MonashHealth

Evidence Snapshot

Management of non-elective surgery with electronic booking/communication systems

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Objectives

What is the effectiveness of using electronic bookings/communications systems for the management of non-elective surgery cases?

Search strategy

Search strategy

A search of Google, Google Scholar, The Cochrane Library, The Health Foundation, The Kings Fund, TRIP database, Sax Institute, NSW Agency for Clinical Innovation and BMJ Quality Improvements Projects was undertaken using a combination of the following terms: Electronic booking, non-elective surgery, emergency surgery, emergency theatre booking system, electronic booking system.

Inclusion/Exclusion Criteria

The following criteria were applied to search results to identify relevant articles.

Population	**Include:** Patients requiring emergency surgery (Adult and Paediatric populations)
	Exclude: Patients requiring elective surgery
Interventions	**Include:** Electronic communication/booking systems
Outcomes	Effectiveness of electronic communication/booking systems for emergency surgery cases
	Risks associated with electronic communication/booking systems
	Challenges associated with implementing electronic communication/booking systems
Context	**Include:** Hospital Emergency/Inpatient setting
Limits	**Date**: 2007 - Current
	Language: Publications in English.

Results

Summary of Findings

The search of the internet and relevant quality improvement resources identified three articles of interest (one literature review, one guideline and one project brief). These have been summarised for information below and effectiveness of systems, risks associated with the use of electronic communication/booking systems and lessons learnt from challenges to implementation are provided in Table 1.

*Department of Health. 2010. **Good Practice in management of emergency surgery: A Literature Review**. Department of Health, Melbourne Victoria.* file:///C:/Users/580312/Downloads/good_practice%20-%20PDF.pdf

In 2010, the Department of Health undertook a literature review to identify different approaches to emergency surgical services. Included in the review was an investigation into service delivery models for emergency surgery that had been implemented in Australia and internationally. In reviewing the literature, opportunities for how elective and emergency

surgery demand can be balanced were identified. One of these opportunities included electronic theatre booking systems. The review found that minimal research investigating which booking systems are most effective. "In practice, paper-based booking systems are gradually being replaced by electronic systems throughout the world. This indicates growing recognition that electronic systems deliver a range of benefits, such as real-time scheduling, increased transparency of patient bookings, better patient tracking systems to ensure timeliness of care, and a useful dataset."

The review looked at two Australian hospitals who have introduced emergency theatre booking systems in Victoria but have not yet published literature presenting the empirical findings (The Royal Melbourne Hospital and The Austin Hospital). "Both hospitals found that the introduction of an emergency theatre booking system (ETBS) improved communication by increasing visibility of the operating theatre schedule across different units. The ETBS also enabled better patient tracking and identification of patients that were in danger of not being treated within priority timeframes."

*Brinton J. 2015. **Surgery News: Wollongong Hospital goes paperless**. NSW Agency for Clinical Innovation.*
https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0006/257487/Surgery_news_Jan-Feb_2015.pdf

This news articles describes the project undertaken by Wollongong Hospital towards a paperless surgical booking process. The aim of this project was to prevent emergency surgical booking errors, increase the amount of clinically relevant information and provide better care to emergency and trauma surgical patients at Wollongong Hospital with the introduction of an electronic booking process using the existing eMR system. Benefits identified from the project include: Reduced booking errors for emergency & trauma surgery, Reduced transcription errors with the removal of the paper-to-paper-to-paper system, Increased the amount of clinically relevant information, Timely access to care for emergency and trauma patients, Transparency in the booking process, Alignment with the current eMR system, No new hardware or software = ordering is similar to current processes for other eMR orders, Off-site access to Trauma theatre lists, Move towards all surgery being booked electronically, Provides a more efficient process from bedside to booking and saved time = saved money.

*NSW Agency for Clinical Innovation. 2014. **Operating Theatre Efficiency Guidelines A guide to the efficient management of operating theatres in New South Wales hospitals**. NSW.*
https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0004/252436/operating-theatre-efficiency-guidelines.pdf

The Operating Theatre Efficiency Guidelines have been developed as a best practice guide for the management and governance of operating theatres in NSW public hospitals. The guidelines provide information on operating theatre efficiency measures, management processes and cost considerations based on expert recommendations and best available information at the time of publication. Included is an example online emergency booking system which has been reproduced with permission of the Royal Prince Alfred Hospital and outlines the features of the system however does not provide information for effectiveness, risk or challenges to implementation.

Table 1. Summary of findings

Electronic Communication/Booking Systems		
Benefits/Effectiveness	**Risks**	**Lessons learnt from challenges to implementation**
- Real-time scheduling - Increased transparency of patient bookings - Better patient tracking systems to ensure timeliness of care - A useful dataset to facilitate performance monitoring and improvement - Measure booking effectiveness, assisting hospitals to address operating scheduling inefficiencies - Saves time and money - Reduces booking errors	- Issues related to IT systems and IT 'down-time' - Communication issues with the anaesthetist that makes final decisions about patient priority - Development of skills to use the new technology	- Tailor ETBS's to each particular health service - Engage key stakeholders and constantly revisit their needs to ensure that they are met - Dedicated IT support - Executive/senior management support

Conclusions

Overall there is little published research on the implementation of electronic communication/booking systems for the management of non-elective surgery patients. Information obtained from current literature suggests that anecdotally paper-based booking systems are gradually being replaced by electronic systems throughout the world and that these systems are able to provide real-time scheduling, increased transparency of patient bookings, allow for patient tracking and timeliness of care, save time and money and reduce booking errors. Not unlike other IT dependent products the risks of electronic booking systems include issues related to IT 'down-time' and development of new skills for staff to use new technology. Tailoring electronic booking systems to individual health service needs and engagement with primary users with support from executive and senior management are all important to the successful implementation of electronic booking systems for non-elective surgery patients.

References

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