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## Research review

## A systematic review of outcomes reported in small bowel obstruction research



Katie Mellor, MSc,<sup>a</sup> Daniel Hind, PhD,<sup>a</sup>  
and Matthew J. Lee, MBChB BMedSc MRCS<sup>b,c,\*</sup>

<sup>a</sup> Clinical Trials Research Unit, School of Health and Related Research, Sheffield, UK<sup>b</sup> Medical School, University of Sheffield, Sheffield, UK<sup>c</sup> Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

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## ABSTRACT

**Background:** Small bowel obstruction (SBO) is a condition which is commonly treated by general surgeons. The evidence base for treatment of this condition is limited in part by variable reporting of outcomes in the literature. The aim of this study was to identify commonly used outcomes in research on SBO.

**Methods:** This review was reported in line with Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and registered with PROSPERO (CRD42017065538). Searches were performed of MEDLINE, Embase, and Cochrane Central Register of Controlled Trials databases to identify prospective cohort or randomized trials reporting outcomes of interventions in SBO. Studies addressing diagnostics, pediatric populations, and SBO due to malignancy were excluded. Studies were screened for inclusion. Study and outcome characteristics were extracted into a predesigned pro forma and mapped onto the Outcome Measures in Rheumatology (OMERACT) framework.

**Results:** A total of 1222 studies were screened for eligibility, 74 full text articles retrieved, and 51 studies included for synthesis. A total of 50 different outcomes were used. Duration of hospital stay was the most frequently reported outcome ( $n = 21$  studies). Resolution of SBO was reported in 12 studies but only defined in eight studies which used six different definitions. Patient-reported outcomes were reported in only four studies.

**Conclusions:** There is a high degree of variation in the outcomes reported in SBO research. There is a clear need for a core outcome set. Development of a patient-reported outcome measure for this condition should also be explored.

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## Introduction

Small bowel obstruction (SBO) is a common condition, accounting for around half of all emergency laparotomies each year.<sup>1</sup> Outcomes for this condition are poor, with high rates of

morbidity and mortality reported.<sup>1,2</sup> As this is a high volume condition with poor outcomes, it is important to improve the care of patients with SBO through quality improvement and research.<sup>3,4</sup>

\* Corresponding author. Department of General Surgery, Northern General Hospital, Herries Road, Sheffield S5 7AU, UK. Tel.: +44 0114 243 4343; fax: +44 0114 256 0472.

E-mail address: [m.j.lee@sheffield.ac.uk](mailto:m.j.lee@sheffield.ac.uk) (M.J. Lee).  
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It is well recognized that surgery lacks the high-quality evidence in the form of randomized controlled trials (RCTs) seen in other clinical fields.<sup>5</sup> One of the challenges to research both in trials and cohort studies is selective reporting bias, which limits comparison of studies and has potential to skew reporting of key benefits and harms of treatments.<sup>6,7</sup> To address this, it is important to have a common set of outcomes with matching definitions. This could be achieved through the development “Core Outcome Set” (COS), defined as “an agreed, standardized set of optimal outcome measures that should be reported, as a minimum, in all studies investigating a specific clinical population.”<sup>8</sup> In 2010, the Core Outcome Measures in Effectiveness Trials initiative (<http://www.comet-initiative.org/>) was launched with the aim of addressing the problem of a lack of outcome measurement standardization in clinical trials.<sup>9</sup> COSs have already been produced in other surgical conditions<sup>10,11</sup>. The first step in the production of a COS is to identify commonly used outcomes in the literature. Qualitative work is undertaken with patients to identify additional outcomes of importance. The long list is then presented to stakeholders including clinicians and patients, and a consensus process (e.g., Delphi) is followed to reach a consensus that is most important.<sup>8</sup>

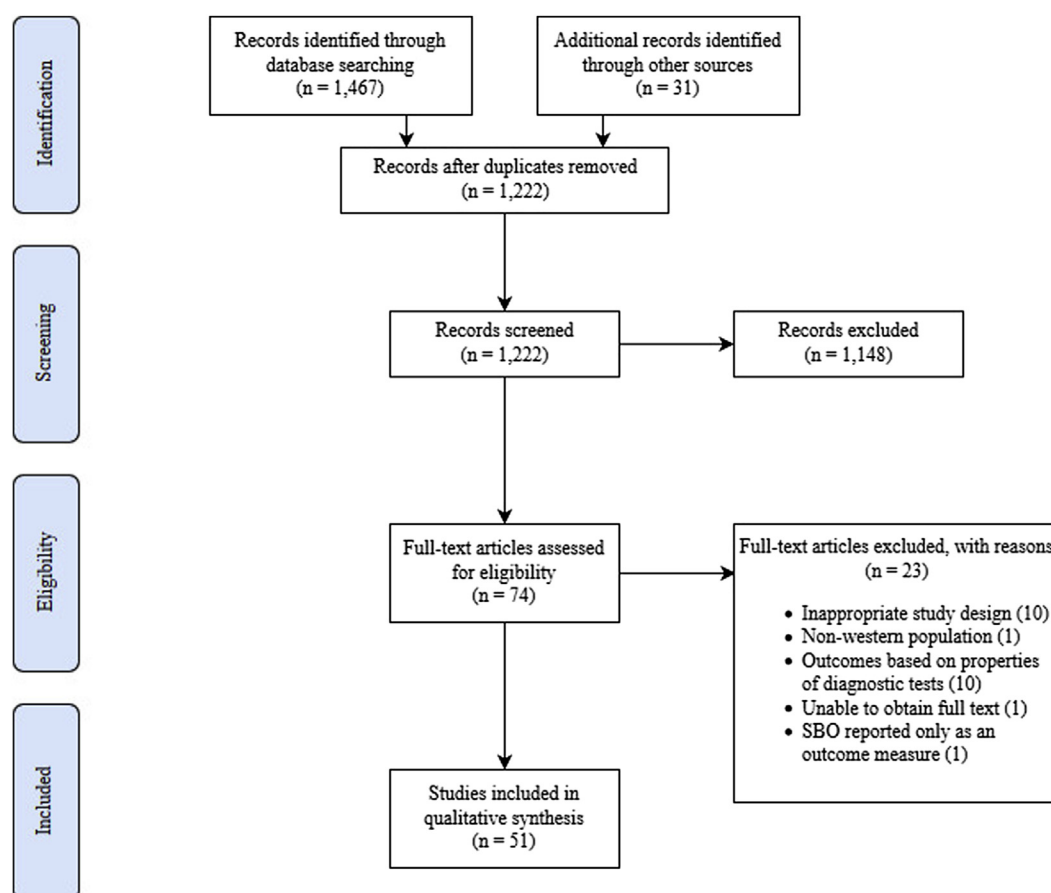
The aim of this study was to identify and categorize outcomes used in research on SBO.

## Method

A protocol for this systematic review is available on PROSPERO (registration: CRD42017065538). The review is reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.<sup>12</sup>

### Search strategy

A search strategy was devised with input from a librarian at the School of Health and Related Research, University of Sheffield. Electronic databases searched included MEDLINE (accessed through the PubMed interface), Embase (accessed through the Ovid interface), and the Cochrane Central Register of Controlled Trials. Validated filters were used to search for RCTs in Embase and MEDLINE<sup>13,14</sup>. The search strategy is presented in [Appendix 1](#). Backward citation tracking of reference lists of relevant reviews and forward citation tracking of relevant articles were also used as per Core Outcome Measures in Effectiveness Trials guidance.<sup>15</sup> Further hand searching of all titles and relevant abstracts of studies published in the “British Journal of Surgery” and “Annals of Surgery” were used to identify relevant publications within the last 20 y.



**Fig. 1 – PRISMA flowchart.** PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses. (Color version of figure is available online.)

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