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Improving patient flow and satisfaction: An evidence-based pre-admission clinic and transfer of care pathway for elective surgery patients

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ABSTRACT

Aims: To redesign, implement and evaluate a Pre-Admission Clinic incorporated with a Transfer of Care Pathway for elective surgery patients.
Methods: An evidence-based approach was used to redesign the Pre-Admission Clinic and the Transfer of Care Pathway. The impact of the pre-admission clinic and the care pathway was evaluated. De-identified data containing patient outcomes was collected from the hospital electronic medical record system from May 2014 to March 2015. Outcome measures included surgical cancellations, last-minute cancellations, average length of stay, discharge delays, and adverse events that were compared pre and post-implementation. Patient satisfaction was measured pre and post-implementation by using a modified version of Best Practice hospital survey.
Results: A total of 10,854 eligible cases were included (5716 in the pre-implementation period and 5138 in the post-implementation period). The overall cancellation rate remained relatively stable ($p = 0.95$), however, the last-minute cancellation rate was reduced post-implementation ($p = 0.02$). Although no difference was observed in average length of stay ($p = 0.39$), the percentage of discharge delays was reduced ($p = 0.027$). The incidence of adverse events was too low to draw statistical conclusion. A sample of 102 patients completed the patient satisfaction survey. The overall satisfaction improved post-implementation ($p = 0.03$).
Conclusions: The evidence-based Pre-Admission Clinic and the Transfer of Care Pathway had a positive impact on last-minute surgical cancellations, discharge delays and patient satisfaction.

1. Introduction

The Pre-Admission Clinic (PAC) is an outpatient clinic that ensures patients are comprehensively prepared for surgery and hospital stay prior to admission. PAC also plays an important role in the planning of post-operative care to facilitate a smooth transfer from hospital to home or other ongoing care facilities.

Previous studies have shown associations between PAC and reductions in surgical cancellation rates (Emanuel & Macpherseon, 2013). The use of PACs has also been associated with shorter pre-operative inpatient stay (O'Connor et al., 2011) and inhospital length of stay (Ellis, Spiers, Coutts, Fairburn, & McCracken, 2012; Vazirani, Lankarani-Fard, Liang, Stelzner, & Asch, 2012), as well as with a reduction in complications (Ellis et al., 2012) and mortality rates (Vazirani et al., 2012). Other studies reported that PACs were effective for assessing elective surgery patients (Beck, 2007; Pritchard, 2012).

Traditionally, PACs are run by nurses who record patients' histories and order tests, in accordance with admitting doctors' protocols (Hines, Munday, & Kynoch, 2015; Nicholson, Coldwell, Lewis, & Smith, 2013). Two systematic reviews compared nurse-led PACs with doctor-led PACs and found that nurse-led services can be as effective as doctor-led services (Bazian, 2005; Nicholson et al., 2013). Although PACs are widely implemented in both public and private health care facilities in various forms, and some have been associated with positive outcomes, conclusive published evidence

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on how to examine or to guide PAC services is still lacking (Hines et al., 2015; Nicholson et al., 2013).

1.1. Aim

The aims of this study were:

1. To redesign an evidence-based PAC incorporated with a Transfer of Care Pathway.
2. To implement and evaluate the impact of the new PAC and care pathway at Macquarie University Hospital.

Prior to the study, the hospital had a nurse-led PAC which assessed patients only as requested by their treating physicians. Only 27.5% of the approximately 250 Accredited Practitioners across all surgical specialties in the hospital were using the PAC. This study aimed to address this gap.

2. Methods

2.1. Setting

The study was conducted in Macquarie University Hospital, Sydney. Macquarie University Hospital is Australia's first private not-for-profit teaching hospital on a university campus, and an integral part of the Macquarie University Health Sciences Centre (MQ Health). The hospital has 152 beds and 12 operating theatres with no emergency services. The total number of hospital admissions in 2015 was 20,289, of which over 16,000 were elective surgery cases.

2.2. Literature review

The initial phase of the study included a literature review on different PAC models across the world and the effectiveness of these models. Published and unpublished articles were searched in Medline, Cinahl, Cochrane Library and Joanna Briggs Institute Evidence Based Practice Database. Key words pre-admission clinic, pre-admission assessment*, peri-operative, nurs*, screening, complication, cancellation and length of stay were used for the search. Another search was conducted focusing on discharge planning. Key words patient discharge; plan*; patient trans* and care continuity were used. To be considered for inclusion; all articles had to be English language articles published between 2004 and 2014 in peer-reviewed journals.

The preliminary screening process of the new PAC was partially adapted from Emanuel and Macpherseon (2013)'s model, where patients are screened based on their type of surgery, age and pre-existing co-morbidities. One study showed that a nurse-led preoperative telephone assessment may reduce last-minute cancellations (Ming Teh, Turner, & Tham, 2015). Phone interviews may be as effective as face-to-face interviews in preparing adult patients for elective surgery (Ireland & Kent, 2013). Therefore, a triage process and phone interview was considered to identify complex patients who require face-to-face appointment. A Transfer of Care pathway was designed using elements from a previous Patient Care Risk Assessment Tool (Holland, Harris, Leibson, Pankratz, & Krichbaum, 2006), a referral process described in Holland et al. (2006), and existing discharge checklists for patients and caregivers (Agency for Healthcare Research and Quality, 2013; Herbert & Mutsch, 2010; Soong et al., 2013; U.S. Department of Health and Human Services, 2015).

2.3. Stakeholders meetings

The literature review was followed by discussions with key stakeholders. Doctors, department managers, nursing and allied health professionals were interviewed. They all agreed there was a need for quality improvement in PAC. The research team worked collaboratively with the key stakeholders to redesign PAC services in order to close this gap. Issues around patient screening and discharge were highlighted in the interviews and meetings. The three main objectives discussed in the interviews and meetings were:

1. Reducing surgical cancellations, last-minute cancellations and unplanned clinical events
2. Improving patient satisfaction with service provided
3. Reducing length of stay and ensuring safe and efficient transfer of care from hospital to home and other care facilities

Based upon their areas of expertise, the key stakeholders discussed how to better screen patients, and to ensure potential risks are flagged and actively managed prior to surgery. Patient feedback was also taken into account. Recommendations from these meetings were: developing a multi-disciplinary review process for complex patients, increasing appointment availability, improving cross-departmental communication and teamwork, developing follow-up processes for abnormal test results, formalising discharge risk assessment, and detecting changes in patients' condition before admission (see Table 1).

2.4. Hospital interviews

Telephone interviews were conducted to identify best practice and gaps in the current PAC services in Australia. Thirteen hospitals in New South Wales and five from other States and Territories were interviewed. These hospitals were major teaching and surgical hospitals (both public and private). Information regarding PAC settings (e.g. staff-mix, opening hours, and interview rooms), patient selection and assessment process, and discharge planning was obtained during phone interviews. The interviews showed that each hospital had developed and implemented its own PAC model to suit individual needs. Recommendations from other hospitals, which were taken into account for the new PAC, included: extended opening hours, multidisciplinary team involvement, early discharge planning, and developing specialty clinics (see Table 1). The interviews also indicated that only a few hospitals have ongoing evaluation processes to measure the effectiveness of PAC. This also represents the gap in current PAC practice and the need for quality improvement.

2.5. Existing PAC versus evidence-based PAC

Areas for improvement stemmed from recommendations in the literature, discussions with key stakeholders and interviews with other hospitals. Best-practice recommendations were reviewed and themed into four categories by the research team: PAC settings, patient selection process, PAC assessment, and discharge planning.

Table 1 shows a comparison of the existing PAC and the evidence-based PAC.

2.6. Redesigning PAC algorithm and transfer of care pathway

An evidence-based PAC algorithm was designed (see Fig. 1). The PAC algorithm starts with a triage process and focuses on earlier patient assessments. Potential risk factors such as surgery type, age, pre-existing comorbidities and discharge risks that may contribute to adverse outcomes, together with pre-existing doctor involvement are identified and used to formulate critical decision points.

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