

Analysis Of Urgent Referrals (2ww) Process

Northern and Yorkshire
Cancer Registry and Information Service

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Background

In the 1997 White Paper: "The new NHS, modern, dependable", the government gave a promise that, by the end of 2000, everyone with suspected cancer would be able to see a specialist within 2 weeks of a referral by his or her GP. The Department of Health developed and issued guidelines on the appropriate referral of patients with suspected cancers.

Since the introduction of the 2 week target, concern has grown over the appropriateness of the use of the urgent referrals process for suspected cancer.

Some Primary Care Trust's (PCT's) may refer a high number of patients; however their cancer detection rate can be below average.

Objectives

PCT's with higher incidence / age standardised rates of cancer may be expected to have higher use of this process. Therefore, we aim to ascertain how the level of use varies with these rates across PCT's within the Yorkshire Cancer Network (YCN) in order to identify PCT's referring a larger number of patients than would be expected.

Further interest lies in investigating what proportion of urgent referrals become confirmed cancers as a percentage of total number of urgent referrals..

Methods

Data on urgent referrals are available via the national Cancer Waiting Times database. This provides a breakdown by cancer site and responsible PCT. Urgent referral figures were obtained by the YCN for the year 2004/5 based on the responsible PCT of the patient referred. PCT's which did not fall within the YCN boundary were excluded.

Incidence and population figures from the Northern & Yorkshire Cancer Registry and Information Service (NYCRIS) were extracted for tumours diagnosed between 2001 and 2003, based on postcode at diagnosis, as these represent the latest complete figures available from the Cancer Registry. The same cancer site definitions were used as for the Cancer Waiting Times. Age standardised rates were then calculated by resident PCT and cancer site. Initial exploration of numbers of urgent referrals by incidence and age standardised rate was undertaken using scatter plots and comparison made with percentage of confirmed cancers (split into three levels, "low", "medium" and "high" confirmed percentages). Modelling using poisson regression was undertaken using incidence, with population as the exposure variable, in order to attempt to calculate expected numbers of urgent referrals by PCT.

It is not currently possible to assign NYCRIS registrations to responsible PCT, nor is it possible to obtain the age and sex of the urgent referrals (to produce age-standardised referral rates). Therefore, although the two definitions of PCT vary to a greater or lesser extent depending on the PCT, it was the only available option for this particular analysis.

Results

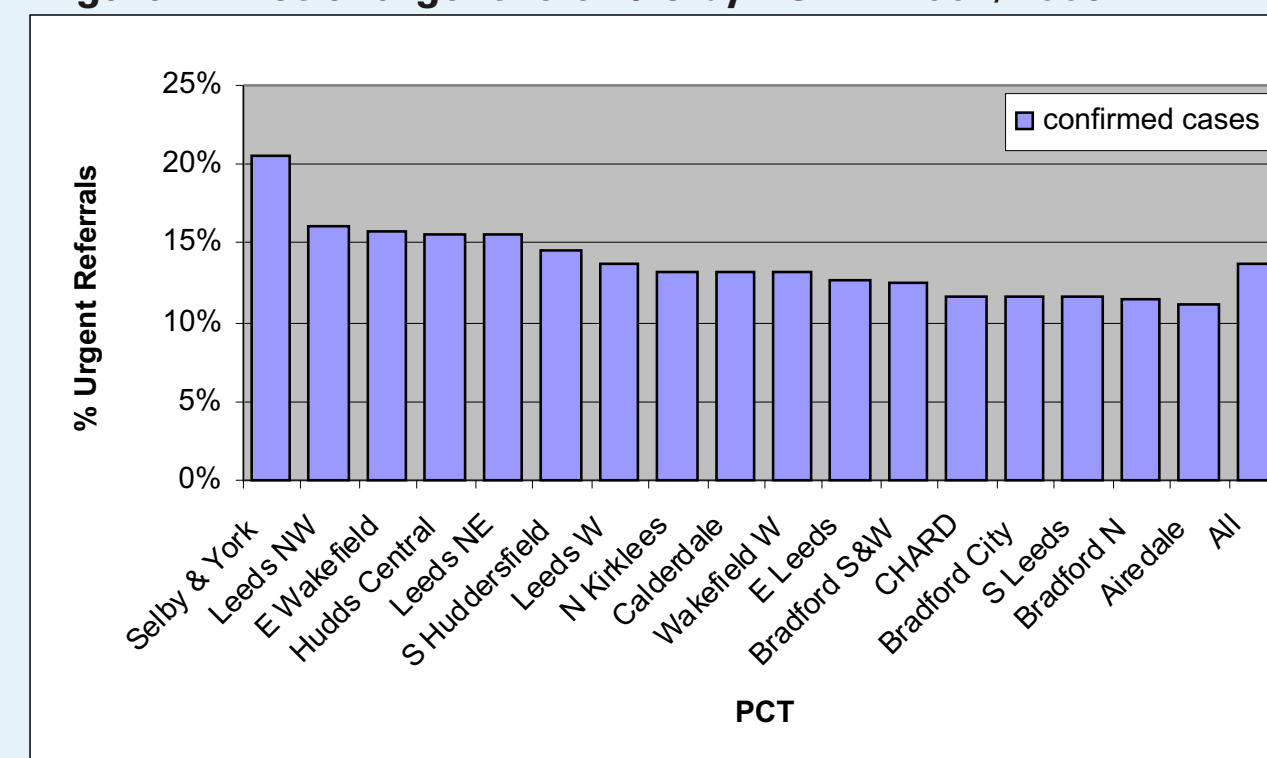
Table 1: Summary of patients in the urgent referrals process by PCT in 2004/2005.

PCT	Urgent Referrals	Confirmed Cases	% Confirmed Cases
Selby & York	1,629	336	20.6%
Leeds North West	1,131	182	16.1%
East Wakefield	1,276	201	15.8%
Huddersfield Central	763	119	15.6%
Leeds North East	973	151	15.5%
South Huddersfield	656	96	14.6%
Leeds West	913	125	13.7%
North Kirklees	1,252	166	13.3%
Calderdale	1,330	176	13.2%
Wakefield West	1,603	212	13.2%
East Leeds	1,207	152	12.6%
Bradford South & West	1,757	219	12.5%
CHARD	2,588	303	11.7%
Bradford City	833	97	11.6%
South Leeds	1,141	132	11.6%
Bradford North	1,500	173	11.5%
Airedale	1,682	188	11.2%
All	22,234	3,028	13.6%

Table 2: Summary of patients in the urgent referrals process by cancer site in 2004/2005.

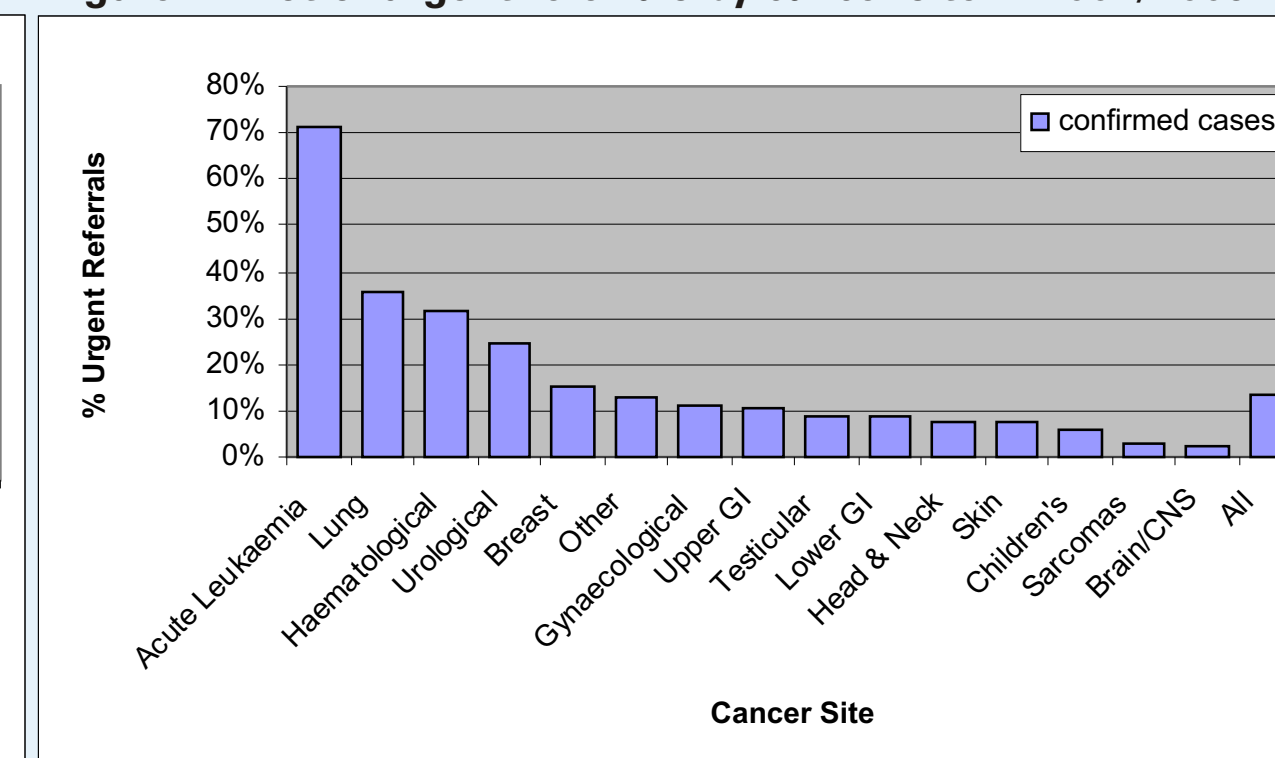
Site	Urgent Referrals	Confirmed Cases	% Confirmed Cases
Acute Leukaemia	7	5	71.4%
Lung	1,254	445	35.5%
Haematological	178	56	31.5%
Urological	2,216	549	24.8%
Breast	5,220	798	15.3%
Other	139	18	12.9%
Gynaecological	1,683	190	11.3%
Upper GI	1,903	198	10.4%
Testicular	158	14	8.9%
Lower GI	4,254	374	8.8%
Head & Neck	1,784	138	7.7%
Skin	3,186	233	7.3%
Children's	99	6	6.1%
Sarcomas	33	1	3.0%
Brain/CNS	120	3	2.5%
All	22,234	3,028	13.6%

Figure 1: Plot of urgent referrals by PCT in 2004/2005.



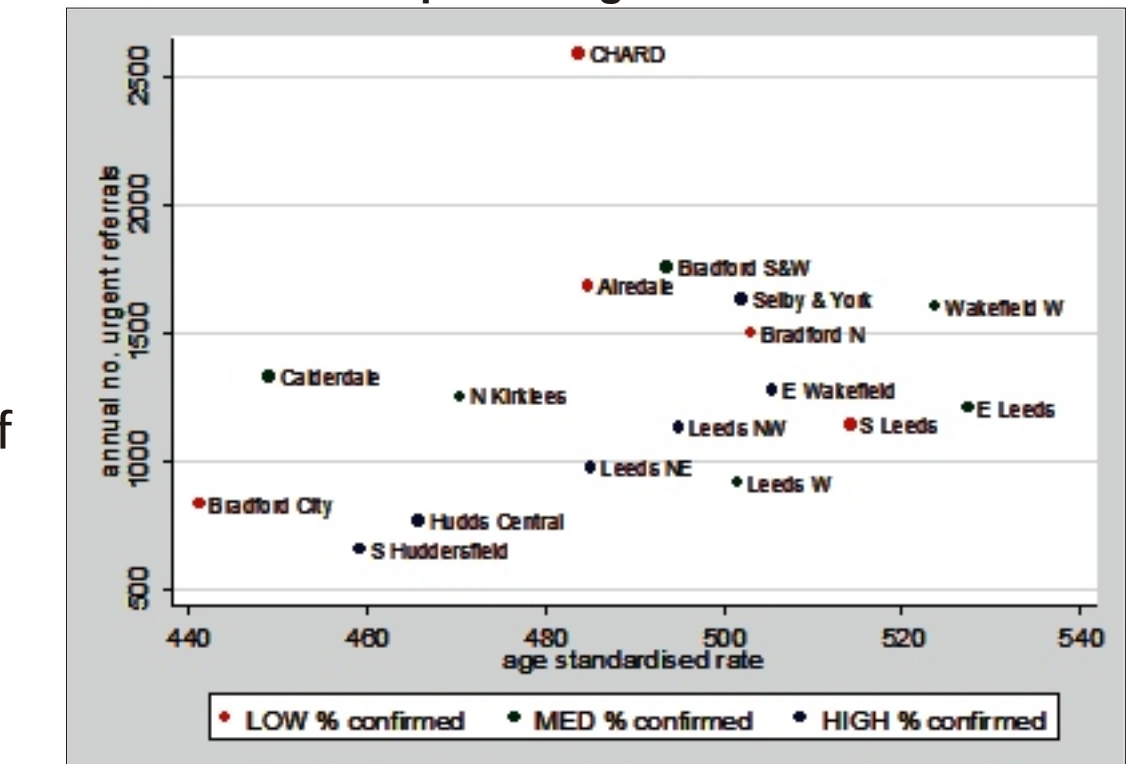
As can be seen from table 1 and figure 1, Selby & York PCT had the highest percentage of confirmed cases, at 20.6%, whilst Airedale had the lowest, at 11.2%.

Figure 2: Plot of urgent referrals by cancer site in 2004/2005.



Considering table 2 and figure 2, Acute Leukaemia had the highest percentage of confirmed cases, at 70.4% (although it was based on very small numbers), while Brain / CNS had the lowest confirmed proportion, at 2.5%.

Figure 3: Variation in number of urgent referrals by age standardised rate over PCT's, accounting for variations in the percentage of confirmed cases.



As can be seen from figure 3, most PCT's refer between approximately 600 and 1800 patients using the urgent referrals process in a single year, regardless of the differences in the age standardised incidence rate of the individual PCT. An exception to this is CHARD (Craven, Harrogate and Rural District), which refers over 2500 patients in this annual period. In addition, CHARD has a low percentage of confirmed cancers, indicating that this PCT may not be using the urgent referrals process as appropriately as other PCT's within YCN. In contrast, Huddersfield Central, South Huddersfield and Leeds North East PCT's all referred less than 1000 patients using the urgent referrals process in a single year and all have a high percentage of confirmed cancers. This may indicate that these PCT's are using this process more appropriately.

Modelling

On poisson regression modelling, overdispersion was found as the underlying rate generating the predicted number of urgent referrals is not constant across PCT's. After taking account of this, the number of urgent referrals was no longer significantly dependent on either the average annual incidence nor the age standardised rates. This ties in with the scatterplot in figure 3. The poisson regression model is not sufficient in this case and therefore predicted values of urgent referrals cannot be predicted from incidence rates using this method.

Conclusions

A methodological approach to comparing predicted and actual numbers of patients entering the urgent referrals process is now in development. Much further work is required, however, in order to be able to accurately estimate the predicted numbers of urgent referrals. Considering the investigatory analyses, it can be seen that some PCT's (Huddersfield Central, South Huddersfield and Leeds North East) may be utilising the urgent referrals process more appropriately than others (CHARD).

Further work

Further to the poisson regression, a random effects model is planned to see if this would be more suitable for modelling urgent referrals. In addition, a negative binomial model will also be considered. Further work is also required in order to model cancer site specific predictions as it is likely that the use of the urgent referrals process will differ between cancer sites.