Organizational determinants of patients’ experiences of care for breast, lung and colorectal cancers

M. McCarthy, MB BCHIR PHD, professor, UCL Department of Epidemiology and Public Health, University College London, London, P. Datta, MSc, research assistant, UCL Department of Epidemiology and Public Health, University College London, London, & C. Sherlaw-Johnson, FSS, senior research fellow, UCL Department of Mathematics, University College London, London, UK

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Organizational characteristics in English NHS hospitals and the experiences of patients with three common cancers – breast, colorectal and lung – were examined using secondary data analyses. Two specific measures of satisfaction, Respect and Dignity, reflecting inpatient care, and Communication reflecting hospital outpatient care, were drawn from a national survey of cancer patients after first hospital treatment. They were compared at hospital level with hospital cancer service standards, and measures of hospital provision, each drawn from national surveys. Respect and Dignity was greater in hospitals with fewer complaints, slower admission procedures and a greater proportion of medicine consultants, for breast and colorectal cancers only. For breast cancer alone, Respect and Dignity was greater in hospitals achieving more participation in meetings by lead team members at the cancer unit level. For lung cancer alone, there were tumour-specific team organizational measures (relating to outpatient assessment) associated with Communication. However, the majority of recorded standards did not show associations, and there were occasional negative associations (dissatisfaction). The impact of organizational factors on patients may be examined through observational studies when experimental designs are not possible. Understanding how organizational factors affect quality of care for cancer patients can contribute to planning and management of cancer services.

Keywords: patient satisfaction, cancer, service standards, health service management, hospitals.

INTRODUCTION

There is strong professional and political concern to promote patient-centred health care (Coulter & Fitzpatrick 2000; Department of Health 2005; Kennedy 2006). While quality of life is frequently assessed for patients in cancer treatment clinical trials, patients’ experience of their care is rarely recorded, while satisfaction with routine cancer care, either outpatient (Thomas et al. 1997) or inpatient (Skarstein et al. 2002), has only occasionally been reported. A systematic review by Crow et al. (2002) described the individual level determinants of patient satisfaction (for all diseases), including health status, age, ethnicity, expectations, prior experience, information-giving and choice of service. In a study of 2239 patients after inpatient episodes (all diseases), Jenkinson et al. (2002) found that ‘age and overall self-assessment were only weakly associated . . . the major determinants of patient satisfaction were physical comfort, emotional support and respect for patient preferences’. In palliative care, a national post-bereavement survey (Fakhoury et al. 1996) found that satisfaction with nursing and medical
staff was strongly associated with the frequency of attendance and less strongly with the characteristics of the individual or the carer.

Several countries in recent years, including UK [Department of Health 2000a], France [République Française 2002], USA [Institute of Medicine 1999] and Australia [Department of Health and Ageing 2005], have developed national cancer service plans, which seek to put the patient at the centre of an improved organizational structure. Will this improve patient satisfaction? We have investigated how the data from the patients’ survey are related to measures of cancer standards and service facilities – at hospital level. The study compares dimensions of satisfaction from a national survey of cancer patients with data about the same hospitals drawn from other national cancer datasets recorded at the same time [McCarthy et al. 2007].

METHODS

The survey of cancer patients in England in 2000–1 was one of a series of surveys to support the increased orientation of the NHS towards the patient’s perspective. The survey drew a sample of patients discharged from hospitals with a diagnosis of one of six common cancers, which included breast, colorectal and lung [Department of Health 2004a]. Of 135 000 questionnaires issued by the hospitals, there were 65 337 respondents from 172 hospital trusts in England [35 674 responses for the three cancers considered here]. The survey questionnaire asked over 60 questions, and factor analysis was used by the survey authors to reduce these to 10 dimensions, represented by a single question, across the patient pathway. We examined two contrasting questions: Question D15 ‘Time spent on explaining condition of first visit’, which is used to represent outpatient clinician–patient Communication, and Question B7 ‘Doctor not treated with respect and dignity by doctor-nurse’ which is a valuation of Respect and Dignity for in-hospital care. While the data were recorded at individual level, we averaged the responses of patients at hospital level to link their experiences to the services.

The Manual for Cancer Services was developed by the English Department of Health. It was based upon the principles and recommendations of a Report by the Chief Medical Officer [Department of Health 1995], tumour-specific ‘Improving Outcomes Guidance’ [Department of Health, Clinical Outcomes Group, Cancer Guidance subgroup 1996, 1997, 1998], and advice from managers in the Trent Region [Department of Health 2004b]. The Manual gave guidance across 10 areas of the patient pathway – from referral and diagnosis, investigation and treatment, to continuing and palliative care – and these were used to create 180 cancer standards, divided into broad themes (see Table 1). Each standard was defined and the expected evidence stated in more detail. In 2001, peer review teams visited hospitals to measure these standards for existing cancer services. The data were held by the Department of Health and local data were returned to individual trusts. To create prior hypotheses and for statistical reasons, we selected a limited number of items that reflected the general aspects of hospital services, cancer centre and unit services and (for breast, colorectal and lung cancers only) aspects related to specific tumour types (Table 1).

The Audit Commission collected data in 2000 on hospital staff and facilities, which has contributed to the Acute Hospital Portfolio now held by the Healthcare Commission [Healthcare Commission 2006]. We gained the data directly from the (then) Audit Commission as they are not formally in the public domain. The data covered a range of domains (see Table 2), of which we selected a small number of specific variables which [1] had completeness above 80%; [2] we considered related to patient outcomes.

We linked the data by hospital of treatment by using codes provided by the Department of Health. This required some attention because of the range of names of hospitals and the need to allocate them accurately to changing configurations. Where necessary, we amalgamated trust results so that they reflected the changing configurations. We made statistical tests using Spearman

| Table 1. Main headings of cancer standards [Department of Health 2000b], and numbers used in analysis |
|---------------------------------|---------------------------------|---------------------------------|
| **Standard title**             | **Total available** | **Number used in analysis** |
| Patient-centred care           | 5                  | 0                               |
| Specialist multi-disciplinary teams | 39                | 15                              |
| Breast                         | 35                 | 13                              |
| Colorectal                     | 36                 | 14                              |
| Lung                           | 7                  | 0                               |
| Diagnostic services – pathology|                     |                                 |
| Provision of Non-surgical Oncology to Cancer Units |                     |                                 |
| Radiotherapy                   | 60                 | 1 (% summed total)              |
| Chemotherapy                   | 45                 | 1 (% summed total)              |
| Specialist Palliative Care Services | 11              | 0                               |
| Education, Training & Continuous Professional Development | 2 | 0 |
| Communication between Primary, Secondary and Tertiary sectors | 3 | 0 |
| Coordination and organization of cancer units | 15 | 15 |

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rank correlation where both variables were continuous (for the patient survey and the acute hospital portfolio) and point-biserial correlation when one variable was a dichotomous variable (cancer standards) and the other a continuous variable.

RESULTS

Acute hospital portfolio (Table 3)

For both breast and colorectal cancers, but not lung cancer, there were significant associations between Respect and Dignity and hospitals with fewer complaints, slower admissions and a larger number of medicine consultants. Hospital attendances were associated for colorectal cancer, and a higher proportion of outpatients to admissions for breast cancer. However, overall doctor and nurse staffing levels, and support medical specialists showed no association for any of the cancer types. The second satisfaction measure, Communication, was not associated with these measures for any of the cancer types.

Cancer service standards

At hospital level (Table 4)

There were significant associations for five breast cancer standards with the Respect and Dignity measure of patient experience. These standards were related to members of the cancer unit group (lead clinician, lead nurse, lead manager). There were no associations with Respect and Dignity for either colorectal or lung cancers.

Greater dissatisfaction with Communication was associated with two standards for breast cancer, whereas no significant associations were found for the other two tumour types with the measure of Communication.

Tumour-specific services (Table 5)

Four team organizational measures for lung cancer were all associated with greater satisfaction with the Communication measure: these were frequent meetings, operational policy meetings, policy on communicating with GP and policy for urgent referrals. For breast cancer, there was a single association between operational policy meetings and Respect and Dignity, and for a named team lead with Communication. Colorectal cancer showed only an association with the presence in the team of other lead clinicians, in imaging or histopathology (data not shown).

Contrary to the expected trend, the presence of designated sessions for a specialist breast surgeon was associated with greater dissatisfaction with Respect and Dignity, and a surgeon accredited with the British Association of Surgical Oncology (BASO) with Communication dissatisfaction.

The standards included three measures of nurse specialist qualifications: none was associated for breast cancer, and one each only for colorectal cancer (for Respect and Dignity) and lung cancer (for Communication).

The single cancer standard ‘Written information available’ was associated with Respect and Dignity for breast...
| Variables                                | Breast Respect and Dignity | Breast Communication | Colorectal Respect and Dignity | Colorectal Communication | Lung Respect and Dignity | Lung Communication |
|------------------------------------------|---------------------------|----------------------|-------------------------------|--------------------------|-------------------------|-------------------|
| Formal complaints per 1000 FCEs          | 0.22**                    | -0.03                | 0.21**                        | 0.13                     | 0.10                    | 0.10              |
|                                          | $P = 0.01$                | $P = 0.75$           | $P = 0.01$                    | $P = 0.14$               | $P = 0.25$              | $P = 0.24$         |
| Total attendances in a year              | 0.11                      | -0.07                | 0.26**                        | -0.12                    | 0.02                    | -0.08             |
|                                          | $P = 0.18$                | $P = 0.38$           | $P = 0.002$                   | $P = 0.15$               | $P = 0.78$              | $P = 0.35$         |
| % of patients admitted ≤ 4 h             | -0.26**                   | 0.10                 | -0.35**                       | -0.132                   | -0.102                  | -0.008            |
|                                          | $P = 0.003$               | $P = 0.23$           | $P < 0.001$                   | $P = 0.13$               | $P = 0.24$              | $P = 0.93$         |
| Doctor WTE per attendances               | -0.03                     | 0.06                 | -0.04                         | -0.11                    | 0.09                    | 0.05              |
|                                          | $P = 0.71$                | $P = 0.49$           | $P = 0.64$                    | $P = 0.1$                | $P = 0.31$              | $P = 0.57$         |
| Nurse WTE per attendances                | 0.03                      | -0.22                | 0.05                          | 0.02                     | 0.15                    | 0.09              |
|                                          | $P = 0.71$                | $P = 0.13$           | $P = 0.54$                    | $P = 0.77$               | $P = 0.06$              | $P = 0.28$         |
| Ratio of outpatients to admissions       | 0.23**                    | -0.11                | 0.130                         | 0.05                     | 0.07                    | 0.01              |
|                                          | $P = 0.008$               | $P = 0.19$           | $P = 0.14$                    | $P = 0.56$               | $P = 0.41$              | $P = 0.90$         |
| Consultant WTE per 1000 admissions       | 0.17                      | -0.07                | 0.07                          | 0.02                     | 0.12                    | -0.05             |
|                                          | $P = 0.05$                | $P = 0.41$           | $P = 0.43$                    | $P = 0.79$               | $P = 0.15$              | $P = 0.59$         |
| Anaesthetist consultant WTE per 1000 admissions | 0.10                     | -0.01                | -0.08                         | -0.1                      | 0.02                    | 0.03              |
|                                          | $P = 0.25$                | $P = 0.89$           | $P = 0.35$                    | $P = 0.26$               | $P = 0.79$              | $P = 0.68$         |
| Medicine consultant WTE per 1000 admissions | 0.21**                   | -0.12                | 0.19*                         | 0.093                    | 0.16                    | -0.04             |
|                                          | $P = 0.01$                | $P = 0.17$           | $P = 0.03$                    | $P = 0.28$               | $P = 0.07$              | $P = 0.62$         |
| Pathology consultant WTE per 1000 admissions | 0.14                     | -0.03                | 0.05                          | -0.10                    | 0.12                    | -0.11             |
|                                          | $P = 0.11$                | $P = 0.69$           | $P = 0.59$                    | $P = 0.26$               | $P = 0.17$              | $P = 0.19$         |
| Radiology consultant WTE per 1000 admissions | 0.14                     | -0.11                | -0.01                         | 0.07                     | 0.05                    | -0.07             |
|                                          | $P = 0.11$                | $P = 0.19$           | $P = 0.94$                    | $P = 0.40$               | $P = 0.56$              | $P = 0.44$         |

*Correlation significant at the 0.05 level [two-tailed], **Correlation significant at the 0.01 level [two-tailed].

FCE, Finished Consultant Episode; WTE, whole time equivalent.
Table 4. Associations (rank correlations and point biserial) between Cancer Standards for hospital cancer centres and units and two measures of satisfaction measures for patients with breast, colorectal and lung cancers

| Variables                                                                 | Breast                     | Colorectal                  | Lung                        |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|
| 10.2/1 – Referral guidelines for cancer sites not covered by the unit MDT  | -0.07                      | -0.16                       | -0.05                       |
|                                                                           | P = 0.47                   | P = 0.08                    | P = 0.60                    |
| 10.2/2 – Cancer services Lead Clinician for the cancer unit               | -0.20*                     | -0.07                       | -0.16                       |
|                                                                           | P = 0.03                   | P = 0.45                    | P = 0.09                    |
| 10.2/3 – Written job description for the lead role                        | -0.15                      | 0.04                        | 0.07                        |
|                                                                           | P = 0.10                   | P = 0.63                    | P = 0.07                    |
| 10.2/4 – Specification of time available and administrative support for the Lead Clinician | -0.09                      | 0.05                        | 0.02                        |
|                                                                           | P = 0.33                   | P = 0.60                    | P = 0.84                    |
| 10.2/5 – Regular review of time/support available to lead Clinician       | -0.09                      | 0.008                       | 0.006                       |
|                                                                           | P = 0.31                   | P = 0.93                    | P = 0.53                    |
| 10.2/6 – Lead Clinician member of cancer unit group                       | -0.22*                     | -0.06                       | -0.08                       |
|                                                                           | P = 0.02                   | P = 0.53                    | P = 0.39                    |
| 10.2/7 – Cancer services lead nurse for the cancer unit                   | -0.17                      | -0.07                       | -0.008                      |
|                                                                           | P = 0.05                   | P = 0.43                    | P = 0.98                    |
| 10.2/8 – Written job description for the lead nurse                       | -0.18*                     | -0.06                       | -0.03                       |
|                                                                           | P = 0.04                   | P = 0.53                    | P = 0.75                    |
| 10.2/9 – Cancer services lead manager for the cancer unit                 | -0.24**                    | -0.06                       | -0.04                       |
|                                                                           | P = 0.007                  | P = 0.51                    | P = 0.69                    |
| 10.2/10 – Written job description for the lead manager                    | -0.15                      | -0.02                       | -0.01                       |
|                                                                           | P = 0.09                   | P = 0.80                    | P = 0.89                    |
| 10.2/11 – Named cancer unit group with membership                         | -0.23*                     | -0.05                       | -0.01                       |
|                                                                           | P = 0.01                   | P = 0.80                    | P = 0.88                    |
| 10.2/12 – Terms of reference for the group                               | -0.15                      | -0.009                      | -0.06                       |
|                                                                           | P = 0.10                   | P = 0.92                    | P = 0.53                    |
| 10.2/13 – Primary care representation on the group                        | -0.09                      | -0.003                      | -0.10                       |
|                                                                           | P = 0.33                   | P = 0.98                    | P = 0.82                    |
| 10.2/14 – Named cancer site leads for each cancer site                    | -0.17                      | -0.15                       | -0.10                       |
|                                                                           | P = 0.06                   | P = 0.11                    | P = 0.286                   |
| 10.2/15 – Reporting requirements to the cancer registry                   | -0.15                      | -0.008                      | -0.02                       |
|                                                                           | P = 0.10                   | P = 0.93                    | P = 0.82                    |

*Correlation significant at the 0.05 level (two-tailed); **Correlation significant at the 0.01 level (two-tailed).
Table 5. Associations (rank correlation and point biserial) between Cancer Standards for tumour-specific teams and two measures of patient satisfaction for patients with breast, colorectal and lung cancers

| Standard                          | Breast Respect and Dignity | Breast Communication | Colorectal Respect and Dignity | Colorectal Communication | Lung Respect and Dignity | Lung Communication |
|----------------------------------|----------------------------|----------------------|--------------------------------|--------------------------|--------------------------|---------------------|
| Team structure                   |                            |                      |                                |                          |                          |                     |
| Named team lead                  | 0.10                       | -0.22*               | 0.12                           | 0.15                     | 0.069                    | -0.03               |
|                                  | *P = 0.26                  | *P = 0.02            | *P = 0.18                      | *P = 0.11                | *P = 0.45                | *P = 0.71           |
| Lead clinician written responsiblities | 0.12                      | -0.13                | 0.18*                          | 0.135                    | -0.02                    | 0.01                |
|                                  | *P = 0.18                  | *P = 0.16            | *P = 0.04                      | *P = 0.139               | *P = 0.85                | *P = 0.91           |
| Team meetings                    |                            |                      |                                |                          |                          |                     |
| Core members attendance at team meetings | -0.04                    | 0.12                 | 0.04                           | 0.09                     | -0.05                    | -0.18*              |
|                                  | *P = 0.64                  | *P = 0.19            | *P = 0.63                      | *P = 0.34                | *P = 0.56                | *P = 0.04           |
| Operational policies             |                            |                      |                                |                          |                          |                     |
| Operational policy meetings      | -0.20*                     | -0.10                | 0.002                          | 0.03                     | 0.12                     | -0.20*              |
|                                  | *P = 0.03                  | *P = 0.30            | *P = 0.99                      | *P = 0.77                | *P = 0.20                | *P = 0.03           |
| Written operational policy – communication of diagnosis with GP | 0.02                     | -0.02                | 0.011                          | -0.020                   | 0.02                     | -0.23**             |
|                                  | *P = 0.80                  | *P = 0.84            | *P = 0.907                     | *P = 0.824               | *P = 0.79                | *P = 0.01           |
| Written operational policy – provision of information to GP on urgent referrals | -0.08                    | -0.05                | 0.038                          | 0.006                    | -0.02                    | -0.22*              |
|                                  | *P = 0.37                  | *P = 0.62            | *P = 0.676                     | *P = 0.945               | *P = 0.79                | *P = 0.02           |
| Breast Surgeon                   |                            |                      |                                |                          |                          |                     |
| Designated sessions              | 0.26**                     | -0.08                |                                |                          |                          |                     |
|                                  | *P = 0.005                 | *P = 0.38            |                                |                          |                          |                     |
| Accredited British Association Surgical Oncology | 0.09                     | 0.21*               |                                |                          |                          |                     |
|                                  | *P = 0.41                  | *P = 0.04            |                                |                          |                          |                     |
| Nurse specialist qualification   |                            |                      |                                |                          |                          |                     |
| Registered                       | -0.11                      | -0.179               | -0.14                          | 0.06                     | 0.008                    | -0.04               |
|                                  | *P = 0.29                  | *P = 0.09            | *P = 0.18                      | *P = 0.53                | *P = 0.94                | *P = 0.67           |
| Obtained                         | -0.05                      | -0.159               | 0.11                           | -0.06                    | 0.01                     | -0.20*              |
|                                  | *P = 0.65                  | *P = 0.12            | *P = 0.26                      | *P = 0.53                | *P = 0.89                | *P = 0.04           |
| Degree                           | 0.02                       | 0.092                | -0.28**                        | -0.04                    | 0.14                     | -0.04               |
|                                  | *P = 0.87                  | *P = 0.37            | *P = 0.005                     | *P = 0.71                | *P = 0.18                | *P = 0.67           |
| Patient centred care             |                            |                      |                                |                          |                          |                     |
| Written information material available | -0.22*                   | -0.16                | 0.06                           | 0.04                     | -0.16                    | -0.04               |
|                                  | *P = 0.01                  | *P = 0.09            | *P = 0.52                      | *P = 0.65                | *P = 0.08                | *P = 0.66           |
| Guidelines                       |                            |                      |                                |                          |                          |                     |
| Referral guidelines for the cancer site | 0.22*                    | 0.101                | -0.01                          | -0.07                    | -0.04                    | -0.02               |
|                                  | *P = 0.02                  | *P = 0.28            | *P = 0.91                      | *P = 0.41                | *P = 0.64                | *P = 0.79           |
| Data collection                  |                            |                      |                                |                          |                          |                     |
| Network-wide dataset             | 0.12                       | 0.20*                | 0.01                           | 0.02                     | 0.23**                   | 0.01                |
|                                  | *P = 0.21                  | *P = 0.03            | *P = 0.90                      | *P = 0.79                | *P = 0.009               | *P = 0.87           |
| Recording data for individual patients | 0.20*                    | 0.004                | 0.10                           | 0.05                     | 0.24**                   | 0.17                |
|                                  | *P = 0.04                  | *P = 0.97            | *P = 0.33                      | *P = 0.61                | *P = 0.008               | *P = 0.06           |

*Correlation significant at the 0.05 level (two-tailed); **Correlation significant at the 0.01 level (two-tailed).
journey towards ‘total quality’ in healthcare, it is well established that there is more perceived progress in areas concerned with quality assurance than quality improvement.

Our study makes start to explaining cancer patient satisfaction with care through routinely available data. The associations are not strong, but suggest that at least some characteristics of hospitals may be reflected in patient satisfaction measures. Further work should seek to include differences in disease stage and treatment as explanatory factors, and to make more detailed investigations into differences in satisfaction between patient groups experiencing otherwise similar services.

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