

Surgical care  
Patient discharge

### **Delayed discharge in day surgery patients: a literature review**

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#### **Abstract**

NHS Trusts face considerable financial challenges. There is a drive to reduce costs by increasing day surgery rates, thereby reducing the length of post-operative stay. Some patients will not meet the discharge criteria to go home following day surgery, for a variety of reasons. They may then require an overnight stay in hospital, creating an unplanned cost.

#### **Aims**

The aim of this article is to explore the reasons why some adult patients are not suitable for discharge following day surgery.

#### **Methods**

A pragmatic, mixed-methods approach was used to undertake a critical evaluation of the literature and current practice to determine what is already known about discharge following day surgery. Thematic analysis was used to determine the key themes and issues, enabling recommendations to be made to reduce the incidence of patients who are unable to be discharged following day surgery.

#### **Findings**

The main themes or reasons for delayed discharge following day surgery were: post-operative nausea and vomiting, post-operative pain, going late to theatre and social reasons. This was supported by a Trust audit in June to August 2014, which indicated that a patient going late to theatre, had the greatest effect on discharge outcomes.

#### **Conclusion**

Recommendations for practice include: the introduction of post-operative nausea and vomiting risk scoring and prophylactic protocols; reorganisation of theatre lists to ensure patients have enough time to recover; and provision of information at pre-assessment, regarding the requirement for a responsible adult escort to take patients home and stay with them for first 24 hours. These changes may help NHS Trusts to improve discharge outcomes for day surgery patients and reduce unplanned costs.

**day surgery, discharge, delayed discharge, post-operative nausea and vomiting, post-operative pain, surgical delay, theatre delays**

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DAY SURGERY BEGAN in the 1900s (Jackson 2007). Historically, it was only deemed suitable for the simplest procedures and fittest patients (Mitchell 2003, Smith 2007). In 1985, less than 15% of elective surgery was undertaken on a day-case basis (NHS Management Executive Value for Money Unit 1991). Yet in 2001, The Audit Commission (2001) recommended that 75% of all surgical procedures should be performed as day cases. This is the statistic cited current archived web site is:

**<http://webarchive.nationalarchives.gov.uk/20150421134146/http://archive.audit-commission.gov.uk/auditcommission/aboutus/publications/pages/national-reports-and-studies-archive.aspx.html>** By 2009, 70% of all surgical procedures were being undertaken as day surgery in the UK, as a result of this recommendation (Rosén et al 2009, Older et al 2009).

Initially, The Audit Commission (2001) suggested that only a 'basket' of 25 procedures were appropriate for day surgery. These included inguinal hernia repair and laparoscopic cholecystectomy. However, with the advancement in surgical and anaesthetic techniques, NHS Trusts are now able to perform additional procedures as day surgery, for example partial thyroidectomy and myringotomy (Association of Anaesthetists of Great Britain and Ireland (AAGBI) and British Association of Day Surgery (BADs) 2011). Furthermore, advances in surgical and anaesthetic techniques have led to an international increase in the number and complexity of surgical procedures that are performed as day surgery (Toftgard 2009).

The literature suggests that NHS Trusts have had to increase the number of day surgery procedures performed in response to a reduction in the number of acute inpatient beds (Coley et al 2002, Gilmartin and Wright 2008, Rastogi and Vickers 2009, Ng and Vickers 2013). In practice, there appears to be a national shortage of acute inpatient beds. This can be attributed partly to delays in discharging hospitalised patients, inadequate nurse-to-patient staffing ratios and inefficient diagnostic services (Asplin et al 2003, Simmons 2005). Some delays in discharge may result from a shortage of intermediate community care beds, but this cannot be resolved directly by acute care trusts (The Audit Commission 2003).

**<http://webarchive.nationalarchives.gov.uk/20150421134146/http://archive.audit-commission.gov.uk/auditcommission/aboutus/publications/pages/national-reports-and-studies-archive.aspx.html>**

There is increasing pressure nationally to reduce patients' length of stay as an effective way of cutting costs. One approach NHS trusts can use to achieve this is to transfer most of their elective care to day surgery (Lau and Brooks 2001, Jackson 2007, Graham et al 2012) The NHS Modernisation Agency (2004) identified ten high-impact changes for service organisations to improve service provision. The top change on this list is to 'Treat day surgery (rather than inpatient surgery) as the norm for elective surgery', thereby increasing day surgery rates and reducing the length of post-operative stays (Jackson 2007, Gilmartin and Wright 2008). This not only addresses financial constraints, but assists in bed management in acute services (Graham et al 2012). All NHS trusts in England have an 18-week treatment target from referral by the GP

(Lewis and Appleby 2006. Therefore, patients requiring surgery must be given an operation date within 18 weeks of referral. Increasing the number of patients who undergo day surgery is one way of achieving this target. Day surgery decreases the number of patients who require an inpatient bed, thereby helping to manage the shortage of acute beds (NHS Modernisation Agency 2004, Lewis and Appleby 2006, Gilmartin 2007).

There is a clear drive to increase day surgery rates. However the rapid nature of day surgery may create difficulties for some patients (Mottram 2011a). For example, a patient can be admitted to hospital, receive a general anaesthetic; undergo a significant surgical intervention and then be discharged home within four hours. For some patients, four hours may not be enough time for them to recover sufficiently to meet the discharge criteria enabling them to go home. For example, they may experience post-operative nausea and vomiting and or/pain that results in a prolonged recovery, necessitating an overnight stay (Shnaider and Chung 2006, Rosén et al 2009, Older et al 2010). The decision to admit a patient overnight is usually made by the surgeon or anaesthetist, in discussion with the patient (Lau and Brooks 2001).

Day surgery units typically open at 7am and close at 10pm (AAGBI and BADS 2011). This presents a capacity issue at night, especially when there are no acute surgical beds available on the wards. In practice, it may be necessary to staff the day surgery unit overnight to accommodate patients who are not sufficiently fit to be discharged home. Day surgery unit nurses do not work nights, so these shifts are covered by bank or agency nurses. This often leads to patient dissatisfaction, increased costs and an increased length of stay (Simmons 2005). Overnight stays also affect elective activity in the unit on the following day(s), since there will be a reduced number of trolleys and beds available to enable patients to recover post-operatively. Therefore, unplanned overnight stays disrupt the efficient running of day surgery units.

### **Aim**

The aim of this article is to explore the reasons why some adult patients require an overnight stay following day surgery. There is some uncertainty in practice as to why some patients are not deemed fit for discharge on the day of surgery. It is important for NHS trusts to develop strategies to reduce the cost of unplanned stays, while improving the efficiency and quality of day-surgery services (Coley et al 2002, Shnaider and Chung 2006, Rastogi and Vickers 2009).

### **Methods**

A pragmatic, mixed-methods research approach was used. A mixed-methods approach to inquiry involves the collection and integration of qualitative and quantitative data, drawing inferences from both approaches (Creswell 2003, Morgan 2007, Polit and Beck 2012). The popularity of mixed-methods research is increasing (Tashakkori and Teddlie 2010) and it has been referred to as the quiet revolution (O’Cathain 2009). Advocates indicate that many areas of inquiry can be enriched by triangulating qualitative and quantitative data (Polit and Beck 2012, Moule and Hek 2011). However, some researchers oppose a mixed-methods approach, stating that quantitative and qualitative methods have been developed using different paradigms and that each method has conflicting assumptions (Lee and Smith 2012).

Pragmatism is the paradigm of choice for this article, since it is most often associated with mixed-methods research (Polit and Beck 2012). A pragmatic perspective indicates that the research question should drive the methods of inquiry, while also taking into consideration ethical issues. It supports a mixed method approach, whereby quantitative and qualitative data can be analysed to provide optimal understanding of the research problem (Creswell 2003). Pragmatism is not restricted to any system or philosophy; therefore, the researcher is free to choose the methods of research that best meet their needs.

To review what was already known on the topic the reasons for delayed discharge in day surgery, literature searches were carried out using the following databases: CINAHL (Cumulative Index of Nursing and Allied Health Literature) Database with full text, British Nursing Index, EBSCOhost E-journals Database, Internurse, AMED (The Allied and Complementary Medicine Database), Embase, HMIC (Health Management Information Consortium) Database, MEDLINE Database, and ScienceDirect. The literature search was conducted between 01/09/14 and 28/03/15.

The BOOLEAN search terms used were: day surgery, delayed discharge, complications after day surgery, day surgery discharge criteria. Further material was obtained using Google Scholar, the Google search engine and the Trust's medical library. Further selection criteria were employed where large numbers of articles were found. The further criteria that were applied after the initial searches were English language only and full text available and within the last 10 years to ensure the evidence was contemporary where possible. These included: limiting articles to those published in the last 10 years, refining subject headings to specific relevant search terms e.g. day surgery, choosing articles that have been peer reviewed and full text only to the institution. Peer-reviewed content has been appraised by specialists in the field, thereby confirming its quality (Ellis 2013).

A local Trust audit was undertaken looking specifically at the reasons for overnight stays following adult day surgery. It was carried out over a 12 week period (June to August 2014) and the results were shared with the surgical directorate only. They were not published. This was an audit I carried out myself at the time as I was the ward manager of a day surgery unit. The audit tool used was approved by the Trust audit department and the data was collected by me and my ward clerk at the time and was then analysed by the audit department who gave me the figures shown in Figure 1. The audit undertaken in June to August 2014 was also analysed.

A theme matrix was used to facilitate meaningful critical evaluation of the literature resulting from our literature search. The audit was carried out separately from the Trust audit as I wanted to see if the reasons for delayed discharge in my department were the same as the reasons in the literature review. This format was adapted from that of Moule and Hek (2011). This matrix was chosen because it supports a mixed-methods approach, recognising that different data-collection methods enable the researcher to gain different perspectives from the data to be analysed, enabling the researcher to develop a broader

### **Ethics**

The aim of this article is to critically appraise previously published empirical studies and evaluations of the clinical audit and systematic reviews to identify and explore the factors that influence a timely discharge after day surgery.

Ethical issues must be considered before commencing the research process (Creswell 2003). Research ethics can be defined as the moral problems encountered by the researcher in connection with scientific or academic research, participants or their social environment (Berg and Tranøy1983). Further consideration should be given to how information and findings are used following completion of the research process. In health care, this alludes to the language of the Hippocratic oath, whereby healthcare professionals have an obligation of beneficence (to do good) and/or non-maleficence (to do no harm) (Beauchamp and Childress 2001).

In the context of this critical evaluation of literature and practice, it is acknowledged that the results of local audit data will be analysed and discussed, Ethical approval was not necessary for the audit, as specific patient data was not used. However, if the data analysis were to disclose any practice or themes that could potentially compromise patient care, the researcher would escalate any areas of concern, using the correct channels while maintaining ethical and professional conduct (Nursing and Midwifery Council (NMC) 2015).

### Results

The literature searches identified seven relevant articles for appraisal (including the results of the Trust audit) (Table 1). These articles were critically appraised on an individual basis, using a theme matrix, written and adapted from Moule and Hek (2011). The use of a theme matrix enabled the author to identify the main themes or reasons why some patients were not fit for discharge following day surgery. The main themes identified were: post-operative nausea and vomiting, post-operative pain, social reasons and going late to theatre. These are indicated in bold in Table 1 and are discussed in more detail in this article. Other reasons for unanticipated admissions following day surgery were also identified, but these are not discussed further.

**Table 1. Theme matrix for literature review**

Article	Purpose of study	Sample	Research design	Results	Themes
Lau and Brooks 2001.	Analysis of the causes of unanticipated admission after ambulatory surgery.	Quantitative study. Retrospective analysis of 731 consecutive patients who underwent	Univariate and multivariate analysis of clinical variables associated with unplanned admission.	706 patients were discharged on the day of surgery. The remaining 25 (3.4%) required	Reasons for overnight admission were: pain (n=10), post-operative nausea and

		ambulatory laparoscopic cholecystectomies from 1 January 1996 to 31 December 1999.		overnight admission.	<b>vomiting</b> (n=6), urinary retention (n=5), patient preference (n=3) and medical observation (n=1).
Coley et al 2002 (United States (US) study).	To determine the rate of unanticipated admissions and readmissions after same day surgery and to characterise the associated reasons and costs.	Quantitative study. Retrospective medical records database analysis.	Computerised search of admissions, discharges and transfers of all patients undergoing day surgery over 12 months 1 <sup>st</sup> January 1999 to 31 <sup>st</sup> December 1999	20,817 patients underwent day surgery. Seven of these patients were unanticipated admissions on the day of surgery. A total of 20,817 patients underwent day surgery over the year. Of these patients, 1,195 (5.7%) returned to the hospital within 30 days of the procedure or were admitted directly after surgery. Of this group of 1,195 patients, there were 7 unanticipated admissions and 306 readmissions.	Reasons unanticipated admissions include: post-operative nausea and vomiting, pain bleeding, adverse drug events, unspecified medical and surgical complications.
Aldwinckle and Montgomery 2004.	To look at unplanned admission rates and post-discharge complications	Qualitative. Observational study. Retrospective review of 1647	Data collection looked at the type of anaesthetic, American Society	28 patients (1.7%) were admitted following day surgery.	Reasons for admission include: post-operative nausea and

	following day case surgery in patients over the age of 70.	patients over the age of 70 in a day surgery unit over 2 years	of Anesthesiologists (ASA) physical status and unplanned admission rates		vomiting, chest pain, social reasons, drowsy/dizzy unable to walk, heart block, kept in for observations, aspiration.
Shnaider and Chung 2006.	To summarise and examine updated published results on the outcome measures that can be used to assess the quality of ambulatory surgery.	Literature review of recent findings regarding ambulatory surgery that provide quality care that is cost effective.	Considers the causes of unanticipated hospital admissions following day surgery.	This review supports the hypothesis that unanticipated admission following ambulatory surgery creates an unplanned cost.	Factors delaying discharge include: post-operative nausea and vomiting, pain, social reasons/no escort, drowsiness.
Rosén et al 2009.	To provide a broad-based overview of literature regarding patients' experience of symptoms following day surgery.	Literature review of nursing and healthcare articles published from 1992 to April 2008.	603 articles were found. 36 were selected and critiqued using a checklist.	Patients invariably reported pain and other symptoms. However, methodological differences between studies prevented a clear definition of symptoms.	The checklist used to review the literature explores post-operative symptoms and how they influence timely discharge. These include: post-operative nausea and vomiting, pain dizziness.
Graham et al 2012.	To assess the effectiveness of nurse-led discharge following laparoscopic surgery.	Quantitative study. A retrospective comparison of doctor-led and nurse-led discharge following	Fisher's exact test was used to analyse data for significant associations and differences in categorical variables.	Nurse-led discharge may improve discharge rates following laparoscopic surgery, with no apparent	The reasons cited as causing an increased time to discharge were: post-operative nausea and

		laparoscopic surgery performed by analysis of two consecutive 4-month periods from November 2007 and June 2008,		detriment to patient care.	vomiting, pain, social reasons, late to operating theatre, scrotal haematoma in one case and wound bleeding in one case.
Bajwa et al 2011	To compare the prophylactic effects of intravenously administered ondansetron and palonosetron. The aim was to compare the prophylactic effects of intravenously (IV) administered ondansetron and palonosetron on post operative nausea and vomiting prevention in patients undergoing laparoscopic gynecological surgery under general anesthesia.	Quantitative study. A prospective double-blind study of 60 ASA/II female patients aged from 25 to 40, randomly divided into two groups.	One group received ondansetron the other received palonosetron before general anaesthesia.	Palonosetron was found to be a preferable drug for preventing post-operative nausea and vomiting, since it has fewer side effects than ondansetron,	Refers to post-operative nausea and vomiting as a leading cause of delayed discharge following day surgery.
Trust audit June 2014 to August 2014 (unpublished)	The audit was undertaken following an increasing requirement to keep the day surgery unit open	Quantitative study exploring the reasons why patients were not discharged following day surgery.	Case-control study looking at 1180 patients attending one day surgery unit over a 12-week period from the	54 patients out of 1180 day surgery patients required an overnight stay following day surgery during	The main reasons for an overnight stay were: going late to theatre, post-operative nausea and



	overnight to care for patients who were not fit for discharge following day surgery.		7 <sup>th</sup> June to 30 <sup>th</sup> August. Data was collected weekly using the Trust audit tool.	this 12 week period. This equates to 1180 patients, or an average of 4.5 patients were admitted unexpectedly per week	vomiting, pain, no home support, social reasons, spinal anaesthetic (Figure 1).
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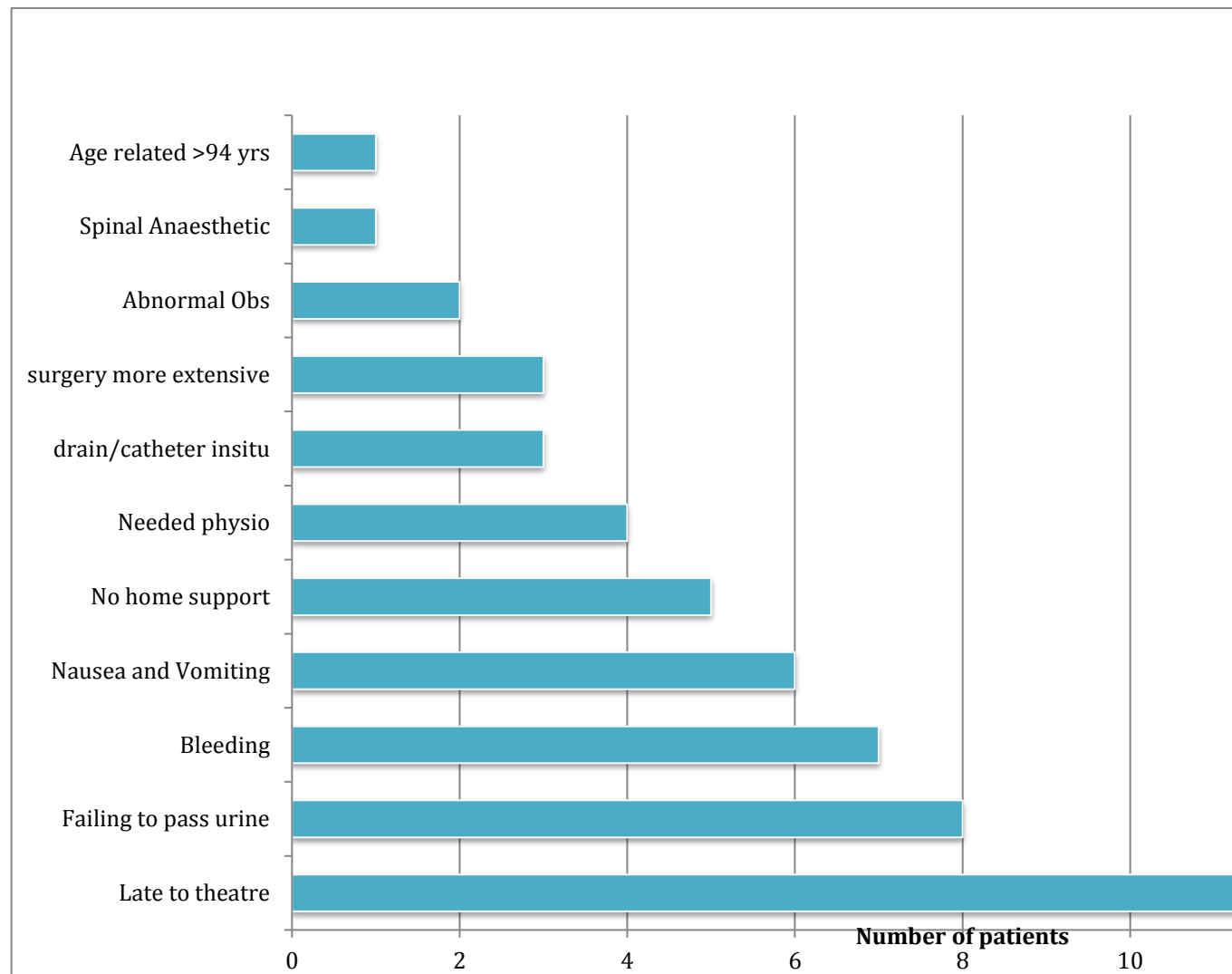
(Template adapted from Moule and Hek 2011)

**Figure 1. Trust audit: Reasons for overnight stay after day surgery, June 2014 to August 2014**

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Age-related (patient >94 years old)  
Spinal anaesthetic  
Abnormal observations  
More extensive surgery  
Catheter or drain in situ  
Required physiotherapy  
No home support available  
Nausea and vomiting  
Bleeding  
Failure to pass urine  
Patient late to theatre

## Number of patients



**54 patients needed admission following day surgery.**

### **Unresolved post-operative nausea and vomiting**

Post-operative nausea and vomiting was the only symptom reported as a cause for overnight stay following day surgery in all of the articles appraised. However, there was considerable variability in the frequency and intensity of post-operative nausea and vomiting between studies. This could mostly be attributed to the type of surgery, anaesthetic and opioids used (Shnaider and Chung 2006, Rosén et al 2009). Patients undergoing laparoscopic, intra-abdominal, ear, nose and throat (ENT), dental and orthopaedic surgery are at the highest risk of developing post-operative nausea and vomiting (Shnaider and Chung 2006). Other factors that increase the risk of post-operative nausea and vomiting include: female sex, history of post-operative nausea and vomiting, and those who experience motion sickness or require post-operative opioids (Shnaider and Chung 2006).

Bajwa et al (2011) confirms that post-operative nausea and vomiting remains a significant problem, resulting in delayed discharge following day surgery in more than 30% of patients undergoing a general

anaesthetic. Similarly the results of a trust audit carried out in 7<sup>th</sup>-June 2014 to 30<sup>th</sup> August 2014 demonstrated that 12% of patients who received a general anaesthetic. 12% of patients who received a general anaesthetic required an overnight stay as a result of post-operative nausea and vomiting.

### **Unresolved post-operative pain**

Pain is one of the most frequent adverse events that occur after day surgery and is experienced to some extent by most patients (Shnaider and Chung 2006, Rosén et al 2009). However, the level of pain appears to depend upon the specific surgical procedure (Rosén et al 2009). For example, patients undergoing orthopaedic or general surgical procedures tend to report a higher incidence of post-operative pain (Shnaider and Chung 2006). This is supported by Coley et al (2002) who identified that pain following orthopaedic surgery was the most common reason for unanticipated admission. This is in contrast to Aldwinckle and Montgomery (2004), who indicated that only one patient was admitted to hospital with chest pain post-operatively over a 2-year period. It is unclear if this chest pain was related to the surgical incision site, or if it was a complication of the anaesthetic. There were no patients recorded in the Trust audit (2014) who were admitted due to post-operative pain (Figure 1).

### **Social reasons for admission**

The Trust audit (2014) demonstrated that 10% of patients who required an overnight stay had no home support on discharge, resulting in an overnight admission. Other social reasons for admission include 'no escort' and 'inadequate home support' (Aldwinckle and Montgomery 2004, Shnaider and Chung 2006). A patient's social circumstances should be determined at pre-assessment to ensure that all patients undergoing a general anaesthetic have a responsible adult available to escort them home and look after them for the first 24 hours following surgery (Mitchell 2003, AAGBI and BADS 2011). In the literature reviewed for this article, there is no discussion about why issues identified during pre-assessment process were not resolved before admission. However, there is evidence to suggest that patients may not inform surgeons or the admitting nurse that they have no support at home until the day of surgery, leaving no opportunity to resolve this (Mottram 2011a Graham et al 2012]

Graham et al (2012) identified in their study that none of the patients having surgery who were on afternoon operating lists were discharged the same day. However, their study included only patients undergoing laparoscopic surgery, which limits their findings. The Trust audit (2014) identified that 14/50 (28%) delayed discharges were related to patients going late to theatre. However, in the Trust audit, going late to theatre defines patients who went to theatre later than the time of day that their surgery was scheduled (i.e some patients went down to theatre on an afternoon list later than 5 o'clock and their procedure takes a minimum of 4 to 6 hours recovery time before they can be safely discharged home), rather than specific procedures.

### **Limitations**

It is acknowledged that a critical evaluation of literature using mixed methodology may predispose the researcher to making certain assumptions about what is already known about the study topic. However, using a pragmatic approach enables the researcher to remain focused on identifying the main themes and issues in the literature (Creswell 2003). Thematic analysis combines any related patterns that are identified and catalogues them as themes (Aronson 1994). However, methodological differences between studies can

make comparisons difficult (Rosén et al 2009). There is also the potential for bias, especially in relation to the Trust audit (2014) data, where there may be unintentional influences that affect its findings.

The main focus of this article was to identify the main reasons why some patients are not fit for discharge following day surgery. Therefore, insufficient emphasis may be given to the strengths, weakness and value of the literature included in the review.

### **Discussion**

Day surgery offers many advantages to patients including improved access to surgery and rapid recovery, meeting the demands of Western society where individuals wish to be back in action almost immediately (Mottram 2011a). NHS Trusts also benefit from day surgery provision, since this can eliminate the expense of overnight hospital accommodation (Jackson 2007). However, the literature confirms that unplanned overnight admissions following day surgery are a significant issue, resulting in increased costs (Lau and Brooks 2001, Coley et al 2002, Graham et al 2012, Ng and Vickers 2013). This analysis and synthesis of the literature has determined that post-operative nausea and vomiting, uncontrolled post-operative pain, social reasons and patients going late to theatre are the four main reasons or causes for delayed discharge following day surgery. This discussion offers suggestions on how such delays could be reduced in practice.

### **Determining risk of post-operative nausea and vomiting**

The exact pathophysiology for emesis is not well understood, but it is thought to be a defence mechanism that is the body's way of getting rid of unwanted substances (Öbrink et al 2015). Post-operative nausea and vomiting is one of the most frequent side effects experienced by patients following administration of a general anaesthetic, occurring in more than 30% of patients, especially with the first 24 hours (Apfel et al 2004, Bajwa et al 2011, Öbrink et al 2015). Symptoms of post-operative nausea and vomiting range from mild nausea to severe and repeated vomiting that can lead to dehydration and hypovolaemia (Öbrink et al 2015).

The clinical management of post-operative nausea and vomiting remains a significant challenge. Many studies have indicated that scoring risk based upon a patient's previous history of post-operative nausea and vomiting following anaesthesia can help clinicians to predict the likelihood of post-operative nausea and vomiting (Apfel et al 2004, Lipp and Kaliappan 2007, Öbrink et al 2015). The Apfel score is one example that equates risk against age <50 years, female, non-smoking and history of post-operative nausea and vomiting. However, risk scores are not commonly used in day surgery units. Perhaps, if they were implemented in practice, this might help to reduce the number of patients who experience post-operative nausea and vomiting. It is also important to consider the surgical site as a predictor for increased risk of post-operative nausea and vomiting. For example, ENT, abdominal, gynaecological procedures have all been classified as operations with a high-risk of post-operative nausea and vomiting (Apfel et al 2004, Shnaider and Chung 2006).

### **Management of post-operative pain**

The management of pain following day surgery has been recognised as an issue for many years and is often suboptimal (Watt-Watson et al 2004, Older et al 2009). Despite advances in analgesia, pain levels reported following day surgery remain high (Dewar et al 2003). Post-operative pain is one of the most frequent adverse events resulting in delayed discharge following day surgery (Shnaider and Chung 2006). There is evidence that orthopaedic and general day surgical procedures produce the most amount of pain post-

operatively (Coley et al 2002, Shnaider and Chung 2006). However, the Trust audit (2014) did not record any cases of patients requiring an overnight stay, as a result of pain following day surgery. This may suggest that pain management at the Trust is currently effective, especially since a high percentage of patients undergo orthopaedic and general surgical procedures. However, the Trust audit (2014) was carried out over a 12-week period so only gives a 'snapshot' view of activity.

There appears to be a requirement for pain intensity to be assessed and documented at regular intervals post-operatively. Verbal pain scores are commonly used and have proved to be a useful tool for communicating severity of pain (Knottenbelt et al 2007, Rastogi and Vickers 2009). The literature suggests that once the pain score has been assessed, it is important for clinical staff to adhere to a multimodal analgesic regimen to effectively manage post-operative pain (Lau and Brooks 2001, Lipp and Kaliappan 2007, Knottenbelt et al 2007, Rastogi and Vickers 2009). However, the use of opioids should be protocol based to limit the risk of post-operative nausea and vomiting, which together with pain, increases the likelihood of delayed discharge (Ng and Vickers 2013).

### **Social reasons for admission**

Careful discharge planning is a crucial aspect of successful day surgery provision and usually forms part of the pre-assessment process (Mitchell 2003). If patients do not have a suitable carer to escort them home and stay with them for the first 24 hours post-operatively, they should not be considered suitable for day surgery treatment (Smith 2007). Yet the Trust audit (2014) demonstrated that 10% **of those** patients admitted overnight had no home support on discharge resulting in an overnight admission. One explanation for this could be that written and verbal information regarding discharge arrangements given at pre-assessment were not clear or sufficient, resulting in patients not fully understanding why they should have a suitable adult escort to take them home (Gilmartin and Wright 2008). Another explanation might be that patients are not completely honest about their home circumstances at pre-assessment, since they are not willing to consider anything other than day surgery (Mottram 2011a).

### **Patients going late to theatre**

Patients going late to theatre was a central finding of the Trust audit (2014) accounting for 14/50 (28%) unplanned admissions. This number is significant and can be attributed to the time patients go to theatre, the type and duration of surgery and recovery time. There is limited research that examines this issue.

The factors that may influence what time patients go to theatre include: the time the list starts, consultant job plans and complications that may arise during surgery, resulting in delays and overrunning of lists. Late starts of operating lists are unacceptable as they affect the entire list and may result in patients' surgery being cancelled on the day or their requiring an inpatient stay (Smith et al 2006). Late starts can be attributed to patients or theatre staff not being ready on time. The Healthcare Commission (2005) found that 45% of theatre time in England allocated for day surgery was unused because of late starts and excessive delays between operations. Therefore, there is a clear impetus for NHS trusts to investigate the reasons behind these late starts and causes for delays to improve theatre use (Smith et al 2006).

### **Implications for practice**

This study provides further insights as to the reasons for delayed discharge following day surgery.

There were limited data **as to which** anti-emetic should be used for which procedure to reduce the incidence of post-operative nausea and vomiting. There are no agreed national or local protocols for the prophylactic management of post-operative nausea and vomiting for day surgery patients. Further research is required to explore this issue. In the interim, it is suggested that NHS trusts consider the use of post-operative nausea and vomiting risk scores before surgery, as a way of improving discharge outcomes (Apfel et al 2004).

Increased post-operative pain following orthopaedic and general surgical procedures was identified in some of the studies appraised. However, evidence in other studies as well as the Trust audit (2014) suggests that pain is well-managed in day surgery units. A national audit looking at activity and practice across various day surgery units could help to determine whether increased pain is associated with certain procedures and which analgesics are most effective.

Social reasons that may lead to admission following day surgery should be identified at pre-assessment. Further research is required to determine the efficacy of preoperative advice and patients' understanding of the verbal and written information provided to them. One way of achieving this might be for pre-assessment units to be located within day surgery units. Patients could then visualise their day surgery treatment and understand the why an adult escort is required post-operatively.

There is limited research that examines the reasons why some patients go to theatre later than the scheduled time for their surgery. NHS trusts should examine theatre use, especially in respect to afternoon lists. Where patients are scheduled to have surgery that is known to require a minimum of 6 hours recovery time, for example laparoscopic cholecystectomy (Older et al 2009, Graham et al 2012) then they should ideally be included on morning lists to enable them to have sufficient time to recover before going home.

To effectively manage a day surgery unit, consideration should be given to the incidence and causes of failed discharge and clinical processes that can be implemented to reduce their occurrence. This literature review has indicated that the time that patients go to theatre can have a significant effect on discharge outcomes. This could be mitigated were waiting list coordinators to evaluate theatre lists in advance. Where patients are scheduled to have surgery that will require a minimum of 6 hours to recover then lists could be reorganised to ensure these patients are operated on in the morning.

## **Conclusions**

To effectively manage a day surgery unit, consideration should be given to the incidence and causes of failed discharge and unplanned overnight stays and clinical processes that can be implemented to reduce their occurrence. This literature review has identified that the main reasons that day surgery patients require an unplanned overnight stay were: post-operative nausea and vomiting, post-operative pain, social reasons and going late to theatre.

If NHS trusts are to achieve the UK government-led target of 75% of all elective surgery to be undertaken on a day surgery basis and reduce unplanned costs, then it is crucial for them to recognise the reasons why some patients are not fit for discharge on the day of surgery, resulting in unplanned overnight stays, and implement changes to improve same-day discharge rates.

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