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The effectiveness of protocol drive, nurse-initiated discharge in a 23-h post surgical ward: A randomized controlled trial

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ABSTRACT

Background: A 23-h unit was established in June 2005 to relieve pressure on surgical beds. Patients were to be discharged by 0900 h without review by a doctor. However, discharge without review remained the exception rather than the rule.
Objective: The aim of the current trial was to asses the affect of a protocol driven, nurse-initiated discharge process on discharge time, patient satisfaction and adverse events.
Design: Randomised controlled trial.
Setting: A large, major metropolitan hospital in Queensland, Australia.
Participants: Patients undergoing a surgical procedure and requiring an overnight stay in the 23-h unit were eligible for inclusion. 182 were randomised and 131 patients completed the study.
Methods: Participants were randomly assigned into one of two groups: protocol driven, nurse-initiated or usual care. The primary end-point was the proportion of patients discharged by 0900 h. Patients completed a self-report questionnaire two weeks after hospital discharge, to evaluate their satisfaction.
Results: Of the 131 patients completing the trial, only 82 (62.6%) were discharged by 0900 h. In the Protocol group 45 (78.9%) patients were discharged on time compared with 37 (50.0%) in the usual care group. This difference was statistically significant (OR 3.75; 95% CI-1.74–8.21; $p = 0.001$). The average length of stay in the 23-h unit was 16.5 (SD 6.8) h. This did not differ by group (MD 0.29; 95% CI-2.13–2.71; $p = 0.81$). The overall mean satisfaction score was 95.4 (SD 8.8) and results were similar between groups (Protocol group 96.2 versus usual care group 94.6; $p = 0.40$).
Conclusions: A protocol driven, nurse-initiated discharge process in an overnight post surgery unit results in a higher proportion of patients being discharged by 0900 h without compromising patient satisfaction.

What is already known about the topic?

- 23-h post surgery units, which use a protocol to guide discharge without medical review, are used to avoid hospital admission.
- Studies published to date about protocol initiated discharge from a 23-h unit have been descriptive in nature.
- Effectiveness of the protocol initiated process has not been investigated.

What this paper adds

- This is the first randomised controlled trial to test the effectiveness of a discharge protocol for improving

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outcomes in a 23-h, post surgical unit. The study demonstrates that protocol initiated discharge increases the proportion of patients discharged by 0900 h and that patient and staff satisfaction are not compromised.

1. Background

Protocol or pathway driven discharge to reduce hospital stay without compromising patient safety has been the subject of investigation, with generally favourable results (Clarke et al., 2008, Delaney et al., 2001; Grodski et al., 2008).

In the surgical field, another way of reducing hospital stay is to avoid formal admission altogether; by using post-surgical short stay or 23-h units. Advantages of such units may also include a decrease in surgical waiting list times and a reduction in bed blocking (a situation in which patients stay in hospital because there is no other suitable place for them to go; in turn, this prevents others from being admitted to the service). To realize these outcomes, discharge by 0900 h is important and is usually achieved using a protocol or pathway (Levy et al., 2009). Although these units have become commonplace in Australian hospitals, they have received little formal evaluation. We could find only three studies reporting clinical outcomes for patients admitted to a 23-h discharge unit (Levy et al., 2009; Ryan et al., 2005a,b); two of these were duplicate publications (Ryan et al., 2005a,b) and all were descriptive in nature.

A 23-h unit at the Royal Brisbane and Women's Hospital (RBWH) was established in June 2005 to relieve pressure on surgical beds. Criteria for admission to the unit included that patients would be discharged by 0900 h and would not be reviewed by the surgeon, unless requested. However, although discharge without review was supported by the Director of Surgery at the time, it had become the exception rather than the rule. For example, between April 2007 and June 2008, 2613 patients were admitted to the unit. Of these, 1211 (46.3%) were discharged after 9 am, violating one of the major admission criteria. Anecdotally, the main reason for late discharge was that patients were waiting for a medical review or a discharge prescription. These problems not only prolonged their length of stay but may have also contributed to bed blocking. Patient satisfaction may also be affected by late discharges.

Multidisciplinary protocols are available for simple discharges. These include: having clear criteria for admission to the unit; the completion of surgery summaries and discharge prescriptions at the end of the procedure; and using the Modified Post Anaesthetic Discharge Scoring System (MPADSS) to assess if the patient is ready for discharge (Chung, 1995). When the criteria are met, 23-h unit nursing staff initiate discharge without the need for further review or ward rounds. Using such protocols may improve patients' satisfaction with the hospital experience, reduce length of stay and have a positive effect on bed blocking. Consequently, the aim of the current study was to evaluate the effectiveness of protocol driven discharge compared with usual care on discharge time, patient satisfaction and adverse events.

2. Methods

2.1. Design

We used a randomised controlled design. Surgeons, unit nurses, research nurses and patients were aware of group allocation.

2.2. Participants and setting

Patients undergoing a surgical procedure and requiring an overnight stay in the 23-h unit were eligible for inclusion. We excluded those under 18 years and those who were unable or who refused to sign consent. Patients admitted for eye surgery were also excluded because they all required review by a surgeon before discharge. The study was approved by the hospital's Human Research Ethics Committee (HREC/09/QRBW/256).

2.3. Intervention

Research staff and the Nursing Director for Perioperative Services attended registrar and other clinical meetings before the study commenced to provide trial information and respond to any questions. Surgeons were advised that their patient would be discharged when discharge criteria were met, without review, if allocated to the intervention group. These criteria included stable vital signs; the ability to ambulate safely; minimal nausea or vomiting, minimal pain and bleeding; that is, a MPADSS of $\geq$9 (Chung, 1995); completed documentation and available transport. If surgeons did not wish their patient to be included in the trial, they were asked to notify the research nurse so that these patients would not be recruited.

2.4. Procedure

On admission to the preparation area, prior to surgery and before the patient received any medication, patients meeting eligibility criteria had the study explained to them by a research nurse attached to the unit. Written information about the study, detailing both arms of the study was provided and written consent sought. Following surgery, on admission to the 23-h unit, baseline data, including demographics, type of surgery, type of anaesthetic, length of surgery and underlying co-morbidities was extracted from the surgical data-base by the research nurse. Admission and discharge times were noted as well as reasons for any delay in discharge beyond 0900 h. Two weeks after discharge, patients were contacted by phone, to enquire about their perceptions of the 23-h unit experience and to ask if they had experienced any surgery-related problems since their discharge, or if they had been re-admitted to hospital. We also checked the hospital's data base, one month after discharge, for information about any hospital re-admission.

2.5. Randomisation

Consenting patients were allocated, using a block of 10 for randomisation, to a 'normal care discharge' group or a