SHORT REPORT

Are there socioeconomic gradients in the quality of data held by UK cancer registries?

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METHODS AND RESULTS

Twelve contiguous regional cancer registries are responsible for collecting and collating data on all incident cancers in the UK using data supplied by hospitals, including pathology departments. All death certificates mentioning cancer are returned to the appropriate registry to enable date of death to be recorded. In the event that this procedure identifies a cancer that has not been previously entered on the register, a death certificate initiated registration occurs and attempts are made to collect clinical data retrospectively. If no such data can be found (for example, if medical records have been lost or destroyed), a death certificate initiated registration data. Such variations may reflect socioeconomic variations in the quality of other aspects of cancer registration data. Such variations may reflect socioeconomic variations in cancer care—one area of concern highlighted by the white paper, Our Healthier Nation.

Three measures of data quality were used: ascertainment, completeness of detail, and accuracy of the registration data collected by one of the UK regional cancer registries—the Northern and Yorkshire Cancer Registration and Information Service (NYCRIS)—between 1998 and 2000 inclusive. NYCRIS collects information on all cancers in the Northern and Yorkshire region of the UK and currently covers a resident population of about 6.5 million (further details on NYCRIS can be found at http://nycris.org.uk). Three measures of data quality were used: ascertainment (that is, DCO registrations) and completeness of data on stage and grade of cancer at diagnosis—both of which are required data in all cancer registrations and are derived from both clinical and pathological data. Socioeconomic position was quantified using Townsend deprivation scores (TDS) of the enumeration district of residence at the time of registration calculated from 1991 census data standardised to the Northern and Yorkshire region as a whole—giving a mean TDS of zero within the whole region (appropriate data from the more contemporaneous 2001 census had not been published at the time of analysis).

Table 1 shows the odds ratios of registrations being DCO or having missing stage or grade data by quintiles of TDS, after controlling for age and sex. Of the 25,224 registrations for colorectal or breast cancer in 1998–2000, 2,839 (1.1%) were registered by DCO, 3,906 (15.5%) had missing data on stage of cancer, and 4,918 (19.5%) had missing data on grade of cancer at diagnosis. There was a highly significant trend in the odds of data being missing on stage or grade by quintiles TDS ($\chi^2 = 50.58, p<0.0001$; $\chi^2 = 28.36, p<0.0001$ respectively). No such trend was seen in the odds of registration by DCO ($\chi^2 = 0.78, p = 0.378$). Similar results were seen when the data were analysed separately according to cancer site (see appendix available on line http://www.jech.com/supplemental).

COMMENT

This is the first study to investigate socioeconomic variations in a number of markers of quality of recent UK cancer registration data. We found evidence of socioeconomic gradients in the completeness of detail, but not the ascertainment, of cancer registry data.

Obtaining information on the stage and grade of a colorectal or breast cancer entails more intensive investigation than that required to diagnose the cancer. One explanation of our results is that there are socioeconomic

Abbreviations: DCO, death certification only; NYCRIS, Northern and Yorkshire Cancer Registration and Information Service; TDS, Townsend deprivation score

<table>
<thead>
<tr>
<th>Quintiles of TDS</th>
<th>TDS range</th>
<th>Total number of registrations</th>
<th>Registration by DCO</th>
<th>Data on stage at diagnosis missing</th>
<th>Data on grade at diagnosis missing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number (%)</td>
<td>Odds ratio (95% CI)</td>
<td>Number (%)</td>
</tr>
<tr>
<td>1 (most affluent)</td>
<td>-8.89 to -3.24</td>
<td>5040</td>
<td>54 (1.07)</td>
<td>1.00 reference</td>
<td>662 (13.13)</td>
</tr>
<tr>
<td>2</td>
<td>-3.24 to -1.64</td>
<td>5052</td>
<td>60 (1.19)</td>
<td>1.02 (0.70 to 1.47)</td>
<td>656 (12.98)</td>
</tr>
<tr>
<td>3</td>
<td>-1.64 to 0.31</td>
<td>5037</td>
<td>55 (1.09)</td>
<td>0.86 (0.59 to 1.26)</td>
<td>750 (14.89)</td>
</tr>
<tr>
<td>4</td>
<td>0.31 to 2.84</td>
<td>5056</td>
<td>60 (1.19)</td>
<td>0.89 (0.61 to 1.29)</td>
<td>928 (18.35)</td>
</tr>
<tr>
<td>5 (most deprived)</td>
<td>2.84 to 8.45</td>
<td>5039</td>
<td>54 (1.07)</td>
<td>0.87 (0.59 to 1.28)</td>
<td>910 (18.06)</td>
</tr>
</tbody>
</table>

*Significant at the 0.1% level. TDS, Townsend deprivation score; DCO, death certification only.
Policy implications

- If socioeconomic variations in the completeness of detail of cancer registration data are confirmed, their source should be identified and methods of decreasing them developed.
- Investigators using cancer registry data should be aware of socioeconomic variations in the completeness of detail of the data available.

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CONTRIBUTORS
JA conceived the study, performed the analysis, and drafted the paper. MW supervised analysis and critically appraised an earlier draft of the manuscript. DF facilitated data extraction and critically appraised an earlier draft of the manuscript.

The appendix is available online (http://www.jech.com/supplemental).

Key point

There is evidence of socioeconomic gradients in the completeness of detail, but not the ascertainment, of cancer registration data in the UK.

REFERENCES