# ‘Diagnosing cancer made easy’

Adrian Richardson

# The challenge

* Although dealing with new cancer diagnoses is relatively rare, (a full-time UK GP will have a new cancer diagnosed in one of his or her patients each month) dealing with the possibility of cancer is an everyday occurrence. Thus GPs rapidly become highly experienced in diagnosing what is not cancer, and slowly become experienced in diagnosing what is cancer. What is irksome to GPs is that they are judged almost entirely on their diagnostic performance in those patients who transpire to have cancer, while given little or no credit for their performance in those who do not.

# Learning Objectives

* GP role in cancer outcomes
* Using the ‘two week wait ‘ guidelines and the recent changes
* How good are we at applying them ?
* What could possibly go wrong ?

# Cancer by type

The dataset was comparable to that of the cancer registries in respect of age and sex, and by distribution by cancer site with some exceptions. Lung was under-represented in the audit, while prostate was over represented.

*1.1.1 By cancer type*

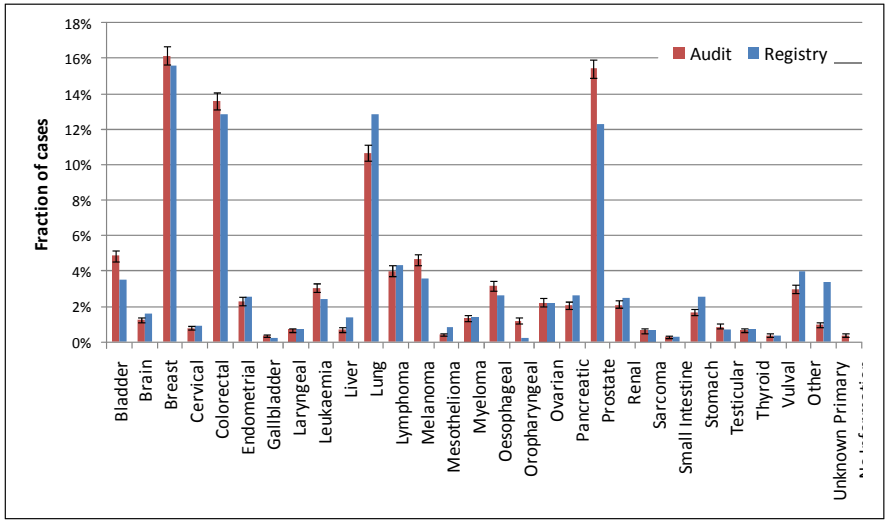



Figure 4.2-1, representation of cancers in the audit by cancer type, compared to those in cancer registry data. Data source: Office of National Statistics. 95% confidence intervals are shown for the proportion of cancers in the audit dataset.

# Where do cancer patients present

*1.By cancer site*

1.Table 6.1-1, place of first presentation by cancer type

| | Practice | Out patients | A&E | Walk-in centre | Other | Not Known | Total | n |
|---|---|---|---|---|---|---|---|---|
| All persons | 82.1% | 4.1% | 4.6% | 0.7% | 6.3% | 2.3% | 100% | 920 |
| Brain | 66.7% | 2.1% | 20.1% | 0.0% | 7.7% | 3.4% | 100% | 234 |
| Breast | 87.1% | 2.7% | 0.6% | 0.1% | 7.4% | 2.2% | 100% | 3046 |
| Cervical | 88.2% | 2.0% | 1.3% | 0.7% | 5.3% | 2.6% | 100% | 152 |
| Colorectal | 84.6% | 3.4% | 5.4% | 0.3% | 4.3% | 1.9% | 100% | 2566 |
| Endometrial | 90.6% | 1.4% | 3.2% | 0.2% | 3.0% | 1.6% | 100% | 435 |
| Gallbladder | 81.4% | 5.7% | 8.6% | 0.0% | 4.3% | 0.0% | 100% | 70 |
| Laryngeal | 89.9% | 3.9% | 0.0% | 0.8% | 3.9% | 1.6% | 100% | 129 |
| Leukaemia | 78.2% | 6.3% | 4.5% | 0.3% | 7.3% | 3.3% | 100% | 574 |
| Liver | 69.2% | 12.3% | 5.4% | 0.8% | 8.5% | 3.8% | 100% | 130 |
| Lung | 75.7% | 4.8% | 9.5% | 0.1% | 7.8% | 2.0% | 100% | 2014 |
| Lymphoma | 82.9% | 4.6% | 5.0% | 0.5% | 4.5% | 2.5% | 100% | 760 |
| Melanoma | 90.9% | 3.6% | 0.6% | 0.0% | 3.6% | 1.3% | 100% | 878 |
| Mesothelioma | 87.3% | 2.5% | 6.3% | 0.0% | 3.8% | 0.0% | 100% | 79 |
| Myeloma | 75.0% | 7.1% | 8.3% | 0.0% | 6.0% | 3.6% | 100% | 252 |
| Oesophageal | 89.8% | 2.7% | 4.0% | 0.0% | 2.0% | 1.5% | 100% | 596 |
| Oropharyngeal | 79.5% | 4.8% | 3.1% | 0.4% | 9.6% | 2.6% | 100% | 229 |
| Ovarian | 84.8% | 1.4% | 7.8% | 0.0% | 4.7% | 1.2% | 100% | 422 |
| Pancreatic | 85.9% | 2.3% | 6.4% | 0.5% | 3.6% | 1.3% | 100% | 390 |
| Prostate | 86.3% | 4.7% | 2.1% | 0.2% | 4.5% | 2.3% | 100% | 2912 |
| Renal | 71.4% | 6.5% | 10.1% | 0.8% | 9.3% | 2.0% | 100% | 398 |
| Sarcoma | 79.8% | 4.2% | 3.4% | 0.8% | 9.2% | 2.5% | 100% | 119 |
| Small Intestine | 82.5% | 1.8% | 5.3% | 0.0% | 8.8% | 1.8% | 100% | 57 |
| Stomach | 79.6% | 2.2% | 10.7% | 1.3% | 4.1% | 2.2% | 100% | 319 |
| Testicular | 83.7% | 2.4% | 3.6% | 0.0% | 7.8% | 2.4% | 100% | 166 |
| Thyroid | 79.4% | 10.3% | 0.8% | 0.8% | 7.1% | 1.6% | 100% | 126 |
| Vulval | 88.2% | 2.6% | 1.3% | 0.0% | 6.6% | 1.3% | 100% | 76 |
| Other | 79.5% | 4.6% | 4.9% | 0.2% | 7.6% | 3.2% | 100% | 567 |
| Unknown Primary | 81.5% | 1.1% | 11.1% | 0.0% | 4.2% | 2.1% | 100% | 189 |
| No Information | 29.7% | 4.1% | 0.0% | 0.0% | 2.7% | 63.5% | 100% | 74 |
| Total | 83.3% | 3.9% | 4.5% | 0.3% | 5.7% | 2.4% | 100% | 18879 |

# Patient interval

| Cancer type | 0 days | 1-14 days | 15-31 days | 32-62 days | 63-182 days | 183+ days | Not known | Total | n |
|---|---|---|---|---|---|---|---|---|---|
| Bladder | 29.0% | 27.7% | 7.4% | 3.2% | 4.6% | 3.5% | 23.9% | 100.0% | 920 |
| Brain | 21.8% | 31.6% | 9.8% | 5.6% | 7.3% | 2.6% | 21.4% | 100.0% | 234 |
| Breast | 17.2% | 32.2% | 11.5% | 5.9% | 5.9% | 4.0% | 23.3% | 100.0% | 3046 |
| Cervical | 19.7% | 15.1% | 9.2% | 8.6% | 12.5% | 11.2% | 23.7% | 100.0% | 152 |
| Colorectal | 19.2% | 16.5% | 12.0% | 10.8% | 11.4% | 5.3% | 24.8% | 100.0% | 2566 |
| Endometrial | 20.2% | 23.9% | 10.6% | 9.4% | 10.1% | 6.4% | 19.3% | 100.0% | 435 |
| Gallbladder | 25.7% | 25.7% | 7.1% | 2.9% | 2.9% | 4.3% | 31.4% | 100.0% | 70 |
| Laryngeal | 10.1% | 12.4% | 12.4% | 20.9% | 13.2% | 10.1% | 20.9% | 100.0% | 129 |
| Leukaemia | 19.0% | 15.9% | 8.2% | 4.7% | 4.2% | 3.0% | 45.1% | 100.0% | 574 |
| Liver | 18.5% | 11.5% | 10.8% | 7.7% | 3.1% | 2.3% | 46.2% | 100.0% | 130 |
| Lung | 19.3% | 19.6% | 12.7% | 8.2% | 6.5% | 2.5% | 31.2% | 100.0% | 2014 |
| Lymphoma | 16.8% | 21.1% | 13.8% | 9.9% | 7.8% | 4.9% | 25.8% | 100.0% | 760 |
| Melanoma | 17.7% | 9.2% | 9.5% | 7.7% | 7.6% | 9.6% | 38.7% | 100.0% | 878 |
| Mesothelioma | 16.5% | 20.3% | 22.8% | 8.9% | 6.3% | 5.1% | 20.3% | 100.0% | 79 |
| Myeloma | 19.4% | 14.7% | 11.1% | 4.4% | 7.1% | 3.6% | 39.7% | 100.0% | 252 |
| Oesophageal | 15.9% | 16.3% | 21.8% | 11.7% | 11.2% | 3.0% | 20.0% | 100.0% | 596 |
| Oropharyngeal | 13.5% | 14.4% | 15.3% | 14.4% | 14.0% | 7.0% | 21.4% | 100.0% | 229 |
| Ovarian | 16.6% | 23.0% | 11.6% | 8.8% | 10.0% | 3.3% | 26.8% | 100.0% | 422 |
| Pancreatic | 20.3% | 26.9% | 13.3% | 9.0% | 8.2% | 1.5% | 20.8% | 100.0% | 390 |
| Prostate | 22.2% | 10.4% | 6.7% | 5.0% | 5.8% | 5.3% | 44.6% | 100.0% | 2912 |
| Renal | 27.1% | 18.6% | 8.5% | 4.3% | 3.8% | 3.0% | 34.7% | 100.0% | 398 |
| Sarcoma | 22.7% | 21.0% | 13.4% | 6.7% | 9.2% | 8.4% | 18.5% | 100.0% | 119 |
| Small Intestine | 26.3% | 19.3% | 8.8% | 5.3% | 17.5% | 3.5% | 19.3% | 100.0% | 57 |
| Stomach | 23.2% | 14.4% | 13.5% | 6.9% | 5.3% | 5.0% | 31.7% | 100.0% | 319 |
| Testicular | 15.1% | 30.7% | 10.2% | 3.0% | 10.8% | 9.0% | 21.1% | 100.0% | 166 |
| Thyroid | 16.7% | 21.4% | 13.5% | 10.3% | 5.6% | 9.5% | 23.0% | 100.0% | 126 |
| Vulval | 14.5% | 19.7% | 14.5% | 9.2% | 10.5% | 10.5% | 21.1% | 100.0% | 76 |
| Other | 18.9% | 14.8% | 11.1% | 5.1% | 7.2% | 6.5% | 36.3% | 100.0% | 567 |
| Unknown Primary | 28.0% | 19.6% | 13.8% | 4.8% | 5.8% | 1.6% | 26.5% | 100.0% | 189 |
| No Information | 6.8% | 4.1% | 2.7% | 2.7% | 2.7% | 5.4% | 75.7% | 100.0% | 74 |
| Total | 19.7% | 19.6% | 11.0% | 7.4% | 7.4% | 4.7% | 30.2% | 100.0% | 18879 |

*Tumour type*

1.Table 7.1-7, patient interval by cancer type.

# Number of presentations before referral

*1.By cancer type*

1.Table 6.2.1, number of attendances at GP by cancer type.

| Cancer type | 0 | 1 | 2 | 3 | 4 | 5+ | Not known | Total | n |
|---|---|---|---|---|---|---|---|---|---|
| Bladder | 9.0% | 47.0% | 22.6% | 6.8% | 2.1% | 3.6% | 8.9% | 100% | 920 |
| Brain | 14.1% | 38.5% | 16.2% | 7.3% | 3.8% | 5.6% | 14.5% | 100% | 234 |
| Breast | 11.7% | 72.2% | 5.3% | 1.4% | 0.6% | 0.5% | 8.4% | 100% | 3046 |
| Cervical | 5.9% | 52.6% | 17.8% | 9.2% | 3.3% | 4.6% | 6.6% | 100% | 152 |
| Colorectal | 9.1% | 42.4% | 22.5% | 9.7% | 3.7% | 4.8% | 7.8% | 100% | 2566 |
| Endometrial | 9.0% | 61.8% | 15.2% | 6.0% | 0.9% | 1.4% | 5.7% | 100% | 435 |
| Gallbladder | 7.1% | 30.0% | 22.9% | 10.0% | 4.3% | 4.3% | 21.4% | 100% | 70 |
| Laryngeal | 8.5% | 41.9% | 23.3% | 12.4% | 1.6% | 3.9% | 8.5% | 100% | 129 |
| Leukaemia | 9.8% | 42.7% | 20.0% | 7.1% | 3.7% | 3.3% | 13.4% | 100% | 574 |
| Liver | 13.1% | 33.8% | 19.2% | 6.9% | 4.6% | 4.6% | 17.7% | 100% | 130 |
| Lung | 11.3% | 28.9% | 24.1% | 11.0% | 6.2% | 7.3% | 11.1% | 100% | 2014 |
| Lymphoma | 8.4% | 40.0% | 21.2% | 9.6% | 4.2% | 8.0% | 8.6% | 100% | 760 |
| Melanoma | 7.9% | 68.5% | 13.1% | 2.8% | 0.7% | 1.4% | 5.7% | 100% | 878 |
| Mesothelioma | 10.1% | 32.9% | 26.6% | 15.2% | 2.5% | 7.6% | 5.1% | 100% | 79 |
| Myeloma | 6.7% | 24.6% | 20.2% | 8.7% | 9.9% | 14.3% | 15.5% | 100% | 252 |
| Oesophageal | 7.2% | 44.6% | 23.5% | 10.9% | 5.2% | 3.2% | 5.4% | 100% | 596 |
| Oropharyngeal | 8.7% | 43.2% | 20.5% | 11.8% | 2.6% | 3.1% | 10.0% | 100% | 229 |
| Ovarian | 9.7% | 37.0% | 22.5% | 11.8% | 4.7% | 5.7% | 8.5% | 100% | 422 |
| Pancreatic | 8.5% | 32.6% | 24.6% | 10.5% | 6.4% | 9.2% | 8.2% | 100% | 390 |
| Prostate | 6.8% | 40.5% | 30.6% | 7.7% | 2.7% | 2.5% | 9.1% | 100% | 2912 |
| Renal | 11.8% | 35.2% | 21.9% | 8.3% | 3.3% | 5.3% | 14.3% | 100% | 398 |
| Sarcoma | 9.2% | 37.0% | 23.5% | 11.8% | 4.2% | 4.2% | 10.1% | 100% | 119 |
| Small Intestine | 10.5% | 36.8% | 28.1% | 7.0% | 8.8% | 3.5% | 5.3% | 100% | 57 |
| Stomach | 8.8% | 34.2% | 19.1% | 11.3% | 6.3% | 8.2% | 12.2% | 100% | 319 |
| Testicular | 8.4% | 60.8% | 18.1% | 3.6% | 1.2% | 0.0% | 7.8% | 100% | 166 |
| Thyroid | 7.1% | 43.7% | 26.2% | 5.6% | 2.4% | 0.8% | 14.3% | 100% | 126 |
| Vulval | 7.9% | 57.9% | 15.8% | 1.3% | 1.3% | 2.6% | 13.2% | 100% | 76 |
| Other | 12.0% | 43.4% | 17.8% | 7.6% | 3.2% | 3.7% | 12.3% | 100% | 567 |
| Unknown Primary | 11.1% | 31.2% | 14.3% | 13.2% | 6.3% | 13.2% | 10.6% | 100% | 189 |
| No Information | 5.4% | 8.1% | 13.5% | 2.7% | 1.4% | 1.4% | 67.6% | 100% | 74 |
| Total | 9.4% | 46.3% | 20.0% | 7.5% | 3.2% | 4.0% | 9.5% | 100% | 18879 |

# Primary care interval

*1.Tumour type*

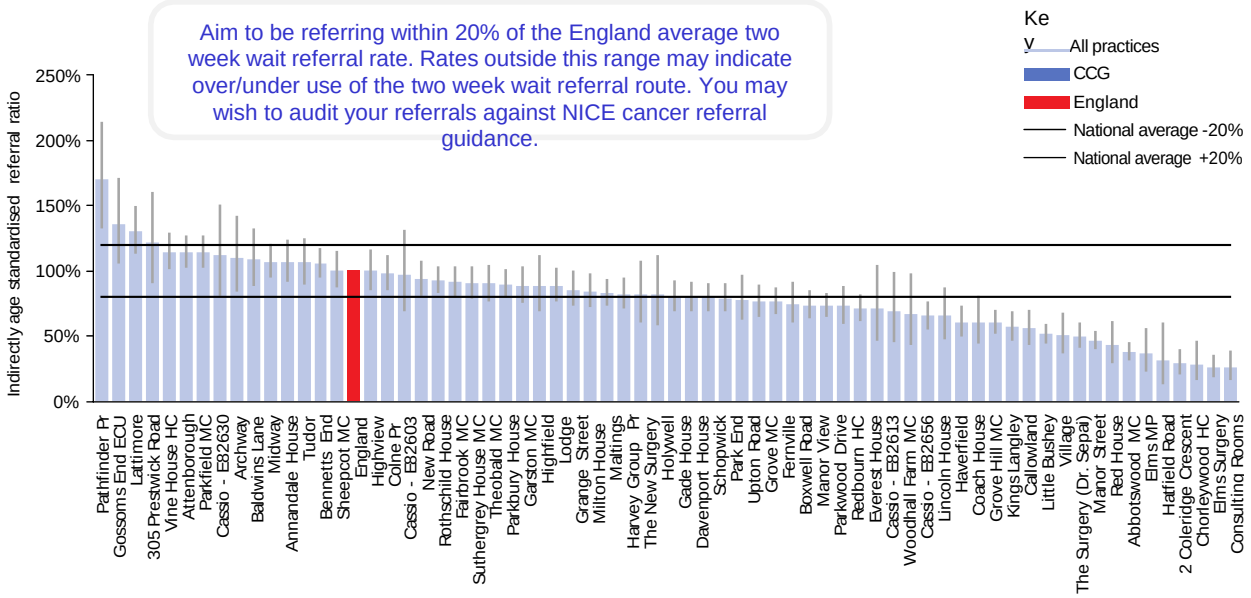
1.Table 7.2-7: Primary care interval by cancer type.

| Cancer type | 0 days | 1-14 days | 15-31 days | 32-62 days | 63-182 days | 183+ days | Not known | Total | n |
|---|---|---|---|---|---|---|---|---|---|
| Bladder | 31.1% | 31.1% | 10.1% | 7.7% | 3.4% | 3.2% | 14.6% | 100.0% | 920 |
| Brain | 33.3% | 24.4% | 7.3% | 4.3% | 5.1% | 2.6% | 23.1% | 100.0% | 234 |
| Breast | 65.2% | 17.1% | 2.7% | 1.6% | 1.4% | 0.9% | 11.1% | 100.0% | 3046 |
| Cervical | 36.8% | 22.4% | 10.5% | 7.2% | 9.9% | 2.0% | 11.2% | 100.0% | 152 |
| Colorectal | 29.2% | 23.3% | 11.5% | 8.3% | 8.5% | 4.1% | 15.2% | 100.0% | 2566 |
| Endometrial | 44.1% | 24.1% | 7.4% | 9.4% | 3.9% | 2.5% | 8.5% | 100.0% | 435 |
| Gallbladder | 5.7% | 24.3% | 15.7% | 12.9% | 10.0% | 5.7% | 25.7% | 100.0% | 70 |
| Laryngeal | 33.3% | 23.3% | 12.4% | 9.3% | 5.4% | 3.9% | 12.4% | 100.0% | 129 |
| Leukaemia | 19.9% | 27.9% | 10.1% | 6.3% | 5.1% | 1.6% | 29.3% | 100.0% | 574 |
| Liver | 16.9% | 19.2% | 10.8% | 6.9% | 8.5% | 3.1% | 34.6% | 100.0% | 130 |
| Lung | 11.8% | 28.8% | 13.1% | 11.3% | 8.7% | 2.7% | 23.6% | 100.0% | 2014 |
| Lymphoma | 23.0% | 27.6% | 12.6% | 8.8% | 8.0% | 4.1% | 15.8% | 100.0% | 760 |
| Melanoma | 50.7% | 22.4% | 5.8% | 7.2% | 3.5% | 2.4% | 8.0% | 100.0% | 878 |
| Mesothelioma | 20.3% | 31.6% | 16.5% | 6.3% | 12.7% | 0.0% | 12.7% | 100.0% | 79 |
| Myeloma | 10.3% | 20.2% | 13.9% | 13.1% | 13.1% | 4.8% | 24.6% | 100.0% | 252 |
| Oesophageal | 34.7% | 20.5% | 12.2% | 11.2% | 8.9% | 2.2% | 10.2% | 100.0% | 596 |
| Oropharyngeal | 34.5% | 18.8% | 15.3% | 8.3% | 7.0% | 2.6% | 13.5% | 100.0% | 229 |
| Ovarian | 22.7% | 32.7% | 10.0% | 11.6% | 5.5% | 0.9% | 16.6% | 100.0% | 422 |
| Pancreatic | 22.6% | 31.3% | 10.0% | 10.0% | 9.0% | 2.8% | 14.4% | 100.0% | 390 |
| Prostate | 17.3% | 31.0% | 15.7% | 7.6% | 7.0% | 3.8% | 17.5% | 100.0% | 2912 |
| Renal | 20.4% | 22.4% | 12.6% | 10.1% | 6.5% | 3.3% | 24.9% | 100.0% | 398 |
| Sarcoma | 26.9% | 21.0% | 10.1% | 11.8% | 9.2% | 5.9% | 15.1% | 100.0% | 119 |
| Small Intestine | 19.3% | 28.1% | 8.8% | 10.5% | 8.8% | 1.8% | 22.8% | 100.0% | 57 |
| Stomach | 24.5% | 18.2% | 12.2% | 6.9% | 14.4% | 4.7% | 19.1% | 100.0% | 319 |
| Testicular | 37.3% | 25.3% | 12.7% | 4.2% | 3.0% | 2.4% | 15.1% | 100.0% | 166 |
| Thyroid | 20.6% | 24.6% | 22.2% | 7.1% | 4.8% | 4.0% | 16.7% | 100.0% | 126 |
| Vulval | 47.4% | 26.3% | 6.6% | 5.3% | 3.9% | 3.9% | 6.6% | 100.0% | 76 |
| Other | 28.0% | 22.9% | 11.3% | 6.7% | 6.7% | 3.0% | 21.3% | 100.0% | 567 |
| Unknown Primary | 24.3% | 18.5% | 15.3% | 12.7% | 7.4% | 4.2% | 17.5% | 100.0% | 189 |
| No Information | 12.2% | 5.4% | 4.1% | 4.1% | 1.4% | 1.4% | 71.6% | 100.0% | 74 |
| Total | 31.5% | 24.8% | 10.6% | 7.4% | 6.3% | 2.9% | 16.6% | 100.0% | 18879 |

# 2WW Referrals

## Two Week Wait referrals

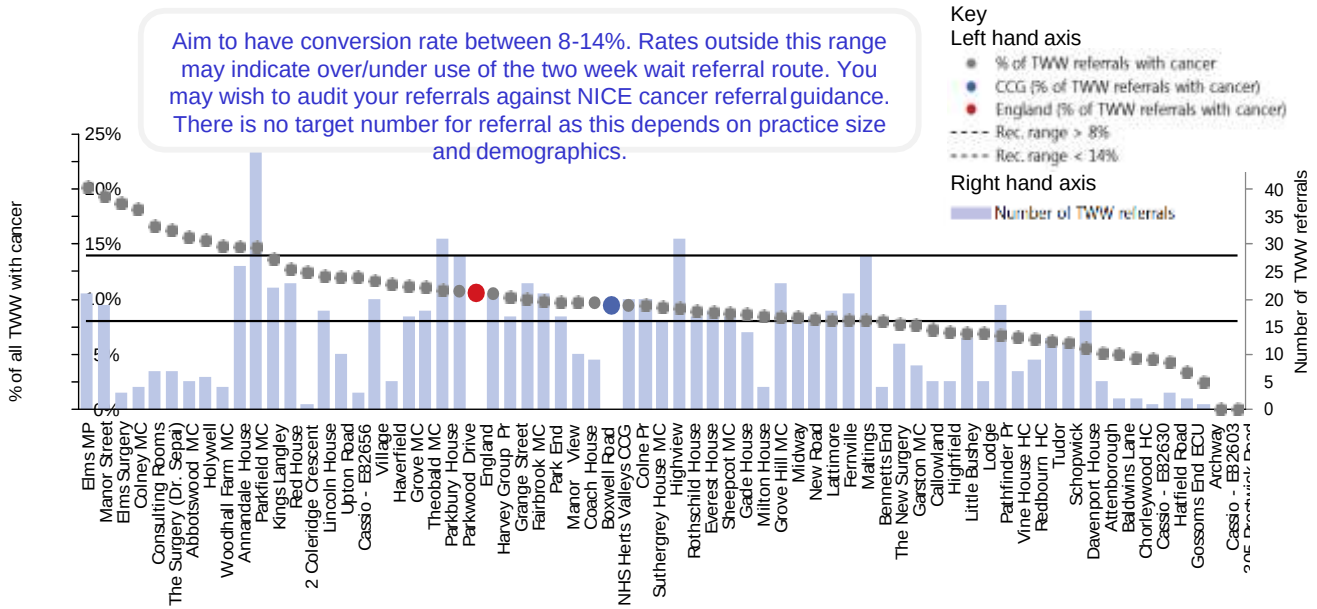
Indirectly age standardised referral ratio (2010/11)



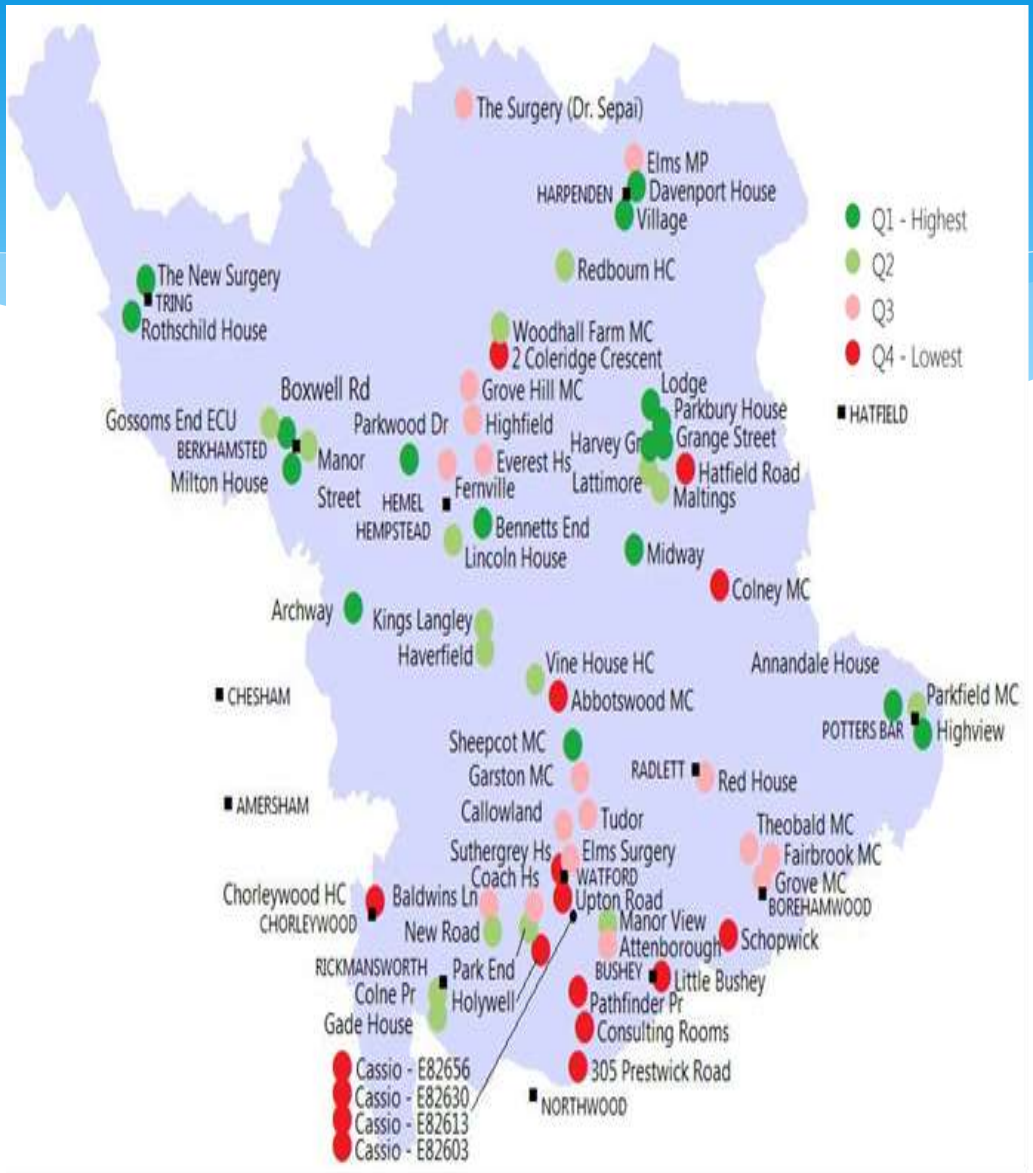
# Percentage of Two Week Wait referrals with cancer

Conversion rate: Percentage of all Two Week Waits with cancer (2010/11)

Aim to have conversion rate between 8-14%. Rates outside this range may indicate over/under use of the two week wait referral route. You may wish to audit your referrals against NICE cancer referral guidance. There is no target number for referral as this depends on practice size and demographics.

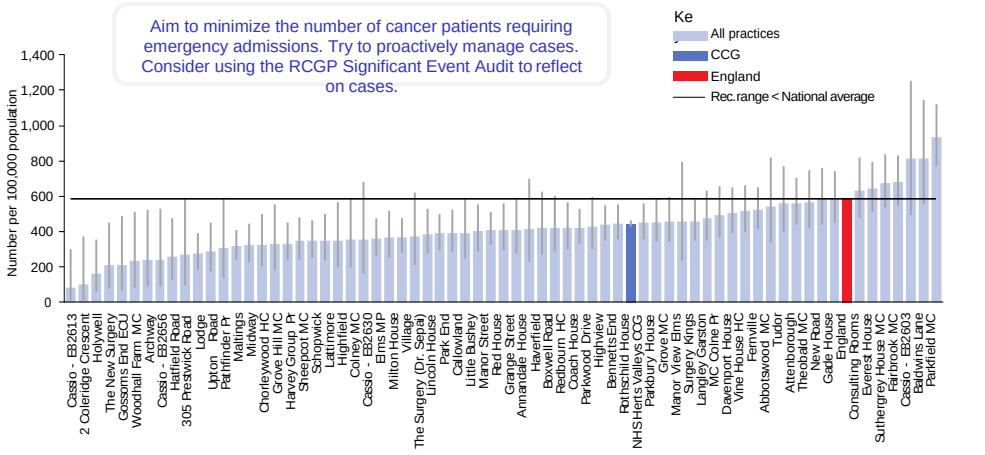


| Practices within recommended range | | | |
|---|---|---|---|
| Indicator[2] | | Pr. | % |
| % Females aged 50-70 screened for breast cancer in last 36 months | | 28 | 42% |
| % Females aged 25-64 screened for cervical cancer in last 42/66 months | | 10 | 15% |
| % Persons aged 60-69 screened for bowel cancer in last 30 months | | 16 | 24% |
| Two-week wait referral ratio | | 30 | 45% |
| % of two-week referrals with cancer | | 35 | 52% |
| % of new cancer cases treated which are Two Week Wait referrals | | 36 | 54% |
| Number of emergency admissions with cancer per | | 64 | 96% |



# Number of emergency admissions with cancer per 100,000 population

Number per 100,000 population (2010/11)




Summary statistics
England mean average = 587
CCG mean average = 446
CCG practice range = 83 to 933
Recommended range: National average (587)

Data source: GP Practice Profiles for cancer, Cancer Commissioning Toolkit

Definition: The number of persons admitted to hospital as an inpatient or day-case via an emergency admission multiplied by 100,000 divided by the number of persons in the practice list, expressed as a rate per 100,000 persons. (See appendix page 37 for full definition)

Indicator source(s): Hospital Episode Statistics (HES) data for 1st March 2011 to 29th February 2012 was taken from the UKACR “Cancer HES” offload originally

# Urgent referrals are increasing

* More people are being referred, at a lower threshold of risk, in order to detect a greater number of cancer at earlier stages.
* ‘There are however other reasons for an increase in referrals, including a national focus on earlier detection of cancer and our growing, ageing population.’

# What could go wrong

TABLE 3: FACTORS INFLUENCING THE REFERRAL PATHWAY

| Explanatory factor | Lung | Upper GI | Ovarian | TYA |
|---|---|---|---|---|
| **Complexity of presentation** | | | | |
| Presence of co-existing morbidity | ● | ● | ● | |
| Symptom suggests different initial diagnosis | ● | ● | ● | ● |
| Symptom suggests different malignancy | ● | ● | | |
| **Patient-mediated factors** | | | | |
| Time to re-present with ongoing symptoms | ● | ● | ● | ● |
| Time to re-present after initial treatment | ● | ● | ● | |
| Declining investigation or examination | | ● | ● | |
| Declining referral or admission | ● | | | |
| Not attending for follow-up (GP or hospital) | ● | ● | | |
| **Diagnostic process** | | | | |
| Reassurance from negative investigation | ● | ● | ● | |
| Investigation suggests benign cause | ● | | | |

# Resources

* http://www.rcgp.org.uk/clinical-and-research/toolkits/primary-care-cancer-toolkit.aspx

* Bmj 2015; 350:h2418 (adults)
* http://www.bmj.com/content/bmj/suppl/2015/07/17/bmj.h3044.DC1/adult_cancer_NICE_graphic_v3.1.pdf

* http://qcancer.org/male/