Cancer52 Information Day: Sources of Data

Jason Poole

Head of Cancer Analysis, Trent Cancer Registry

NCIN Lead for Gynaecological Cancers

Outline

- Focus on Ovarian and Cervical Cancer Projects

- Why did we do it?

- Source of Cancer Data used

- Key Question(s) / Hypothesis

- Analysis and Output

- Key message

- What next?

Ovarian Report & Cervical Report

Why?

To summarise the latest national time trends, trends by age and deprivation, and regional variations in incidence, mortality and survival for both invasive ovarian cancer and cervical cancer.

These analyses enable some of the main public health issues for these cancers to be identified and assessed.

Ovarian Report & Cervical Report

Sources of data:

Cancer registry data, Office for National Statistics

Questions:

1) How does incidence, mortality and survival vary by age and levels of population deprivation/affluence?

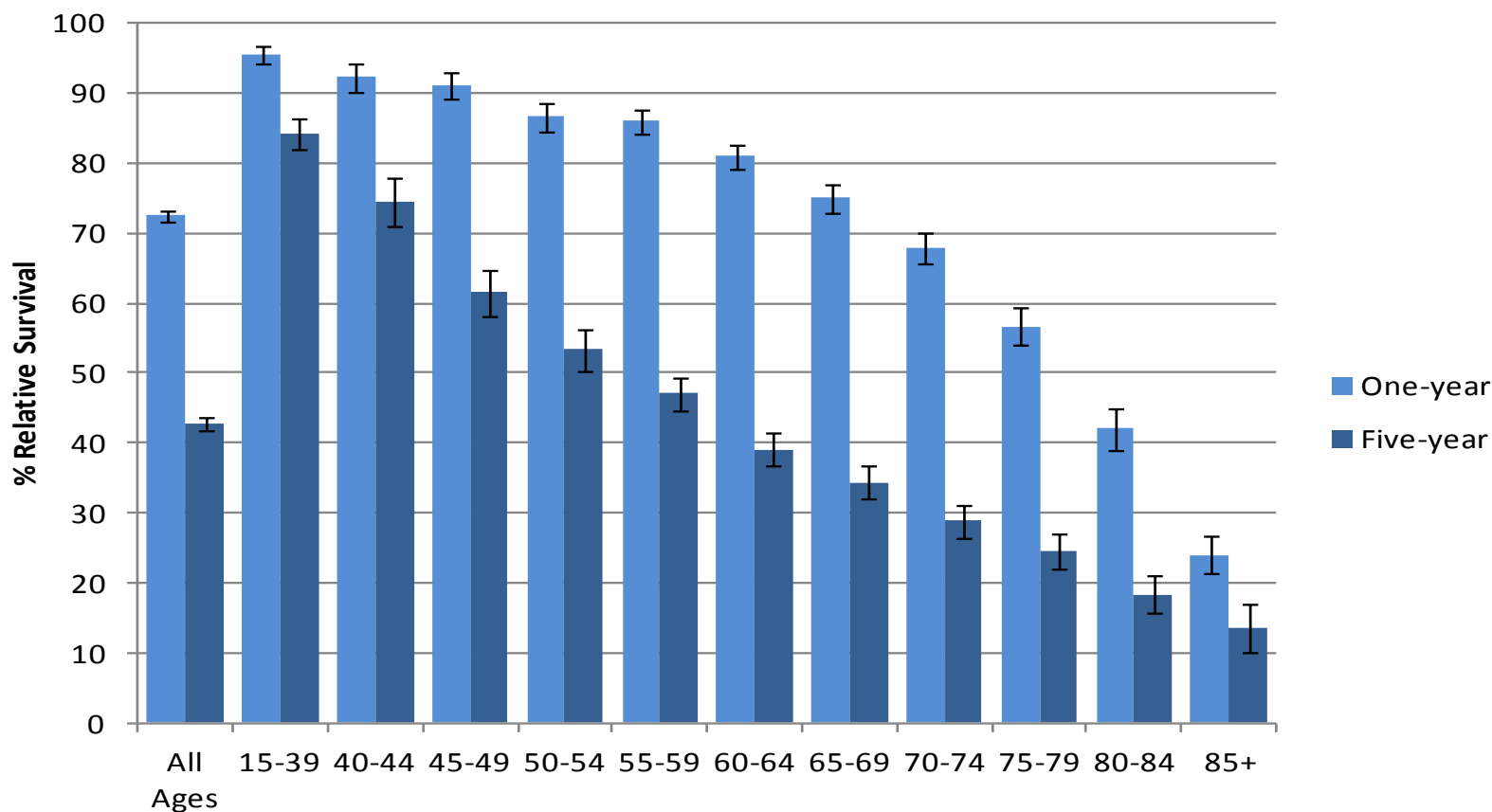2) How does disease and outcome vary across the country, and are poor results of particular concern anywhere?

Ovarian Cancer Report

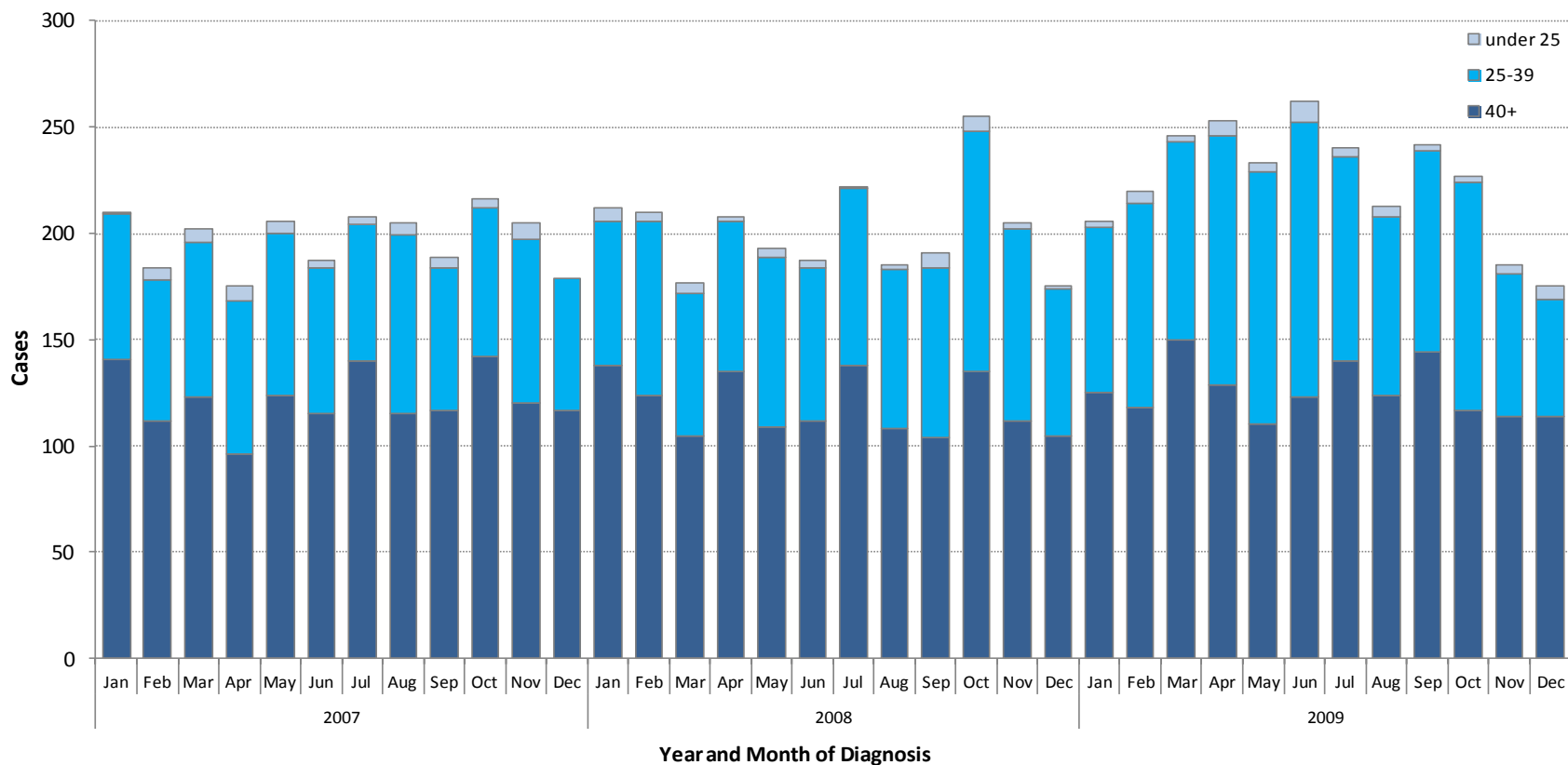Trends in one- and five- year relative survival, England, 1985 to 2009/2005
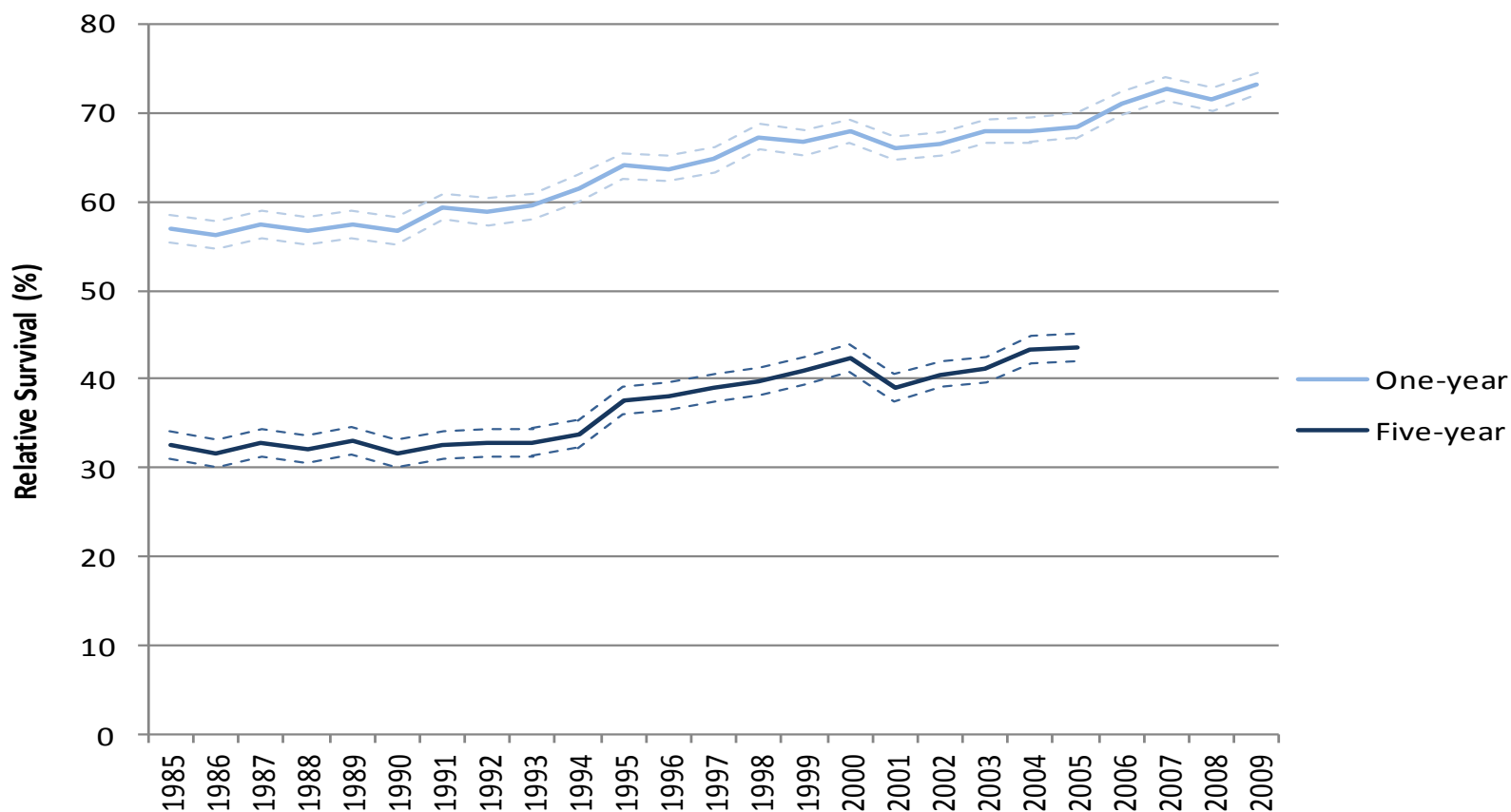
Ovarian Cancer Report

Age-specific relative survival, England, 2007-2009 (1 year) and 2003-2005 (5 year)

Cervical Cancer Report – Jade Goody effect

Number of cases by month, England, 2007 to 2009

Ovarian Report & Cervical Report

- Key message - Ovarian

  Survival continues to increase. Some regional variation. Survival worse in older patients.

- Key message – Cervical

  Incidence and mortality dropped since introduction of screening. Recent increase incidence in women in late 20's and 30's – Jade Goody effect. Incidence & mortality higher in more deprived areas. Survival worse in older patients.

- Further information:

  Reports to be published Sept / Oct 2012 – NCIN & CSP websites

- What next:

  Regular cervical cancer report. Reasons for poor ovarian survival in parts of country.

Ovarian Specialist Surgery

Why?

"Surgery for ovarian cancer should be carried out by specialised gynaecological oncologists at Cancer Centres (DH, 1999)."
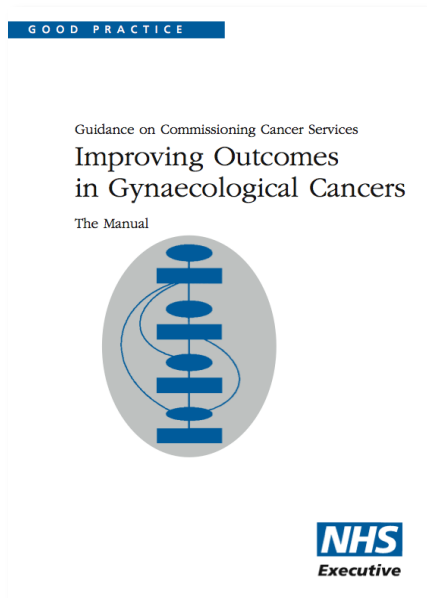
- better surgery (optimal debulking, staging, guidelines)
- shown to improve outcomes
- MDTs with continuity of care, improved patient information

GOOD PRACTICE

Guidance on Commissioning Cancer Services
Improving Outcomes
in Gynaecological Cancers
The Manual

NHS Executive

Ovarian Specialist Surgery

Source of data:

Using National Cancer Data Repository (NCDR), with linked Hospital Episodes Statistics (HES) data.

Questions:

To what extent has the specialist surgery guidance been implemented in England over the last 10 years? And, how has implementation varied across the country?

Ovarian Specialist Surgery

Chart removed until publication

Ovarian Specialist Surgery

Key message:

There has been increased centralisation and specialisation of surgery for ovarian cancer patients since the NHS cancer plan. Although most ovarian cancer patients are now operated on by high volume surgeons and in specialist cancer centres, the majority of patients are not operated on by GMC accredited gynaecological oncologists.

Further information: Paper to be submitted to BMJ

What next: To examine survival between specialisation and non-specialisation.

Gynae Website Hub

Why?

Allows health professionals and the public access to the latest results and information on all types of gynaecological cancer in one place. These are presented in a variety of ways to suit different requirements and perspectives.

Gynae Website Hub

Source of data:

Cancer registry data, Hospital Episode Statistics, Cancer screening data, Government data (e.g. Life expectancy, deprivation) General public health data (e.g. sexual health, obesity)

Questions:

Many possible! For example investigating geographical variations in disease and output, assessing associations between disease and risk factors.

Ovarian Cancer (C56-C574): Incidence (Directly Standardised Rate) >> All Ages >> 2009

NHS | NCIN national cancer intelligence network | ukacr United Kingdom Association of Cancer Registries

Trent Cancer Registry

Choose Indicator | Filter

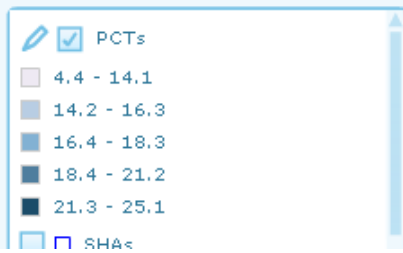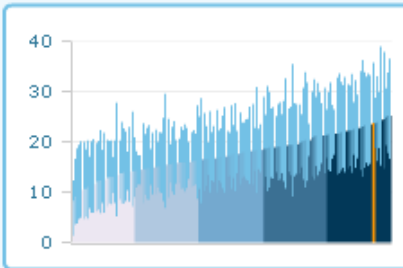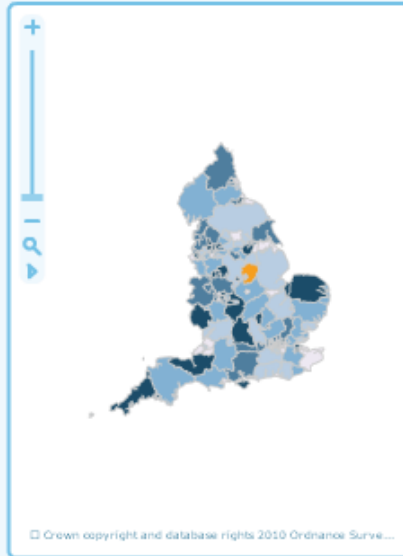Time Series | Table/Map | Funnel Plot View | Clear | Help | Print
Comparator Table/Map | Double Map View | Excel Data | Notes | Save

Indicator	Area	Local Value	Local No ...	England ...	England Lowest	Current Performance	England Highest
▼ Uterine Cancer (C54-C55): Incidence (Directly Standardised Rate)							
All Ages	Nottinghamshire C...	19.5	90	19.5	10.3		31.4
▼ Uterine Cancer (C54-C55): Mortality (Directly Standardised Rate)							
All Ages	Nottinghamshire C...	3.7	21	3.6	1.6		7.3
▼ Uterine Cancer (C54-C55): Relative Survival %							
1 Year	Nottinghamshire C...	89.2		90.8	79.4		98.7
3 Year	Nottinghamshire C...	81.3		82	69.4		92.3
5 Year	Nottinghamshire C...	76.6		78.3	63.7		90.2
▼ Ovarian Cancer (C56-C574): Incidence (Directly Standardised Rate)							
All Ages	Nottinghamshire C...	23.4	103	17.49	4.4		25.1
▼ Ovarian Cancer (C56-C574): Mortality (Directly Standardised Rate)							
All Ages	Nottinghamshire C...	8.4	43	9.1	4.9		15.6
▼ Ovarian Cancer (C56-C574): Relative Survival %							
1 Year	Nottinghamshire C...	76.4		71.4	57.7		88.3
3 Year	Nottinghamshire C...	59.8		51.1	35.7		69.2
5 Year	Nottinghamshire C...	49.6		41.5	22.9		59.9
▼ Associated Indicators							
Income De...	Nottinghamshire C...	11.9		14.7	6.8		33.8
Ethnicity: ...	Nottinghamshire C...	91.8	310,400	83	33		95.8
Ethnicity: ...	Nottinghamshire C...	2.6	8,700	4.8	1.2		18.2
Ethnicity: ...	Nottinghamshire C...	1.3	2,100	1.8	0.6		4.5
Ethnicity: ...	Nottinghamshire C...	2.4	1,400	5.9	0.8		40.4
Ethnicity: ...	Nottinghamshire C...	1.1	1,700	2.9	0.4		19.7
Ethnicity: ...	Nottinghamshire C...	0.9	3,200	1.6	0.4		6.8
Female Life	Nottinghamshire C...	83.5		82.6	78.1		88.8

Significant difference to England average: worse ● better ● none ● not calculated/not appropriate to judge better or worse ○
England Average | Regional Value ◆
Q0 to Q1 ▪ Q1 to Q3 ▪ Q3 to Q4 ▪

□ Crown copyright and database rights 2010 Ordnance Surve...

✎ ☑ PCTs
□ 4.4 - 14.1
▪ 14.2 - 16.3
▪ 16.4 - 18.3
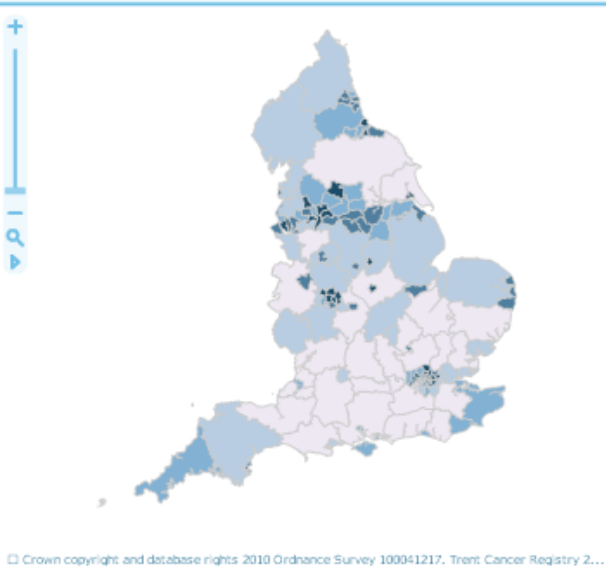▪ 18.4 - 21.2
▪ 21.3 - 25.1
□ SHAs

Associated Indicators >> Income Deprivation Score >> 2010

Cervical Cancer Data >> Incidence, 25-64 years >> 2005-2009

Get Data 1

Filter (shared)

- PCTs
- 6.8 - 10.8
- 10.9 - 13.7
- 13.8 - 16.9
- 17.0 - 21.3
- 21.4 - 33.8
- SHAs
- Cancer Netwc
- Spearhead P

Notes

Excel Data

Help
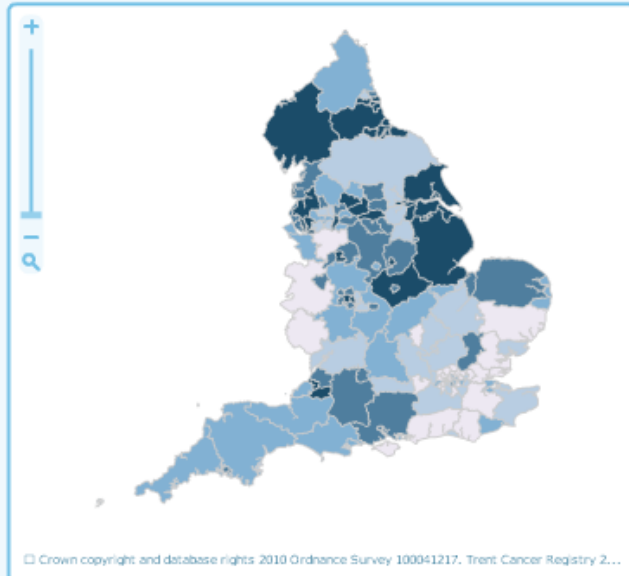
Income Deprivation Score: % of households classed as income deprived; Indices of Multiple Deprivation 2010.

Crown copyright and database rights 2010 Ordnance Survey 100041217. Trent Cancer Registry 2...

Get Data 2

Clear Selection

- PCTs
- 4.7 - 10.2
- 10.3 - 12.5
- 12.6 - 15.3
- 15.4 - 18.1
- 18.2 - 29.5
- SHAs
- Cancer Netwc
- Spearhead P

Print

Save

Cervical Cancer Incidence: ICD code C53; directly age-standardised rate per 100,000 female population using the European Standard Population. Count is cases per year

Crown copyright and database rights 2010 Ordnance Survey 100041217. Trent Cancer Registry 2...

Cancer Network ▲	Value 1	Count 1	Value 2	Count 2
Ashton, Leigh and Wiga...	16.0		12.9	11
Barking and Dagenham ...	26.5		11.8	5
Barnet PCT	14.9		9.9	9
Barnsley PCT	18.0		25.1	15
Bassetlaw PCT	13.7		11.2	3
Bath and North East Som...	8.9		18.6	8
Bedfordshire PCT	10.2		10.7	12
Berkshire East PCT	9.9		10.1	11
Berkshire West PCT	8.1		11.8	14
Bexley Care Trust	12.0		10.8	7

Correlation coefficient (r) = 0.26 >> r-squared = 0.07 >>
Regression Equation: y = 0.21x + 10.96

Data 2 / Data 1

NHS

Trent Cancer Registry

NCIN
national cancer
intelligence network

ukacr
United Kingdom
Association of
Cancer Registries
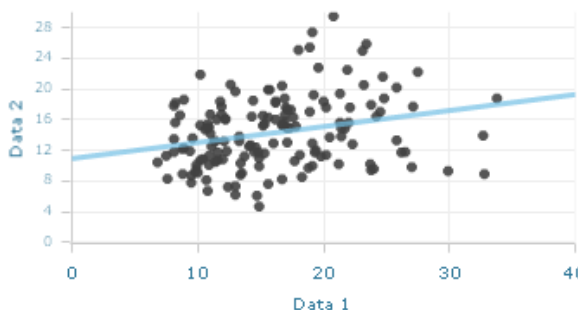
Gynae Website Hub

Further information: Available on the NCIN website: Gynaecological hub / cancer profiles

What next:

- Keep up-to-date
- Include rare cancers (for clinicians, research)
- Expand to UK
- Improve some methodology

Major Resections

Why?

Surgery is the treatment that has the greatest impact on long term survival in most types of cancer. A more detailed understanding of the patterns of surgical treatments in cancer is vital to improve outcomes for cancer patients.

Definition: A major resection is defined as a procedure which is carried out with the aim of removing all of the tumour. Relevant surgery was defined as occurring 30 days before and up to one year post diagnosis.

Major Resections

Source of data:

Hospital Episode Statistics (HES) database containing records for every in-patient and/or day case stay for each patient attending an NHS hospital in England.

Questions:

Are there differences in surgical rates between the sexes, age groups and those in different deprivation quintiles? Variation across the country?

Major resections: Headline rates

Percentage of patients with a record of a major resection, by cancer site, diagnosed 2004-2006, followed up to 2007
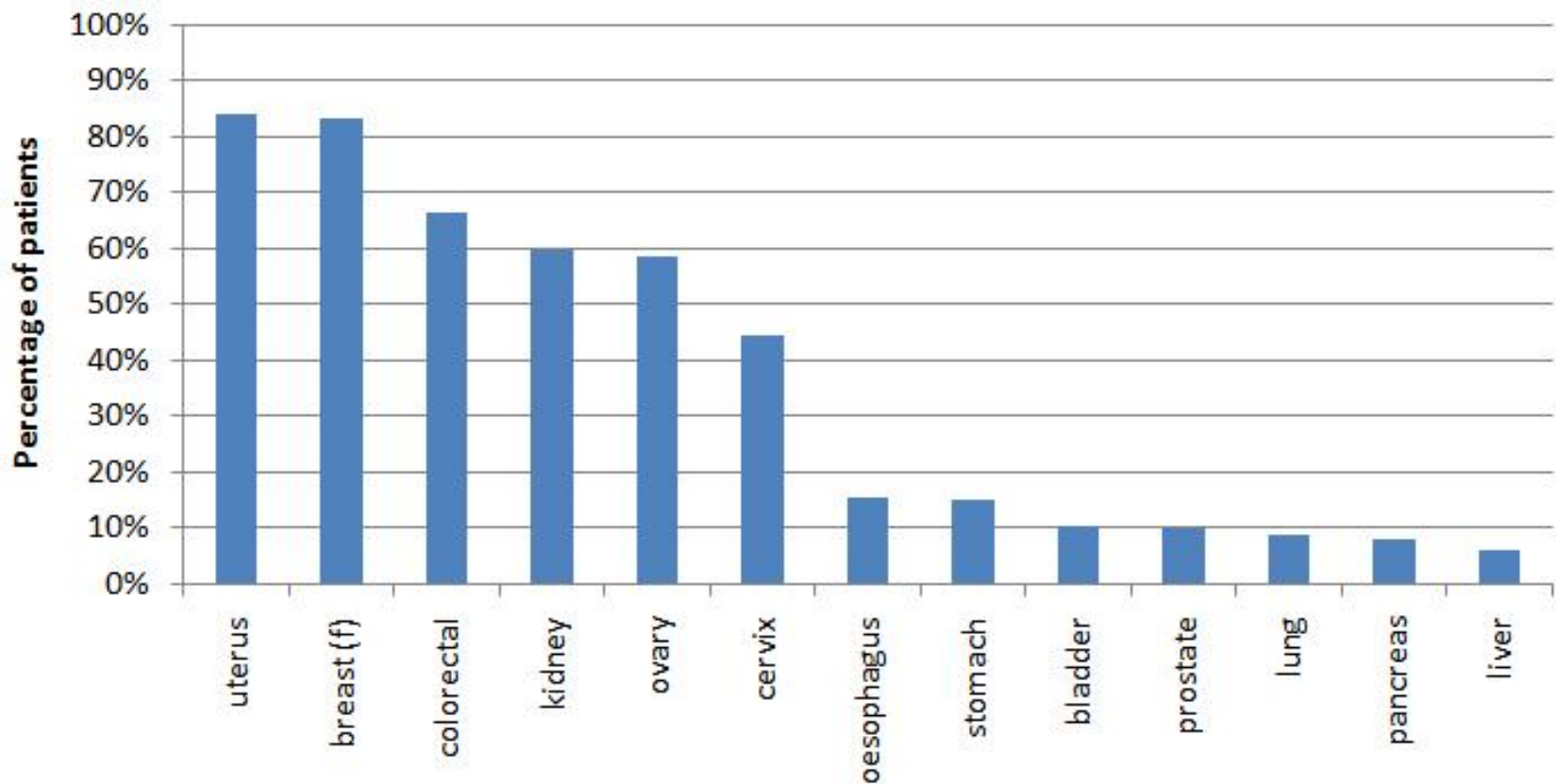
Major resection rates by age

Percentage of patients with a record of a major resection, by age and cancer site, patients diagnosed 2004-2006, followed up to 2007
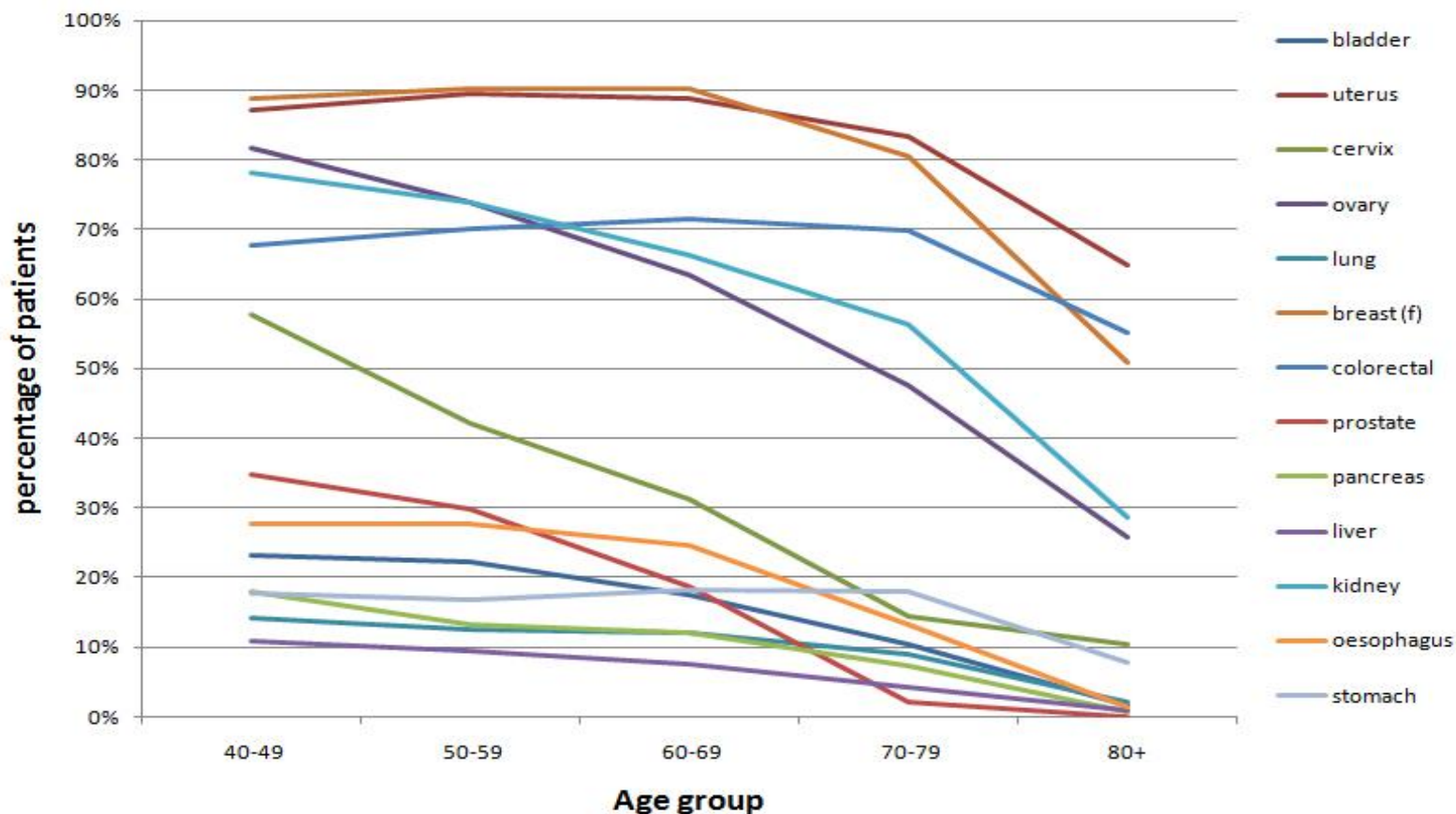
Major Resections

Key message:

Large reduction with age in the percentage of patients receiving a major resection, even for patients over 50. For patients aged 80 and over, less than 2% had a record of a major resection for six of the thirteen cancer sites analysed.

Further information: See report on the NCIN website:

NHS treated cancer patients receiving major surgical resections (March 2011)

What next: Up date and extend analyses of major resections. Include radiotherapy.

Routes to Diagnosis

Why?

The overarching goal of the National Awareness and Early Diagnosis Initiative (NAEDI) is to promote early diagnosis of cancer and thereby improve survival rates and reduce cancer mortality.

To help achieve this we need to better understand the different routes taken by patients to their cancer diagnoses, to examine what effect this has on overall outcomes.

Routes to Diagnosis

Source of data:

Cancer registry data (NCDR), Inpatient and outpatient HES, Cancer waiting times data, Screening

Questions:

1) How do the routes to diagnosis vary for different cancer types and by age, sex and deprivation?

2) Does the route of diagnosis result in differences in one-year survival rates?

Sites with low to medium emergency presentations (10-24%)

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Testis		48%	15%	8%	8%	10%	0%	11%	100%	5,070
Head and neck - Other sites		27%	31%	18%	5%	11%	0%	9%	100%	2,740
Head and neck – larynx		32%	34%	11%	6%	11%	0%	5%	100%	5,200
Cervix	15%	17%	28%	10%	5%	13%	0%	12%	100%	7,000
Head and neck - Hypopharynx		37%	28%	12%	5%	14%	0%	4%	100%	1,098
Sarcoma: connective and soft tissue		12%	37%	16%	7%	16%	0%	12%	100%	3,447
Hodgkin lymphoma		26%	28%	14%	6%	17%	0%	8%	100%	3,644
Bladder		30%	24%	13%	9%	19%	1%	5%	100%	25,639
Oesophagus		34%	16%	8%	14%	22%	1%	5%	100%	19,449
All cancers	5%	26%	21%	10%	6%	24%	1%	8%	100%	739,667

Sites with medium to high emergency presentations (25-37%)

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Sarcoma: bone		10%	26%	19%	11%	25%	0%	9%	100%	1,378
Kidney and unspecified urinary organs		19%	26%	17%	6%	25%	1%	6%	100%	20,594
Leukaemia: chronic lymphocytic		11%	31%	11%	5%	25%	1%	17%	100%	6,835
Colorectal	2%	27%	20%	9%	9%	26%	1%	6%	100%	91,416
Non-Hodgkin lymphoma		18%	28%	12%	6%	27%	0%	9%	100%	25,413
Ovary		23%	20%	12%	5%	32%	1%	7%	100%	16,026
Stomach		23%	17%	8%	13%	33%	1%	5%	100%	18,613
Leukaemia: Chronic myeloid		8%	26%	12%	9%	35%	1%	9%	100%	1,518
Mesothelioma		18%	21%	15%	6%	36%	0%	4%	100%	6,179
Multiple myeloma		11%	27%	13%	6%	37%	1%	6%	100%	11,221

Sites with higher emergency presentations (38-63%)

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Leukaemia: rarer types		7%	29%	10%	7%	38%	1%	8%	100%	2,567
Lung		24%	17%	10%	4%	39%	1%	5%	100%	96,735
Sarcoma: retroperitoneum and peritoneu		15%	20%	14%	5%	39%	0%	7%	100%	1,513
Other malignant neoplasms	0%	10%	19%	10%	5%	46%	2%	8%	100%	50,497
Liver		8%	18%	12%	5%	48%	2%	7%	100%	8,576
Pancreas		11%	16%	9%	6%	50%	1%	6%	100%	19,896
Leukaemia: acute myeloid		2%	18%	12%	7%	54%	0%	6%	100%	6,365
CNS		1%	13%	11%	7%	62%	1%	6%	100%	11,697
Leukaemia: acute lymphoblastic		2%	10%	8%	10%	63%	0%	7%	100%	1,665

Routes to Diagnosis – Ovarian Survival

NCIN national cancer intelligence network
Using information to improve quality & choice

| | | Relative survival estimates by route, persons, for 1-month, 3-months, 6-months, 9-months and 12-months post diagnosis | | | | | | | |

Ovary		All routes	Screening	Two Week Wait	GP referral	Other outpatient	Inpatient elective	Emergency presentation	Unknown
Persons	**1-month**	**90%**		**98%**	**95%**	**95%**	**97%**	**77%**	**87%**
	Confidence interval	89% 90%		97% 98%	94% 96%	94% 96%	96% 98%	76% 78%	85% 89%
	3-month	**81%**		**93%**	**91%**	**91%**	**91%**	**61%**	**78%**
	Confidence interval	81% 82%		92% 94%	90% 92%	90% 92%	89% 93%	60% 63%	76% 81%
	6-month	**77%**		**90%**	**88%**	**87%**	**88%**	**55%**	**75%**
	Confidence interval	76% 78%		89% 91%	86% 89%	85% 89%	86% 91%	54% 56%	72% 77%
	9-month	**74%**		**87%**	**84%**	**84%**	**85%**	**50%**	**72%**
	Confidence interval	73% 74%		86% 88%	83% 86%	83% 86%	82% 87%	49% 52%	69% 74%
	12-month	**70%**		**84%**	**81%**	**82%**	**81%**	**45%**	**68%**
	Confidence interval	69% 70%		82% 85%	79% 82%	80% 84%	78% 84%	44% 47%	65% 71%
	# in cohort	15,613		3,672	3,161	1,907	827	4,930	1,116

Routes to Diagnosis

- Key message

  23% of newly diagnosed cancer patients came through as emergency presentations. For almost all cancer types, one-year survival rates were much lower for patients presenting as emergencies than for those presenting via other routes.

- Further information:

  BJC paper - to be published 20/21 September 2012

  NCIN website for further detailed analytical breakdown

- What next: Work already underway to further investigate site specific results