

Childhood Cancer Mortality in the UK and Worldwide 2005-2010

NCIN CTYA Workshop

November 2014

Why Study International Childhood Cancer Mortality?

- Important measure of success against group of potentially lethal diseases
- Mortality data available from more countries than incidence and survival data
- **National** mortality data available from many more countries than incidence and survival data
- Mortality data often more up to date than survival data

International Childhood Cancer Mortality

The most recent published analyses cover 1970-2007

- Europe: Bosetti et al. Eur J Cancer 2010; 46:384-394
- Americas, Asia, Oceania: Chatenoud et al. Cancer 2010; 116:5063-5074

One later study of leukaemia mortality at all ages included childhood data to 2009, but only for a few European countries.

- Bertuccio et al. Int J Cancer 2013; 132: 427-436

Since 2007:

- What has happened to childhood mortality from all cancers?
- How has the UK's standing changed?

International Childhood Cancer Mortality 2005-2010

Data source

- WHO Mortality Database via IARC

Eligibility

- Total population (all ages) at least 1 million
- Data available for at least 2 years in 2008-2010
- Civil registration coverage of cause of death >90%

International Childhood Cancer Mortality 2005-2010

Countries and territories included by continent and World Bank category

	High-income	Upper middle-income	Lower middle-income	Low-income	Total
Europe	25	6	2	0	33
Africa	0	2	1	0	3
Asia	5	1	1	0	7
North America	2	1	0	0	3
Central/South America, Caribbean	2	7	0	0	9
Oceania	2	0	0	0	2
Total	36	17	4	0	57

International Childhood Cancer Mortality 2005-2010

Official mortality data only available by ICD code

Results presented for

- | | |
|---------------------------|----------------|
| • All malignant neoplasms | ICD-10 C00-C97 |
| • Leukaemia | ICD-10 C91-C95 |
| • Malignant CNS neoplasms | ICD-10 C70-C72 |

Data not available to distinguish (but are included in all cancer totals)

- Neuroblastoma
- Soft-tissue sarcoma

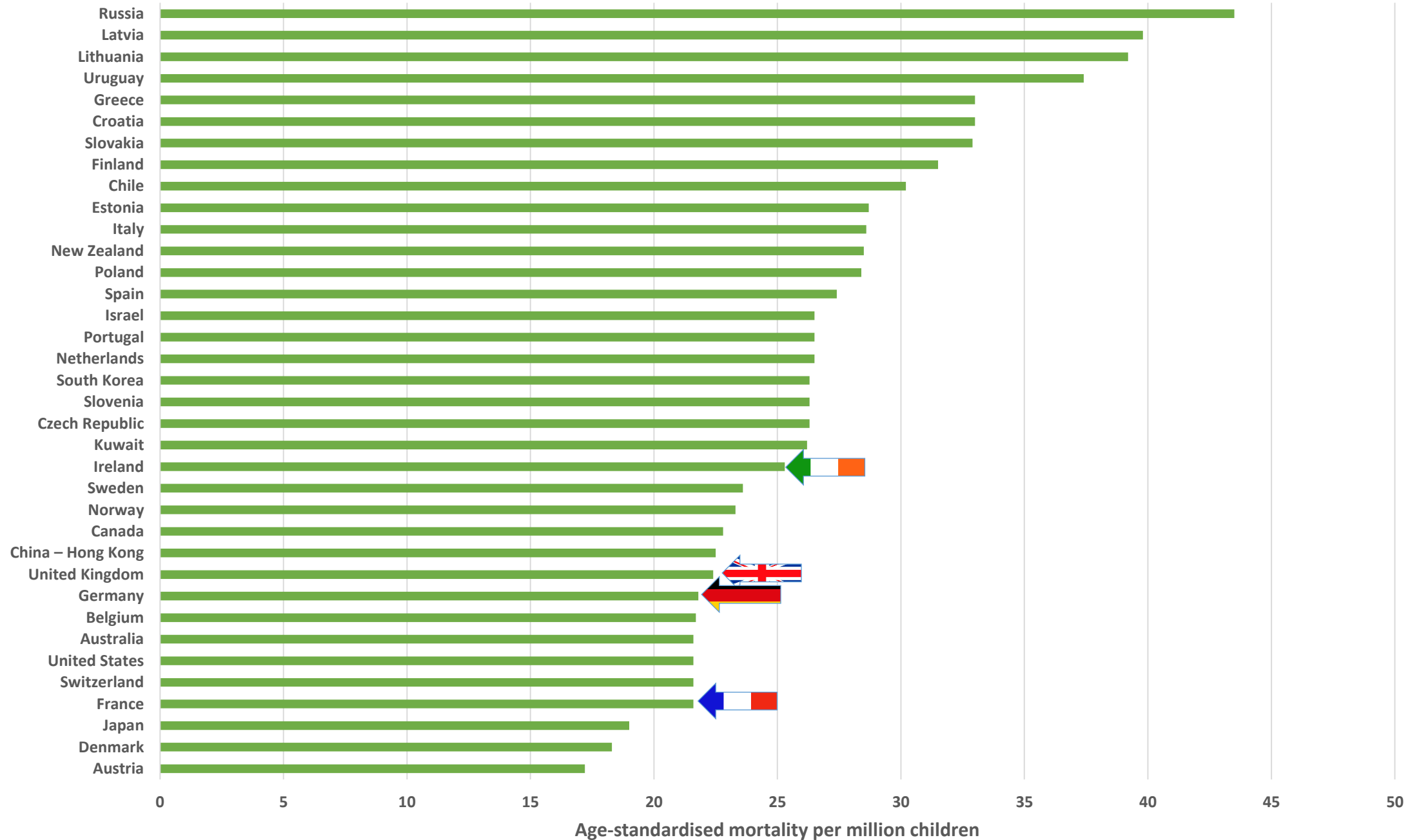
International Childhood Cancer Mortality 2005-2010

Annual mortality rates per million children
Standardised to World Standard Population

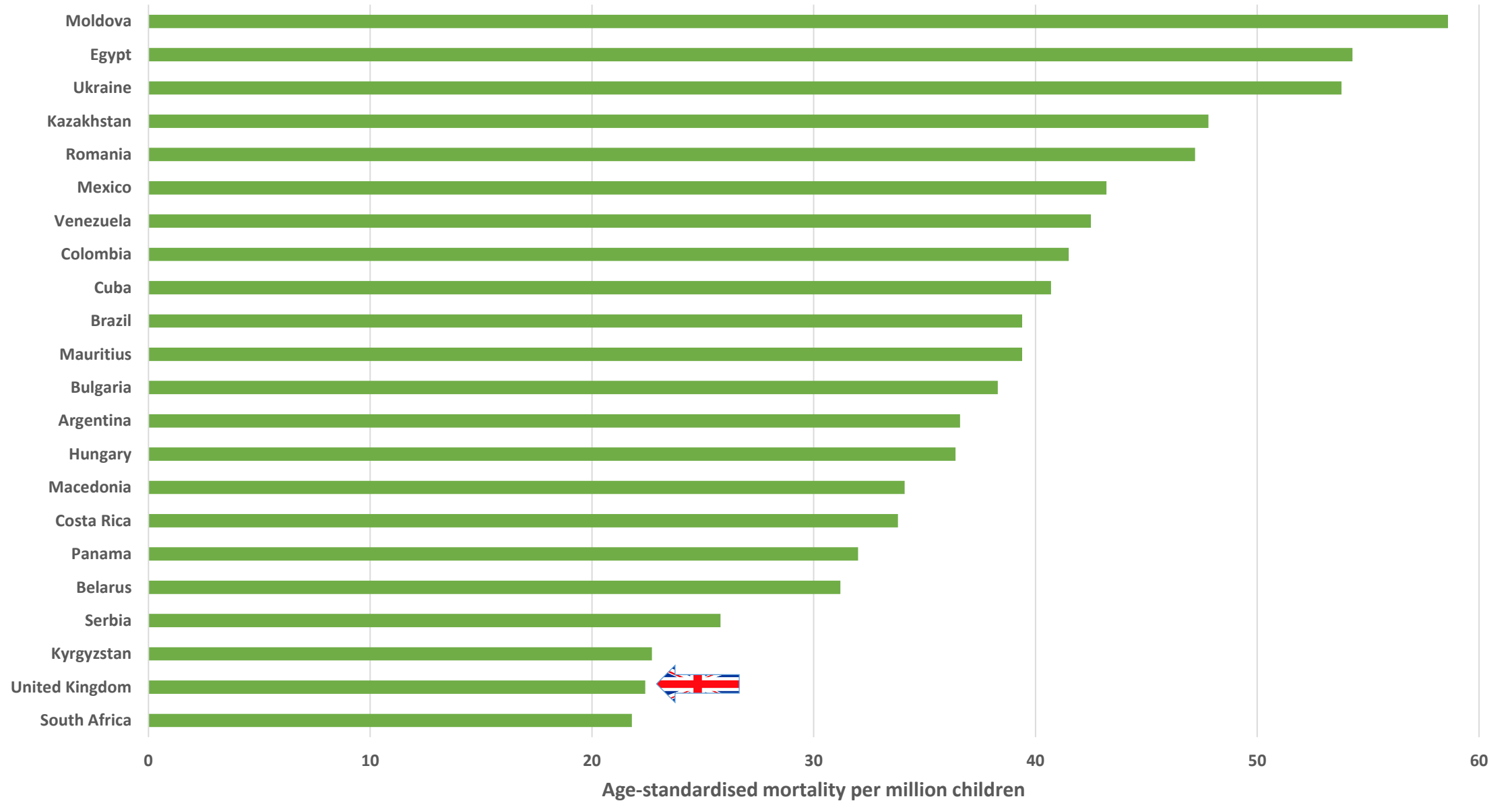
Weights assigned to age groups:

- Age 0-4 12
- Age 5-9 10
- Age 10-14 9

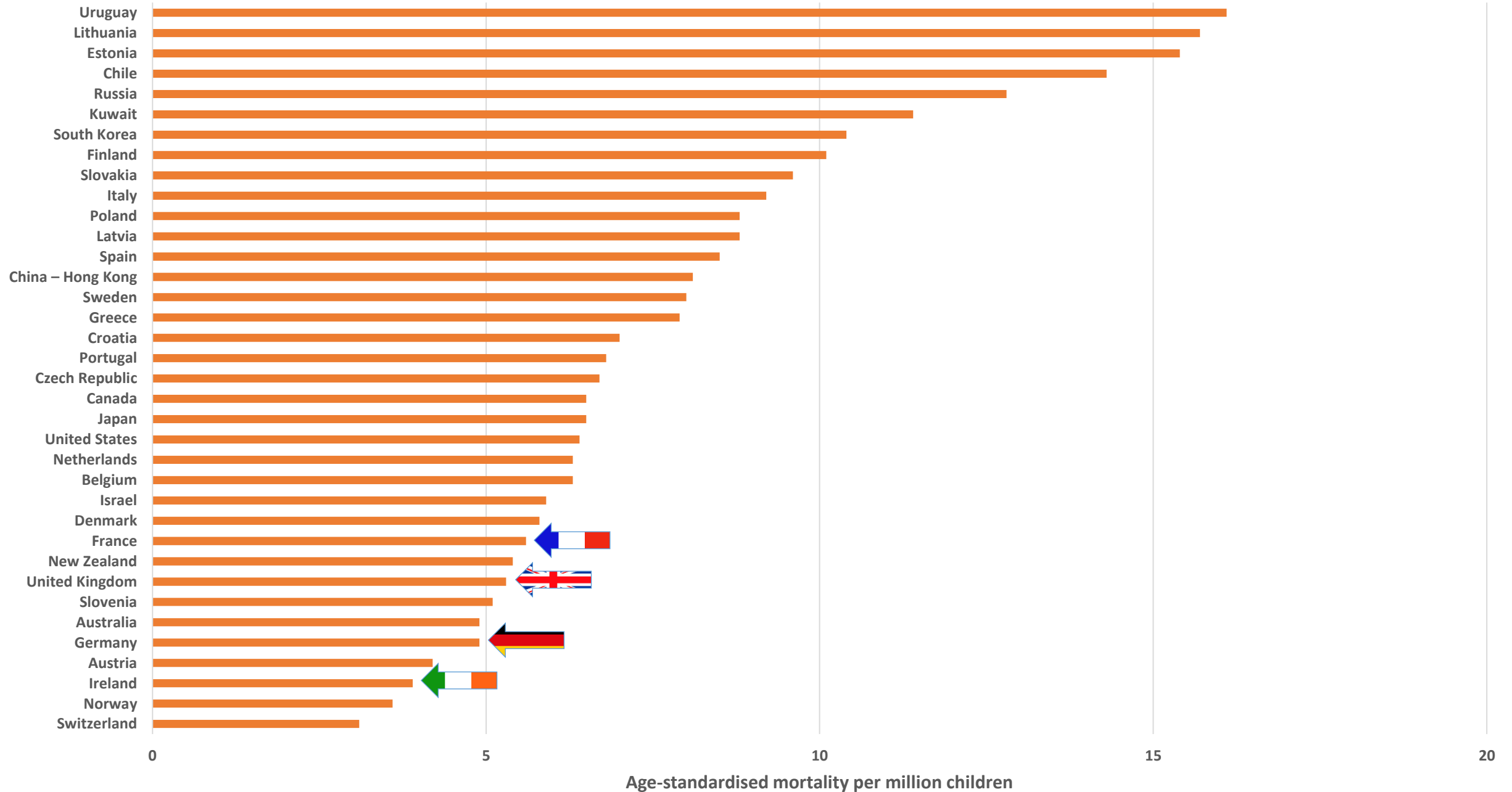
All Cancers, High-Income Countries, 2008-2010



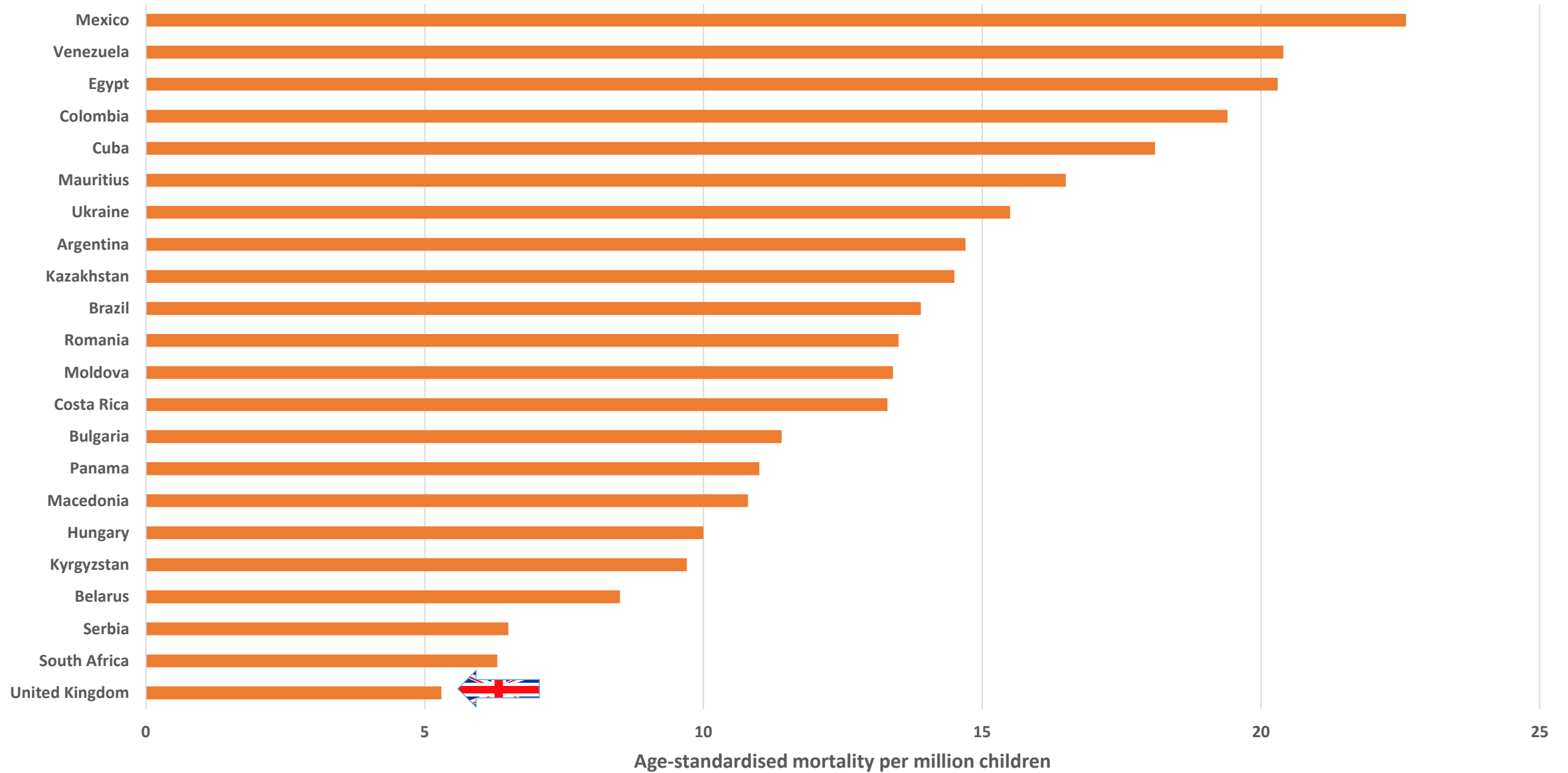
All Cancers, UK & Middle-Income Countries, 2008-2010



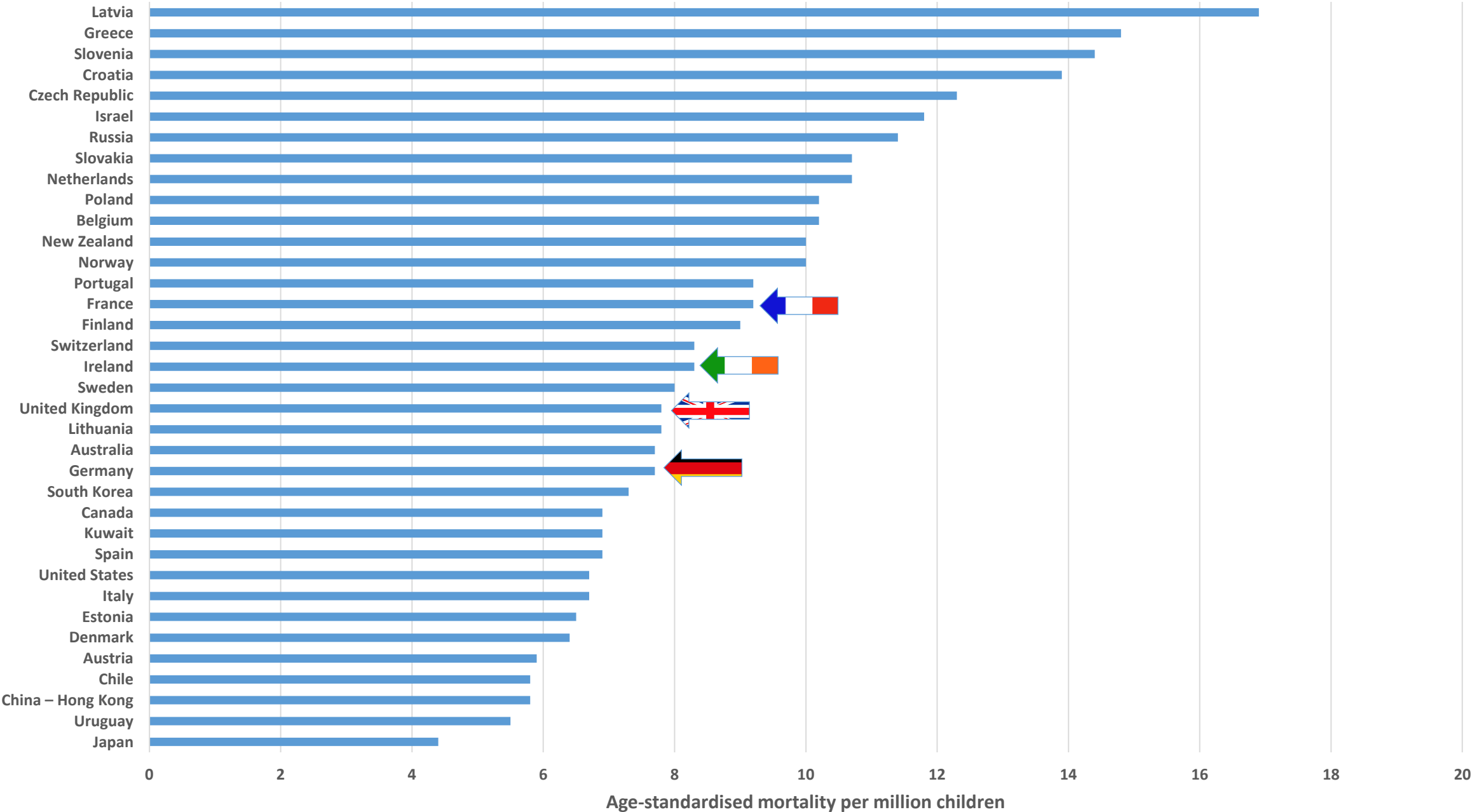
Leukaemia, High-Income Countries, 2008-2010



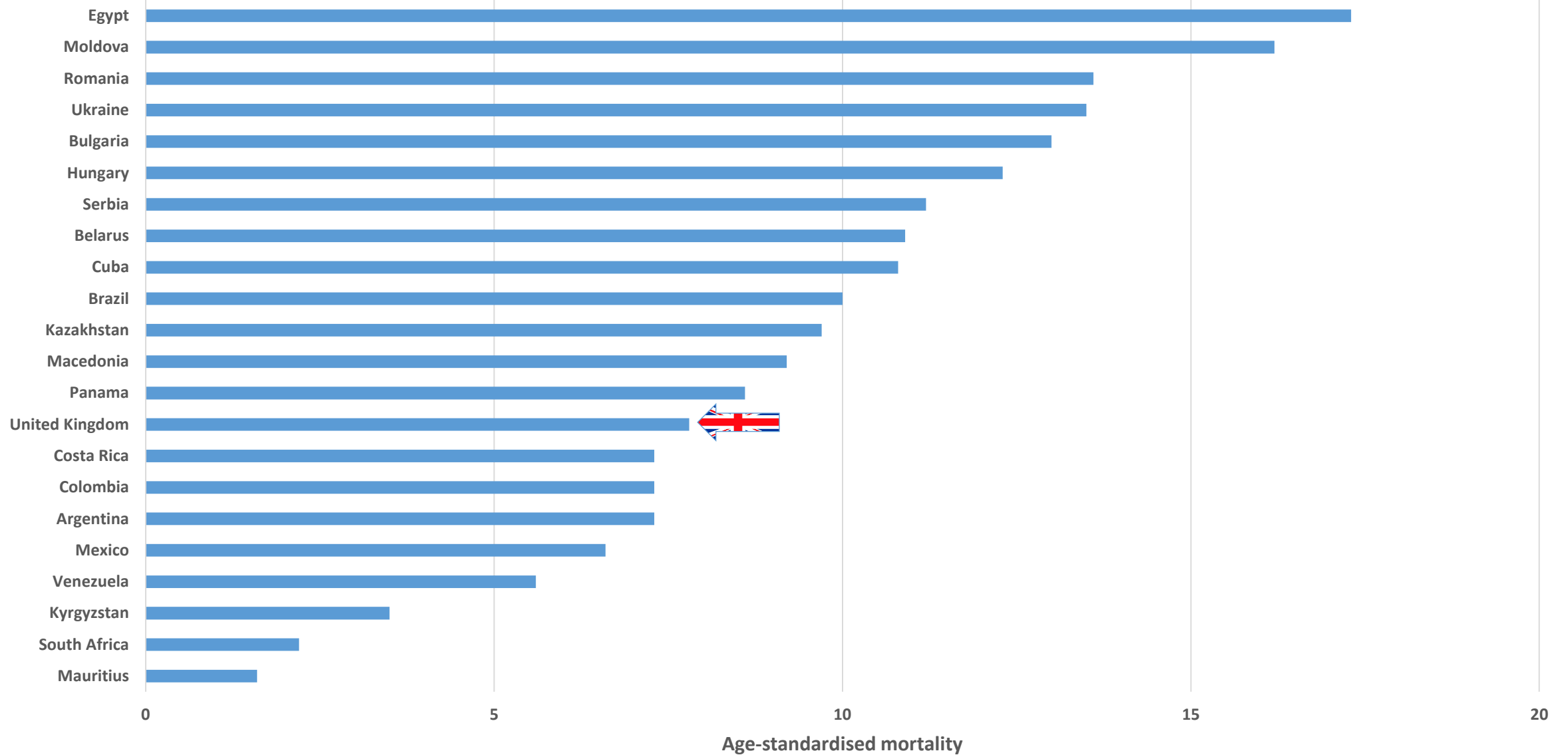
Leukaemia, UK & Middle-Income Countries, 2008-2010



CNS Cancers, High-Income Countries, 2008-2010



CNS Cancers, UK & Middle-Income Countries, 2008-2010



Change in UK standing between 2005-2007 and 2008-2010

UK ranking in ascending order of age-standardised childhood mortality

All Cancers

	2005-2007	2008-2010	Direction of change
Among 36 high-income countries	12	10	↑
Among 33 European countries	10	7	↑

Change in UK standing between 2005-2007 and 2008-2010

UK ranking in ascending order of age-standardised childhood mortality

Leukaemia

	2005-2007	2008-2010	Direction of change
Among 36 high-income countries	10=	8	↑
Among 33 European countries	8=	7	↑

Change in UK standing between 2005-2007 and 2008-2010

UK ranking in ascending order of age-standardised childhood mortality

CNS Cancers

	2005-2007	2008-2010	Direction of change
Among 36 high-income countries	16=	16=	≈
Among 33 European countries	11=	7=	↑

Change between 2005-2007 and 2008-2010

All Cancers

Mortality changed significantly in UK and 7 other countries

Age-standardised mortality (SE)

	World Bank category	2005-2007	2008-2010	Direction of change
United Kingdom	HIC	26.1 (0.9)	22.4 (0.8)	↓
Germany	HIC	24.1 (0.8)	21.8 (0.8)	↓
Russia	HIC	47.4 (0.9)	43.5 (0.8)	↓
Switzerland	HIC	30.8 (3.1)	21.6 (2.5)	↓
South Korea	HIC	35.8 (1.1)	26.3 (1.1)	↓
Mexico	UMIC	45.4 (0.7)	43.2 (0.6)	↓
United States	HIC	22.8 (0.4)	21.6 (0.3)	↓
Argentina	UMIC	39.8 (1.2)	36.6 (1.1)	↓

Change between 2005-2007 and 2008-2010

Leukaemia

Mortality decreased non-significantly in UK

Mortality changed significantly in 6 other countries

Age-standardised mortality (SE)

	World Bank category	2005-2007	2008-2010	Direction of change
<i>United Kingdom</i>	<i>HIC</i>	6.3 (0.5)	5.3 (0.4)	↓
Netherlands	HIC	9.5 (1.0)	6.3 (0.9)	↓
Russia	HIC	14.2 (0.5)	12.8 (0.5)	↓
Spain	HIC	11.6 (0.8)	8.5 (0.7)	↓
Switzerland	HIC	6.7 (1.4)	3.1 (0.9)	↓
South Korea	HIC	14.6 (0.8)	10.4 (0.7)	↓
Uruguay (2007 vs. 2008-2009)	HIC	5.0 (2.6)	16.1 (3.3)	↑

Change between 2005-2007 and 2008-2010

CNS Cancers

Mortality decreased non-significantly in UK

Mortality changed significantly in 4 other countries

Age-standardised mortality (SE)

	World Bank category	2005-2007	2008-2010	Direction of change
<i>United Kingdom</i>	HIC	9.0 (0.5)	7.8 (0.5)	↓
Germany	HIC	9.1 (0.5)	7.7 (0.5)	↓
Argentina	UMIC	10.4 (0.5)	7.3 (0.5)	↓
Moldova	LMIC	10.4 (2.1)	16.2 (3.1)	↑
Egypt	LMIC	15.8 (0.5)	17.3 (0.5)	↑

International and UK Childhood Cancer Mortality 2005-2010

Summary & Conclusions (1)

- The UK is among high-income countries and European countries with lower childhood mortality from all cancers combined
- The UK is among high-income countries and European countries with lower childhood mortality from leukaemia
- The UK is among European countries with lower childhood mortality from CNS cancers

International and UK Childhood Cancer Mortality 2005-2010

Summary & Conclusions (2)

- The UK was among relatively few countries to record significant decrease in childhood mortality between 2005-2007 and 2008-2010 for all cancers combined
- In the UK, childhood mortality decreased by 14% between 2005-2007 and 2008-2010 for all cancers combined
- In the UK, childhood mortality decreased by 16% between 2005-2007 and 2008-2010 for leukaemia
- In the UK, childhood mortality decreased by 13% between 2005-2007 and 2008-2010 for CNS cancers

International and UK Childhood Cancer Mortality 2005-2010

Discussion & Conclusions (3)

- How much can the UK's favourable position be attributed to relatively high survival?
- How much can it be attributed to relatively low incidence?

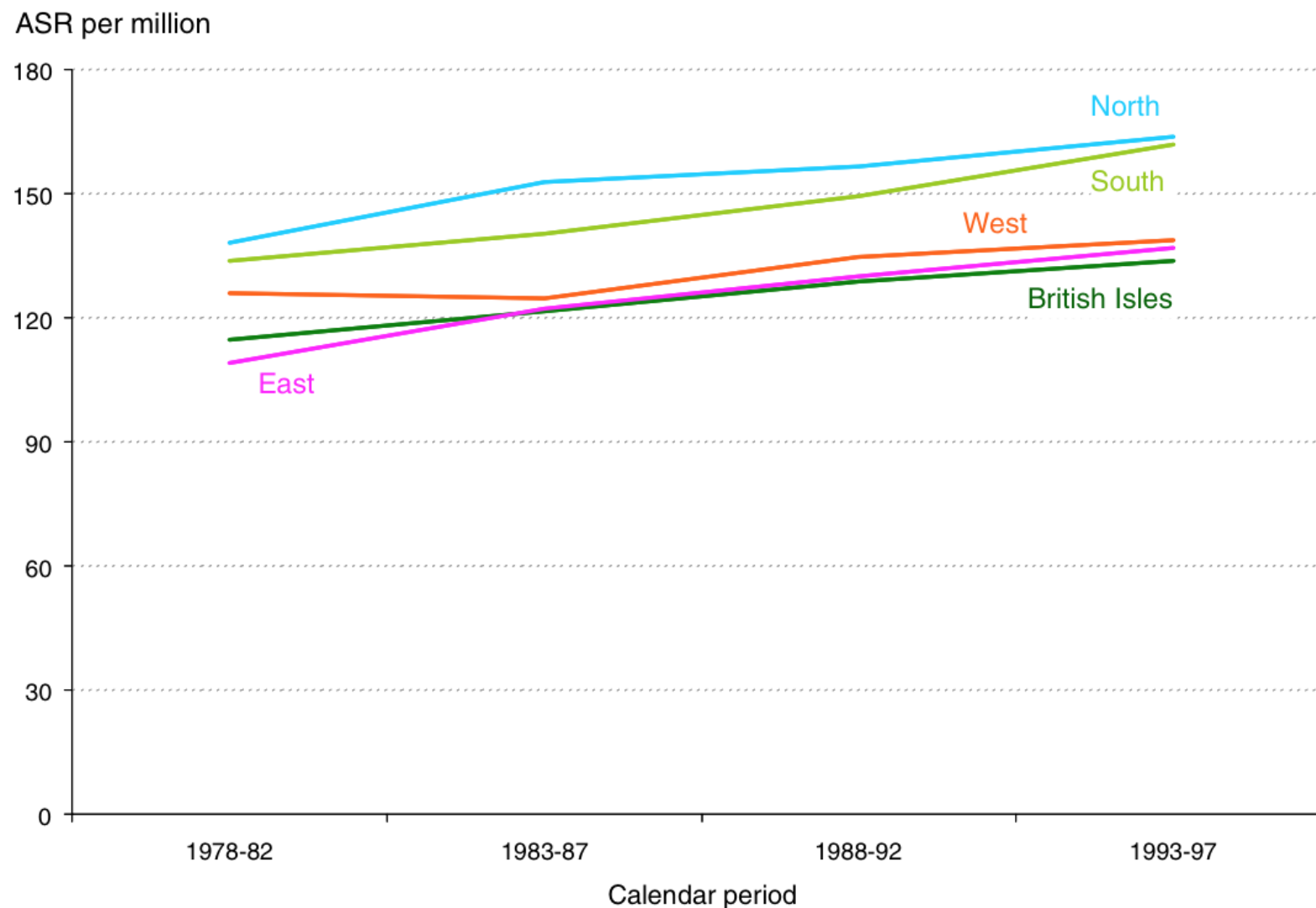
Results need to be compared with those from:
studies of incidence

- International Incidence of Childhood Cancer
- ACCIS

and studies of survival

- EURO CARE
- CONCORD
- ACCIS

Age-standardised incidence rates (World standard), all children (0-14 yrs), 1978-97 (n = 72,280)



British Isles (23,548)
England & Wales, Scotland

East (8,974)
Estonia, Hungary, Slovakia
E Germany (1978-89)

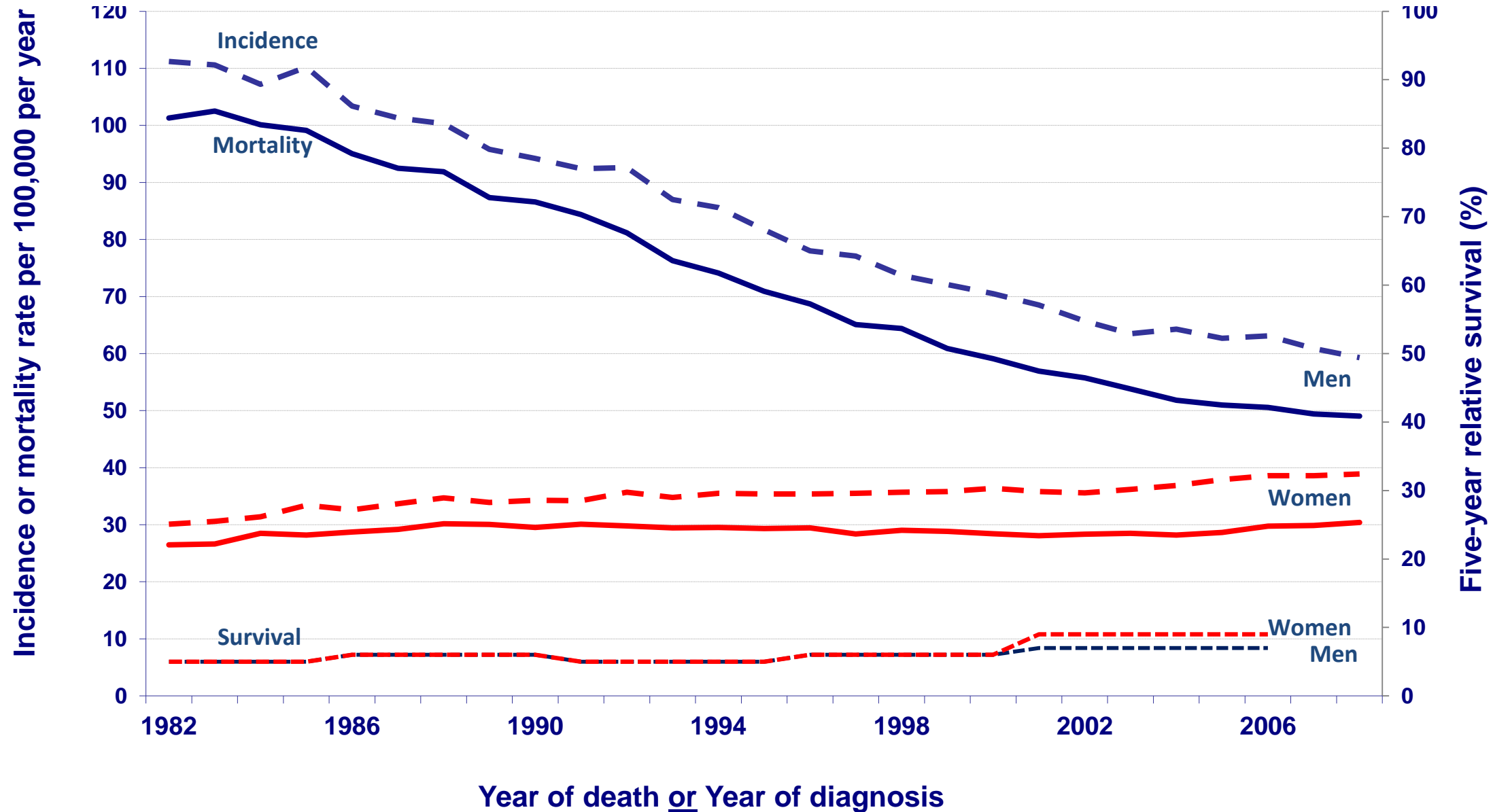
North (8,321)
Denmark, Finland, Iceland,
Norway

South (5,026)
Italy, Slovenia, Spain

West (26,411)
France, Germany, NL,
Switzerland

Lung cancer: age-standardised trends

England, by sex, 1982-2008



Age-standardised incidence rates, all children (0-14 yrs) by ICCC diagnostic group

