

Delay in transit: the NCEPOD review of care provided to patients with acute bowel obstruction

Acute bowel obstruction can occur in the small or large bowel and accounts for up to 10% of emergency surgical admissions. This high-risk group of patients requires careful management. Early diagnosis via computed tomography can help to prevent delays when surgery is required, which can impact patient outcomes.

Hannah Shotton¹

Kathryn Kelly¹

Martin Sinclair¹

Antony Michalski¹

Author details can be found at the end of this article

Correspondence to:

Hannah Shotton;
hshotton@ncepod.org.uk

Introduction

Acute bowel obstruction is a painful condition associated with life-threatening complications such as aspiration pneumonia and bowel ischaemia and perforation. Acute bowel obstruction occurs when there is an interruption to the forward flow of intestinal contents. It can occur in the small or large bowel and accounts for up to 10% of emergency surgical admissions. Adhesions from previous surgery are the leading cause of small bowel obstruction in industrialised countries (70%), followed by malignancy, inflammatory bowel disease and hernias. Malignancy and volvulus are the commonest causes of large bowel obstruction (Royal College of Surgeons of England and Association of Surgeons of Great Britain and Ireland, 2014).

Deciding on the most suitable treatment plan for acute bowel obstruction is difficult; surgeons make critical decisions with regard to conservative care vs surgery. To aid diagnosis, and the subsequent decision-making process, an early computed tomography scan with intravenous contrast is recommended. This prevents delay when surgical intervention is required, which can impact patient outcomes (Finan et al, 2007; Hwang et al, 2009; Ten Broek et al, 2018).

Acute bowel obstruction is more common in older adults and patients scoring highly on frailty scales such as the Rockwood scale (The National Confidential Enquiry into Patient Outcome and Death (NCEPOD), 2020). Up to one third will be at risk of malnutrition and they are at particular risk of acute kidney injury. Thus patients with acute bowel obstruction require careful observation, risk management and consultant-led care throughout their hospital stay, before and after any surgery (Association of Coloproctology of Great Britain and Ireland, 2017a,b).

This is a high-risk patient group requiring specific treatment to be delivered in a time-dependent manner. However, currently there is no one unifying national guideline or framework for the management of acute bowel obstruction and there is considerable variation in care and outcomes (Saunders et al, 2012; Association of Coloproctology of Great Britain and Ireland, 2017a,b; National Emergency Laparotomy Audit, 2018; Ten Broek et al, 2018; National Institute for Health and Care Excellence, 2020). The NCEPOD (2020) report *Delay in Transit* aimed to help improve the care provided to this group of patients.

The NCEPOD enquiry

Delay in Transit described the quality of care provided to patients with either large or small bowel obstruction throughout their hospital stay.

Data were collected on patients aged 16 years and over who had an acute bowel obstruction, either on presentation to hospital or during their hospital admission. Patients were identified retrospectively from hospital records through International Statistical Classification of Diseases and Related Health Problems (ICD10) codes for conditions associated with acute bowel obstruction. A questionnaire was completed by the admitting clinician in 690 patients and a multidisciplinary group of healthcare professionals undertook peer review using the case notes of 294 patients. The report recommendations are shown in [Table 1](#).

Delays in the care pathway: imaging, diagnosis and surgery

The overarching finding of this study was that there were multiple delays in the pathway of care for these patients. There were delays in imaging investigations in 57/276 (20.7%)

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Table 1. Delay in transit – recommendations

1	Undertake a computed tomography scan with intravenous contrast promptly, as the definitive method of imaging* for patients presenting with suspected acute bowel obstruction. The time to computed tomography reporting should be audited locally (Targeted at emergency medicine, admitting clinicians, radiologists, quality improvement leads)	
2	Undertake a consultant review in all patients diagnosed with acute bowel obstruction as soon as clinically indicated and at the latest within 14 hours† of admission to hospital. Discussion with a consultant should occur within an hour for high-risk patients (Targeted at consultant surgeons)	
3	Admit patients with symptoms of acute bowel obstruction as necessary; those with a definitive diagnosis of acute bowel obstruction should be admitted under the care of a surgical team (Targeted at admitting clinicians, clinical directors)	
4	Assess pain in all patients with symptoms of acute bowel obstruction and give analgesia in line with local and national guidelines. Ensure that:	Pain is assessed at presentation to the emergency department
		Pain is assessed throughout the admission
		Referral to the acute pain team is undertaken when pain is difficult to manage, while ensuring the referral does not cause a delay in any definitive treatment (Targeted at all hospital-based clinicians, acute pain teams)
5	Measure and document hydration status in all patients presenting with symptoms of acute bowel obstruction in order to minimise the risk of acute kidney injury. Ensure that hydration status is:	Assessed at presentation to the emergency department
		Assessed throughout the admission (Targeted at clinicians)
6	Undertake, record and act on nutritional screening in all patients who present with symptoms of acute bowel obstruction. This should include:	A Malnutrition Universal Screening Tool (MUST) score on admission to hospital
		A MUST score at least weekly throughout the admission
		Review by a dietitian or nutrition team once a diagnosis has been made
		A MUST score, and if required a dietitian or nutrition team assessment at discharge, as recommended by the British Association for Parenteral and Enteral Nutrition (Targeted at clinicians, dietitians, nutrition teams)
7	Ensure patients with a high frailty score (eg Rockwood 5 or more) receive:	A multidisciplinary team discussion for shared decision making, including care of the elderly
		A risk assessment, with input from critical care relevant to the patient's needs
		A treatment escalation plan
		Their resuscitation status recorded (Targeted at clinicians including care of the elderly)
8	Ensure local policies are in place for the escalation of patients requiring surgery for acute bowel obstruction to enable rapid access to the operating theatre. This should be regularly audited to ensure adequate emergency capacity planning (Targeted at medical directors, clinical directors, quality improvement leads)	
9	Agree joint clinical network pathways of care that enable improved access to stenting services for those patients with acute large bowel obstruction who require the service (Targeted at medical directors, division leads, commissioners, clinical networks)	
10	Calculate morbidity and mortality risk for all patients admitted with, and before any surgery for, acute bowel obstruction, to aid:	Shared decision making between the patient, carers and clinicians regarding treatment options and ensuring the appropriate informed consent is taken
		Assessment of the risk and predicted outcome associated with undertaking a laparotomy (Targeted at surgeons)
11	Minimise delays to diagnosis and treatment for acute bowel obstruction through the development of an evidence-based pathway for acute bowel obstruction, including recommendations 1–10. The pathway should be audited at specific time points such as:	Time from arrival to computed tomography scan
		Time from arrival to diagnosis
		Time from decision to operate to start of anaesthesia (Targeted at clinicians, medical directors, clinical directors, quality improvement leads)

*Unless the use of intravenous contrast is deemed inappropriate by a senior clinician, in which case computed tomography without contrast should be performed – in line with National Institute of Health and Care Excellence (2019) guidance. † As recommended by the Royal College of Physicians of London and NHS England (Royal College of Physicians of London, 2015)

of the patients reviewed. These were associated with a delay in diagnosis in 35/57 (61.4%) patients, with only 14/219 (6.4%) patients having a delayed diagnosis if there was no delay in imaging. Delays in reporting were more commonly associated with X-ray than computed tomography scans (34/434, 7.8% vs 4/491, 1.8%), whereas delays caused by issues of availability were more common with computed tomography scans than with X-ray (43/491 (8.8%) vs 6/421 (1.4%)).

The usefulness of X-ray as a means of diagnosis for acute bowel obstruction was questioned in this report. In 427/479 (89%) patients computed tomography with intravenous contrast was sufficient to make the definitive diagnosis of acute bowel obstruction; this was only the case for abdominal X-ray in 132/411 (32.1%). It was also reported that there were 29 cases of unnecessary imaging and 23 of these involved patients who had both a computed tomography and an abdominal X-ray (see recommendation 1, [Table 1](#)).

Delays in consultant assessment were associated with a delay in diagnosis in 13/32 (40.6%) patients whereas only 23/147 (15.6%) patients who were seen in a timely manner by a consultant experienced a delay in diagnosis (see recommendation 2, [Table 1](#)).

The majority of patients (496/647, 76.6%) were admitted under a surgical team. There were fewer examples of delay in imaging, diagnosis and surgery when compared with patients admitted under medical teams. The reasons for this difference may reflect the case-mix of patients as well as any differences in management (see recommendation 3, [Table 1](#)).

Following diagnosis of acute bowel obstruction and the treatment plan decided upon, 72/368 (19.6%) patients also experienced a delay in surgery; in 38/72 (52.8%) patients the delay was caused by the non-availability of theatre and in 34/72 (47.2%) it was caused by non-availability of an anaesthetist (see recommendation 10, [Table 1](#)).

In total there were 126 separate patients (42.8%) who experienced some delay in their pathway of care. Notably, patients who were cared for on a pre-defined acute bowel obstruction pathway were less likely to experience delays; 2/77 (2.6%) patients on a pathway experienced a delay compared with 66/534 (12.4%) patients who were not on a pathway (see recommendation 11, [Table 1](#)).

Risk assessment and frailty assessment

In addition to the multiple delays in the pathway, room for improvement was reported in the clinical care of this group of patients. Assessments of risk and frailty were variable. Risk assessment is important, as patients who had a risk assessment had better escalation of care; however, the assessment of risk was inadequate in the view of the reviewers in 98/219 (44.7%) patients (see recommendation 10, [Table 1](#)).

Similarly, only 34/124 (27.4%) patients over 65 years of age had their frailty score assessed on admission to the ward. Patients with a documented Rockwood frailty score of 5 or higher were more likely to have discussions around mortality, resuscitation status and treatment options (see recommendation 7, [Table 1](#)).

Nutrition and hydration

To prevent malnutrition and acute kidney injury, nutrition and hydration status are fundamental for the care of patients with acute bowel obstruction, but these were often not well assessed. Only 163/686 (23.8%) patients had their hydration status recorded, 105/254 (41.3%) patients either had no nutritional status assessment or the assessment was inadequate and only 88/233 (37.8%) patients had a nutrition assessment on discharge. This is contrary to the recommendation by the British Association for Parenteral and Enteral Nutrition (2003) that inpatients at particular risk of malnutrition should have their nutritional needs assessed regularly and referral made to the nutrition team if required (see recommendations 5 and 6, [Table 1](#)).

Conclusions

The areas for improvements in care highlighted in the report, and the recommendations made have the potential to improve the care of a large proportion of surgical patients. This should lead to measurable improvements in outcomes and enhanced patient care.

Key points

- There were multiple delays in the pathway of care for patients with acute bowel obstruction, particularly in imaging (20%).
- Over 40% of patients in the study had delayed care at some stage.
- There were fewer delays recorded for patients whose care was managed on a dedicated care pathway.
- Room for improvement was noted in the assessment of risk of surgery and of nutrition and hydration status.

Author details

¹National Confidential Enquiry into Patient Outcome and Death (NCEPOD), London, UK

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