Resource implications of outpatient referrals to a general urological service

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The effects of new outpatient referrals on the dynamics of global provision in a surgical service has not previously been defined. Because of managerial pressure to reduce the time interval between general practitioner referral and first specialist assessment, many services are now faced with additional outpatient loads without any clear idea of the effect that this additional burden will have on overall practice.

In an attempt to define the logistic implications of a new outpatient load, 293 patients, referred from primary care to a general urological service, were followed for a further two interactions with the secondary care team. 'One-stop' visits with in-clinic investigation and an active discharge policy were employed to assist with efficient patient management.

Of the original patients, 28% required investigations not available in the clinic, with cost and logistic implications for support services.

In all, 32% of the patients needed further follow-up appointments, despite the active discharge policy. This necessitated 95 people being seen in additional clinic time.

Of the patients referred, 37% needed inpatient treatment; 46% being day case procedures, the remainder constituting a variable case mix. This work necessitated 7.1 operating sessions and an additional 75 inpatient bed days for every 100 new patients referred.

A model for determining the resource requirements for a surgical outpatient load is proposed.

The Patients' Charter (1) has had an enormous impact on the provision of hospital services since its publication in 1991. The initial impetus was to reduce inpatient waiting times, thereby shifting emphasis to inpatient rather than outpatient activity. This, together with pressure to reduce the time patients spend waiting in outpatient clinics to less than 30 min, has led to a reduction in the number of patients who can be seen in each clinic. While improvements in clinical practice such as pre-investigation (2-4), in-clinic investigation (3) and active discharge policies (3,4) can reduce the necessity for repetitive follow-up attendances there has still been an almost universal increase in the waiting time to first hospital appointment for 'new' urological patients (5) with significant clinical implications (6).

In 1993 and 1994, finance was made available in our hospital to help reduce excessive waiting time for initial specialist assessment. The intention was to reduce the interval from general practitioner referral to less than 13 weeks by April 1996. Our departmental outpatient referral interval was in excess of 6 months, and we were therefore encouraged to use the additional money to achieve the outpatient waiting time target.

This impetus encouraged us to look prospectively at the resource implications of an additional outpatient load with the objective of identifying the logistic modifications necessary for our service to respond to changes in outpatient referral rates (7).

Method

A total of 400 patients referred for a urological opinion were invited to attend outpatient clinics. Referrals were taken from the group of routine patients waiting in excess
of 10 weeks for a first appointment, and all urgent cases referred to the department over a 6-week period.

The patients who agreed to attend were initially assessed at three additional waiting list initiative (WLI) clinics. All patients were seen by urological specialists (3-year 3+ continuum trainees and one consultant) who were supported by two clinical nurse specialists. Patients were seen and investigated in the clinic, if appropriate, with ultrasound scanning uroflowmetry, flexible endoscopy and prostatic biopsy. Impotence was treated with intracorporal vasoactive drugs. Those patients who could have further treatment in primary care, or for whom no further urological intervention was necessary, were referred back to their general practitioners (GP).

Patients requiring investigations that were not available in the clinic had those tests organised the next working day, although the effect of increased service activity on ‘fluid’ pathology services was not measured in this study. When there was a high expectation of a negative result from investigation, the patient and GP were simply informed in writing of any abnormalities.

Patients who necessitated further outpatient review, either with or without investigation, were given additional follow-up appointments as indicated clinically.

Patients necessitating inpatient care were prospectively dated for admission. The BUPA classification of the procedure, together with its description as a day case or inpatient procedure was noted. The bed day requirement for inpatients was calculated from The Central Manchester Healthcare Trust’s (CMHT) Length of Stay (LOS) data for the BUPA category of that procedure. The number of patients needing a specific category of surgery that could be coped with on a single operating list was determined from current theatre case mix experience at Manchester Royal Infirmary.

All patients attending the clinic had a defined outcome from their initial attendance, and those necessitating investigation, follow-up review or inpatient treatment were followed for two further contacts with the urology department.

Results

Of the 400 patients invited to participate in the WLI clinics, 364 confirmed that they would attend; 293 (80%) actually attended on the day. The mean interval between referral and initial clinic visit was 6.3 weeks (range 1–28 weeks).

Active in-clinic investigation resulted in 194 interventions (0.66 in-clinic investigations per patient referred), in 110 patients (37% of those attending) (Table I). Only 79 patients (27% of those referred) could be referred back to their GP after a single clinic attendance, a further 29 (10% of those referred) being discharged once negative investigation results had been obtained.

Effects on support services

Eighty-four patients (28%) had 132 imaging/physiological measurement investigations ordered from the clinic

Table I. Summary of 194 in-clinic investigations carried out on 110 patients presenting to a general urology clinic

<table>
<thead>
<tr>
<th>Investigations</th>
<th>Number of patients</th>
<th>Percentage of total investigated (n = 194)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary tract ultrasound scan</td>
<td>74</td>
<td>38</td>
</tr>
<tr>
<td>Peak urine flow rate examination</td>
<td>49</td>
<td>25</td>
</tr>
<tr>
<td>Flexible cystoscopy</td>
<td>44</td>
<td>23</td>
</tr>
<tr>
<td>Vasoactive drug therapy</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>Transrectal biopsy of prostate</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

(0.45 investigations per new referral), the vast majority of which impacted on the Trust’s radiological services (Table II).

Effects on outpatient services

In total, 95 patients (32.5%) needed one or more follow-up appointments after initial referral. Of these patients, 11% required further outpatient follow-up without investigation and 14% needed a follow-up appointment for review of the results of their investigations. Of patients having inpatient treatment, 13% required postoperative follow-up (35% of those needing surgery). Dependent upon patient density per clinic (currently 14 new cases, 37 follow-ups/clinic in our practice, or 60 follow-ups/clinic), this would necessitate 1.5 additional follow-up clinics (0.05 follow-up clinics per 100 new referrals).

Effects on inpatient services

A total of 108 (37%) patients required some form of inpatient treatment (0.37 procedures per patient referred). Of the cases, 46% were minor day case procedures. The BUPA category spread would suggest that 21 lists (0.07 lists per new referral), necessitating an additional 219 bed days (0.75 bed days per new referral), would be required to cope with this extra workload (Table III). In addition,
approximately 3% of referred patients had disease (such as bladder cancer) which required additional inpatient admission.

A model reflecting the activity generated by an outpatient load of 100 patients is illustrated in Fig. 1.

**Discussion**

Much emphasis has been placed on inpatient activity analysis, mainly because this is the current method by which services are funded (8) (finished consultant episodes, FCEs). Projecting activity from FCEs however, is a very difficult way of determining what resources are required to run any surgical service, because patients are not presented as neat ‘packages’ of inpatient activity.

There are virtually no data available regarding the logistic consequences of outpatient referral from primary care. While we have only followed patients for three interactions with our service, and not every resource implication has been captured by this study, we believe that we can at least now attempt to define objectively the impact that additional referrals have on our service.

We have demonstrated that for every 100 general urological patients referred to our service, there will be a need for 45 investigations in other departments, that 0.5 of an additional dedicated follow-up clinic, seven operating sessions and 74 bed days will be required to cope with the work generated.

We suggest that the model evolved to mirror activity shown in Fig. 1 may be applicable to other surgical specialties once appropriate local data, relevant to those services, have been captured. Furthermore, this model could be refined to determine the logistic implications of referrals to subspecialties. This may be relevant to the evolution of differential costing for outpatient appointments dependent upon clinical presentation.

We believe that this model could also have implications for the determination of the numbers of specialists and other resources required to provide a service given a specified outpatient load. It may also be useful as a tool to measure the efficacy of other methods of dealing with specialist referrals from primary care. In particular, it may be helpful in determining the impact of community-based specialist nurses (9) who, by increasing the appropriateness of referrals from primary care (10), should decrease the patient flow into the secondary care environment.

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**Table III.** Summary of 108 admissions necessitated by 293 patients presenting to a general urology clinic with consequences for list space and bed time required dependent upon BUPA category

<table>
<thead>
<tr>
<th>BUPA category</th>
<th>No. of patients</th>
<th>Patients manageable per list</th>
<th>Lists required</th>
<th>Average LOS (days)*</th>
<th>Bed days required</th>
</tr>
</thead>
<tbody>
<tr>
<td>D/C Minor</td>
<td>50</td>
<td>10</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>IP Minor</td>
<td>11</td>
<td>6</td>
<td>1.8</td>
<td>1.7</td>
<td>18.7</td>
</tr>
<tr>
<td>IP Inter</td>
<td>27</td>
<td>5</td>
<td>5.4</td>
<td>2.4</td>
<td>64.8</td>
</tr>
<tr>
<td>IP Major</td>
<td>15</td>
<td>3</td>
<td>5</td>
<td>6.2</td>
<td>93</td>
</tr>
<tr>
<td>IP CMO</td>
<td>5</td>
<td>1.5</td>
<td>3.75</td>
<td>8.5</td>
<td>42.5</td>
</tr>
<tr>
<td>Totals</td>
<td>108</td>
<td></td>
<td>20.95</td>
<td>219</td>
<td></td>
</tr>
</tbody>
</table>

* Length of stay data generated from CMHT mean length of stay (LOS) per BUPA category

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**Figure 1.** Patient dynamics of an additional 100 outpatient referrals on a general urological outpatient and inpatient service.
References


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