Measuring Quality in Cancer Services

Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO)

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Executive Summary

This research has investigated population-level datasets in England to develop measures of quality in cancer services. We have assessed:

- their availability, statistical characteristics and presentation;
- perceptions of managers, patients and analysts for their use;
- their statistical inter-relationships.

Measuring Quality in Cancer Services (MQiCS) was proposed in response to a competitive call for research put forward by the Department of Health in 2003 as part of the Service Delivery and Organisation research programme. The study was led from UCL Epidemiology and Public Health, with collaborators within UCL (Departments of Mathematics and Psychology) and from London School of Hygiene (Cancer Survival Group) and Royal Holloway College (School of Management). The study was approved by the South East Regional Ethics Committee Literature studies.

We reviewed literature in two fields: datasets for cancer services management; and organisational determinants of cancer outcomes.

The impacts of networks on cancer services have been previously investigated, but not the assessment of performance of cancer services. In health care, there is greater focus on the use of qualitative information and tacit knowledge, and less use of routinely available data for operational management and the factors that inhibit or facilitate the use of routinely available data.

Datasets

We identified six national datasets which describe aspects of cancer services:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Process</th>
<th>Outcome</th>
</tr>
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<tbody>
<tr>
<td>Acute Hospital Portfolio</td>
<td>Cancer Waiting Times</td>
<td>Cancer Survival</td>
</tr>
<tr>
<td>National Cancer Peer Review</td>
<td>Hospital Episode Statistics</td>
<td>National Survey: Cancer Patients (satisfaction)</td>
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The Acute Hospital Portfolio, National Cancer Peer Review and Cancer Waiting Times datasets refer directly to hospital trusts, while for the other three we grouped at hospital trust level data from anonymised individuals. We investigated the four common cancers - breast, colo-rectal, lung and prostate (peer review standards were not available for prostate cancer).

The data were related approximately around 2000/1, and we had to match the changing NHS organisational structures over time and also group data according to the 34 cancer networks in England. For survival, data could only be analysed at cancer network level to accommodate the statistical requirements of age, sex and socio-economic group standardisation.
The datasets were cleaned and Limited Datasets, providing national, network and local trust data, were distributed to each of the 34 cancer networks.

We also developed a range of graphical presentations for the datasets that enable comparisons.

**Perceptions of users**

To learn how managers at network level use cancer services quality data, we made initial group interviews with four cancer network management teams, and then structured telephone interviews with 68 managers from 29 networks. Respondents indicated that networks had few staff for information analysis, and rarely had an information strategy. They were focused on demands from the Department of Health to improve data collection, ensuring better data upwards rather than using data for their own management.

We also held two focus groups with patient representatives, including discussing questions of choice, and discussed our findings with national cancer information stakeholders. Five networks provided feedback after receiving the datasets, and the response suggested continued low interest in using these data for management at cancer network level.

**Data analysis**

The datasets showed ranges for both networks and hospital trusts, with statistically significant outliers - including for survival (at cancer network level). We compared the datasets using rank correlations. Analyses between datasets required many statistical tests. We used standard levels of statistical significance, but caution is needed in interpretation.

The large majority of associations were non-significant. However, both positive and negative findings were found.

- There were stronger correlations within hospitals for rankings between tumour types, and fewer associations between hospitals for the different measured dimensions. This suggested that hospital characteristics had greater impact on cancer services performance than differences in specialist care.

- One-year survival (at cancer network level) for colorectal and lung cancers was associated with total cancer standards score. Satisfaction (at hospital trust level) for breast, colorectal and prostate cancers, was associated in hospitals with fewer formal complaints. Some cancer standards for hospital cancer centres and units showed associations for breast cancer an inpatient measure of satisfaction, while tumour-specific team cancer standards for lung cancer showed associations with an outpatient measure.

- One year survival was not associated with total standards score for breast cancer, and five year survival was not associated with standards for any tumour type. Measures of waiting showed little association between each other, and GP referral waiting time measures were not
associated with any expected positive performance. Hospitals with *slower* admissions of (all, general) patients through emergency departments had greater inpatient satisfaction with cancer care, for all tumour types. Staff variables showed few expected performance associations.

**Conclusion**

Existing routine datasets are of value both for local assessment of performance by cancer networks, and also for analysis to understand relationships and possible effects between structure, process and outcome at service level. Routinely available cancer data are an underused resource, and deserve further attention both for performance management and for health services research.
Disclaimer

This report presents independent research commissioned by the National Institute for Health Research (NIHR). The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NHS, the NIHR, the SDO programme or the Department of Health.

Addendum

This document was published by the National Coordinating Centre for the Service Delivery and Organisation (NCCSDO) research programme, managed by the London School of Hygiene and Tropical Medicine.

The management of the Service Delivery and Organisation (SDO) programme has now transferred to the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton. Prior to April 2009, NETSCC had no involvement in the commissioning or production of this document and therefore we may not be able to comment on the background or technical detail of this document. Should you have any queries please contact sdo@southampton.ac.uk.