The costs of child and adolescent psychiatric inpatient units

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Background

Inpatient care provides an important source of support for young people with psychiatric disorders and their families. It is a relatively costly service but to date there has been little information on either service levels or costs. The unit costs presented here were estimated for a study conducted alongside the National Inpatient Child and Adolescent Psychiatry Study (NICAPS; O’Herlihy et al., 2001).

In 1999, the NICAPS research team identified 80 child and adolescent psychiatric (CAP) inpatient units in England and Wales. A unit was defined as a ward or unit within a health facility that has a specialist CAP function, so there may be three or four units within a hospital.

Data collection

Sixty-six units completed the Unit Survey Questionnaire, to which a number of questions had been added to gain a clear description of the inputs to each unit and their activity levels. Forty-five NHS units and 13 run by independent sector organisations returned sufficient information for estimations to be made of the closest approximation of long-run marginal opportunity costs (Beecham, 1995).

The scope, format and content of the questions were based on previous large-scale cost estimation exercises (see for example, Knapp et al, 1992; Beecham et al., 1997; Chisholm et al., 1997). Four broad areas of information were requested to ensure a standardised cost estimation approach could be employed across all units.

- The whole time equivalent numbers for all staff working on the CAP inpatient unit (nurses, teachers, doctors, therapists, secretaries, managers, etc).
- The salary-related expenditure for the previous month for each category of staff.
- The unit’s allocation per annum for other revenue, overhead and capital costs following definitions provided in the NHS Costing Manual (Department of Health, 2000).
- Activity data such as number of inpatient beds and day care capacity.

The response to these questions was good given that providing this type of information requires respondents to balance supporting the research with commercial sensitivity. Twenty-nine CAP units provided a complete set of cost-related information and a further 29 provided less complete but sufficient information for unit costs to be estimated. Unless otherwise stated, all costs relate to the financial year 1999-2000.

Estimating unit costs

Forty units provided information on nursing expenditure and 32 on other staff expenditure. Where data on staffing levels were not accompanied by expenditure data, the mean observed cost for each type and grade was used. All median staff costs fell within two to five per cent of the mean except for senior registrars (7 per cent difference), and grade A and B psychologists (8 and 14 per cent difference).
difference respectively). For these staff groups, mean costs were re-calculated excluding cases that lay outside commonly employed pay scales.

Across the 58 CAP units for which costs could be estimated, the mean number of inpatient-equivalent places\(^1\) was 14.2 (range 6 to 32; sd 4.9; median 13.3 places). The mean number of inpatient-equivalent days per annum was 4,863 (range 2,184 - 11,680; sd 1,754; median 4,600).

These inpatient-equivalent figures were used to estimate other revenue, overhead and capital costs for the 48 CAP units that provided these data. For the remaining 10 CAP units, the observed median or ‘typical’ cost was used\(^2\).

**Comment**

Table 1 shows the results of these calculations. The mean cost per inpatient day is £197 (range, £91 - £380). The *NHS Reference Costs 2001* show a wider range (£67 - £2,237) around a mean cost per day of £321. In this study, only two CAP units had costs over £340 per inpatient day: without these units, the mean cost was £191 per inpatient day. Only one CAP unit had a cost per inpatient day under £100.

There is considerable variation on all the cost components. Although some of the observed cost variation will be due to estimation errors the greater part is likely to be due to the staff skills and experiences – reflected in the salaries – and the number of staff working on the unit. In turn, the staffing patterns are likely to be associated with the perceived needs of the patients who are admitted; CAP inpatient units treat young people with a wide range of psychiatric problems such as schizophrenia, mood disorders, eating disorders and conduct disorder.

Using these data we can estimate that on the census day in October 1999, the 663 residents of CAP inpatient units cost around £130,000. If this were also the typical number of residents over the whole year, the total annual cost would be £47.7 million.

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**References**


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\(^1\) Adjusted for the number of days the unit was open per week and the day care capacity.

\(^2\) These costs are not influenced by the direct care needs of patients but by the capacity and activities of the whole hospital, Trust or organisation.


### Table 1 Costs per inpatient day for 58 CAP inpatient units (1999-00 prices)

<table>
<thead>
<tr>
<th>Unit cost component</th>
<th>Range</th>
<th>Median</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nursing</strong></td>
<td>£6.22 – £220.38</td>
<td>£73.07</td>
<td>£75.70</td>
<td>33.60</td>
</tr>
<tr>
<td><strong>Doctors</strong></td>
<td>£0 – £91.06</td>
<td>£20.50</td>
<td>£25.03</td>
<td>15.81</td>
</tr>
<tr>
<td><strong>Psychologists</strong></td>
<td>£0 – £15.13</td>
<td>£3.12</td>
<td>£4.07</td>
<td>4.45</td>
</tr>
<tr>
<td><strong>Psychotherapists</strong></td>
<td>£0 – £39.81</td>
<td>£5.16</td>
<td>£6.96</td>
<td>7.23</td>
</tr>
<tr>
<td><strong>Therapists</strong></td>
<td>£0 – £14.61</td>
<td>£1.85</td>
<td>£3.16</td>
<td>3.46</td>
</tr>
<tr>
<td><strong>Admin/other staff</strong></td>
<td>£0 – £33.72</td>
<td>£8.30</td>
<td>£10.28</td>
<td>7.72</td>
</tr>
<tr>
<td><strong>Teaching staff</strong></td>
<td>£1.26 – £45.72</td>
<td>£10.91</td>
<td>£12.54</td>
<td>8.98</td>
</tr>
<tr>
<td><strong>Total cost of all personnel</strong></td>
<td>£53.57 – £303.40</td>
<td>£119.66</td>
<td>£137.81</td>
<td>52.65</td>
</tr>
<tr>
<td><strong>Overheads and capital costs</strong></td>
<td>£17.17 – 167.94</td>
<td>£48.42</td>
<td>£59.14</td>
<td>30.05</td>
</tr>
<tr>
<td><strong>Total unit cost</strong></td>
<td>£91.23 – £380.15</td>
<td>£171.61</td>
<td>£197.32</td>
<td>71.61</td>
</tr>
</tbody>
</table>

**Notes**

1. All grades of nursing staff.
2. Consultants, senior registrars, senior house officers. No cost is recorded for doctors for one unit, however, in the ‘other staff’ category, an adult psychiatrist is listed as working 0.8wte in the unit.
3. Grades A & B clinical psychologists and psychology assistants.
4. Psychotherapists, family therapists and social workers.
5. Occupational therapists, play and music or art therapists.
6. Unit manager, secretarial and other administrative staff.
7. Teachers and teaching assistants.