

Cancer in the 21st Century

NYCRIS Statistical Report 2000-2004

V2.0

The Northern and Yorkshire Cancer Registry and Information Service covers a large part of the North of England from North Cumbria to Northumberland down to West Yorkshire and across to Humberside and the North Lincolnshire Coast. The total population is around 6.7 million (at the 2001 Census), which constitutes 12.4% of the population of England & Wales. The age structure is not significantly different from that of England & Wales as a whole, although the percentage of 25-34 year olds is slightly higher.

This report will provide information for the two Strategic Health Authorities (SHAs): **the North East (NE) and the Yorkshire & Humber (Y&H)** and for the four cancer networks: **Northern (NCN), Cancer Care Alliance (CCA), Humber & Yorkshire Coast (HYC) and Yorkshire (YCN)** within the NYCRIS area. For the SHAs the focus is on lung cancer & for the cancer networks it is on breast, colo-rectal & prostate cancers. The report provides summary information; more detailed site specific information is available through the web-based (NHSnet) Cancer Information Service (CIS) which holds data from 1985-2004 & also directly from the Information & Analysis Team.

Headlines

- The cancer mortality rate in under 75s is falling steadily and the Our Healthier Nation target of a 20% reduction by 2010, from the 1996 baseline rate, is projected to be met (see page 6 for trend analysis)
- A marked deprivation gradient for lung cancer continues to exist across the health regions (see page 5)
- There is a very strong upward trend in the incidence of prostate cancer for men aged 55-69 (see page 2)
- The pattern of treatment for breast cancer is consistent across the cancer networks (see page 3)
- There is some variation in the treatment for colo-rectal cancer across the cancer networks, but no significant differences in 5-year survival (see page 4)

Most common cancers

Incidence of the most common cancers by sex and Strategic Health Authority (SHA)

Annual average cases (& ASR) 2000-2004 - males

Annual average cases (& ASR) 2000-2004 - females

| Site (ICD10 Code) | NE SHA | Y&H SHA | Site (ICD10 Code) | NE SHA | Y&H SHA |
|---------------------------------|------------------|------------------|------------------------------------|------------------|------------------|
| All Tumours (C00-97xC44) | 6,782 (455.6) | 12,239 (426.9) | All Tumours (C00-97xC44) | 6,585 (371.5) | 12,144 (357.3) |
| Prostate (C61) | 1,367 (89.2) | 2,624 (89.1) | 1 Breast (C50) | 1,813 (114.9) | 3,522 (116.1) |
| Lung (C33-4) | 1,333 (87.2) | 2,189 (74.6) | 2 Lung (C33-4) | 1,006 (51.9) | 1,523 (41.6) |
| Colo-rectal (C18-20) | 977 (64.8) | 1,650 (57.0) | 3 Colo-rectal (C18-20) | 743 (36.6) | 1,325 (33.8) |
| Bladder (C67) | 345 (22.4) | 680 (22.9) | 4 Ovary (C56) | 306 (18.6) | 560 (17.6) |
| Stomach (C16) | 329 (21.6) | 539 (18.3) | 5 Uterus (C54-5) | 237 (14.4) | 513 (16.0) |
| NHL Lymphoma (C82-5) | 191 (13.3) | 419 (15.1) | 6 Melanoma (C43) | 180 (12.2) | 384 (13.3) |
| Oesophagus (C15) | 187 (12.8) | 397 (13.9) | 7 NHL Lymphoma (C82-5) | 199 (11.3) | 362 (10.6) |
| Leukaemia (C91-5) | 149 (10.5) | 427 (15.5) | 8 Stomach (C16) | 204 (9.4) | 328 (7.9) |
| Kidney (C64) | 186 (13.0) | 330 (12.0) | 9 Pancreas (C25) | 171 (8.4) | 324 (8.1) |
| Pancreas (C25) | 151 (10.2) | 304 (10.6) | 10 Leukaemia (C91-5) | 121 (6.8) | 325 (9.2) |
| Melanoma (C43) | 130 (9.6) | 263 (10.0) | 11 Cervix uteri (C53) | 144 (10.0) | 301 (10.7) |
| Eye, brain, CNS (C69-72) | 132 (9.8) | 249 (9.5) | 12 Bladder (C67) | 145 (6.6) | 290 (6.9) |
| Larynx (C32) | 115 (8.0) | 168 (6.2) | 13 Oesophagus (C15) | 127 (6.0) | 219 (5.3) |
| Mesothelioma (C45) | 123 (8.1) | 149 (5.2) | 14 Kidney (C64) | 123 (6.9) | 220 (6.6) |
| Multiple myeloma (C90) | 84 (5.6) | 175 (6.1) | 15 Eye, brain, CNS (C69-72) | 96 (6.3) | 192 (6.4) |
| Population Est. (2002) | 1,232,100 | 2,432,200 | Population Est. (2002) | 1,305,900 | 2,560,900 |

ASR = Age Standardised Rate (European) per 100,000 population at risk

Geographical boundaries relevant to this report

Strategic Health Authorities (SHA) – data for South Yorkshire is presented for the first time in a NYCRIS report; the Yorkshire & Humber SHA figures include data for: Barnsley, Doncaster, Rotherham and Sheffield (Trent Cancer Registry)

Cancer Networks - information for the CCA & NCN is shown separately in this report; the two organisations will merge to form a single cancer network in 2007. More information for the four cancer networks is available at www.nycris.org.uk

Incidence and mortality for selected sites – cancer networks

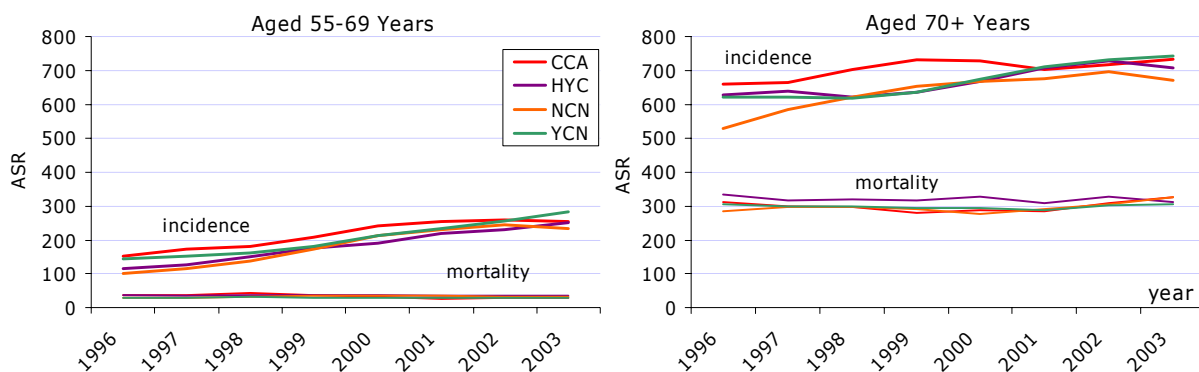
Summary of Incidence and mortality by site - numbers of cases (& ASR), 2000-2004

| | Tumour Site (ICD10 Code) | CCA (ASR) | HYC (ASR) | NCN (ASR) | YCN (ASR) |
|-----------------------------|-------------------------------|---------------|---------------|----------------|----------------|
| Incidence | All malignancies (C00-97xC44) | 5,026 (404.7) | 5,336 (390.3) | 10,517 (407.6) | 12,150 (393.9) |
| | Lung (C33-4) | 816 (63.4) | 787 (55.9) | 1,820 (67.6) | 1,825 (57.8) |
| | Female Breast (C50) | 698 (114.2) | 794 (121.4) | 1,443 (115.9) | 1,751 (115.3) |
| | Colorectal (C18-20) | 640 (49.3) | 662 (45.6) | 1,369 (50.4) | 1,470 (45.3) |
| | Prostate (C61) | 551 (93.2) | 583 (87.0) | 1,037 (84.6) | 1,349 (93.7) |
| | Bladder (C67) | 183 (14.3) | 207 (14.1) | 382 (14.0) | 476 (14.8) |
| Mortality | All malignancies (C00-97xC44) | 2,858 (216.8) | 2,974 (201.0) | 5,971 (217.0) | 6,511 (196.8) |
| | Lung (C33-4) | 739 (56.7) | 703 (48.8) | 1,582 (57.9) | 1,587 (49.6) |
| | Female Breast (C50) | 208 (29.7) | 235 (29.7) | 405 (27.8) | 491 (27.7) |
| | Colorectal (C18-20) | 291 (21.4) | 312 (20.4) | 601 (21.3) | 645 (18.7) |
| | Prostate (C61) | 155 (26.2) | 191 (27.7) | 331 (26.5) | 390 (25.7) |
| | Bladder (C67) | 92 (7.0) | 107 (6.8) | 176 (6.2) | 228 (6.7) |
| Population Estimates (2002) | | 998,200 | 1,023,100 | 1,973,500 | 2,569,400 |

Prostate cancer (ICD10 C61) – cancer networks

Trends in incidence and mortality for middle-aged and older men

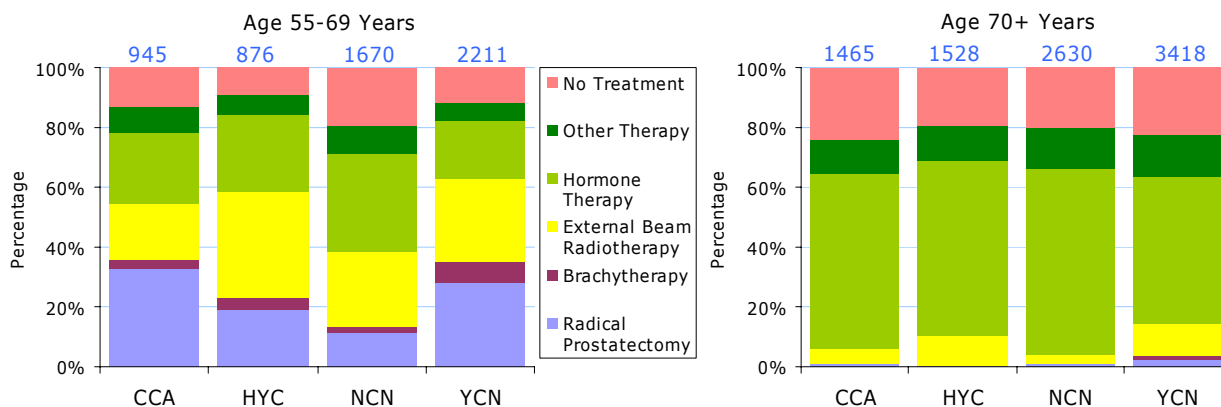
Incidence and mortality rates for prostate cancer by cancer network (3-year rolling average), 1996-2003



The summary table at the top of the page shows the number of prostate cancers in each of the four cancer networks. Most of these occur in men aged 55 and over. In the 55-69 years age group, the incidence rate has doubled in the period from 1995-1997 to 2002-2004. In contrast, for the 70+ group, the incidence increased less dramatically from between 530 & 660 per 100,000 to between 670 & 740 in the same periods. However the death rate for prostate cancer has remained constant across the period. The more widespread use of testing for Prostate Specific Antigen (PSA) has resulted in the increased incidence among younger men, due to their earlier diagnosis.

Treatment in middle-aged and older men

Principal treatment of prostate cancer by age group, network of residence and treatment type, 2000-2004

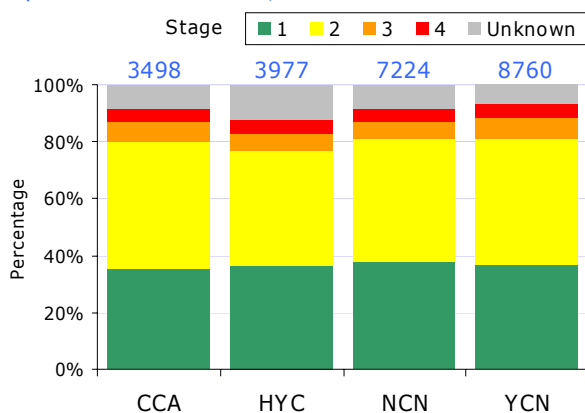


The graphs above show, for localised prostate cancers only (patients with metastases were excluded), treatment at any time after diagnosis. The percentage of patients treated by radical prostatectomy is greater in the younger age group, while the percentage of patients treated with hormone therapy is greater in the older age group. In addition, a higher percentage of older patients receive no treatment, in comparison with the younger patients.

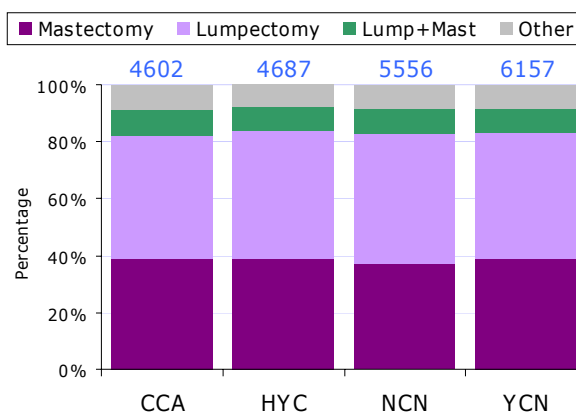
Breast cancer (ICD10 C50, females) – cancer networks

Staging and treatment (operation type)

Staging as % of all diagnosed breast cancer (female) by network of residence, 2000-2004



Surgical treatment of breast cancer (female) by network of treatment, 2000-2004



Surgical workload

Surgical workload for breast cancer (females) by network of treatment, 2000-2004

| Surgical Workload | CCA | HYC | NCN | YCN |
|--------------------|-----------|-----------|-----------|-----------|
| <10 | 9 0% | 18 1% | 44 1% | 40 1% |
| 10-29 | 28 1% | 0 0% | 19 0% | 10 0% |
| 30-49 | 660 20% | 389 12% | 299 4% | 423 5% |
| 50-79 | 825 25% | 512 16% | 2738 41% | 3356 43% |
| 80+ | 1769 54% | 2240 71% | 3574 54% | 3944 51% |
| All Surgical Cases | 3291 100% | 3159 100% | 6674 100% | 7773 100% |

For all the cancer networks only 1% of the surgery is performed by consultants operating on less than 30 cases in a year. Note: the majority of the consultants shown in the 80+ band performed in excess of 100 cases in a year.

Treatment of breast cancer patients

Breast cancer (females) cases by age, network of residence, treatment & whether screen detected, 2000-2004

| Cancer Network | CCA | | | | HYC | | | | NCN | | | | YCN | | | |
|-----------------|-----|-------|-------|-----|-----|-------|-------|-----|------|-------|-------|------|------|-------|-------|------|
| | <50 | 50-64 | 65-74 | 75+ | <50 | 50-64 | 65-74 | 75+ | <50 | 50-64 | 65-74 | 75+ | <50 | 50-64 | 65-74 | 75+ |
| Total Cases | 737 | 1303 | 717 | 741 | 776 | 1516 | 746 | 939 | 1344 | 2792 | 1448 | 1640 | 1813 | 3231 | 1644 | 2072 |
| Screen Detected | 1% | 42% | 15% | 0% | 2% | 46% | 14% | 0% | 2% | 46% | 19% | 0% | 2% | 42% | 19% | 0% |
| Treated | 99% | 99% | 99% | 94% | 99% | 98% | 98% | 91% | 99% | 99% | 98% | 92% | 99% | 100% | 98% | 93% |
| Surgery | 96% | 95% | 89% | 49% | 95% | 95% | 81% | 41% | 97% | 95% | 82% | 36% | 96% | 97% | 89% | 52% |
| RT | 68% | 72% | 60% | 24% | 64% | 67% | 58% | 23% | 67% | 63% | 50% | 20% | 70% | 67% | 53% | 22% |
| Chemo | 65% | 28% | 6% | 0% | 65% | 36% | 18% | 1% | 66% | 38% | 16% | 1% | 68% | 34% | 12% | 1% |
| Hormone | 66% | 77% | 83% | 87% | 64% | 76% | 80% | 81% | 61% | 70% | 74% | 82% | 67% | 75% | 79% | 82% |

The most striking aspect of these figures is how similar treatment and management of patients appear to be across the four networks. For all the networks a high proportion of the breast cancer patients have surgery until the age of 75 when it falls to around 50% or less; more than 80% of the patients aged 75 and over receive hormone therapy.

Period survival (1999-2003)

Period survival for breast cancer (females), 1999-2003

| Cancer Network | CCA | HYC | NCN | YCN |
|-------------------|-------|-------|-------|-------|
| Subjects | 3,036 | 3,338 | 6,062 | 7,481 |
| Deaths | 466 | 498 | 899 | 1,087 |
| Crude rate | 71.2 | 72.4 | 72.5 | 73.7 |
| Relative survival | 82.4 | 85.0 | 86.2 | 85.0 |
| 95%LCI | 78.7 | 81.5 | 83.8 | 83.0 |
| 95%UCI | 85.6 | 87.8 | 88.2 | 86.8 |

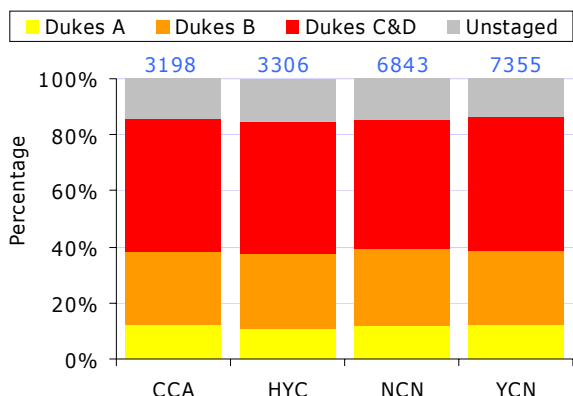
Note: all patients diagnosed 1999-2003

Period survival provides more 'up-to-date' estimates of long-term cancer patient survival than traditional methods by restricting the analysis to the survival experience within some recent time interval. The predicted five year relative survival for women with breast cancer varied between 82.4% (CCA) and 86.2% (NCN). These differences are statistically non-significant.

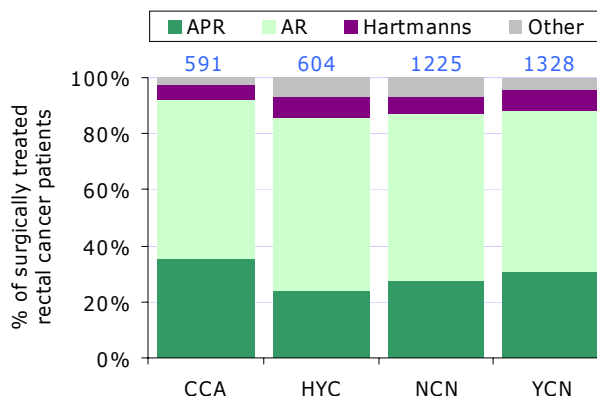
Colo-rectal cancer (ICD10 C18-20) – cancer networks

Stage & treatment (operation type)

Staging as % of all diagnosed colo-rectal cancer by network of treatment, 2000-2004



Surgical treatment of rectal cancer (ICD10 C20) by network of treatment, 2000-2004



AR = Anterior Resection
APR = Abdomino-Perineal Resection

Surgical workload

Surgical workload for colo-rectal cancer by network of treatment

| Surgical Workload | CCA | | HYC | | NCN | | YCN | |
|--------------------|------|------|------|------|------|------|------|------|
| <10 | 330 | 14% | 251 | 11% | 689 | 13% | 660 | 11% |
| 10-29 | 658 | 29% | 353 | 15% | 1284 | 25% | 1705 | 30% |
| 30-49 | 1079 | 47% | 667 | 28% | 1434 | 28% | 1789 | 31% |
| 50+ | 238 | 10% | 1084 | 46% | 1746 | 34% | 1608 | 28% |
| All Surgical Cases | 2305 | 100% | 2355 | 100% | 5153 | 100% | 5762 | 100% |

The proportion of operations performed by consultants operating on less than 30 cases in a year varied from 26% (HYC) to 43% (CCA).

Treatment of colo-rectal patients

Colo-rectal cases by age group, network of residence & treatment type (both sexes), 2000-2004

| Cancer Network | CCA | | | | HYC | | | | NCN | | | | YCN | | | |
|----------------|-----|-------|------|-------|-----|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| | <60 | 60-69 | 70+ | Total | <60 | 60-69 | 70+ | Total | <60 | 60-69 | 70+ | Total | <60 | 60-69 | 70+ | Total |
| Total Cases | 555 | 800 | 1843 | 3198 | 545 | 769 | 1992 | 3306 | 1071 | 1588 | 4184 | 6843 | 1217 | 1702 | 4436 | 7355 |
| Treated | 95% | 90% | 71% | 80% | 95% | 92% | 76% | 83% | 94% | 91% | 74% | 81% | 96% | 93% | 76% | 83% |
| Surgery | 85% | 81% | 66% | 73% | 86% | 83% | 69% | 75% | 84% | 83% | 69% | 75% | 85% | 84% | 70% | 76% |
| RT | 16% | 14% | 8% | 11% | 20% | 17% | 11% | 14% | 22% | 18% | 10% | 14% | 18% | 16% | 9% | 12% |
| Chemo | 57% | 38% | 9% | 25% | 55% | 46% | 20% | 32% | 53% | 41% | 14% | 26% | 62% | 49% | 17% | 32% |
| Surgery and RT | 13% | 10% | 4% | 7% | 16% | 13% | 7% | 10% | 17% | 14% | 7% | 10% | 15% | 14% | 6% | 9% |

There is some variation across the networks in the treatment of colo-rectal cancer. A higher proportion of the patients with rectal cancers received APRs in the CCA network. Across the networks surgery was the most common type of treatment, around 75% of colo-rectal patients had surgery; for the patients under 60 more than half had received chemotherapy with the lowest proportion at NCN (53%) and the highest at YCN (62%).

Period survival 1999-2003

Colo-rectal period survival 1999-2003 (males)

| Cancer Network | CCA | HYC | NCN | YCN |
|-------------------|-------|-------|-------|-------|
| Subjects | 1,531 | 1,539 | 3,156 | 3,409 |
| Deaths | 661 | 700 | 1,343 | 1,405 |
| Crude survival | 39.2 | 37.5 | 41.6 | 43.1 |
| Relative survival | 49.5 | 48.6 | 52.2 | 55.8 |
| 95% LCI | 44.2 | 43.7 | 48.8 | 52.3 |
| 95% UCI | 54.6 | 53.4 | 55.5 | 59.1 |

Colo-rectal period survival 1999-2003 (females)

| Cancer Network | CCA | HYC | NCN | YCN |
|-------------------|-------|-------|-------|-------|
| Subjects | 1,137 | 1,151 | 2,564 | 2,719 |
| Deaths | 498 | 501 | 1,140 | 1,177 |
| Crude survival | 41.4 | 41.8 | 43.3 | 42.7 |
| Relative survival | 51.0 | 54.0 | 53.9 | 54.2 |
| 95% LCI | 45.1 | 48.6 | 51.0 | 50.5 |
| 95% UCI | 56.7 | 59.0 | 56.8 | 57.7 |

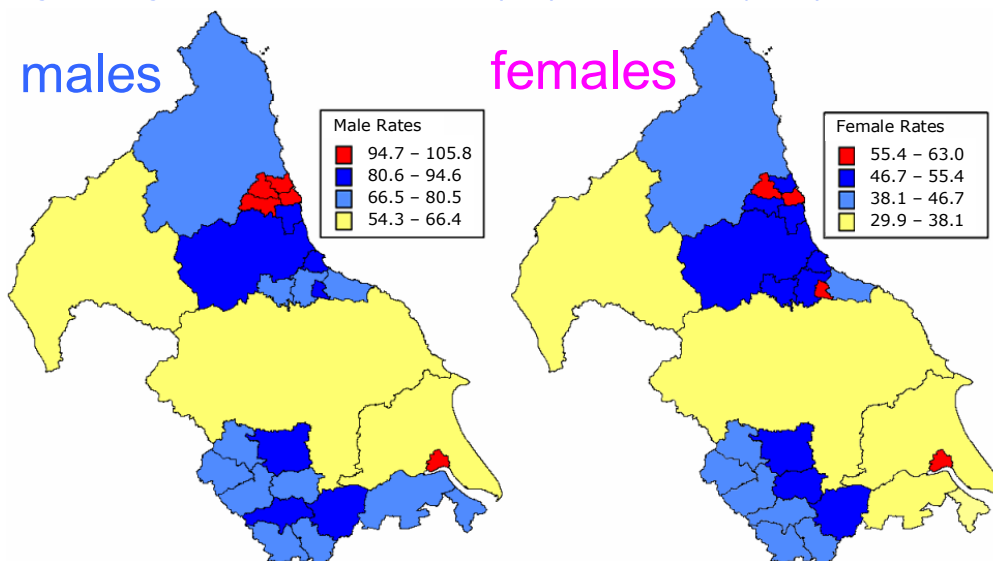
Note: all patients diagnosed 1999-2003

Period survival provides more 'up-to-date' estimates of long-term cancer patient survival than traditional methods by restricting the analysis to the survival experience within some recent time interval. The predicted five year relative survival for males varied between 48.6% (HYC) and 55.8% (YCN). For females CCA had the lowest survival rates at 51.0% and YCN the highest rates at 54.2%. These differences are statistically non-significant.

Lung cancer (ICD10 C33-34) - incidence and survival

Geographical mapping of incidence rates for 2000-2004 by PCT

Lung cancer age standardised incidence rates (ASR) for 2000-2004 by PCT (boundaries as at October 2006)

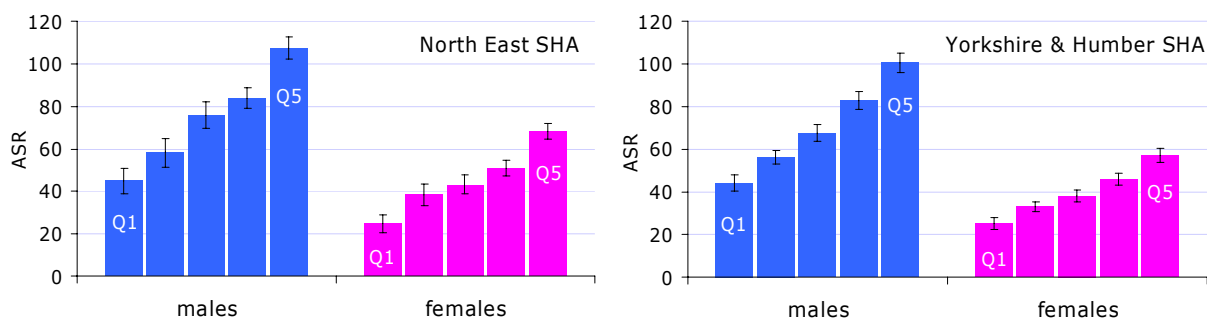


The incidence of lung cancer shows a very similar geographical distribution for males and females with the highest rates occurring in the most deprived areas.

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Comparison of incidence rates by deprivation for SHAs

Lung cancer age standardised incidence rates by deprivation quintile 2002-2004 (IMD2004 ward Q1-Q5 by sex)

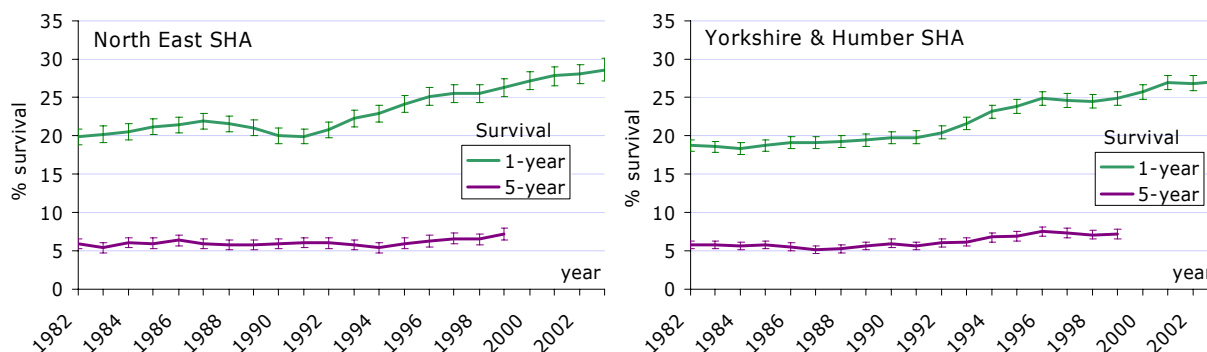


The incidence rates correspond to incidence per 100,000. Quintile 1 corresponds to the most affluent while quintile 5 corresponds to the most deprived (using ward quintiles, Index of Multiple Deprivation IMD2004).

The rates for males are consistently higher than those for females and all rates increase from the most affluent quintile to the most deprived. There is a similar deprivation gap for both sexes, with male rates in the most deprived quintile being around 2.3 times higher than those in the most affluent quintile in both SHAs and female rates being around 2.3 times higher in the Yorkshire & Humber SHA and 2.7 times higher in the North East SHA.

Long term survival trends by SHA

1 year and 5 year lung cancer survival trends (3-year rolling average, mid year shown) - 1982-2003 diagnoses

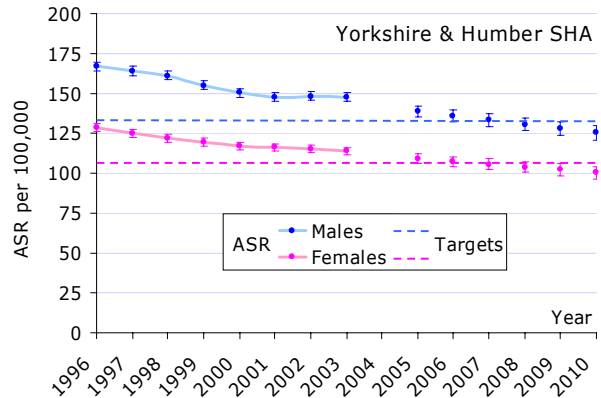
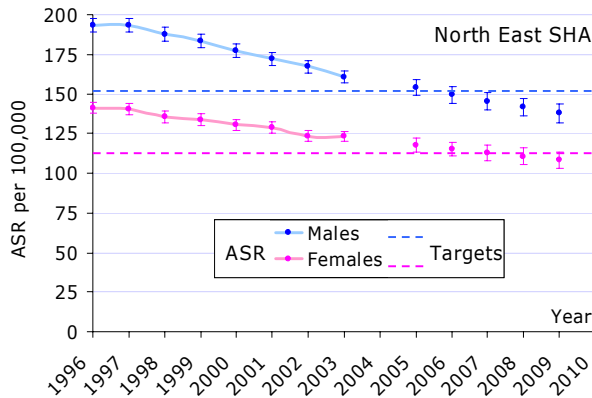


The 1-year survival rates for persons have increased substantially over this period, from around 20% to 28%, with Y&H having slightly lower rates. The 5-year rates for all persons have increased only marginally in the period 1981-2004, from approximately 6% to 7%, with both SHAs having similar rates.

Overall trends in incidence and mortality

Projected mortality rates (ASR) for patients (aged under 75 years) to 2010 by SHA

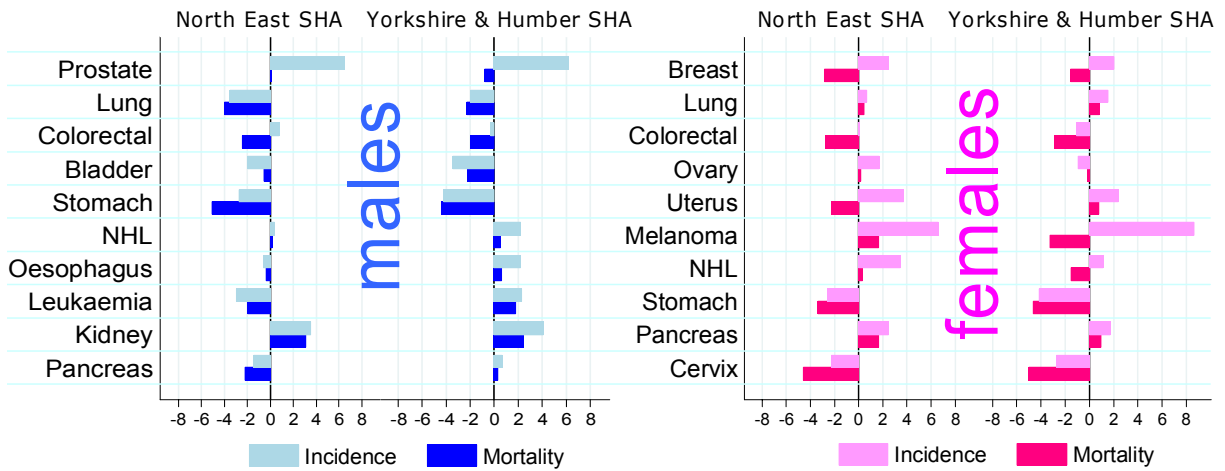
Mortality (ASR) aged <75 years for all malignant tumours C00-C97 (excluding non-melanoma skin C44)



The Department of Health Public Service Agreement target is to reduce cancer mortality rates in the under 75s by 20% from their 1996 levels by 2010. The graphs above show the observed age standardised rates up to 2004 and the projected rates up to 2010 for all cancer (excluding non melanoma skin cancer) by SHA and sex. The dashed line indicates the target ASR for each sex. In the NE the observed rates in 2002-04 had reduced by 17.0% in males and 12.8% in females from the rates in 1995-97. By 2009-11 the rates were predicted to be 30.8% lower in males and 24.9% lower in females than those in 1995-97. In the Y&H the observed rate for males and females had decreased by about 11.5% in 2002-04 compared to 1995-97 and the 2009-2011 rate was predicted to be about 22-23% lower than the rate in 1995-97.

Change in incidence & mortality for SHAs by sex & tumour site

Age-adjusted average annual percent change in incidence & mortality by site during the time period 1995-2004



Age-adjusted average annual percentage change in both incidence and mortality from 1995 to 2004 for the ten most common cancer sites by sex is shown above. For males in both SHAs the largest increases in incidence were for prostate cancer (see page 4 for more detailed analysis of prostate cancer by cancer network). Increased testing for Prostate Specific Antigen (PSA) and the subsequent earlier diagnosis in men without symptoms will have contributed to much of this rise. There were also substantial increases in kidney cancer incidence and mortality. Lung and stomach cancer saw large decreases in both incidence and mortality over time. For females there have been increases in the incidence of cancers of the breast, uterus and melanoma. Large decreases in incidence and mortality were observed for cancers of the stomach and cervix.

Contact details

'Cancer in the 21st Century' - NYCRIS Statistical Report 2000-2004 (PDF available at www.nycris.org.uk)

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