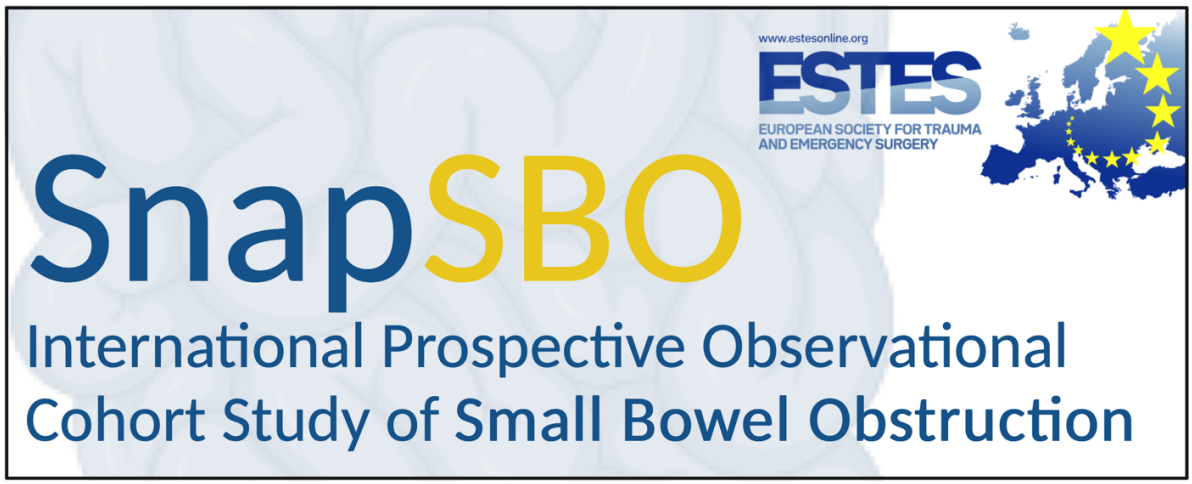

COHORT STUDY PROTOCOL

An international non-randomized time-bound prospective observational cohort study addressing the epidemiology and management of Small Bowel Obstruction

Study period: November 01st 2023 – May 31st 2024

ClinicalTrials.gov Registration: NCTxxxxxxx

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Introduction

Multi-center, ‘snapshot’ cohort studies or audits have the ability to gather large patient numbers in short time periods from many hospitals. They allow exploration of differences in patients, techniques and management across the cohort to identify areas of practice variability that may result in apparent differences in outcome. As such, whilst not providing true evidence of efficacy or the impact of a particular variable, they can be hypothesis-generating and can identify areas warranting further study in future randomized controlled trials[1].

The European Society of Trauma and Emergency Surgery has recognized the strengths of this form of research, as well as its power in bringing together surgeons and emergency surgical units across multiple regions or countries for a common research goal, thus strengthening an active network of research participation across Europe.

Scope

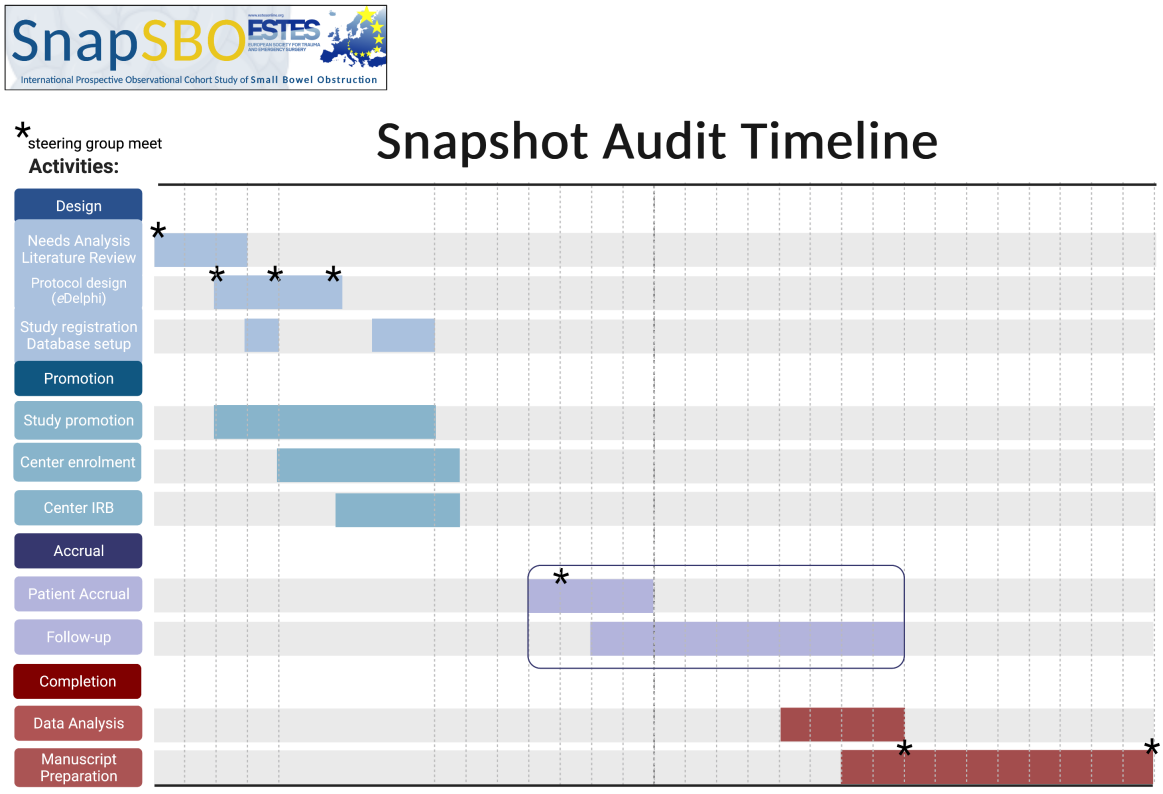
Small bowel obstruction (SBO) and its complications are frequently seen in patients admitted through the Emergency Departments of all acute care hospitals[2].

There is variation in the optimal use of imaging, the appropriate timing and duration of non-operative management attempts, anti-microbial therapies and the criteria for surgical management, which results in heterogeneity in approaches and outcomes across international clinical centers. The expected number of SBO cases in most clinical centers is predictable, enabling a suitable sized cohort of patients to be gathered in the snapshot audit.

This ‘ESTES snapshot audit’ -a prospective observational cohort study- has a dual purpose. Firstly, as an epidemiological study, it aims to uncover the burden of disease. Secondly, it aims to demonstrate current strategies employed to diagnose and treat these patients. These twin aims will serve to provide a ‘snapshot’ of what we are doing now, but will also be hypothesis-generating while providing a rich source of patient-level data to allow further analysis of particular clinical question.

Key Study Dates

06 may 2023	Snapshot Launch at ECTES 2023, Ljubljana. Center enrolment and local IRB submission
01 november 2023 - 01 may 2024	Patient enrolment. Ninety (90) consecutive day enrollment within this six (6) month window
01 may 2024	Final day for new patient enrolment
31 July 2024	Final day of patient follow-up (60 days from admission on 01 may 2024)
01 August 2024 - 01 September 2024	Local data validation, completion, and final upload
01 september 2024	REDCap® database locked; this is the deadline for data submission and center inclusion.



Definitions

Mechanical small bowel obstruction (SBO): An intrinsic, extrinsic or endoluminal process which narrows or occludes the bowel lumen and delays the passage of luminal contents.

Ileus: Functional motility disorder characterized by adynamic paralytic bowel, leading to many of the same symptoms of mechanical obstruction, but without a single site of obstruction demonstrable on imaging. Common causes include recent abdominal surgery, medications such as opiates, and electrolyte disturbances[2].

Complete SBO: Obstruction with no passage of luminal contents beyond the point of obstruction[3] (Appendix A).

Partial SBO: Incomplete obstruction with luminal narrowing but some contents continue to pass through the intestine. This is distinguished from complete obstruction by the continued passage of bowel movements and flatus, and a non-peritonitic abdominal exam[3].

Small bowel dilatation: Luminal diameter of >3 cm.

Transition zone: Short segment area between dilated proximal bowel and decompressed distal bowel. Sometimes called a transition point and is radiographic evidence of SBO.

Bowel compromise: when there is ischemia or injury that has led to necrosis and/or perforation of the bowel wall[4].

Adhesions: Fibrous tissue that connects surfaces or organs within the peritoneal cavity that are normally separated. Such adhesions are the results of an adaptive healing response of the peritoneum upon tissue handling or contact with blood or purulence, but also caused by other conditions like radiotherapy, endometriosis, inflammation or local response to tumors[5].

Virgin abdomen: abdomen of a patient without prior surgery. Although there is no consensus in the literature about radiotherapy, known peritoneal inflammatory disease or primary abdominal wall hernias, in our study we will consider only those non-operated inside the definition[6].

Water Soluble Oral Contrast (WSOC) challenge: a combined diagnostic study and therapeutic intervention utilized in the evaluation and management of small bowel obstruction.

Methods

Summary
Prospective audit of consecutive patients admitted in Emergency Department for mechanical small bowel obstruction over a 3 month period. The audit shall include unscheduled patient admissions from November 2023 until May 2024 as outlined in *'Key Study Dates'*.

As this is an observational cohort audit, no change to normal patient management is required.

Primary Objective
To explore differences in patients, management and outcomes across the entire cohort to identify areas of practice variability resulting in apparent differences in outcome warranting further study. The outcomes that the study will examine are:

- Incidence of small bowel obstruction by etiology.
- Differences in clinical presentation.
- Diagnostic work-up.
- Non-operative management strategies.
- Time to surgery and outcomes.
- Complications related to disease and/or therapies within 60 post-operative days.
- Length of Emergency Department and Hospital stay.
- Re-admission within 6 months for related conditions.

Methods for identifying patients
Multiple methods may be used according to local circumstances/staffing:

1. Daily review of emergency department (non-operative) and operating room lists.
2. Daily review of team handover sheets / emergency admission lists / ward lists.
3. Review of operating room logbooks.
4. Use of electronic systems to flag any readmissions of patients identified and treated.

Research Questions

Primary Research Questions

- What is the global incidence of SBO?
- What are the treatment algorithms currently employed in the management of these patients?
- Proportion of non-operatively managed patients?
- Proportion of surgical patients approached laparoscopically?
- Recurrence rate within 6 months?

Secondary Research Questions

- What is the incidence and etiology of virgin abdomen SBO?
- What is the incidence of early postoperative SBO?
- What is the success rate for non-operative management?
- What is the prevalence of complications and treatment failure in the non-operative management of SBO?
- Proportion of patients that underwent WSOC challenge, and under what indications?
- What are the Patient Related Outcomes results?

Inclusion and Exclusion Criteria

Inclusion Criteria:

Adult patients (≥16 years of age) admitted for mechanical small bowel obstruction.
Example etiologies which should be included:
Adhesions.
Hernias with bowel compromise (incisional/parastomal, ventral, inguinal, femoral, obturator, internal).
Malignancy (primary: lymphoma, carcinoid, GIST, adenocarcinoma/metastatic disease: colon, ovarian, gastric, pancreatic, melanoma and others).
Enteroliths/gallstones/bezoars/foreign bodies
Radiation.
Inflammation (Crohn's disease, mesenteric adenitis, appendicitis, diverticulitis, tuberculosis, actinomycosis, ascariasis).
Congenital (malrotation, duplication cysts).
Trauma (hematomas, ischemic strictures).

Exclusion criteria:

Functional small bowel obstruction (dysmotility or adynamic ileus secondary to abdominal operations, peritonitis, trauma or medications).

Center eligibility

All hospitals/units performing general surgery are eligible to join this audit. No unit size or case throughput stipulations are made. Any clinical center is welcome to participate so long as the protocol is adhered to. Countries outside Europe are eparticipate in this audit.

All participating centers will be required to register their details with the ESTES cohort study office and will be responsible for their own local approvals process prior to the start of the data collection period. Inclusion of data sets will be subject to local approval from participating clinical Centers.

Centers should ensure that they have appropriate pathways and manpower to include all consecutive eligible patients during the study period and provide >95% completeness of data entry before locking of the study REDCap® database on the November 1st 2024.

Patient follow-up

The audit is designed so normal patient follow-up pathways can be used to obtain outcome data. No additional visits or changes to normal follow-up should be made. However, local investigators should be proactive in identifying post-diagnosis events (or lack thereof), within the limits of normal follow-up. These may include reviewing the patient notes (paper and electronic) during admission and before discharge to note in-hospital complications, reviewing hospital systems to check for re-attendances or re-admissions, and reviewing post-operative radiology reports.

Data completion

This research is an observational and non-interventional audit that collects data along the usual course patient pathway. The Data Collection Instrument (DCI) has been designed to reflect common parameters. We envisage that participating clinical Centers will identify a team of 4-5 members; one Consultant (clinical 'lead' of the study), trainee surgeons or data administrators who will undertake the logistical roles as well as co-ordinate data entry.

DCI 2 (patient demographics), DCI 3, 4, 5 (past medical and surgical history) and DCI 8 and 10 (follow-up information) can be completed by any suitably qualified member of the local team. DCI 6 (Current episode emergency details) and F7 (Initial complementary exams) must be completed by or in direct conjunction with an admitting staff surgeon who was present, as DCI 9 (operation details) by a staff surgeon also present itself. It should ideally be completed as close to the end of surgery as feasible, to ensure data accuracy and completeness.

Missing data and retrospective patient entry

The online database has been designed to allow sites to securely access an individual patient's data throughout the study period. This means that any missing or erroneous data can be altered by the local investigators whilst the data collection period is ongoing. In order to maximize data completion and emphasize its importance to collaborators, participating Centers with >5% missing data in mandatory fields (i.e. less than 95% data completeness) will be excluded from the study.

The study design means that sites may retrospectively identify eligible patients that were missed primarily and for whom contemporaneous patient and operation data was not entered.

Data collection system and information governance

Data will be recorded on a dedicated, secure server running on the REDCap® web application. REDCap® allows for secure upload and storage of data, in compliance with European Union General Data Protection Regulation 2018 (GDPR) and the Health Insurance Portability and Accountability Act of 1996 (HIPAA) legislation.

Registered local investigators will have individual password-protected access to their unit's data entered on to REDCap®. During the running of the audit, only local data will be visible to individual investigators; other sites' data will not be accessible. It is the responsibility of each participating Center to ensure their own records comply with local data governance legislation, GDPR or HIPAA, as applicable.

Local approvals

All data collected will measure current practice, with no changes made to normal treatment. As such, this study should be registered as an audit of current practice at each participating Center. It is the responsibility of the local team at each site to ensure that local audit approval (or equivalent) is completed for their Center. Participating Centers will be asked to confirm that they have gained formal approval at their site.

Authorship

Investigators from each individual site will be included as formal co-investigators in this research, and will be PubMed searchable and citable. The output from this research will be published by the steering group on behalf of a single corporate authorship – e.g "**ESTES SnapSBO Group.**"

Publication of data

The report of this audit will be prepared in accordance with guidelines set by the STROBE (strengthening the reporting of observational studies in epidemiology) statement for observational studies[8], (appendix C) Data will be published as a pool from all participating units. Subgroup analyses by disease, technique or outcome variables may be presented, but no hospital-level or surgeon-level data will be published whereby an individual patient, unit or surgeon could be identified. If local investigators would like a breakdown of their own unit's data for benchmarking purposes and local presentation/discussion, this can be made available after the end of the study; however, it will not be possible or permissible to de-anonymise patient data stored in REDCap®, in strict compliance with GDPR and HIPAA.

Data governance

The ESTES Cohort Studies Committee welcomes the use of the data for further research that benefits patients. Requests can be submitted to the ESTES Cohort Studies Committee. Data sharing is subject to ESTES approval and the appropriate safeguarding as determined by the ESTES. Any future sub-projects should also comply with our policy of a single corporate authorship e.g. "**ESTES SnapSBO Group**" or similar. However, authors' contributions will be highlighted in accordance with the recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals.

Financial arrangements

This study is undertaken voluntarily by participating institutions under the co-ordination of the Emergency Surgery Cohort Study Steering Committee. It is not anticipated that participating Centers would bear any costs. Similarly, no financial reimbursement will be made to units or investigators.

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6. Amara Y, Leppaniemi A, Catena F, Ansaloni L, Sugrue M, Fraga GP, et al. Diagnosis and management of small bowel obstruction in virgin abdomen: a WSES position paper. *World J Emerg Surg. 2021;16(1):36*.
7. Dindo D, Demartines N, Clavien PA. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. *Annals of Surgery. 2004 Aug 1;240(2):205–13*.
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9. Mellor K, Hind D, Lee MJ. A systematic review of outcomes reported in small bowel obstruction research. *J Surg Res. 2018; 229: 41–50*.

REDCap® Data Collection Instruments

Data Collection Instrument 1 - Patient and Centre Demographics

Hospital Details*	Data	Values
Primary, Secondary or Tertiary Hospital	List	*List*
Number of Beds	Integer	*0 – 3000*
Number or UCI beds	Integer	*0 – 3000*
Emergency Theatre	List	*Tick Applicable*
Acute Surgical Assessment Unit	Binary	*Yes/No*
Number of General Surgery Consultants	Integer	*1-20*
Split on call (Upper + Lower GI available)	Binary	*Yes/No*
Acute Care Surgery	Binary	*Yes/No*
Is ERAS practiced in General Surgery?	Binary	*Yes/No*

*will be filled once for each center

Data Collection Instrument 2 - Patient demographics

Demographics	Key Name	Data Type	Values
Country Code	CC	List	*List of included countries (chain, number)*
Center ID	CID	List	*List of study centers (chain, number)*
Patient ID	PID	Chain	*Country code-Centre ID-patient number (chain, number)*
Age (years)	AGE	Integer	*Number*
Sex	SEX	List	*Male, Female*
Body Mass Index	BMI	Integer	*Weight (Kg) Height (Cm) BMI (integer)*
Date of Admission	DOA	Date; time	*Date of index admission dd/mm/yy hh:mm*
Date of Discharge	DOD	Date	*Date of discharge from hospital*
Length of Stay	LOS	Integer	*Number of Days (Integer; calculated from the admission and discharge date)*
Cathegory	CAT	List	*Ethiology (Adhesions, Bezoar, Gallstone ileus, Hernia (primary/internal/ incisional/parastomal), Stenosis (anastomotic, inflammatory/ endometriosis), Tumor (primary/carcinomatosis/Radiotherapy), congenital (malrotation)*

Data Collection Instrument 3 - Patient past medical history

Past Medical history	Key Name	Data Type	Values
Morbid Obesity (BMI>35)	MO	Binary	*Yes/No. MO if BMI > 35*
Diabetes Mellitus	DM	Binary	*Yes/No*
Cerebro-Vascular Disease	CVD	Binary	*Yes/No*
Chronic Obstructive Pulmonary Disease	COPD	Binary	*Yes/No*
Anticogulant/aggregant Medications	ACAM	Binary	*Yes/No*
Ischemic Heart Disease	IHD	Binary	*Yes/No*
Hypertension	HBP	Binary	*Yes/No. HBP if sBP>140 or dBP >90*
Liver Disease	LD	Binary	*Yes/No*
Chronic Kidney Disease	CKD	Binary	*Yes/No. eGFR ≤59*
Inmunosupression/Oral Corticosteroids/ Chemotherapy	CIS	Binary	*Yes/No (on admission)*
Radiotherapy	RTP	Binary	*Yes/No*
Endometriosis	END	Binary	*Yes/No*
Crohn's disease	CHRD	Binary	*Yes/No*
Abdominal malignancy	AM	Binary	*Yes/No. Including Gynecologic origin*
Abdominal malignancy origin	AMO	List	*Colorectal/Gynecologic/Gastroesophageal/Hepatobiliary/Splenic/ Pancreatic/Urologic/Haematologic*

Data Collection Instrument 4 - Patient past surgical history

Past Surgical history	Key Name	Data Type	Values
Previous abdominal surgery	PAS	Binary	*Yes/No (excludes abdominoplasty and cesarean section)*
Number of previous abdominal surgeries	NPS	Integer	*Number (includes gyne and hernia surgeries)*
Appendectomy	APP	Binary	*Yes/No*
Hernia surgery	HES	Binary	*Yes/No*
SBO surgery	SBOS	Binary	*Yes/No*
Previous peritonitis	PP	Binary	*Yes/No*
Date First Surgery (if one also the last)	DFS	Date	*dd/mm/yy*
First Surgery Technique	FST	Chain	*Surgical technique*
First Surgery Category	FSC	List	*Predefined: CRS, GIS, HBPS, AWS, GIN, URO, VAS, AA (appendectomy)*
First Surgery Laparoscopy	FSL	Binary	*Yes/No (including conversion)*
First Surgery Emergency	FSE	Binary	*Yes/No*
Date Last Surgery	DLS	Date	*dd/mm/yy, Only in case >1 abdominal surgery*
Last Surgery Technique	LST	Chain	*Surgical Technique*
Last Surgery Emergency	LSE	Binary	*Yes/No*
Last Surgery Laparoscopy	LSL	Binary	*Yes/No (including conversion)*
Time Last Surgery to Episode	TLSE	Calc	*DOA (dd/mm/aa) - DLS (dd/mm/aa) = in Years*

Data Collection Instrument 5 - Patient past SBO history

Past SBO history	Key Name	Data Type	Values
Previous SBO	PSBO	Binary	*Yes/No*
Number SBO Previous Episodes	NOE	Integer	*Number*
Date Last Episode	DLE	Date	*dd/mm/yy*
Previous WSOC challenge	PG	Binary	*Yes/No*
Previous Success Non-operative Treatment	PSCT	Binary	*Yes/No*
Previous Single Band Addesion	PSBA	Binary	*Yes/No*
Previous Small Bowel Resection	PSBR	Binary	*Yes/No*
Previous SBO Etiology	PSBOE	Chain	*Previous SBO cause (Adhesions/Primary Hernia/Incisional Hernia/Parastomal Hernia/Bezoar/Radiation enteritis/Primary tumor…*

Data Collection Instrument 6 - Current episode Symptoms and signs

Current Episode Clinical Symptoms	Key Name	Data Type	Values
Date Symptoms Start	DSS	Date; time	*dd/mm/yy hh:mm*
Abdominal Pain	SAP	Binary	*Yes/No*
Nausea	NAU	Binary	*Yes/No*
Vomiting	SV	Binary	*Yes/No*
Decreased Appetite	DAP	Binary	*Yes/No*
Constipation	SNPS	Binary	*Yes/No (No pass stools)*
Obstipation	SNPG	Binary	*Yes/No (No pass gas)*
Diarrhea	DIAR	Binary	*Yes/No*
Abdominal Distension	ADI	List	*No/Mild/Severe*
Peristalsis	SPE	List	*Absent; Normal; Increased*
Temperature	ST	Decimal	*Number (ºC) i.e 36.5*
Heart rate	SHR	Integer	*Number*
O2 Saturation	SO2	Integer	*Number*
Systolic Blood Pressure	SBP	Integer	*Number*
Respiratory rate	SRR	Integer	*Number*
SIRS Score	SIRS	Integer	*Number (1-4) (temperature >38°C or <35°C, heart rate >90 beats/min, respiratory rate >20 breaths/min or PCO_2 < 32 mmHg, and WBC > 12000 cells/mm_3 or <4000 cells/mm*
SBO Type	SBOT	Binary	*Complete/Incomplete (if SNPS or SNPG are Yes)*

Data Collection Instrument 7 - Initial Complementary Exams

Current Episode Initial Complementary Exams	Key Name	Data Type	Values
White Blood Cell Count	WBC	Integer	*Number x10³*
Hemoglobin	HB	Decimal	*Number (g/dL)*
Potassium	K	Decimal	*Number (mEq/L)*
Creatinine	CRE	Decimal	*Number (mg/dL)*
CRP	CRP	Decimal	*Number (mg/L)*
INR	INR	Decimal	*Number (mg/L)*
Lactate	LAC	Decimal	*Number (mg/dL)*
Date First Plain Abdominal X ray	DFXR	Date; time	*dd/mm/yy hh:mm*
First AXr Stand up	FXRS	Binary	*Yes/No*
First AXr Air-Fluid Levels	FXRAF	Binary	*Yes/No*
First AXr Gastric Distension	FXRGD	Binary	*Yes/No*
First AXr Colonic Gas	FXRCG	Binary	*Yes/No*
Date Computed Tomography	DCT	Date; time	*dd/mm/yy hh:mm*
Computed Tomography Type	CTT	List	*None; Without Contrast; IV Contrast; Oral Contrast; Double Contrast*
CT Report Free Fluid	CTFF	Binary	*Yes/No*
CT Report Disminished Bowel Enhancement	CTDBE	Binary	*Yes/No*
CT Report Pneumatosis	CTP	Binary	*Yes/No*
CT Report Portal Gas	CTPG	Binary	*Yes/No*
CT Report Pneumoperitoneum	CTN	Binary	*Yes/No*
CT Report Small Bowel Wall Thickness	CTBWT	Decimal	*Number (milimeters)*
CT Report Small Bowel Diameter	CTSBD	Decimal	*Number (Centimeters)*
CT Report Feces Sign	CTFS	Binary	*Yes/No (breadcrumb sign)*
CT Report Peak Sign	CTPS	Binary	*Yes/No (visible caliber change)*
CT Report Whirl Sign	CTWS	Binary	*Yes/No*
CT Report Etiological Diagnosis	CTED	Binary	*Yes/No (reported)*
CT Report Diagnosis	CTE	Chain	*Diagnosis (ie: single adhesion, matted adhesions, Hernia, Tumor…)*
AAST SBO	AAST	List	*I, II, III, IV, V*

Data Collection Instrument 8 - Current episode, course evolution

Current Episode Course Evolution	Key Name	Data Type	Values
Severity Signs	CESS	Binary	*Yes/No (if one is present: Unstable hemodynamics, peritonitis, sepsis (SIRS>2), acidosis, high lactate)*
Ischemia Radiologic Signs	IRS	Binary	*Yes/No (if one is YES: CTFF, CTDBE, CTP, CTPG, CTN, CTBWD>3mm, mesenteric edema)*
Nasogastric/nasojejunal tube Insertion	NGTI	Binary	*Yes/No*
Initial NGT debit	INGTD	Integer	*Number (mL)*
Antibiotic Prophylaxis	PXATB	Binary	*Yes/No*
Antibiotic Treatment (if > 1 day)	TTATB	Binary	*Yes/No*
Treatment Fluids (ml/first 24h)	TTFL	Decimal	*Number (ºC)*
Treatmet Steroids	TTST	Binary	*Yes/No*
Total Urinary Output	TUO	Decimal	*Number*
WSOC Challenge	GGF	Binary	*Yes/No*
Exclusion Criteria for WSOC	GGFEC	List	*No/Pregnancy/Inflamatory Bowel disease/Incarcerated hernia/Previous Radiotherapy/Mechanic inflammatory ileus/Tumor or carcinomatosis/Early postoperative period<1month/allergy to GGF)*
Date WSOC	GGFD	Date; time	*dd/mm/yy hh:mm*
Post WSOC Vomiting	GGFPV	Binary	*Yes/No*
Post WSOC NGT debit	GGFNG	Decimal	*Number (ºC)*
Total Number of simple Abdominal X Ray	NXR	Integer	*Number*
Date Last Simple Abdominal X Ray	DLXR	Date; time	*dd/mm/yy hh:mm*
Last AX Ray WSOC in Stomach	LXR GGFS	Binary	*Yes/No*
Last AX Ray Deterioration	LXRD	Binary	*Yes/No*
Last AX Ray Colonic Air	LXRCA	Binary	*Yes/No*
Last AX Ray Colonic WSOC	LXRGGFC	Binary	*Yes/No*
Gas Pass	GP	Binary	*Yes/No*
Date Gas Pass	DGP	Date; time	*dd/mm/yy hh:mm*
Stools Pass	SP	Binary	*Yes/No*
Date Pass Stools	DSP	Date; time	*dd/mm/yy hh:mm*
Date Start Oral Feeding	DSOF	Date; time	*dd/mm/yy hh:mm*
Date Discharge from Emergency	DDE	Date; time	*dd/mm/yy hh:mm*
Emergency Department Lenght of Stay	EDLOS	Integer	*Hours (calculation DDE-DOA)*
Non-operative Treatment Success	COTS	Binary	*Yes/No*

Data Collection Instrument 9 - Current episode Surgery

Current Episode Surgery	Key Name	Data Type	Values
Surgery Indicated Without Non-operative Attempt	SIWA	Binary	*Yes/No*
Date of Surgery	DSU	Date; time	*dd/mm/yy hh:mm*
Time to Surgery	TTSU	Integer	*Hours (calculation DSU-DOA)*
Laparoscopy	LAP	Binary	*Yes/No (initiated)*
Conversion	LAPC	Binary	*Yes/No*
Operative Time	OT	Integer	*Number (Minutes)*
Single Band Adhesilysis	SBA	Binary	*Yes/No*
Peritoneal Adhesion Index	PAI	Integer	*Number*
Ischemic Bowel	IB	Binary	*Yes/No*
Perforated Bowel	PB	Binary	*Yes/No*
Serosal Tear	SUST	Binary	*Yes/No (if one at least)*
Unintended Bowel Perforation	UBP	Binary	*Yes/No (if handmade)*
Bowel Resection	SUBR	Binary	*Yes/No*
Anastomosis	SUBA	Binary	*Yes/No*
Stoma	SUST	Binary	*Yes/No*
Damage control (Open Abdomen)	SUDC	Binary	*Yes/No*
Hernia Repair	SUHR	Binary	*Yes/No*

Data Collection Instrument 10 - Current episode, Final outcome

Current Episode Outcome	Key Name	Data Type	Values
Postoperative Complication	POCO	Binary	*Yes/No (if one at least)*
Broncoaspirative pneumonia	BAP	Binary	*Yes/No*
New Acute Kidney Insufficiency	NAKI	Binary	*Yes/No*
New Onset Cardiac Arrhythmia	NOCA	Binary	*Yes/No*
Deep Vein Thrombosis/Pulmonary Embolism	DVT	Binary	*Yes/No*
Superficial Surgical Site Infection	SSSI	Binary	*Yes/No*
Deep Surgical Site Infection	DSSI	Binary	*Yes/No*
Organ Space Surgical Site Infection	OSSSI	Binary	*Yes/No*
Anastomotic leak	AL	Binary	*Yes/No*
Reoperation	RELAP	Binary	*Yes/No*
Most Severe Complication	MSCO	Chain	*Named*
Clavien Dindo	CLDI	List	*I, II, IIIa, IIIb, IVa, IVb, V*
ICU	ICU	Binary	*Yes/No*
ICU Date of Admission	ICUDOA	Date; time	*Date of ICU admission dd/mm/yy hh:mm*
ICU Date of Discharge	ICUDOD	Date; time	*Date of discharge from ICU dd/mm/yy h:mm*
ICU Lenght of Stay	ICULOS	Integer	*Number of Days (Integer; calculated from the admission and discharge date)*
Death	RIP	Binary	*Yes/No*
Readmission during study period	READ	Binary	*Yes/No (if after episode)*