Pre-assessment for children scheduled for day surgery

Jessica Higson and Teresa Finlay describe the impact of a new clinic on the admissions process for patients, families and staff.

Summary

This article reports on an evaluation of a established pre-assessment clinic for children scheduled for day surgery. The results suggest that the pre-assessment clinic increases the efficiency and effectiveness of the admissions process for children. The authors discuss the results in detail and make recommendations for further research and nursing practice. They suggest, for example, that evaluative research can provide a framework for assessing new services.

Keywords
Admissions process, children’s day surgery, pre-assessment clinic

Pre-assessment, did-not-attend or cancellation rate

Several reports on the evaluation of pre-assessment services highlight the need to audit the did-not-attend (DNA) and cancellation rates (Dunn 1998, Clark et al 1999, 2000, Green 2000, Sexton 2003, Le et al 2007). In a cost-driven NHS, the rationale for such evaluation is obvious; DNAs and cancelled operations mean that ward, nursing, medical and theatre resources are underused and that time and money are wasted.

Pre-operative assessment is often cited as a way of reducing the DNA and cancellation rates on the day of surgery (Vowles et al 1997, Clark et al 1999, Samuel and Ranta 2001). This seems logical given that, if children are seen before surgery, social, psychological and physical problems can be identified and managed before admission. However, the literature on this matter is far from conclusive. For example, Vowles et al (1997) and Clark et al (1999) found that about 30 per cent of children who were pre-assessed were unsuitable for day-case surgery or no longer needed treatment, thereby illustrating how pre-assessments can save time and money.

Meanwhile Craig’s (2005) systematic review to determine if nurse-led pre-operative assessment reduces the cancellation rate of elective surgery was inconclusive, although it is worth noting that the methodology used in Craig’s review was unclear.

Samuel and Ranta (2001) claim that pre-operative assessment decreases the non-attendance rates of children, although their conclusion is unsubstantiated because the study is neither referenced nor based on their results.

Pre-operative assessment and anxiety

Rhodes et al (2006) point out that pre-admission contact, provision of relevant and specific education and information, and effective communication are all important.
aspects of adult-based pre-assessment. Meanwhile, some researchers suggest that pre-operative preparation programmes can, in some cases, help alleviate anxiety in children and parents (Callery 2005, Betz 2006).

However, the literature on preparation of children for day surgery is also far from conclusive. Some studies have found limited differences between anxiety levels of children and their families who have been pre-assessed and those who have not (Ellerton and Merriam 1994, Kain et al 1998, Harvey et al 2000), while others have found significant differences (Hatava et al 2000, Li 2006, Li et al 2007, McEwen et al 2007).

All the studies mentioned differed in method of preparation, scale used to measure anxiety and coping, and research method, making comparison of results difficult.

**Patient experiences and satisfaction** Gathering patient feedback on services is an essential part of any evaluation, so it is important to understand families’ experiences of the pre-admission process so that it can be improved and adapted to suit their needs better.

Patient involvement has been encouraged by government policy for more than a decade. A First Class Service (Department of Health 1998) for example urges healthcare professionals to ask patients about their experiences of using services.

More recently, the National Health Service Act 2006 (DH 2007b) states that healthcare organisations must involve and consult patients and the public in ‘the planning and provision of services’ and ‘the development and consideration of proposals for changes in the way services are provided’.

The Health Care Commission, now the Care Quality Commission, identifies that an essential step in encouraging hospitals to meet the needs of patients is asking them what they think of the NHS, and one way of doing this is to carry out patient surveys.

Although patient-satisfaction surveys have been used to collate data for many years, the literature suggests that the administration of these surveys, and interpretation of the data, are fraught with methodological problems (Box 2).

Measuring people’s experience, rather than satisfaction, is a more accurate method of capturing data because it reduces the subjectivity of responses to services. Patient experience surveys identify what actually happened to them and their families, and results can then be compared to service aims (Royal College of Surgeons 2007). This method was therefore chosen as part of the evaluation.

### Box 1  Intended benefits of the children’s pre-assessment day surgery service

- Families are offered play preparation so their children are as psychologically ready for surgery as possible.
- Families are given written and verbal information detailing what will happen on the day of surgery and the care needs of the children after surgery by the nurse practitioner and play specialist.
- Did-not-attend and cancellation rates will decrease, which will maximise the time available in theatre.
- Theatre delays will be minimised because children will arrive on day wards pre-assessed and complex pre-operative problems will have been resolved through pre-assessment.
- Communication between surgeons, anaesthetists and nursing staff will be as open as possible; nurse practitioners will highlight any children with complex issues at the time of pre-assessment.
- The trust receives £223 income for each child who is pre-assessed (DH 2007a).

### Box 2  Problems with patient-satisfaction surveys

- Questionable validity and reliability (Walsh and Walsh 1998).
- Poor patient recall (Collins 1999).
- Surveys undertaken on the day of discharge can be affected by the cultural norm of expressing gratitude for care received, hence high levels of satisfaction (Hyrkas et al 2000).

### Evaluation method

The Key Evaluation Checklist (Davidson 2005, Scriven 2007) was chosen as a framework to ensure that the assessment was carried out and completed methodically.

The broad research question used to evaluate the clinic was: ‘Has the introduction of a pre-assessment clinic increased the efficiency and effectiveness of the admission process for children?’ This was then broken down into four questions to ensure that the service was evaluated from different angles. Each question and its related research method is explained below.

### Question 1  How many children are pre-assessed in each clinic?

Records of the number of children seen in each clinic have been kept since October 2007. The numbers were collated and an average for each clinic was worked out. The clinics were held exclusively for children undergoing general surgery.
Table 1  Number of children pre-assessed in each clinic over the first year (October 2007-October 2008)

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Number of children pre-assessed</th>
<th>Number of clinics in total period</th>
<th>Mean number of children per clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday am</td>
<td>113</td>
<td>43</td>
<td>2.6</td>
</tr>
<tr>
<td>Wednesday am</td>
<td>54</td>
<td>41</td>
<td>1.3</td>
</tr>
<tr>
<td>Wednesday pm</td>
<td>179</td>
<td>48</td>
<td>3.7</td>
</tr>
<tr>
<td>Friday am</td>
<td>40</td>
<td>40</td>
<td>1.0</td>
</tr>
<tr>
<td>Friday pm</td>
<td>111</td>
<td>33</td>
<td>3.4</td>
</tr>
<tr>
<td>Totals</td>
<td>497</td>
<td>205</td>
<td>2.4</td>
</tr>
</tbody>
</table>

**Question 2**

*Has the number of children who did not attend or whose appointments were cancelled on the day of surgery decreased?*

Records of the numbers have been kept by ward staff since January 2008.

Staff recorded the number of children who did not attend or whose appointments were cancelled on the day of surgery and the reasons for cancellation. These records were examined and all such children were identified each week. Their notes were then examined to establish whether they had been pre-assessed.

The cases of any pre-assessed children who did not attend or whose appointments were cancelled were discussed by the advanced children’s nurse practitioner (ACNP) team to identify what could have been done to prevent this.

**Question 3**

*Were families well prepared for hospital admission?*

A family questionnaire that focused on identifying experience rather than measuring satisfaction was developed with the trust’s clinical governance department. Fifty questionnaires and information sheets were distributed to all general surgical day-case pre-assessed children and their families during eight weeks in June and July 2008.

The named nurse for each child gave family members the questionnaire at admission. They were able to fill it in on the ward and place it in a collection box or return it to the clinical governance team by posting it in a prepaid envelope. Results were entered into an Microsoft Excel spreadsheet, generating and graphs to illustrate the results.

**Question 4**

*a) How many children are referred to anaesthetists?*

*b) With what complications are they referred?*

*c) Are the referrals appropriate?*

Records were kept of all referrals, as were copies to anaesthetists from the start of the clinic, including copies of the anaesthetic checklist and any letters sent to anaesthetists with the referrals detailing the children’s history and any complications.

These were discussed at quarterly multidisciplinary meetings with consultant paediatric anaesthetists to identify the conditions with which children were referred and whether referrals were appropriate. The nature of the referrals was explored and any inappropriate referrals discussed. The percentage of inappropriate referrals was then calculated.

**Ethical issues**  The rights, safety and wellbeing of the children and their families were paramount in this study, but because it was an evaluation it did not need NHS approval. However, the researchers obtained ethical approval from the university’s school of health and social care research ethics committee because the work also formed part of a master’s degree course.

**Results**  The results of the four evaluation questions above are presented below.

**Question 1**

*How many children are pre-assessed in each clinic?*

The total number of children pre-assessed in the first year was 497 (Table 1), which is equivalent to an income of £110,831 for the trust.
The figures are broken down into different clinics (Figure 1) and show that the Wednesday afternoon clinic was the busiest. This was because the ACNP carried out pre-assessments for two consultant surgeons.

Question 2
Has the number of children who did not attend or whose appointments were cancelled on the day of surgery decreased?
Ward staff recorded 36 children who did not attend or who cancelled on the day of surgery (Figure 2, see page 36).

The 24 children who had not been pre-assessed did not attend or cancelled for the following reasons:
- Fourteen prevented by the need for pre-operative bloods, starvation guidelines not being followed, overnight stay not being arranged.
- Seven administration errors, such as letters not sent or messages not passed on.
- Four medical reasons, such as a change in the child’s medical condition relating to his or her surgery.

The 12 children who had been pre-assessed did not attend or cancelled for the following reasons:
- Five administration errors.
- Three medical reasons.
- Three family reasons, such as them deciding they no longer wanted the surgery.
- One cancelled on day of surgery because of a medical condition that was highlighted at pre-assessment.

Question 3
Were families well prepared for hospital admission?
Fifty questionnaires were distributed to families on the day-care ward by their named nurses and 36 (72 per cent) completed questionnaires were returned. There were 14 questions, although only five are examined here and these have been chosen because they cover the questionnaire’s main themes.

a) You attended the pre-assessment clinic with your child straight after your outpatient appointment. What do you think about the timing of your appointment?
Three families thought that their appointments were too far in advance while the other 33 (92 per cent) said the timing was acceptable.

b) Did the nurse practitioner give you a written information leaflet about your child’s operation?
Thirty four (94 per cent) families received information leaflets about their children’s surgery, one family was unsure and one did not answer. Of these, 25 families received information leaflets about pain after surgery, seven did not receive them and two were unsure if they had. Eighteen of the families who had received the pain leaflet had had it explained to them, six families said that they had not had explanations, and one was unsure.

c) Did you feel you were given the opportunity to ask questions or raise concerns?
All 36 families said that they had had the opportunity to ask questions. Thirty two (89 per cent) said that they had ‘definitely’ had the opportunity to ask questions, while four (11 per cent) said that they had been able to ask questions ‘to some extent’. One (3 per cent) family qualified this answer by writing that they had thought of more questions later.

d) Did you see the play specialist at the pre-assessment clinic?
Twenty five (69 per cent) families had seen the play specialist as part of their pre-assessment, while 11 (31 per cent) had not.

e) Did the nurse practitioner tell you what to do if your child was unwell before the operation?
Twenty seven (75 per cent) families were told what to do if their child became unwell pre-surgery.

Question 4
a) How many children are referred to anaesthetists?
b) With what complications are they referred?
c) Are the referrals appropriate?
The ACNP team and consultant paediatric anaesthetists met every four months to discuss the number and nature of anaesthetic referrals, to identify whether these were appropriate, and to amend practice as appropriate. The number of referrals by quarter was:
- Fourteen children between June and September 2008.

The reasons for these anaesthetic referrals included:
- Newly diagnosed heart murmur.
- Recent chest infections or asthma.
- Psychogenic polydipsia.
- Family history of suxamethonium apnoea.
- Cystic fibrosis, and related diabetes.

The results from the family questionnaire were encouraging and informative and comments at the end were complimentary.
All the referrals were deemed appropriate and the anaesthetic team identified no children who were seen on the ward with problems that had not been highlighted at pre-assessment.

Discussion

**Question 1**

*How many children are pre-assessed in each clinic?*

The numbers of children pre-assessed varied depending on which clinic they attended, and it was useful to see which clinics were busiest so that staff allocation could be evidence based. Unfortunately, it was impossible to record the total number of day-case children who were not pre-assessed, so we could make no comparison. However, the purpose of recording the number of children was to justify the time ACNP's spent at the clinics.

**Question 2**

*Has the number of children who did not attend or whose appointments were cancelled on the day of surgery decreased?*

These figures were high in February and March, soon after recording began, but decreased over the following months. This could be for several reasons.

The pre-assessment could have had a direct effect on reducing DNAs or cancellations, but this is hard to prove because the pre-assessment clinics began the previous October so the DNA figures should have been low for the whole period of the evaluation.

Another possibility is that the ward staff were recording the DNA and cancelled appointments effectively when the records began, but gradually stopped doing so. The literature review was unclear whether or not pre-assessment decreased the DNA and cancellation rates for day surgery and the evaluation echoes this because the results cannot be attributed directly to the introduction of the clinics.

Twenty five children who had not been pre-assessed did not attend or cancelled their appointments. A detailed examination of each case revealed that 14 of these could have been prevented by pre-assessment. This is because the reasons for DNA or cancellation, such as the need for pre-operative bloods, starvation guidelines not being followed and the need for a post-operative high dependency bed, would have been identified earlier. This supports the need for pre-assessment and demonstrates its effectiveness.

Twelve of the pre-assessed children did not attend or cancelled and all but one case could not have been prevented by the pre-assessment system. This child had complex medical needs that were highlighted at pre-assessment, but his appointment was cancelled on the day of surgery because there was a different anaesthetist who was unable to carry out the complex anaesthetic procedure required.

This case was discussed in detail at a multidisciplinary meeting and a database was established to enable referrals to be tracked and progress recorded until children have surgery and are discharged.

**Question 3**

*Were families well prepared for hospital admission?*

The return rate for the family questionnaire was
72 per cent, which is well within the 60 per cent that is recommended by Polit and Beck (2006). The questionnaire asked families for details of their experiences rather than focusing on their satisfaction to give a clearer picture of what happened and whether the clinic aims were met (Royal College of Surgeons 2007).

The survey showed that 92 per cent of families stated that the timing of their pre-assessment appointments was acceptable. This is important for the success of the clinic because the nursing team had questioned the usefulness of the timing of pre-assessment.

The children are seen for pre-assessment immediately after their consultant outpatient appointment and the decision to schedule day surgery, but often the surgery is planned for several weeks later. Therefore, it is useful to know that families prefer to see the pre-assessment team on the same day, rather than having to return for a separate appointment.

At pre-assessment, 34 (94 per cent) of the 36 families received information leaflets about the surgery but only three quarters of these were given the pain leaflet. This leaflet is relevant for children and should always be given out.

Furthermore, it was explained to just 18 of the 34 families; one family commented that the information on paracetamol dosages would have been helpful earlier so that the drugs could have been obtained in advance.

There are plans to include pain scales in the pain leaflets that are offered at pre-assessment, which should increase the number of leaflets given out and explained.

All families thought that they had been offered the opportunity to ask questions. Research is inconclusive as to whether pre-assessment can decrease anxiety but, if it does, giving families the opportunity to ask questions at this point is likely to go some way to achieving this.

Only 69 per cent of families saw a play specialist and there may be several reasons for this. Some families may choose not to see the play team because they think their children are too young and have limited understanding of the procedure, while others have been to hospital several times before and may be confident that their children understand the procedures. Some families may be unable to stay at the clinic for this extra time.

These reasons are anecdotal because the questionnaire did not ask why families did not see the play team. But, if the evaluation is repeated, this question will be added. All families who saw the play team said they found it helpful.

Seventy five per cent of families were told what to do if their children were unwell before surgery, but this figure must reach 100 per cent to keep the cancellation rate down. Staff must be informed as early as possible of decisions to cancel so that the theatre space can be filled and theatre time is not lost.

Overall, the results from the family questionnaire were encouraging and informative, and comments written at the end were complimentary about the staff and facilities.

**Question 4**

a) *How many children are referred to anaesthetists?*

b) *With what complications are they referred?*

c) *Are the referrals appropriate?*

A mean of 12 children per quarter were referred for anaesthetic review, which is equivalent to four children a month, but it was agreed at the multidisciplinary meeting that this was an acceptable number.

‘Acceptability’ arises out of a number of factors. If too many children are referred, the anaesthetists could be overwhelmed with work. However, if too few are referred, some children with problems may be missed.

The referrals were discussed individually and identified as appropriate or not by the ACNP team and consultant paediatric anaesthetist. The
anaesthetic team was also aware that its members had to report any children who had medical problems whom it had missed at pre-assessment. None were identified.

An anaesthetic review was carried out after the cancellation of surgery for the child with complex medical needs who had been pre-assessed, as previously described. The literature search did not identify any research about this process of anaesthetic review and further work will be undertaken to assess the validity and reliability of the anaesthetic referral protocols.

Conclusion

The pre-assessment clinic appears to have increased the efficiency and effectiveness of the admission process for children undergoing day surgery. Families think that their children are seen at the best time before surgery and that they are well prepared for admission. The number of DNAs and cancellations for preventable reasons has decreased.

The process of pre-assessment also appears to be effective because many children are seen in clinic and referrals for anaesthetic review are appropriate.

Implications for practice

- Pre-assessment of children before elective surgery supports surgical planning and ensures theatre readiness from a medical, nursing and psychological perspective.
- Evaluative research provides a framework to enable a scientific approach to assessing the effect of a new service on multiple relevant parties.
- Future work should include assessment of the validity and reliability of anaesthetic referral and review criteria.
- New clinical initiatives should always be evaluated.
- Undertaking patient experience surveys is a valid method of understanding families’ experiences, so that processes can be improved.

References


