Effectiveness of nurse-led preoperative assessment services for elective surgery: a systematic review update protocol

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Review question/objective

The objective of this review update is to evaluate the most recent available research on the effectiveness of nurse-led preoperative assessment clinics or services on patient and organizational outcomes.

More specifically, the objectives are to identify: the effectiveness of nurse-led preoperative assessment services on reducing adverse surgical events, improving patient satisfaction, decreasing anxiety, cancellation of surgery, incidence of non-attendance for scheduled surgery, recognition and fulfillment of postoperative care needs; reducing inpatient days and reducing the number of overnight stays for day or ambulatory surgery patients having elective surgery in comparison to day of surgery assessment or other "usual care" admission assessments.

Background

This is the protocol for an update of our previous review ¹ conducted in 2009.

The admission and assessment of patients for elective surgery is a task faced by all healthcare organizations that provide elective surgical services. Several different strategies have been used to facilitate the management of these tasks. An example of one of these management strategies is nurse-led preadmission clinics, which have been implemented in many health services around the world. ²⁻⁵

The process of preadmission testing and/or screening involves a wide variety of procedures, depending on the needs of the facility and the patients. Preadmission clinics or services address several different domains of practice: collection of biometric and psychosocial data, screening to ensure patients receive the most appropriate care whilst in hospital, screening for potential problems...
that may impact upon length of stay, and the provision of education and information on the planned procedure and hospital process.

The main benefit of beginning this process at the preadmission stage appears to be that it provides increased time for data collection, especially history taking, which is a vital part of the pre-surgical work-up. Histories taken on the day of surgery may not be completed in full, due to patient anxiety and the time constraints on the nurse. In addition, patients seen at the preadmission stage have the opportunity to express their wishes concerning their upcoming procedure.

Historically, medical personnel have provided these services and in some healthcare systems this remains the case. However, shortages of medical staff and the high cost of services have meant that nurses have taken over these tasks and are in fact in an ideal position to manage and provide these services. Nurse-led preoperative clinics may offer a more holistic service and a broader range of expertise than medical assessments alone. Many patients find nurse-led preoperative assessment equally as acceptable as medical assessment, and nurse-led clinics result in high patient satisfaction levels. A comparative study found no difference in the level of quality or safety between assessments conducted by junior medical staff and those conducted by appropriately trained nurses.

Preoperative patient assessment is vital to identify patient risk factors, to provide information and education, and to arrange and/or perform any necessary measurements or laboratory studies, such as blood tests or electrocardiographs. Nurse-led preadmission clinics result in a high level of compliance with performance of necessary pre-surgical investigations, and greater avoidance of unnecessary tests. Thorough assessment of surgical patients helps to prepare them physically and psychologically for their hospital experience.

Preoperative assessment may also address the anxiety many patients feel regarding anesthesia and the surgical experience. Preadmission clinics result in patients being better informed about their upcoming surgery, and time is provided for adequate explanation and discussion which better provides a more appropriate basis upon which to gain informed consent. Explanation of the procedure and the process the patient will go through may help to increase patient knowledge and decrease their anxiety, which is a significant factor in patient satisfaction with the surgical process. Subsequently, patients who have had their questions answered and their concerns alleviated at a pre-admission clinic will usually enter the surgical process with a lower level of anxiety.

Early assessment of patients scheduled for day surgery can also reduce the number of day-of-surgery cancellations and unexpected overnight stays, and the associated strain on inpatient bed numbers. Last-minute cancellation of surgery has costs for both hospitals and patients, and is a largely avoidable occurrence in most cases. Nurse-led preadmission clinics have also been shown to significantly decrease length of hospital stay post-surgery, as well as result in fewer post-operative complications such as wound infections.

Preoperative assessment in preadmission clinics may also allow for screening of patients with a variety of tools for risks such as delirium, nutrition problems, the presence of Methicillin Resistant Staphylococcus Aureus (MRSA), tobacco use, or lack of home support which can have a serious effect on length of stay, and the cost and outcomes of postoperative recovery. The use of screening tools at the preadmission stage allows for a level of preparation for the hospital stay that may not otherwise be possible. For the pediatric patient, preoperative preparation can lead to an increase in compliance with procedures, as well as a reduction in post-operative pain and sleep disturbance.
This review aims to examine whether nurse-led preoperative assessment clinics improve outcomes for patients. Existing reviews27,28 comparing the effectiveness of nurse-led to physician-led services have previously been conducted, thus this outcome will not be included in this review. Preoperative education has also been the subject of several previous reviews29,30,31 and this review aims to fill the remaining gap in the existing evidence.

Our previous review on this topic1 included 19 articles; there were 10 audits of patient and hospital data, three surveys or questionnaires, three descriptive studies, one action research design43, one predictive study44 and one randomized controlled trial (RCT)42. Nurse-led preadmission services reduced the number of day-of-surgery cancellations in five out of ten studies reporting that outcome.2,3,5,14,33 Non-attendance for surgery was also reduced, with nine studies2,4,14,34,35,37,42 reporting decreases in the number of patients failing to attend. Eight studies reporting data on patient or parent satisfaction4,5,35,39-41,43,46 found high levels of satisfaction with nurse-led preadmission services. Three of four studies3,5,14,42 on the effect of nurse-led preadmission services found a reduction in patient anxiety. Three studies3,14,33 found that preoperative preparation was enhanced by the use of a nurse-led preadmission service.

While all included studies reported some evidence of effectiveness for nurse-led preadmission services on a wide range of outcomes, the lack of experimental trials resulted in a low level of evidence, and further research was needed. This update aims to establish whether research published in the past four years has filled the existing gap in the evidence base.

Keywords
nursing; preoperative; elective surgery; nurse-led; systematic review

Inclusion criteria

Types of participants

The review update will consider studies that include adult or pediatric patients who are having any type of surgical procedure, either as a day-only case or as an inpatient.

Types of intervention(s)/phenomena of interest

The review update will consider studies that evaluate the effect of attending or receiving the services of a nurse-led outpatient pre-admission or preoperative assessment clinic prior to the day of surgery.

Types of outcomes

This review update will consider studies that include the following patient outcomes: patient satisfaction, adverse surgical events, recognition and fulfillment of postoperative care needs (such as home nursing care or rehabilitation), and patient anxiety. Additionally we will consider studies that report the following organizational outcomes: number of overnight stays for day- or ambulatory-surgery patients, length of stay, cancellation of surgery, and incidence of non-attendance for scheduled surgery.

Types of studies

The original review considered any RCTs published after 1999 and in the absence of RCTs other research designs, such as non-randomised controlled trials and before and after studies were
considered for inclusion in a narrative summary, to enable the identification of current best evidence regarding the effectiveness of nurse-led preoperative assessment services. The updated review will consider studies with the same criteria published from the original search date in September 2009 to April 2013. To widen the inclusion criteria of the previous review, we will not use any language restrictions.

Exclusion Criteria: This review will exclude studies of preoperative education as this has been the subject of previous reviews.\(^{29-32}\) We will also exclude studies of emergency admissions, and studies comparing nurse-led with physician-led preadmission assessments, as that has also been the subject of previous systematic reviews.\(^{27,28}\) Studies of preoperative visits by doctors or nurses to inpatients will also be excluded.

Search strategy

The search strategy aims to find both published and unpublished studies. A three-step search strategy will be utilized in each component of this review. An initial limited search of MEDLINE and CINAHL will be undertaken, followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe article. A second search using all identified keywords and index terms will then be undertaken across all included databases. Thirdly, the reference list of all identified reports and articles will be searched for additional studies.

The databases to be searched include:

MEDLINE  
CINAHL  
Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library)  
EMBASE  
Meditext  
ISI Web of Science The search for unpublished studies will include:

(1) Current Controlled Trials  
(2) Clinical Study Results  
(3) OpenSIGLE  
(4) Grey Literature Report  
(5) MEDNAR  
(6) National Institute of Clinical Studies (NHMRC)  
(7) Science.gov

Initial keywords to be used will be:

1. preoperative or preadmission or pre\$admission  
2. assessment or examination or work-up or investigation or screening  
3. clinic or service or team  
4. nurs*
5. surgery or surgical
6. nurse-led

Assessment of methodological quality
Papers selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review, using standardized critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix I). Any disagreements that arise between the reviewers will be resolved through a third reviewer.

Data collection
Data will be extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI (Appendix II).*

*The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives. Reviewers will extract data independently. Where necessary, study authors will be contacted to request missing data or clarifications of unclear reporting.

Data synthesis
Papers will, where possible be pooled in statistical meta-analysis using the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI). All results will be subject to double data entry. Odds ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed using the standard Chi-square. Where statistical pooling is not possible the findings will be presented in narrative form.

Where possible, subgroup analysis will be used to clarify differences in results for different populations, types of surgery and/or country of origin.

Conflicts of interest
None known.

Acknowledgements
The update authors would like to acknowledge the work of our previous co-authors, Anne Chang, Mary-Anne Ramis and Shannon Pike on the original review.
References


10. Pottle A., Breen J., Hayes C., Joseph T., S. K. Outcomes from the first year of a nurse-led preadmission clinic for elective pci patients. European Heart Journal. [Internet] 2010 [cited 2013 May 29];31(September):235. http://congress365.escardio.org/searchResults.aspx?events=40%7C48%7C54&topics=15%7C47%7C79%7C80%7C94%7C116%7C132%7C166%7C312%7C320%7C354%7C366%7C372%7C377%7C401%7C405%7C409%7C439%7C457&mainTopic=22&types=&WithWebcast=True&WithSlides=True&WithAbstract=True&WithReport=True&freetext=&sort=11&direction=2&page=8&scroll=0&nbPerPage=20


Appendix I: Appraisal instruments

MAStARI Appraisal instrument

### JBI Critical Appraisal Checklist for Randomised Control / Pseudo-randomised Trial

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>Not Applicable</th>
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<tbody>
<tr>
<td>1. Was the assignment to treatment groups truly random?</td>
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<td>2. Were participants blinded to treatment allocation?</td>
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<td>3. Was allocation to treatment groups concealed from the allocator?</td>
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<td>4. Were the outcomes of people who withdrew described and included in the analysis?</td>
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<td>5. Were those assessing outcomes blind to the treatment allocation?</td>
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<td>6. Were the control and treatment groups comparable at entry?</td>
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<td>7. Were groups treated identically other than for the named interventions</td>
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<td>8. Were outcomes measured in the same way for all groups?</td>
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<td>9. Were outcomes measured in a reliable way?</td>
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<td>10. Was appropriate statistical analysis used?</td>
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Overall appraisal: **Include** □ **Exclude** □ **Seek further info.** □

Comments (Including reason for exclusion)

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Appendix II: Data extraction instruments

MAStARI data extraction instrument

<table>
<thead>
<tr>
<th>JBI Data Extraction Form for Experimental / Observational Studies</th>
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<tr>
<td>Reviewer ___________________________ Date __________________</td>
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<tr>
<td>Author ___________________________ Year ______________________</td>
</tr>
<tr>
<td>Journal ___________________________ Record Number ____________</td>
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**Study Method**

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<th>Quasi-RCT</th>
<th>Longitudinal</th>
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<table>
<thead>
<tr>
<th>Retrospective</th>
<th>Observational</th>
<th>Other</th>
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**Participants**

**Setting**

**Population**

**Sample size**

- Group A ________________ Group B ________________

**Interventions**

<table>
<thead>
<tr>
<th>Intervention A</th>
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<tr>
<th>Intervention B</th>
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**Authors Conclusions:**

**Reviewers Conclusions:**