therapy was more frequent in the older women, with 57% treated compared to 46% in the youngest age group or 50% overall. Despite this however, almost 1 in 5 women aged over 75 had no tumour directed treatment.

Figure 15. Percentage of prostate cancer patients who received each treatment category: 2005-2009



Overall rates of surgery for prostate cancer were low, as indicated in Table 11. However, the chance of having had surgery was greatest for those men aged under 65 (Figure 15).

Unlike the other 3 cancer sites, the rate of surgery was similar in patients aged 65-74 and in 75+ year olds. Rates of radiotherapy were highest in men aged 65-74 (46%) but only 11% of men in the oldest age group had radiotherapy.

Similar to female breast cancer patients, hormonal therapy was highest in the older patients where almost half of all men aged 75 or over were treated. Chemotherapy is not normally recommended for prostate cancer and less than 3% of all patients diagnosed between 2005 and 2009 had chemotherapy.

8.3 Trends in treatment

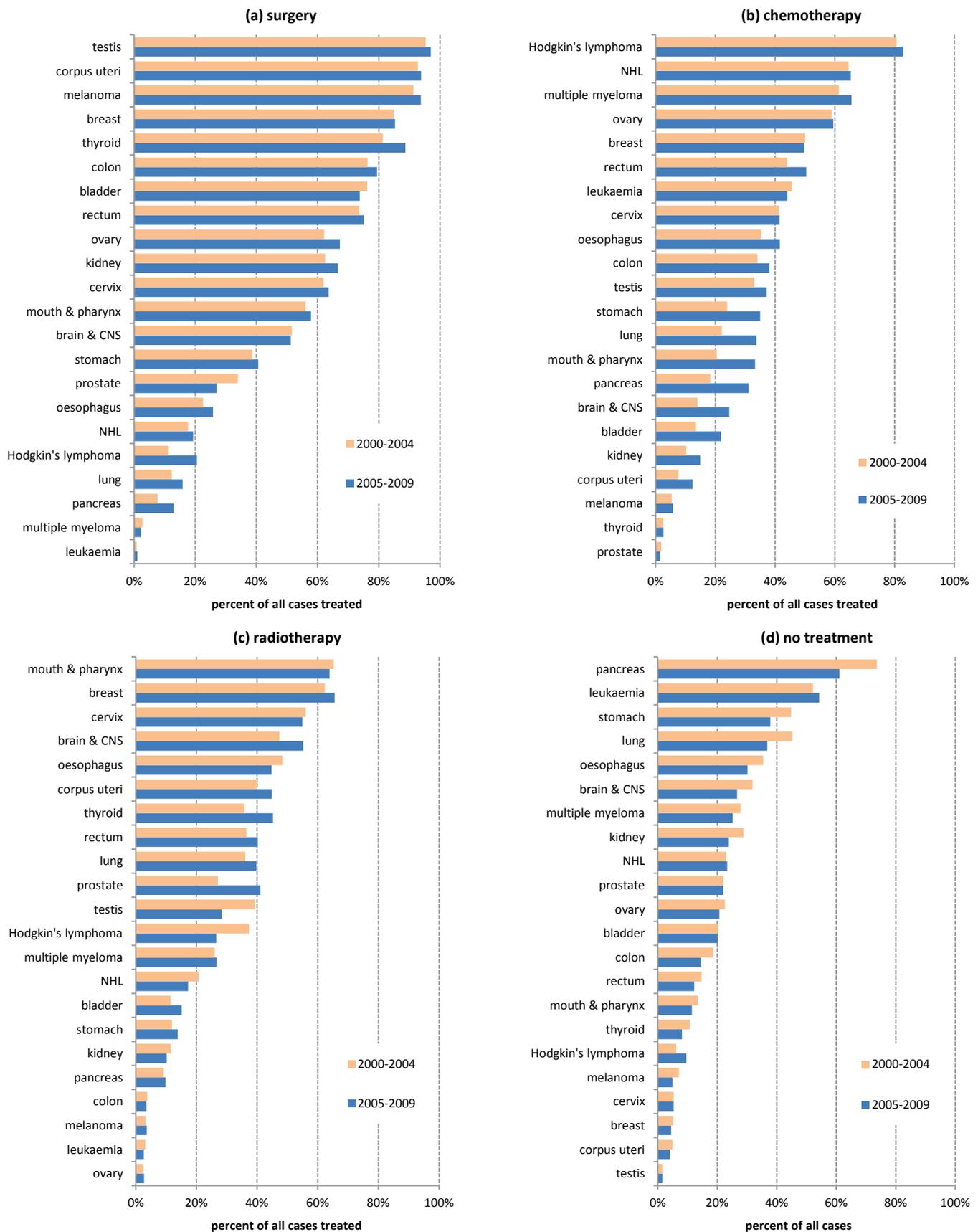
Overall rates of surgery for all cancers combined increased from 48% in 2000-2004 to 50% in 2005-2009 and increases in the rate of surgery were observed for most individual cancer types between these time periods (Figure 16a). However this varied considerably between cancers. The greatest relative increase in the proportion of patients undergoing surgery was observed for Hodgkin's lymphoma (11% to 21%) and pancreatic cancer patients (8% to 13%). Substantially more lung and oesophageal cancer patients also had surgery in 2005-2009 compared to 2000-2004. However a decline in the rate of surgery was observed for some sites, with a 21% reduction in the proportion of prostate cancer patients having had surgery between the 2 time periods.

The rate of chemotherapy increased overall by 13% between 2000-2004 and 2005-2009 but like surgery, this also varied between cancers (Figure 16b). Relative increases of between 60% and 75% were observed in patients with cancers of the mouth & pharynx, pancreas, brain & CNS, bladder, kidney and corpus uteri. Chemotherapy declined somewhat in leukaemia patients over time with the percentage of patients having had chemotherapy falling from 46% to 44% between the two time periods.

Rates of radiotherapy were more variable than those observed for surgery and chemotherapy. Overall rates of radiotherapy increased from 29% in 2000-2004 to 33% in 2005-2009 (all cancers combined). However the relative proportion of patients having radiotherapy declined in the case of testicular cancer and Hodgkin's lymphoma (Figure 16c). Greatest relative increases in the proportion of patients treated were observed for prostate, bladder and thyroid cancers.

Although the proportion of patients that had no tumour-directed therapy dropped from 27% to 23% overall, there was an increase in the percentage of untreated patients in the case of leukaemia (from 52% to 54%) and Hodgkin's lymphoma (from 6% to 10%) (Figure 16d). A decline of between 10% and 25% of all patients having no treatment was observed for most cancer sites, with greatest relative change observed for colon, melanoma and thyroid. Two sites which have showed some of the greatest changes in terms of the relative proportion of patients treated over time; lung and pancreas, both showed a substantial drop in the number of patients untreated overall with 17% and 19% fewer patients untreated in 2005-2009 compared to 2000-2004.

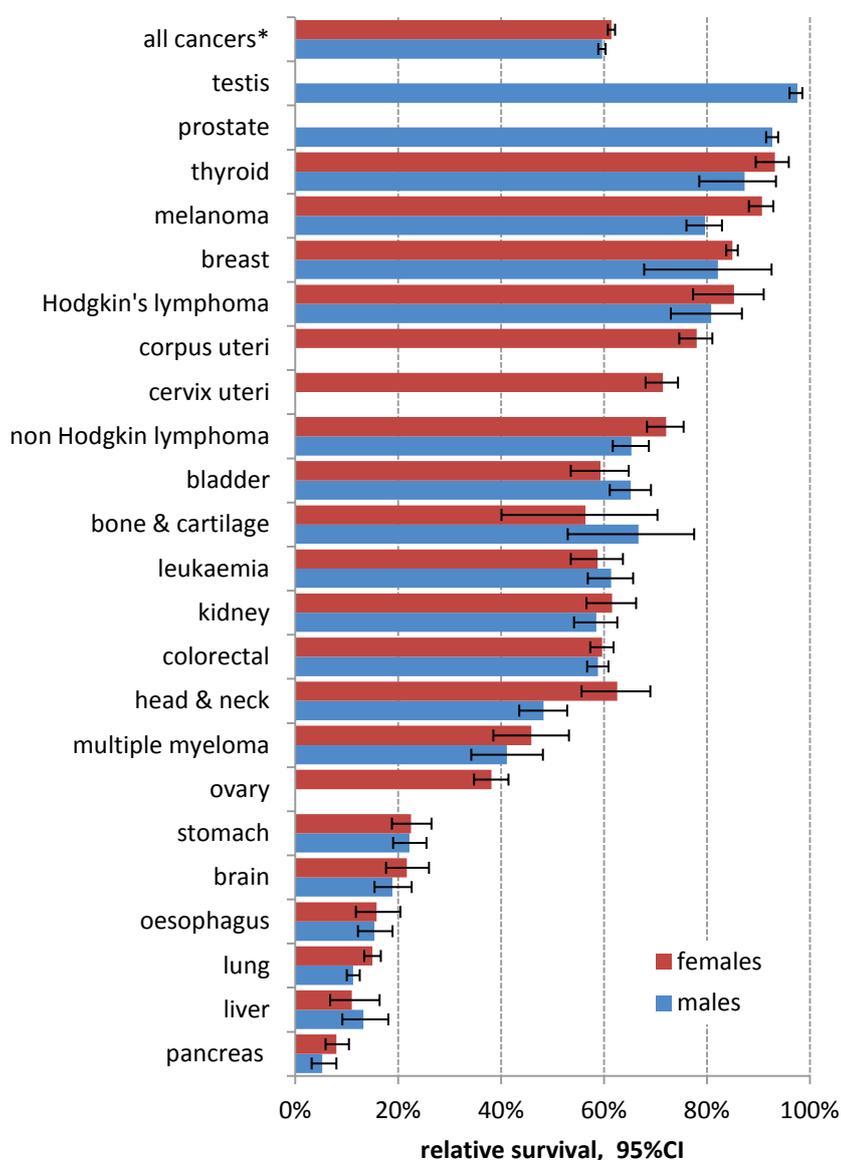
Figure 16. Percentage of cancers that received tumour-directed surgery, chemotherapy, radiotherapy or no treatment 2000-2004 & 2005-2009



9. SURVIVAL

Observed survival is simply the proportion of patients remaining alive after a given period of time. *Relative survival (RS)* is the ratio of the observed survival proportion for a given group of cancer cases to the expected survival proportion of a group of individuals with the same demographic attributes. In practice, relative survival is similar to *cause-specific survival*—it measures the excess mortality due specifically to the cancer, and so is always greater than observed survival. Relative survival is now used by most cancer registries in place of *cause specific survival* because the actual cause of death in any given cancer case is not always known. Relative survival also facilitates international comparison, as it reduces problems related to international inconsistency in coding cause of death.

Figure 17. Five year relative survival for cancers diagnosed in men and women: 2005-2009



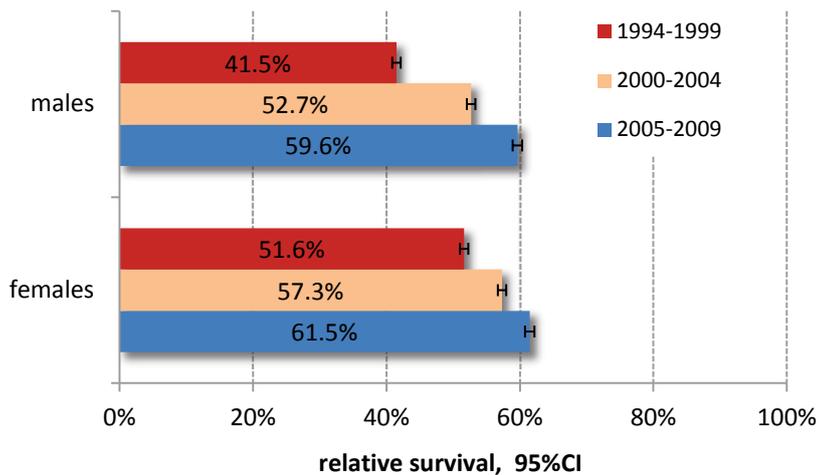
Five year relative survival for all cancer patients diagnosed between 2005 and 2009 was 60.0% for males and 61.5% for females (Figure 17).

Cancers of the testis, prostate and thyroid had the best survival rates and 5 year survival for testicular cancer patients was 98%. Poorest survival rates were observed for patients diagnosed with cancer of the pancreas (5% in males, 8% in females) and also for liver, lung, oesophagus, brain and stomach, all with 5 year survival rates of less than 22%.

Females tended to have better survival rates than males for most cancers, and this was statistically significant in the case of melanoma and for cancers of the head & neck and lung. However males tended to have better survival rates, although not statistically significantly so, in the case of leukaemia and for cancers of the bone and cartilage and bladder.

Key: all cancers*- all cancers, excluding non-melanoma skin cancer

Figure 18. Five year relative survival for males and females diagnosed with all invasive cancers during the periods 1994-1999, 2000-2004 and 2005-2009



There have been large and statistically significant improvements in survival rates for both males and females over time (Figure 18). For all invasive cancers combined, five year survival in females has improved from 52% in 1994-1999 to 61.5% in 2005-2009.

However greater improvements have been observed in males where 5 year relative survival was just 42% in 1994-1999, 20% lower than that in females. Male survival rates increased to 60% in 2005-2009, resulting in an almost equalization in overall cancer survival

rates between the sexes.

Figure 19 (a-h) illustrates how 5 year relative survival has changed over time for a number of cancers; those with broadly similar survival rates are grouped together for convenience. Almost all cancers showed continuous improvements in survival rates from 1994-1999 to 2000-2004 and on to 2005-2009. Patients diagnosed with non-Hodgkin’s lymphoma (Figure 19f), colorectal (Figure 19d), female breast (Figure 19g) and prostate cancers (Figure 19h) all had significantly improved survival rates from one period to the next. Prostate cancer survival improved considerably, from 69% to 87%, between 1994-1999 and 2000-2004, probably reflecting the impact of screening activity and increased detection of early stage cancers.

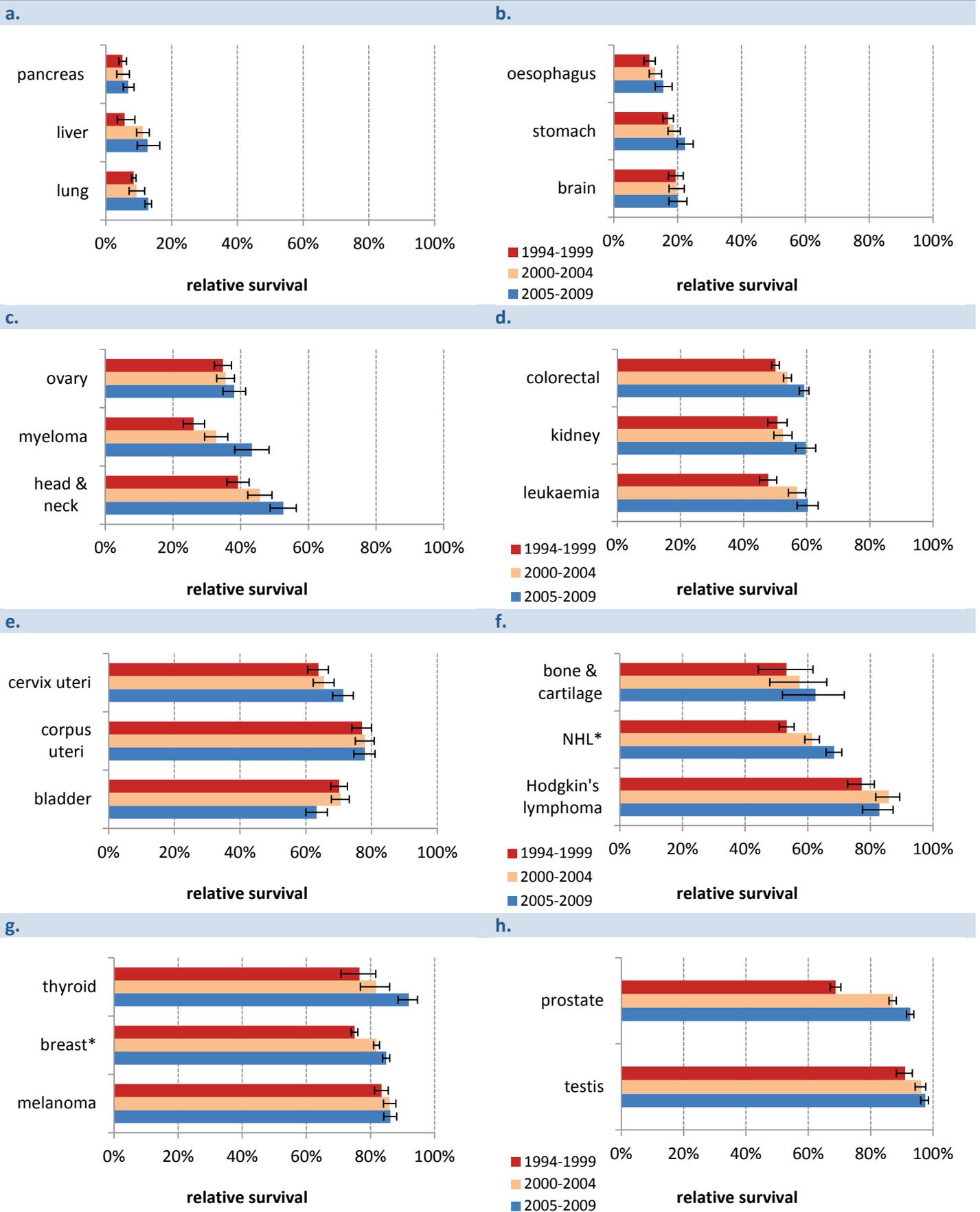
Most cancers showed greatest improvements in survival rates between 1994-1999 and 2000-2004 with a lower degree of increase in later years. Patients with testicular cancer (Figure 19h), leukaemia (Figure 19d) and Hodgkin’s lymphoma (Figure 19f) all showed significant improvements in survival from 1994-1999 to 2000-2004 and although survival rates continued to improve for testicular cancer and leukaemia patients in 2005-2009, this was not statistically significant. Survival rates dropped in the case of Hodgkin’s lymphoma from 2000-2004 to 2005-2009 (from 86% to 83%), although this was not statistically significant.

Other cancers, notably multiple myeloma (Figure 19c), lung (Figure 19a), kidney (Figure 19d) and thyroid (Figure 19g) showed greatest and statistically significant improvements in survival between 2000-2004 and 2005-2009. Although survival for these cancers had also improved from 1994-1999, this was comparatively lower and not significant.

There was very little change over time in the relative survival for brain cancers (Figure 19b), where survival has remained under 20%. Similarly for cancer of the corpus uteri (Figure 19e), although having a much better prognosis than brain cancer, survival has also remained fairly static, at between 77% and 78%. Melanoma, one of the cancers with the best overall survival rate, also showed relatively little change over time (improving from 84% to 86% overall) (Figure 19g). Bladder cancer, which also showed little change in survival rate between 1994-1999 and 2000-2004, had a statistically significant drop in survival in 2005-2009 (from 71% to 63%, Figure 19e). The reasons for this are unclear but may be indicative of some uncertainty in tumour classification and coding for bladder cancers, which has been noted in the literature.

Figure 19 (a-h).

Five year relative survival for various cancers diagnosed during the periods 1994-1999, 2000-2004 and 2005-2009



Key: NHL*:non-Hodgkin's lymphoma, breast*: females only

bars indicate 95% confidence interval

METHODS

The National Cancer Registry (NCR) records demographic, clinical and treatment information for all cancers diagnosed in Ireland according to internationally accepted registration and coding conventions. [<http://www.ncri.ie>] Completeness of case ascertainment at five years after diagnosis is estimated to be at least 98%.⁽⁴⁾

Mortality data was provided by the Central Statistics Office [<http://www.cso.ie>]. National anonymised datasets for all cancer deaths are provided to the Registry annually by the CSO. In addition, long term mortality data (dating from 1950) was provided by the CSO for a number of principal cancer sites. For survival analysis, follow-up of all diagnosed cases is achieved through matching of cancer registrations to death certificate information, also provided by the CSO.

The age standardised (ASR) rate is the proportion of cases (or deaths) in a given population (and year) weighted by the age structure of the population. Age standardised rates (ASR) for incidence and mortality were weighted by the European standard population.⁽⁵⁾ In order to discern whether there was actually a trend over time, or whether the changes were due to random variation, we examined trends in incidence and mortality rates for various cancer sites, from 1994-2010 for incidence, and from 1950-2010 for mortality. Annual percentage change (APC) of incidence and mortality over time was estimated using the Joinpoint regression program.^(2; 3)

For international comparisons of incidence and mortality we consulted the European Cancer Observatory (ECO) website. The ECO is a project developed at the International Agency for Research on Cancer (IARC) in partnership with the European Network of Cancer Registries (ENCR) which is supported by the European Commission.⁽¹⁾

Survival to five years was presented for the major cancer sites as *relative survival* (RS); the ratio of observed survival among a group of cases to the expected survival among the general population of the same age, sex and country. Relative survival was estimated using the 'strs' command in STATA 11.0 according to a method described in Dickman *et al.*⁽⁶⁾ To visualise trends in survival, relative survival to five years was presented for the major cancer sites for three diagnostic periods; 1994-1999, 2000-2004 and 2005-2009

ACKNOWLEDGEMENTS

The information in this report is based on the data held by the National Cancer Registry, and has been collected, processed and analysed since 1994 by dedicated and skilled Registry staff. The Registry, in turn, is dependent on the help and support of hospital staff throughout the country. The CSO and General Register Office provided the death certificate data. The National Cancer Registry is funded by the Department of Health and Children.

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APPENDIX I: SUMMARY TABLE - CANCER INCIDENCE 2008-2010

ICD10 cancer site (INCIDENCE 2008-2010)	FEMALES						MALES				TOTAL				
	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs
‡all invasive cancers minus NMSC (C44)															
C00-C43, C45-C96															
†ASR/100,000															
*cumulative risk (%) to age 75 years															
C00: lip	4	0.04%	0.02%	0.15	0.01	16	0.16%	0.10%	0.81	0.06	20	0.11%	0.06%	0.44	0.04
C01: base of tongue	6	0.07%	0.04%	0.29	0.03	20	0.20%	0.13%	1.01	0.10	26	0.14%	0.08%	0.64	0.06
C02: other tongue	29	0.33%	0.17%	1.27	0.10	34	0.35%	0.22%	1.68	0.15	63	0.34%	0.19%	1.46	0.13
C03: gum	8	0.09%	0.05%	0.31	0.03	10	0.10%	0.06%	0.50	0.04	18	0.10%	0.06%	0.41	0.03
C04: floor of mouth	9	0.10%	0.05%	0.40	0.04	18	0.18%	0.11%	0.89	0.08	27	0.14%	0.08%	0.64	0.06
C05: palate	9	0.10%	0.05%	0.39	0.03	13	0.14%	0.09%	0.65	0.06	22	0.12%	0.07%	0.52	0.05
C06: other mouth	13	0.15%	0.08%	0.56	0.04	14	0.14%	0.09%	0.68	0.06	27	0.15%	0.08%	0.62	0.05
C07: parotid	12	0.14%	0.07%	0.50	0.04	18	0.18%	0.12%	0.88	0.06	30	0.16%	0.09%	0.66	0.05
C08: other salivary	4	0.05%	0.02%	0.17	0.01	4	0.04%	0.03%	0.21	0.02	8	0.04%	0.02%	0.19	0.02
C09: tonsil	12	0.13%	0.07%	0.54	0.05	31	0.32%	0.20%	1.53	0.13	43	0.23%	0.13%	1.02	0.09
C10: oropharynx	3	0.03%	0.02%	0.14	0.01	9	0.09%	0.06%	0.44	0.04	12	0.06%	0.04%	0.29	0.03
C11: nasopharynx	4	0.05%	0.02%	0.19	0.01	13	0.13%	0.08%	0.63	0.06	17	0.09%	0.05%	0.41	0.04
C12: pyriform	4	0.04%	0.02%	0.15	0.01	18	0.19%	0.12%	0.90	0.09	22	0.12%	0.07%	0.52	0.05
C13: hypopharynx	4	0.05%	0.03%	0.18	0.02	13	0.13%	0.08%	0.63	0.06	17	0.09%	0.05%	0.40	0.04
C14: other mouth/pharynx	3	0.03%	0.02%	0.10	0.01	12	0.12%	0.07%	0.58	0.05	15	0.08%	0.04%	0.33	0.03
C01-C14: mouth and pharynx	119	1.36%	0.70%	5.18	0.43	227	2.32%	1.46%	11.22	0.99	346	1.87%	1.07%	8.11	0.71
C15: oesophagus	130	1.48%	0.77%	5.17	0.40	242	2.47%	1.55%	11.9	0.97	372	2.00%	1.14%	8.37	0.69
C16: stomach	191	2.18%	1.13%	7.60	0.56	332	3.38%	2.13%	16.25	1.24	523	2.82%	1.61%	11.56	0.90
C17: small intestine	24	0.27%	0.14%	1.01	0.08	37	0.37%	0.24%	1.78	0.15	61	0.33%	0.19%	1.38	0.12
C18: colon	692	7.90%	4.09%	28.2	2.22	839	8.55%	5.38%	41.35	3.16	1,531	8.24%	4.71%	34.11	2.69

ICD10 cancer site (INCIDENCE 2008-2010)	FEMALES						MALES					TOTAL			
	annual average 2008-2010	‡% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs	annual average 2008-2010	‡% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs	annual average 2008-2010	‡% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs
‡all invasive cancers minus NMSC (C44)															
C00-C43, C45-C96															
†ASR/100,000															
*cumulative risk (%) to age 75 years															
C19: rectosigmoid	70	0.80%	0.41%	2.89	0.22	111	1.13%	0.71%	5.44	0.43	181	0.97%	0.56%	4.06	0.32
C20: rectum	207	2.36%	1.22%	8.73	0.72	419	4.27%	2.69%	20.61	1.65	626	3.37%	1.93%	14.27	1.18
C21: anus	29	0.33%	0.17%	1.23	0.10	21	0.21%	0.13%	1.02	0.07	50	0.27%	0.15%	1.11	0.08
C18-C21: colorectal	998	11.39%	5.91%	41.05	3.23	1,389	14.16%	8.91%	68.42	5.24	2,387	12.86%	7.35%	53.56	4.23
C22: liver	62	0.70%	0.36%	2.46	0.18	133	1.36%	0.85%	6.54	0.54	195	1.05%	0.60%	4.42	0.36
C23: gallbladder	31	0.35%	0.18%	1.26	0.10	12	0.13%	0.08%	0.62	0.04	43	0.23%	0.13%	0.96	0.07
C24: other biliary	41	0.47%	0.24%	1.53	0.11	53	0.54%	0.34%	2.60	0.17	94	0.51%	0.29%	2.01	0.14
C25: pancreas	227	2.59%	1.34%	8.99	0.67	248	2.53%	1.59%	12.38	0.96	475	2.56%	1.46%	10.59	0.82
C26: other digestive	19	0.21%	0.11%	0.70	0.05	17	0.17%	0.11%	0.82	0.06	36	0.19%	0.11%	0.76	0.05
C30: nasal cavity/middle ear	8	0.09%	0.05%	0.32	0.02	8	0.08%	0.05%	0.36	0.03	16	0.08%	0.05%	0.34	0.03
C31: sinuses	2	0.03%	0.01%	0.09	0.01	9	0.09%	0.06%	0.40	0.03	11	0.06%	0.03%	0.24	0.02
C32: larynx	20	0.22%	0.12%	0.87	0.07	132	1.35%	0.85%	6.55	0.58	152	0.82%	0.47%	3.59	0.33
C33: trachea	1	0.01%	<0.01%	0.05	<0.01	1	0.01%	<0.01%	0.03	<0.01	2	0.01%	<0.01%	0.04	<0.01
C34: lung	879	10.04%	5.20%	36.97	3.01	1,231	12.55%	7.89%	60.65	4.65	2,110	11.36%	6.49%	47.56	3.83
C37: thymus	2	0.03%	0.01%	0.10	0.01	4	0.04%	0.03%	0.20	0.02	6	0.03%	0.02%	0.15	0.01
C38: mediastinum	5	0.05%	0.03%	0.17	0.01	6	0.06%	0.04%	0.26	0.02	11	0.06%	0.03%	0.22	0.02
C39: other chest	0	0.00%	0.00%			1	0.01%	<0.01%	0.02	<0.01	1	0.01%	<0.01%	0.01	<0.01
C40: bones, joints of limbs	6	0.06%	0.03%	0.24	0.01	10	0.11%	0.07%	0.46	0.04	16	0.09%	0.05%	0.35	0.03
C41: bones, joints head and trunk	7	0.08%	0.04%	0.27	0.02	9	0.10%	0.06%	0.42	0.03	16	0.09%	0.05%	0.35	0.02
C43: melanoma skin	463	5.28%	2.74%	19.67	1.58	349	3.56%	2.24%	16.69	1.27	812	4.37%	2.50%	18.02	1.43
C44: non-melanoma skin (NMSC)	3,575	-	21.16%	147.18	11.03	4,410	-	28.27%	216.31	15.24	7,985	-	24.57%	177.86	13.14
C45: mesothelioma	5	0.06%	0.03%	0.21	0.02	30	0.31%	0.19%	1.47	0.12	35	0.19%	0.11%	0.79	0.07
C46: Kaposi's sarcoma	1	0.02%	0.01%	0.05	<0.01	4	0.04%	0.03%	0.19	0.02	5	0.03%	0.02%	0.12	0.01

ICD10 cancer site (INCIDENCE 2008-2010)	FEMALES						MALES					TOTAL			
	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age average 75yrs	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age average 75yrs	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs
‡all invasive cancers minus NMSC (C44)															
C00-C43, C45-C96															
†ASR/100,000															
*cumulative risk (%) to age 75 years															
C47: peripheral nerves	4	0.04%	0.02%	0.18	0.01	4	0.04%	0.03%	0.19	0.01	8	0.04%	0.02%	0.18	0.01
C48: peritoneum	13	0.15%	0.08%	0.59	0.04	5	0.05%	0.03%	0.22	0.01	18	0.10%	0.06%	0.41	0.03
C49: connective tissues	40	0.46%	0.24%	1.76	0.15	63	0.64%	0.40%	3.00	0.21	103	0.55%	0.32%	2.31	0.18
C50: breast	2,767	31.58%	16.37%	125.43	10.06	22	0.22%	0.14%	1.06	0.08	2,789	15.02%	8.58%	64.65	5.20
C51: vulva	48	0.55%	0.28%	1.97	0.15	-	-	-	-	-	48	0.26%	0.15%	1.05	0.08
C52: vagina	9	0.10%	0.05%	0.41	0.04	-	-	-	-	-	9	0.05%	0.03%	0.21	0.02
C53: cervix	308	3.51%	1.82%	13.34	1.04	-	-	-	-	-	308	1.66%	0.95%	6.7	0.52
C54: corpus uteri	389	4.44%	2.30%	17.87	1.64	-	-	-	-	-	389	2.09%	1.20%	9.16	0.83
C55: uterus nos	27	0.30%	0.16%	1.14	0.09	-	-	-	-	-	27	0.14%	0.08%	0.6	0.04
C56: ovary	345	3.94%	2.04%	15.10	1.27	-	-	-	-	-	345	1.86%	1.06%	7.86	0.64
C57: other female genital	13	0.15%	0.08%	0.55	0.05	-	-	-	-	-	13	0.07%	0.04%	0.29	0.02
C58: placenta	2	0.02%	0.01%	0.08	0.01	-	-	-	-	-	2	0.01%	<0.01%	0.04	<0.01
C60: penis	-	-	-	-	-	26	0.27%	0.17%	1.27	0.09	26	0.14%	0.08%	0.60	0.05
C61: prostate	-	-	-	-	-	3,014	30.73%	19.32%	150.63	12.85	3,014	16.23%	9.27%	71.64	6.63
C62: testis	-	-	-	-	-	175	1.78%	1.12%	6.96	0.50	175	0.94%	0.54%	3.51	0.25
C63: other male genital	-	-	-	-	-	2	0.02%	0.01%	0.12	0.01	2	0.01%	<0.01%	0.05	<0.01
C64: kidney	174	1.99%	1.03%	7.56	0.64	312	3.18%	2.00%	15.21	1.25	486	2.62%	1.50%	11.19	0.95
C65: renal pelvis	6	0.07%	0.04%	0.25	0.02	11	0.11%	0.07%	0.53	0.04	17	0.09%	0.05%	0.38	0.03
C66: ureter	8	0.09%	0.05%	0.30	0.02	9	0.10%	0.06%	0.46	0.04	17	0.09%	0.05%	0.38	0.03
C67: bladder	124	1.42%	0.73%	4.85	0.35	310	3.16%	1.99%	15.36	1.01	434	2.34%	1.34%	9.46	0.68
C68: other urinary	3	0.03%	0.02%	0.11	0.01	2	0.02%	0.01%	0.10	0.01	5	0.03%	0.02%	0.11	0.01
C69: eye	17	0.19%	0.10%	0.72	0.05	20	0.20%	0.13%	0.98	0.08	37	0.20%	0.11%	0.85	0.07
C70: meninges	7	0.08%	0.04%	0.29	0.02	6	0.06%	0.04%	0.27	0.02	13	0.07%	0.04%	0.29	0.02

ICD10 cancer site (INCIDENCE 2008-2010)	FEMALES						MALES					TOTAL			
	annual average 2008-2010	‡% of all invasive cancers	% of all registered cancers	†ASR	*risk to age average 75yrs	annual average 2008-2010	‡% of all invasive cancers	% of all registered cancers	†ASR	*risk to age average 75yrs	annual average 2008-2010	‡% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs
‡all invasive cancers minus NMSC (C44) C00-C43, C45-C96 †ASR/100,000 *cumulative risk (%) to age 75 years															
C71: brain	135	1.54%	0.80%	5.98	0.49	183	1.87%	1.17%	8.76	0.76	318	1.71%	0.98%	7.34	0.62
C72: spinal cord	8	0.10%	0.05%	0.40	0.03	4	0.04%	0.03%	0.19	0.02	12	0.07%	0.04%	0.30	0.02
C73: thyroid	129	1.47%	0.76%	5.62	0.45	48	0.49%	0.31%	2.22	0.17	177	0.95%	0.54%	3.91	0.31
C74: adrenal	9	0.10%	0.05%	0.4	0.03	7	0.07%	0.04%	0.32	0.02	16	0.08%	0.05%	0.36	0.02
C75: other endocrine	4	0.05%	0.03%	0.19	0.01	7	0.07%	0.04%	0.31	0.02	11	0.06%	0.03%	0.24	0.02
C76: ill-defined site	11	0.13%	0.07%	0.41	0.03	6	0.06%	0.04%	0.33	0.02	17	0.09%	0.05%	0.37	0.03
C80: unknown primary site	254	2.90%	1.50%	9.55	0.64	228	2.32%	1.46%	11.21	0.75	482	2.60%	1.48%	10.31	0.70
C81: Hodgkin's lymphoma	57	0.65%	0.34%	2.46	0.19	71	0.72%	0.46%	3.20	0.26	128	0.69%	0.39%	2.83	0.22
C82: follicular non-Hodgkin's lymphoma	78	0.89%	0.46%	3.54	0.32	70	0.71%	0.45%	3.38	0.29	148	0.80%	0.46%	3.45	0.31
C83: diffuse non-Hodgkin's lymphoma	123	1.41%	0.73%	5.13	0.41	158	1.61%	1.01%	7.62	0.59	281	1.52%	0.87%	6.32	0.50
C84: peripheral and cutaneous T cell lymphoma	20	0.23%	0.12%	0.87	0.06	35	0.36%	0.23%	1.70	0.14	55	0.30%	0.17%	1.26	0.10
C85: other and unspecified NHL	84	0.96%	0.50%	3.60	0.30	85	0.87%	0.54%	4.08	0.30	169	0.91%	0.52%	3.79	0.30
C82-C85: all non-Hodgkin's lymphoma	306	3.49%	1.81%	13.14	1.09	349	3.55%	2.24%	16.79	1.31	655	3.52%	2.01%	14.82	1.20
C81-C85: lymphoma (total)	363	4.14%	2.15%	15.60	1.28	420	4.28%	2.69%	19.99	1.57	783	4.21%	2.41%	17.65	1.42
C88: malignant immunoproliferative disease	6	0.07%	0.04%	0.26	0.02	10	0.10%	0.06%	0.49	0.04	16	0.09%	0.05%	0.37	0.03
C90: multiple myeloma	101	1.16%	0.60%	4.16	0.34	137	1.39%	0.88%	6.77	0.54	238	1.28%	0.73%	5.35	0.44
C91: lymphoid leukaemia	98	1.12%	0.58%	4.32	0.34	158	1.61%	1.01%	7.72	0.61	256	1.38%	0.79%	5.91	0.48
C92: myeloid leukaemia	71	0.81%	0.42%	3.04	0.24	97	0.99%	0.62%	4.67	0.34	168	0.91%	0.52%	3.77	0.29
C93: monocytic leukaemia	2	0.02%	0.01%	0.09	0.01	2	0.02%	0.01%	0.09	0.01	4	0.02%	0.01%	0.08	0.01
C94: other specified leukaemia	4	0.05%	0.02%	0.19	0.02	6	0.06%	0.04%	0.27	0.02	10	0.05%	0.03%	0.23	0.02
C95: unspecified leukaemia	16	0.18%	0.09%	0.59	0.03	16	0.16%	0.10%	0.80	0.04	32	0.17%	0.10%	0.67	0.04
C91-C95: leukaemia (total)	191	2.18%	1.13%	8.22	0.64	279	2.84%	1.79%	13.55	1.02	470	2.53%	1.45%	10.65	0.83

ICD10 cancer site (INCIDENCE 2008-2010)	FEMALES						MALES					TOTAL			
	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age average 75yrs	annual age average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age average 75yrs	annual average 2008-2010	% of all invasive cancers	% of all registered cancers	†ASR	*risk to age 75yrs
‡all invasive cancers minus NMSC (C44)															
C00-C43, C45-C96															
†ASR/100,000															
*cumulative risk (%) to age 75 years															
C96: other lymphoid and haematopoietic	1	0.01%	<0.01%	0.04	0.01	1	0.01%	<0.01%	0.07	0.01	2	0.01%	<0.01%	0.05	<0.01
D03: in situ: melanoma	235	-	1.39%	10.43	0.93	186	-	1.19%	9.09	0.75	421	-	1.30%	9.66	0.84
D04: in situ: carcinoma of skin	845	-	5.00%	34.05	2.78	506	-	3.24%	24.94	1.93	1,351	-	4.16%	29.9	2.36
D05: in situ: breast	333	-	1.97%	15.82	1.35	1	-	0.01%	0.06	0.01	334	-	1.03%	7.98	0.68
D06: in situ: cervix	2,507	-	14.84%	96.7	6.72	-	-				2,507	-	7.72%	47.81	3.38
D32-D33: benign: brain & CNS	101	-	0.60%	4.39	0.35	43	-	0.28%	2.04	0.15	144	-	0.44%	3.25	0.25
D42-D43: uncertain: brain & CNS	24	-	0.14%	1.12	0.09	27	-	0.17%	1.25	0.10	51	-	0.16%	1.19	0.09
D00-D48 (excluding D codes specified)	518	-	3.06%	22.07	1.78	618	-	3.96%	30.14	2.33	1,135	-	3.49%	25.47	2.05
D00-D48: All non-invasive cancers	4,563	-	27.00%	184.58	13.31	1,381	-	8.85%	67.53	5.17	5,944	-	18.29%	125.25	9.30
C00-C43, C45-C96: All invasive minus NMSC	8,761	100%	51.84%	377.42	26.61	9,809	100%	62.88%	481.58	32.72	18,570	100%	57.14%	422.75	29.70
C00-C96: All invasive cancers	12,336	-	73.00%	524.6	34.7	14,219	-	91.15%	697.89	42.97	26,555	-	81.71%	600.61	38.94
C00-D48: All registered cancers	16,899	-	100%	709.17	43.39	15,600	-	100%	765.42	45.92	32,499	-	100%	725.86	44.62

APPENDIX II: SUMMARY TABLE - CANCER DEATHS 2010

ICD10 CANCER SITE	FEMALES					MALES					TOTAL				
	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs
‡All invasive cancer deaths C00-C96 †ASMR: Age standardised rate (mortality)/100,000 (standardised to the European population) *cumulative risk (%) of death to age 75 years															
C00: lip	0	0.00%	0.00%			4	0.09%	0.09%	0.19	0.01	4	0.05%	0.05%	0.08	<0.01
C01: base of tongue	0	0.00%	0.00%			2	0.05%	0.05%	0.10	0.01	2	0.02%	0.02%	0.05	<0.01
C02: other tongue	12	0.31%	0.30%	0.47	0.03	18	0.42%	0.41%	0.89	0.07	30	0.37%	0.36%	0.67	0.05
C03: gum	1	0.03%	0.03%	0.05	0.01	1	0.02%	0.02%	0.04	<0.01	2	0.02%	0.02%	0.05	0.01
C04: floor of mouth	3	0.08%	0.08%	0.13	0.02	2	0.05%	0.05%	0.09	0.01	5	0.06%	0.06%	0.12	0.01
C05: palate	2	0.05%	0.05%	0.06	<0.01	1	0.02%	0.02%	0.05	0.01	3	0.04%	0.04%	0.06	<0.01
C06: other mouth	11	0.28%	0.28%	0.42	0.04	3	0.07%	0.07%	0.16	0.01	14	0.17%	0.17%	0.30	0.02
C07: parotid	0	0.00%	0.00%			8	0.19%	0.18%	0.38	0.02	8	0.10%	0.10%	0.16	0.01
C08: other salivary	3	0.08%	0.08%	0.12	0.01	1	0.02%	0.02%	0.05	0.01	4	0.05%	0.05%	0.09	0.01
C09: tonsil	3	0.08%	0.08%	0.15	0.01	12	0.28%	0.27%	0.57	0.05	15	0.18%	0.18%	0.34	0.03
C10: oropharynx	1	0.03%	0.03%	0.05	0.01	8	0.19%	0.18%	0.39	0.01	9	0.11%	0.11%	0.19	0.01
C11: nasopharynx	1	0.03%	0.03%	0.02	<0.01	8	0.19%	0.18%	0.37	0.04	9	0.11%	0.11%	0.19	0.02
C12: pyriform	0	0.00%	0.00%			3	0.07%	0.07%	0.14	0.01	3	0.04%	0.04%	0.07	<0.01
C13: hypopharynx	2	0.05%	0.05%	0.07	<0.01	5	0.12%	0.11%	0.22	0.02	7	0.09%	0.08%	0.14	0.01
C14: other mouth/pharynx	6	0.16%	0.15%	0.21	0.01	7	0.16%	0.16%	0.35	0.03	13	0.16%	0.15%	0.27	0.02
C01-C14: mouth & pharynx	45	1.16%	1.13%	1.75	0.14	79	1.85%	1.79%	3.79	0.27	124	1.52%	1.48%	2.69	0.20
C15: oesophagus	113	2.92%	2.83%	4.06	0.25	220	5.15%	4.99%	10.53	0.84	333	4.09%	3.97%	7.13	0.55
C16: stomach	136	3.52%	3.41%	5.02	0.32	180	4.22%	4.09%	8.54	0.63	316	3.88%	3.76%	6.68	0.48
C17: small intestine	8	0.21%	0.20%	0.27	0.01	10	0.23%	0.23%	0.46	0.03	18	0.22%	0.21%	0.37	0.02
C18: colon	229	5.92%	5.74%	8.32	0.52	275	6.44%	6.24%	13.24	0.89	504	6.20%	6.00%	10.54	0.70
C19: rectosigmoid	112	2.90%	2.81%	4.32	0.31	158	3.70%	3.59%	7.52	0.54	270	3.32%	3.22%	5.73	0.43
C20: rectum	62	1.60%	1.55%	2.31	0.16	96	2.25%	2.18%	4.67	0.25	158	1.94%	1.88%	3.29	0.20
C21: anus	4	0.10%	0.10%	0.14	0.01	6	0.14%	0.14%	0.32	0.01	10	0.12%	0.12%	0.20	0.01

ICD10 CANCER SITE	FEMALES					MALES					TOTAL				
	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs
‡All invasive cancer deaths C00-C96 †ASMR: Age standardised rate (mortality)/100,000 (standardised to the European population) *cumulative risk (%) of death to age 75 years															
C18-C21: colorectal	407	10.53%	10.20%	15.10	0.99	535	12.53%	12.15%	25.75	1.68	942	11.58%	11.22%	19.76	1.34
C22: liver	101	2.61%	2.53%	3.78	0.29	159	3.72%	3.61%	7.65	0.58	260	3.20%	3.10%	5.62	0.43
C23: gallbladder	16	0.41%	0.40%	0.63	0.05	3	0.07%	0.07%	0.15	0.01	19	0.23%	0.23%	0.40	0.03
C24: other biliary	7	0.18%	0.18%	0.27	0.02	5	0.12%	0.11%	0.24	0.01	12	0.15%	0.14%	0.25	0.02
C25: pancreas	228	5.90%	5.72%	8.78	0.68	244	5.71%	5.54%	11.85	0.90	472	5.80%	5.62%	10.19	0.79
C26: other digestive	62	1.60%	1.55%	2.25	0.17	75	1.76%	1.70%	3.73	0.21	137	1.68%	1.63%	2.83	0.19
C30: nasal cavity/middle ear	0	0.00%	0.00%			1	0.02%	0.02%	0.04	<0.01	1	0.01%	0.01%	0.01	<0.01
C31: sinuses	1	0.03%	0.03%	0.02	<0.01	3	0.07%	0.07%	0.13	0.00	4	0.05%	0.05%	0.07	<0.01
C32: larynx	8	0.21%	0.20%	0.30	0.03	48	1.12%	1.09%	2.37	0.18	56	0.69%	0.67%	1.27	0.10
C33: trachea	1	0.03%	0.03%	0.03	<0.01	1	0.02%	0.02%	0.05	0.01	2	0.02%	0.02%	0.04	<0.01
C34: lung	716	18.53%	17.95%	28.97	2.36	977	22.88%	22.18%	47.34	3.50	1693	20.81%	20.17%	37.00	2.93
C37: thymus	1	0.03%	0.03%	0.04	<0.01	1	0.02%	0.02%	0.05	<0.01	2	0.02%	0.02%	0.04	<0.01
C38: mediastinum	6	0.16%	0.15%	0.25	0.02	3	0.07%	0.07%	0.15	0.02	9	0.11%	0.11%	0.21	0.02
C39: other chest	0	0.00%	0.00%			1	0.02%	0.02%	0.04	<0.01	1	0.01%	0.01%	0.01	<0.01
C40: bones, joints of limbs	2	0.05%	0.05%	0.07	<0.01	0	0.00%	0.00%			2	0.02%	0.02%	0.04	<0.01
C41: bones, joints head and trunk	8	0.21%	0.20%	0.30	0.01	9	0.21%	0.20%	0.43	0.02	17	0.21%	0.20%	0.35	0.02
C43: melanoma skin	60	1.55%	1.50%	2.27	0.16	85	1.99%	1.93%	4.04	0.27	145	1.78%	1.73%	3.06	0.21
C44: non-melanoma skin	26	0.67%	0.65%	0.86	0.05	57	1.33%	1.29%	2.83	0.09	83	1.02%	0.99%	1.61	0.07
C45: mesothelioma	4	0.10%	0.10%	0.18	<0.01	35	0.82%	0.79%	1.67	0.12	39	0.48%	0.46%	0.86	0.07
C46: Kaposi's sarcoma	0	0.00%	0.00%			1	0.02%	0.02%	0.04	<0.01	1	0.01%	0.01%	0.02	<0.01
C47: peripheral nerves	1	0.03%	0.03%	0.04	<0.01	0	0.00%	0.00%			1	0.01%	0.01%	0.02	<0.01
C48: peritoneum	11	0.28%	0.28%	0.37	0.01	6	0.14%	0.14%	0.31	0.03	17	0.21%	0.20%	0.35	0.02
C49: connective tissues	22	0.57%	0.55%	0.91	0.07	19	0.44%	0.43%	0.87	0.07	41	0.50%	0.49%	0.89	0.07
C50: breast	649	16.79%	16.27%	26.65	2.17	10	0.23%	0.23%	0.49	0.03	659	8.10%	7.85%	14.35	1.10
C51: vulva	19	0.49%	0.48%	0.66	0.05	-					19	0.23%	0.23%	0.37	0.02
C52: vagina	5	0.13%	0.13%	0.20	0.02	-					5	0.06%	0.06%	0.11	0.01

ICD10 CANCER SITE	FEMALES					MALES					TOTAL				
	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs
‡All invasive cancer deaths C00-C96															
†ASMR: Age standardised rate (mortality)/100,000 (standardised to the European population)															
*cumulative risk (%) of death to age 75 years															
C53: cervix	88	2.28%	2.21%	3.82	0.32	-					88	1.08%	1.05%	1.96	0.16
C54: corpus uteri	73	1.89%	1.83%	2.94	0.28	-					73	0.90%	0.87%	1.58	0.14
C55: uterus nos	26	0.67%	0.65%	1.00	0.07	-					26	0.32%	0.31%	0.55	0.04
C56: ovary	286	7.40%	7.17%	11.96	1.04	-					286	3.52%	3.41%	6.33	0.52
C57: other female genital	5	0.13%	0.13%	0.21	0.02	-					5	0.06%	0.06%	0.11	0.01
C58: placenta	0	0.00%	0.00%			-					0	0.00%	0.00%		
C60: penis	-					5	0.12%	0.11%	0.27	0.02	5	0.06%	0.06%	0.11	0.01
C61: prostate	-					533	12.48%	12.10%	26.18	1.02	533	6.55%	6.35%	10.33	0.51
C62: testis	-					5	0.12%	0.11%	0.23	0.02	5	0.06%	0.06%	0.11	0.01
C63: other male genital	0	0.00%	0.00%			1	0.02%	0.02%	0.06	<0.01	1	0.01%	0.01%	0.02	<0.01
C64: kidney	57	1.47%	1.43%	2.11	0.14	127	2.97%	2.88%	6.13	0.40	184	2.26%	2.19%	3.89	0.27
C65: renal pelvis	0	0.00%	0.00%			3	0.07%	0.07%	0.14	0.01	3	0.04%	0.04%	0.07	<0.01
C66: ureter	2	0.05%	0.05%	0.07	0.01	3	0.07%	0.07%	0.15	0.02	5	0.06%	0.06%	0.11	0.01
C67: bladder	65	1.68%	1.63%	2.35	0.16	120	2.81%	2.72%	5.79	0.23	185	2.27%	2.20%	3.70	0.20
C68: other urinary	2	0.05%	0.05%	0.05	<0.01	7	0.16%	0.16%	0.35	0.03	9	0.11%	0.11%	0.19	0.01
C69: eye	4	0.10%	0.10%	0.15	0.02	5	0.12%	0.11%	0.24	0.02	9	0.11%	0.11%	0.20	0.02
C70: meninges	4	0.10%	0.10%	0.17	0.02	0	0.00%	0.00%			4	0.05%	0.05%	0.09	0.01
C71: brain	92	2.38%	2.31%	3.98	0.34	139	3.26%	3.16%	6.53	0.52	231	2.84%	2.75%	5.18	0.43
C72: spinal cord	0	0.00%	0.00%			0	0.00%	0.00%			0	0.00%	0.00%		
C73: thyroid	14	0.36%	0.35%	0.53	0.04	11	0.26%	0.25%	0.53	0.04	25	0.31%	0.30%	0.54	0.04
C74: adrenal	4	0.10%	0.10%	0.18	0.01	4	0.09%	0.09%	0.18	0.01	8	0.10%	0.10%	0.18	0.01
C75: other endocrine	2	0.05%	0.05%	0.09	0.01	3	0.07%	0.07%	0.14	0.01	5	0.06%	0.06%	0.11	0.01
C76: ill-defined site	9	0.23%	0.23%	0.35	0.02	12	0.28%	0.27%	0.57	0.03	21	0.26%	0.25%	0.44	0.03
C80: unknown primary site	163	4.22%	4.09%	5.89	0.38	124	2.90%	2.81%	5.93	0.37	287	3.53%	3.42%	5.92	0.37
C81: Hodgkin's lymphoma	8	0.21%	0.20%	0.25	0.01	10	0.23%	0.23%	0.47	0.04	18	0.22%	0.21%	0.37	0.02
C82: follicular non-Hodgkin's lymphoma	3	0.08%	0.08%	0.11	0.01	5	0.12%	0.11%	0.25	0.01	8	0.10%	0.10%	0.17	0.01

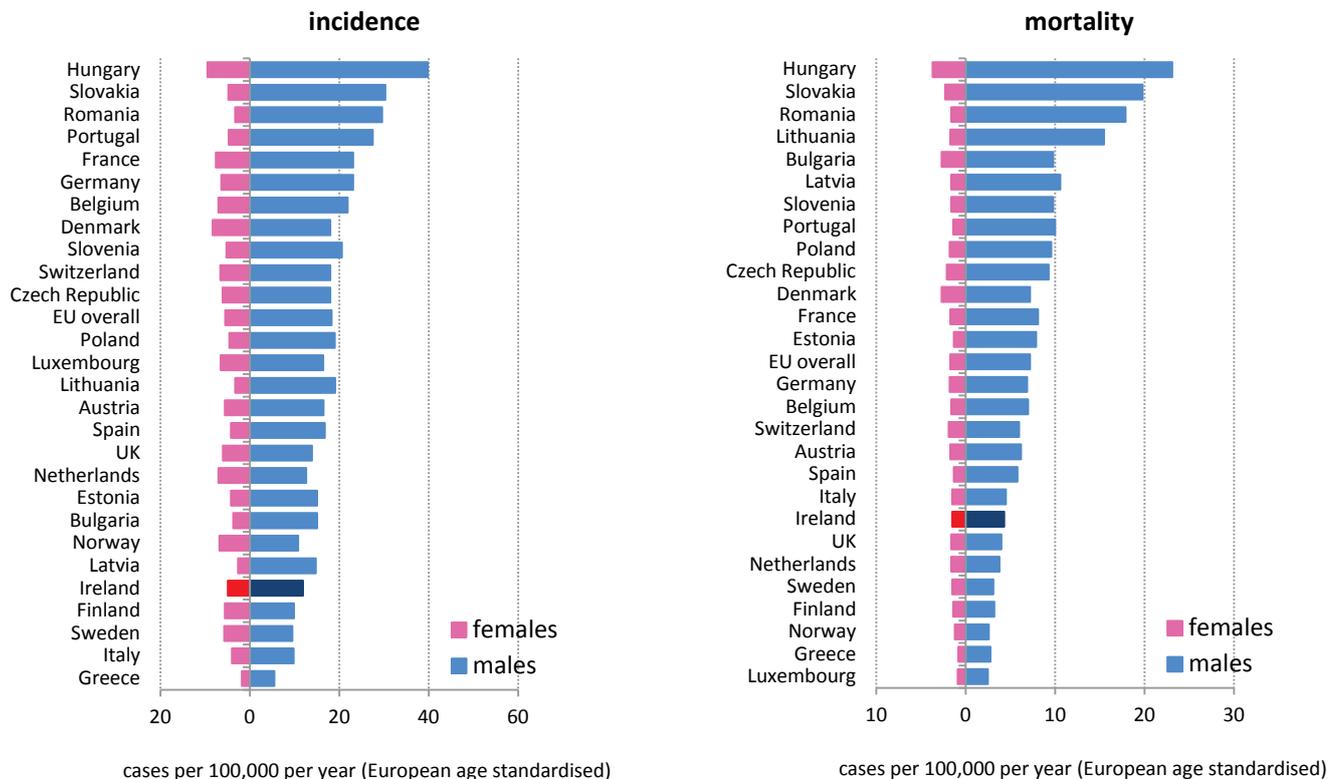
ICD10 CANCER SITE	FEMALES					MALES					TOTAL				
	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs	deaths 2010	% of all invasive cancer deaths	% of all registered cancer deaths	†ASMR	*risk of death to 75yrs
‡All invasive cancer deaths C00-C96															
†ASMR: Age standardised rate (mortality)/100,000 (standardised to the European population)															
*cumulative risk (%) of death to age 75 years															
C83: diffuse non-Hodgkin's lymphoma	10	0.26%	0.25%	0.38	0.02	14	0.33%	0.32%	0.68	0.03	24	0.30%	0.29%	0.51	0.02
C84: peripheral and cutaneous T cell lymphoma	9	0.23%	0.23%	0.38	0.02	12	0.28%	0.27%	0.60	0.05	21	0.26%	0.25%	0.48	0.03
C85: other and unspecified NHL	76	1.97%	1.91%	2.93	0.23	103	2.41%	2.34%	4.96	0.32	179	2.20%	2.13%	3.82	0.28
C82-C85: all non-Hodgkin's lymphoma	98	2.54%	2.46%	3.80	0.27	134	3.14%	3.04%	6.48	0.42	232	2.85%	2.76%	4.99	0.34
C81-C85: lymphoma (total)	106	2.74%	2.66%	4.06	0.28	144	3.37%	3.27%	6.95	0.45	250	3.07%	2.98%	5.36	0.37
C88: malignant immunoproliferative disease	0	0.00%	0.00%			3	0.07%	0.07%	0.12	0.01	3	0.04%	0.04%	0.06	<0.01
C90: multiple myeloma	85	2.20%	2.13%	3.06	0.22	67	1.57%	1.52%	3.28	0.21	152	1.87%	1.81%	3.13	0.22
C91: lymphoid leukaemia	29	0.75%	0.73%	1.02	0.05	44	1.03%	1.00%	2.16	0.15	73	0.90%	0.87%	1.54	0.10
C92: myeloid leukaemia	47	1.22%	1.18%	1.79	0.13	70	1.64%	1.59%	3.39	0.25	117	1.44%	1.39%	2.51	0.19
C93: monocytic leukaemia	1	0.03%	0.03%	0.04	<0.01	0	0.00%	0.00%			1	0.01%	0.01%	0.02	<0.01
C94: other specified leukaemia	0	0.00%	0.00%			1	0.02%	0.02%	0.04	<0.01	1	0.01%	0.01%	0.01	<0.01
C95: unspecified leukaemia	10	0.26%	0.25%	0.31	0.01	13	0.30%	0.30%	0.63	0.04	23	0.28%	0.27%	0.47	0.03
C91-C95: leukaemia (total)	87	2.25%	2.18%	3.15	0.19	128	3.00%	2.91%	6.22	0.44	215	2.64%	2.56%	4.56	0.32
C96: other lymphoid and haematopoietic	1	0.03%	0.03%	0.04	<0.01	1	0.02%	0.02%	0.05	0.01	2	0.02%	0.02%	0.05	<0.01
D00-D48: All non-invasive cancer deaths	124	-	3.11%	4.11	0.22	135	-	3.06%	6.38	0.25	259	-	3.09%	5.00	0.23
C00-C96: All invasive cancer deaths	3865	100%	96.89%	151.14	10.94	4270	100%	96.94%	206.37	12.77	8135	100%	96.91%	173.24	11.86
C00-D48: Total cancer deaths (invasive & non-invasive)	3989	-	100%	155.26	11.14	4405	-	100%	212.75	12.99	8394	-	100%	178.24	12.07

Mortality data provided by the Central Statistics Office (www.cso.ie)

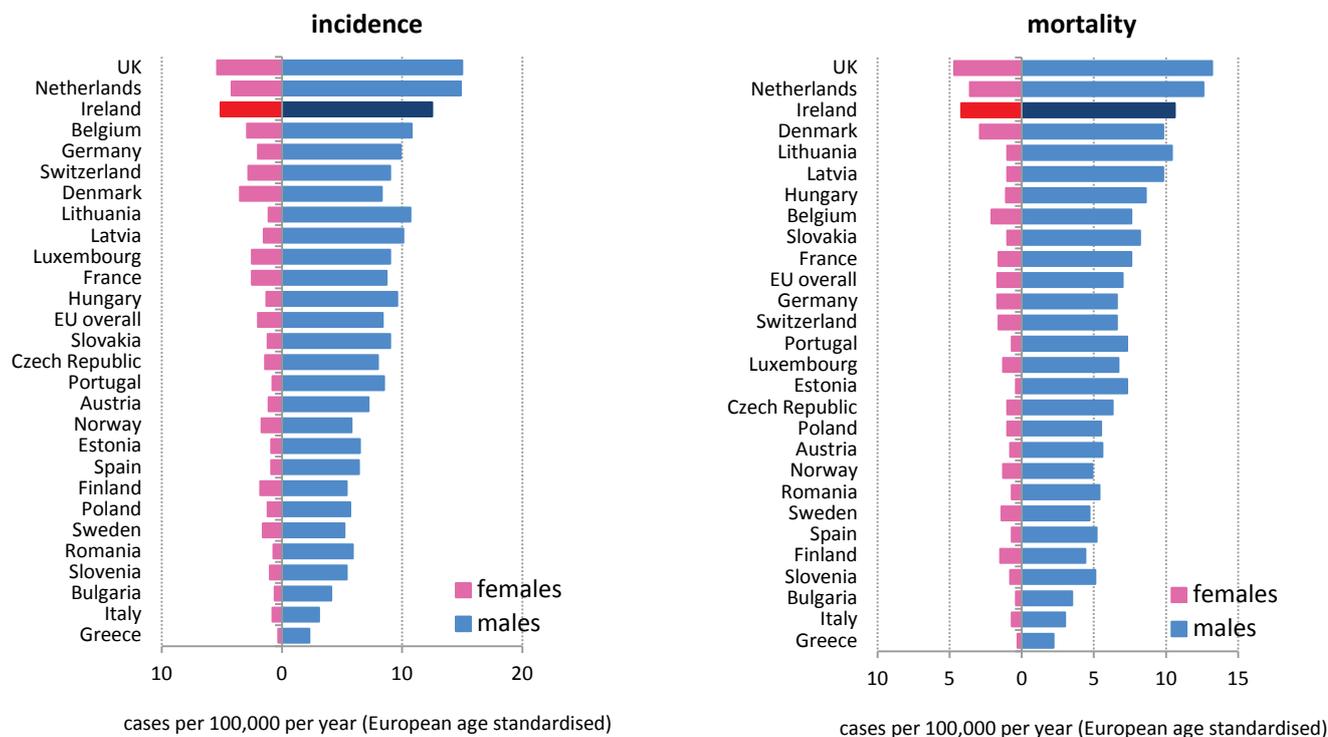
APPENDIX III: INCIDENCE AND MORTALITY: IRELAND AND OTHER EUROPEAN COUNTRIES, 2012

1. European Cancer Observatory (ECO). <http://eco.iarc.fr/>.

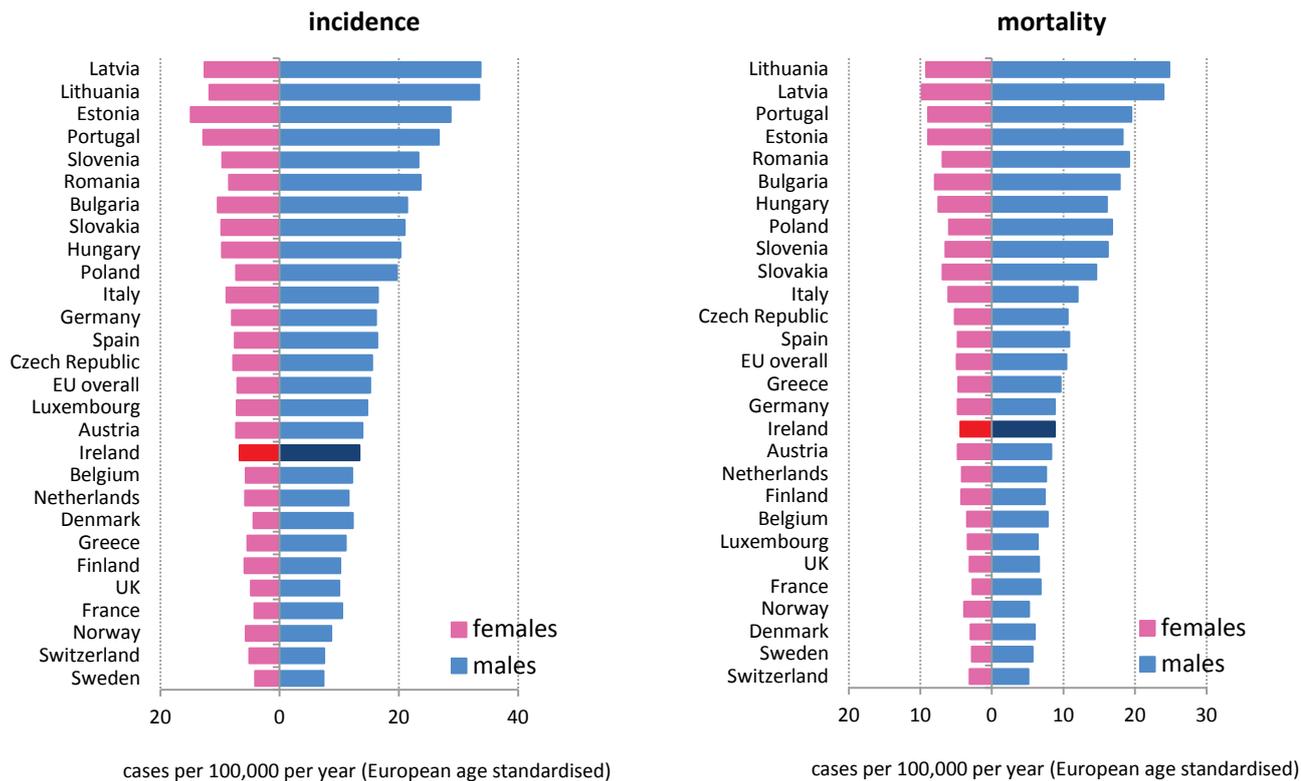
Estimated cancer incidence and mortality in Europe 2012: mouth and pharynx (C01-14)



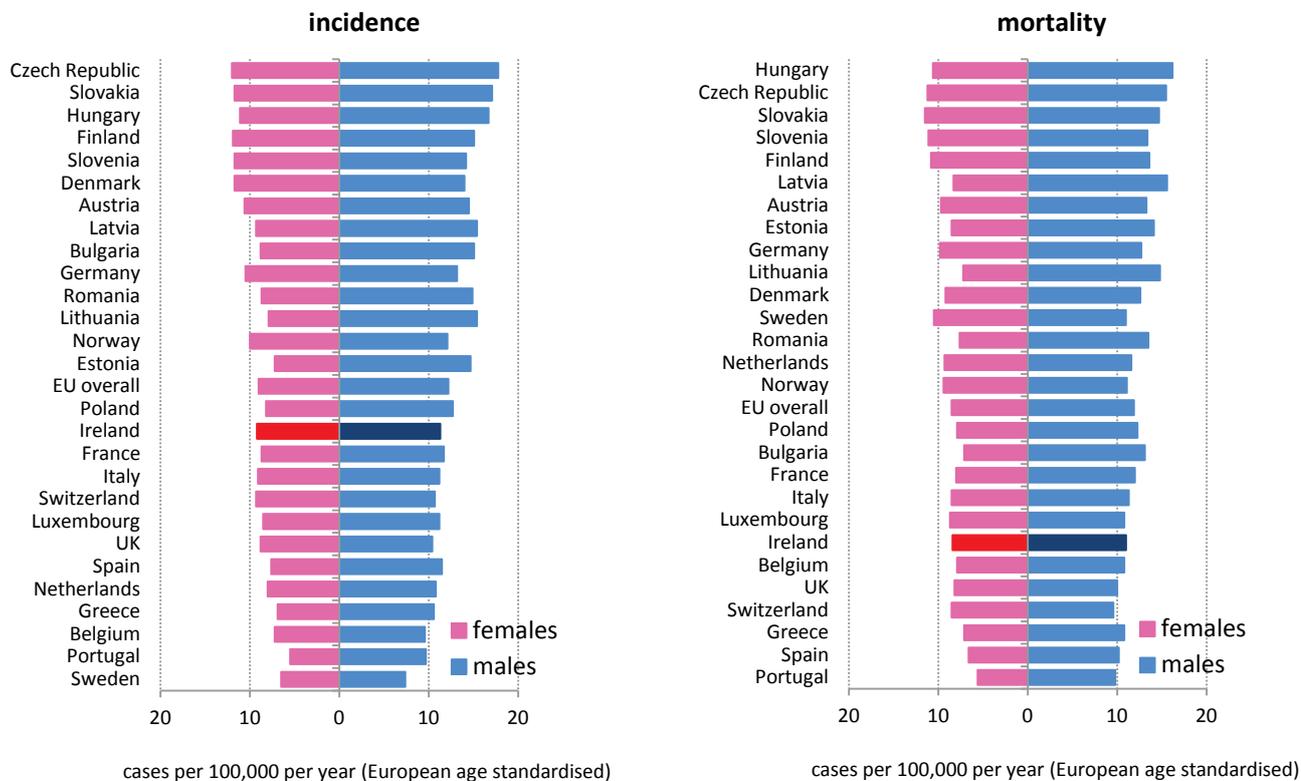
Estimated cancer incidence and mortality in Europe 2012: oesophagus (C15)



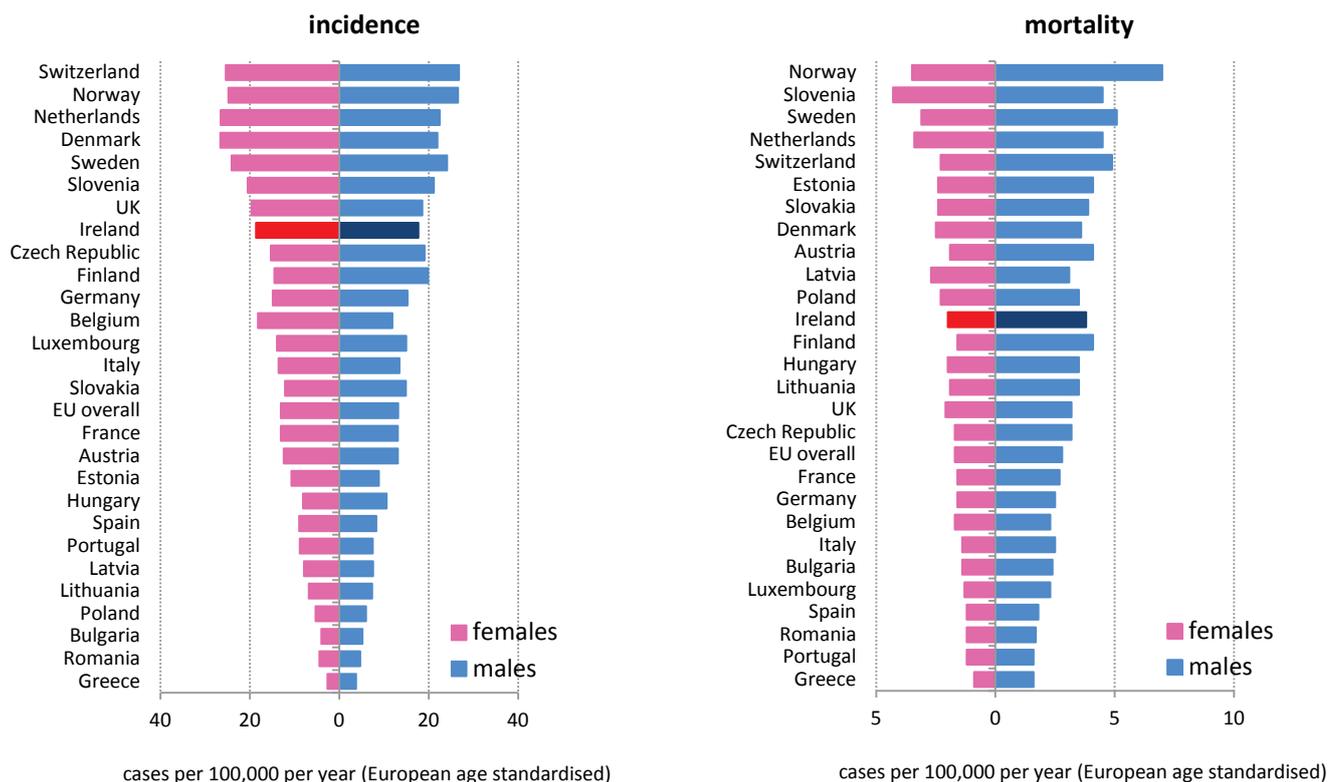
Estimated cancer incidence and mortality in Europe 2012: stomach (C16)



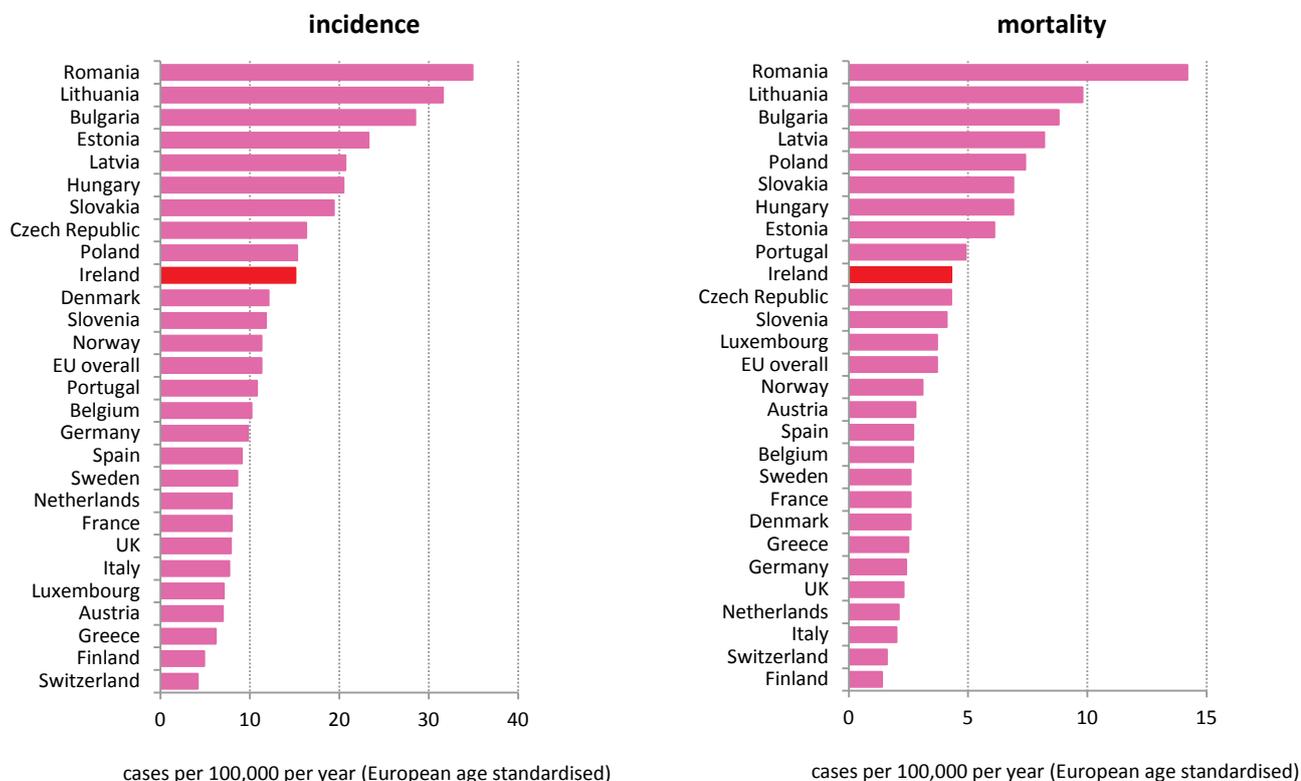
Estimated cancer incidence and mortality in Europe 2012: pancreas (C25)



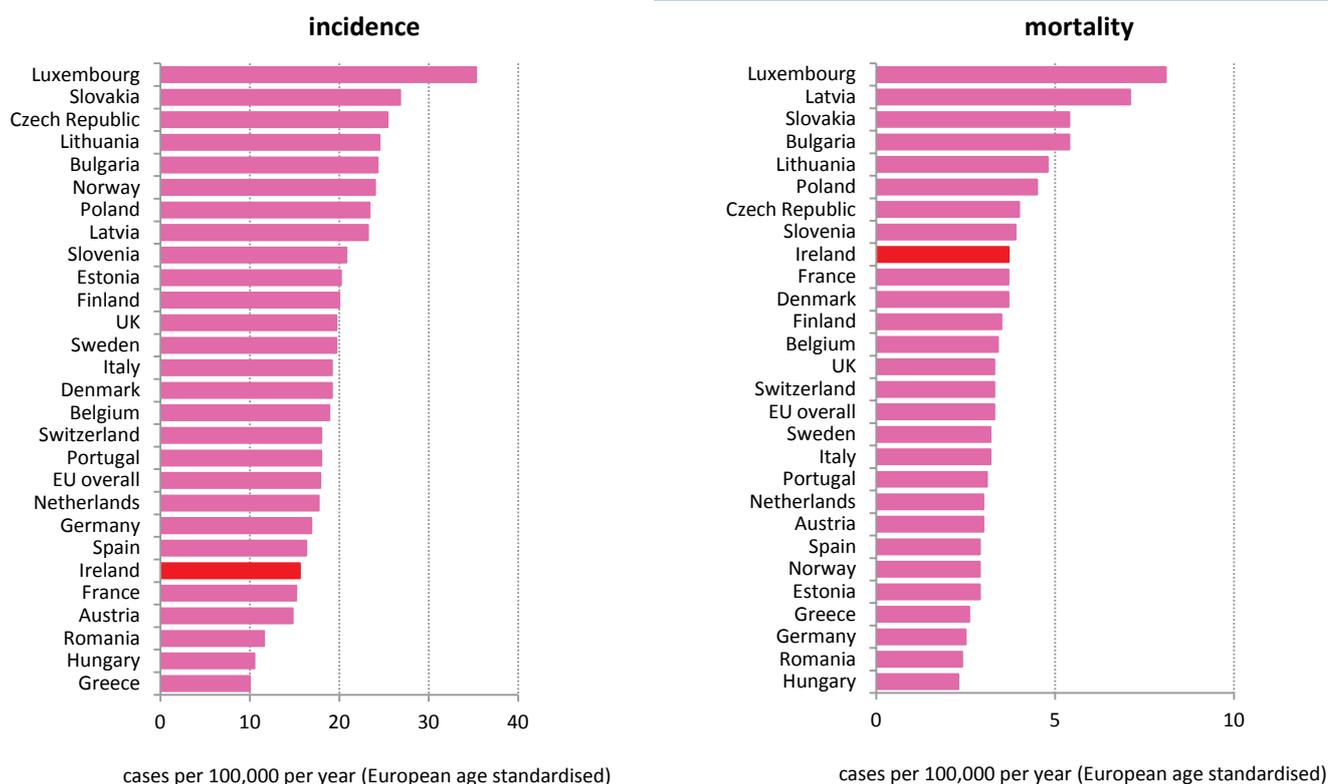
Estimated cancer incidence and mortality in Europe 2012: melanoma skin cancer (C43)



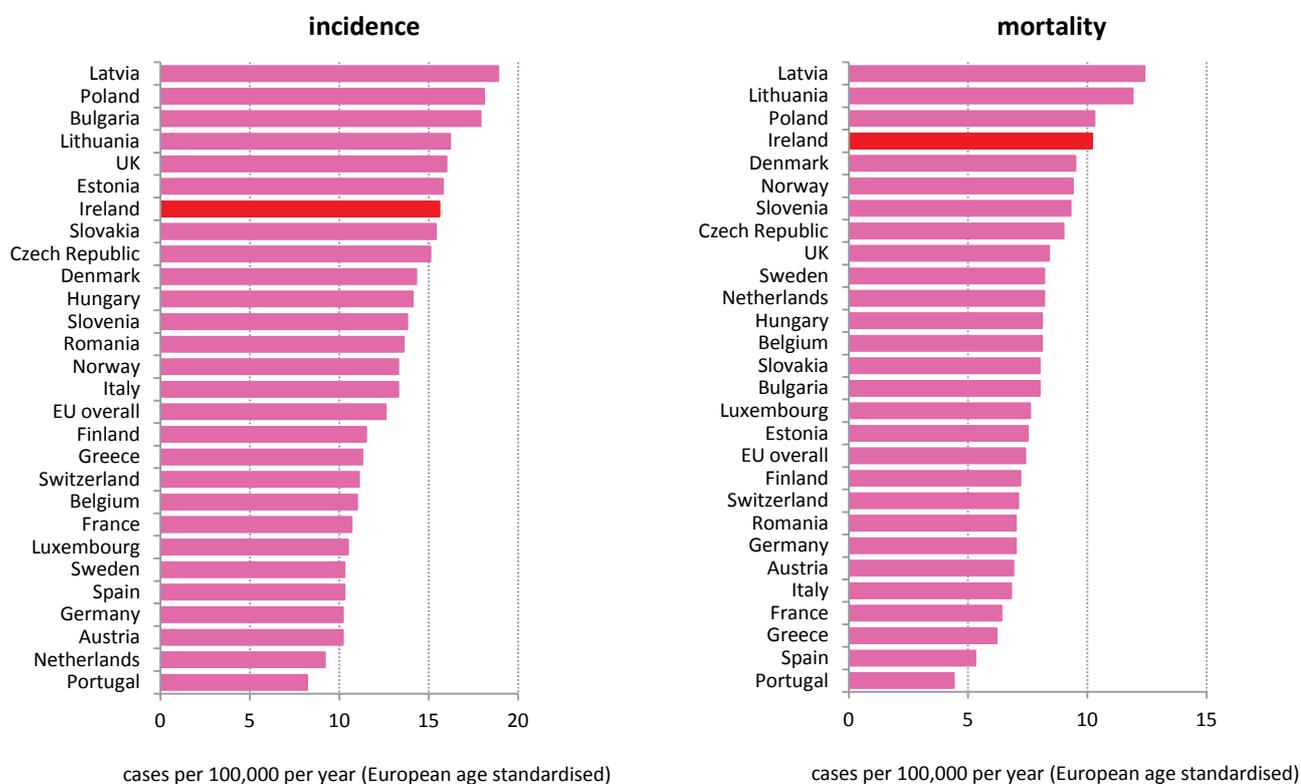
Estimated cancer incidence and mortality in Europe 2012: cervix (C53)



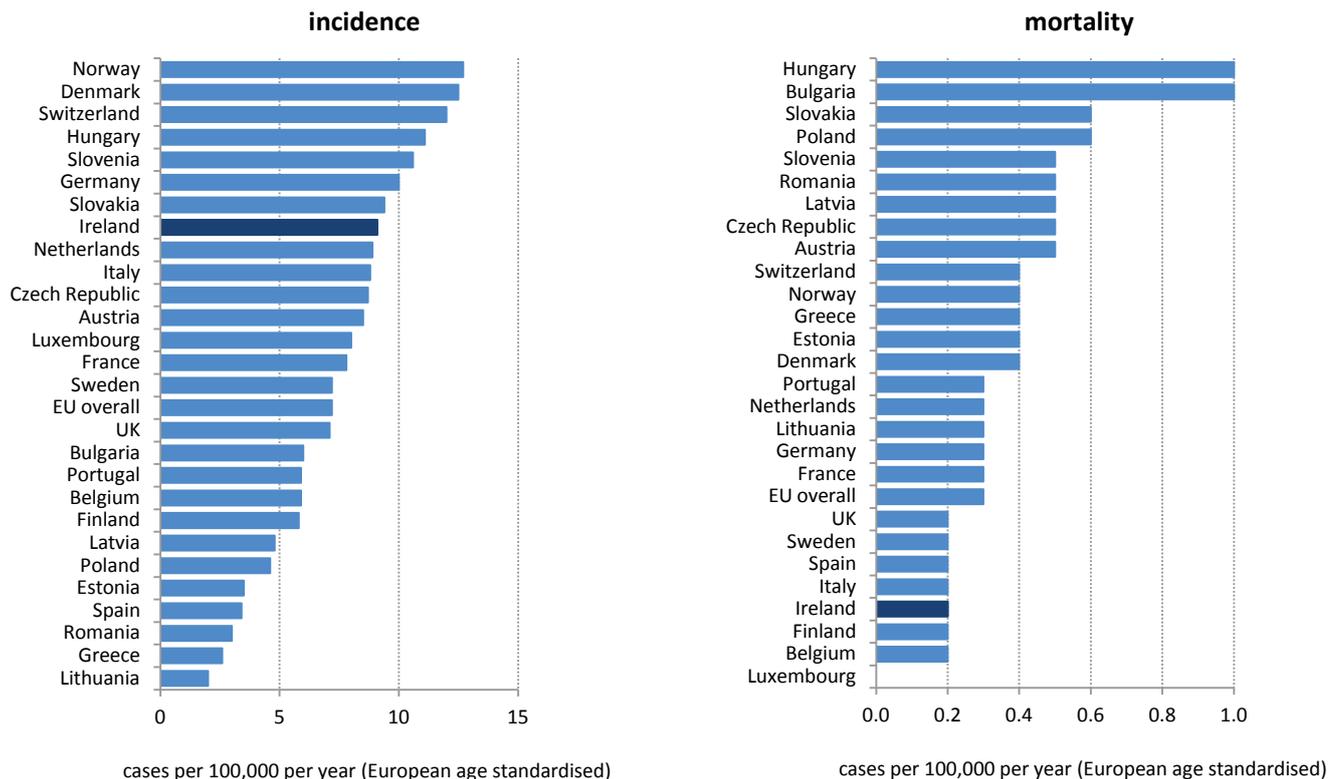
Estimated cancer incidence and mortality in Europe 2012: corpus uteri (C54)



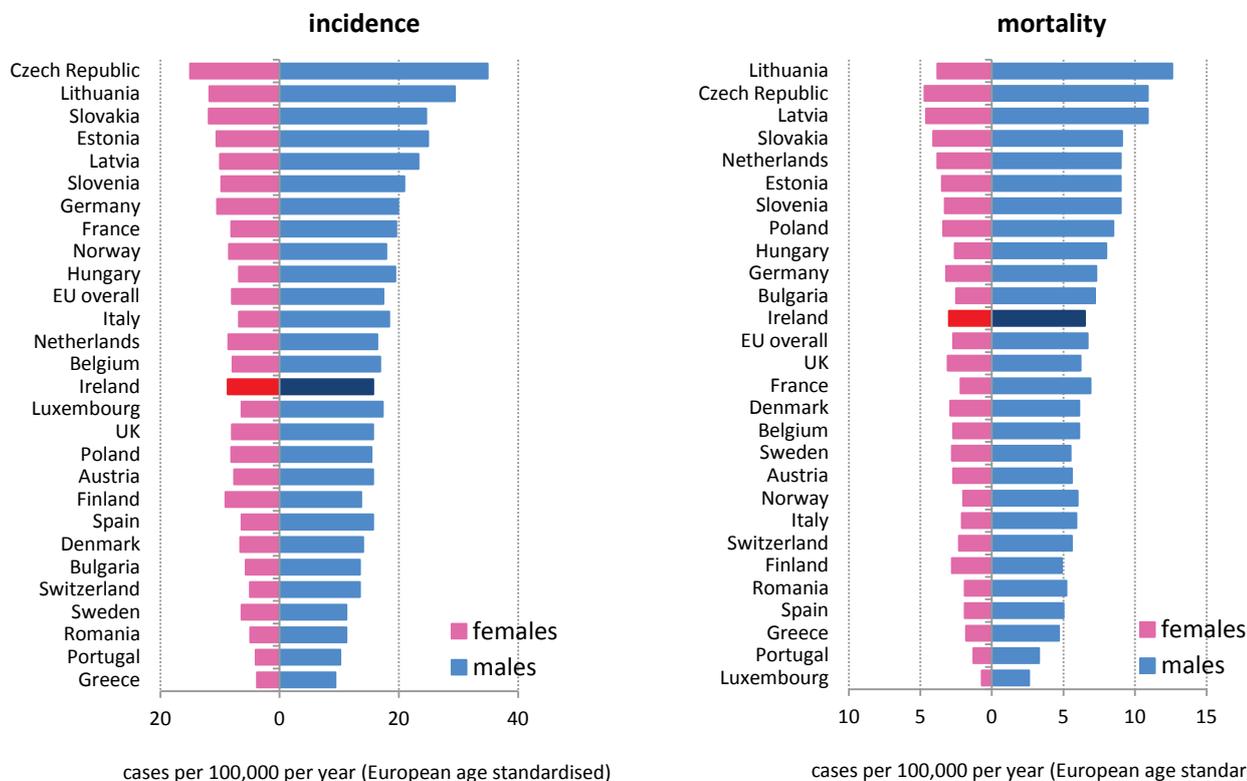
Estimated cancer incidence and mortality in Europe 2012: ovary (C56)



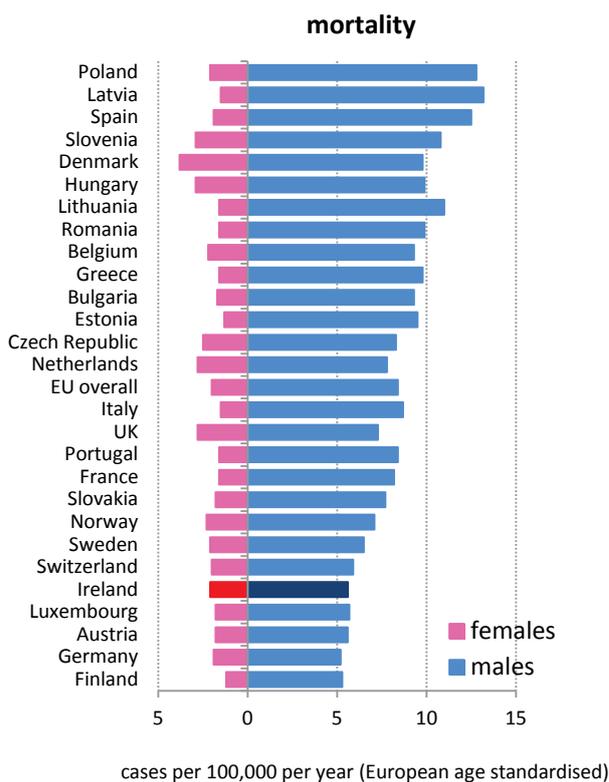
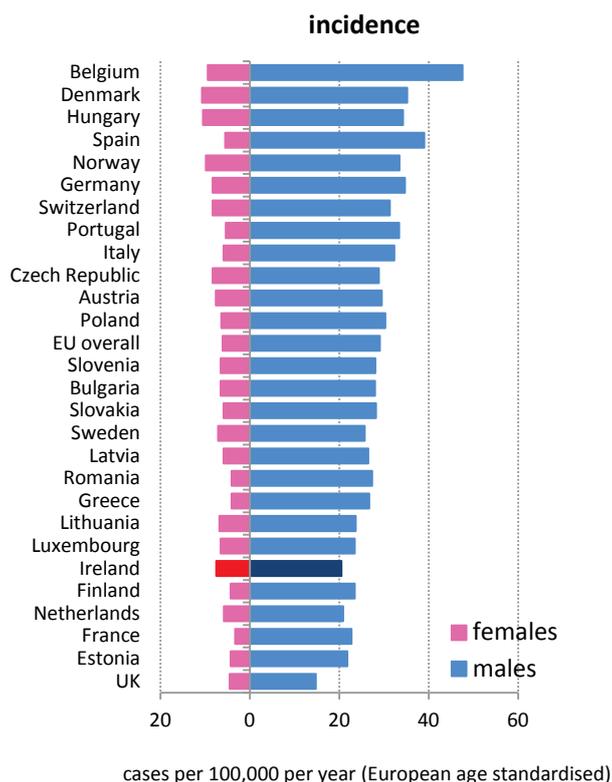
Estimated cancer incidence and mortality in Europe 2012: testis (C62)



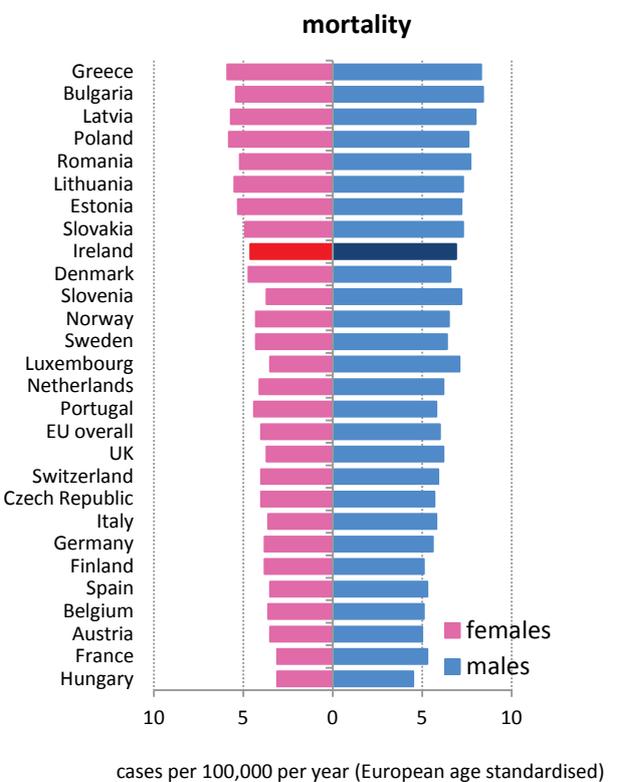
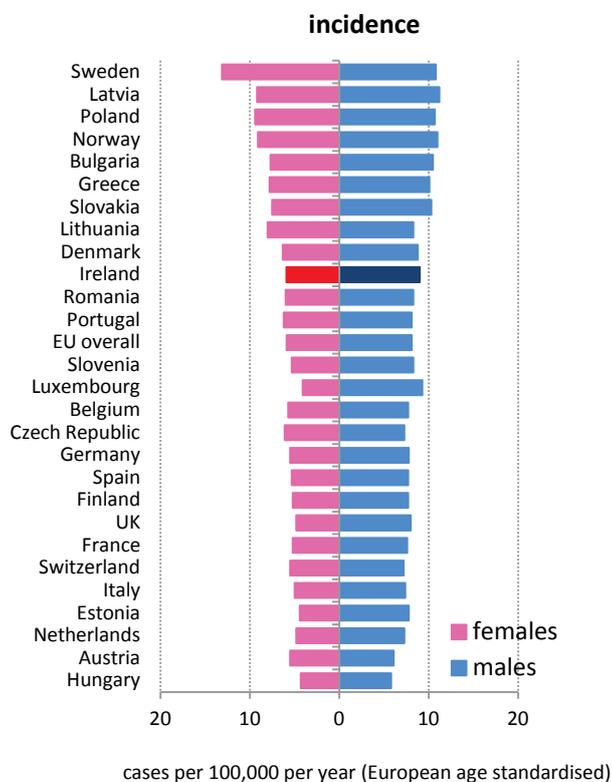
Estimated cancer incidence and mortality in Europe 2012: kidney, renal pelvis and ureter (C64-66)



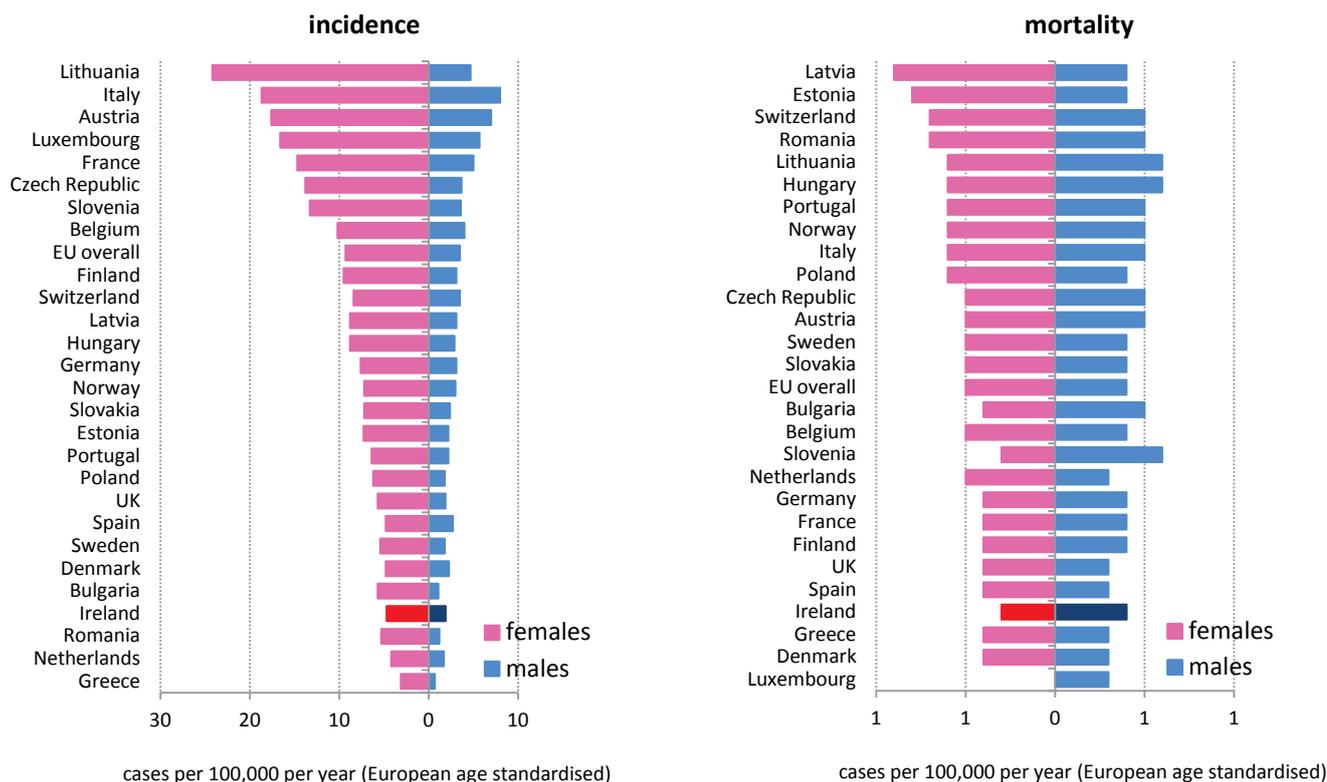
Estimated cancer incidence and mortality in Europe 2012: bladder (C67)



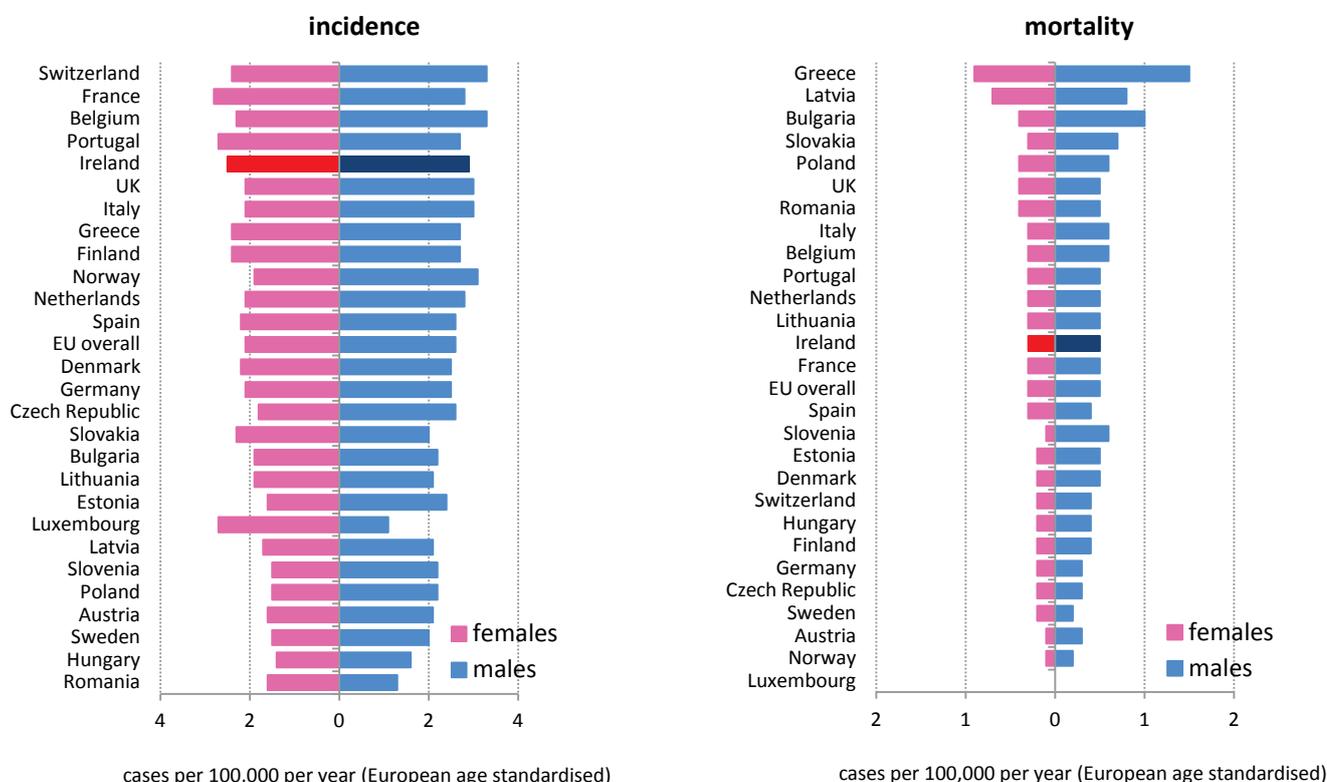
Estimated cancer incidence and mortality in Europe 2012: meninges, brain, spinal cord (C70-72)



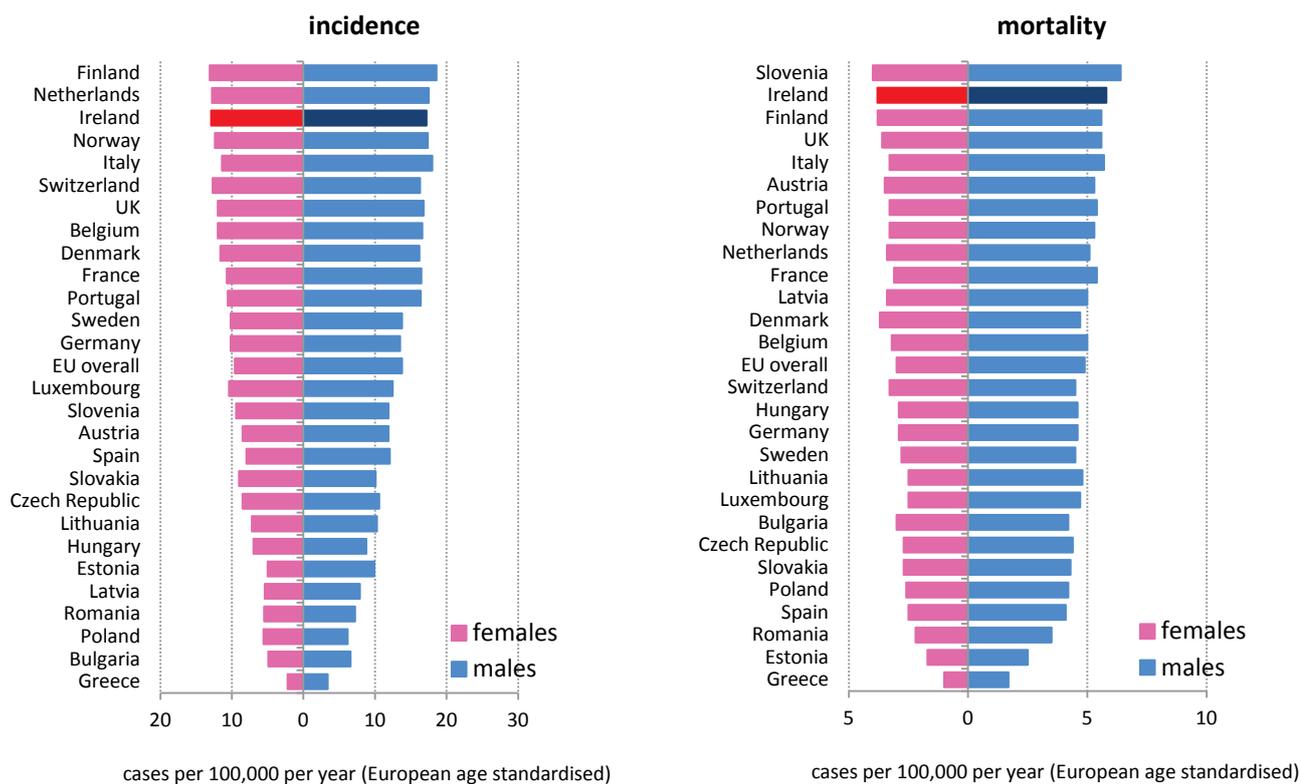
Estimated cancer incidence and mortality in Europe 2012: thyroid (C73)



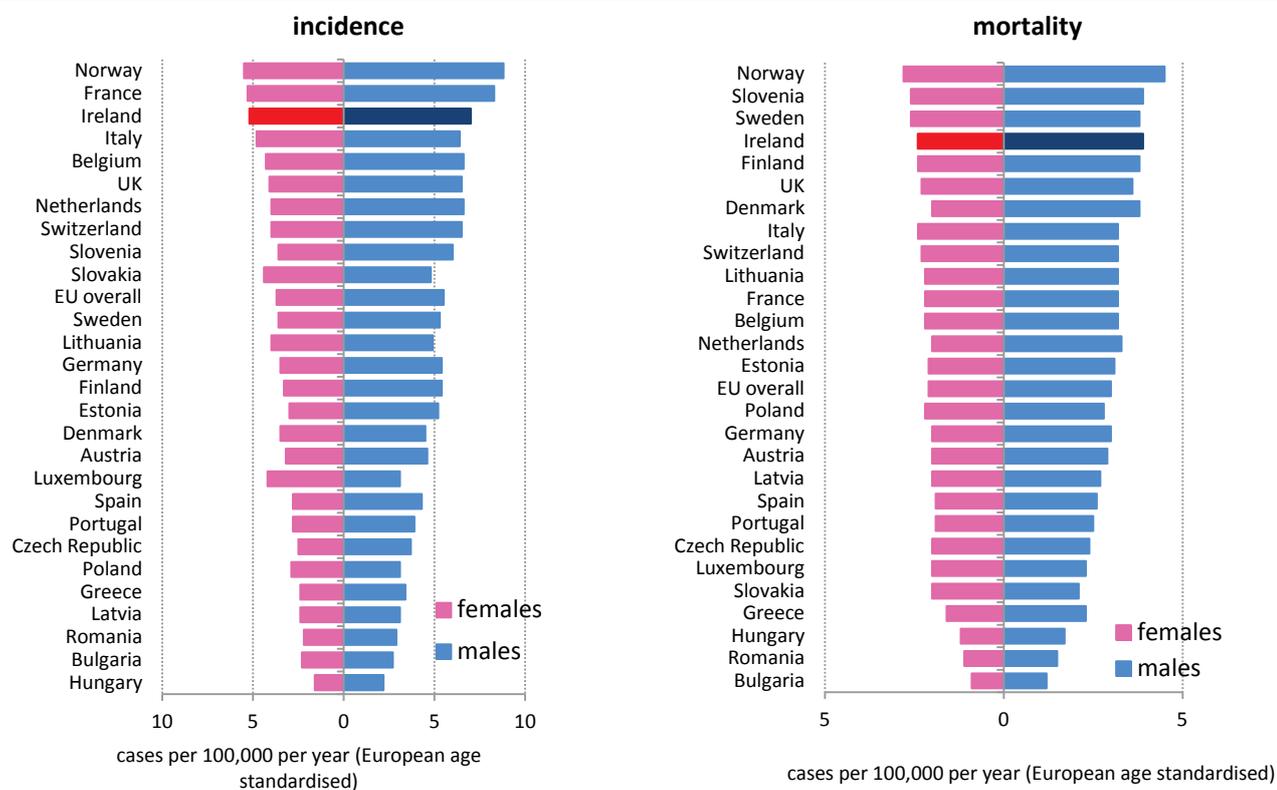
Estimated cancer incidence and mortality in Europe 2012: Hodgkin's lymphoma (C81)



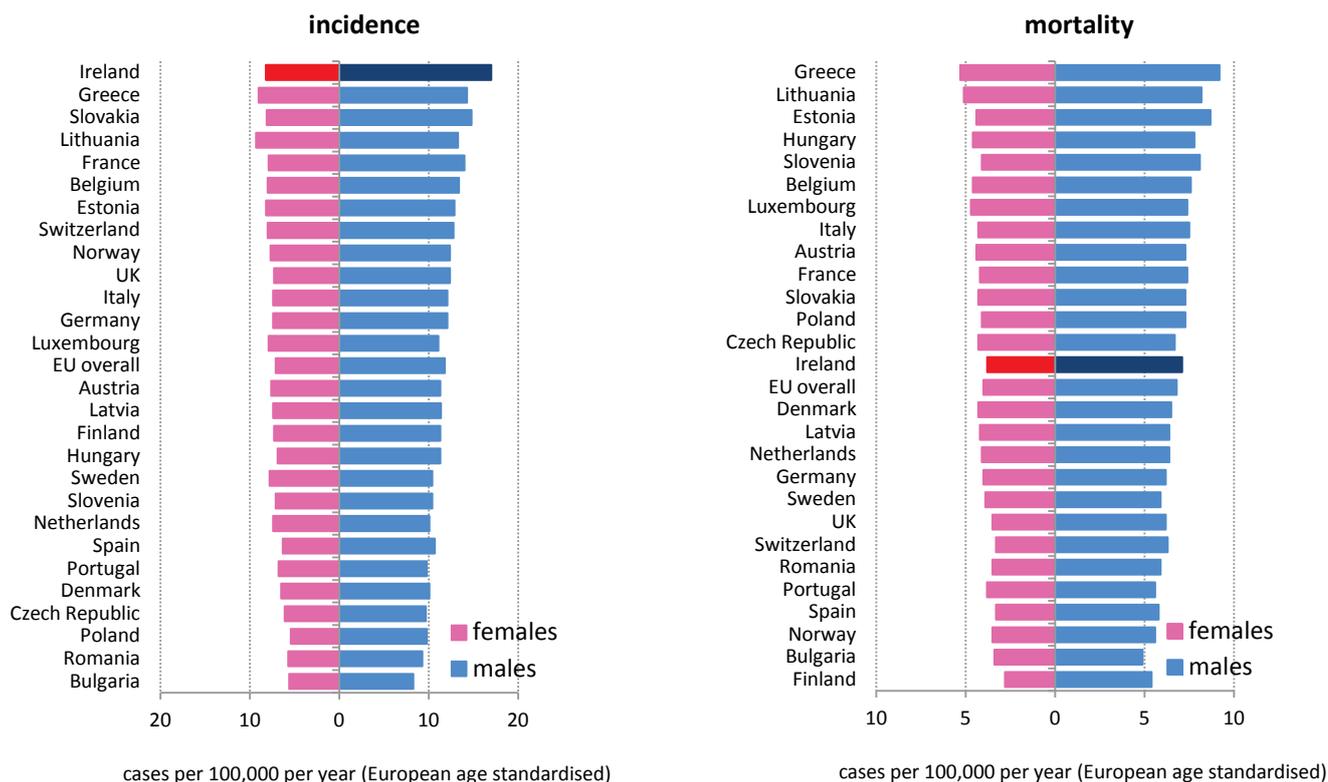
Estimated cancer incidence and mortality in Europe 2012: non-Hodgkin's lymphoma & other lymphoid/haematopoietic (C82-85,C96)



Estimated cancer incidence and mortality in Europe 2012: malignant immunoproliferative and multiple myeloma (C88 and C90)

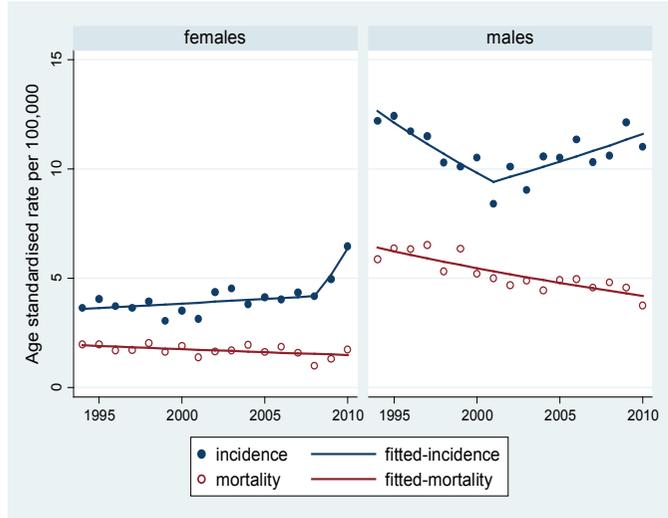


Estimated cancer incidence and mortality in Europe 2012: leukaemia (C91-95)

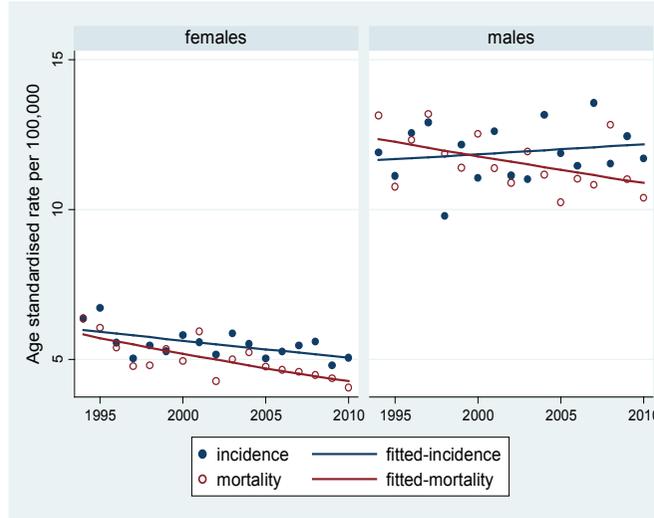


APPENDIX IV: TRENDS IN INCIDENCE AND MORTALITY: 1994-2010

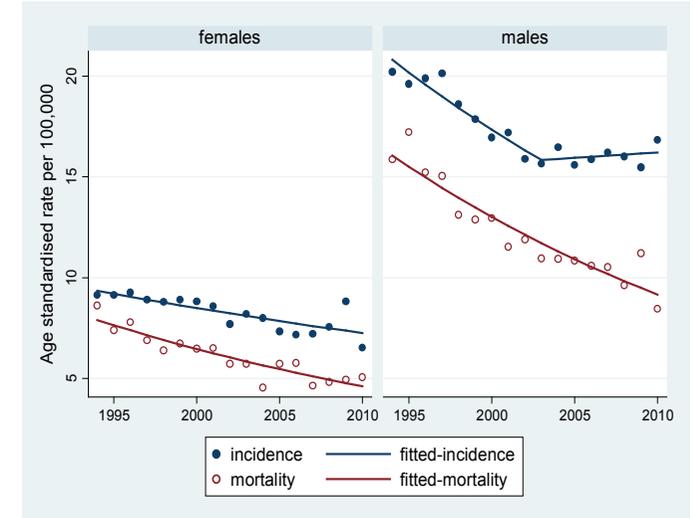
mouth and pharynx: C01-14



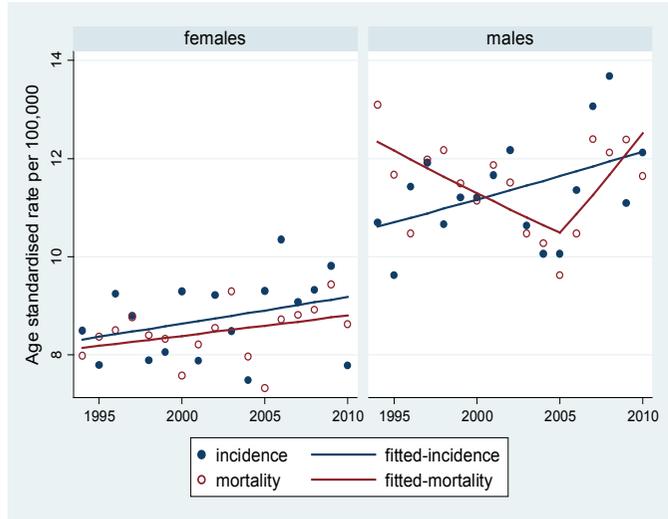
oesophagus: C15



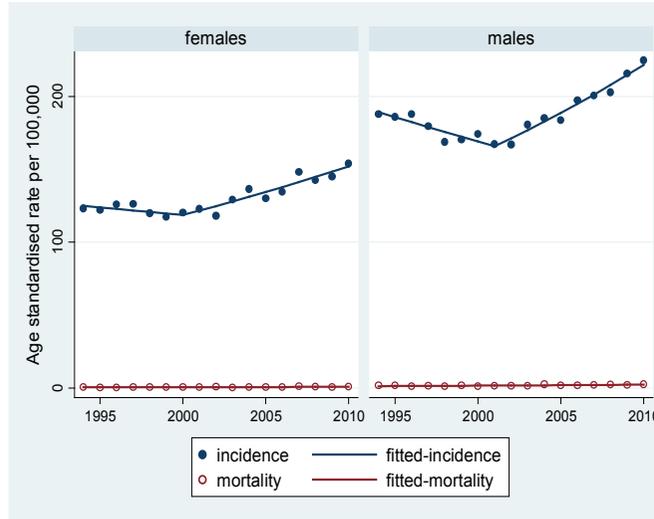
stomach: C16



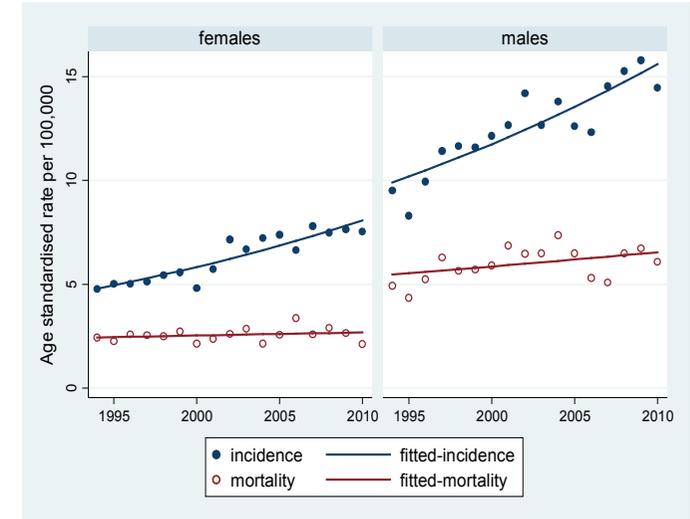
pancreas: C25



non-melanoma skin cancer: C44



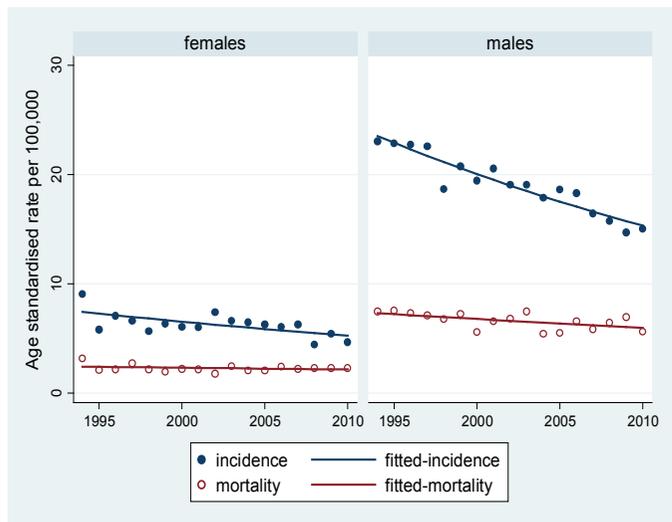
kidney: C64



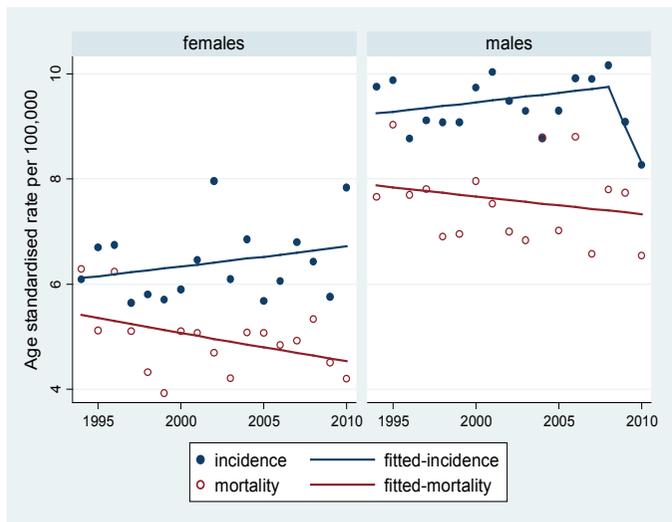
See Table 9 for annual percentage change (APC) estimates

APPENDIX IV-continued

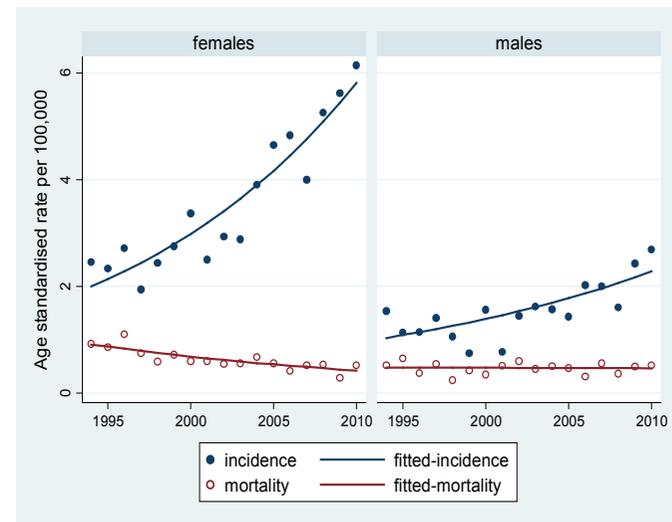
bladder: C67



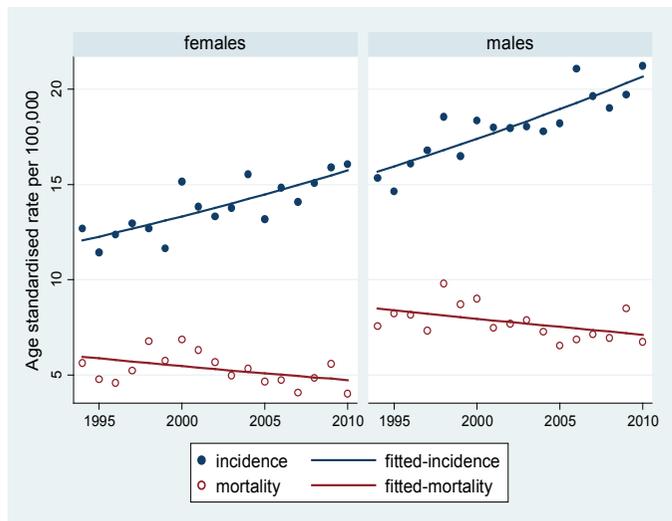
brain & CNS: C70-C72



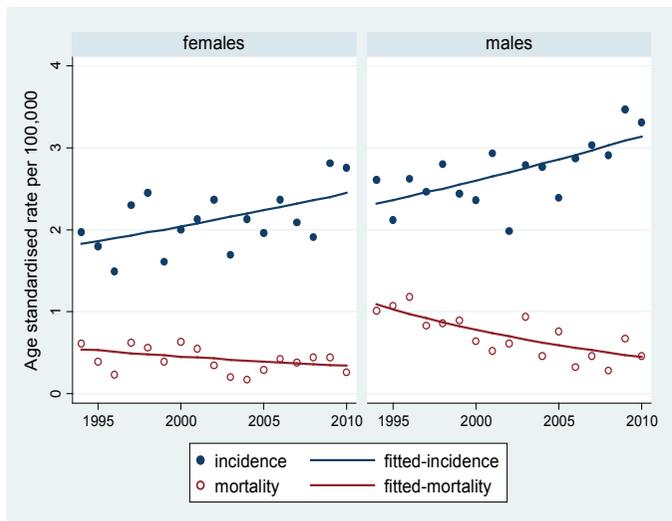
thyroid: C73



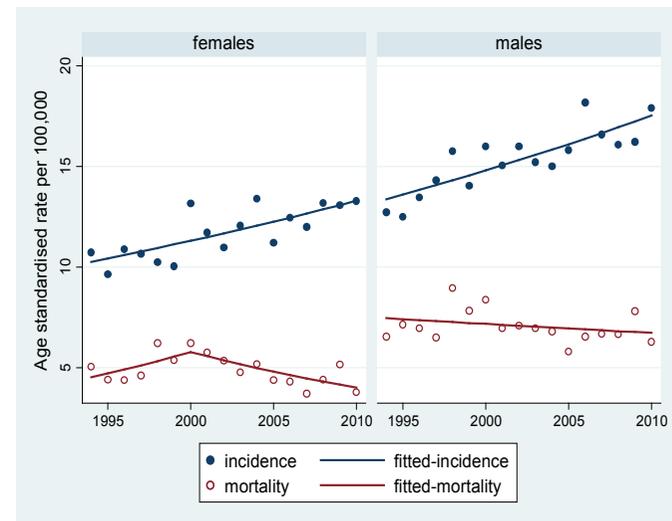
lymphoma (total): C81-C85



Hodgkin's disease: C81



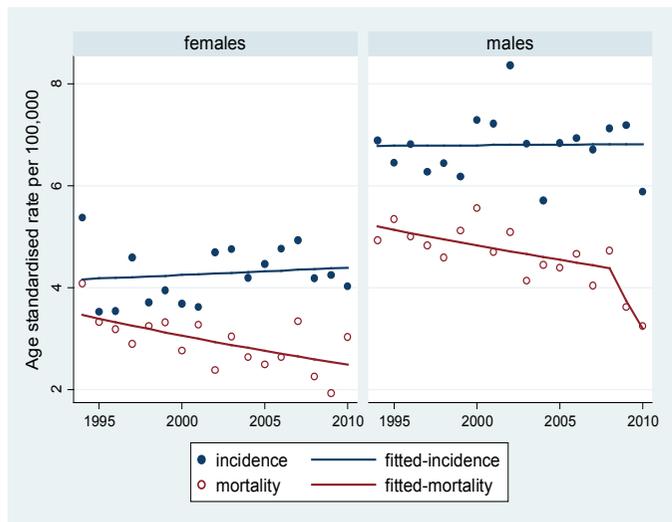
non-Hodgkin's lymphoma: C82-C85



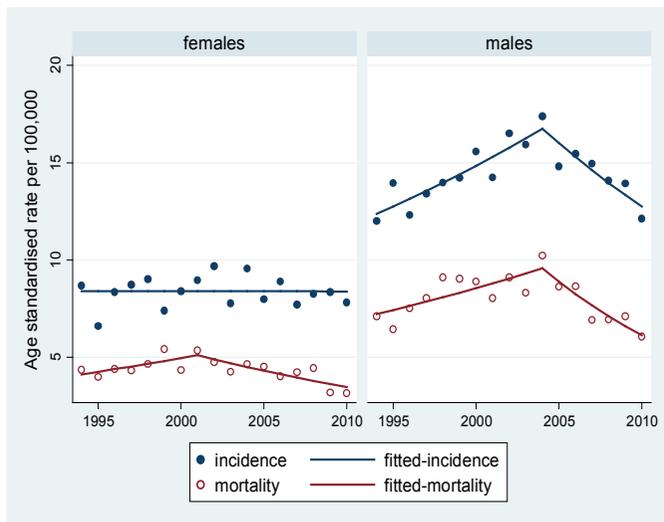
See Table 9 for annual percentage change (APC) estimates

APPENDIX IV-continued

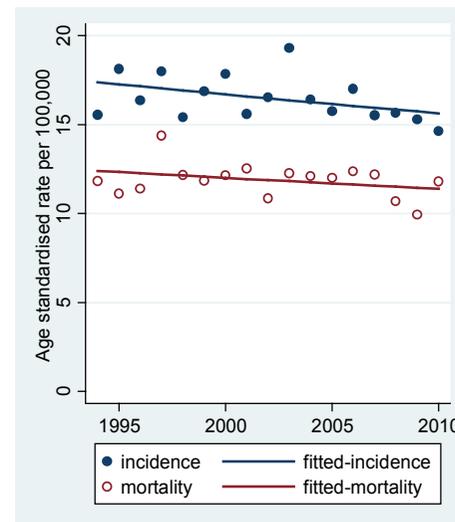
multiple myeloma: C90



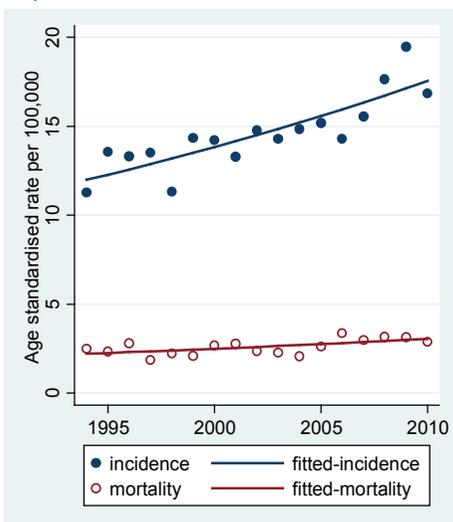
leukaemia (total): C91-C95



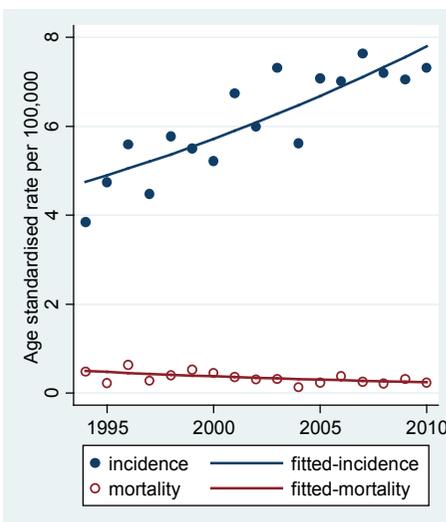
ovary: C56



corpus uteri: C54



testis: C62



See Table 9 for annual percentage change (APC) estimates