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International comparisons in TYA cancer mortality rates

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Mortality Rates

- Most widely available measure
- Ultimate goal
- UK drop down international rankings for death rates in 10-54 age group for all causes

Murray CJL *et al. (*2013) UK Health Performance: Findings of the Global Burden of Disease Study 2010. The Lancet Vol. 381 Issue 9871, pp.997-1020.

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Methods: Number of deaths and mortality rates

- WHO mortality database using ICD-10 codes
- Nine countries with more than 100 deaths from cancer each year in TYA included
- Nordic countries (Denmark, Finland, Norway and Sweden combined)
- Rates per 1,000,000 population
- All cancers for 2006-10 and 2001-05
- Diagnostic groups with more than 50 cancer deaths in 2006-10 in UK (25 for single sex sites)

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Average annual number of cancer deaths, mortality rates per 1,000,000 and rank order plus 95% confidence intervals (CI) for those aged 15-24 who died in 2006-10 by country

Country	Rank order	Number	Rate	95% CI
Germany	1	330	35.0	33.3-36.7
Canada	2	130	36.0	33.2-38.7
Australia	3	110	36.3	33.3-39.4
Nordic	4	113	36.4	33.4-39.4
Netherlands	5	76	38.1	34.2-41.9
USA	6	1,686	39.1	38.2-39.9
UK	7	333	40.8	38.9-42.8
France	8	259	41.2	38.9-43.4
Spain	9	230	46.1	43.4-48.7
Italy	10	331	51.2	48.6-53.7

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Average annual number of cancer deaths, mortality rates and rank order plus 95% confidence intervals (CI) for the UK for those aged 15-24 who died in 2001-05 and 2006-10

	Rank order	Number of deaths	Mortality rate
2001-05	7	359	47.4
2006-10	7	333	40.8

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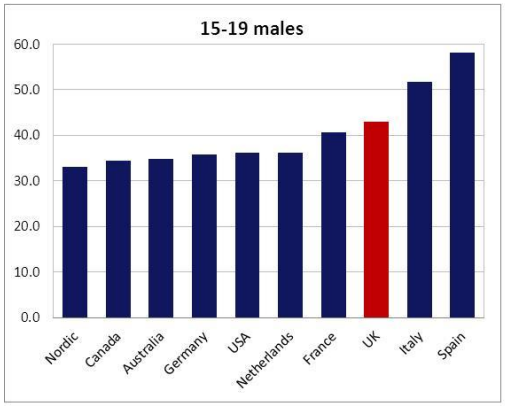
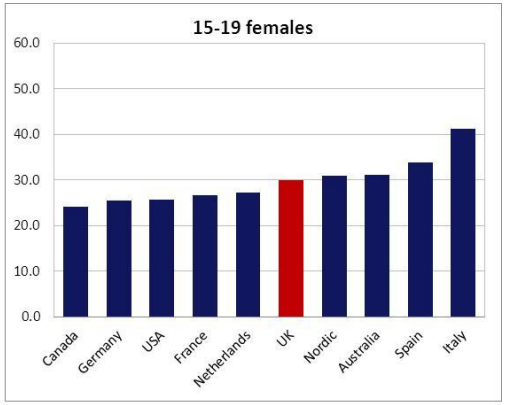
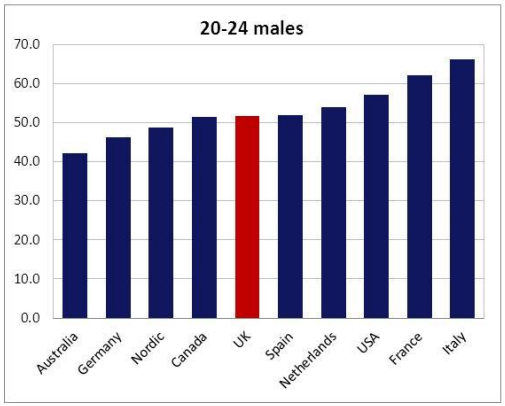
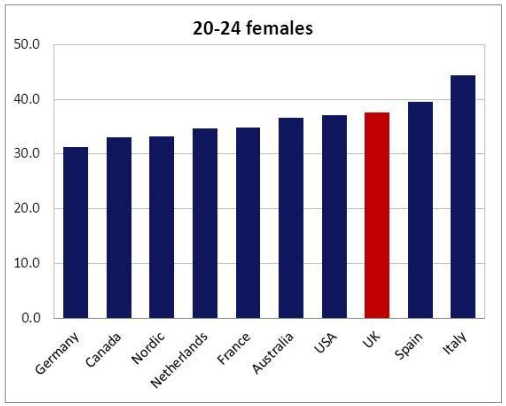
Mortality rates per 1,000,000 and rankings by age group, gender and country for deaths in 2006-10









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Annual number of deaths, mortality rates per 1,000,000 and rank order for the UK, plus range for other countries by cancer grouping for 15-24 year olds

Cancer grouping	Number of deaths	Rate (95% CI)	Rank order	Range
CNS	65	7.9 (7.0-8.8)	9th	UK = 7.9, Australia = 5.5
Bone	46	5.6 (4.9-6.3)	6th	Spain = 7.0, Germany = 4.1
Lymphoid leukaemia	32	3.9 (3.3-4.5)	4th	Italy = 6.7, Canada = 3.1
Myeloid leukaemia	27	3.3 (2.7-3.8)	7th	Italy = 4.4, Canada = 2.2
Soft tissue tumour (STT)	26	3.2 (2.6-3.7)	3rd	Canada = 3.9, Australia = 2.8
NHL	24	2.9 (2.4-3.4)	8th	Italy = 5.0, Australia = 1.9
HL	15	1.9 (1.4-2.3)	7th (joint)	Italy = 3.1, Germany = 0.7
Melanoma	10	1.3 (0.9-1.6)	8th	Australia = 1.8, Spain = 0.8
Cervical cancer	6	1.4 (0.9-1.9)	10th	Nordic = 0.8, France = 0.0

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Methods: Excess deaths

- Measure: Annual average number of excess deaths due to cancer in 15-24 year olds in UK in 2006-10
- Number of expected deaths if mortality rates in UK same as each other country
- Calculated separately for 15-19 and 20-24 males and females
- Subtract from actual number of deaths in UK
- Add four numbers for estimate for 15-24 year olds for males and females combined

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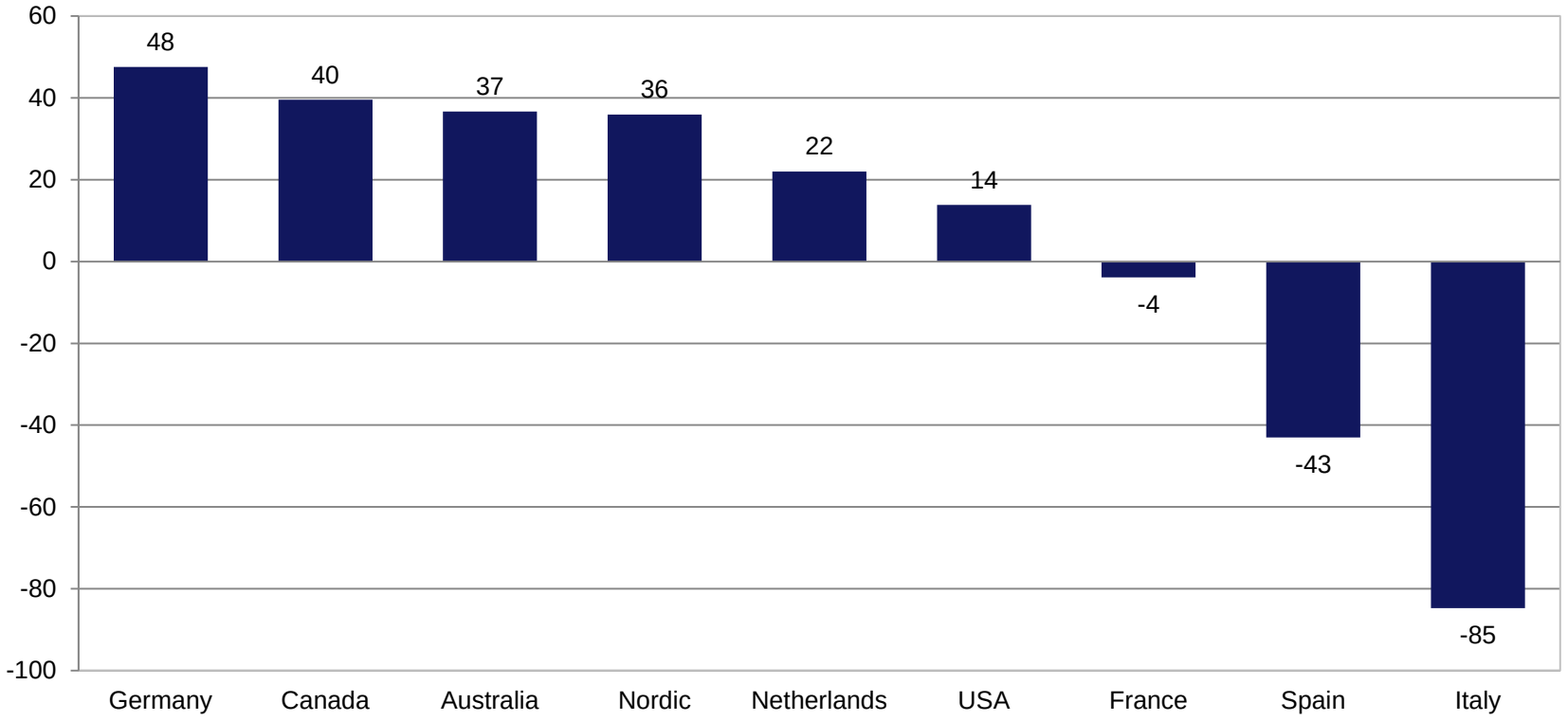
Average annual number of excess cancer deaths in UK in 2006-10 in those aged 15-24



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Average annual number of excess deaths in UK in 2006-10 in those aged 15-24 year by cancer group

	Australia	Canada	France	Germany	Italy	Netherlands	Nordic	Spain	USA
CNS	20	10	1	6	-1	14	1	1	15
Bone	7	-1	0	12	-7	-3	7	-12	5
Lymphoid leukaemia	-12	6	2	2	-25	-3	-4	-13	-3
Myeloid leukaemia	-4	8	2	0	-10	5	4	3	-5
Soft tissue tumour (STT)	3	-7	-3	1	-3	-6	-3	-3	-2
NHL	8	7	4	3	-18	3	7	-5	1
HL	9	5	-2	10	-10	3	7	0	4
Melanoma	-5	3	3	3	0	-3	1	4	3
Cervical cancer	3	4	6	5	5	5	2	5	3

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Total number of deaths from cervical cancer in 2006-10 in those aged 15-24

UK	28
All other countries combined excluding USA	26

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Methods: Years of life lost

- Measure: Average annual number of years of life lost due to cancer in the UK in 15-24 year olds in 2006-10
- Number of deaths due to cancer x average life expectancy at age of death for 15-19 and 20-24 males and females separately
- Average life expectancy for 15-19 and 20-24 males and females: 56.8-65.6 years
- Add together to get number for 15-24

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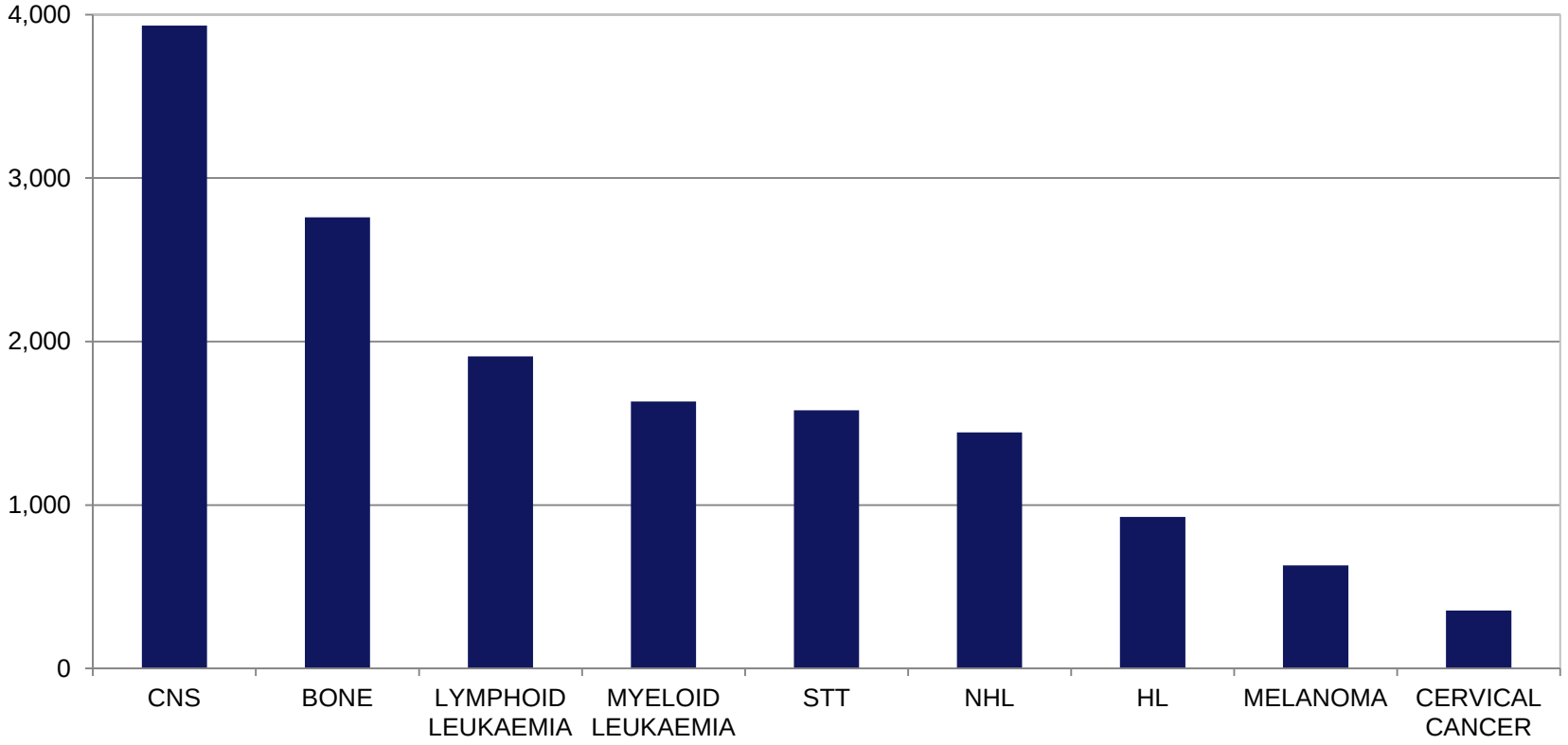
Average annual number of years of life lost in the UK in 2006-10 in those aged 15-24 years by cancer group



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Methods: Excess years of life lost

- Measure: Average annual number of excess years of life lost due to cancer in 15-24 year olds in the UK
- Excess number of cancer deaths in UK compared with each country x average life expectancy in UK

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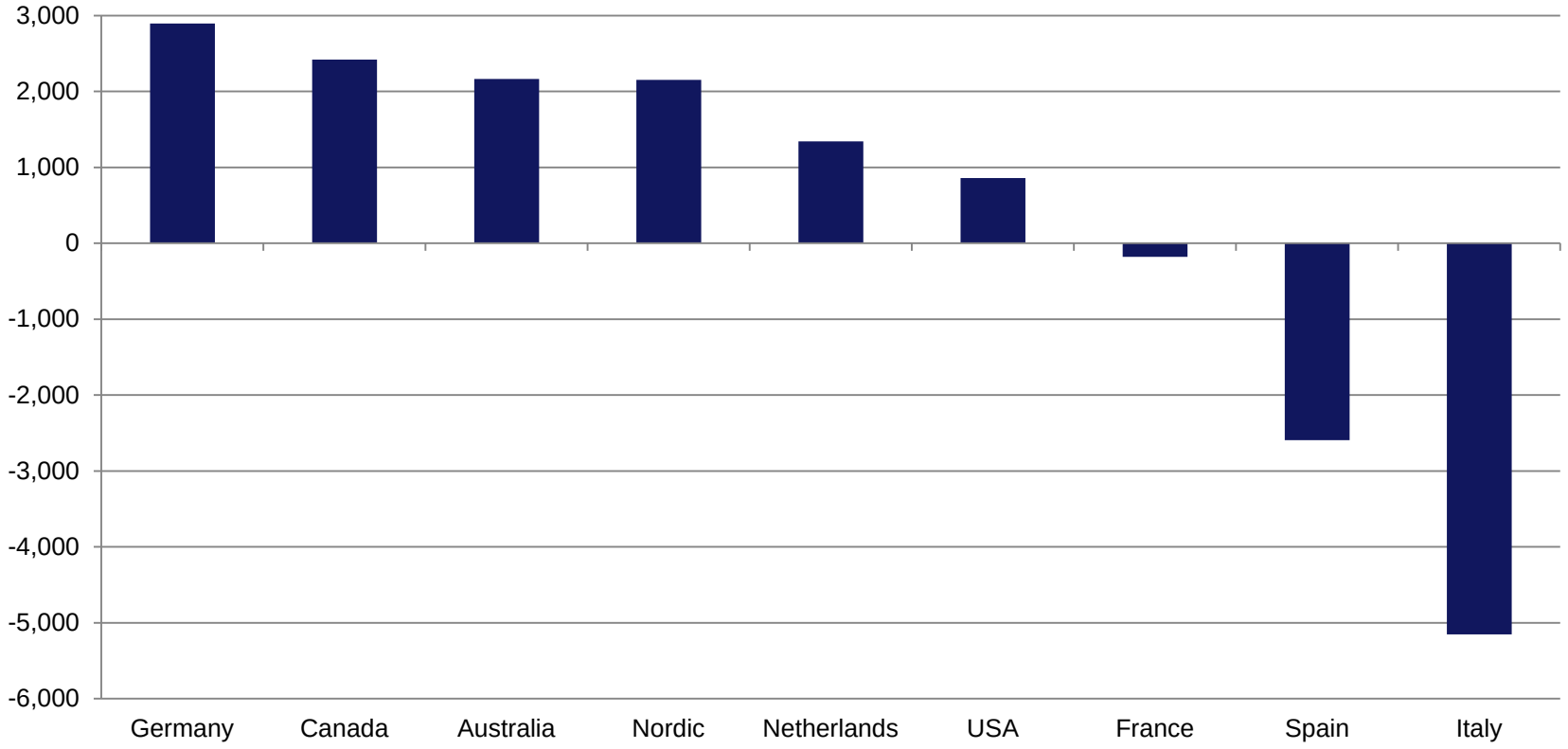
Average annual excess number of years of life lost due to cancer in the UK in 2006-10 in those aged 15-24 years



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Conclusions

- Cancer death rates in UK higher than in Northern Europe, North America and Australia but lower than Southern Europe
- No evidence that things are getting worse
- Almost 50 lives would be saved each year in UK if we had death rates similar to Germany
- Problems with CNS, bone, HL and cervix?

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So what and now what

- Excess deaths due mainly to high incidence or low survival?
- Outputs: data briefing, peer review article?
- Use as argument for more resources for TYA cancer?