

**Gwaith bob dydd – malu rhifau i greu
gwybodaeth newydd am effaith**

**The day job - number crunching new
knowledge for impact**

Dr Dyfed Wyn Huws

Cyfarwyddwr Uned Gwybodaeth a Gwyliadwriaeth Canser Cymru

Director Welsh Cancer Intelligence and Surveillance Unit



GIG
CYMRU
NHS
WALES

Iechyd Cyhoeddus
Cymru
Public Health
Wales

8 Mawrth 2018

8 March 2018

Welsh Cancer Intelligence and Surveillance Unit - the day job

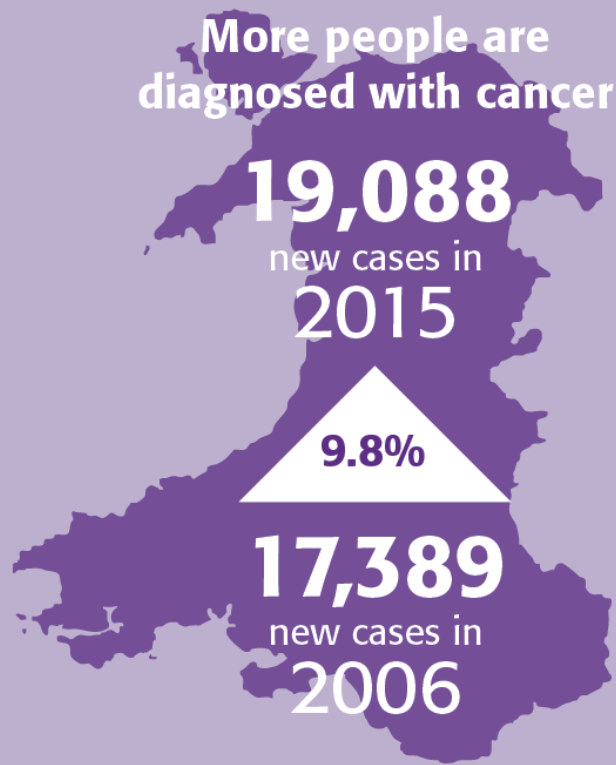
One of four Public Health Wales statutory functions

- To undertake the systematic collection, analysis and dissemination of information about the health of the people of Wales in particular including cancer incidence, mortality and survival

Cancer in Wales

Latest official statistics of new cases of cancer in the resident population updated with new 2015 year of diagnosis data

More people are diagnosed with cancer



More cases of cancer are diagnosed in men

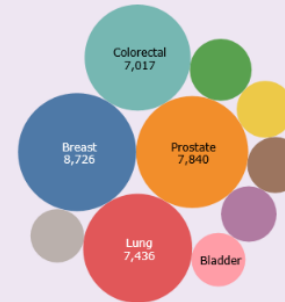


Incidence by cancer type

Statistics by cancer type in Wales - Persons, 2013-2015

Cancer type	Count	Crude rate	EASR	LCL	UCL
All malignancies excluding NMSC	58,610	632.0	642.6	637.3	647.9
Breast	8,726	94.1	89.3	87.4	91.2
Prostate	7,840	171.9	184.3	180.2	188.5
Lung	7,436	80.2	81.8	80.0	83.8
Colorectal	7,017	75.7	77.2	75.4	79.0
Colon	4,568	49.3	50.0	48.6	51.6
Rectum	2,449	26.4	27.1	26.1	28.3
Melanoma	2,390	25.8	26.6	25.5	27.7
Head & neck	2,035	21.9	22.4	21.4	23.4
Leukaemia	1,950	21.0	21.6	20.6	22.6
Non-Hodgkin lymphoma	1,928	20.8	21.1	20.1	22.0
Bladder	1,812	19.5	20.8	19.9	21.9
Urinary tract excluding bladder	1,795	19.4	20.0	19.1	21.0
Kidney	1,593	17.2	17.7	16.9	18.7
Uterus	1,574	33.4	32.4	30.8	34.0
Pancreas	1,549	16.7	16.7	15.9	17.6
Oesophagus	1,370	14.8	15.2	14.4	16.1
Stomach	1,332	14.4	14.9	14.1	15.8
Ovary	1,169	24.8	23.9	22.5	25.3
Liver	925	10.0	10.1	9.5	10.8
Oral & oropharynx	922	9.9	10.0	9.4	10.7
Myeloma	881	9.5	9.6	9.0	10.3
Brain & central nervous system	874	9.4	9.5	8.9	10.2
Chronic lymphocytic leukaemia	760	8.2	8.4	7.8	9.1
Acute myeloid leukaemia	532	5.7	6.0	5.5	6.5
Cervix	471	10.0	10.3	9.4	11.3
Larynx	427	4.6	4.8	4.3	5.3
Thyroid & endocrine	420	4.5	4.5	4.1	5.0
Mesothelioma	381	4.1	4.5	4.1	5.0
Testis	331	7.3	7.6	6.8	8.5
Hodgkin lymphoma	308	3.3	3.3	3.0	3.7
Anus	231	2.5	2.5	2.1	2.8
Chronic myeloid leukaemia	146	1.6	1.6	1.4	2.0
Acute lymphoblastic leukaemia	123	1.3	1.3	1.1	1.5
Bone	95	1.0	1.0	0.8	1.3

Common cancer types in Wales - Persons, 2013-2015



- Cancer type
- Breast
 - Prostate
 - Lung
 - Colorectal
 - Melanoma
 - Head & neck
 - Leukaemia
 - Non-Hodgkin lymphoma
 - Bladder
 - Urinary tract excluding bl...

Select sex
Persons

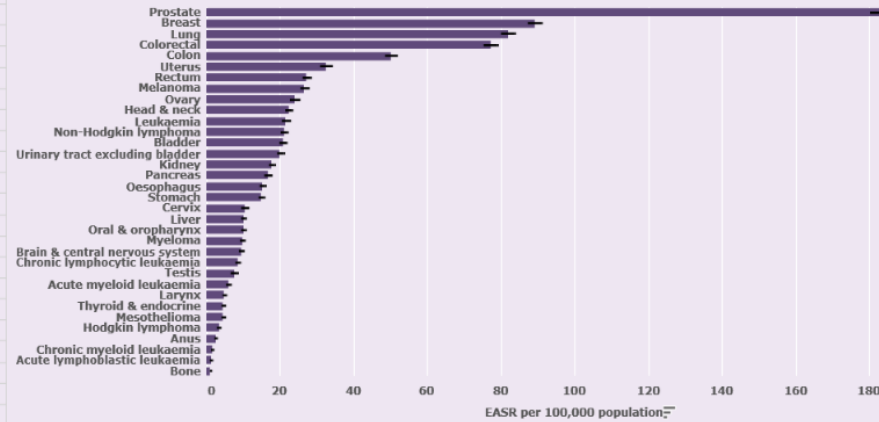
Select geography level
Wales

Select area
Wales

Select time period
Three year

Select year(s) of diagnosis
2013-2015

EASR by cancer type, with 95% confidence intervals in Wales - Persons, 2013-2015



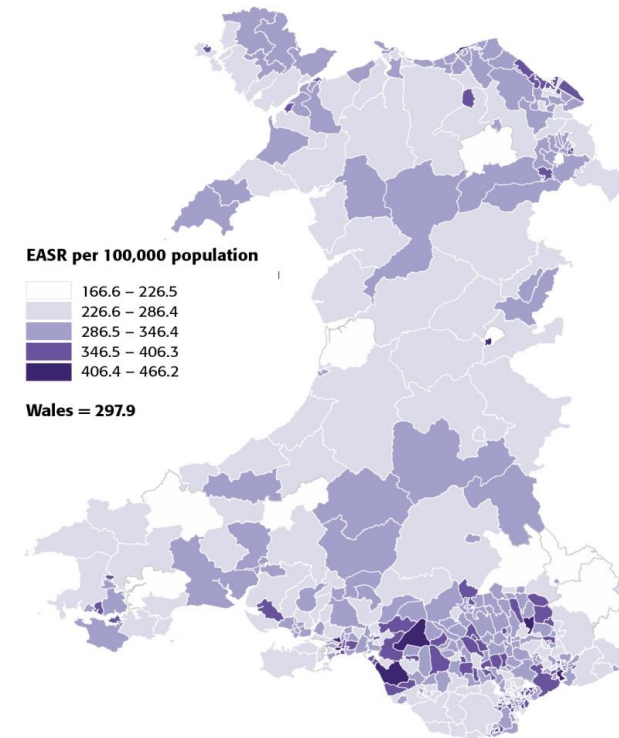
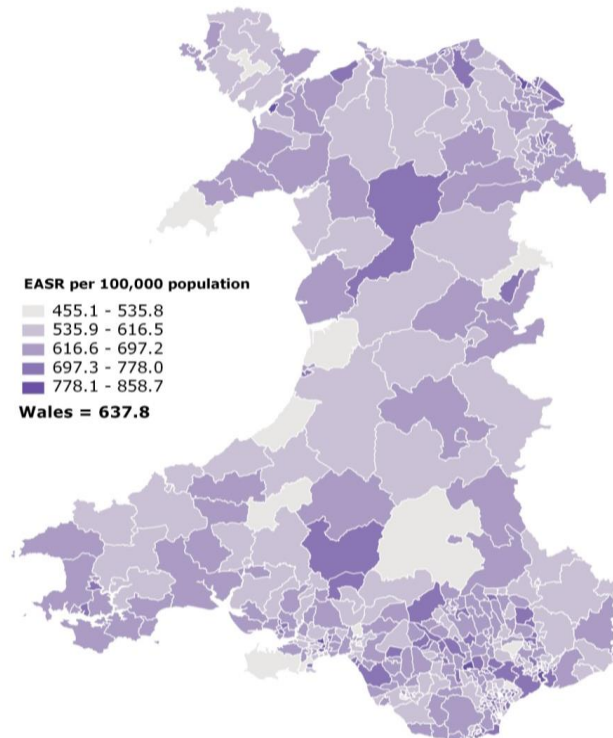
NMSC - Non-Melanoma Skin Cancer
Crude rate and European age-standardised rate (EASR) per 100,000
LCL - Lower 95% Confidence Limit, UCL - Upper 95% Confidence Limit

Incidence and mortality rate at small area level

All cancers excluding non melanoma skin cancer

Incidence, 2011-2015

Mortality, 2010-2014



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NHS Health Research Authority definitions of research and more

RESEARCH	SERVICE EVALUATION	CLINICAL/ NON-FINANCIAL AUDIT	USUAL PRACTICE (in public health including health protection)
The attempt to derive generalisable or transferable new knowledge to answer questions with scientifically sound methods* including studies that aim to generate hypotheses as well as studies that aim to test them, in addition to simply descriptive studies.	Designed and conducted solely to define or judge current care.	Designed and conducted to produce information to inform delivery of best care.	Designed to investigate the health issues in a population in order to improve population health Designed to investigate an outbreak or incident to help in disease control and prevention
Quantitative research – can be designed to test a hypothesis as in a randomised controlled trial or can simply be descriptive as in a postal survey. Qualitative research – can be used to generate a hypothesis, usually identifies/explores themes.	Designed to answer: “What standard does this service achieve?”	Designed to answer: “Does this service reach a predetermined standard?”	Designed to answer: “What are the health issues in this population and how do we address them?” Designed to answer: “What is the cause of this outbreak or incident and how do we manage it?”
Quantitative research - addresses clearly defined questions, aims and objectives. Qualitative research – usually has clear aims and objectives but may not establish the exact questions to be asked until research is underway.	Measures current service without reference to a standard.	Measures against a standard.	Systematic, quantitative or qualitative methods may be used.
Quantitative research – may involve evaluating or comparing interventions, particularly new ones. However, some quantitative research such as descriptive surveys, do not involve interventions. Qualitative research – seeks to understand better the perceptions and reasoning of people.	Involves an intervention in use only. The choice of treatment, care or services is that of the care professional and patient/service user according to guidance, professional standards and/or patient/ service user preference.	Involves an intervention in use only. The choice of treatment, care or services is that of the care professional and patient/service user according to guidance, professional standards and/or patient/service user preference.	Involves an intervention in use only. Any choice of intervention, treatment, care or services is based on best public health evidence or professional consensus.
Usually involves collecting data that are additional to those for routine care but may include data collected routinely. May involve treatments, samples or investigations additional to routine care. May involve data collected from interviews, focus groups and/or observation.	Usually involves analysis of existing data but may also include administration of interview(s) or questionnaire(s).	Usually involves analysis of existing data but may include administration of simple interview or questionnaire.	May involve analysis of existing routine data supplied under license/agreement or administration of interview or questionnaire to those in the population of interest. May also require evidence review.
Quantitative research – study design may involve allocating patients/service users/healthy volunteers to an intervention. Qualitative research – does not usually involve allocating participants to an intervention.	No allocation to intervention: the care professional and patient/ service user have chosen intervention before service evaluation.	No allocation to intervention: the care professional and patient/service user have chosen intervention before audit.	No allocation to intervention.
May involve randomisation.	No randomisation.	No randomisation.	May involve randomisation but not for treatment/ care/ intervention.
Normally requires REC review but not always. Refer to http://hra-decisiontools.org.uk/ethics/ for more information.	Does not require REC review.	Does not require REC review.	Does not require REC review.

Incidence trend line by area

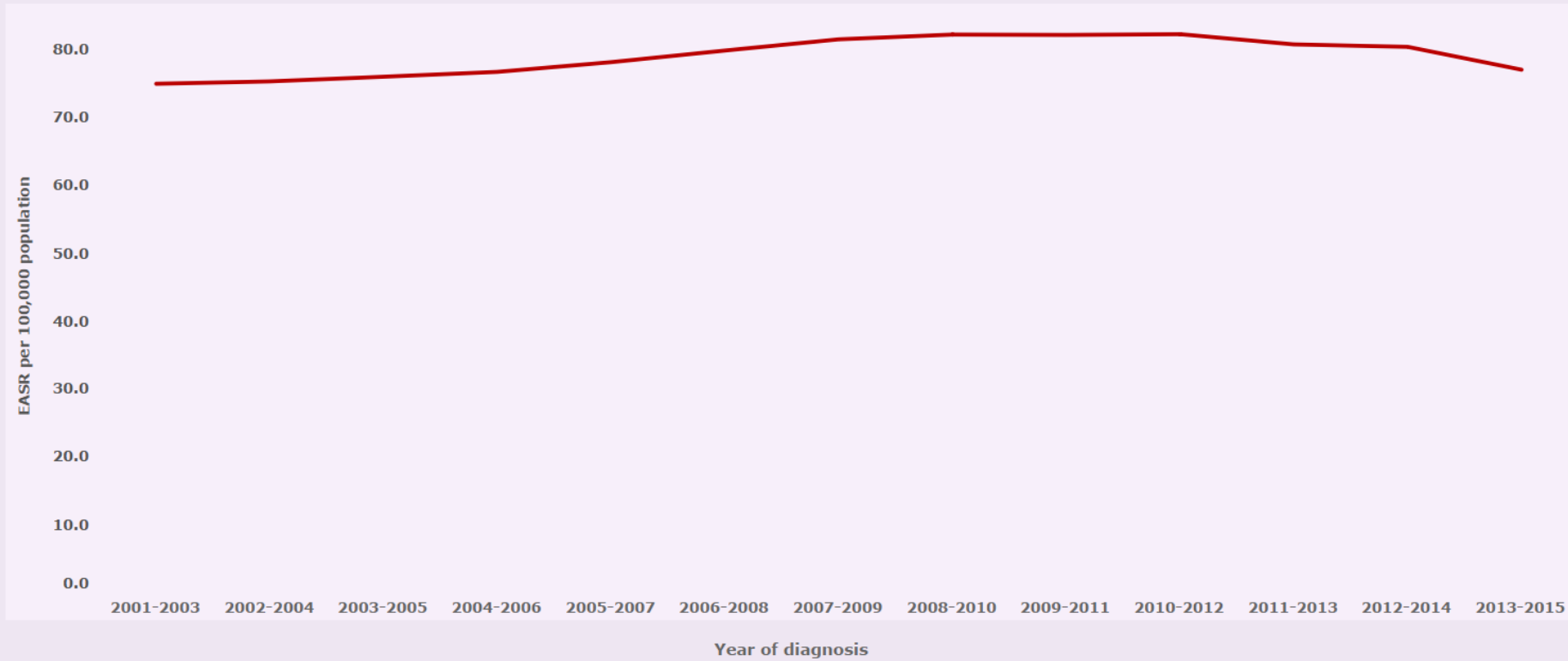
Persons Select sex Colorectal Select cancer type

Three year Select period Wales Select geography levels from the list below

Wales Select geographies from the list below

EASR of Colorectal for Persons by Three year period

Geography
■ Wales



European age-standardised rate (EASR) per 100,000 population
NMSC - Non-Melanoma Skin Cancer

Mortality trend line by area

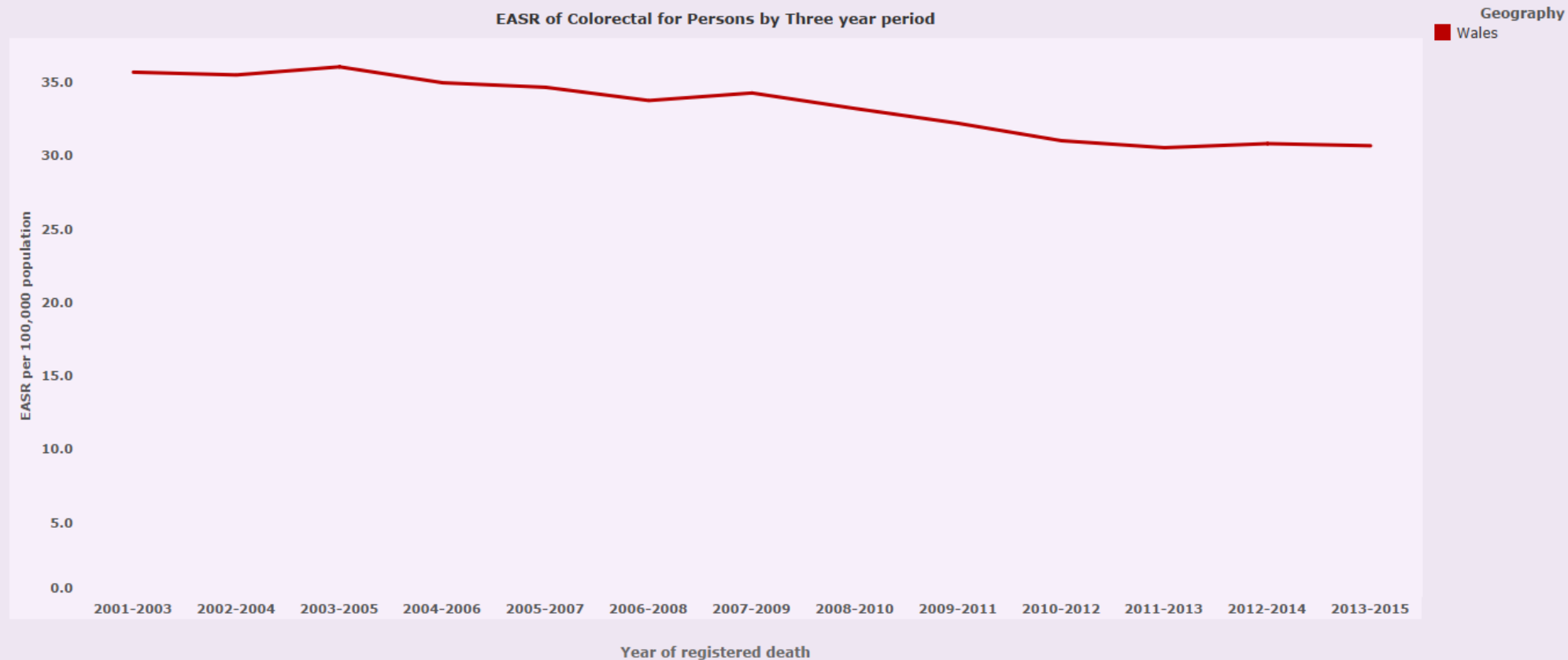
Persons
Three year
Wales

Select sex
Select time period

Colorectal
Wales
Select geographies

Select cancer type
Select geography level

EASR of Colorectal for Persons by Three year period

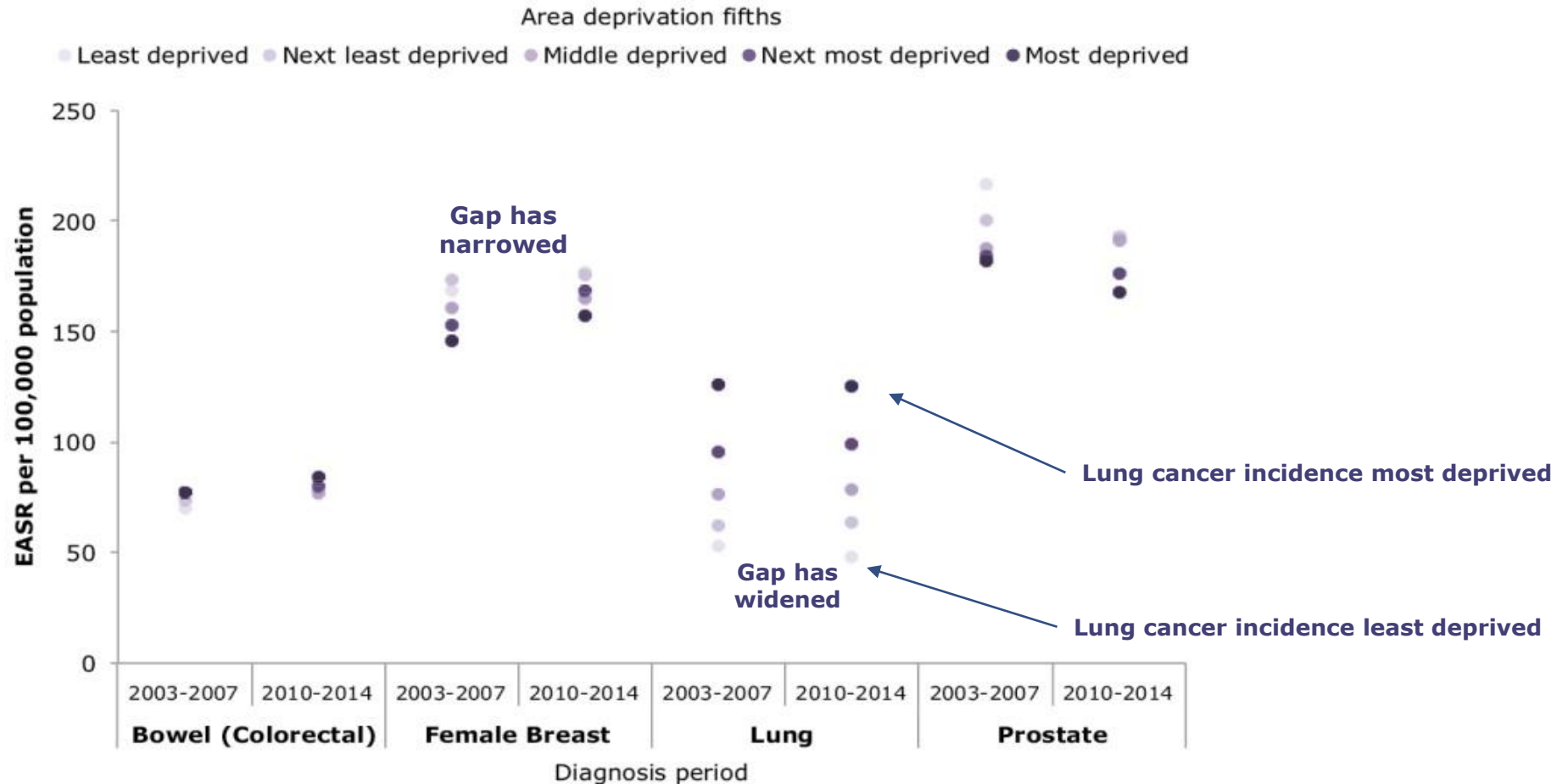


European age-standardised rate (EASR) per 100,000 population
NMSC - Non-Melanoma Skin Cancer

The impact of the Welsh bowel screening programme on emergency presentation for colorectal cancer.

- Shubhangi Govil, School of Medicine, Cardiff University.
- Kate Lifford, Sunil Dolwani, Division of Population Medicine, School of Medicine, Cardiff University.
- Hayley Heard, Bowel Screening Wales, Public Health Wales.
- Ceri White, Dyfed Huws, Wales Cancer Intelligence and Surveillance Unit, Public Health Wales.

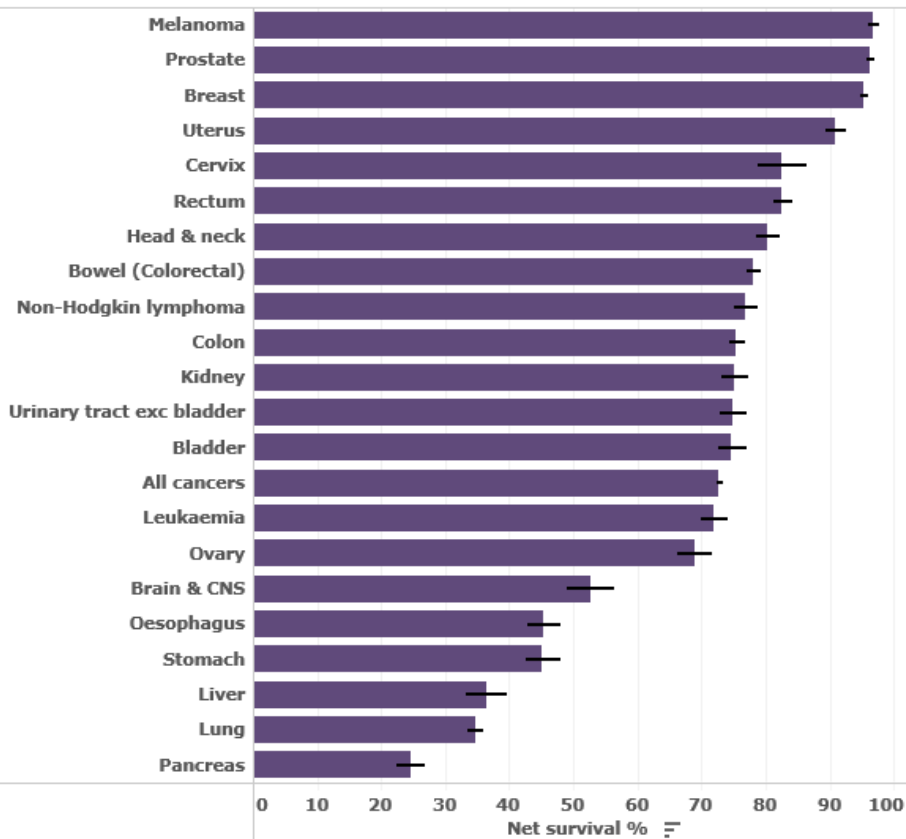
Incidence rate for deprivation fifths by cancer type



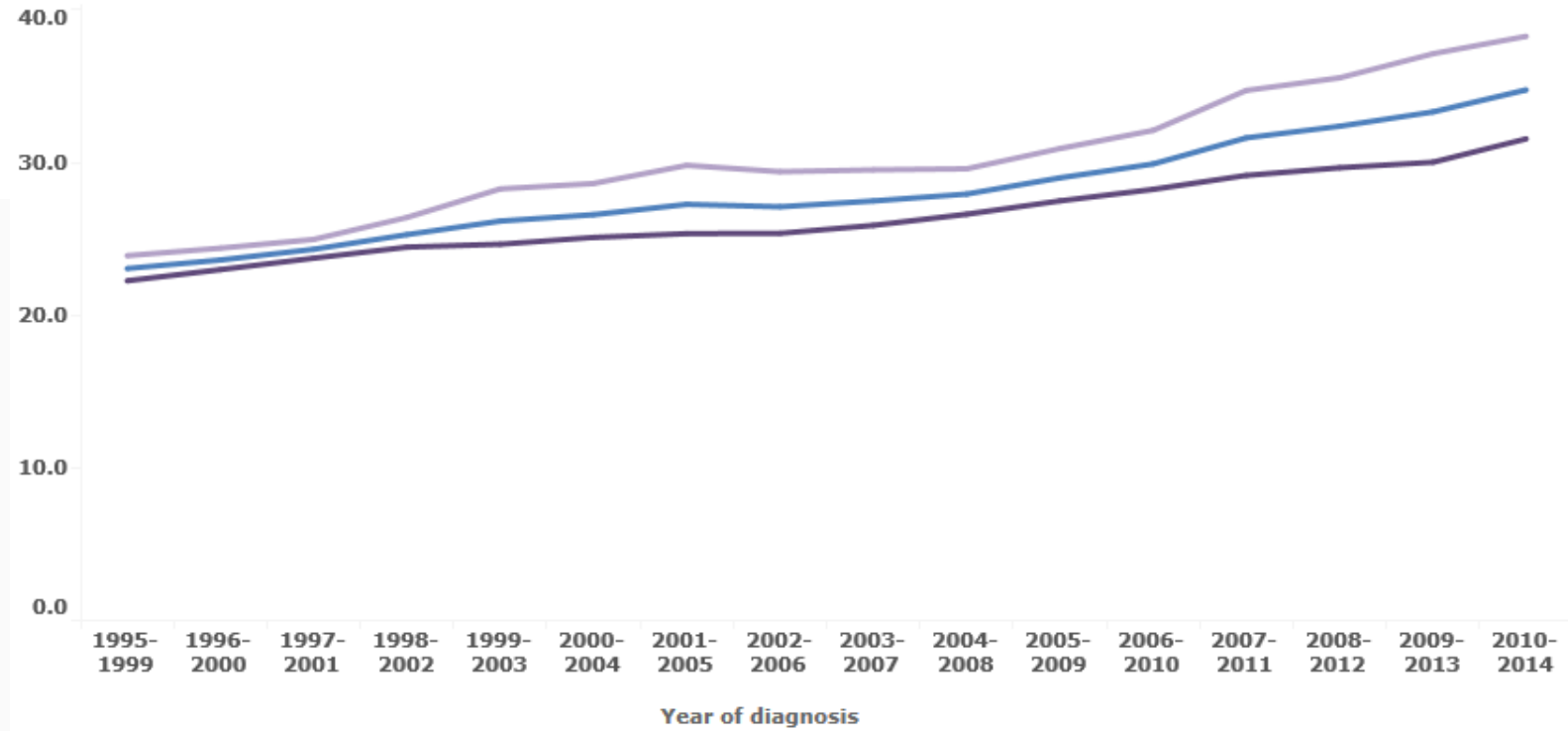
Source: Welsh Cancer Intelligence and Surveillance Unit's Cancer Registry www.wcis.u.wales.nhs.uk

Sex
 ■ Men
 ■ Women
 ■ Persons

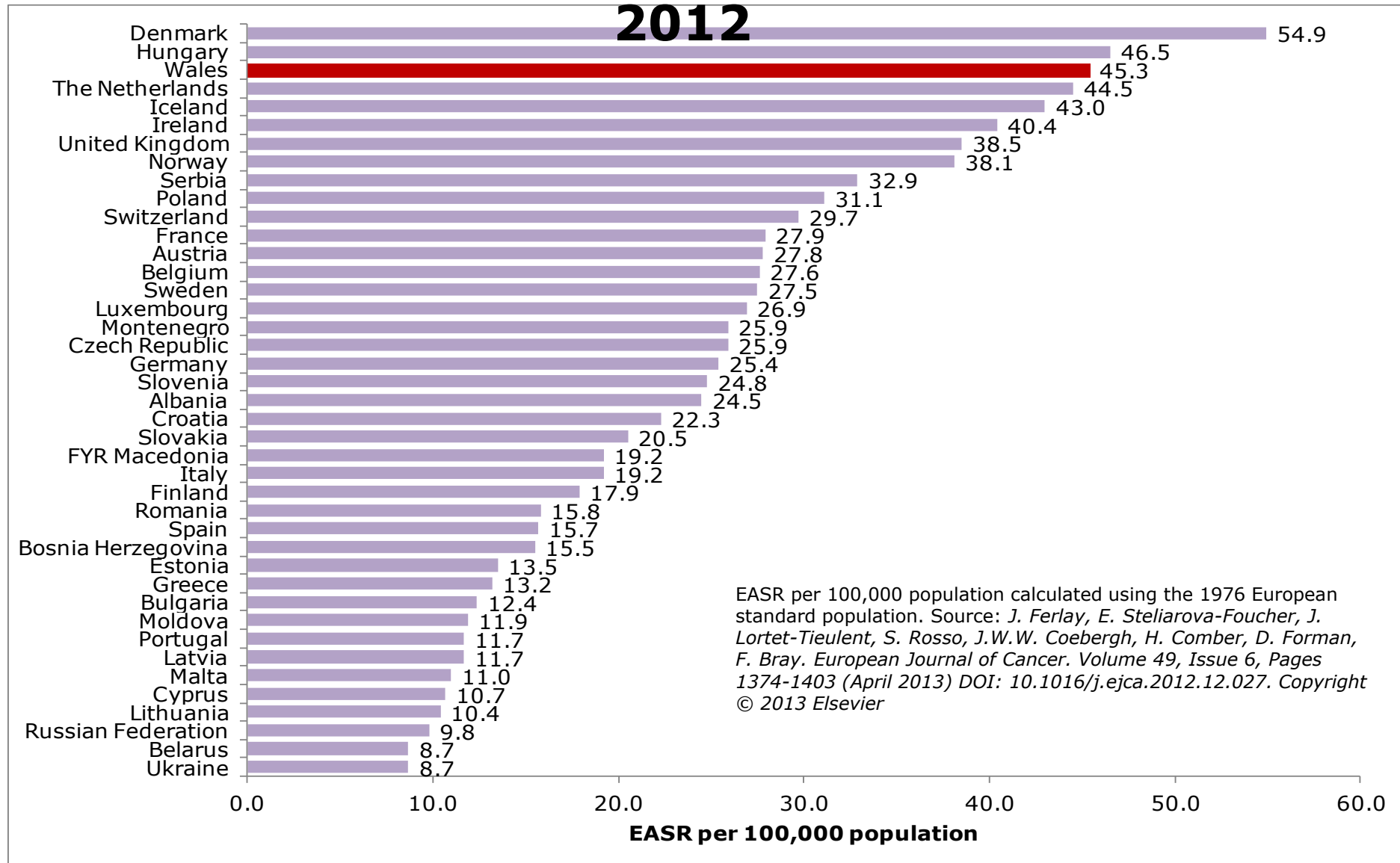
One year net survival (%) by cancer type - Persons, 2010-2014, Wales



One year Age standardised net survival of Lung, Wales

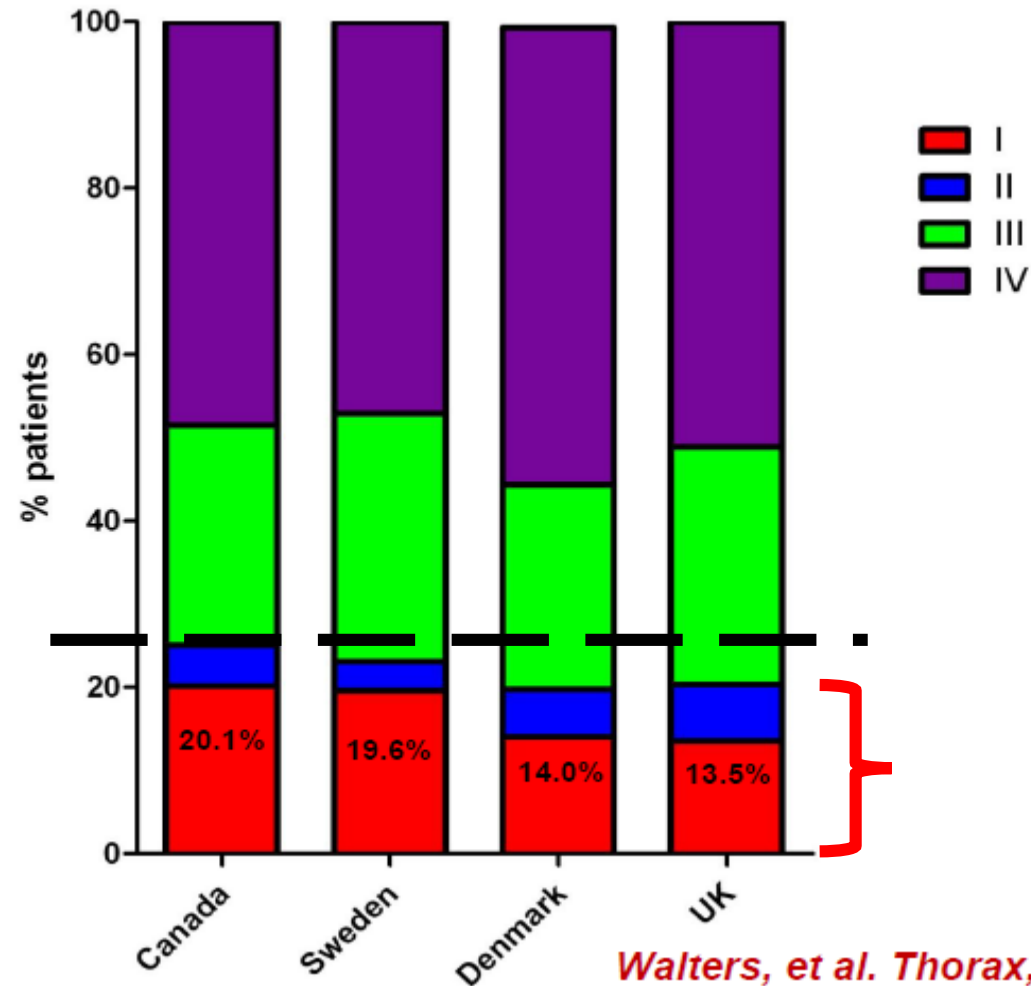


Lung cancer incidence in Europe, women: Estimates, 2012



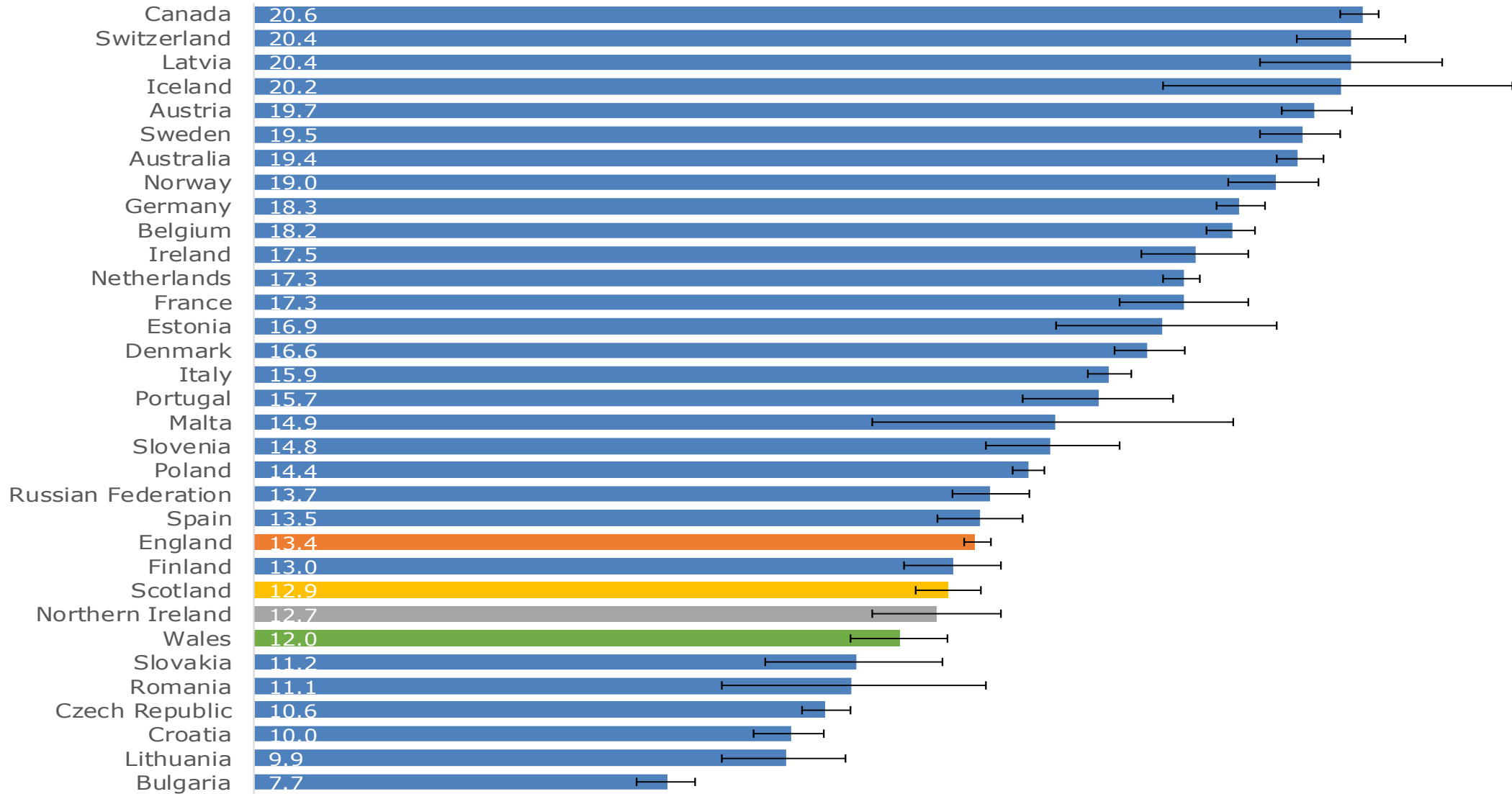
Lung cancer in Wales

Variation in stage distribution between ICBP-1 jurisdictions



Slide thanks to
Dr Mick Peake

Concord 3 study – 5 year age standardised net survival, lung cancer, 2010-2014

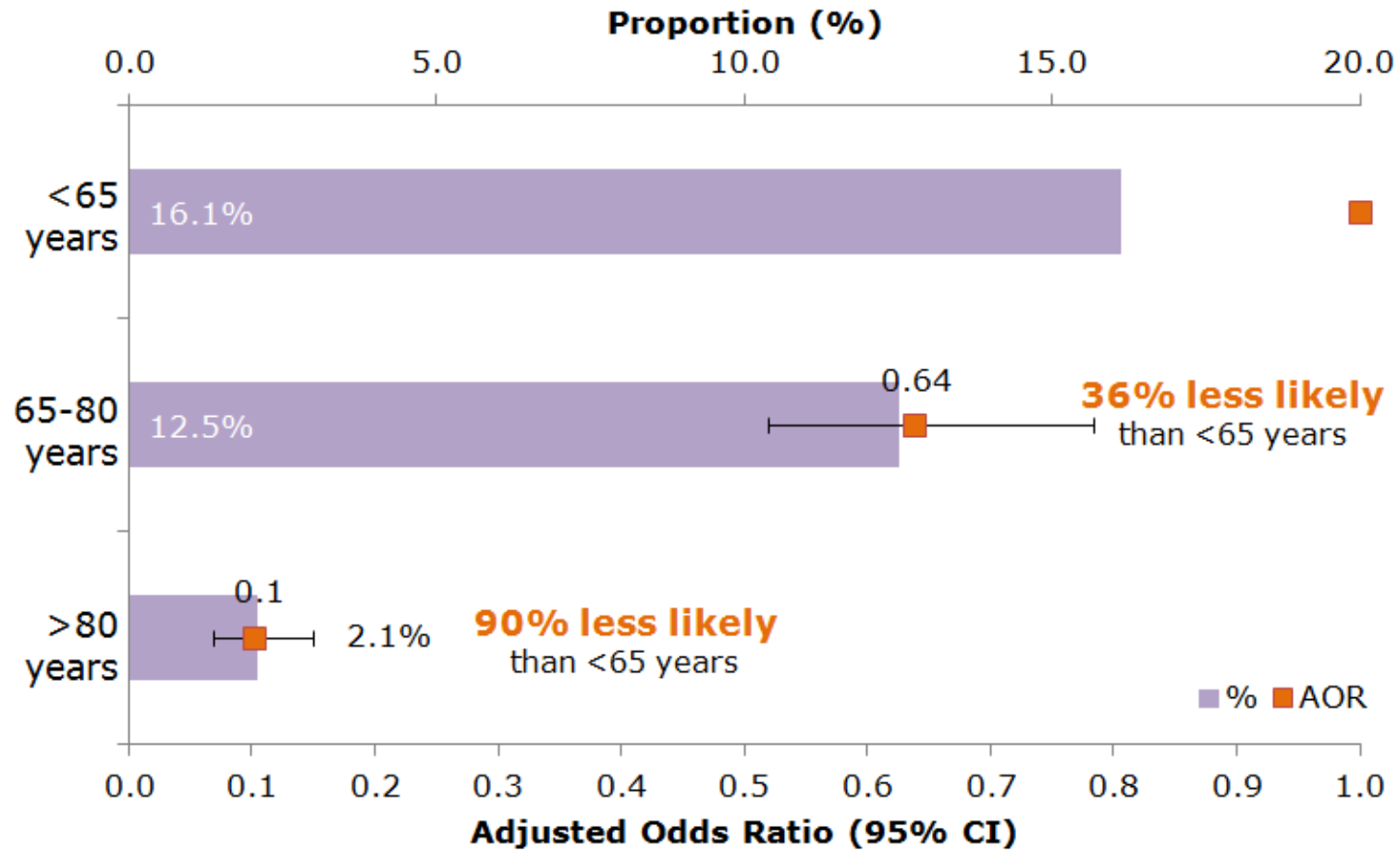


Factors associated with lung cancer survival – systematic mapping review and overview of systematic reviews

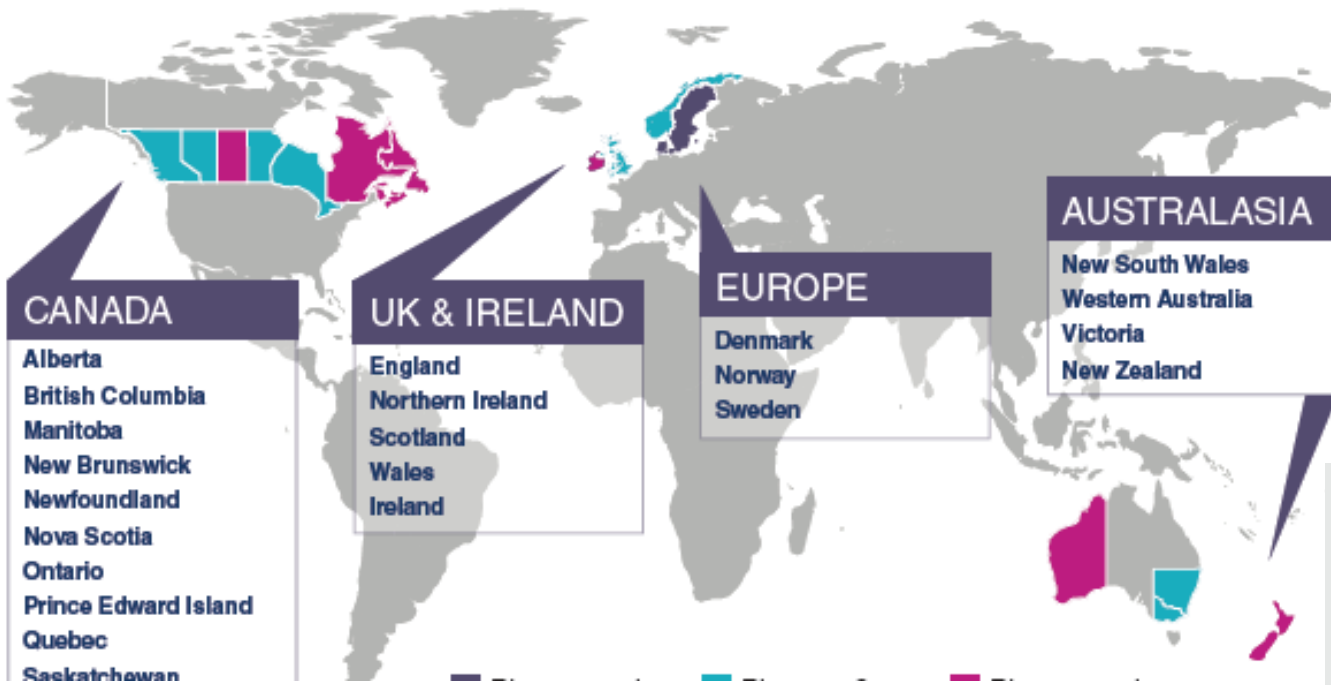
~~Ruth Lewis~~,¹ Maggie Hendry,¹ Nafees Din,¹ Marion A Stanciu,¹ Sadia Nafees,¹ Annie Hendry,¹ Zhi Teoh,¹ Thomas Lloyd,¹ Rachel Parsonage,¹ Richard D Neal,² Gareth Collier,³ Dyfed W Huws

- 1. North Wales Centre for Primary Care Research, Bangor University
- 2. Academic Unit of Primary Care, Leeds Institute of Health Sciences, University of Leeds
- 3. Welsh Cancer Intelligence and Surveillance Unit (WCISU), Health Intelligence Division, Public Health Wales
- 4. Hywel Dda University Health Board

Figure 9: Surgery in patients with NSCLC: Proportion and adjusted odds ratio* by age



*p<0.0001. 95% CIs = 95% Confidence Interval.
 AORs have been adjusted for diagnosis year, gender, age, performance status and tumour stage.
 Age <65 was the reference category.

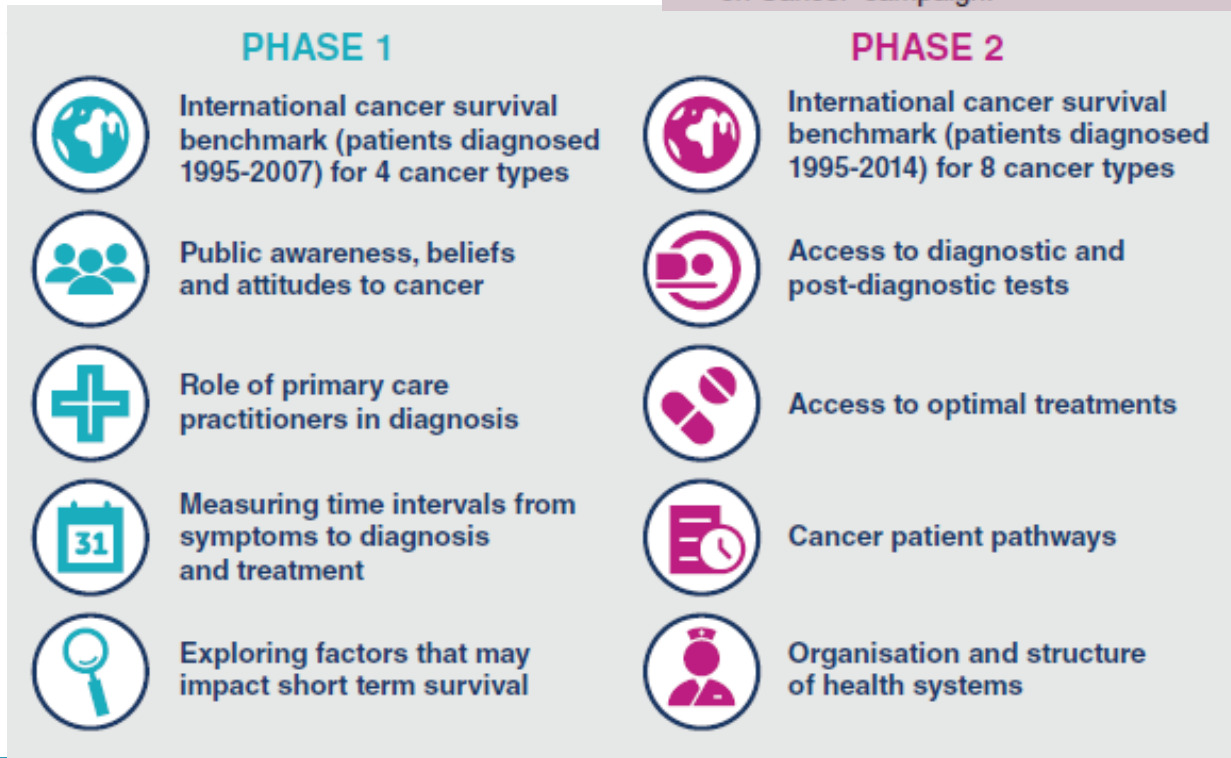


ICBP impacts

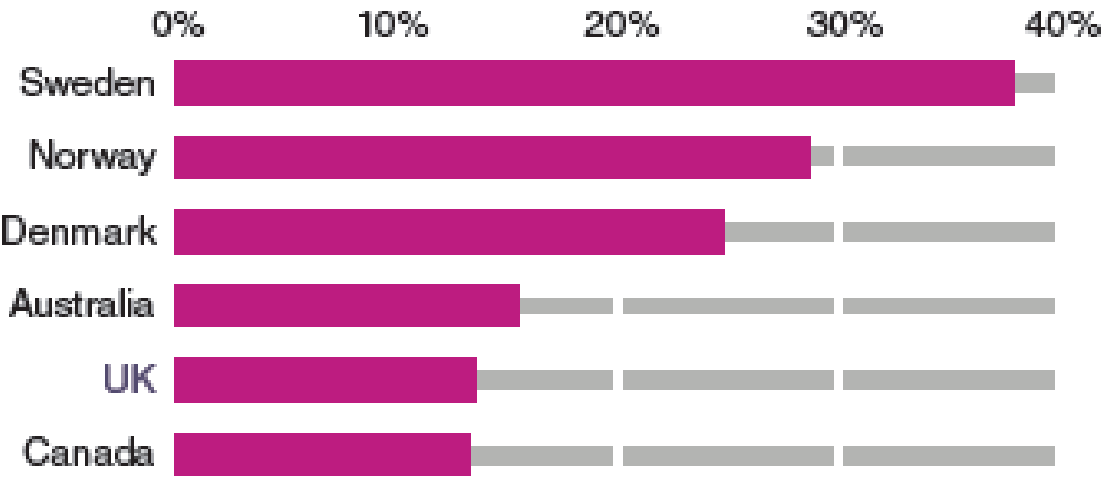
Wales

- Prompted a lung cancer initiative to improve outcomes by taking a cross-pathway approach.
- Led to a study tour to Denmark to learn more about improvements in access to diagnostics which provided additional evidence to establish pilots to improve diagnosis in Wales.
- Ovarian cancer awareness evidence in Wales contributed to the development of the equivalent English regional 'Be Clear on Cancer' campaign.

What is the International Cancer Benchmarking Partnership?

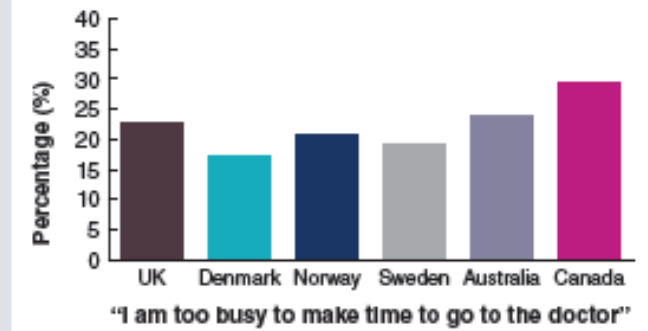
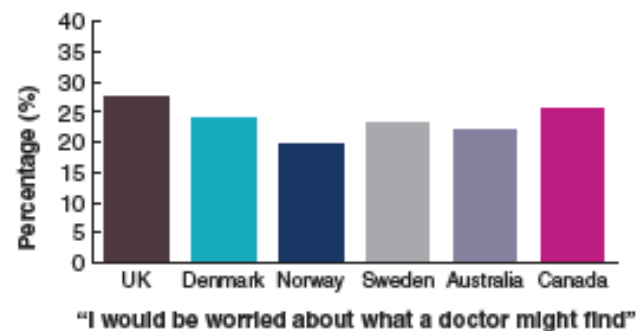
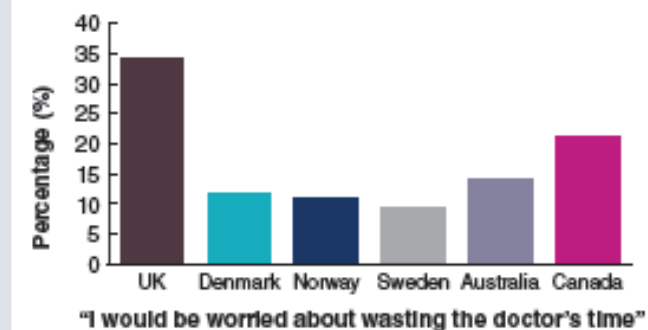
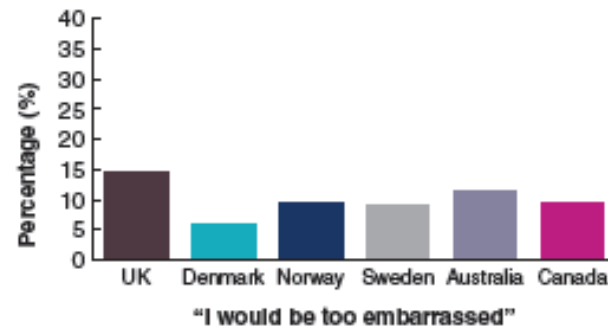


Awareness that cancer risk increases with age



Proportion of respondents who said that 70-year olds are most likely to be diagnosed with cancer (rather than 30-year olds, 50-year olds or people of any age)

Barriers to symptomatic presentation: "Would any of these put you off going to the doctor with a symptom that might be serious?"



Life After Prostate Cancer Diagnosis: A UK-wide population-based health-related quality of life outcomes study

- Amy Downing, Penny Wright, Luke Hounsome, Paul Kind, Peter J Selby, Sarah Wilding, David Donnelly, Hugh Butcher, Eila Watson, Richard Wagland, Dyfed Huws, David Brewster, Anna Gavin, Adam Glaser on behalf of the LAPCD study team.

4 IN 10 CANCER CASES CAN BE PREVENTED...



●●● Larger circles indicate more UK cancer cases

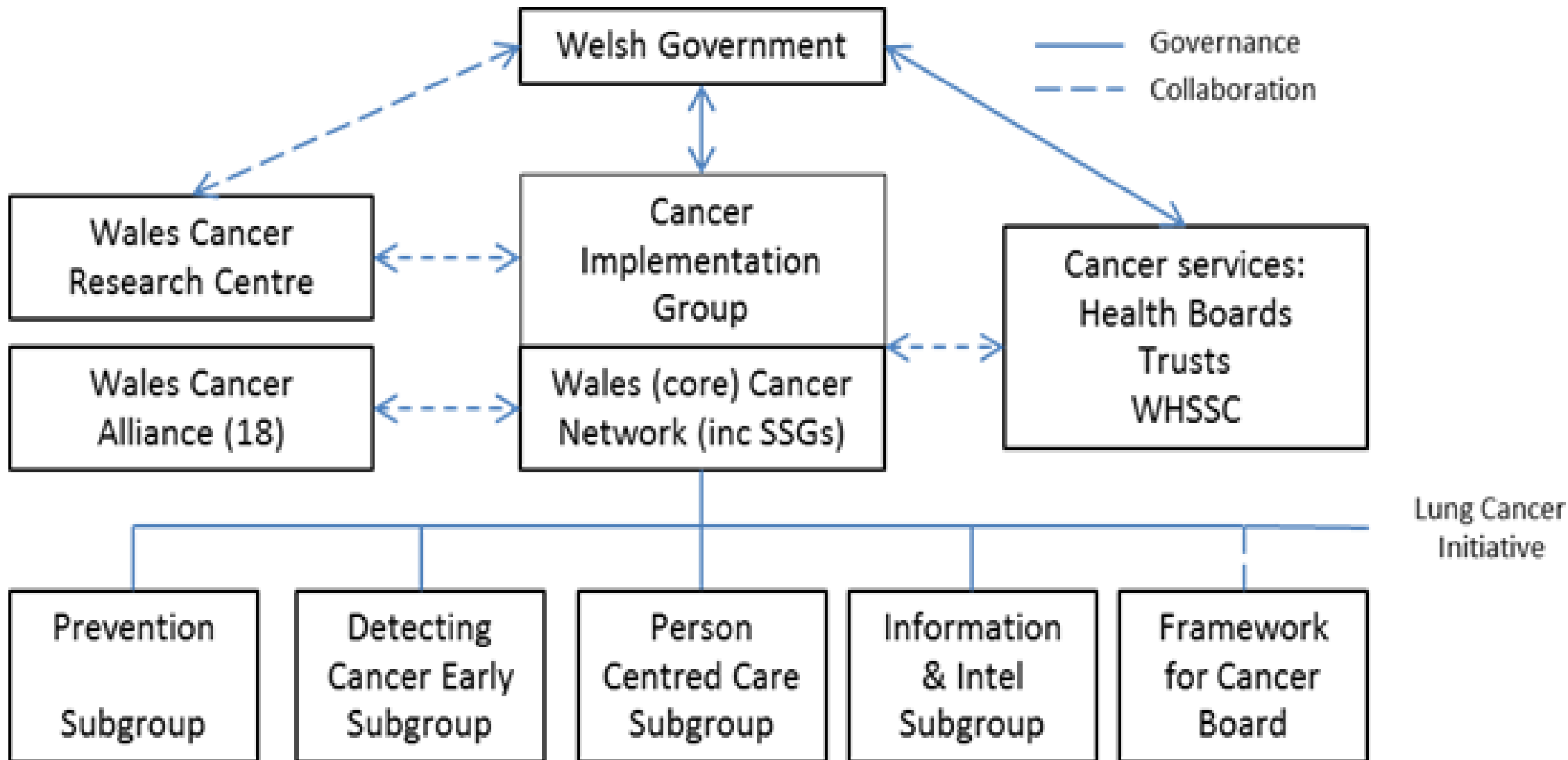
Source: Brown et al, British Journal of Cancer, 2018
Circle size here is not relative to other infographics based on Brown et al 2018.

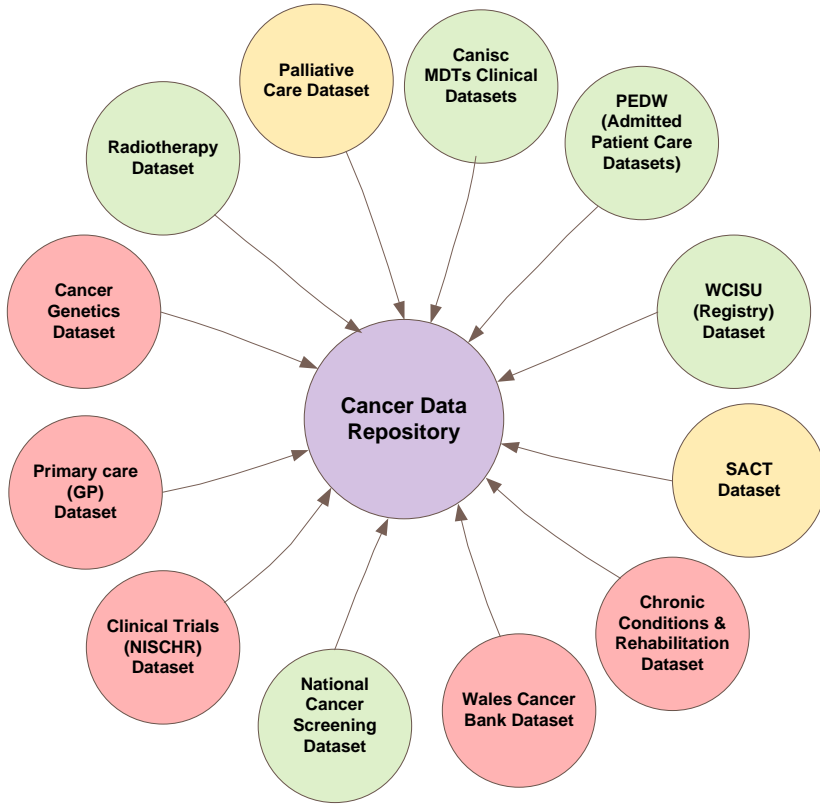
LET'S BEAT CANCER SOONER
cruk.org/prevention



The fraction of cancer attributable to modifiable risk factors in England, Wales, Scotland, Northern Ireland, and the United Kingdom in 2015

KF Brown^{1*}, H Runggay¹, C Dunlop¹, M Ryan¹, F Quartly¹, A Cox¹, A Deas², L Elliss-Brookes³, A Gavin⁴, L Hounsome³, D Huws⁵, N Ormiston-Smith¹, J Shelton¹, C White⁵, DM Parkin⁶.





Asking questions, providing answers
Research skills
Info governance
Ethics
Grants
Academic experience
New methods, data science
Big data
Embedding as routine
Sharing data