



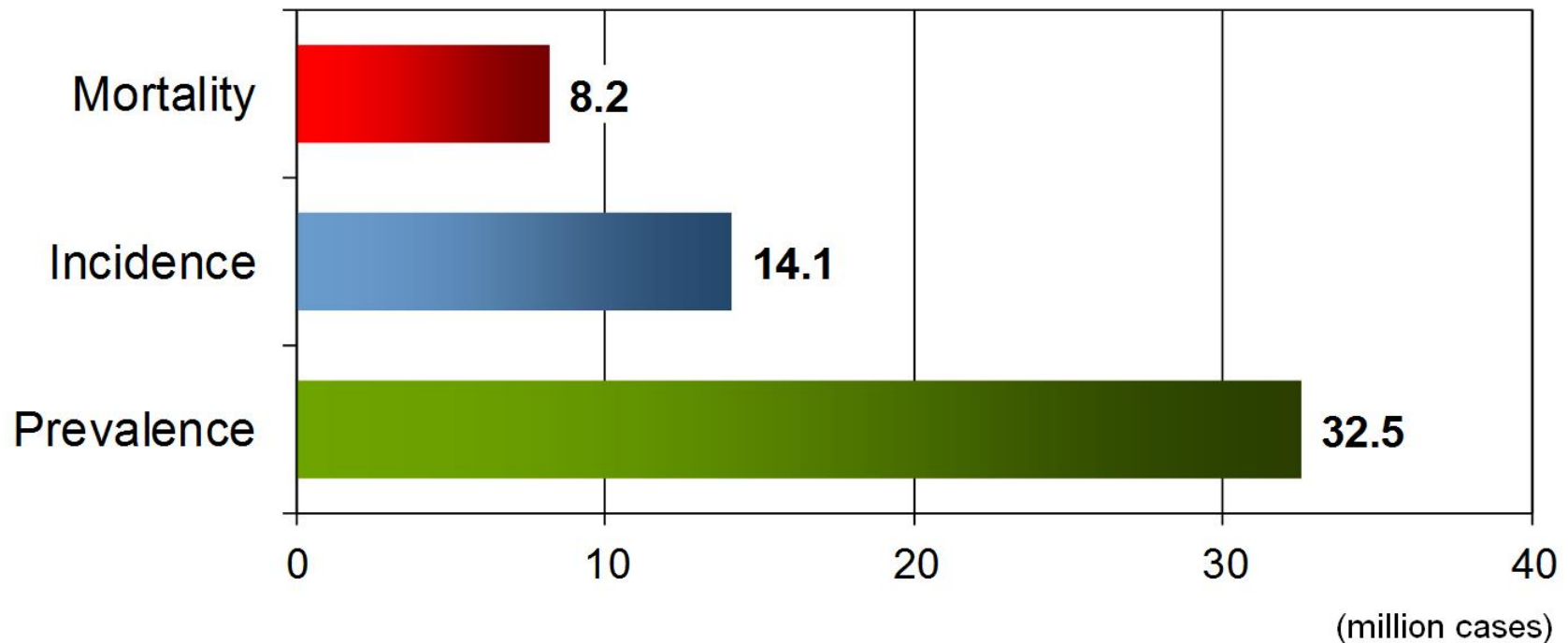
Global cancer trends: implications for cancer research and prevention

Dr Christopher P. Wild, Director

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International Agency for Research on Cancer

Global cancer burden – mortality, incidence, and prevalence

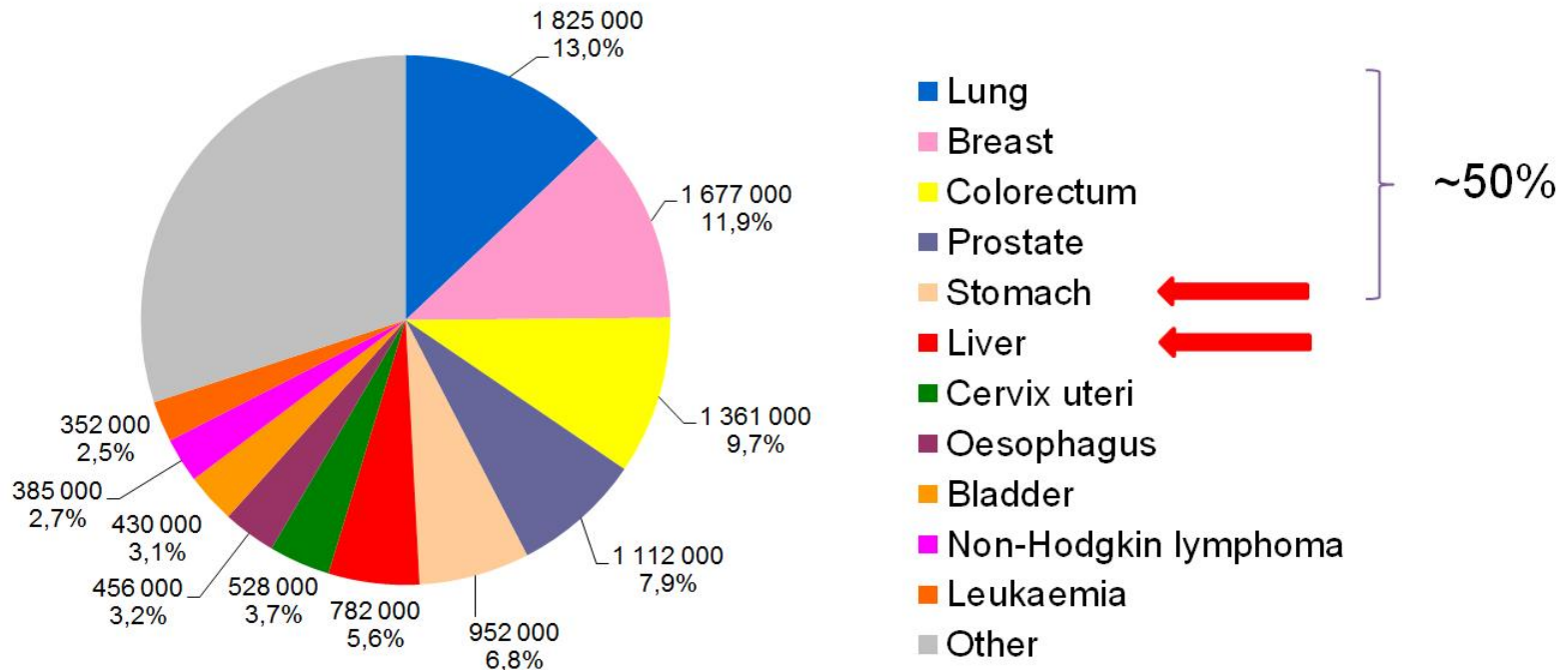


GLOBALLY **1 IN 5 MEN AND 1 IN 6 WOMEN** WILL DEVELOP CANCER BEFORE THE AGE OF 75 YEARS

Common cancers globally - INCIDENCE

14.1 million new cases worldwide (both sexes)

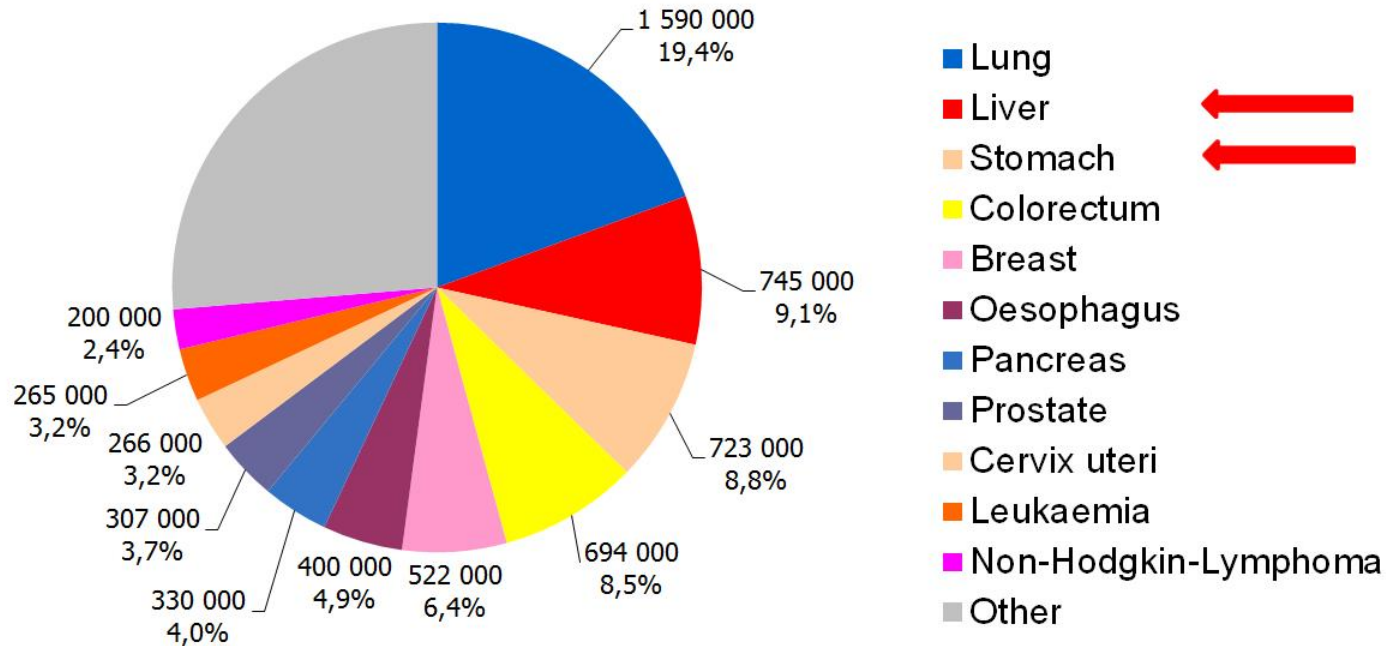
(6.1 in more developed regions, 8.0 in less developed regions)



Common cancers globally - MORTALITY

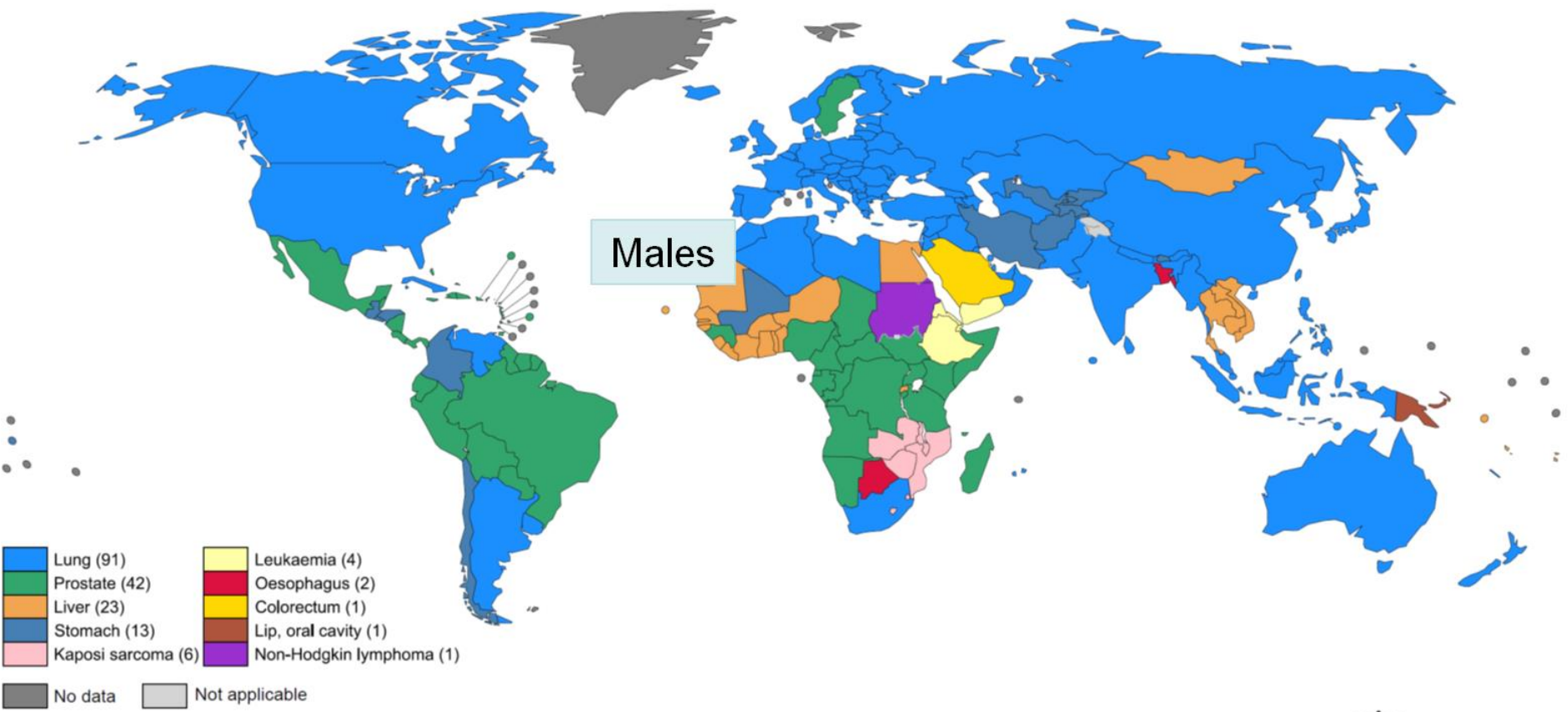
Mortality: 8.2 million deaths worldwide (both sexes)

(2.9 in more developed regions, 5.3 in less developed regions)



Cancer: a global but not uniform problem

Leading cause of cancer death 2012



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data source: GLOBOCAN 2012
 Map production: IARC
 World Health Organization

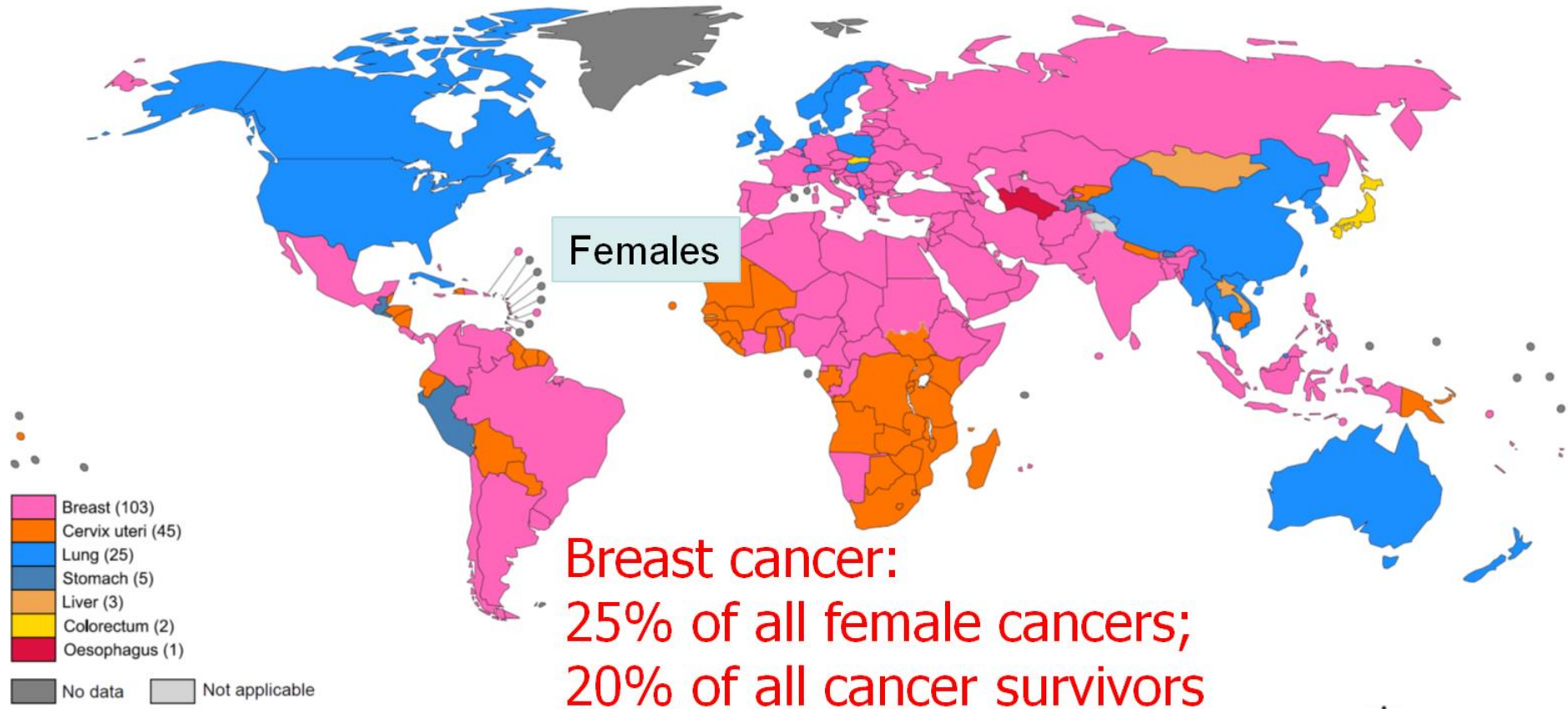


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Cancer: a global but not uniform problem

Leading cause of cancer death 2012



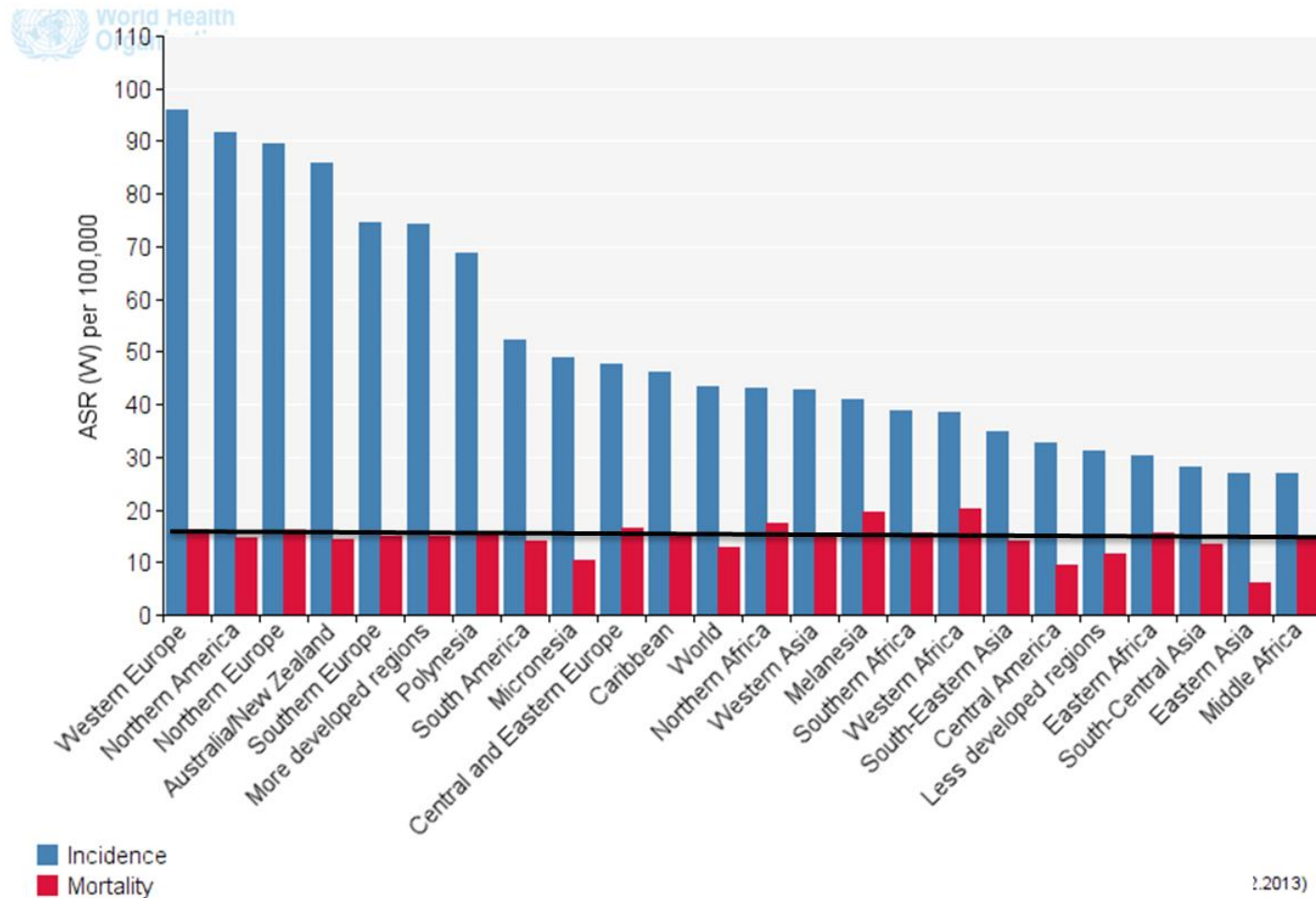
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 **World Health Organization**
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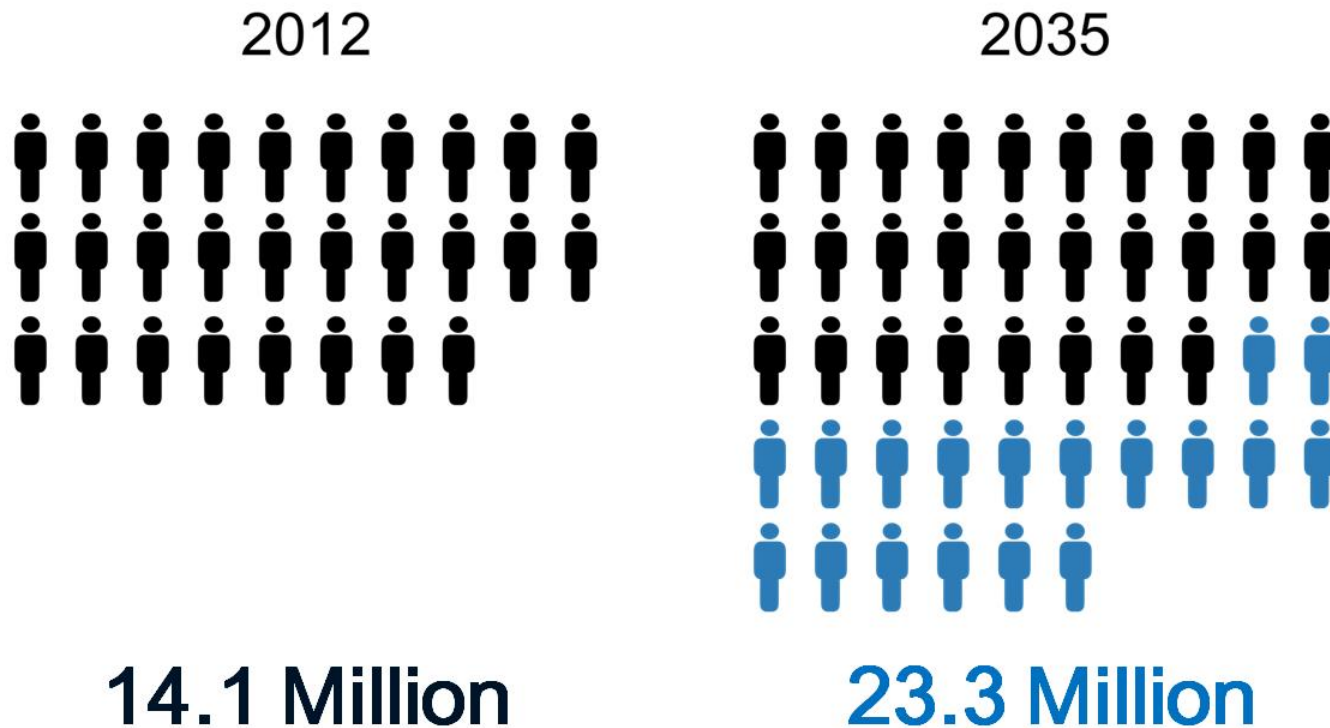
[International Agency for Research on Cancer](http://www.iarc.fr)


Inequalities in cancer burden: breast cancer incidence and mortality rates by region




International Agency for Research on Cancer

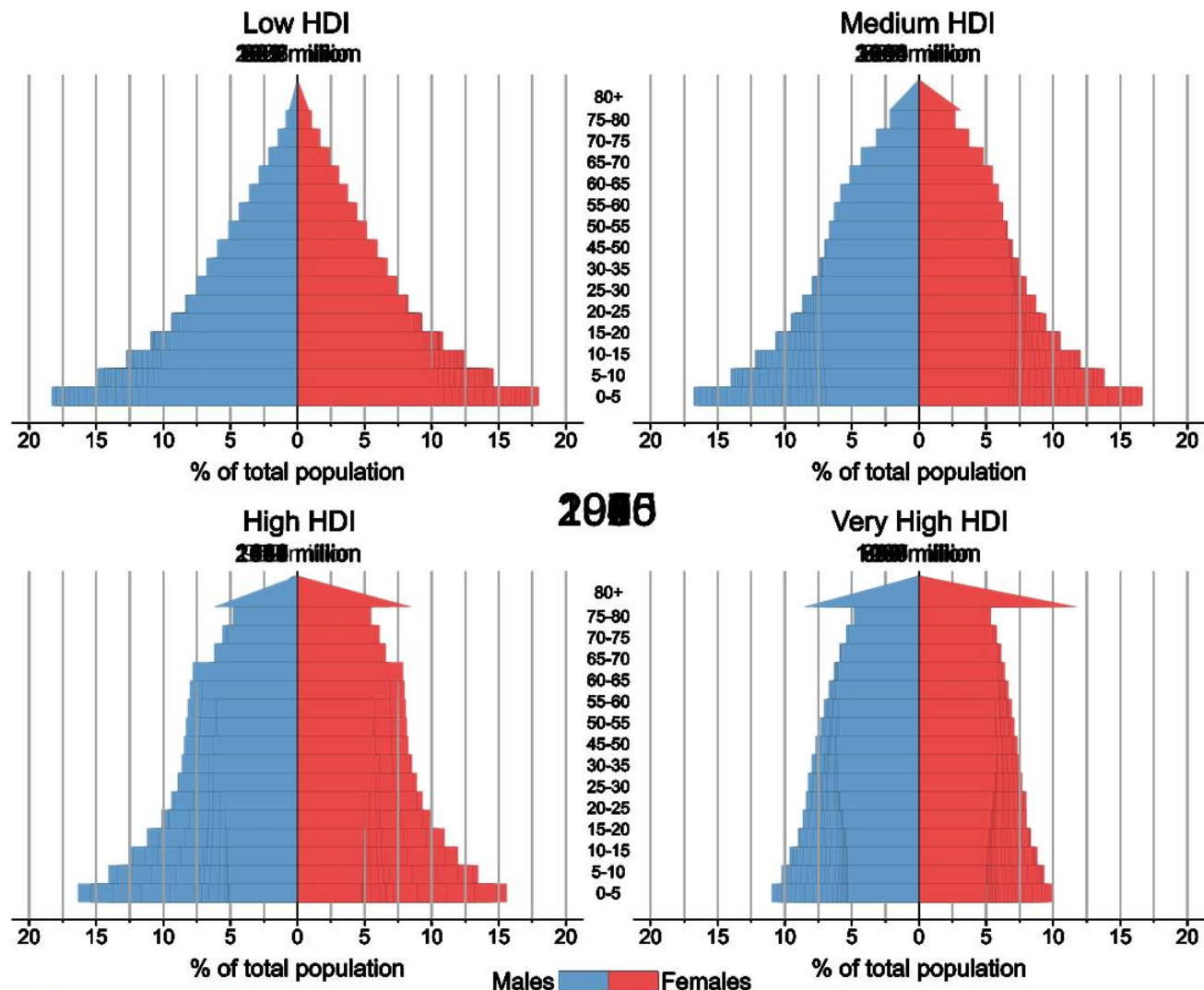
Cancer burden in the next two decades – the demographic effect



 New cases 2012
= 0.5 million

 New cases 2035
(+ demographic changes)

Demographic changes drive up the cancer burden



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Source: UNPD

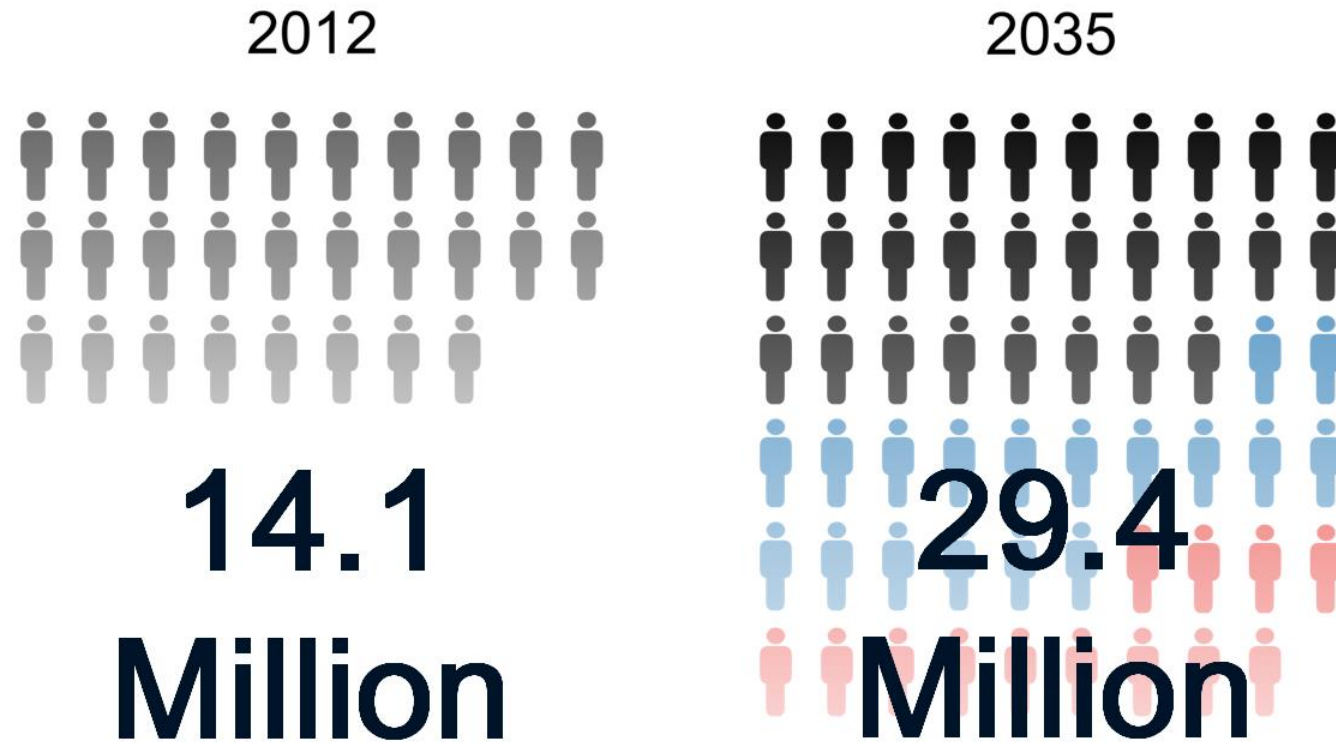
Changing exposure patterns (*e.g. westernized lifestyle*) - altered cancer incidence rates

Urbanisation

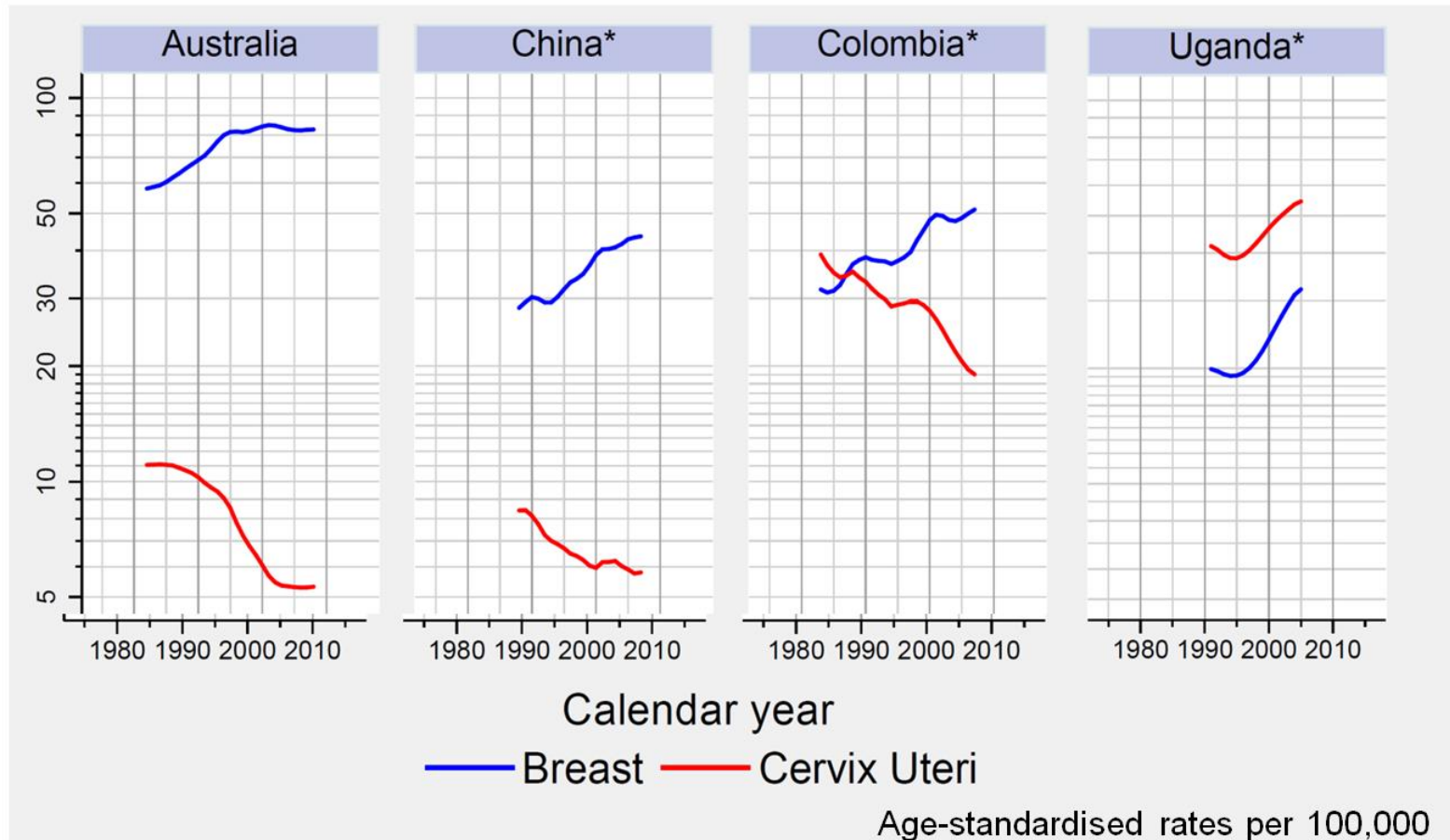
2016



Cancer burden in the next two decades – demographics + change in incidence



Cancer transitions with human development: breast and cervix



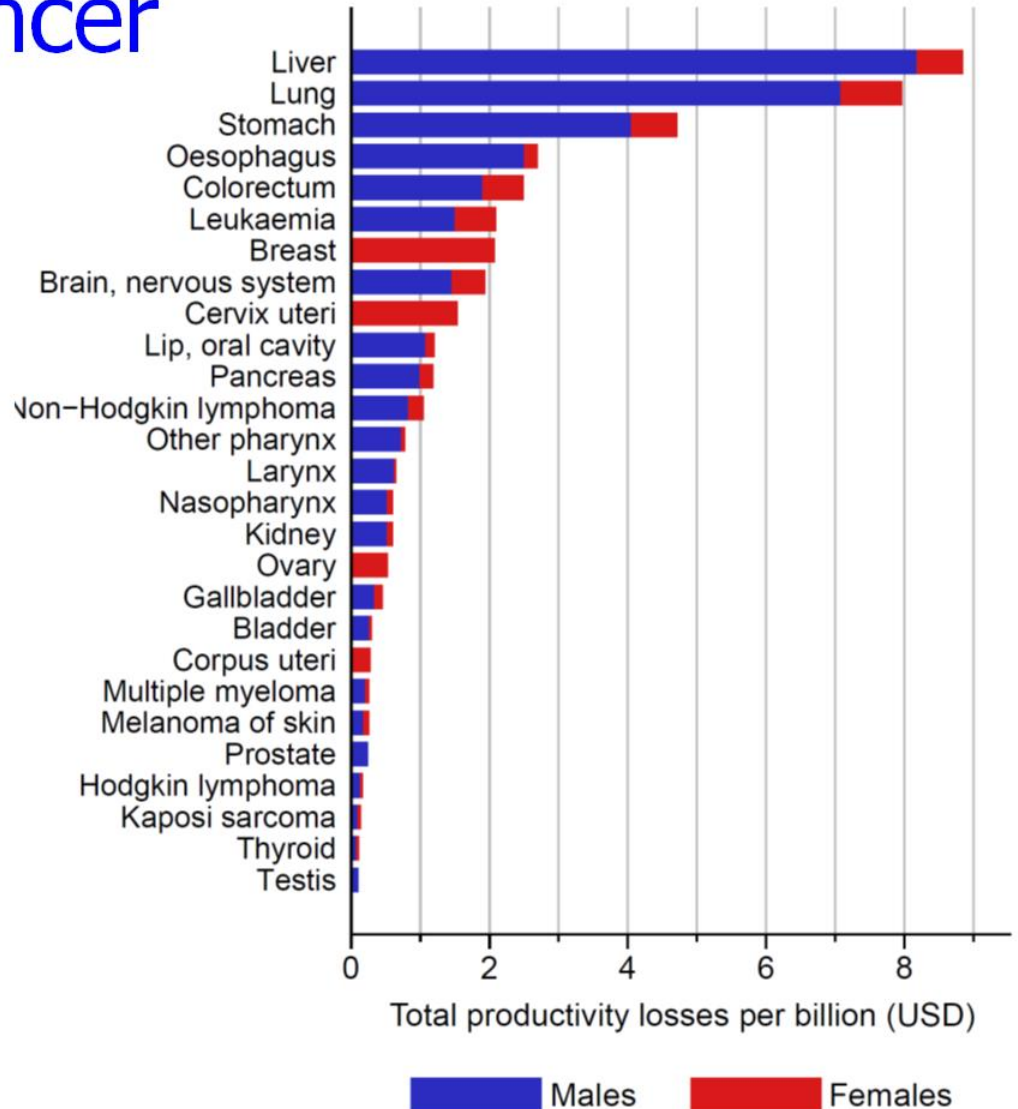
Medium and high HDI: decreases in cervical and stomach cancer offset by increases in breast, prostate and colorectum

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Total productivity loss due to premature mortality from cancer

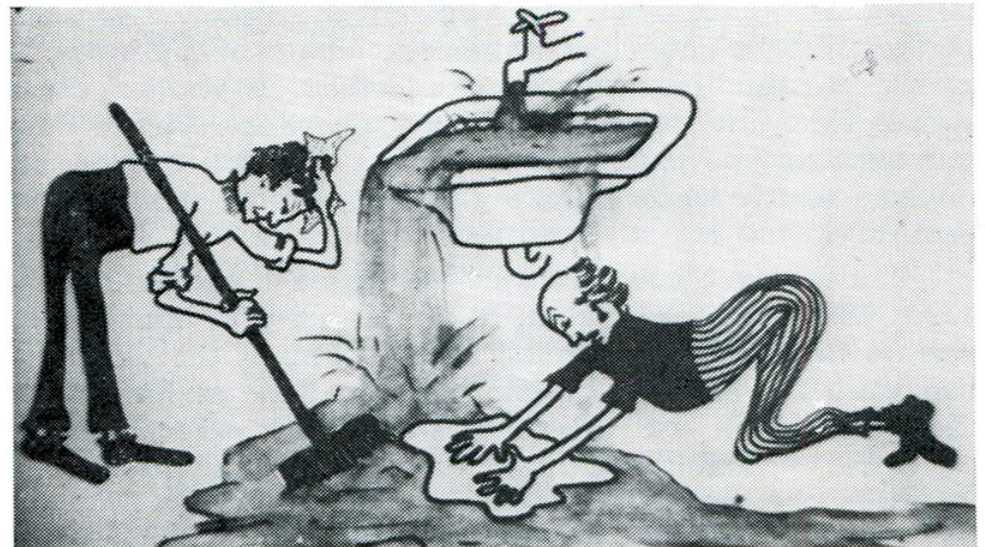
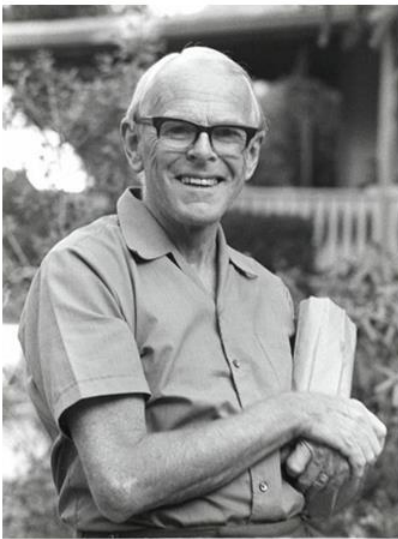
**BRAZIL,
RUSSIA,
INDIA,
CHINA AND
SOUTH AFRICA**

**\$46.3 billion
(0.33% GDP)**



"No country can afford to treat its way out of the cancer problem"

A balanced, integrated approach to prevention, early detection and treatment is required



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Primary cancer prevention

- Around **half of cancers could be prevented** by applying the knowledge we have;
- **The majority of cancers have a lifestyle or environmental cause**, so the potential for prevention is much higher
- Many **common cancers still of largely unknown aetiology**, either globally (e.g. prostate) or regionally (e.g. oesophagus)

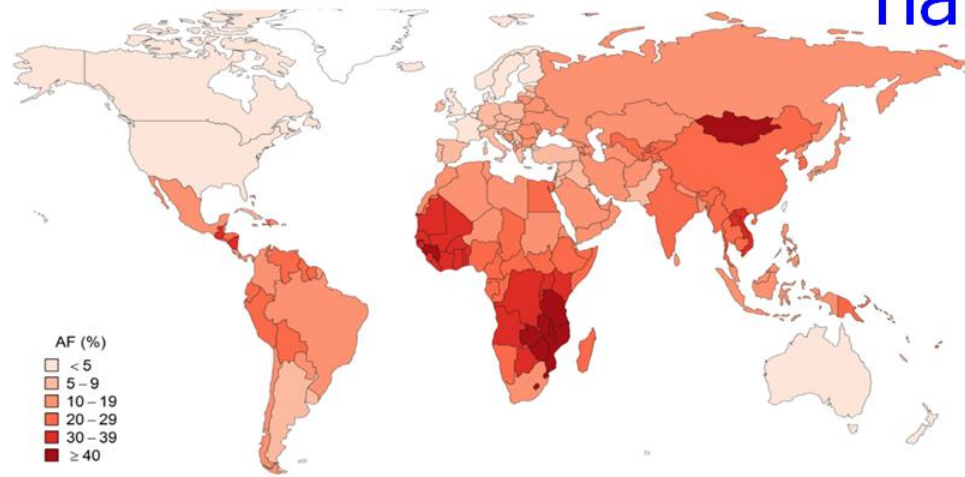
Vineis P and Wild CP (2014) The Lancet, 383: 549-557

Major cancer risk factors

Risk Factor	Comments
Tobacco	Implement WHO FCTC; taxation; bans on advertising; regulations on smoking in public places; counter the introduction into low and middle-income countries (LMIC)
Alcohol	Avoid harmful use; increase awareness; taxation and regulation
Physical inactivity, overweight and obesity	Increase physical activity and improve weight control; urban planning;
Unhealthy diet	Limit red meat intake, avoid processed meat; fruit and vegetables; consider legislation, taxation on high-calorie foods and drinks
Infections	<i>HBV, HPV, H. pylori, HCV</i> ; <i>HBV and HPV</i> vaccination; avoid contaminated injections
Radiation	UV light; ionising radiation; medical diagnostic, indoor radon, regulation on tanning salons
Environment	Regulatory measures; naturally occurring (arsenic, aflatoxins); industrial (air pollution, asbestos)
Occupation	Regulatory measures; avoid “exporting” at-risk exposures to LMIC
Reproductive factors, hormones	Earlier age at menarche, later age at first live birth; fewer children; shorter duration of breast feeding; combination hormone replacement therapy

Adapt prevention to the national or regional situation

Both sexes



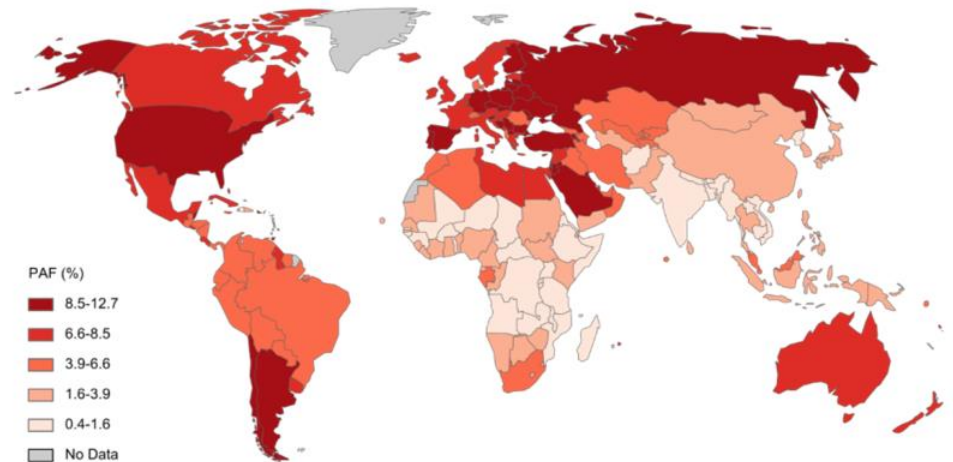
Global burden of cancer attributable to infections in 2012 (overall 2.2 million - 15.4% of all cancers)

Plummer et al. 2016 - Lancet 2016 e609-e616

Global burden of cancer attributable to high BMI in 2012 (overall 481 000 - 3.6% of all cancers*)

*of new cancer cases in men and women aged 30 years and older

Females

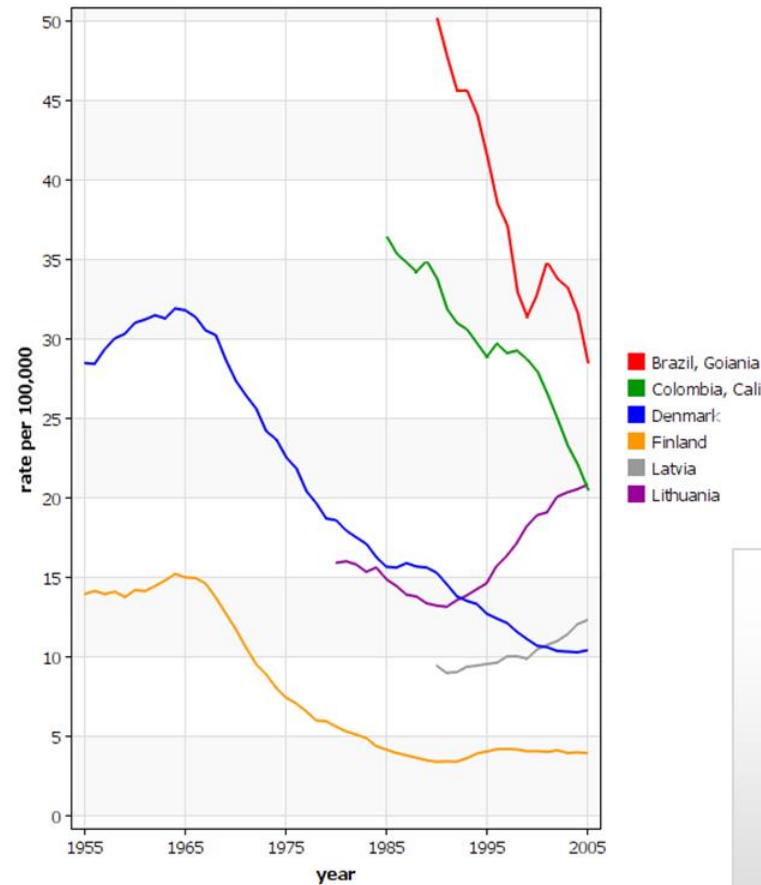


Arnold M et al, Lancet Oncol, 2014

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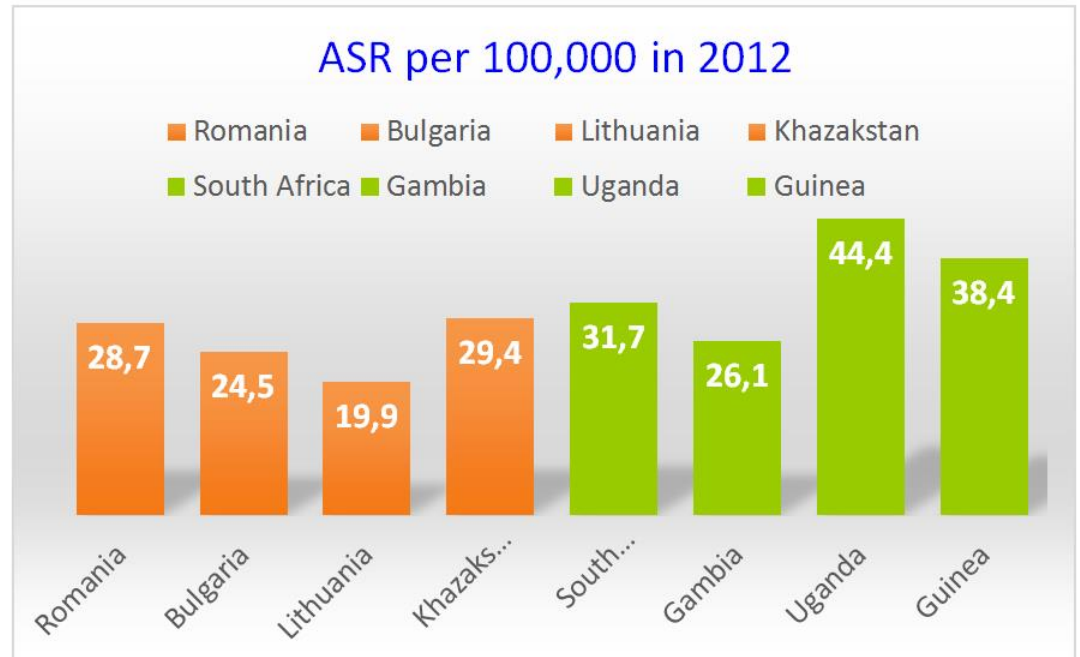
Secondary prevention – early detection, diagnosis and treatment

- **Breast cancer:** mammography; clinical breast examination; breast awareness
- **Cervical cancer:** cytology; HPV DNA testing; visual inspection with acetic acid, Lugol's iodine
- **Colorectal cancer:** Faecal occult blood test, sigmoidoscopy, colonoscopy
- **Oral cancer:** visual inspection; in high incidence regions (e.g. India) among high risk groups



International Agency for Research on Cancer (IARC) - 14.10.2016

Prevention works but takes time – the need for vision and leadership



Conclusions

- The health, social and economic challenges of a rising cancer burden must be met by an **integrated approach of prevention, early detection and treatment**
- There are **many opportunities to act now** if evidence is translated into practice
- There should be increased support for **research on prevention and early detection**