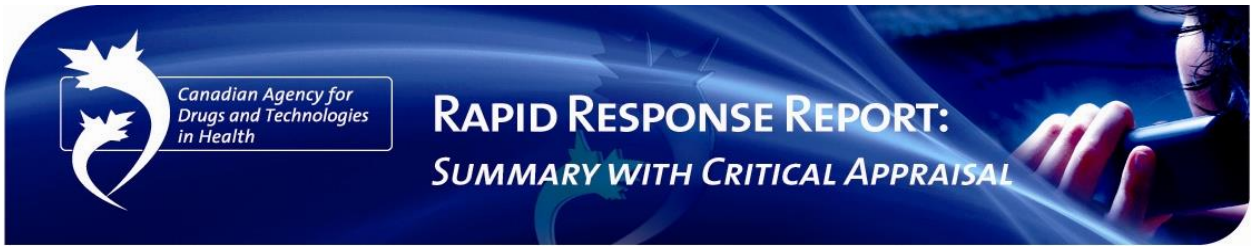

TITLE: Pooled Referral Systems for the Management of Surgical Patient Flow: A Review of Clinical Effectiveness, Cost-Effectiveness, and Guidelines

DATE: 28 October 2015

CONTEXT AND POLICY ISSUES

In recent years, individual provincial governments across Canada have increasingly focused their attention on addressing long "Wait 1" or "specialist" wait times. "Wait 1" wait time refers to the interval between when a primary care physician refers a patient to a specialist and when the patient first sees that specialist. Reducing the "Wait 1" wait time is critical because extensive wait times have been reported to cause distress and to drive adverse health issues among patients.[1] As recently as in 2009, 44.4% to 64.0% patients across Canada waited a month or more to see a specialist.[2]

The standard referral process for surgical services involves a primary physician referring a patient to a specific specialist.[3] The patient then stays on the specialist's waitlist for an indeterminate length of time, until there is an opening in the specialist's schedule. One of the reasons the standard referral process may lead to long "Wait 1" wait times is that the primary physician may lack the resources required to effectively determine the availability of a specific specialist, potentially leaving the patient on the specialist's wait list for an extended period. Healthcare providers in Canada are turning to alternate referral options in order to avoid this shortcoming of the standard referral process.

One such alternate referral process involves pooled referrals wherein a patient is placed on a waitlist shared by multiple specialists.[4] The patient is then automatically assigned to be treated by the next available specialist, irrespective of the level of urgency of their condition. A patient may choose to reject the assignment and see a specific specialist at their discretion.

Pooled referral systems have been implemented in limited format across Canada. These systems are: the AHS Closed Loop Referral Service in Alberta (Calgary and Edmonton), the Osteoarthritis Service Integration System in British Columbia (Vancouver), the Orthopedic Central Intake Project for orthopedic surgery in Newfoundland and Labrador (St. Johns), the Central Intake and Assessment Centres at 24 hospitals offering hip and knee replacements across Ontario, and the Pooled Referral Project for general surgery in Saskatchewan (Moose

Jaw, North Battleford, Prince Albert, Regina, and Saskatoon).[3,5,6] Reported benefits of the pooled referral process include improved access to specialist services and reduction in wait times.[3] Pooled referrals may, however, jeopardize continuity and consistency of care when patients are assigned to different specialists following their primary consultation.[4]

The purpose of this review is to examine the published evidence on the impact of pooled referral systems on patient-related outcomes and costs.

RESEARCH QUESTIONS

1. What is the clinical effectiveness of pooled referral systems for the management of surgical patient flow?
2. What is the cost-effectiveness of pooled referral systems for the management of surgical patient flow?
3. What are the evidence-based guidelines regarding the use and implementation of pooled referral systems for the management of surgical patient flow?

KEY FINDINGS

One systematic review reported that there was insufficient evidence to draw any conclusions on the impact of introducing a generic wait list and pooling initial outpatient appointments and dates for routine spinal surgery on the number of patients waiting less than a recommended time threshold or within a recommended time period. No cost-effectiveness evidence or guidelines for the use and implementation of pooled referral systems for the management of surgical patients was identified.

METHODS

Literature Search Methods

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Filters were applied to limit the results to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, economic studies, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and September 29, 2015.

Rapid Response reports are organized so that the evidence for each research question is presented separately.

Selection Criteria and Methods

One reviewer screened citations and selected studies. In the first level of screening, titles and abstracts were reviewed and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on the inclusion criteria presented in Table 1: Selection Criteria.

Table 1: Selection Criteria	
Population	Patients in need of inpatient or outpatient surgical consultations
Intervention	A pooled surgical referral system in which patients are assigned in sequence to the next available surgeon on a centralized list.
Comparators	Standard referral where a primary care provider refers a patient to a specific surgeon or group of surgeons. No comparator
Outcomes	Q1: Patient health outcomes (disease states and surgical outcomes), patient care, patient satisfaction, improvement in "wait one" time (between referral and consult with surgeon), improvement in time from referral to surgical procedure, improvement in access to surgical specialists, surgical outcomes, mortality rate, infection rate, patient perception of wait times, and management of surgical patient flow. Q2: Cost-effectiveness Q3: Best practices guidelines regarding selection and implementation of referral systems, and selection and assignment of patients
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines, and economic studies

Exclusion Criteria

Articles were excluded if they did not meet the selection criteria outlined in Table 1, they were duplicate publications, or were published prior to 2010.

Critical Appraisal of Individual Studies

The systematic review was critically appraised using the Assessment of Multiple Systematic Reviews (AMSTAR) tool.[7] A numeric score was not calculated, instead strengths and limitations were described narratively.

SUMMARY OF EVIDENCE

Quantity of Research Available

A total of 395 citations were identified in the literature search. Following screening of titles and abstracts, 387 citations were excluded and eight potentially relevant reports from the electronic search were retrieved for full-text review. Six potentially relevant publications were retrieved from the grey literature search. Of these 14 potentially relevant articles, one met the inclusion criteria. Appendix 1 describes the PRISMA flowchart of the study selection.

An additional reference of potential interest is provided in Appendix 2.

Summary of Study Characteristics

The evidence included here was derived from one systematic review that was published in 2015 by authors in Italy and the United Kingdom.[1] The review evaluated the effectiveness of any intervention for reducing waiting times for any patients and any type of elective care.

Eight studies covered any interventions aimed at rationing and/or prioritizing demand and at improving the organizational management of waiting lists or restructuring the intake assessment/referral process for patients with any type of indication. The interventions were direct/open access and direct booking systems, distant consultancy, and generic waiting lists. Indications included referrals for ear, nose, and throat procedures, uncomplicated spinal surgery, dermatology, elective surgery, colposcopy for abnormal cervical cytology, any pediatric clinical conditions treated in an outpatient clinic, laparoscopic sterilization, and urological investigations. The comparators were current practice or no intervention. A total of one hundred and thirty-five general practice or primary care clinics, seven hospitals, and one outpatient clinic were included. Five studies took place in the United Kingdom, two took place in the United States and one was conducted in Australia. Two of the studies were cluster randomized controlled trials, one was a randomized controlled trial, and five were reanalyzed interrupted time series studies. Heterogeneity of the studies prevented the authors from performing a meta-analysis. Outcomes of interest were the number or proportion of participants whose waiting times were above or below a specific time threshold, or participants' mean or median waiting times. One interrupted time series examining pooled referral systems, published in 2004, was relevant to this Rapid Response report.

Summary of Critical Appraisal

A detailed description of the critical appraisal is provided in Appendix 3.

Two reviewers independently extracted and assessed data and the authors provided lists of included and excluded studies, characteristics of included studies and reasons for excluding studies, and an extensive assessment of risk of bias.[1] Minor limitations are that the status of publication was not part of the inclusion criteria and the number of participants was not reported for every study. An extensive list of publication sources (including sources of grey literature) was provided along with the number of clinical sites was provided for each study.

While the review was well-executed, its parameters were broad. The review included populations with any type of indication, any type of regulatory/administrative, economic, clinical or organizational intervention aimed at reducing wait times for access to any elective indication, any type of comparator, and any setting. Furthermore, it is uncertain whether the outcome reported by the review is the most reliable primary outcome that reflects wait times.[1]

Summary of Findings

What is the clinical effectiveness of pooled referral systems for the management of surgical patient flow?

No study reported on the introduction of pooled referral systems in isolation. One systematic review was found that covered all types of regulatory/administrative, economic, clinical or organizational intervention aimed at reducing wait times for access to any elective indication,

any type of comparator, and any setting.[1] The review included one interrupted time series study published in 2004 that studied the impact of introducing a generic waiting list and pooling all initial outpatient appointments and dates for routine spinal surgery in the United Kingdom. A magnetic resonance imaging booking system was to be integrated with the outpatient review appointments, however, it remains unclear when the booking system was introduced. The comparator involved current practice where each consultant managed his or her own waiting list.

The authors of the systematic review classified the evidence from this study as being of very low quality. The evidence from the study was downgraded for having "high risk of bias due to unclear risk of intervention not being independent of other changes and having affected data collection, and unclear risk of attrition and reporting bias". Though the results of the interrupted time series study suggested that pooling initial outpatient appointments and dates for routing spinal surgery had no impact on the number of patients waiting less than 9 months or waiting between 9 and 18 months for non-complicated spinal surgery, the authors of the systematic review stated they were unable to draw conclusions from these results.

All other studies included in the systematic review were either not related to surgery or involved an intervention other than pooled referral systems.

What is the cost-effectiveness of pooled referral systems for the management of surgical patient flow?

No study met the inclusion criteria.

What are the evidence-based guidelines regarding the use and implementation of pooled referral systems for the management of surgical patient flow?

There are no evidence-based guidelines on pooled referral systems that met our inclusion criteria.

Limitations

Recent evidence regarding the use of pooled referral systems in a surgical setting is lacking. Information for this report was found in a single systematic review that included interventions other than standalone pooled referral systems. The evidence was derived from a single, United-Kingdom-based study published in 2004 that studied the impact of introducing a generic waiting list and pooling all initial outpatient appointments and dates for routine spinal surgery, along with an integrated magnetic resonance booking system.

CONCLUSIONS AND IMPLICATIONS FOR DECISION OR POLICY MAKING

One systematic review reported that there was insufficient evidence to draw any conclusions from results of an interrupted time series study. The study focused on the impact of introducing a generic waiting list and pooling all initial outpatient appointments and dates on the number of patients waiting less than a recommended time threshold or within a recommended time period for routine spinal surgery. No evidence was identified regarding the clinical or cost-effectiveness of pooled referral systems for the management of surgical patients.

Prior to making a decision on pooled referral systems, providers may consider reviewing evaluation reports on centralized intake systems that were commissioned by Canadian jurisdictions in the past.[3,5] In addition, the Canadian Medical Association (CMA) published a policy document in 2014 that focused on streamlining patient flow from primary to specialist physicians.[4] Recognizing that certain scenarios (such as those involving pregnant or critically ill patients) may require ongoing interactions between a patient and a specific specialist, the CMA recommended implementing centralized intake programs with standardized referral processes (such as pooled referrals) and physician directories.

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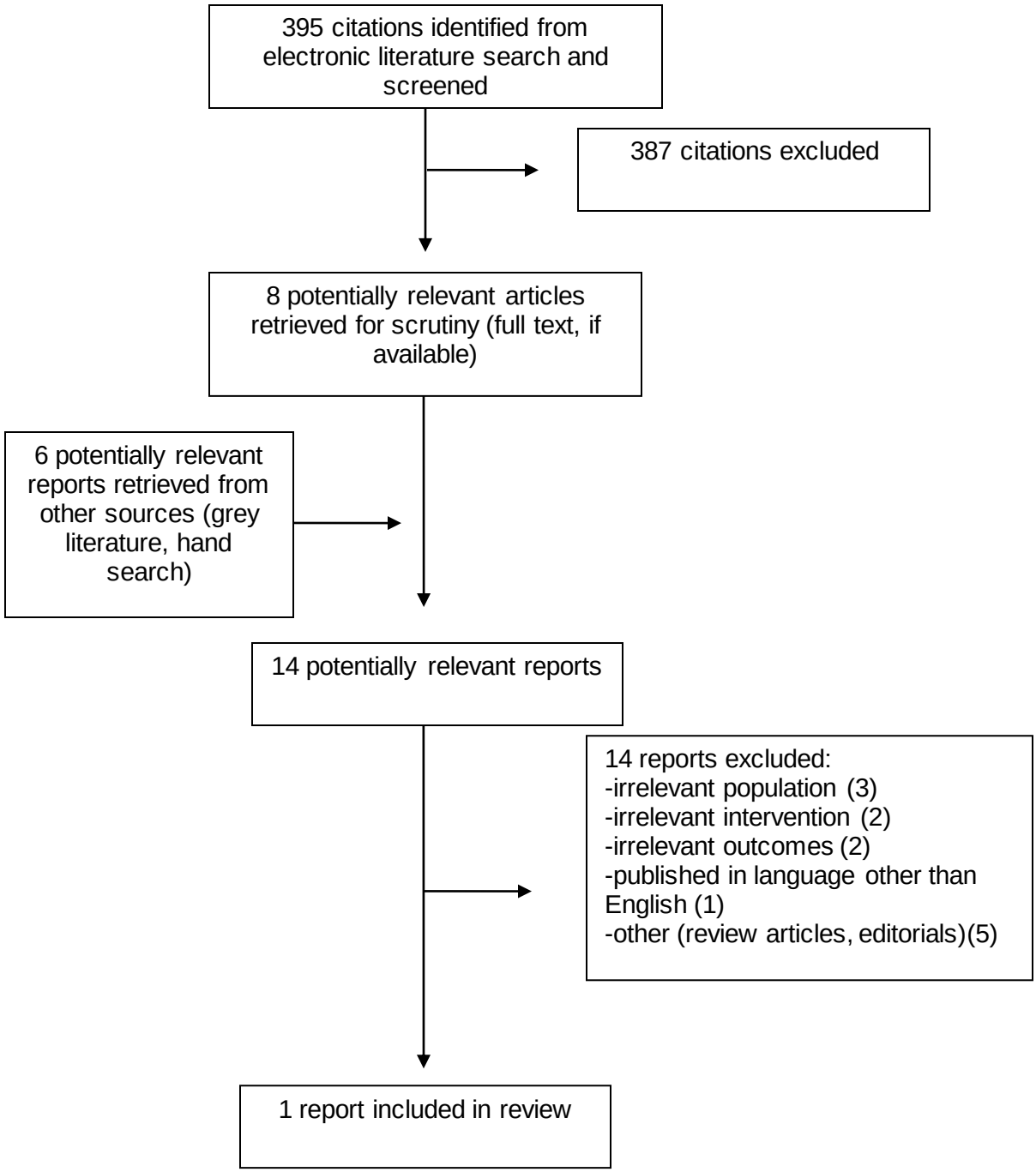
APPENDIX 1: Selection of Included Studies



APPENDIX 2: Additional Reference of Potential Interest

Not available in English

Antunes MJ. The economics and costs of patient referral protocols for cardiac surgery [In Portuguese] Rev Port Cardiol. 2015 Sep 17 [Epub ahead of print]. Portuguese full-text available from: http://www.elsevier.pt/en/linkresolver/334/a-economia-e-os-custos-das-redes-referenciacao/90442692

APPENDIX 3: Summary of Critical Appraisal

Table A1: Critical Appraisal of Included Publications

First Author, Publication Year	Strengths	Limitations
Ballini[1] 2015	• Duplicate study selection and data extraction and assessment • Comprehensive literature search based on pre-defined criteria was performed • Authors described literature sources (including grey literature) • A list of excluded studies and reasons for exclusion were provided • A list of included studies was provided • Some characteristics of included studies were provided • Risk of bias for randomized controlled trials and interrupted time series studies was assessed and documented • Scientific quality of all included studies was documented and used appropriately in formulating conclusions • A conflict of interest statement was provided	• The authors did not state whether inclusion criteria was specific to status of publication • The number of participants was not provided for some studies • Likelihood of publication bias could not be assessed because too few studies were included in the review • Heterogeneity of the studies prevented meta-analysis of data