

# Use of the Day Surgery Unit for Emergency Surgical Cases

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This article is accompanied by an editorial, see page 2

**Abstract:**

Emergency day surgery has been demonstrated to be safe and cost-effective. Its use has not, however, been widely adopted. In our hospital, such a service was introduced five years ago, but its uptake was never formally evaluated. This study examined the CEPOD emergency and trauma lists over a three month period, and identified cases potentially suitable for conduct as a day case. Of the 498 emergency operations, 27.5% were potentially appropriate for the emergency day surgery service; detailed case note examination of a representative sample of these revealed no apparent contraindication in 60%. Nonetheless, there was no evidence that use of the emergency day surgery service was even considered in the majority of these patients, despite available capacity. We conclude that the existing service is underused and further education of staff is the most appropriate initial step to address this issue.

## Introduction

The Day Surgery Unit (DSU) has traditionally been reserved for elective surgical procedures. Its use reduces hospital costs, improves patient satisfaction and attenuates the risk of nosocomial infection<sup>1,2</sup>. It is also associated with enhanced recovery and more rapid return to working life<sup>3</sup>. Attention has previously been drawn as to whether the same principles could be applied to a proportion of emergency surgical work<sup>4</sup>. Currently, unscheduled cases are usually placed on an emergency NCEPOD list<sup>5</sup>, and prioritised according to clinical urgency and severity. Those with conditions not immediately life-threatening are frequently delayed, resulting in extended hospital stays and additional cost. Patients express significant dissatisfaction given the incumbent uncertainty and anxiety, increased time to symptom resolution, and prolonged periods of being nil by mouth<sup>6</sup>. Scheduling emergency minor operations for a dedicated list in the DSU would not only circumvent many of these difficulties, but also relieve pressure from the standard emergency list and reduce costs by decreasing the duration of hospital stay.

In the 1990s, the Whittington Hospital conducted a prospective randomised controlled trial to evaluate the safety and efficacy of emergency day surgery<sup>7</sup>. The trial showed that this was safe, efficient, effective, and associated with reduced hospital stay, lower costs and high patient satisfaction. A mainstream protocol was thus introduced five years ago to encourage its use. According to this protocol, suitable patients should be identified by the surgical registrar on-call,

as part of their routine assessment in the emergency department. They would then be referred to the DSU, who would preassess the patient and allocate procedure time for the following day with any surgeon with space on their list.

Although emergency day surgery has not been widely introduced in most hospitals, at our hospital the service is currently utilised for an average of 5–6 patients each week, mostly for incision and drainage of abscesses. Anecdotally, there are a number of cases that remain on the regular emergency list that are potentially suitable to be conducted as a day case. We estimate that with the existing service model, we could accommodate approximately a further five cases per week (two each in general surgery and trauma and orthopaedics and one in gynaecology) without diverting resources from elsewhere. Furthermore, given the likely cost savings, there would be capacity to augment the service should demand rise.

The uptake of emergency day surgery services has never been formally assessed, so this study set out to establish whether the facilities were being appropriately accessed by examining those patients who were still listed on the regular emergency lists. We also sought to identify any barriers to the use of the emergency day surgery service.

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## **Patients and methods**

There is no formal protocol at our hospital providing a specific list of procedures for which emergency day surgery is promoted. At present, it should be considered for any procedure that the on-call surgical registrar or consultant feel could safely wait until the following morning without an overnight hospital stay. The latter includes the ability to provide adequate analgesia outside hospital and the absence of need for routine monitoring of physiological observations. The procedures must also have been successfully conducted as a day case in the past.

Exclusion criteria followed standard guidelines for day surgery<sup>7</sup>. These covered social, surgical, medical and anaesthetic considerations. Briefly, social factors included patient refusal and potential isolation at home. Surgical factors included an expected procedure duration of more than 90 minutes, expected blood loss more than 200 ml, and predicted delayed recovery with a requirement for in-hospital observation, analgesia and other care. Medical and anaesthetic contraindications included age less than two years (with no upper age limit), BMI >35 kg/m<sup>2</sup>, ASA grade of IV or V, or ASA II or III with complicated diseases requiring specialist management.

All cases from the inpatient emergency CEPOD and trauma lists during February to April 2007 were identified. Procedures for which day surgery might potentially have been appropriate were selected through discussion with senior surgeons from the relevant specialities; those successfully performed as day cases in previous studies were also included. A representative sample of such cases was selected, and a retrospective analysis of the medical records conducted. Basic demographic data were documented, including age, gender and the nature of the operation. Case notes were reviewed for any contraindication to day surgical intervention and scored as suitable if none were present. In all cases, evidence that the patient was considered for emergency day surgery was sought.

Statistical analysis was performed using GraphPad Prism version 4.0 and comparisons were made using 2-tailed students' t-test or Fisher's exact test, as appropriate. A p value <0.05 was considered significant.

## **Results**

A total of 498 patients were identified during the 12 weeks study period, 342 from the CEPOD emergency list and 156 from the trauma list. Of these, 249 (50.0%) were male and the mean ( $\pm$  SD) age was 42.7  $\pm$  19.6 years. A total of 137 procedures (27.5%) were rated as potentially suitable for day surgery. The medical records of a representative sample of 75 of these (54.7%) were selected for detailed review. Of this sample, 48.0% were male and their mean age was 36.9  $\pm$  14.6 years. There were no significant differences in either of these parameters, nor in the case mix, between the sampled and parent populations.

Contraindications to day surgery were documented in 30 of the 75 sampled cases (Table 1). The remaining 45 (60%) possessed no recognised contraindication and were rated as suitable for emergency day surgery (Table 2). In none of these patients was there any documentation of any reason why the procedure could not be performed as an emergency day case, or that the option was even considered. This extrapolated to 9% of all emergency operations, and equated to a mean of 6.85 patients per week. Of these cases, 44 (97.8%) were derived from the CEPOD emergency list, and were performed principally by the general surgeons and gynaecologists. The median length of stay for patients thought to be suitable for emergency day surgery was 1.5 days (range 0–3 days).

**Table 1 Documented contraindications to emergency day surgery recorded in the total sample of 75 patients**

Contraindication	Number (%) of patients
Significant haemorrhage	9 (30%)
Uncontrolled pain	6 (20%)
Possible sepsis	6 (20%)
Patient refusal	4 (13%)
ASA grade	3 (10%)
Possible underlying malignancy	2 (7%)

**Table 2 List of procedures by specialty which could potentially have been performed as emergency day surgery in the 45 patients with no documented contraindications**

Specialty and procedure	Number (%) of patients
<b>General surgery</b>	<b>25 (54.3%)</b>
incision and drainage of abscess	18 (39.1%)
exploration of wound	2 (4.3%)
excision of infected sebaceous cyst	1 (2.2%)
debridement of necrotic toe	1 (2.2%)
incarcerated periumbilical hernia	1 (2.2%)
lymph node biopsy	1 (2.2%)
removal of foreign body	1 (2.2%)
<b>Gynaecology</b>	<b>18 (39.1%)</b>
Evacuation of retained products of conception	16 (34.8%)
laparoscopy and ovarian cystectomy	2 (4.3%)
<b>Urology</b>	<b>1 (2.2%)</b>
removal of J-J stent	1 (2.2%)
<b>Trauma and orthopaedics</b>	<b>1 (2.2%)</b>
arthroscopy	1 (2.2%)

## **Discussion**

Although day surgery is widely utilised for elective procedures, with many established benefits<sup>1-3</sup>, research is limited into its role for minor and intermediate cases presenting to the emergency department<sup>7-9</sup>. Despite a randomised, controlled trial demonstrating its safety and efficacy<sup>7</sup>, there are no reports of converting this into mainstream practice. The present audit aimed to assess

utilisation of an emergency day surgery guideline five years after its introduction, and to identify any barriers to its access.

We identified a substantial proportion of patients booked on the regular emergency and trauma lists for procedures that could potentially be performed on a day surgery list. In the majority of these patients, there was no apparent contraindication to their referral for emergency day surgery. Cases were primarily general surgical (predominantly incision and drainage of abscesses), followed by gynaecological (mostly evacuation of retained products of conception), with a minority of urological or orthopaedic procedures.

In patients in whom contraindications to emergency day surgery were identified, the predominant reasons were medical. These included significant haemorrhage, possible sepsis requiring regular monitoring and/or intravenous antibiotics, and pain not suitably managed as an outpatient whilst awaiting surgery. A small number of patients refused the option of discharge with return the following day; this small group is perhaps amenable to improved counselling.

In the majority of case notes, however, we were unable to identify any documentation of consideration of patients for referral to the emergency day surgery services, particularly in those in whom contraindications were apparently absent. These included a number of patients who were admitted to hospital for between 24 to 72 hours whilst awaiting procedures on the standard inpatient emergency list, who were not systemically unwell and who required no more than simple oral analgesia or antibiotics in the interim. We can only conclude that this reflects a lack of awareness, or consideration, of the emergency day case service and its demonstrated benefits.

Since the median duration of hospital admission was greater than 24 hours, this indicates that the majority of patients had at least one overnight stay. This implies an unnecessary use of hospital resources<sup>10,11</sup>. Other studies have demonstrated probable further scope to expand the range of emergency cases that could potentially be performed on day surgery lists<sup>12,13</sup>. In our hospital, we estimated that there is capacity, under the existing service structure, to perform an additional five emergency day cases per week. This is approximately double the current usage, with potential for further reorganisation and expansion, should demand become significantly higher. This may not be immediately achievable, however, as this estimated additional capacity incorporates two orthopaedic procedures per week, whereas only a minority of those cases identified in this study were from orthopaedics. When initially constructing the list of appropriate procedures, we considered several cases of upper limb manipulation under anaesthesia that might have been amenable to day surgery. However, these were omitted following advice from the orthopaedic surgeons, as the day unit facilities had only limited access to the full imaging records, radiological input and other resources which are present in the emergency theatres. These restrictions could nonetheless be circumvented in the short-term by managing

patients as day cases through the day surgery wards, whilst still performing the procedure in the emergency theatres [a practice which we have successfully adopted for a number of years with any day case emergency patients treated first on the CEPOD theatre list, unless a genuinely life-threatening emergency requires urgent surgery – Ed]. In the long-term, they could be readily addressed once the concept of emergency day surgery becomes more firmly established.

This study is limited by the retrospective nature of the data collected. The case notes frequently did not record all the information required to allow a full assessment of patient suitability for day surgery, such as BMI. It was also rarely documented as to whether the patient had in fact been offered day surgery as an option, and whether they would have accepted this if suitable. Finally, conservative estimates of suitability for day surgery have been used in this study, and therefore may underestimate the true service potential. We recognise that some of the contraindications identified (e.g., BMI and ASA grade) could be relative and subjective, and that opinions on these exclusion thresholds may differ.

In conclusion, this study shows that, despite the existence of an established guideline for the use of emergency day surgery, this service is difficult to deliver in practice and is being utilised to less than half of its full potential. The most likely reason is failure to explain the process sufficiently to incoming trainee surgical and anaesthetic staff. This demonstrates the importance of robust local induction processes, which would include highlighting the more recent expansion of day surgery selection criteria. It may be helpful to introduce a clerking proforma for use in the A&E and surgical admissions departments, that specifically requires medical staff to consider the suitability of performing cases in a day surgery environment. This could include documentation of discussions with the patient, and record any contraindications to conducting an ambulatory procedure. There may be further benefits from educating emergency department nurses and emergency list co-ordinators. These are likely to form a more stable workforce, and thus require less re-education, and could be a valuable resource to prompt appropriate use of the day service facility.

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