

## Cancer mortality in the elderly in 11 countries worldwide, 1970-2015

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**Short title:** Cancer mortality in the elderly

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## Abstract

**Background:** Population ageing results in an increasing cancer burden in the elderly. We aimed to evaluate time-trends in cancer mortality for adults aged 65 and over for 17 major cancer-types and all cancer combined in 11 countries worldwide over the period 1970-2015.

**Materials and Methods:** We obtained cancer death certification and population figures from the WHO and PAHO databases. We computed age-standardized (world standard population) rates for individuals aged 65 and over, and applied joinpoint regression models.

**Results:** Age-standardized mortality rates for all cancers combined showed a heterogeneous, but widespread decline. Lung cancer mortality rates have been decreasing among men, and increasing among women. Pancreatic cancer had unfavourable trends in all countries for both sexes. Despite variability across countries, other tobacco-related cancers (except kidney) showed overall favourable trends, except in Poland and Russia. Age-standardized mortality from stomach cancer has been declining in all countries for both sexes. Colorectal mortality has been declining, except in Poland and Russia. Liver cancer mortality increased in all countries, except in Japan, France and Italy, which had the highest rates in the past. Breast cancer mortality decreased for most countries, except for Japan, Poland and Russia. Trends for age-standardized uterine cancer rates in the USA, Canada and the UK were increasing over the last decade. Ovarian cancer rates showed declines in most countries. With the exception of Russia, prostate cancer rates showed overall declines. Lymphoid neoplasm rates have been declining in both sexes, except in Poland and Russia.

**Conclusion:** Over the last decades, age-standardized cancer mortality in the elderly has been decreasing in major countries worldwide and for major cancer sites, with the major exception of lung and uterine cancer in women and liver, pancreas and kidney cancers in both sexes. Cancer mortality for the elderly in Central and Eastern Europe remains comparatively high.

**Keywords:** cancer, mortality rates, elderly, worldwide

**Key message:** Age-standardized cancer mortality rates in the elderly decreased over the last two decades in major countries worldwide and for major cancer sites. Cancer of liver, pancreas and kidney, and in women lung and uterine cancer, and in general, Central and Eastern European countries showed higher mortality rates in recent years.

## Introduction

In 2012, almost 50% of all new cancer cases globally were diagnosed among the elderly, defined as individuals aged 65 and more [1]. Worldwide absolute number of incidence cancers in the elderly are predicted to double in 2035 compared to 2012, reaching 14 million new cases [1].

Cancer mortality in the elderly began to decrease in the late 1980s and early 1990s in North America, several countries from Western Europe and Japan (women) [2-4]. However, systematic analyses of trends in the last two decades are not available.

Given the ageing of the population, and the different cancer rates and trends in various age groups, the public health impact of cancer in the elderly is of major interest and relevance. Moreover, cancer burden in the elderly strongly affects health care resources, and its growth represents a public health and clinical priority. We aim to analyse trends in cancer mortality in the elderly since 1970 in 11 countries worldwide.

## Materials and Methods

From the World Health Organization (WHO) database (WHOSIS) [5], we obtained official death certification data for all cancers combined and 17 major cancer types: cancers of oral cavity and pharynx, esophagus, stomach, colorectum, liver, pancreas, larynx, lung, breast, uterus (WHO death certification data do not allow to distinguish between cervical and corpus uteri cancer), ovary, prostate, bladder, and kidney, as well as non-Hodgkin lymphoma, multiple myeloma, and leukemia. We retrieved mortality figures for 11 major countries with over 20 million inhabitants and over 95% death certification coverage, i.e. the United States of America (USA), Canada, Argentina, Japan, Australia, the United Kingdom (UK), Germany, France, Italy, Poland and the Russian Federation over the period 1970-2015 (or the most recent available year). During the calendar periods considered three different Revisions of the International Classification of Diseases (ICD) were used (ICD 8 through 10) [6-8], which were recoded according to ICD-10 [8]. We obtained estimates of the resident population for the corresponding calendar periods, based on official censuses, from the WHO and, for the Americas, from the Pan American Health Organization (PAHO) databases [9].

We calculated age-specific mortality rates for each 5-year age group (from 65–69 to 80+ years for the USA and Canada, and up to 85+ for the other countries), as well as age-standardized rates (ASRs), using the world standard population [10].

To identify years in which changes in ASRs occurred, we applied joinpoint regression models [11], setting a maximum of 5 trend segments. We computed the estimated annual percent change (APC) for each of the trends identified by the joinpoint model and the overall average annual percent change (AAPC) [12, 13].

## Results

Table 1 for men and Table 2 for women show age-standardized mortality rates per 100,000 elderly men and women, by cancer type and country, in the quinquennia 2000-2004 (2002) and 2010-2014 (2012), along with corresponding percent changes. Figure 1 (1a to 1f) and Supplement Tables S1 (men) and S2 (women) show results of the joinpoint analysis of age-standardized mortality rates, by cancer type and country.

### All cancers

Age-standardized mortality trends in most recent periods were decreasing in all countries and more favourable in absolute terms in men than in women. Men in the USA and Canada had lower rates compared to the other countries. Joinpoint regression analysis shows favourable APCs in the last trend segment, ranged between -1% (Argentina) and -2% (Canada and France). Age-standardized rates in women were much lower compared to those of men. All countries showed falls in rates between 2002 and 2012 also for women, with Japan having the lowest rate.

In the following, we describe in detail the age-standardized trends for the four major cancers. Details on the other cancers included in the analysis are presented in the Appendix.

### Colorectal cancer

Percent changes between 2002 and 2012 for men in Argentina, Poland and Russia were unfavourable. Age-standardized trends from Japan and Germany decreased since around 1990. Rates for Poland steadily increased since 1972, reaching in 2012 the highest value (199.5/100,000). Russian mortality rates increased up to 2009, then plateaued, however, having the second highest rate of 173.9. The USA had the lowest age-standardized mortality rate for men in 2012 with a value of 86.5 and the most favourable declining trend between 2002 and 2012. Women showed downward trends between 2002 and 2012 for all countries, except Russia, which also had the highest age-standardized rate in 2012, 102.7/100,000, followed by Poland, 100.8. Decreases between quinquennia were particularly marked in the USA, which also had the lowest rate in 2012 (60.7/100,000), and in Germany.

### Lung cancer

In men, patterns for this cancer site showed increases up to around the 1990s (earlier for Australia and the UK, where the rise ended earlier), to decrease thereafter. Age-standardized rates in Argentina fell over the whole period (AAPC -0.8) and rates for the USA had a 24.1% decrease since 2002, reaching a rate around 300/100,000 men in 2012. Poland had the highest rate in 2012, 440.3/100,000 men, followed by Russia, 334.8 and Italy, 327.0. Age-standardized rates for women were unfavourable in all countries, with the exception of the USA. US women had 11.8% decrease since 2002, but still had a high rate in 2012, 193.7/100,000. Women in Canada reached the highest rate in 2012 (209.1/100,000, +6.3% since 2002). In Russian women, lung cancer rate is the lowest with a value of 39.5 and a decrease of 5.8% since 2002.

### Breast cancer

Women from Japan and Poland had increasing age-standardized trends over the whole period (AAPC 2.2 and 1.2, respectively). Poland had a 6.9% rise between 2002 and 2012 and a rate of 83.6 in 2012. Russia had a 10.3% rise with a rate of 86.1/100,000 in 2012. Japanese rates in women increased by 33% from 2002 to 2012, however maintaining the lowest rate in 2012 (37.1/100,000). In the other countries patterns started

to be favourable around the 1990s and continued up to the most recent available year. Consequently, there is a systematic levelling of breast cancer age-standardized rates in various areas of the world.

### Prostate cancer

North America, Argentina, Australia, and European countries (except Poland) after rises up to around the 1990s showed stronger decreases in age-standardized rates. Poland and Russia had overall unfavourable trends with corresponding high rates in 2012. An increase of 37.3% was registered for Russian men between 2002 and 2012. Japan showed the lowest rates over the whole period with decreasing rates between 2002 and 2012 (-9.8%), reaching 61.6/100,000 men in 2012.

### **Discussion**

The present analysis shows that cancer mortality patterns have been decreasing among the elderly in the last few decades, even there are substantial differences between countries worldwide. Liver, pancreas, kidney and, in women, lung and uterus displayed less favourable trends. Central and eastern European countries, particularly Poland and Russia, tended to have less favourable trends in rates.

We selected 11 countries worldwide with long-term valid cancer death certification data. Still, some steep variation, likely due to changes in the adoption of subsequent ICD revisions and related coding instructions, are apparent (Japan, around 1995; Italy, around 1975).

Overall, mortality rates in women were lower than in men. Different smoking patterns in the past in the two sexes play a key role on trends of tobacco-related cancers [14, 15]. However, differences in dietary patterns, alcohol consumption, lifestyle habits, as well as occupational exposure probably influence the more favourable rates in women. However, declines in most recent periods were in general more marked in men. The less favourable trends in eastern Europe could be due to delays in therapeutic advancement adoption, unfavourable smoking habits, and dietary habits and other lifestyle factors [16, 17].

Trends for lung (and other tobacco-related) cancers reflect different smoking patterns in the two sexes [14]. Since the 2000s, the epidemic of lung cancer in men started to level off in most European countries, and to appreciably decline in North America and in the UK [4]. This is due to the declines in smoking prevalence over generations of men. In contrast, the prevalence of smoking in women increased during or after the Second World War in the UK and USA, and in the 1970s in most other countries, i.e. in generation born between the 1930s and 1950s [18] and middle aged and elderly men tended to quit smoking more than women. Thus, lung cancer rates in women are still upwards in various areas of the world [19]. This highlights the need of further improvements in tobacco control, particularly in women.

Changing tobacco habits across generations also partly explains trends in other major tobacco-related cancers, i.e. head and neck and esophagus. For these neoplasms, the major decreases registered in France and Italy also reflect the substantial declines in alcohol drinking among men in those countries [20, 21].

Among other strongly tobacco-related cancers, trends are favourable also for bladder, but not for pancreas, which did not show favourable trends among most considered countries, in the elderly as likely in middle aged population [22, 23]. The reason for the unfavourable trends for pancreatic cancer remains, however, largely undefined [24].

Over the last three decades, improvements in breast cancer management (screening, early diagnosis and mainly treatment) favourably influenced the worldwide mortality trends [25-27]. Downward trends were observed in elderly women, even if less marked compared to younger ages [26]. At elderly ages, characteristics of this neoplasm are different and comorbidities could make undergoing therapies and surgeries difficult for these patients. Rises in incidence in Asian countries [28] could explain the increasing trend in Japan, which however started from the lowest rates. Increasing trends in Poland and Russia indicate the need to improve breast cancer management in those countries.

The favourable trends for stomach cancer in both sexes is probably due to the lower prevalence in *Helicobacter Pylori* infection across generations, more affluent and healthy diet, better food conservation and more hygienic food handling, as well as reduced prevalence of tobacco use in men [29, 30]. The comparatively high rates in Japan, eastern Europe and Italy call for intervention on these risk factors.



Improvements in management of colorectal cancer, in particular in screening and removal of adenomas, have positively influenced incidence and mortality for this neoplasm [31]. Besides baseline incidence, related to nutrition, diet and other lifestyle factors, variability across countries could be explained by different access in treatments and different patterns in risk factors [32].

Liver cancer is a common site of metastasis, and often cirrhosis and chronic hepatitis are recognized as causes of deaths instead of the tumour itself, for these reasons liver cancer is difficult to correctly diagnose. However, besides the inaccuracies and the effect of changes in criteria of cancer deaths classifications, mortality trends from liver cancer also reflect the different impact of hepatitis and alcohol consumption worldwide. In Japan, where rates have risen in the past [33], control of HCV is probably the main determinant of the decline in rates. In North America, the prevalence of hepatitis C has increased, while in Italy, both HBV and HCV, have been declining. Newer antiviral treatment of HCV are likely to favourably affect future liver cancer trends. Rises in rates in Germany and the UK, and decreases in France, likely reflect the different patterns in alcohol consumption and the rise of obesity, too [34].

The favourable trends in ovarian cancer in North America, the UK and few other European countries have been partly or largely attributed to the use of oral contraceptives and the cessation of hormone replacement therapy use following the Women's Health Initiative report in 2002 [35], which in those countries became common in women born since 1930's [36].

The decrease in uterine cancer mortality are due to decreases in cervical cancer rates following the adoption of the Pap smear test. However, WHO data does not allow distinguish between cervix and corpus uteri and hence interpretation of the levelling of rates among considered countries is limited.

After early rises due to better diagnosis and certification, mortality for lymphomas, multiple myeloma and leukemia has levelled off in most countries over the recent decades. This reflects some impact in improved treatment of lymphoid neoplasms, in the elderly too [37, 38].

Cancer management in elderly populations is a challenge. Changes in criteria for cancer death diagnosis and inaccuracy in coding and classification, in particular for this age group, likely have affected mortality and incidence trends over time. However, quantifying the consequences of uncertainties in cancer death

certifications on observed changes in rates remains difficult. Recently, improvements in early diagnosis and cancer death classification have influenced incidence data, but their role on mortality trends is still controversial due to the complex and heterogeneous health conditions in the elderly (comorbidities, multiple drug use, etc.). Therefore, difficulties in cancer care for older persons and their frailty caused their exclusion from clinical trials and a paucity of data on cancer management in the literature.

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### **Disclosure**

The authors disclose no conflicts.

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## Figure legends

**Figure 1a.** Joinpoint analysis of age-standardized (world standard population) mortality rates for all neoplasms, oral cavity and pharynx, and esophagus cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

**Figure 1b.** Joinpoint analysis of age-standardized (world standard population) mortality rates for stomach, colorectum, and liver cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

**Figure 1c.** Joinpoint analysis of age-standardized (world standard population) mortality rates for pancreas, larynx, and lung cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

**Figure 1d.** Joinpoint analysis of age-standardized (world standard population) mortality rates for breast, uterus (cervix and corpus) and ovary cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

**Figure 1e.** Joinpoint analysis of age-standardized (world standard population) mortality rates for prostate, bladder, and kidney cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

**Figure 1f.** Joinpoint analysis of age-standardized (world standard population) mortality rates for non-Hodgkin lymphoma, multiple myeloma, and leukemia cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.



**Table 1.** Trends in age-standardized (65+ years, world standard population) deaths certification rates per 100,000 men from all cancers and 14 major cancer sites in the USA, Canada, Argentina, Japan, Australia, the UK, Germany, France, Italy, Poland and the Russian Federation between 2000-2004 and 2010-2014 (unless indicated in parentheses) along with corresponding percent changes between quinquennia.

CANCER		Age-standardized mortality rates (world standard population)										Russian Federation (2010-2013)
		USA	Canada (2010-2013)	Argentina	Japan	Australia	UK	Germany	France	Italy	Poland	
ALL CANCERS	2000-2004	1219.65	1320.34	1187.17	1340.02	1271.93	1388.13	1324.51	1441.75	1467.28	1663.65	1361.59
	2010-2014	1014.58	1103.43	1089.11	1164.20	1096.48	1217.35	1152.00	1187.60	1251.95	1517.82	1295.39
	% change (2012/2002)	-16.8	-16.4	-8.3	-13.1	-13.8	-12.3	-13.0	-17.6	-14.7	-8.8	-4.9
ORAL CAVITY AND PHARYNX	2000-2004	17.05	21.33	17.19	22.76	23.11	15.94	24.03	39.21	25.42	27.26	42.96
	2010-2014	16.62	19.57	16.60	25.59	20.13	19.29	27.74	29.91	21.02	31.85	42.66
	% change (2012/2002)	-2.5	-8.2	-3.5	12.4	-12.9	21.0	15.5	-23.7	-17.3	16.8	-0.7
ESOPHAGUS	2000-2004	37.59	37.02	53.17	57.92	40.33	72.17	30.52	46.90	21.34	29.44	42.55
	2010-2014	35.42	35.98	42.41	53.00	36.26	70.08	33.77	35.97	16.38	25.89	37.62
	% change (2012/2002)	-5.8	-2.8	-20.2	-8.5	-10.1	-2.9	10.6	-23.3	-23.2	-12.1	-11.6
STOMACH	2000-2004	28.33	43.75	75.70	229.40	44.45	68.86	79.68	52.08	101.49	128.36	211.69
	2010-2014	20.07	30.29	59.95	171.83	30.77	42.36	51.00	38.19	71.47	95.10	160.74
	% change (2012/2002)	-29.2	-30.8	-20.8	-25.1	-30.8	-38.5	-36.0	-26.7	-29.6	-25.9	-24.1
COLORECTUM	2000-2004	120.73	169.60	138.26	149.96	163.24	170.37	181.10	169.81	171.01	186.05	168.68
	2010-2014	86.49	139.46	140.78	137.60	130.57	147.16	138.67	137.08	149.10	199.51	173.94
	% change (2012/2002)	-28.4	-17.8	1.8	-8.2	-20.0	-13.6	-23.4	-19.3	-12.8	7.2	3.1
LIVER	2000-2004	20.04	21.51	2.69	162.93	26.56	20.01	30.23	65.33	54.09	2.76	39.40
	2010-2014	24.48	32.00	5.93	105.16	33.17	33.49	39.22	63.06	52.04	8.72	39.01
	% change (2012/2002)	22.2	48.8	120.1	-35.5	24.9	67.4	29.8	-3.5	-3.8	216.0	-1.0

Age-standardized mortality rates (world standard population)												
CANCER		USA	Canada (2010-2013)	Argentina	Japan	Australia	UK	Germany	France	Italy	Poland	Russian Federation (2010-2013)
		<b>PANCREAS</b>	2000-2004	60.43	59.01	63.13	73.86	54.50	54.70	67.80	61.21	62.23
	2010-2014	63.02	57.22	63.34	81.01	56.77	58.39	74.35	67.13	66.98	60.46	61.29
	% change (2012/2002)	4.3	-3.0	0.3	9.7	4.2	6.7	9.7	9.7	7.6	4.2	12.0
<b>LARYNX</b>	2000-2004	11.58	14.66	27.31	6.96	12.09	10.33	12.36	19.78	24.93	36.45	37.32
	2010-2014	9.11	8.86	22.00	4.90	8.60	8.94	11.00	11.38	17.32	29.62	29.15
	% change (2012/2002)	-21.3	-39.6	-19.4	-29.5	-28.9	-13.5	-11.0	-42.5	-30.5	-18.7	-21.9
<b>LUNG</b>	2000-2004	394.56	388.44	230.92	305.00	287.60	352.26	326.32	305.71	403.20	517.30	394.78
	2010-2014	299.47	315.01	212.62	278.25	228.68	285.68	273.26	274.17	326.99	440.30	334.80
	% change (2012/2002)	-24.1	-18.9	-7.9	-8.8	-20.5	-18.9	-16.3	-10.3	-18.9	-14.9	-15.2
<b>PROSTATE</b>	2000-2004	143.82	162.05	185.59	68.26	192.78	191.12	168.95	180.56	129.14	158.19	95.00
	2010-2014	103.30	116.04	160.00	61.57	154.23	163.91	139.95	123.54	96.63	148.30	130.43
	% change (2012/2002)	-28.2	-28.4	-13.8	-9.8	-20.0	-14.2	-17.2	-31.6	-25.2	-6.3	37.3
<b>BLADDER</b>	2000-2004	38.68	45.17	44.44	27.89	41.13	60.12	51.58	60.76	70.44	85.91	67.96
	2010-2014	38.75	42.89	39.45	26.88	34.84	51.11	38.91	54.01	57.91	83.73	57.73
	% change (2012/2002)	0.2	-5.0	-11.2	-3.6	-15.3	-15.0	-24.6	-11.1	-17.8	-2.5	-15.0
<b>KIDNEY</b>	2000-2004	30.04	31.17	34.55	24.18	28.70	31.91	47.66	38.36	31.82	46.32	.
	2010-2014	29.02	31.51	38.61	27.77	29.18	34.37	51.74	41.49	34.22	45.47	.
	% change (2012/2002)	-3.4	1.1	11.7	14.9	1.6	7.7	8.6	8.1	7.6	-1.8	.
<b>NON-HODGKIN LYMPHOMA</b>	2000-2004	46.19	47.07	24.21	31.52	45.11	36.99	30.64	36.60	34.26	22.64	10.46
	2010-2014	36.90	38.77	20.44	30.68	37.11	34.65	31.21	32.55	30.72	22.00	13.82
	% change (2012/2002)	-20.1	-17.6	-15.6	-2.7	-17.7	-6.3	1.9	-11.1	-10.3	-2.8	32.1
<b>MULTIPLE MYELOMA</b>	2000-2004	25.44	24.96	10.45	13.73	25.77	23.67	22.37	24.11	22.02	15.62	5.37
	2010-2014	22.95	22.75	10.32	11.35	23.46	22.31	13.56	21.02	21.71	17.18	6.88
	% change (2012/2002)	-9.8	-8.8	-1.2	-17.3	-9.0	-5.7	-39.4	-12.8	-1.4	10.0	28.3



		Age-standardized mortality rates (world standard population)										
CANCER		USA	Canada (2010-2013)	Argentina	Japan	Australia	UK	Germany	France	Italy	Poland	Russian Federation (2010-2013)
		<b>LEUKEMIA</b>	2000-2004	47.88	45.22	27.42	23.56	45.41	36.97	42.32	46.53	43.57
	2010-2014	43.77	41.12	24.95	23.30	43.10	37.12	39.33	42.68	40.11	42.34	26.66
	% change (2012/2002)	-8.6	-9.1	-9.0	-1.1	-5.1	0.4	-7.1	-8.3	-7.9	2.1	-6.4

**Table 2.** Trends in age-standardized (65+ years, world standard population) deaths certification rates per 100,000 women from all cancers and 16 major cancer sites in the USA, Canada, Argentina, Japan, Australia, the UK, Germany, France, Italy, Poland and the Russian Federation between 2000-2004 and 2010-2014 (unless indicated in parentheses) along with corresponding percent changes between quinquennia.

		Age-standardized mortality rates (world standard population)										
CANCER		USA	Canada (2010-2013)	Argentina	Japan	Australia	UK	Germany	France	Italy	Poland	Russian Federation (2010-2013)
		<b>ALL CANCERS</b>	2000-2004	792.80	815.01	635.09	560.88	704.72	861.44	730.75	633.73	691.48
	2010-2014	690.28	752.54	591.35	506.92	649.31	803.98	677.25	577.02	643.49	741.55	580.50
	% change (2012/2002)	-12.9	-7.7	-6.9	-9.6	-7.9	-6.7	-7.3	-8.9	-6.9	-2.5	-1.4
<b>ORAL CAVITY AND PHARYNX</b>	2000-2004	7.19	8.79	5.09	6.59	8.03	7.22	5.89	6.18	6.36	6.54	7.07
	2010-2014	5.92	7.40	5.02	6.36	7.15	7.76	8.05	6.01	6.84	8.48	6.50
	% change (2012/2002)	-17.6	-15.8	-1.4	-3.5	-11.0	7.4	36.7	-2.8	7.6	29.6	-8.1
<b>ESOPHAGUS</b>	2000-2004	9.17	10.63	16.36	7.34	15.11	30.90	6.77	7.37	4.62	5.66	9.55
	2010-2014	7.41	9.23	13.00	6.74	11.81	26.29	8.05	6.88	3.79	5.07	6.58
	% change (2012/2002)	-19.3	-13.2	-20.5	-8.2	-21.8	-14.9	19.0	-6.7	-17.9	-10.5	-31.1
<b>STOMACH</b>	2000-2004	14.15	19.62	26.98	77.26	19.00	28.44	41.05	20.25	46.56	45.99	88.60
	2010-2014	10.21	14.61	21.88	55.19	13.81	17.64	26.09	13.80	33.45	32.19	65.99
	% change (2012/2002)	-27.8	-25.6	-18.9	-28.6	-27.3	-38.0	-36.5	-31.8	-28.2	-30.0	-25.5

		Age-standardized mortality rates (world standard population)										
CANCER		USA	Canada (2010-2013)	Argentina	Japan	Australia	UK	Germany	France	Italy	Poland	Russian Federation (2010-2013)
		<b>COLORECTUM</b>	2000-2004	84.25	106.86	82.16	81.46	106.56	103.56	115.61	93.96	98.05
	2010-2014	60.71	90.25	75.47	74.66	83.33	92.09	83.02	76.07	84.53	100.84	102.65
	% change (2012/2002)	-27.9	-15.5	-8.1	-8.3	-21.8	-11.1	-28.2	-19.0	-13.8	-6.5	1.4
<b>LIVER</b>	2000-2004	9.13	9.22	1.51	59.62	10.46	10.43	10.77	13.99	19.32	1.68	17.82
	2010-2014	11.33	15.62	2.67	39.52	16.26	17.84	13.56	16.23	19.04	4.61	18.11
	% change (2012/2002)	24.1	69.5	76.8	-33.7	55.5	71.1	25.9	16.0	-1.4	173.9	1.6
<b>PANCREAS</b>	2000-2004	48.34	47.67	48.02	46.08	42.54	43.37	50.77	40.36	46.90	41.97	33.48
	2010-2014	49.37	48.04	47.97	53.61	44.94	47.20	57.71	45.73	50.97	43.73	38.64
	% change (2012/2002)	2.1	0.8	-0.1	16.3	5.6	8.8	13.7	13.3	8.7	4.2	15.4
<b>LARYNX</b>	2000-2004	2.45	2.77	2.42	0.38	1.54	1.99	1.17	1.30	1.51	2.51	1.09
	2010-2014	1.83	1.80	2.56	0.27	1.09	1.85	1.40	0.98	1.49	2.57	0.95
	% change (2012/2002)	-25.2	-34.9	5.7	-28.0	-29.2	-7.2	20.0	-24.7	-1.2	2.6	-12.8
<b>LUNG</b>	2000-2004	219.52	196.70	44.74	72.05	114.53	170.86	72.88	47.22	65.82	81.35	41.98
	2010-2014	193.68	209.13	59.99	72.87	122.49	183.85	97.87	65.48	77.52	111.50	39.53
	% change (2012/2002)	-11.8	6.3	34.1	1.1	7.0	7.6	34.3	38.7	17.8	37.1	-5.8
<b>BREAST</b>	2000-2004	99.95	109.80	115.42	27.90	90.34	121.76	112.03	103.76	98.97	78.18	78.00
	2010-2014	85.42	90.60	104.01	37.11	83.43	101.08	108.72	95.60	92.06	83.60	86.07
	% change (2012/2002)	-14.5	-17.5	-9.9	33.0	-7.7	-17.0	-3.0	-7.9	-7.0	6.9	10.3
<b>UTERUS (CERVIX AND CORPUS)</b>	2000-2004	27.35	24.72	43.65	19.65	21.78	28.39	29.43	29.46	26.01	49.95	48.32
	2010-2014	28.46	25.81	38.91	17.67	20.43	29.70	24.33	28.75	24.23	47.65	44.68
	% change (2012/2002)	4.1	4.4	-10.9	-10.0	-6.2	4.6	-17.3	-2.4	-6.9	-4.6	-7.5
<b>OVARY</b>	2000-2004	41.81	38.66	23.95	14.77	34.73	51.72	43.11	35.55	28.22	36.16	28.22
	2010-2014	35.50	35.70	23.07	14.36	32.86	45.29	38.61	33.04	27.94	39.63	27.74
	% change (2012/2002)	-15.1	-7.6	-3.7	-2.8	-5.4	-12.4	-10.4	-7.1	-1.0	9.6	-1.7

		Age-standardized mortality rates (world standard population)										
CANCER		USA	Canada (2010-2013)	Argentina	Japan	Australia	UK	Germany	France	Italy	Poland	Russian Federation (2010-2013)
		<b>BLADDER</b>	2000-2004	11.87	12.54	8.61	7.61	12.72	19.76	15.05	11.28	11.00
	2010-2014	11.09	11.97	8.02	7.11	10.56	17.19	11.38	9.81	9.98	12.55	7.06
	% change (2012/2002)	-6.6	-4.5	-6.9	-6.7	-17.0	-13.0	-24.4	-13.0	-9.2	2.4	-13.2
<b>KIDNEY</b>	2000-2004	14.52	14.86	11.72	9.18	17.46	15.55	21.12	13.95	11.93	20.23	.
	2010-2014	12.91	14.96	12.87	9.97	14.43	16.84	21.06	14.00	12.17	19.76	.
	% change (2012/2002)	-11.1	0.7	9.8	8.6	-17.3	8.3	-0.3	0.4	2.0	-2.3	.
<b>NON-HODGKIN LYMPHOMA</b>	2000-2004	30.76	32.41	15.64	16.08	32.09	25.44	20.41	22.92	23.41	13.20	5.79
	2010-2014	23.26	26.13	12.26	16.25	21.00	22.94	19.70	18.32	19.02	14.14	8.07
	% change (2012/2002)	-24.4	-19.4	-21.6	1.0	-34.6	-9.8	-3.5	-20.1	-18.8	7.1	39.2
<b>MULTIPLE MYELOMA</b>	2000-2004	17.38	17.15	8.35	9.17	16.33	15.97	15.50	15.82	15.57	12.28	4.36
	2010-2014	14.84	14.46	7.44	7.54	14.76	14.70	8.99	13.15	15.10	12.91	5.91
	% change (2012/2002)	-14.6	-15.7	-11.0	-17.8	-9.6	-7.9	-42.0	-16.9	-3.0	5.1	35.6
<b>LEUKEMIA</b>	2000-2004	25.72	23.35	15.95	11.78	24.61	20.24	23.98	24.89	23.58	22.53	15.22
	2010-2014	23.41	22.96	13.22	11.27	23.70	20.21	22.34	22.80	22.36	21.58	14.65
	% change (2012/2002)	-9.0	-1.7	-17.1	-4.3	-3.7	-0.1	-6.9	-8.4	-5.2	-4.2	-3.7

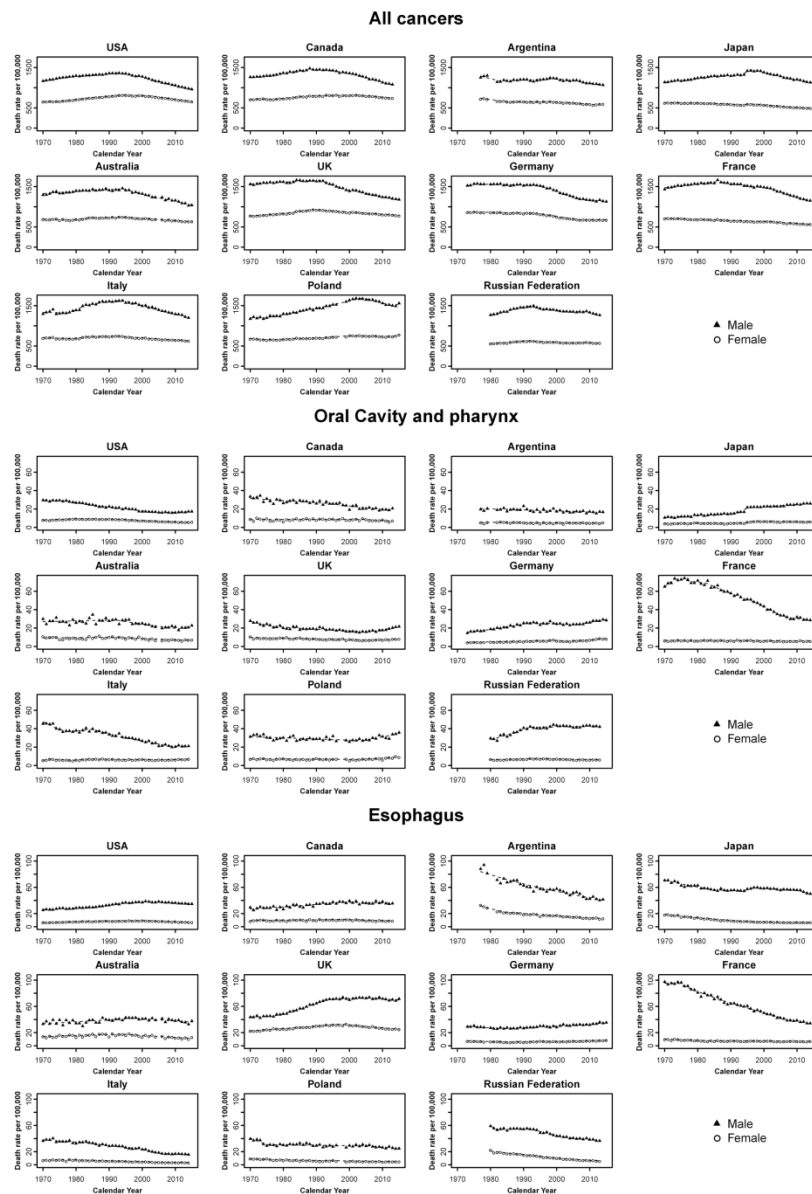


Figure 1a. Joinpoint analysis of age-standardized (world standard population) mortality rates for all neoplasms, oral cavity and pharynx, and esophagus cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

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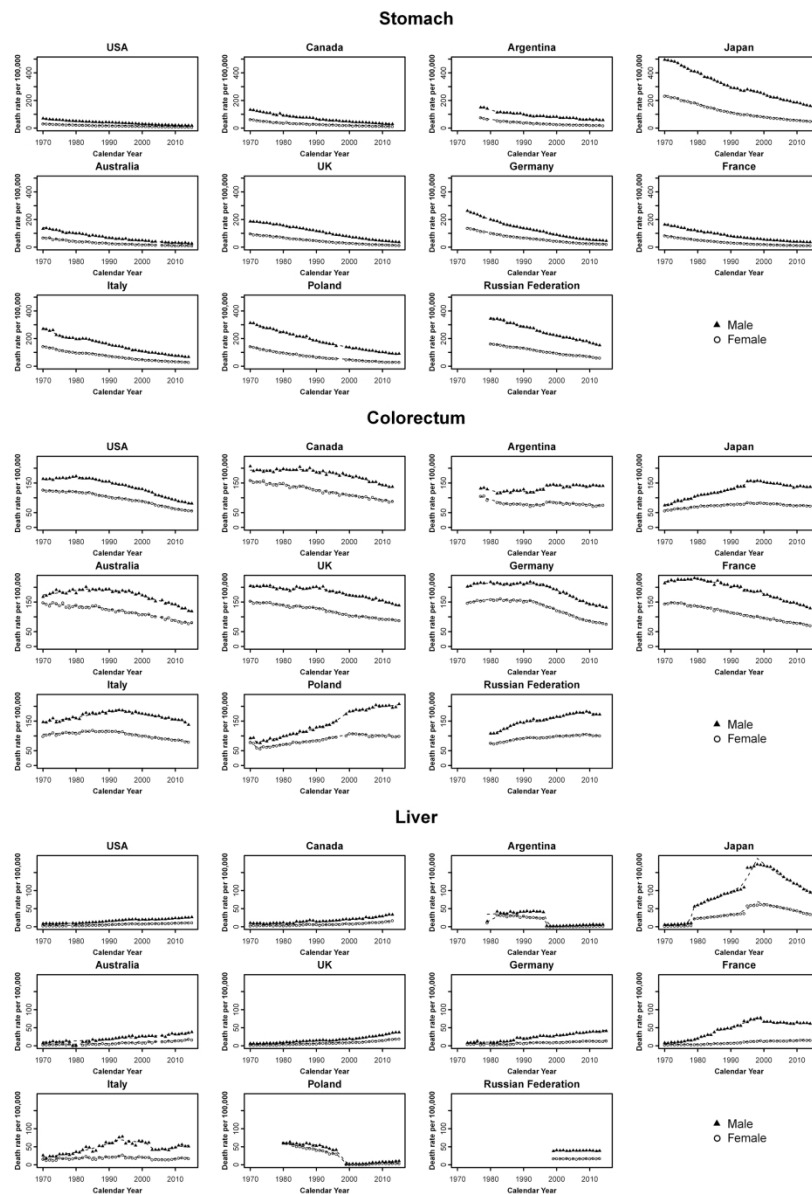


Figure 1b. Joinpoint analysis of age-standardized (world standard population) mortality rates for stomach, colorectum, and liver cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

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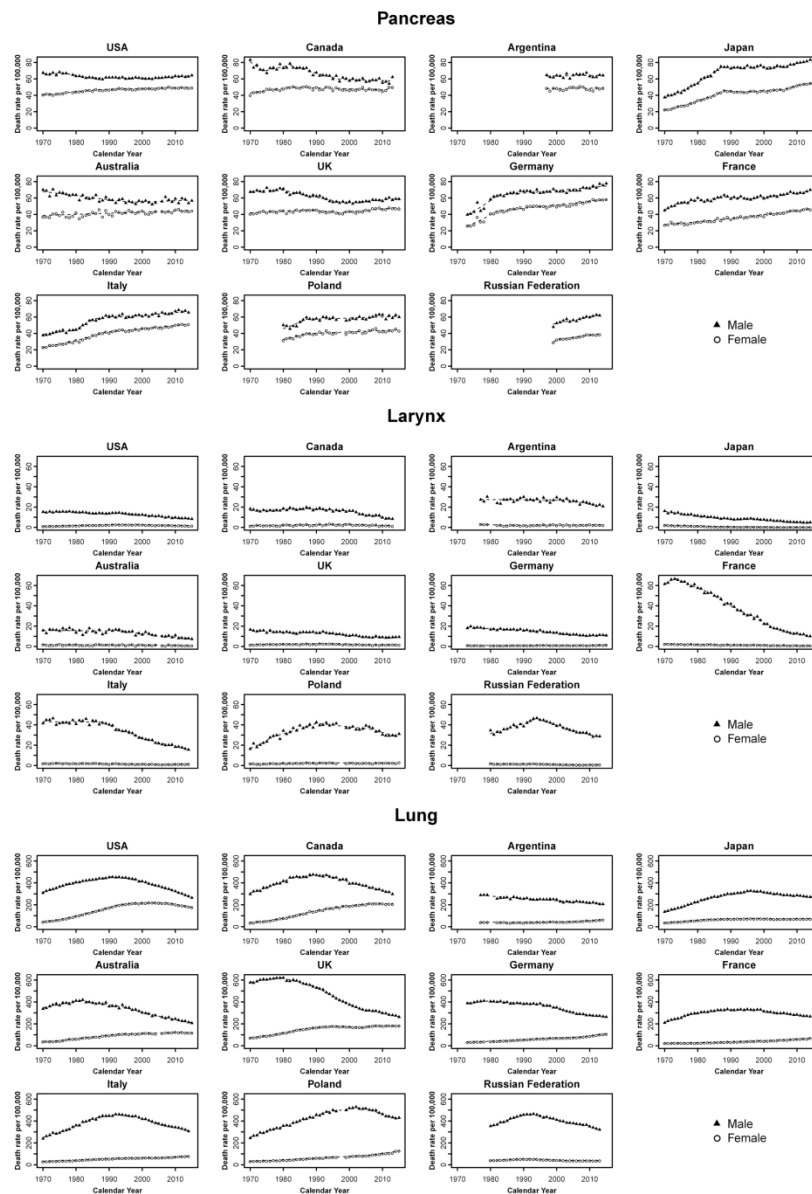


Figure 1c. Joinpoint analysis of age-standardized (world standard population) mortality rates for pancreas, larynx, and lung cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

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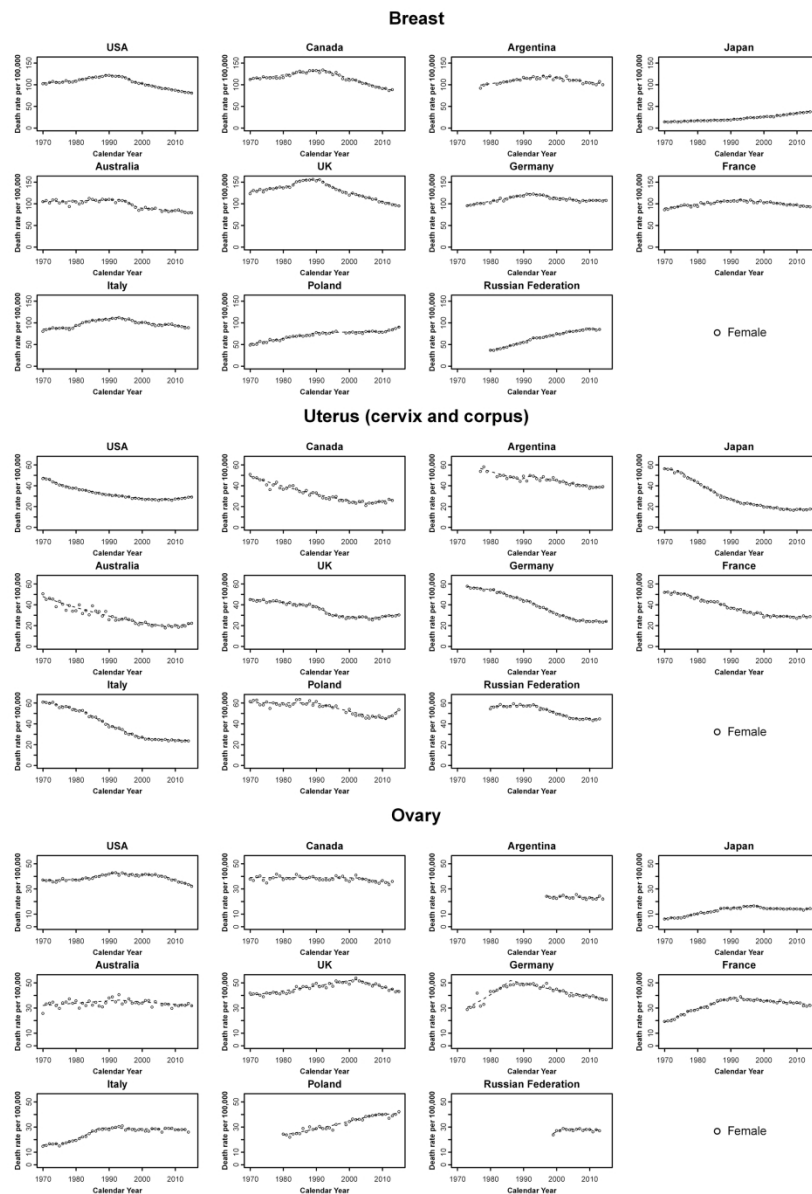


Figure 1d. Joinpoint analysis of age-standardized (world standard population) mortality rates for breast, uterus (cervix and corpus) and ovary cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

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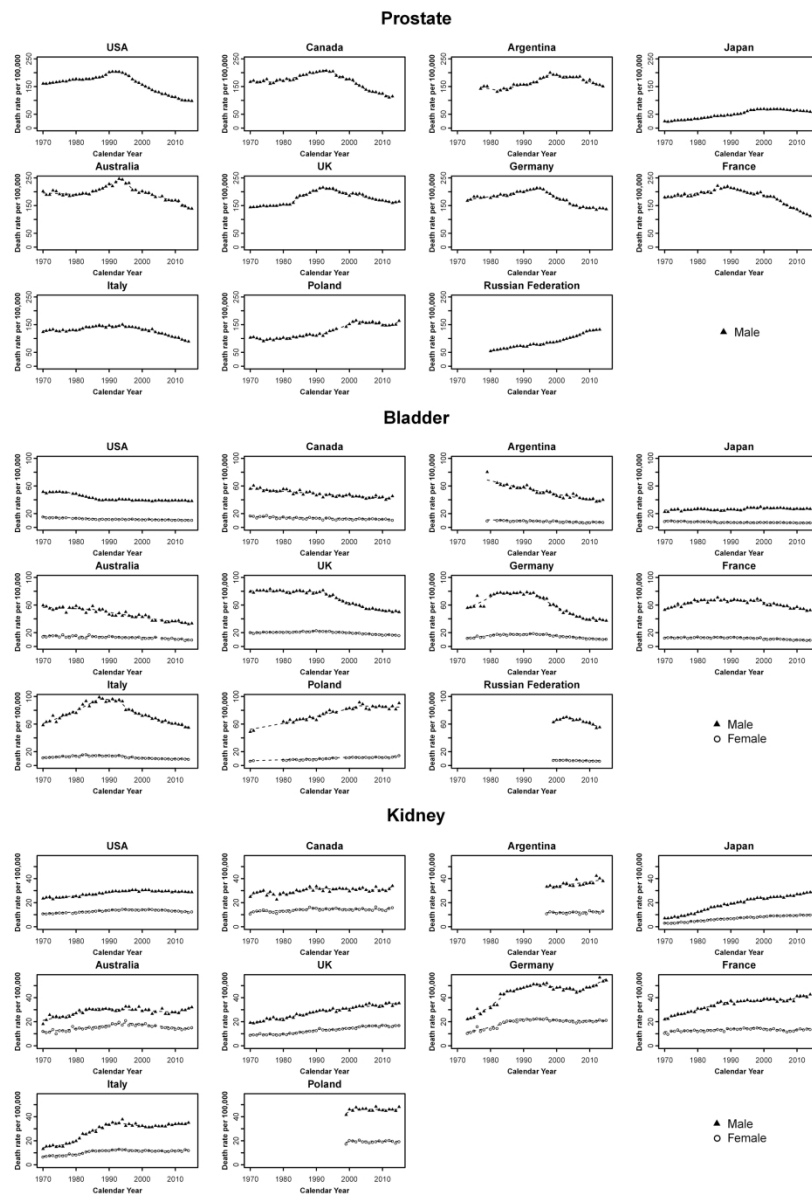


Figure 1e. Joinpoint analysis of age-standardized (world standard population) mortality rates for prostate, bladder, and kidney cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

197x284mm (300 x 300 DPI)



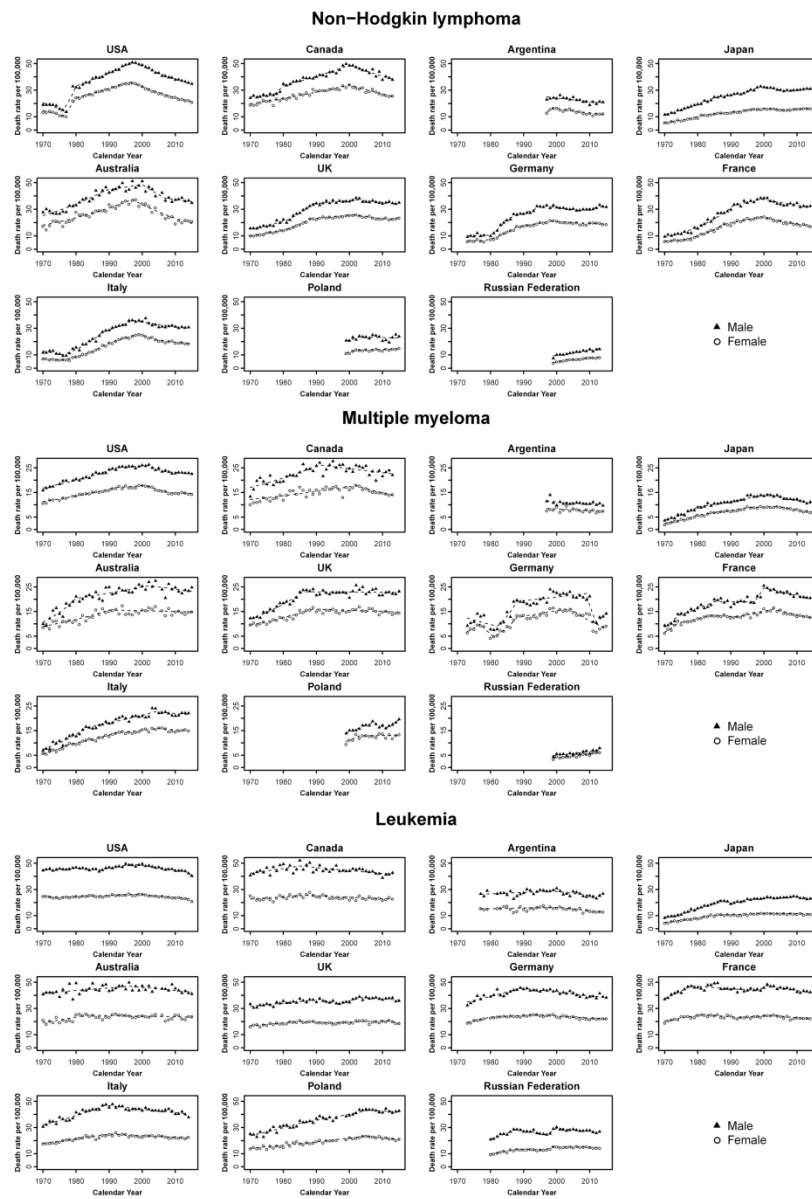


Figure 1f. Joinpoint analysis of age-standardized (world standard population) mortality rates for non-Hodgkin lymphoma, multiple myeloma, and leukemia cancer in men (full triangles) and women (empty circles) aged 65+, in 11 major countries worldwide, 1970–2015.

197x284mm (300 x 300 DPI)