GASTROINTESTINAL SYSTEM GUIDELINE

GASTROINTESTINAL SYSTEM EXPERT PANEL MEMBERS

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Canadian Association of Radiologists
L'Association canadienne des radiologistes

Contents

ABBREVIATIONS

ACR	American College of Radiology
AGREE-II	Appraisal of Guidelines for Research & Evaluation Instrument
AI	Artificial Intelligence
CAR	Canadian Association of Radiologists
CT	Computed Tomography
CTA	Computed Tomography Angiography
EP	Expert Panel
ERCP	Endoscopic Retrograde Cholangiopancreatography
EtD	Evidence to Decision
GI	Gastrointestinal
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HIDA	Hepatobiliary Iminodiacetic Acid
MRCP	Magnetic Resonance Cholangiopancreatography
MRI	Magnetic Resonance Imaging
NICE	National Institute for Health and Care Excellence
NM	Nuclear Medicine
RBC	Red Blood Cell
RCR	Royal College of Radiologists
US	Ultrasound
XR	Radiograph

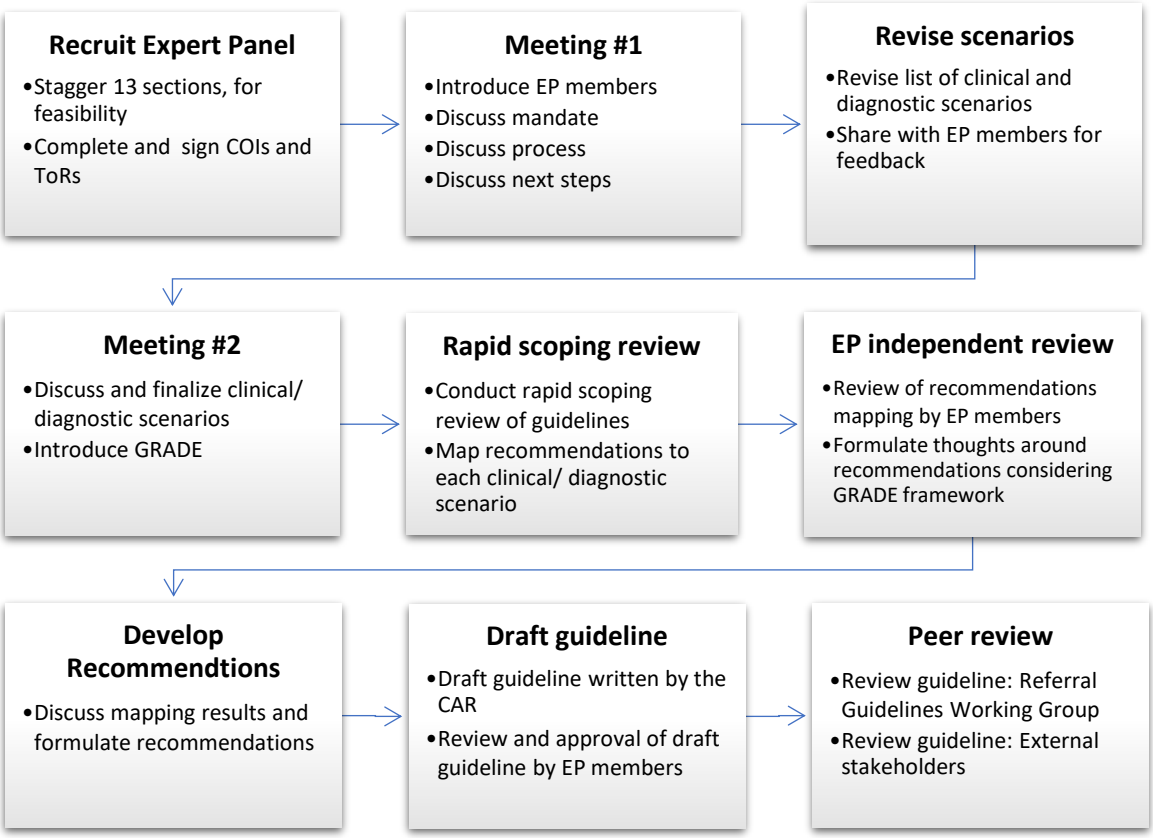
INTRODUCTION

The diagnostic imaging referral recommendations from the Canadian Association of Radiologists (CAR) were published in 2012 (https://car.ca/patient-care/referral-guidelines/) and are considered out of date. These recommendations were made up of 13 sections, of which one was Gastrointestinal System. In 2020, the CAR, funded by the Canadian Medical Association (CMA), developed a plan to update the CAR diagnostic imaging referral recommendations. The project mandate is to develop a comprehensive set of evidenced-based diagnostic imaging referral guidelines suited for integration into clinical decision support (CDS) systems.

An Expert Panel (EP) made up of gastrointestinal system radiologists, a gastroenterologist, a medical oncologist, a general surgeon, a family physician, a patient representative, and an evidence review/ guideline methodologist from across Canada met over a series of three meetings from March 2022 to December 2022.

The 33 clinical/diagnostic scenarios in the 2012 CAR recommendations were used as the starting point for discussions. After a review and update of these scenarios, a list of 20 clinical/diagnostic scenarios was created, which informed the systematic search strategy and rapid scoping review.

The general process of the guideline development is presented in Figure 1.



Abbreviations: CAR = Canadian Association of Radiologists; **COI** = Conflict of Interest; **EP** = Expert Panel; **GRADE** = Grading of Recommendations Assessment, Development and Evaluation; **ToR** = Terms of Reference

Figure 1 - Guideline Development Process

WHO ARE THESE RECOMMENDATIONS FOR?

These recommendations are primarily for referring clinicians (e.g., physicians, nurse practitioners); however, they may also be used by radiologists, patients, and/or patient representatives.

The primary objective of the recommendations is to promote the most appropriate diagnostic imaging procedure(s), so that patients receive these procedure(s) at the right time, resulting in better health outcomes.

Scope

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring.

DISCLAIMER

These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability.

We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

METHODS OF THE RAPID SCOPING REVIEW

The conduct of the systematic rapid scoping review was guided by empirical review guidance: the Joanna Briggs Institute scoping review guidance [1], the Cochrane Handbook [2], and the rapid review interim guidance from the Cochrane Rapid Review Methods Group [3].

Inclusion Criteria

Publications were included if they met the following criteria:

Guidelines: Providing diagnostic imaging recommendations for one or more of the clinical/diagnostic scenarios identified by the Gastrointestinal System EP.

Study design: Guidelines that were produced using three criteria in the AGREE-II assessment tool [4]:

(1) *Systematic methods were used to search for evidence*: Searched and named at least 1 electronic database using an electronic search strategy (e.g., Medline, Embase, PubMed, CENTRAL);
(2) *The criteria for selecting the evidence are clearly described*: Described a formal process for study selection; AND reported the inclusion and exclusion criteria; OR if it is based on a systematic review even if it does not provide explicit methods; and
(3) *The strengths and limitations of the body of evidence are clearly described*: Performed critical appraisal on the included studies (e.g., risk of bias, describe study limitations); OR if it is based on a systematic review and GRADE is performed.

Interventions: Any diagnostic imaging modality (e.g., radiograph [XR], magnetic resonance imaging [MRI], computed tomography [CT], ultrasound [US]) were included.

Date of publication: To identify the most recent guidelines, which would contain the most recently published primary studies, and for feasibility, we included guidelines that were published or updated in 2017 onward.

Language of publication: English, for feasibility.

Search

A systematic search strategy was developed by an experience information specialist (**Appendix 1**) using the list of clinical/diagnostic scenarios identified by the Gastrointestinal System Expert Panel members. The search was run in Medline and Embase on April 28, 2022. The search was limited to publications from 2017 onward to capture the most recent guidelines, and for feasibility. There was no language restriction in the search. Supplemental searching included searching the following national radiology and/or guideline groups: the American College of Radiology (ACR), the National Institute for Health and Care Excellence (NICE), and the Royal College of Radiologists (RCR) 8th Edition (2017).

Title/abstract screening

Using a standardized form in DistillerSR, an online systematic review software [5], one reviewer screened the records in prioritized order, using the artificial intelligence (AI) re-ranking tool in DistillerSR. A stop-screening approach was implemented once 95% of the predicted included studies were identified [6,7]. The AI reviewer tool in DistillerSR excluded the remaining records. The AI audit tool was run to identify any records that were excluded that had high score for inclusion (i.e., a prediction score of 0.85 and above). These records were rescreened to ensure that they should have been excluded. A second reviewer verified a random sample of 10% of the included records and 20% of the excluded records, without knowledge of the inclusion or exclusion decision by the first reviewer. Any disagreements were resolved through discussion and subsequent consensus. The AI audit tool was rerun, and any records with a prediction score of ≥0.85 were rescreened.

Full text screening

Using a standardized form in DistillerSR, one reviewer evaluated the full texts of the guidelines against the eligibility criteria described above in the Inclusion Criteria.

Mapping

Recommendations were extracted from all included guidelines by one reviewer and presented in tabular form for each clinical/ diagnostic scenario. A synopsis (i.e., a condensed version of the evidence table) for each clinical/ diagnostic scenario was created based on the information in the evidence tables. These synopses highlighted the main recommendations across guidelines, with a focus on guidelines that used GRADE, and highlighted any discordant recommendations. These synopses were produced by the guideline methodologist and distributed to the EP members to help guide discussion when formulating the recommendations.

Critical appraisal

Each guideline was assessed for the level of quality using the AGREE-II instrument [4]. This was performed by one reviewer with a quality control check on a random sample of 10% of the guidelines.

FORMULATING RECOMMENDATIONS

In a one-day hybrid in-person and virtual meeting (December 8, 2022), the Expert Panel members discussed each of the clinical scenarios using the information in the synopses as a guide. When required, the full evidence tables (**Appendix 2**) were consulted for additional information.

NOTE: Details have been removed from Appendix 2 to comply with copyright protection.

For additional information on these recommendations, please access the full publications.

The focus of these recommendations was to provide the recommendation for the initial imaging modality, for the next imaging modality or an alternative to the first imaging modality, in situations where the first imaging modality is negative, indeterminate, may not be available, or if additional imaging is required.

Specifying contrast protocols

Unless the panel agreed a specific protocol is required to optimize patient care/diagnosis, the recommendations do not specify when contrast should or should not be used, as this decision may vary based on clinical presentation, regional practice preferences, preference of the referring clinician, radiologist and the patient, and resource availability.

Grading of Recommendations Assessment, Development and Evaluation

The Grading of Recommendations Assessment, Development and Evaluation (GRADE) for Guidelines framework [8,9] was used as a guide to determine the strength (i.e., strong, conditional) and direction (i.e., for, against) of the recommendation. As the GRADE methodology requires an Evidence to Decision (EtD) framework for each recommendation, this would not have been feasible as:

(i) We used recommendations from existing guidelines as our evidence base, thereby not allowing for full assessment of each outcome within the primary studies, including the five GRADE domains to evaluate the certainty of the evidence: risk of bias, indirectness, imprecision, inconsistency, and publication bias [10]. Therefore, this information was inferred by the level and strength of the evidence provided in the included guidelines.

(ii) We covered 20 clinical/diagnostic scenarios in the Gastrointestinal System section, which could have included several diagnostic imaging modality comparisons. This would have resulted in a minimum of 20 EtD frameworks, but realistically many more, as we would have had to create an EtD for each comparison (e.g., US vs MRI, MRI vs CT) within each clinical/diagnostic scenario.

Therefore, in addition to the diagnostic imaging recommendations presented by each included guideline, and the clinical expertise of the EP members, additional criteria were considered specific to the Canadian healthcare context:

- Certainty of the evidence (as presented in the included guidelines)
- Consideration of benefits and harms (e.g., ionizing radiation exposure)
- Values and preferences
- Equity, accessibility, and feasibility
- Resource use and costs

The strength and direction of the recommendations are represented by arrow directions and colours. Using GRADE as a guide [8], these can be interpreted as:

- **Strong recommendation ("recommend"), for (↑↑)**: All or almost all informed people would want/recommend this intervention and only a small proportion would not. If this intervention is not offered, the patient or patient representative should request a discussion.
- **Conditional recommendation ("suggest"), for (↑)**: Most informed people would choose/recommend this intervention, but a substantial number would not. This may be conditional upon patient values and preferences, the resources available or the setting in which the intervention will be implemented.
- **Conditional recommendation ("suggest"), against (↓)**: Most informed people would not

choose/recommend this intervention, but a substantial number would. This may be conditional upon patient values and preferences, the resources available or the setting in which the intervention will be implemented.

- **Strong recommendation ("recommend"), against (↓↓)**: All or almost all informed people would not want/recommend this intervention, but a small proportion would.

When there were no guidelines to support recommendations, the EP formulated recommendations based on their clinical expertise while considering values and preferences, resources, cost, equity, and accessibility. These recommendations are denoted with (EP consensus).

The recommendations for each clinical/ diagnostic scenario are presented below, with reference to the guidelines that were included for that scenario. Recommendations are also summarized in tabular form in **Appendix 3**.

INCLUDED GUIDELINES

A total of 5614 records were identified through the electronic database. After reviewing 2014 records, the AI reviewer excluded the remaining records (n=3600), as 95% of the predicted included records had been identified and the likelihood for inclusion of the remaining records was low (highest remaining prediction score of 5.4%). A second reviewer screened a set of randomly selected records (n=1033) for verification (~10% of included and 20% of excluded records). Among these, there were nine conflicts, all between the two human screeners. These conflicts were resolved through discussion. An additional four records were added from the supplemental searching. The full text for three records was not retrievable, and 15 records were non-English publications (**Appendix 4**). Among the remaining 260 full texts that were screened for eligibility, 19 were not guidelines providing diagnostic imaging recommendations for gastrointestinal system imaging, 13 were not covered by the current guideline, 90 did not use systematic methods or sufficiently describe the methods used in the formulation of the guideline, and 33 were excluded for 'other' reasons. A list of excluded records with reasons is available upon request. Recommendations from 58 guidelines (59 publications) were included (Error! Reference s ource not found. **– PRISMA flow diagram**).

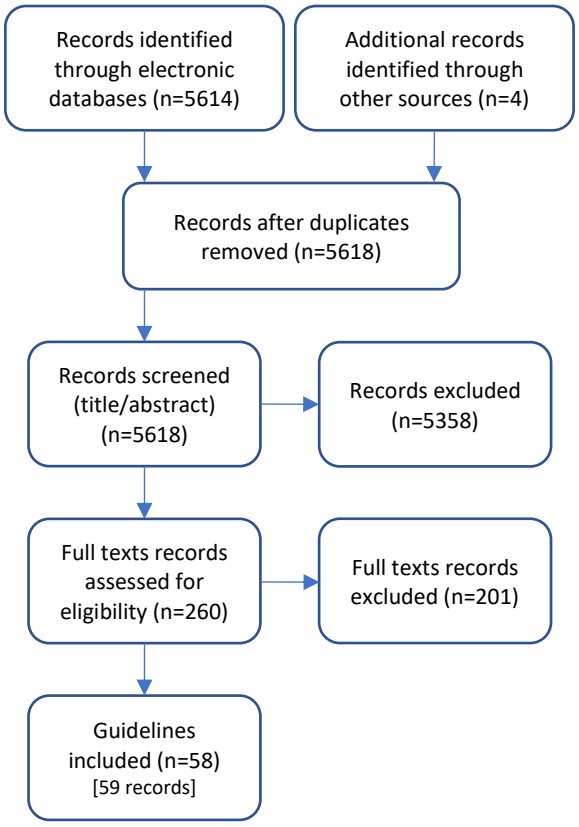


Figure 2 - PRISMA flow diagram

The number of guidelines included per clinical/diagnostic scenario ranged from one to nine. Where available, the certainty of the evidence and/or strength of the recommendations are highlighted to provide a sense of the certainty of the evidence of the included primary studies (**Appendix 2**).

Most guidelines were rated as moderate or high quality, using the AGREE-II tool (**Appendix 5**). Often, reasons for rating an item down were due to a lack of reporting.

LIMITATIONS OF THE RAPID SCOPING REVIEW

As the unit of inclusion for the rapid scoping review was guidelines, the recommendations were extracted as presented in the guidelines. We also extracted the level/certainty of the evidence based on the criteria presented in the completed guidelines. There were several tools/methods used to assess the level/certainty of the evidence, for example GRADE [10], the Oxford Centre for Evidence-based Medicine 2009 and 2011 [11,12], Level of Appropriateness (American College of Radiologists), consensus, or an adaptation/ modification of one or more methods. For feasibility, primary studies were not reviewed, and the level/certainty of the evidence was taken at face value from the guideline.

IONIZING RADIATION EXPOSURE

We have elected to not include any effective dose values (mSv), related metrics, or qualitative descriptors of radiation risk (e.g., symbol, risk level, approximate equivalent background radiation, lifetime additional risk of cancer induction/exam) for several reasons:

1) The Expert Panel members have considered the risks of ionizing radiation (i.e., GRADE for Guidelines benefits and harms) when formulating the recommendations.

2) The levels of ionizing radiation in modern medical imaging equipment should not unduly influence patient decision-making. The anticipated benefits of imaging to the patient, if a test is clinically indicated are likely to outweigh any potential small risks [13].

3) Per the following points, effective dose values and related metrics such as equivalent background radiation have very large uncertainties, and their utility is thus limited:

   - There is uncertainty in the relative values of the effective dose for a reference patient with variation in the standard error [14];
   - Effective doses are measured using reference phantoms with population, age and sex-averaged tissue weighting factors [14], therefore these should not be considered as the doses received by specific individuals;
   - The publications providing data used to estimate the effective dose per scan (e.g., International Commission on Radiological Protection (ICRP) 1990 [15], 2007[16]) are occasionally updated and may impact the effective dose values;
   - There is variation in the average dose from natural background radiation by geographic location. For example, in Canada, the average is 1.8 mSv/year, which ranges from 1.3 mSv/year in Vancouver to 4.1 mSv/year in Winnipeg [17]; and
   - There are variables around the equipment (e.g., age) and facility (e.g., protocol) that may impact the actual amount of ionizing radiation exposure used for any particular exam.

EXTERNAL REVIEW

This guideline and its recommendations have been externally reviewed by members of the CAR Diagnostic Imaging Referral Guidelines Working Group (**Box 1**), Steve Burrell (Nuclear Medicine Radiologist, Nova Scotia), Amanda

Fowler (Surgeon, Newfoundland), Joel Koops (Family Medicine, Newfoundland), and Eric Sala (Radiologist, Newfoundland).

FUTURE RESEARCH IN THIS AREA

This guideline will be updated upon the emergence of new evidence that may change the validity of the recommendations.

We plan on developing Patient Friendly Summaries for some of the clinical/diagnostic scenarios covered in this guideline. The selection of scenarios will be dependent on a prioritization exercise, as well as funding. These summaries will be made available on the CAR website (www.car.ca).

Box 1. CAR Diagnostic Imaging Referral Guideline Working Group Members

Ryan Margau (co-chair), North York General Hospital, ON
Paul Pageau (co-chair), The Ottawa Hospital, ON

Other members listed alphabetically:
Barb Avard, Patient and Family Advisor, North York General Hospital, ON
Samuel Campbell, Charles V. Keating Emergency and Trauma Centre in Halifax, NS
Erin Sarrazin, Nurse Practitioner Association of Canada, NS
Kaitlin Zaki-Metias, Trinity Health Oakland Hospital, USA

Italicized name is a WG member who was also a member of the Gastrointestinal system Expert Panel.

GASTROINTESTINAL SYSTEM CLINICAL/DIAGNOSTIC SCENARIOS

GI01. Dysphagia/Dyspepsia

G02. Acute nonlocalized abdominal pain

G03. Acute localized abdominal pain
- G03A. Epigastric pain
- G03B. Right upper quadrant pain
- G03C. Right lower quadrant pain
- G03D. Left upper quadrant pain
- G03E. Left lower quadrant pain

G04. Chronic abdominal pain

G05. Inflammatory bowel disease

G06. Acute GI bleeding
- G06A. Upper acute GI bleeding
- G06B. Lower acute GI bleeding

G07. Chronic GI bleeding/anemia

G08. Abnormal liver biochemistry
- G08A. Acute abnormal liver biochemistry
- G08B. Chronic abnormal liver biochemistry

G09. Pancreatitis
- G09A. Acute pancreatitis
- G09B. Chronic pancreatitis

G10. Anorectal diseases

G11. Diarrhea

G12. Fecal incontinence

G13. Foreign body ingestion

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

The committee recognizes broad variation exists in the use of CT and/or oral contrast to augment CT and MRI examinations across Canada. While IV contrast is generally recommended for the majority of abdominal CT and MRI examinations, the diagnostic utility of IV contrast in CT and MRI examinations must be balanced by the risk of adverse events (e.g., allergic reaction, renal failure, etc). The CT and MRI recommendations below are made presuming the appropriate use of IV and/or oral contrast based upon clinical need and loco-regional practice patterns.

References to patient age (i.e., younger, older) in the recommendations below should be based on clinical judgement and ALARA (as low as reasonably achievable) principles (Time, Distance, and Shielding).

RECOMMENDATIONS

GI01. Dysphagia/Dyspepsia

Recommendations

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy is not readily available**, if the patient declines endoscopy). If imaging is required, then:

1. In patients with dysphagia, we suggest **fluoroscopy (esophagram or upper GI series)** as the initial imaging modality (↑).
2. In patients with dyspepsia of unknown cause, we suggest **fluoroscopy upper GI series** as the initial imaging modality (↑).
3. In patients with dyspepsia if there is clinical suspicion of abnormal gastric motility, we suggest **NM scintigraphy (gastric emptying)** as the initial imaging modality (↑).

For patients with concern for gastroesophageal reflux, see GI03D. Left upper quadrant pain.

Recommendations from nine guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2017 American College of Gastroenterology (ACG) and the Canadian Association of Gastroenterology (CAG) guideline on management of dyspepsia [19], the 2019 ACR Appropriateness Criteria® guideline on dysphagia [20], the 2021 ACR Appropriateness Criteria® guideline on epigastric pain [21], the 2018 Canadian Association of Gastroenterology (CAG) guideline on the assessment of uninvestigated esophageal dysphagia [22], the 2018 International Society for Esophageal Diseases (ISDE) guideline on achalasia [23], the 2020 Korean Society of Neurogastroenterology and Motility (KSNM) and Asian Neurogastroenterology and Motility Association (ANMA) guideline on esophageal achalasia [24], the 2017 RCR iRefer guideline [25], and the 2020 United European Gastroenterology (UEG) and European Society of Neurogastroenterology and Motility (ESNM) guideline on achalasia [26] (**Appendix 2: Table GI01**).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

GI02. Acute nonlocalized abdominal pain

Recommendations

1. In patients with suspected uncomplicated acute infectious colitis presenting with acute nonlocalized abdominal pain, we recommend **against imaging** in the absence of other concerning clinical and/or biochemical findings (↓↓).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:

2. In non-pregnant patients with acute nonlocalized abdominal pain and/or bowel obstruction, we suggest **XR** as the initial imaging modality (↑).

    ↳ **2.1** If XR is equivocal and/or further investigation is required, we recommend **CT abdomen and pelvis** as the next imaging modality (↑↑).

3. In pregnant patients with acute nonlocalized abdominal pain, we recommend **US abdomen and pelvis** as the initial imaging modality (↑↑).

If there is clinical concern for appendicitis, see GI03C. Right lower quadrant pain.

Recommendations from six guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2021 Association of Coloproctology of Great Britain and Ireland (ACPGBI) guideline on emergency colorectal surgery [27], the 2018 ACR Appropriateness Criteria® guideline on Imaging of mesenteric ischemia [28], the 2020 ACR Appropriateness Criteria® guideline on suspected small-bowel obstruction [29], the 2018 ACR Appropriateness Criteria® guideline on acute nonlocalized abdominal pain [30], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI02**).

GI03. Acute localized abdominal pain

GI03A. Epigastric pain

Recommendations

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy it is not readily available**, if the patient declines endoscopy). If imaging is required, then:

1. In patients with epigastric pain with probable esophageal or gastric etiology, we suggest **fluoroscopy upper GI series** as the initial imaging modality (↑).

    ↳ **1.1** If upper GI series is not available, we suggest a **CT abdomen and pelvis** (↑).

2. In patients with epigastric pain without probable esophageal or gastric etiology, we suggest a **CT abdomen and pelvis** as the initial imaging modality (↑).

Recommendations from one guideline were used during the discussions and formulation of these recommendations: the 2021 ACR Appropriateness Criteria® guideline on epigastric pain [21] (**Appendix 2: Table GI03A**).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

GI03B. Right upper quadrant pain

Recommendations

1. In patients with right upper quadrant pain (suspected hepatobiliary disease), we recommend against **XR** (↓↓).
2. In patients with right upper quadrant pain (suspected hepatobiliary disease), we recommend **US abdomen** as the initial imaging modality (↑↑).
   - ↳ **2.1** If US is not available or further investigation is required, we suggest **CT abdomen and pelvis or NM (HIDA scan)** as the next imaging modality (↑).
   - ↳ **2.2** If US is indeterminate and the clinical/biochemical presentation is strongly suggestive of choledocolithiasis, we suggest consultation for **endoscopic US/ERCP** and/or **MRCP** (↑).
3. In patients with right upper quadrant pain (non-hepatobiliary disease), we recommend **US abdomen** as the initial imaging modality (EP consensus).
   - ↳ **3.1** If US is indeterminate, we suggest **CT abdomen and pelvis** as the next imaging modality (EP consensus).
   - ↳ **3.2** If US and CT are not immediately available, we suggest **XR** as the initial imaging modality (EP consensus).

ERCP: Endoscopic retrograde cholangiopancreatography; **MRCP:** magnetic resonance cholangiopancreatography

Recommendations from six guidelines were used during the discussions and formulation of these recommendations: the 2019 ACR Appropriateness Criteria® guideline on right upper quadrant pain [31], the 2019 British Society of Gastroenterology (BSG) and United Kingdom Primary Sclerosing Cholangitis (UK-PSC) guideline on the diagnosis and management of primary sclerosing cholangitis [32], the 2017 European Association for the Study of the Liver (EASL) guideline on the diagnosis and management of patients with primary biliary cholangitis [33], the 2017 European Society of Gastrointestinal Endoscopy (ESGE) and European Association for the Study of the Liver (EASL) guideline on the role of endoscopy in primary sclerosing cholangitis [34], the 2019 European Society for Trauma and Emergency Surgery (ESTES) guideline on surgeon-performed point-of-care ultrasound for acute cholecystitis [35], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI03B**).

GI03C. Right lower quadrant pain

Recommendations

1. In younger patients with right lower quadrant pain, we recommend **US** as the initial imaging modality, as per ALARA principles (↑↑).
   - ↳ **1.1** In non-pregnant patients, if US is negative for appendicitis or inconclusive and further imaging is required, we suggest **CT abdomen and pelvis** as the next imaging modality (↑).
   - ↳ **1.2** In pregnant patients, if US is inconclusive for appendicitis, we recommend **MR abdomen and pelvis** as the next imaging modality (↑↑).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

2. In older patients with right lower quadrant pain, we recommend **CT abdomen and pelvis** as the initial imaging modality (↑↑).

ALARA "as low as reasonably achievable" principles: Time, Distance, and Shielding

For suspected gynecologic pathology, see OG08. Evaluation of acute pelvic pain of presumed gynecologic origin

Recommendations from five guidelines were used during the discussions and formulation of these recommendations: the 2018 ACR Appropriateness Criteria® guideline on right lower quadrant pain-suspected appendicitis [36], the 2021 European Association for Endoscopic Surgery (EAES) Guideline on appendicitis in the elderly [37], the 2021 Société français de chirurgie digestive (SFCD) and Société d'imagerie abdominale et digestive (SIAD) French guideline on adult appendicitis [38], the 2020 Italian Polispecialistic Society of Young Surgeons (SPIGC) guideline on diagnosis and treatment of acute appendicitis [39], and the 2020 World Society of Emergency Surgery (WSES) guideline on diagnosis and treatment of acute appendicitis [40] (**Appendix 2: Table GI03C**).

GI03D. Left upper quadrant pain

Recommendations

1. In patients with left upper quadrant pain (concern for reflux or ulcer), we suggest **against fluoroscopic upper GI series** (↓).

> *Fluoroscopic upper GI series may be considered in institutions with expertise in this exam for patients where endoscopy is not available, not indicated, or declined by patient.*

2. In patients with left upper quadrant pain (unknown etiology), we recommend **US abdomen** as the initial imaging modality (EP consensus).

- ↳ **2.1** If US is indeterminate, we suggest **CT abdomen and pelvis** as the next imaging modality (EP consensus).
- ↳ **2.2** If US and CT are not immediately available, we suggest **XR** as the initial imaging modality (EP consensus).

Recommendations from one guideline were used during the discussions and formulation of these recommendations: the 2021 ACR Appropriateness Criteria® guideline on Epigastric pain [21] (**Appendix 2: Table GI03D**).

GI03E. Left lower quadrant pain

Recommendations

1. In patients with left lower quadrant pain (suspected diverticulitis), we recommend **CT abdomen and pelvis** as the initial imaging modality (↑↑).

2. In patients with left lower quadrant pain (other intraabdominal cause), we recommend **XR** as the initial imaging modality (EP consensus).

- ↳ **2.1** If XR is negative or indeterminate and further imaging is required, we suggest **CT abdomen and pelvis** as the next imaging modality (EP consensus).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

↳ **2.2** In younger patients or if CT is contraindicated, we suggest **US** as the next imaging modality (EP consensus).

For suspected gynecologic origin, see OG08. Evaluation of acute pelvic pain of presumed gynecologic origin

Recommendations from eight guidelines were used during the discussions and formulation of these recommendations: the 2022 American College of Physicians (ACP) guideline on the diagnosis and management of acute left-sided colonic diverticulitis [41], the 2019 ACR Appropriateness Criteria® guideline on left lower quadrant pain-suspected diverticulitis [42], the 2021 Association of Coloproctology of Great Britain and Ireland (ACPGBI) guideline on emergency colorectal surgery [27], the 2019 Asociación Mexicana de Gastroenterología (AMG) on the diagnosis and treatment of diverticular disease of the colon [43], the 2019 European Association for Endoscopic Surgery (EAES) and Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) guideline on acute diverticulitis management [44], the 2020 European Society of Coloproctology (ESCP) guideline on management of diverticular disease of the colon [45], the 2020 International Consensus on Diverticulosis and Diverticular Disease (ICDDD) guideline on diverticulosis and diverticular disease [46], and the 2019 Japan Gastroenterological Association (JGA) guideline on colonic diverticular bleeding and colonic diverticulitis [47] (**Appendix 2: Table GI03E**).

GI04. Chronic abdominal pain

Recommendations

1. In patients who meet the diagnostic criteria for irritable bowel syndrome, we recommend **against imaging** in the absence of concerning clinical and/or biochemical findings (↓↓).
2. In patients with chronic abdominal pain, we recommend **against MRI** as an imaging modality due to limited sensitivity and specificity (EP consensus).
3. In patients with chronic abdominal pain, we recommend **CT abdomen and pelvis** as the initial imaging modality (↑↑).
   ↳ **3.1** If CT is unavailable, we suggest **US abdomen** as an alternative imaging modality, accepting its limited scope of assessment compared to CT (↑).
4. In patients with chronic abdominal pain (suspected chronic mesenteric ischemia), we recommend **CTA abdomen and pelvis** as the initial imaging modality (↑↑).

Recommendations from six guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2018 ACR Appropriateness Criteria® guideline on imaging of mesenteric ischemia [28], the 2020 joint European guidelines on chronic mesenteric ischaemia [48], the 2021 Japanese Society of Gastroenterology (JSGE) guideline on irritable bowel syndrome [49], the 2017 National Institute for Health and Clinical Excellence (NICE) guideline on irritable bowel syndrome [50], and the 2021 Society for Vascular Surgery (SVS) guideline on chronic mesenteric ischemia [51] (**Appendix 2: Table GI04**).

GI05. Inflammatory bowel disease

Recommendations

In endoscopy-negative patients with suspected inflammatory bowel disease

1. In endoscopy-negative patients with suspected inflammatory bowel disease, we recommend against **fluoroscopy small bowel follow through** (↓↓).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

2. In younger patients with suspected inflammatory bowel disease, we recommend **MR enterography** as the initial imaging modality (↑↑).
   - ↳ **2.1** If MR enterography is contraindicated or unavailable, we suggest **CT enterography** (↑).
3. In older patients with suspected inflammatory bowel disease, we recommend **CT enterography** as the initial imaging modality (↑↑).
   - ↳ **3.1** If CT enterography cannot be tolerated, we suggest **CT abdomen and pelvis** (↑).

In non-obstructed patients with suspected acute exacerbation of known inflammatory bowel disease

4. In younger patients with suspected acute exacerbation of known inflammatory bowel disease, we recommend **MR enterography** as the initial imaging modality (↑↑).
   - ↳ **4.1** If MR enterography is contraindicated or unavailable, we suggest **CT enterography** (↑).
     - ↳ **4.2** If MR/CT enterography cannot be tolerated, we recommend **CT abdomen and pelvis** (↑↑).
5. In older patients with inflammatory bowel disease with suspected acute exacerbation, we recommend **CT enterography** as the initial imaging modality (↑↑).
   - ↳ **5.1** If CT enterography cannot be tolerated, we recommend **CT abdomen and pelvis** (↑↑).

If clinical concern for obstruction, see GI02. Acute nonlocalized abdominal pain

Recommendations from seven guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2018 American College of Gastroenterology (ACG) guideline on management of Crohn's disease in adults [52], the 2020 ACR Appropriateness Criteria® guideline on Crohn disease [53], the 2019 German Society for Digestive and Metabolic Diseases (DGVS) guideline on ulcerative colitis [54], the 2021 Japanese Society of Gastroenterology (JSGE) guideline on inflammatory bowel disease [55], the 2021 Polish Society of Gastroenterology (PSG) and Polish National Consultant in Gastroenterology (PNCG) guideline on management of patients with Crohn's disease [56], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI05**).

GI06. Acute GI bleeding

GI06A. Upper acute GI bleeding

Recommendations

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy confirms nonvariceal upper GI bleeding, endoscopy is not readily available/contraindicated**). If imaging is required, then:

1. In patients with acute upper GI bleeding, we recommend **CTA or Diagnostic angiography** as the initial imaging modality (↑↑).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Recommendations from four guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2017 ACR Appropriateness Criteria® guideline on nonvariceal upper gastrointestinal bleeding [57], the 2017 American Society for Gastrointestinal Endoscopy (ASGE) guidelines on the role of endoscopy in the management of suspected small-bowel bleeding [58], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI06A**).

GI06B. Lower acute GI bleeding

Recommendations

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy is not readily available/contraindicated**). If imaging is required, then:

1. In patients with acute lower GI bleeding, we recommend **CTA or Diagnostic angiography** as the initial imaging modality (↑↑).
    - ↳ **1.1** If CTA is negative or inconclusive, we suggest **NM scintigraphy (RBC scan)** (↑).

RBC: red blood cell

Recommendations from six guidelines were used during the discussions and formulation of these recommendations: the 2021 Association of Coloproctology of Great Britain and Ireland (ACPGBI) guideline on emergency colorectal surgery [27], the 2021 ACR Appropriateness Criteria® guideline on radiologic management of lower gastrointestinal tract bleeding [59], the 2019 British Society of Gastroenterology (BSG) guideline on diagnosis and management of acute lower gastrointestinal bleeding [60], the 2021 European Society of Gastrointestinal Endoscopy (ESGE) guideline on diagnosis and management of acute lower gastrointestinal bleeding [61], the 2019 International Consensus on Diverticulosis and Diverticular Disease (ICDDD) guideline on diverticulosis and diverticular disease [46], and the 2019 Japan Gastroenterological Association (JGA) guideline on colonic diverticular bleeding and colonic diverticulitis [47] (**Appendix 2: Table GI06B**).

GI07. Chronic GI bleeding/anemia

Recommendations

1. In patients with suspected chronic GI bleeding, we suggest **against routine use of MR enterography** due to limited spatial resolution (↓).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy it is not readily available,** if the patient declines endoscopy). If imaging is required, then:

2. In patients with suspected chronic GI bleeding, we recommend **CT enterography** as the initial imaging modality (↑↑).
    - ↳ **2.1** If CT enterography cannot be tolerated, we suggest **CT abdomen and pelvis** (↑).
    - ↳ **2.2** If CT enterography is negative and further investigation is required, we suggest **NM scintigraphy (RBC and/or Meckel's study) ± capsule endoscopy** as the next imaging modality (↑).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Consultation with a nuclear medicine physician and/or gastroenterologist is suggested to determine the need for further evaluation with NM scintigraphy and/or capsule endoscopy due to varying regional practice preferences.

RBC: red blood cell

Recommendations from three guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2019 Italian Association of Hospital Gastroenterologists and Endoscopists (AIGO) and Italian Society of Paediatric Gastroenterology Hepatology and Nutrition (SIGENP) guideline on diagnosis of chronic anaemia in gastrointestinal disorders [62], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI07**).

GI08. Abnormal liver biochemistry

GI08A. Acute abnormal liver biochemistry

Recommendations

1. In patients with acute abnormal liver biochemistry, we recommend **US abdomen** as the initial imaging modality (↑↑).
   - ↳ **1.1** If US is inconclusive or if further investigation is required, we suggest **CT abdomen or MR abdomen** (equivalent alternatives) as the next imaging modality (↑).

For suspected biliary disease, see GI03B. Right upper quadrant pain.

Recommendations from four guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2019 ACR Appropriateness Criteria® guideline on jaundice [63], the 2019 American Society for Gastrointestinal Endoscopy (ASGE) guideline on the role of endoscopy in the evaluation and management of choledocholithiasis [64], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI08A**).

GI08B. Chronic abnormal liver biochemistry

Recommendations

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:

1. In patients with chronic abnormal liver biochemistry, we recommend **US abdomen** as the initial imaging modality, ideally with the use of a high frequency linear probe to assess the hepatic surface (↑↑).
   - ↳ **1.1** If further investigation is required, we recommend **MR abdomen** as the next imaging modality (↑↑).
     - ↳ **1.2** If MR abdomen is contraindicated or unavailable, we suggest **CT abdomen** (↑).
2. In noncirrhotic patients with chronic abnormal liver biochemistry, if available, we suggest **US shear wave elastography** in addition to **US abdomen** to diagnose, follow, or stage occult hepatic fibrosis (↑).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

↳ **2.1** If US shear wave elastography is not available or inconclusive and imaging is required, we suggest **MR elastography** (↑).

Although MR elastography is more sensitive and specific than US shear wave elastography, due to accessibility concerns, the Expert Panel chose to suggest US shear wave elastography ahead of MR elastography.

Recommendations from two guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], and the 2020 ACR Appropriateness Criteria® guideline on Chronic Liver Disease [65] (**Appendix 2: Table GI08B**) .

GI09. Pancreatitis

GI09A. Acute pancreatitis

Recommendations

1. As per the revised Atlanta Criteria, in patients who meet the diagnostic criteria for acute pancreatitis, we recommend **against imaging** for the purpose of diagnosis (↓↓).

The guideline recommendations are to assist the choice of imaging modality in situations where it is clinically and/or biochemically necessary to obtain imaging as per the revised Atlanta Criteria [66]. If imaging is required, then:

2. In patients with suspected acute pancreatitis due to gallstones, we recommend **US abdomen** as the initial imaging modality (↑↑).

↳ **2.1** If further investigation is required, we recommend **MR abdomen with MRCP** as the next imaging modality (↑↑).

3. In patients with suspected complicated sub-acute pancreatitis, we recommend imaging as per the revised Atlanta Criteria (↑↑).

MRCP: magnetic resonance cholangiopancreatography

Recommendations from six guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2019 ACR Appropriateness Criteria® guideline on acute pancreatitis [67], the 2019 American Society for Gastrointestinal Endoscopy (ASGE) guideline on the role of endoscopy in the evaluation and management of choledocholithiasis [64], the 2019 European Society of Gastrointestinal Endoscopy (ESGE) guideline on Endoscopic management of common bile duct stones [68], the 2017 RCR iRefer guideline [25], and the 2020 Taiwanese guideline on acute pancreatitis [69] (**Appendix 2: Table GI09A**).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

GI09B. Chronic pancreatitis

Recommendations

1. In patients with suspected chronic pancreatitis, we recommend **CT abdomen** as the initial imaging modality (↑↑).
   - ↳ **1.1** If CT is negative, we suggest **GI referral ± endoscopic US** (↑).
2. In patients with known chronic pancreatitis, we recommend **MR abdomen with MRCP** for any required follow-up imaging (↑↑).
   - ↳ **2.1** If MR abdomen is contraindicated or unavailable, we suggest **CT abdomen** (↑).

MRCP: magnetic resonance cholangiopancreatography

Recommendations from four guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], the 2020 American College of Gastroenterology (ACG) guideline on chronic pancreatitis [70], the 2017 RCR iRefer guideline [25], and the 2017 United European Gastroenterology (UEG) guidelines for the diagnosis and therapy of chronic pancreatitis [71,72] (**Appendix 2: Table GI09B**).

GI10. Anorectal diseases

Recommendations

1. In patients with suspected perianal fistula, we recommend **against CT pelvis** (↓↓).
2. In patients with suspected perianal fistula, we recommend **MR pelvis** as the initial imaging modality (↑↑).
   - ↳ **2.1** If MRI is not available or contraindicated, we suggest **endoanal US** as an alternative imaging modality (↑).
3. In patients with suspected perianal abscess, we recommend **MR pelvis** as the initial imaging modality (↑↑).
   - ↳ **3.1** If MRI is not available or contraindicated, we suggest **endoanal US** as an alternative imaging modality (↑).
   - ↳ **3.2** In patients with suspected large perianal abscess, if MRI or US is not available or contraindicated, we suggest **CT pelvis** as an alternative imaging modality (↑).
4. In patients with suspected anovesicular or anovaginal fistula, we recommend **CT pelvis** (↑↑).
   - ↳ **4.1** In patients with suspected anovesicular or anovaginal fistula, we suggest **MR pelvis** as an alternative imaging modality (↑).

The choice of CT pelvis with rectal contrast or MR pelvis may vary based on regional practice preferences.

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Recommendations from two guidelines were used during the discussions and formulation of these recommendations: the 2021 ACR Appropriateness Criteria® guideline on anorectal disease [73], and the 2017 German guideline on anal abscess and fistula [74] (**Appendix 2: Table GI10**).

GI11. Diarrhea

Recommendations

1. In patients with suspected uncomplicated acute infectious colitis presenting with acute nonlocalized abdominal pain, we recommend **against imaging** in the absence of other concerning clinical and/or biochemical findings (↓↓).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:

2. In patients with diarrhea (unknown cause), we suggest **XR** as the initial imaging modality (↑).

↳ **2.1** If XR is inconclusive, we suggest **specialist consultation (e.g., gastroenterology, general surgery)** and/or **CT abdomen and pelvis** (↑).

Recommendations from two guidelines were used during the discussions and formulation of these recommendations: the 2018 British Society of Gastroenterology (BSG) guideline for the investigation of chronic diarrhoea [75], and the Infectious Diseases Society of America (IDSA) guideline for the diagnosis and management of infectious diarrhea [76] (**Appendix 2: Table GI11**).

GI12. Fecal incontinence

Recommendations

1. In patients with fecal incontinence (clinically diagnosed constipation), we recommend **against imaging** in the absence of other concerning clinical and/or biochemical findings (↓↓).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:

2. In patients with fecal incontinence (clinically indeterminate for constipation), we suggest **XR** as the initial imaging modality (↑).

3. In patients with fecal incontinence (suspected cauda equina), we recommend **MR lumbar spine** as the initial imaging modality (EP consensus).

4. In patients with fecal incontinence (suspected pelvic floor dysfunction), we suggest **dynamic MR pelvic floor** (EP consensus).

↳ **4.1** If MRI is not available or contraindicated, we suggest **fluoroscopic defecography** (EP consensus).

Recommendations from two guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], and the 2017 RCR iRefer guideline [25] (**Appendix 2: Table GI12**).

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

GI13. Foreign body ingestion

Recommendations

1. In patients with suspected or known foreign body ingestion, we recommend **XR** as the initial imaging modality (↑↑).

- ↳ **1.1** If XR is suspicious for obstruction or perforation, we suggest **CT abdomen and pelvis** as the next imaging modality (↑).
- ↳ **1.2 I**f XR is negative and additional management is being considered, we suggest **CT abdomen and pelvis** as the next imaging modality (↑).

For foreign body ingestion in children, see Pediatrics guideline.

Recommendations from two guidelines were used during the discussions and formulation of these recommendations: the 2012 CAR recommendations [18], and the 2019 World Society of Emergency Surgery (WSES) guidelines on esophageal emergencies [77] (**Appendix 2: Table GI13**).

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APPENDIX 1. SEARCH STRATEGIES

2022 Apr 28
Ovid Multifile

Database: Embase Classic+Embase <1947 to 2022 April 27>, Ovid MEDLINE(R) ALL <1946 to April 27, 2022>
Search Strategy:
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1 Gastrointestinal Diseases/ (62456)
2 Deglutition Disorders/ (63604)
3 ((deglutition* or motilit* or swallow*) adj3 (atypical* or defect* or difficult* or disease* or disorder* or dysfunction* or irregular* or lesion* or obstruct* or perforat* or problem*)).tw,kw,kf. (42515)
4 (hypermotilit* or hyper-motilit*).tw,kw,kf. (2032)
5 ((esophag* or oesophag* or gastroesophag* or gastro-esophag* or gastrooesophag* or gastro-oesophag* or gastric or paraesophag* or para-esophag* or paraoesophag* or para-oesophag* or supraesophag* or supra-esophag* or supraoesophag* or supra-oesophag*) adj3 (dysmotilit* or narrow* or obstruct* or stenos#s or stricture*)).tw,kw,kf. (38084)
6 dysphagia*.tw,kw,kf. (90291)
7 (epigastr* adj2 (burn* or discomfort* or distress* or pain*)).tw,kw,kf. (19761)
8 epigastralgi*.tw,kw,kf. (2252)
9 Dyspepsia/ (47759)
10 (dyspepsia* or indigestion*).tw,kw,kf. (35381)
11 ((difficult* or discomfort* or distress* or impair* or pain* or problem* or trouble*) adj3 digesti*).tw,kw,kf. (4074)
12 (presbyesophagus or presby-esophagus or presbyoesophagus or presby-oesophagus).tw,kw,kf. (61)
13 Esophageal Achalasia/ (17286)
14 (achalasia* or cardia spasm* or cardia spastic contraction* or cardiospasm* or cardio-spasm* or megaesophag* or mega-esophagus or megaoesophag* or mega-oesophag* or megalesophag* or megal-esophag* or megaloesophag* or megal-oesophag*).tw,kw,kf. (21939)
15 ((esophag* or oesophag* or gastroesophag* or gastro-esophag* or gastrooesophag* or gastro-oesophag* or gastric or supraesophag* or supra-esophag* or supraoesophag* or supra-oesophag*) adj2 (reflux* or regurgitat*)).tw,kw,kf. (81394)
16 (GERD or SEGR).tw,kw,kf. (30223)
17 (heartburn* or heart burn* or pyros#s).tw,kw,kf. (16748)
18 exp Diverticulum, Esophageal/ (5032)
19 (Zenker* adj3 diverticul*).tw,kw,kf. (2763)
20 ((esophagopharyngeal* or esophago-pharyngea* or oesophagopharyngeal* or oesophago-pharyngeal* or pharyngeal* or pharyngoesophag* or pharyngo-esophag*) adj3 diverticul*).tw,kw,kf. (1032)
21 Hernia, Hiatal/ (16823)
22 (hernia* adj2 (hiatus or hiatal or esophag* or oesophag* or paraesophag* or para-esophag* or paraoesophag* or para-oesophag*)).tw,kw,kf. (22016)
23 ((abdom#n* or enteric* or gastric* or grastritic* or gastro* or stomach*) adj3 (difficult* or discomfort* or distress* or impair* or pain* or problem* or trouble*)).tw,kw,kf. (235005)
24 ((bowel* or colon* or intestin* or viscus) adj3 (isch?emi* or obstruct* or perforat*)).tw,kw,kf. (115419)
25 Gastroenteritis/ (42167)
26 (gastroenterit#s or gastro-enterit#s or gastroduodenit#s or gastro-duodenit#s).tw,kw,kf. (53383)
27 ((gastrointestin* or gastro-intestin* or GI) adj3 inflam*).tw,kw,kf. (9786)
28 ((esophag* or oesophag* or paraesophag* or para-esophag* or paraoesophag* or para-oesophag* or gastric or grastritic or abdom#n* or stomach* or intestin* or anorectal* or ano-rectal* or anorectum* or ano-rectum* or bowel* or colon* or perianal* or peri-anal* or rectal* or rectum* or viscus) adj3 inflam*).tw,kw,kf. (211941)
29 Enterocolitis/ (9679)
30 (enterocolit#s or entero-colit#s or colienterit#s or coli-enterit#s).tw,kw,kf. (33179)
31 volvulus.tw,kw,kf. (20903)
32 ((epigastric or epi-gastric) adj3 (discomfort* or pain*)).tw,kw,kf. (19699)
33 ((gastrointestin* or gastro-intestin* or GI) adj3 (bleed* or ulcer*)).tw,kw,kf. (75912)
34 Peptic Ulcer/ (83043)
35 ((duodenal* or gastric* or gastroduodenal* or gastro-duodenal* or peptic or stomach* or stress*) adj3 ulcer*).tw,kw,kf. (162774)
36 Gastritis/ (54426)
37 (gastritis or gastritides).tw,kw,kf. (61549)
38 (gastric* adj (gland? or mucosa* or pyloric*) adj3 inflam*).tw,kw,kf. (2027)
39 ((bile duct* or bile tract* or biliary or hepatic) adj2 colic*).tw,kw,kf. (3132)
40 (liver function test* adj3 (abnormal* or atypical*)).tw,kw,kf. (6243)
41 exp Gallbladder Diseases/ (96762)
42 (cholecystit#s or cholangiocholecystit#s or cholangio-cholecystit#s).tw,kw,kf. (39388)
43 (cholangit#s or angiocholit#s or angio-cholit#s).tw,kw,kf. (46538)
44 exp Biliary Dyskinesia/ (2451)
45 ((bile duct* or bile tract* or biliary or gallbladder* or gall bladder* or hepatic) adj3 dyskinesi*).tw,kw,kf. (1928)
46 exp Hepatitis/ (537259)
47 hepatitis.tw,kw,kf. (579190)
48 ((liver? or hepatic or hepatitis or hepatocellular or hepato-cellular) adj3 (abscess* or atypical or atresia* or atypical* or bleed* or cirrhos#s or defect* or difficult* or disease* or disorder* or dysfunction* or dyskinesi* or dysmotilit* or fistula* or h?emorrhag* or hernia* or infect* or inflam* or irregular* or isch?emi* or lesion* or obstruct* or perforat* or polyp* or problem* or spasm* or steatos#s or stenos#s or stricture* or ulcer* or varix or varices)).tw,kw,kf. (759180)
49 Budd-Chiari Syndrome/ (9012)
50 (Budd-Chiari or Chiari* Syndrome or hepatic vein thromb* or hepatic venous thromb* or (hepatic adj2 outflow obstruction)).tw,kw,kf. (9392)
51 (portal vein thromb* or portal venous thromb*).tw,kw,kf. (13902)
52 Appendicitis/ (44004)
53 appendicitis.tw,kw,kf. (49741)
54 ((perforat* or ruptur*) adj3 appendi*).tw,kw,kf. (8945)
55 Renal Colic/ (3693)
56 ((kidney* or renal or ureteral) adj3 colic).tw,kw,kf. (6910)
57 Diverticulitis, Colonic/ (9128)
58 (diverticle or diverticula* or diverticulit#s or diverticulum).tw,kw,kf. (69653)

59 exp Ileitis/ (11015)
60 (ileit#s or pouchit#s).tw,kw,kf. (11142)
61 ((ileum or ileocecal or ileo-cecal) adj3 inflam*).tw,kw,kf. (1092)
62 Mesenteric Ischemia/ (4678)
63 (mesenteric adj3 (emboli or embolus or insufficien* or isch?emi* or thromb*)).tw,kw,kf. (13836)
64 exp Inflammatory Bowel Diseases/ (274286)
65 ((IBD or IBD) and (inflam* or bowel*)).tw,kw,kf. (83348)
66 (inflam* adj3 (colon* or gastro* or intestin* or bowel*)).tw,kw,kf. (202521)
67 (crohn$2 adj (disease or enteritis)).tw,kw,kf. (140867)
68 (ileocoliti or ileo-colitis).tw,kw,kf. (144)
69 exp Colitis/ (299861)
70 (colitis or proctocolitis or procto-colitis).tw,kw,kf. (203255)
71 Diverticulosis, Colonic/ (7072)
72 diverticulos#s.tw,kw,kf. (9389)
73 Angiodysplasia/ (4376)
74 (angiodysplasia* or angio-dysplasia* or angiodysgenes#s or angio-dysgenes#s).tw,kw,kf. (4921)
75 exp Intestinal Polyps/ (52808)
76 ((gastrointestin* or gastro-intestin* or GI or abdom#n* or enteric* or gastric* or grastritic* or stomach* or bowel* or cecal or cecum or colon* or colorectal* or colo-rectal* or duoden* or ileal or ileum or intestin* or jejun* or anorectal* or ano-rectal* or anorectum* or ano-rectum* or colon* or colorectal* or colo-rectal* or perianal* or peri-anal* or rectal* or rectum*) adj3 polyp?).tw,kw,kf. (38166)
77 "Esophageal and Gastric Varices"/ (25682)
78 ((gastrointestin* or gastro-intestin* or GI or abdom#n* or enteric* or gastric* or grastritic* or stomach* or bowel* or cecal or cecum or colon* or colorectal* or colo-rectal* or duoden* or ileal or ileum or intestin* or jejun* or anorectal* or ano-rectal* or anorectum* or ano-rectum* or colon* or colorectal* or colo-rectal* or perianal* or peri-anal* or rectal* or rectum*) adj3 (varix or varices)).tw,kw,kf. (9173)
79 ((esophag* or oesophag* or gastroesophag* or gastro-esophag* or gastrooesophag* or gastro-oesophag* or gastric or paraesophag* or para-esophag* or paraoesophag* or para-oesophag* or supraesophag* or supra-esophag* or supraoesophag* or supra-oesophag*) adj3 (varix or varices)).tw,kw,kf. (29905)
80 Hemorrhoids/ (10206)
81 hemorrhoid*.tw,kw,kf. (12479)
82 Anemia, Iron-Deficiency/ (28059)
83 (an?emia? or an?emic*).tw,kw,kf. (442176)
84 (iron adj2 deficien*).tw,kw,kf. (64025)
85 (hypoferritin?emi* or hypo-ferritin?emi* or sideropeni*).tw,kw,kf. (1333)
86 (cholelithias#s or cholecystic lithias#s or cholecysto-lithias#s or cholecystolithias#s or cholelith? or cholethias#s or choledocholithias#s or choledocho-lithias#s).tw,kw,kf. (36787)
87 ((bile duct* or bile tract* or biliary or gallbladder? or gall bladder?) adj3 (abscess* or atypical or atresia* or atypical* or bleed* or defect* or difficult* or disease* or disorder* or dysfunction* or dyskinesi* or dysmotilit* or fistula* or h?emorrhag* or hernia* or infect* or inflam* or irregular* or isch?emi* or lesion* or obstruct* or perforat* or polyp* or problem* or spasm* or stenos#s or stricture* or ulcer* or varix or varices)).tw,kw,kf. (109816)
88 (fibros#s or cirrhos#s).tw,kw,kf. (803046)
89 (cholelithias#s or cholecystic lithias#s or cholecysto-lithias#s or cholecystolithias#s or cholelith? or cholethias#s or choledocholithias#s or choledocho-lithias#s).tw,kw,kf. (36787)
90 Fatty Liver/ (68973)
91 (fatty liver? or steatohepatitis or steato-hepatitis).tw,kw,kf. (115439)
92 ((NASH or NAFLD) and liver?).tw,kw,kf. (66203)
93 (ileit#s or pouchit#s).tw,kw,kf. (11142)
94 ((ileum or ileocecal or ileo-cecal) adj2 inflam*).tw,kw,kf. (690)
95 ((bile duct* or bile tract* or biliary or gallbladder? or gall bladder? or hepatic) adj3 (calculi or calculos#s or calculous or calculus or concrement? or concretion? or lithias#s or lithogenes#s or litho-genes#s or lithogenicity or litho-genicity or stone?)).tw,kw,kf. (28139)
96 (gall stone? or gallstone?).tw,kw,kf. (43516)
97 ((NASH or NAFLD) and liver?).tw,kw,kf. (66203)
98 (Wilson* disease and liver?).tw,kw,kf. (7153)
99 Hemochromatosis/ (23254)
100 (h?emochromatos#s or h?emo-chromatos#s or bronze? cirrhos#s or bronze? diabet* or iron storage disorder? or Troisier-Hanot-Chauffard or Von Recklenhausen-Applebaum).tw,kw,kf. (21985)
101 exp Pancreatitis/ (175348)
102 (pancreatitis or (inflam* adj2 pancrea*) or (pancrea* adj2 parenchyma*) or (peripancreatic adj2 necros#s) or (peri-pancreatic adj2 necros#s) or (peripancreatic adj2 necrotic*) or (peri-pancreatic adj2 necrotic*) or "pancreas divisum" or (pancreas* adj3 strictur*) or (pancrea* adj3 trauma*)).tw,kw,kf. (170589)
103 exp Rectal Diseases/ (539537)
104 ((anorectal* or ano-rectal* or anorectum* or ano-rectum* or colon* or colorectal* or colo-rectal* or perianal* or peri-anal* or rectal* or rectum*) adj3 (abscess* or atresia* or atypical* or bleed* or defect* or difficult* or disease* or disorder* or dysfunction* or dysmotilit* or fistula* or h?emorrhag* or hernia* or infect* or inflam* or irregular* or isch?emi* or lesion* or obstruct* or pain? or perforat* or polyp* or problem* or spasm* or stenos#s or stricture* or ulcer* or varix or varices)).tw,kw,kf. (224972)
105 Diarrhea/ (324627)
106 diarrh?ea*.tw,kw,kf. (306498)
107 Irritable Bowel Syndrome/ (23061)
108 (irritable adj (bowel* or colon)).tw,kw,kf. (41427)
109 (IBS and (irrita* or bowel?)).tw,kw,kf. (23782)
110 (mucous adj3 colitis).tw,kw,kf. (132)
111 ((obstruct* or overflow*) adj3 (gastro* or intestin* or bowel*)).tw,kw,kf. (73381)
112 ((inflam* adj3 (mucosa* or mucous membrane? or muscularis mucosa*)) and (colon* or gastro* or intestin* or bowel*)).tw,kw,kf. (16624)
113 Fecal Incontinence/ (23619)
114 ((f?ecal* or bowel* or stool) adj3 (incontinen* or soiling?)).tw,kw,kf. (24031)
115 (constipat* or (colon$2 adj2 inertia?) or dyschezi*).tw,kw,kf. (80621)
116 (pelvic floor? adj3 (lax or laxity or laxness or loose*)).tw,kw,kf. (93)
117 ((bladder or cystic or urinary) adj3 (hernia* or prolaps* or protru* or ptos#s)).tw,kw,kf. (6129)
118 (cystocele* or cystoptos#s).tw,kw,kf. (4270)
119 ((rectal* or rectum*) adj3 (hernia* or prolaps* or protru* or ptos#s)).tw,kw,kf. (8189)

120 (rectocele* or proctocele).tw,kw,kf. (4187)
121 enterocele*.tw,kw,kf. (1979)
122 Foreign Objects/ and Deglutition/ (470)
123 ((foreign adj (body or bodies or item? or material? or matter or object? or particle?)) and (deglutit* or ingest* or swallow*)).tw,kw,kf. (8581)
124 or/1-123 [GI CONDITIONS] (5021380)
125 Diagnostic Imaging/ (271297)
126 dg.fs. [diagnostic imaging] (1365778)
127 (diagnos* adj3 (image? or imaging)).tw,kf. (126162)
128 (x-ray* or xray*).tw,kf. (919095)
129 Image Interpretation, Computer-Assisted/ (90490)
130 exp Imaging, Three-Dimensional/ (204175)
131 ((3D or 3-D or 3-dimension* or three dimension*) adj (image? or imaging)).tw,kf. (45225)
132 exp Ultrasonography/ (1383999)
133 (ultrasound* or ultrasonograph* or ultra-sonograph* or ultrasonic* or ultra-sonic*).tw,kf. (1061130)
134 (echograph* or echo-graph* or echotomograph* or echo-tomograph* or echosonograph* or echo sonograph*).tw,kf. (25787)
135 exp Radiography/ (2566489)
136 (radiograph* or radiographic imag* or roentgenograph* or roentgeno-graph*).tw,kf. (606159)
137 (fluoroscop* or fluoro-scop*).tw,kf. (85686)
138 exp Radionuclide Imaging/ (436475)
139 ((radionuclide* adj2 imag*) or (radio-nuclide* adj2 imag*) or (radionuclide* adj2 scan*) or (radio-nuclide* adj2 scan*) or (radioisotope* adj2 imag*) or (radio-isotope* adj2 imag*) or (radioisotope* adj2 scan*) or (radio-isotope* adj2 scan*) or scintigra* or scinti-gra* or scintiphotograph* or scinti-photograph*).tw,kf. (142617)
140 exp Tomography/ (3175278)
141 (tomograph* or tomo-graph*).tw,kf. (1114888)
142 (CAT scan* or CT scan* or PET scan* or PET imag* or PT scan* or PT imag*).tw,kf. (379035)
143 (SPECTCT or SPECT CT or "SPECT/CT").tw,kf. (16404)
144 (magnetic resonance imag* or MRI or MRIs or fMRI or fMRIs or NMR imag* or chemical shift imag* or magneti#ation transfer contrast imag* or spin echo imag* or zeugmatograph* or zeugmato-graph*).tw,kf. (1201470)
145 (cineradiograph* or cine-radiograph* or cinefluorograph* or cine-fluorograph* or radiocinematograph* or radio-cinematograph*).tw,kf. (4227)
146 Nuclear Medicine/ (43800)
147 ((nuclear or atomic) adj1 medicine?).tw,kf. (45435)
148 (nuclear adj1 radiolog*).tw,kf. (1162)
149 (sialogra* or salivogra* or sialoscintigra* or sialo-scintigra*).tw,kf. (3310)
150 (enteroclys* or enterogra*).tw,kf. (5958)
151 (esophagra* or oesophagra* or esophagogra* or oesophagogra*).tw,kf. (6926)
152 ((CT or virtual) adj (colonograph* or colonoscop*)).tw,kf. (5171)
153 (contrast adj (study or studies or medium)).tw,kf. (46236)
154 (cholangiopancreatogra* or cholangio-pancreatogra* or ERCP or MRCP).tw,kf. (53793)
155 cholecystogra*.tw,kf. (5483)
156 or/125-155 [IMAGING] (7899591)
157 124 and 156 [GI CONDITIONS - IMAGING] (815873)
158 exp Animals/ not Humans/ (17870462)
159 157 not 158 [ANIMAL-ONLY REMOVED] (623067)
160 (case reports or case series or address or autobiography or bibliography or biography or comment or dictionary or directory or editorial or "expression of concern" or festschrift or historical article or interactive tutorial or lecture or legal case or legislation or news or newspaper article or patient education handout or personal narrative or portrait or video-audio media or webcast or (letter not (letter and randomized controlled trial))).pt. (6673597)
161 159 not 160 [OPINION PIECES REMOVED] (511278)
162 exp Guidelines as Topic/ (813245)
163 exp Clinical Protocols/ (296041)
164 Guideline.pt. (16518)
165 Practice Guideline.pt. (29772)
166 standards.fs. (766385)
167 Consensus Development Conference.pt. (12305)
168 Consensus Development Conference, NIH.pt. (801)
169 (consensus or guideline* or guidance? or standards or recommendation*).ti,kw,kf. (510183)
170 (expert consensus or consensus statement* or consensus conference* or clinical guideline? or practice guideline? or treatment guideline? or practice parameter* or position statement* or policy statement* or CPG or CPGs).tw,kw,kf. (286634)
171 or/162-170 [GUIDELINE FILTER] (2155298)
172 161 and 171 [GI - IMAGING - GUIDELINES] (15408)
173 limit 172 to yr="2016-current" (8398)
174 173 use medall [MEDLINE RECORDS] (2424)
175 gastrointestinal disease/ (142092)
176 ((deglutition* or motilit* or swallow*) adj3 (atypical* or defect* or difficult* or disease* or disorder* or dysfunction* or irregular* or lesion* or obstruct* or perforat* or problem*)).tw,kw,kf. (42515)
177 (hypermotilit* or hyper-motilit*).tw,kw,kf. (2032)
178 ((esophag* or oesophag* or gastroesophag* or gastro-esophag* or gastrooesophag* or gastro-oesophag* or gastric or paraesophag* or para-esophag* or paraoesophag* or para-oesophag* or supraesophag* or supra-esophag* or supraoesophag* or supra-oesophag*) adj3 (dysmotilit* or narrow* or obstruct* or stenos#s or stricture*)).tw,kw,kf. (38084)
179 exp dysphagia/ (145630)
180 dysphagia*.tw,kw,kf. (90291)
181 (epigastr* adj2 (burn* or discomfort* or distress* or pain*)).tw,kw,kf. (19761)
182 epigastralgi*.tw,kw,kf. (2252)
183 exp dyspepsia/ (47831)
184 (dyspepsia* or indigestion*).tw,kw,kf. (35381)
185 ((difficult* or discomfort* or distress* or impair* or pain* or problem* or trouble*) adj3 digesti*).tw,kw,kf. (4074)
186 (presbyesophagus or presby-esophagus or presbyoesophagus or presby-oesophagus).tw,kw,kf. (61)
187 esophagus achalasia/ (13944)
188 (achalasia* or cardia spasm* or cardia spastic contraction* or cardiospasm* or cardio-spasm* or megaesophag* or mega-esophagus or megaoesophag* or mega-oesophag* or megalesophag* or megal-esophag* or megaloesophag* or megal-oesophag*).tw,kw,kf. (21939)
189 ((esophag* or oesophag* or gastroesophag* or gastro-esophag* or gastrooesophag* or gastro-oesophag* or gastric or supraesophag* or supra-esophag* or supraoesophag* or supra-oesophag*) adj2 (reflux* or regurgitat*)).tw,kw,kf. (81394)
190 exp gastroesophageal reflux/ (100848)
191 (GERD or SEGR).tw,kw,kf. (30223)
192 (heartburn* or heart burn* or pyros#s).tw,kw,kf. (16748)
193 esophagus diverticulosis/ (2224)

194 Zenker diverticulum/ (3034)
195 (Zenker* adj3 diverticul*).tw,kw,kf. (2763)
196 ((esophagopharyngeal* or esophago-pharyngea* or oesophagopharyngeal* or oesophago-pharyngeal* or pharyngeal* or pharyngoesophag* or pharyngo-esophag*) adj3 diverticul*).tw,kw,kf. (1032)
197 hiatus hernia/ (22520)
198 (hernia* adj2 (hiatus or hiatal or esophag* or oesophag* or paraesophag* or para-esophag* or paraoesophag* or para-oesophag*)).tw,kw,kf. (22016)
199 ((abdom#n* or enteric* or gastric* or grastritic* or gastro* or stomach*) adj3 (difficult* or discomfort* or distress* or impair* or pain* or problem* or trouble*)).tw,kw,kf. (235005)
200 ((bowel* or colon* or intestin* or viscus) adj3 (isch?emi* or obstruct* or perforat*)).tw,kw,kf. (115419)
201 gastroenteritis/ (42167)
202 (gastroenterit#s or gastro-enterit#s or gastroduodenit#s or gastro-duodenit#s).tw,kw,kf. (53383)
203 ((gastrointestin* or gastro-intestin* or GI) adj3 inflam*).tw,kw,kf. (9786)
204 ((esophag* or oesophag* or paraesophag* or para-esophag* or paraoesophag* or para-oesophag* or gastric or grastritic or abdom#n* or stomach* or intestin* or anorectal* or ano-rectal* or anorectum* or ano-rectum* or bowel* or colon* or perianal* or peri-anal* or rectal* or rectum* or viscus) adj3 inflam*).tw,kw,kf. (211941)
205 enterocolitis/ (9679)
206 (enterocolit#s or entero-colit#s or colienterit#s or coli-enterit#s).tw,kw,kf. (33179)
207 exp intestine obstruction/ (95410)
208 intestine volvulus/ (3643)
209 volvulus.tw,kw,kf. (20903)
210 ((epigastric or epi-gastric) adj3 (discomfort* or pain*)).tw,kw,kf. (19699)
211 ((gastrointestin* or gastro-intestin* or GI) adj3 (bleed* or ulcer*)).tw,kw,kf. (75912)
212 exp digestive system ulcer/ (152989)
213 ((duodenal* or gastric* or gastroduodenal* or gastro-duodenal* or peptic or stomach* or stress*) adj3 ulcer*).tw,kw,kf. (162774)
214 exp gastritis/ (104146)
215 (gastritis or gastritides).tw,kw,kf. (61549)
216 (gastric* adj (gland? or mucosa* or pyloric*) adj3 inflam*).tw,kw,kf. (2027)
217 ((bile duct* or bile tract* or biliary or hepatic) adj2 colic*).tw,kw,kf. (3132)
218 (liver function test* adj3 (abnormal* or atypical*)).tw,kw,kf. (6243)
219 exp gallbladder disease/ (96762)
220 (cholecystit#s or cholangiocholecystit#s or cholangio-cholecystit#s).tw,kw,kf. (39388)
221 (cholangit#s or angiocholit#s or angio-cholit#s).tw,kw,kf. (46538)
222 bile duct dyskinesia/ (1184)
223 ((bile duct* or bile tract* or biliary or gallbladder* or gall bladder* or hepatic) adj3 dyskinesi*).tw,kw,kf. (1928)
224 exp hepatitis/ (537259)
225 hepatitis.tw,kw,kf. (579190)
226 ((liver? or hepatic or hepatitis or hepatocellular or hepato-cellular) adj3 (abscess* or atypical or atresia* or atypical* or bleed* or cirrhos#s or defect* or difficult* or disease* or disorder* or dysfunction* or dyskinesi* or dysmotilit* or fistula* or h?emorrhag* or hernia* or infect* or inflam* or irregular* or isch?emi* or lesion* or obstruct* or perforat* or polyp* or problem* or spasm* or steatos#s or stenos#s or stricture* or ulcer* or varix or varices)).tw,kw,kf. (759180)
227 Budd Chiari syndrome/ (9012)
228 (Budd-Chiari or Chiari* Syndrome or hepatic vein thromb* or hepatic venous thromb* or (hepatic adj2 outflow obstruction)).tw,kw,kf. (9392)
229 portal vein thrombosis/ (13238)
230 (portal vein thromb* or portal venous thromb*).tw,kw,kf. (13902)
231 exp appendicitis/ (53469)
232 appendicitis.tw,kw,kf. (49741)
233 ((perforat* or ruptur*) adj3 appendi*).tw,kw,kf. (8945)
234 kidney colic/ (4674)
235 ((kidney* or renal or ureteral) adj3 colic).tw,kw,kf. (6910)
236 colon diverticulosis/ (8487)
237 (diverticle or diverticula* or diverticulit#s or diverticulum).tw,kw,kf. (69653)
238 ileitis/ (10097)
239 (ileit#s or pouchit#s).tw,kw,kf. (11142)
240 ((ileum or ileocecal or ileo-cecal) adj3 inflam*).tw,kw,kf. (1092)
241 mesenteric ischemia/ (4678)
242 (mesenteric adj3 (emboli or embolus or insufficien* or isch?emi* or thromb*)).tw,kw,kf. (13836)
243 inflammatory bowel disease/ (72350)
244 ((IBD or IBD) and (inflam* or bowel*)).tw,kw,kf. (83348)
245 (inflam* adj3 (colon* or gastro* or intestin* or bowel*)).tw,kw,kf. (202521)
246 exp Crohn disease/ (147730)
247 (crohn$2 adj (disease or enteritis)).tw,kw,kf. (140867)
248 (ileocoliti or ileo-colitis).tw,kw,kf. (144)
249 exp Colitis/ (299861)
250 (colitis or proctocolitis or procto-colitis).tw,kw,kf. (203255)
251 exp ulcerative colitis/ (127689)
252 colon diverticulosis/ (8487)
253 diverticulos#s.tw,kw,kf. (9389)
254 angiodysplasia/ (4376)
255 (angiodysplasia* or angio-dysplasia* or angiodysgenes#s or angio-dysgenes#s).tw,kw,kf. (4921)
256 exp intestine polyp/ (37009)
257 ((gastrointestin* or gastro-intestin* or GI or abdom#n* or enteric* or gastric* or grastritic* or stomach* or bowel* or cecal or cecum or colon* or colorectal* or colo-rectal* or duoden* or ileal or ileum or intestin* or jejun* or anorectal* or ano-rectal* or anorectum* or ano-rectum* or colon* or colorectal* or colo-rectal* or perianal* or peri-anal* or rectal* or rectum*) adj3 polyp?).tw,kw,kf. (38166)
258 exp esophagus varices/ (23181)
259 ((gastrointestin* or gastro-intestin* or GI or abdom#n* or enteric* or gastric* or grastritic* or stomach* or bowel* or cecal or cecum or colon* or colorectal* or colo-rectal* or duoden* or ileal or ileum or intestin* or jejun* or anorectal* or ano-rectal* or anorectum* or ano-rectum* or colon* or colorectal* or colo-rectal* or perianal* or peri-anal* or rectal* or rectum*) adj3 (varix or varices)).tw,kw,kf. (9173)
260 ((esophag* or oesophag* or gastroesophag* or gastro-esophag* or gastrooesophag* or gastro-oesophag* or gastric or paraesophag* or para-esophag* or paraoesophag* or para-oesophag* or supraesophag* or supra-esophag* or

supraoesophag* or supra-oesophag*) adj3 (varix or varices)).tw,kw,kf. (29905)
261 hemorrhoid/ (16006)
262 hemorrhoid*.tw,kw,kf. (12479)
263 iron deficiency anemia/ (43754)
264 (an?emia? or an?emic*).tw,kw,kf. (442176)
265 (iron adj2 deficien*).tw,kw,kf. (64025)
266 (hypoferritin?emi* or hypo-ferritin?emi* or sideropeni*).tw,kw,kf. (1333)
267 cholelithiasis/ (60448)
268 (cholelithias#s or cholecystic lithias#s or cholecysto-lithias#s or cholecystolithias#s or cholelith? or cholethias#s or choledocholithias#s or choledocho-lithias#s).tw,kw,kf. (36787)
269 exp biliary tract disease/ (388216)
270 ((bile duct* or bile tract* or biliary or gallbladder? or gall bladder?) adj3 (abscess* or atypical or atresia* or atypical* or bleed* or defect* or difficult* or disease* or disorder* or dysfunction* or dyskinesi* or dysmotilit* or fistula* or h?emorrhag* or hernia* or infect* or inflam* or irregular* or isch?emi* or lesion* or obstruct* or perforat* or polyp* or problem* or spasm* or stenos#s or stricture* or ulcer* or varix or varices)).tw,kw,kf. (109816)
271 (fibros#s or cirrhos#s).tw,kw,kf. (803046)
272 (cholelithias#s or cholecystic lithias#s or cholecysto-lithias#s or cholecystolithias#s or cholelith? or cholethias#s or choledocholithias#s or choledocho-lithias#s).tw,kw,kf. (36787)
273 fatty liver/ (68973)
274 (fatty liver? or steatohepatitis or steato-hepatitis).tw,kw,kf. (115439)
275 ((NASH or NAFLD) and liver?).tw,kw,kf. (66203)
276 (ileit#s or pouchit#s).tw,kw,kf. (11142)
277 ((ileum or ileocecal or ileo-cecal) adj2 inflam*).tw,kw,kf. (690)
278 ((bile duct* or bile tract* or biliary or gallbladder? or gall bladder? or hepatic) adj3 (calculi or calculos#s or calculous or calculus or concrement? or concretion? or lithias#s or lithogenes#s or litho-genes#s or lithogenicity or litho-genicity or stone?)).tw,kw,kf. (28139)
279 gallstone/ (32928)
280 (gall stone? or gallstone?).tw,kw,kf. (43516)
281 ((NASH or NAFLD) and liver?).tw,kw,kf. (66203)
282 (Wilson* disease and liver?).tw,kw,kf. (7153)
283 hemochromatosis/ (23254)
284 (h?emochromatos#s or h?emo-chromatos#s or bronze? cirrhos#s or bronze? diabet* or iron storage disorder? or Troisier-Hanot-Chauffard or Von Recklenhausen-Applebaum).tw,kw,kf. (21985)
285 exp pancreatitis/ (175348)
286 (pancreatitis or (inflam* adj2 pancrea*) or (pancrea* adj2 parenchyma*) or (peripancreatic adj2 necros#s) or (peri-pancreatic adj2 necros#s) or (peripancreatic adj2 necrotic*) or (peri-pancreatic adj2 necrotic*) or "pancreas divisum" or (pancreas* adj3 strictur*) or (pancrea* adj3 trauma*)).tw,kw,kf. (170589)
287 exp rectum disease/ (350637)
288 ((anorectal* or ano-rectal* or anorectum* or ano-rectum* or colon* or colorectal* or colo-rectal* or perianal* or peri-anal* or rectal* or rectum*) adj3 (abscess* or atresia* or atypical* or bleed* or defect* or difficult* or disease* or disorder* or dysfunction* or dysmotilit* or fistula* or h?emorrhag* or hernia* or infect* or inflam* or irregular* or isch?emi* or lesion* or obstruct* or pain? or perforat* or polyp* or problem* or spasm* or stenos#s or stricture* or ulcer* or varix or varices)).tw,kw,kf. (224972)
289 exp diarrhea/ (357138)
290 diarrh?ea*.tw,kw,kf. (306498)
291 irritable colon/ (38437)
292 (irritable adj (bowel* or colon)).tw,kw,kf. (41427)
293 (IBS and (irrita* or bowel?)).tw,kw,kf. (23782)
294 (mucous adj3 colitis).tw,kw,kf. (132)
295 ((obstruct* or overflow*) adj3 (gastro* or intestin* or bowel*)).tw,kw,kf. (73381)
296 ((inflam* adj3 (mucosa* or mucous membrane? or muscularis mucosa*)) and (colon* or gastro* or intestin* or bowel*)).tw,kw,kf. (16624)
297 feces incontinence/ (23192)
298 ((f?ecal* or bowel* or stool) adj3 (incontinen* or soiling?)).tw,kw,kf. (24031)
299 (constipat* or (colon$2 adj2 inertia?) or dyschezi*).tw,kw,kf. (80621)
300 (pelvic floor? adj3 (lax or laxity or laxness or loose*)).tw,kw,kf. (93)
301 ((bladder or cystic or urinary) adj3 (hernia* or prolaps* or protru* or ptos#s)).tw,kw,kf. (6129)
302 exp cystocele/ (4085)
303 (cystocele* or cystoptos#s).tw,kw,kf. (4270)
304 ((rectal* or rectum*) adj3 (hernia* or prolaps* or protru* or ptos#s)).tw,kw,kf. (8189)
305 rectocele/ (3818)
306 (rectocele* or proctocele).tw,kw,kf. (4187)
307 enterocele/ (9319)
308 enterocele*.tw,kw,kf. (1979)
309 foreign body/ and swallowing/ (1156)
310 ((foreign adj (body or bodies or item? or material? or matter or object? or particle?)) and (deglutit* or ingest* or swallow*)).tw,kw,kf. (8581)
311 or/175-310 [GI CONDITIONS] (5121535)
312 diagnostic imaging/ (271297)
313 (diagnos* adj3 (image? or imaging)).tw,kw,kf. (127679)
314 (x-ray* or xray*).tw,kw,kf. (919095)
315 computer assisted tomography/ (819873)
316 computer assisted diagnosis/ (66711)
317 exp three-dimensional imaging/ (204175)
318 ((3D or 3-D or 3-dimension* or three dimension*) adj (image? or imaging)).tw,kw,kf. (45803)
319 exp echography/ (1383999)
320 (ultrasound* or ultrasonograph* or ultra-sonograph* or ultrasonic* or ultra-sonic*).tw,kw,kf. (1061130)
321 (echograph* or echo-graph* or echotomograph* or echo-tomograph* or echosonograph* or echo sonograph*).tw,kw,kf. (25787)
322 exp radiography/ (2566489)
323 (radiograph* or radiographic imag* or roentgenograph* or roentgeno-graph*).tw,kw,kf. (606159)
324 (fluoroscop* or fluoro-scop*).tw,kw,kf. (85686)
325 exp scintiscanning/ (207329)
326 ((radionuclide* adj2 imag*) or (radio-nuclide* adj2 imag*) or (radionuclide* adj2 scan*) or (radio-nuclide* adj2 scan*) or (radioisotope* adj2 imag*) or (radio-isotope* adj2 imag*) or (radioisotope* adj2 scan*) or (radio-isotope* adj2 scan*) or scintigra* or scinti-gra* or scintiphotograph* or scinti-photograph*).tw,kw,kf. (142775)
327 exp tomography/ (3175278)
328 (tomograph* or tomo-graph*).tw,kw,kf. (1114888)

329 (CAT scan* or CT scan* or PET scan* or PET imag* or PT scan* or PT imag*).tw,kw,kf. (379035)
330 (SPECTCT or SPECT CT or "SPECT/CT").tw,kw,kf. (16404)
331 (magnetic resonance imag* or MRI or MRIs or fMRI or fMRIs or NMR imag* or chemical shift imag* or magneti#ation transfer contrast imag* or spin echo imag* or zeugmatograph* or zeugmato-graph*).tw,kw,kf. (1201470)
332 (cineradiograph* or cine-radiograph* or cinefluorograph* or cine-fluorograph* or radiocinematograph* or radio-cinematograph*).tw,kw,kf. (4227)
333 nuclear medicine/ (43800)
334 ((nuclear or atomic) adj1 medicine?).tw,kw,kf. (45436)
335 (nuclear adj1 radiolog*).tw,kw,kf. (1196)
336 (sialogra* or salivogra* or sialoscintigra* or sialo-scintigra*).tw,kw,kf. (3310)
337 (enteroclys* or enterogra*).tw,kw,kf. (5958)
338 (esophagra* or oesophagra* or esophagogra* or oesophagogra*).tw,kw,kf. (6926)
339 ((CT or virtual) adj (colonograph* or colonoscop*)).tw,kw,kf. (5193)
340 (contrast adj (study or studies or medium)).tw,kw,kf. (46236)
341 (cholangiopancreatogra* or cholangio-pancreatogra* or ERCP or MRCP).tw,kw,kf. (53793)
342 cholecystogra*.tw,kw,kf. (5483)
343 or/312-342 [IMAGING] (7781346)
344 311 and 343 [GI CONDITIONS - IMAGING] (848269)
345 exp animal/ or exp animal experimentation/ or exp animal model/ or exp animal experiment/ or nonhuman/ or exp vertebrate/ (58028869)
346 exp human/ or exp human experimentation/ or exp human experiment/ (45334574)
347 345 not 346 (12696225)
348 344 not 347 [ANIMAL-ONLY REMOVED] (818470)
349 conference abstract.pt. (4379234)
350 348 not 349 [CONFERENCE ABSTRACTS REMOVED] (688754)
351 case report/ or exp case study/ (5177852)
352 350 not 351 [CASE REPORTS REMOVED] (414000)
353 (editorial or letter).pt. or directory/ (3738971)
354 352 not 353 [OPINION PIECES, DIRECTORIES REMOVED] (399505)
355 exp practice guideline/ (670631)
356 (consensus or guideline* or guidance? or standards or recommendation*).ti,kw,kf. (510183)
357 (expert consensus or consensus statement* or consensus conference* or clinical guideline? or practice guideline? or treatment guideline? or practice parameter* or position statement* or policy statement* or CPG or CPGs).tw,kw,kf. (286634)
358 or/355-357 [GUIDELINE FILTER] (1206493)
359 354 and 358 [GI - IMAGING - GUIDELINES] (11575)
360 limit 359 to yr="2016-current" (5143)
361 360 use emczd [EMBASE RECORDS] (4218)
362 174 or 361 [BOTH DATABASES] (6642)
363 limit 362 to yr="2020-current" (2788)
364 remove duplicates from 363 (2395)
365 362 not 363 (3854)
366 remove duplicates from 365 (3259)
367 364 or 366 [TOTAL UNIQUE RECORDS] (5654)
368 367 use medall [MEDLINE UNIQUE RECORDS] (2417)
369 367 use emczd [EMBASE UNIQUE RECORDS] (3237)

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APPENDIX 2. EVIDENCE TABLES

Table GI01. Dysphagia/Dyspepsia

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: Barium swallow; CT: computed tomography; NM: nuclear medicine: UGI: upper gastrointestinal series; US: ultrasound	
CAR 2012 [18]	**G01. DIFFICULTY IN SWALLOWING: HIGH DYSPHAGIA (LESION MAY BE HIGH OR LOW)** - Ba esophagogram: Indicated [B]: Ba esophagogram is the best investigative modality for diagnosing motility disorders. It is also useful for demonstrating webs and pouches and may show subtle strictures not seen at endoscopy. **G02. DIFFICULTY IN SWALLOWING: LOW DYSPHAGIA (LESION WILL BE LOW)** - Ba esophagogram: Indicated only in specific circumstances [B]: Endoscopy should be performed initially. Ba esophagogram should only be performed if endoscopy normal used to demonstrate a motility disorder or a subtle stricture. **G03. HEARTBURN/CHEST PAIN: HIATUS HERNIA OR REFLUX** - Ba esophagogram/UGI: Indicated only in specific circumstances [B]: Reflux is common and can usually be diagnosed clinically. Investigation is only indicated when medical therapy fails. pH monitoring is the gold standard for the diagnosis of reflux, but endoscopy will show early changes of reflux esophagitis and allow biopsy of metaplasia. Ba esophagogram may be ordered by a surgeon to assess esophageal motility prior to anti-reflux surgery. **G06. DYSPEPSIA IN THE YOUNGER PATIENT (E.G., <45 YEARS)** - Ba studies: Indicated only in specific circumstances [B]: Most patients < 45 years should be treated without investigations, and if symptoms recur or persist, the Helicobacter pylori status should be assessed. Diagnostic investigation is indicated if there are symptoms such as weight loss, anorexia, iron deficiency anemia, severe pain or non-steroid anti- inflammatory drug use, and endoscopy is the investigation of choice. Ba studies can be used to demonstrate a motility disorder or a subtle stricture, if endoscopy normal. - NM: Indicated only in special circumstances [B]: Useful in stable patients when surgery and/or angiography are not indicated to determine the origin/intensity of bleeding. **G07. DYSPEPSIA IN THE OLDER PATIENT (E.G., > 45 YEARS)** - Ba studies: Indicated only in specific circumstances [B]: Endoscopy should be the initial investigation to facilitate the early detection of cancer. If endoscopy is negative and symptoms persist, then Ba studies should be considered to rule out an unrecognized cancer or a motility disorder. - NM: Indicated [B]: Gastric emptying with a solid meal can establish the diagnosis of gastroparesis particularly in patients with diabetes. **G10. PREVIOUS UPPER GI SURGERY (NOT RECENT): DYSPEPTIC, DYSMOTILITY, OBSTRUCTIVE SYMPTOMS** - Contrast/ Upper GI studies: Indicated only in specific circumstances [B]: Contrast studies can be useful to rule out obstructions, but intrinsic abnormalities of the gastric remnant, such as ulceration or recurrent tumour, are best assessed by endoscopy. - CT with oral contrast: Specialized investigation [B]: CT accurately delineates the surgical anatomy and may demonstrate disease extrinsic to the lumen.
ACG/CAG 2017 [19]	**Management of Dyspepsia**

Appendix 2. Evidence Tables

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: Barium swallow; CT: computed tomography; NM: nuclear medicine: UGI: upper gastrointestinal series; US: ultrasound	
Moderate quality	**Note:** Recommendations are more around endoscopy for esophageal cancer among those with dyspepsia.
ACR 2019: Dysphagia [20] Moderate quality	▪ Variant 1. Oropharyngeal dysphagia with an attributable cause. Initial imaging. ▪ Variant 2. Unexplained oropharyngeal dysphagia. Initial imaging. ▪ Variant 3. Retrosternal dysphagia in immunocompetent patients. Initial imaging. ▪ Variant 4. Retrosternal dysphagia in immunocompromised patients. Initial imaging.
ACR 2021: Epigastric Pain [21] Moderate quality	▪ Variant 3. Epigastric pain with clinical suspicion for hiatal hernia. Initial imaging.
CAG guideline 2018 [22] Moderate quality	- Statement 3.1: Barium esophagram (GRADE: Strong recommendation, very low-quality evidence) - Statement 3.2: Barium esophagram (GRADE: Strong recommendation, very low-quality evidence) - Statement 3.3: Barium esophagram (GRADE: Strong recommendation, very low-quality evidence)
ISDE 2018 [23] High quality	- Statement 3: Timed barium swallow (Conditional recommendation; GRADE low)
KSNM/ANMA 2020 [24] High quality	- Statement 6: Barium esophagography (Level of evidence: Low; Strength of recommendation: Strong) - Statement 7: Timed barium esophagography (Level of evidence: Low; Strength of recommendation: Strong)
RCR 2017 [25] High quality	**G01. Difficulty in swallowing: high (oropharyngeal) dysphagia** - Barium swallow [B] - Video fluoroscopy [B] **G02. Difficulty in swallowing: low dysphagia** - Barium swallow [B] - NM (seek local advice) [B] - CT [C] **G03. Heartburn/chest pain: hiatus hernia or reflux** - Barium swallow/meal [B] **G06. Dyspepsia** - Barium studies [B] - US [B]
UEG/ESNM 2020 [26] High quality	- Recommendation 1.3: Barium esophagram (Strength: Conditional, Certainty of evidence: Moderate) - Recommendation 1.6: CT; Endoscopic US (Strength: Conditional, Certainty of evidence: Low)

Abbreviations: ACG: American College of Gastroenterology; ACR: American College of Radiology; ANMA: Asian Neurogastroenterology and Motility Association; ASGE: American Society for Gastrointestinal Endoscopy; CAG: Canadian Association of Gastroenterology; CAR: Canadian Association of Radiologists; ESNM: European Society of Neurogastroenterology and Motility; ISDE: International Society for Esophageal Diseases; KSNM: Korean Society of Neurogastroenterology and Motility; RCR: Royal College of Radiologists; UEG: United European Gastroenterology

Table GI02. Acute nonlocalized abdominal pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; MRI: magnetic resonance imaging; US: ultrasound; XR: radiograph	
CAR 2012 [18]	**G12. ACUTE ABDOMINAL PAIN: PERFORATION/OBSTRUCTION SUSPECTED (for children see L54-L55) (see also G14, G21)** - CT: Indicated [B]: CT is the most sensitive and specific imaging modality to assess a perforation of a hollow viscus. It also adequately identifies small sealed perforations and establishes the site and cause of obstruction. *This recommendation applies only to adults.* - Abdominal XR and Chest XR erect: Indicated [B]: Indicated if CT is not available. If an erect examination cannot be performed a left lateral decubitus abdominal XR should be obtained to show free intraperitoneal gas. - US: Indicated [C]: Can be used following abdominal XR. It is sensitive for free fluid in perforation and is useful in children. **G13. SMALL BOWEL OBSTRUCTION: ACUTE (see also G21)** - Abdominal XR: Indicated [B]: Often the first line investigation to detect the presence of obstruction. - CT: Indicated [A]: CT is the best imaging modality for diagnosing acute small bowel obstruction. It indicates the level and may show cause. - Contrast studies: Indicated only in special circumstances [B]: May be helpful if CT is unavailable or contraindicated. **G17. LARGE BOWEL OBSTRUCTION: ACUTE** - Abdominal XR: Indicated [B]: May be used as an initial examination to help establish the diagnosis and to indicate the likely level. - CT: Specialized investigation [B]: May be ordered by a specialist as an alternative to a contrast enema, particularly in sick and very frail patients. - Contrast enema: Not indicated initially [B]: May consider for problem solving if CT is not available or equivocal. **G20. ACUTE ABDOMINAL PAIN REQUIRING SURGICAL EVALUATION (for children see L54) (see also G12-G15, G30-G32)** - Abdominal XR: Indicated [B]: Useful as an initial investigation if obstruction or perforation is suspected, particularly if CT or US is unavailable. - CT: Indicated [B]: CT is the most comprehensive imaging modality. - US: Indicated [A]: US is the most appropriate imaging modality for the diagnosis of cholelithiasis and acute gynecological emergencies.
ACPGBI 2021 [27] Moderate quality	- Question 2.1 recommendation: Contrast-enhanced CT scan; Plain abdominal radiograph (Level of evidence: III, Grade of recommendation: B) - Question 4.3 recommendation: Multiphase CT (Level of evidence: III, Grade of recommendation: B) - Question 4.4 recommendation: Diagnostic laparoscopy; Limited flexible sigmoidoscopy (Level of evidence: IV, Grade of recommendation: D) - Question 5.2 recommendation: Contrast-enhanced abdominal/pelvic CT (Level of evidence: IV, Grade of recommendation: GP) - Question 5.7 recommendation: CT with intravenous contrast (Level of evidence: IV Grade of recommendation: D) - Question 11.1 recommendation: US; MRI; CT (Level of evidence: III Grade of recommendation: B)
ACR 2018:	▪ Variant 1. Suspected acute mesenteric ischemia. Initial imaging.

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; MRI: magnetic resonance imaging; US: ultrasound; XR: radiograph	
Mesenteric Ischemia [28] Moderate quality	
ACR 2020: Suspected Small-Bowel Obstruction [29] Moderate quality	▪ Variant 1. Suspected small-bowel obstruction. Acute presentation. Initial imaging. ▪ Variant 2. Suspected intermittent or low-grade small-bowel obstruction. Indolent presentation.
ACR 2018: Acute Nonlocalized Abdominal Pain [30] Moderate quality	▪ Variant 1. Acute nonlocalized abdominal pain and fever. No recent surgery. Initial imaging. ▪ Variant 3. Acute nonlocalized abdominal pain. Neutropenic patient. Initial imaging. ▪ Variant 4. Acute nonlocalized abdominal pain. Not otherwise specified. Initial imaging.
RCR 2017 [25] High quality	**G11. Acute small bowel obstruction: confirmation and assessment of level** - CT [B] - Abdominal XR [C] - Contrast studies [B] **G12. Small bowel obstruction: low grade/ intermittent** - CT (including CT enterography) [B] - Contrast studies (small bowel meal/ barium enteroclysis) [B] - MRI (including MR enterography) [B] **G14. Acute abdomen with suspected bowel obstruction** - CT [B] - Abdominal XR [B] - Contrast enema [B] **G17. Acute abdominal pain warranting hospital admission for consideration of surgery** - US/CT [C]/[B] - Chest XR erect +/- Abdominal XR [C] - MRI [B]

Abbreviations: ACPGBI: Association of Coloproctology of Great Britain and Ireland; ACR: American College of Radiology; CAR: Canadian Association of Radiologists; RCR: Royal College of Radiologists

GI03. Acute localized abdominal pain

Table GI03A. Epigastric pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACR 2021: Epigastric Pain [21] Moderate quality	▪ Variant 1. Epigastric pain with clinical suspicion for acid reflux or esophagitis or gastritis or peptic ulcer or duodenal ulcer. Initial imaging.

Abbreviations: ACR: American College of Radiology; CAR: Canadian Association of Radiologists

Table GI03B. Right Upper Quadrant pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; ERCP: endoscopic retrograde cholangiopancreatography; MRCP: magnetic resonance cholangiopancreatography; NM: nuclear medicine; US: ultrasound	
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACR 2019: Right Upper Quadrant Pain [31] Moderate quality	▪ Variant 1. Right upper quadrant pain. Suspected biliary disease. Initial imaging. ▪ Variant 2. Right upper quadrant pain. No fever or high white blood cell (WBC) count. Suspected biliary disease. Negative or equivocal ultrasound.
BSG/UK-PSC 2019 [32] High quality	- Recommendation 2: MRCP; ERCP (Strength of recommendation: STRONG; Quality of evidence: HIGH). - Recommendation 11: MRCP; Dynamic liver MRI and/or contrast CT (Strength of recommendation: STRONG; Quality of evidence: MODERATE). - Recommendation 12: ERCP (Strength of recommendation: STRONG; Quality of evidence: MODERATE)
EASL 2017 [33] Moderate quality	- Recommendation 2: US (III, 1) - Recommendation 4: MRCP; Endoscopic US (III, 1)
ESGE/EASL 2017 [34] Moderate quality	- Recommendation 1: Magnetic resonance cholangiography; ERCP (Moderate quality evidence, strong recommendation) - Recommendation 2: ERCP; MRC plus liver biopsy (Low quality evidence, weak recommendation) - Recommendation 3: Endoscopic techniques (Weak recommendation, low quality evidence)
ESTES 2019 [35] Moderate quality	- Question 1: US (LOE: High) - Question 1.1: Doppler (LOE: Low) - Question 1.2: Contrast-enhanced US (LOE: Low) - Question 2: Sonographic Murphy sign (LOE: Moderate) - Question 4: US (LOE: Moderate)
RCR 2017 [25] High quality	**G24. Biliary pain: suspected gall bladder disease or post-cholecystectomy pain** - US [B] - CT [B] - Endoscopic US [B] - MRCP [B] - ERCP [B] - NM (Tc-99m.IDA study) [B] - Abdominal XR [C]

Abbreviations: ACR: American College of Radiology; BSG: British Society of Gastroenterology; CAR: Canadian Association of Radiologists; EASL: European Association for the Study of the Liver; ESGE: European Society of Gastrointestinal Endoscopy; ESTES: European Society for Trauma and Emergency Surgery; RCR: Royal College of Radiologists; UK-PSG: United Kingdom Primary Sclerosing Cholangitis

Table GI03C. Right Lower Quadrant pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; IV: intravenous; MRI: magnetic resonance imaging; US: ultrasound	
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACR 2018: Right Lower Quadrant Pain-Suspected Appendicitis [36] Moderate quality	▪ Variant 1. Right lower quadrant pain, fever, leukocytosis. Suspected appendicitis. Initial imaging. ▪ Variant 2. Right lower quadrant pain, fever, leukocytosis. Possible appendicitis. Atypical presentation. Initial imaging. ▪ Variant 3. Pregnant woman. Right lower quadrant pain, fever, leukocytosis. Suspected appendicitis. Initial imaging.
EAES 2021 [37] High quality	- CT in elderly patients (Weak recommendation)
SFCD/SIAD [38] Moderate quality	- Combined analysis of clinical and laboratory data (grade B) - Diagnostic performance of radiological imaging: Abdominal US; CT scan with IV contrast (grade B); If US is preferred (grade C); If US is normal or inconclusive (grade B) - In pregnant women: US; MRI without IV contrast (grade B); CT scan with IV contrast (grade C) - In obese patient: Abdomino-pelvic CT scan with injection (grade C) - In elderly patient: Abdominal-pelvic CT scan with or without IV contrast (grade C)
SPIGC 2020 [39] Moderate quality	- Acute appendicitis in infants: CT (EL 2C) - Acute appendicitis in pregnancy: US; MRI - Acute appendicitis in the elderly: US; CT
WSES 2020 [40] Moderate quality	- Recommendation 1.7: US [QoE: Moderate; Strength of recommendation: Strong; 1B] - Recommendation 1.8: Diagnostic imaging [QoE: Moderate; Strength of recommendation: Weak; 2B] - Recommendation 1.9: Cross-sectional imaging (i.e., CT scan) [QoE: Moderate; Strength of recommendation: Weak; 2B] - Recommendation 1.10: Point-of-care Ultrasound (POCUS) [QoE: Moderate; Strength of recommendation: Strong; 1B] - Recommendation 1.11: Contrast-enhanced low-dose CT scan [QoE: High; Strength of recommendation: Strong; 1A] - Recommendation 1.13.1: Graded compression trans-abdominal US [QoE: Very Low; Strength of Recommendation: Weak; 2C] - Recommendation 1.13.2: MRI [QoE: Moderate; Strength of recommendation: Weak; 2B]

Abbreviations: ACR: American College of Radiology; CAR: Canadian Association of Radiologists; EAES: European Association for Endoscopic Surgery; SFCD: Société français de chirurgie digestive; SIAD: Société d'imagerie abdominale et digestive; SPIGC: Italian Polispecialistic Society of Young Surgeons; WSES: World Society of Emergency Surgery

Table GI03D. Left Upper Quadrant pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACR 2021: Epigastric Pain [21] Moderate quality	▪ Variant 1. Epigastric pain with clinical suspicion for acid reflux or esophagitis or gastric or peptic ulcer or duodenal ulcer. Initial imaging.

Abbreviations: ACR: American College of Radiology; CAR: Canadian Association of Radiologists

Table GI03E. Left Lower Quadrant pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; MRI: magnetic resonance imaging; US: ultrasound	
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACP 2022 [41] Moderate quality	- Recommendation 1: Abdominal CT (conditional recommendation; low-certainty evidence)
ACR 2019: Left Lower Quadrant Pain-Suspected Diverticulitis [42] Moderate quality	▪ Variant 1. Left lower quadrant pain. Suspected diverticulitis. Initial imaging.
ACPGBI 2021 [27] Moderate quality	- Question 1.3 recommendation: Contrast-enhanced CT (Level of evidence: I, Grade of recommendation: B)
AMG 2019 [43] Moderate quality	- Recommendation 20: Multi-slice CT (Quality of evidence: A, Strength of the recommendation: 1, Strong)
EAES/SAGES 2019 [44] High quality	- Q2.2 (last statement): CT; US (LoE: high. Strength of recommendation: strong)
ESCP 2020 [45] Moderate quality	- Recommendation 1.1.5: Cross-sectional imaging and laboratory tests (Evidence level 4) - Recommendation 2.2.1: Imaging (Evidence level 2, Strong recommendation) - Recommendation 2.3.1: CT; US; MRI (Evidence level 2, Strong recommendation)
ICDDD 2020 [46] Moderate quality	- Recommendation 3.4: Contrast-enhanced CT (EL 1b; GR: A) - Recommendation 3.5: US; CT (EL: 1a; GR: A) - Recommendation 3.8: US (EL: 4; GR: C)
JGA 2019 [47] High quality	- CQ9: Contrast-enhanced CT (Quality of evidence: C Strength of recommendation: Probably do it) - CQ28: Imaging test (CT or US) (Quality of evidence: C Strength of recommendation: Do it) - CQ29: CT (Quality of evidence: C Strength of recommendation: Do it)

Abbreviations: ACP: American College of Physicians; ACPGBI: Association of Coloproctology of Great Britain and Ireland; ACR: American College of Radiology; AMG: Asociación Mexicana de Gastroenterología; CAR: Canadian Association of Radiologist; EAES: European Association for Endoscopic Surgery; ESCP: European Society of Coloproctology; ICDDD: International Consensus on Diverticulosis and Diverticular Disease; JGA: Japan Gastroenterological Association; SAGES: Society of American Gastrointestinal and Endoscopic Surgeons

Table GI04. Chronic abdominal pain

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: Barium swallow; CT: computed tomography; US: ultrasound	
CAR 2012 [18]	**G14. SMALL BOWEL OBSTRUCTION: CHRONIC OR RECURRENT (see also G13, G14, G21)** - CT: Indicated [A]: CT will be as diagnostic as a small bowel enema, but may be a better guide to management in complex cases, e.g. in patients with a previous malignancy or following complicated abdominal surgery. - Ba small bowel enema/enteroclysis: Indicated [B]: Indicted if CT is unavailable or contraindicated. Will confirm the presence and the level of obstruction in most cases and may suggest a cause.
ACR 2018: Mesenteric Ischemia [28] Moderate quality	▪ Variant 2. Suspected chronic mesenteric ischemia. Initial imaging.
Joint European Guideline 2020 [48] High quality	- Recommendation 3: Abdominal imaging (CT scan/MRI scan) (GRADE 1D) - Recommendation 10: CT angiography (GRADE 1C) - Recommendation 11: Contrast-enhanced MR angiography (GRADE 1C) - Recommendation 12: Duplex US; CT angiography; MR angiography (GRADE 2C) - Recommendation 13: Angiography (GRADE 1C) - Recommendation 15b: GI endoscopy (GRADE 1C)
JSGE 2021 [49] High quality	- CQ2-2: Radiography (Strong recommendation, Evidence level B)
NICE 2017: IBS [50] High quality	- 1.1.2.2: Ultrasound; Rigid/flexible sigmoidoscopy; Colonoscopy; barium enema
SVS 2021 [51] Moderate quality	- Recommendation 1: Abdominal CT; Abdominal US (Level of recommendation: Grade 1 (Strong), Quality of Evidence: B (Moderate)) - Recommendation 3: Mesenteric duplex US (Level of recommendation: Grade 1 (Strong), Quality of Evidence: B (Moderate)) - Recommendation 4: CT arteriography (Level of recommendation: Grade 1 (Strong), Quality of Evidence: B (Moderate))

Abbreviations: ACR: American College of Radiology; CAR: Canadian Association of Radiologists; IBS: Irritable Bowel Syndrome; JSGE: Japanese Society of Gastroenterology; NICE: National Institute for Health and Clinical Excellence; SVS: Society for Vascular Surgery

Table GI05. Inflammatory bowel disease

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: Barium swallow; CT: computed tomography; MR: magnetic resonance; MRI: magnetic resonance imaging; NM: nuclear medicine; US: ultrasound; XR: radiograph	
CAR 2012 [18]	**G15. SUSPECTED SMALL BOWEL DISEASE (CROHN'S DISEASE)** - CT: Indicated [A]: CT, where available, is indicated as the investigation of choice. - US: Specialized investigation [B]: US can be helpful in assessing the bowel in children and young patients with lean body habitus. - MRI: Specialized investigation [B]: May be ordered by a specialist to help in the assessment of disease activity or to assess extramural complications, particularly in young patients to avoid the radiation burden. - Ba small bowel follow-through: Indicated [B]: If CT is unavailable or contraindicated this can be used for the diagnosis of small bowel disease, including Crohn's disease. - Ba small bowel enema: Indicated [B]: This technique is more effective than a small bowel follow through in establishing the extent of disease prior to surgery, in diagnosing a fistula, and in determining the cause of obstructive symptoms in patients with known Crohn's disease. **G18. INFLAMMATORY BOWEL DISEASE OF THE COLON: ACUTE EXACERBATION** - Abdominal XR: Indicated [B]: This is a useful initial examination and may be sufficient to determine disease severity and extent. - CT: Indicated [A]: This is the preferred modality to diagnose complications of inflammatory bowel disease of the colon. Endoscopy is the method of choice for diagnosis. - MRI: Specialized investigation [B]: MRI is preferable to CT in young patients. It may also be ordered by a specialist to guide surgical management of patients with anorectal sepsis.
ACG 2018 [52] Moderate quality	- Recommendation 30: Small bowel imaging (Summary statement, no evidence) - Recommendation 31: CT enterography; MR enterography (Summary statement, no evidence) - Recommendation 32: MR enterography (Summary statement, no evidence) - Recommendation 33: Small bowel imaging (Summary statement, no evidence) - Recommendation 34: MRI of the pelvis; Endoscopic US (Summary statement, no evidence)
ACR 2020: Crohn Disease [53] Moderate quality	▪ Variant 1. Suspected Crohn disease, no prior Crohn diagnosis. Initial imaging.
DGVS 2019 [54] High quality	- Recommendation 2.6: Diagnosis of ulcerative colitis (Expert consensus, strong recommendation, consensus) - Recommendation 2.17: MRI of the small bowel; Abdominal sonography (Expert consensus, recommendation, strong consensus) - Recommendation 2.18: High-resolution abdominal sonography (Evidence grade 2, recommendation grade B, strong consensus)
JSGE 2021 [55] High quality	- BQ4: Imaging study - BQ9: Abdominal US; CT; MRI - BQ11: Radiographic and other imaging studies; US; CT; MRI
PSG/PNCG 2021 [56] Moderate quality	- Recommendation 1: Radiological investigations (Evidence: low; recommendation: strong) - Recommendation 3: MRI enterography or enteroclysis; CT (Evidence: moderate; recommendation: strong) - Recommendation 5: MRI; Transrectal US (Evidence: moderate; recommendation: strong)

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: Barium swallow; CT: computed tomography; MR: magnetic resonance; MRI: magnetic resonance imaging; NM: nuclear medicine; US: ultrasound; XR: radiograph	
RCR 2017 [25] High quality	**G13. Suspected small bowel disease (Crohn's disease)** - US [B] - MRI [B] - CT [B] - Endoscopy and video capsule endoscopy [B] - NM (white-cell study) [B] - Barium small bowel meal/ enema [C] **G15. Inflammatory bowel disease of the colon: acute exacerbation** - AXR [B] - CT [B] - MRI [B] - US [B] - NM (white-cell study) [B] - Contrast enema [B]

Abbreviations: ACG: American College of Gastroenterology; ACR: American College of Radiology; CAR: Canadian Association of Radiologists; DGVS: German Society for Digestive and Metabolic Diseases; JSGE: Japanese Society of Gastroenterology; PNCG: Polish National Consultant in Gastroenterology; PSG: Polish Society of Gastroenterology; RCR: Royal College of Radiologists

GI06. Acute GI Bleeding

Table GI06A. Upper acute GI bleeding

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: Barium swallow; CT: computed tomography; CTA: computed tomography angiography; MR: magnetic resonance; NM: nuclear medicine; US: ultrasound; XR: radiograph	
CAR 2012 [18]	**G05. ACUTE GI BLEEDING: HEMATEMESIS/MELENA** - Ba studies: Not indicated [C]: Endoscopy is the appropriate diagnostic modality for most cases of upper GI bleeding and can be used to deliver hemostatic therapy. - Angiography: Specialized investigation [B]: In cases of uncontrollable bleeding angiography is indicated and transcatheter embolization may be used as the primary treatment. - Abdominal US: Indicated only in specific circumstances [B]: Can be used to diagnose chronic liver disease and varices. - Abdominal XR: Not indicated [B]: No diagnostic yield.
ACR 2017: Nonvariceal Upper Gastrointestinal Bleeding [57] Moderate quality	▪ Variant 1. Endoscopy reveals nonvariceal upper gastrointestinal arterial bleeding source. ▪ Variant 2. Endoscopy confirms nonvariceal upper gastrointestinal bleeding without a clear source. ▪ Variant 3. Nonvariceal upper gastrointestinal bleeding; negative endoscopy.
ASGE 2017 [58] Moderate quality	- Recommendation 6: Multiphase CT enterography; MR enterography (+++O) - Recommendation 8: CT angiogram; Technetium 99m-labeled red blood cell (RBC) scintigraphy (++OO)
RCR 2017 [25]	**G05. Acute upper GI bleeding: haematemesis/ melaena** - Endoscopy [A] - CT and CTA [B] - NM (labelled red cells) [B] - Angiography [B] - Abdominal US [B] - Abdominal XR [B] - Barium studies [C]

Abbreviations: ACR: American College of Radiology; ASGE: American Society for Gastrointestinal Endoscopy; CAR: Canadian Association of Radiologists; RCR: Royal College of Radiologists

Table GI06B. Lower acute GI bleeding

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography	
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACPGBI 2020 [27] Moderate quality	- Question 2.15: CT angiography (Level of evidence: III, Grade of recommendation: B)
ACR 2021: Radiologic Management of Lower GI Tract Bleeding [59] Moderate quality	▪ Variant 1. Lower gastrointestinal tract bleeding. Active bleeding clinically observed as hematochezia or melena in a hemodynamically stable patient. Next step. ▪ Variant 2. Lower gastrointestinal tract bleeding. Active bleeding in a hemodynamically unstable patient or a patient who has required more than 5 units of blood within 24 hours. Next step.
BSG 2019 [60] Moderate quality	- Recommendation 4: CT angiography (strong recommendation, low quality evidence)
ESGE 2021 [61] Moderate quality	- 5.4: CT angiography (Strong recommendation, low quality of evidence) - 6.1: CT angiography; Red blood cell scintigraphy (Strong recommendation, low quality of evidence)
ICDDD [46] Moderate quality	- 3.9: Angiography [EL: 2a; GR: B]
JGA 2019 [47] High quality	- CQ9: Contrast enhance-CT (Quality of evidence: C)

Abbreviations: ACPGBI: Association of Coloproctology of Great Britain and Ireland; ACR: American College of Radiology; BSG: British Society of Gastroenterology; CAR: Canadian Association of Radiologists; ESGE: European Society of Gastrointestinal Endoscopy; GI: gastrointestinal; ICDDD: International Consensus on Diverticulosis and Diverticular Disease; JGA: Japan Gastroenterological Association

Table GI07. Chronic GI Bleeding/Anemia

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
Ba: barium swallow; CT: computed tomography; MR: magnetic resonance; MRI: magnetic resonance imaging; NM: nuclear medicine; US: ultrasound	
CAR 2012 [18]	**G11. INTESTINAL BLOOD LOSS: CHRONIC OR RECURRENT** - Ba studies: Not indicated initially [B]: The initial investigation should be endoscopy. Small bowel follow-through does not reliably detect lesions likely to cause chronic bleeding and should not be used. - CT: Indicated [B]: CT may be ordered by a specialist to look for lesions such as tumours or bowel angiodysplasia in select cases. - Ba small bowel enema/enteroclysis: Indicated [B]: More sensitive than Ba follow-through for small discrete lesions. However, 'capsule' endoscopy is becoming the investigation of choice in chronic bleeding if it is available. - NM: Indicated [B]: When all other investigations are negative, labeled red cell and/or Meckel's study may be useful in detecting and localizing the site of chronic and/or recurrent bleeding. - Angiography: Specialized investigation [B]: Angiography may be ordered by a specialist to diagnose angiodysplasia.
AIGO/SIGENP 2019 [62] Moderate quality	- Panel recommendations 5.1: • Cross-sectional imaging (such as MR and CT) (strong recommendation, moderate level of evidence) • CT enterography; MR enterography (strong recommendation, moderate level of evidence) • 5.1: MR enterography (strong recommendation, low level of evidence)
RCR 2017 [25] High quality	**G10. Intestinal blood loss: chronic or recurrent** - Endoscopy/ video capsule endoscopy [B] - CT [B] - MRI (enterography) [B] - Barium small bowel enema/ Barium meal/ Barium enema [B] - NM (red-cell or Meckel's study) [B] - Angiography

Abbreviations: AIGO: Italian Association of Hospital Gastroenterologists and Endoscopists; CAR: Canadian Association of Radiologists; RCR: Royal College of Radiologists; SIGENP: Italian Society of Paediatric Gastroenterology Hepatology and Nutrition

GI08. Abnormal liver biochemistry

Table GI08A. Acute abnormal liver biochemistry

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; ERCP: endoscopic retrograde cholangiopancreatography; MRCP: magnetic resonance cholangiopancreatography; MRI: magnetic resonance imaging; NM: nuclear medicine; US: ultrasound	
CAR 2012 [18]	**G27. JAUNDICE (for children see L65)** - US: Indicated [B]: US is the appropriate imaging modality for differentiating between obstructive and non- obstructive jaundice. If obstructive jaundice is diagnosed, further investigation will depend on the level and suspected cause of the obstruction, and should be planned in consultation with a radiologist. ERCP is the most accurate method for detection of small duct stones and small papillary or peri-ampullary tumours. It allows biopsy of pancreas without risk of tumor seeding. - CT: Specialized investigation [B]: CT may be ordered by a specialist following US, particularly if the level of obstruction is below the hilum. It is particularly useful for detecting and staging peri-ampullary malignancies. - MRI, including MRCP: Specialized investigation [B]: If US shows obstruction at the level of the hilum or above, MRCP (magnetic resonance cholangiopancreatography) is now the investigation of choice if further imaging is indicated. **G28. BILIARY DISEASE (e.g., gallstones) (see also G21)** - US: Indicated [B]: US is the best imaging modality for the demonstration or exclusion of gallstones and acute cholecystitis. It is the appropriate initial investigation for biliary pain but cannot reliably exclude common duct stones. Cholecystography has been replaced by ultrasound in the investigation of biliary disease. - CT: Specialized investigation [B]: CT has a limited role in assessing cholelithiasis. CT may be ordered by a specialist for the evaluation of gallbladder wall and gallbladder masses. - MRCP: Specialized investigation [B]: May be ordered by a specialist to assess possible duct calculi not confirmed by US, and in the investigation of post-cholecystectomy pain. - NM: Indicated [B]: Biliary scintigraphy shows cystic duct obstruction in acute cholecystitis, chronic cholecystitis, CBD obstruction, gallbladder and sphincter of Oddi dysfunction.
ACR 2019: Jaundice [63] Moderate quality	▪ Variant 1. Jaundice. No known predisposing conditions. Initial imaging. ▪ Variant 2. Jaundice. Suspected mechanical obstruction based on initial imaging, clinical condition, or laboratory values. ▪ Variant 3. Jaundice. Suspected medical, metabolic, or functional etiologies based on initial imaging, clinical condition, or laboratory values. No suspected mechanical obstruction.
ASGE 2019 [64] High quality	- Question 1 recommendation: Endoscopic US; MRCP (conditional recommendation, low quality of evidence).
RCR 2017 [25] High quality	**G23 Jaundice** - US [B] - CT [B] - MRI, including MRCP [B] - ERCP [B]

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; ERCP: endoscopic retrograde cholangiopancreatography; MRCP: magnetic resonance cholangiopancreatography; MRI: magnetic resonance imaging; NM: nuclear medicine; US: ultrasound	
	- Endoscopic US [B] - Percutaneous transhepatic cholangiogram [B]

Abbreviations: ACR: American College of Radiology; ASGE: American Society for Gastrointestinal Endoscopy; CAR: Canadian Association of Radiologists; RCR: Royal College of Radiologists

Table GI08B. Chronic abnormal liver biochemistry

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; MRI: magnetic resonance imaging; US: ultrasound	
CAR 2012 [18]	**G26. KNOWN CIRRHOSIS, COMPLICATIONS** - US: Indicated [B]: US is very sensitive for ascites. It may show evidence of portal hypertension and is the initial screening test hepatoma. - MRI: Specialized investigation [B]: MR may be ordered by a specialist for the diagnosis of hepatoma and for treatment planning. - CT: Specialized investigation [B]: If MRI is unavailable or contraindicated, CT may be used for the diagnosis of hepatoma.
ACR 2020: Chronic Liver Disease [65] Moderate quality	▪ Variant 1. Chronic liver disease. Diagnosis and staging of liver fibrosis. Initial imaging.

Abbreviations: ACR: American College of Radiology; CAR: Canadian Association of Radiologists

GI09. Pancreatitis

Table GI09A. Acute pancreatitis

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; ERCP: endoscopic retrograde cholangiopancreatography; MRCP: magnetic resonance cholangiopancreatography; MRI: magnetic resonance imaging; XR: radiograph; US: ultrasound	
CAR 2012 [18]	**G31. PANCREATITIS: ACUTE (see also G21)** - Abdominal XR: Indicated only in specific circumstances [C]: Abdominal XR is only indicated to exclude other causes of abdominal pain if laboratory test are not available to confirm the diagnosis. - US: Indicated [B]: US is indicated to identify patients with gallstones, indicating a diagnosis of gallstone pancreatitis. It can also be used to monitor pseudocysts. - CT: Indicated [B]: CT is indicated in severe cases to assess the extent of necrosis, and to detect and monitor complications such as pseudocysts. - MRI and MRCP: Specialized investigation [B]: MRCP may be ordered by a specialist to detect choledocholithiasis not seen on US.
ACR 2019: Acute Pancreatitis [67] Moderate quality	▪ Variant 1. Suspected acute pancreatitis. First-time presentation. Epigastric pain and increased amylase and lipase. Less than 48 to 72 hours after symptom onset. Initial imaging. ▪ Variant 2. Suspected acute pancreatitis. Initial presentation with atypical signs and symptoms; Including equivocal amylase and lipase values (possibly confounded by acute kidney injury or chronic kidney disease) and when diagnoses other than pancreatitis may be possible (bowel perforation, bowel ischemia, etc). Initial imaging. ▪ Variant 4. Acute pancreatitis. Continued SIRS, severe clinical scores, leukocytosis, and fever. Greater than 7 to 21 days after onset of symptoms.
ASGE 2019 [64] High quality	- Question 2 recommendation: ERCP (Strong recommendation, Low quality of evidence)
ESGE 2019 [68] Moderate quality	- Recommendation 4.1: Abdominal US (Strong recommendation, moderate quality evidence) - Recommendation 4.2: Endoscopic US; MRCP (Strong recommendation, moderate quality evidence)
RCR 2017 [25] High quality	**G25. Pancreatitis: acute** - US (including endoscopic US) [B] - CT [B] - Abdominal XR & Chest XR [C] - MRI (including MRCP) [B] - ERCP [B]
Taiwanese Guideline 2020 [69] Moderate quality	- Statement 1: CT; MRI; US (Evidence level: 1. Recommendation: A) - Statement 2: Transabdominal US (Evidence level: 2 Recommendation: A) - Statement 3: CT; MRI (Evidence level: 2 Recommendation: B) - Statement 11: Endoscopic US; MRI/MRCP; ERCP (Evidence level: 2 Recommendation: C)

Appendix 2. Evidence Tables

Abbreviations: ACR: American College of Radiology; ASGE: American Society for Gastrointestinal Endoscopy; CAR: Canadian Association of Radiologists; ESGE: European Society of Gastrointestinal Endoscopy; RCR: Royal College of Radiologists

Table GI09B. Chronic pancreatitis

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; ERCP: endoscopic retrograde cholangiopancreatography; MRCP: magnetic resonance cholangiopancreatography; MRI: magnetic resonance imaging; US: ultrasound; XR: radiograph	
CAR 2012 [18]	**G32. PANCREATITIS: CHRONIC** - CT: Indicated [A]: CT is the best imaging modality, particularly for assessing pancreatic calcification. - US: Indicated [B]: US is also appropriate, particularly in thin patients. - ERCP/MRCP: Specialized investigation [B]: ERCP or MRCP may be ordered by a specialist to show ductal changes.
ACG 2020 [70] Moderate quality	- Recommendation 1: CT; MRI; Endoscopic US (strong recommendation, low quality of evidence) - Recommendation 2: secretin enhanced MRCP (conditional recommendation, low quality of evidence).
RCR 2017 [25] High quality	**G26. Pancreatitis: Chronic** - US (including endoscopic US) [B] - CT [B] - MRI (including MRCP) [B] - Abdominal XR [C]
UEG 2017 [71,72] High quality	- Statement 1-1: Imaging studies (including abdominal US, CT, MRCP) (GRADE 2C, strong agreement) - Statement 2-1: Endoscopic US; MRI; CT; ERCP (GRADE 1C, strong agreement) - Statement 2-2: CT; nonenhanced CT (GRADE 2C, strong agreement) - Statement 2-3: MRI/MRCP (GRADE 1C, strong agreement) - Statement 2-6: Abdominal US (GRADE 1A, strong agreement) - Statement 2-8: Contrast-enhanced US (GRADE 1C, strong agreement) - Statement 2-9: Endoscopic US (GRADE 1B, strong agreement) - Statement 2-11: Endoscopic US (GRADE 2C, strong disagreement)

Abbreviations: ACG: American College of Gastroenterology; CAR: Canadian Association of Radiologists; RCR: Royal College of Radiologists; UEG: United European Gastroenterology

Table GI10. Anorectal diseases

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines.
ACR 2021: Anorectal Disease [73] Moderate quality	▪ Variant 1. Suspected perianal disease. Abscess or fistula. Initial imaging. ▪ Variant 2. Suspected rectal fistula. Rectovesicular or rectovaginal. Initial imaging.
German Guideline 2017 [74] Moderate quality	- Symptoms and diagnosis recommendation: Imaging diagnostics (Recommendation level: point of clinical consensus Strength of consensus: strong consensus)

Abbreviations: ACR: American College of Radiology; CAR: Canadian Association of Radiologists

Table GI11. Diarrhea

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; MR: magnetic resonance; MRCP: magnetic resonance cholangiopancreatography; US: ultrasound	
CAR 2012 [18]	This scenario was not addressed in the 2012 CAR guidelines. See L69. Constipation for Pediatric recommendations.
BSG 2018 [75] High quality	Recommendations under Section 4.3. Small bowel imaging and visualization for inflammation: - MR enterography; CT (Grade of evidence level 1, Strength of recommendation strong) - US (Grade of evidence level 4, Strength of recommendation strong) Recommendations under Section 6. Malabsorption: - MR enterography (Grade of evidence level 1, Strength of recommendation strong) - Small bowel barium follow through; Barium enteroclysis (Grade of evidence level 5, Strength of recommendation strong) - MRI; CT (Grade of evidence level 2, Strength of recommendation strong) - MRI (with MRCP protocol); CT (Grade of evidence level 2, Strength of recommendation strong) Recommendations under Section 7. Surgical/structural causes of diarrhea: - Endoanal US (Grade of evidence level 3, Strength of recommendation strong) - MRI; CT (Grade of evidence level 3, Strength of recommendation strong)
IDSA 2017 [76] High quality	- Recommendation 25: Imaging (eg, US, CT, MRI) (weak, low)

Abbreviations: CAR: Canadian Association of Radiologists; BSG: British Society of Gastroenterology; IDSA: Infectious Diseases Society of America

Table GI12. Fecal incontinence

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; MRI: magnetic resonance imaging; NM: nuclear medicine; US: ultrasound; XR: radiograph	
CAR 2012 [18]	**G23. CONSTIPATION (for children see L69)** - Abdominal XR: Indicated only in specific circumstances [B]: May be useful in geriatric and psychiatric patients to show extent of fecal impaction. - Evacuation proctography: Specialized investigation [B]: May be ordered by a specialist to assess a disorder of evacuation.
RCR 2017 [25] High quality	**G20. Constipation** - Intestinal transit studies [B] - Evacuation proctography [B] - US [B] - MRI [B] - NM (seek local advice) [B] - Abdominal XR [B] **G18. Palpable abdominal or pelvic mass** - US [B] - CT [B] - MRI [B] - Abdominal XR [B]

Abbreviations: CAR: Canadian Association of Radiologists; Royal College of Radiologists

Table GI13. Foreign body ingestion

Guideline Group AGREE-II Assessment	Imaging modality addressed in guideline recommendations and/or clinical scenarios covered (Note: Recommendations are not included, except for the 2012 CAR guideline)
CT: computed tomography; XR: radiograph	
CAR 2012 [18]	**J24. SWALLOWED FOREIGN BODY** (from Trauma section) - XR: Indicated in specific circumstances [B]: XR should be performed in conjunction with direct examination of the upper pharynx where most foreign bodies lodge. XR is most useful if the swallowed foreign body is radio-opaque. - XR chest and abdomen: Indicated in specific circumstances [C]: For a suspected sharp or potentially poisonous foreign body (e.g. battery), XR should cover the aerodigestive tract from the pharynx to the rectum. - CT: Indicated in specific circumstances [C]: CT is indicated if XR is negative or if there is clinical suspicion of obstruction or perforation of a hollow viscous.
WSES 2019 [77] Moderate quality	Recommendations under "Which are the appropriate biochemical and imaging investigations?" - Neck, chest, and abdominal XR (Grade 1C) - CT (Grade 1B) - Contrast swallow (Grade 1B)

Abbreviations: CAR: Canadian Association of Radiologists; WSES: World Society of Emergency Surgery

APPENDIX 3A. GASTROINTESTINAL SYSTEM SUMMARY OF RECOMMENDATIONS (ENGLISH)

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
GI01. DYSPHAGIA/ DYSPEPSIA		
	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy is not readily available**, if the patient declines endoscopy). If imaging is required, then:	
	1. In patients with dysphagia, we suggest **fluoroscopy (esophagram or upper GI series)** as the initial imaging modality.	↑
	2. In patients with dyspepsia of unknown cause, we suggest **fluoroscopy upper GI series** as the initial imaging modality.	↑
	3. In patients with dyspepsia if there is clinical suspicion of abnormal gastric motility, we suggest **NM scintigraphy (gastric emptying)** as the initial imaging modality.	↑
	For patients with concern for gastroesophageal reflux, see GI03D. Left upper quadrant pain	
GI02. ACUTE NONLOCALIZED ABDOMINAL PAIN		
	1. In patients with suspected uncomplicated acute infectious colitis presenting with acute nonlocalized abdominal pain, we recommend **against imaging** in the absence of other concerning clinical and/or biochemical findings.	↓↓
	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:	
	2. In non-pregnant patients with acute nonlocalized abdominal pain and/or bowel obstruction, we suggest **XR** as the initial imaging modality.	↑
	↳ **2.1** If XR is equivocal and/or further investigation is required, we recommend **CT abdomen and pelvis** as the next imaging modality.	↑↑
	3. In pregnant patients with acute nonlocalized abdominal pain, we recommend **US abdomen and pelvis** as the initial imaging modality.	↑↑
	If there is clinical concern for appendicitis, see GI03C. Right lower quadrant pain.	
GI03. ACUTE LOCALIZED ABDOMINAL PAIN		
GI03A. Epigastric pain	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy it is not readily available**, if the patient declines endoscopy). If imaging is required, then:	

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
	1. In patients with epigastric pain <u>with</u> probable esophageal or gastric etiology, we suggest **fluoroscopy upper GI series** as the initial imaging modality.	↑
	↳ **1.1** If upper GI series is not available, we suggest a **CT abdomen and pelvis**.	↑
	2. In patients with epigastric pain <u>without</u> probable esophageal or gastric etiology, we suggest a **CT abdomen and pelvis** as the initial imaging modality.	↑
GI03B. Right upper quadrant pain	**1.** In patients with right upper quadrant pain (suspected hepatobiliary disease), we recommend against **XR**.	↓↓
	2. In patients with right upper quadrant pain (suspected hepatobiliary disease), we recommend **US abdomen** as the initial imaging modality.	↑↑
	↳ **2.1** If US is not available or further investigation is required, we suggest **CT abdomen and pelvis or NM (HIDA scan)** as the next imaging modality.	↑
	↳ **2.2** If US is indeterminate and the clinical/biochemical presentation is strongly suggestive of choledocolithiasis, we suggest consultation for **endoscopic US/ERCP** and/or **MRCP**.	↑
	3. In patients with right upper quadrant pain (non-hepatobiliary disease), we recommend **US abdomen** as the initial imaging modality.	EPc
	↳ **3.1** If US is indeterminate, we suggest **CT abdomen and pelvis** as the next imaging modality.	EPc
	↳ **3.2** If US and CT are not immediately available, we suggest **XR** as the initial imaging modality.	EPc
GI03C. Right lower quadrant pain	**1.** In younger patients with right lower quadrant pain, we recommend **US** as the initial imaging modality, as per ALARA principles. *ALARA "as low as reasonably achievable" principles: Time, Distance, and Shielding*	↑↑
	↳ **1.1** In non-pregnant patients, if US is negative for appendicitis or inconclusive and further imaging is required, we suggest **CT abdomen and pelvis** as the next imaging modality.	↑
	↳ **1.2** In pregnant patients, if US is inconclusive for appendicitis, we recommend **MR abdomen and pelvis** as the next imaging modality.	↑↑
	2. In older patients with right lower quadrant pain, we recommend **CT abdomen and pelvis** as the initial imaging modality.	↑↑
	For suspected gynecologic pathology, see OG08. Evaluation of acute pelvic pain of presumed gynecologic origin	
GI03D. Left upper	**1.** In patients with left upper quadrant pain (concern for reflux or ulcer), we suggest **against fluoroscopic upper GI series**.	↓

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
quadrant pain	*Fluoroscopic upper GI series may be considered in institutions with expertise in this exam for patients where endoscopy is not available, not indicated, or declined by patient.*	
	2. In patients with left upper quadrant pain (unknown etiology), we recommend **US abdomen** as the initial imaging modality.	EPc
	↳ **2.1** If US is indeterminate, we suggest **CT abdomen and pelvis** as the next imaging modality.	EPc
	↳ **2.2** If US and CT are not immediately available, we suggest **XR** as the initial imaging modality.	EPc
GI03E. Left lower quadrant pain	**1.** In patients with left lower quadrant pain (suspected diverticulitis), we recommend **CT abdomen and pelvis** as the initial imaging modality.	↑↑
	2. In patients with left lower quadrant pain (other intraabdominal cause), we recommend **XR** as the initial imaging modality.	EPc
	↳ **2.1** If XR is negative or indeterminate and further imaging is required, we suggest **CT abdomen and pelvis** as the next imaging modality.	EPc
	↳ ↳ **2.2** In younger patients or if CT is contraindicated, we suggest **US** as the next imaging modality.	EPc
	For suspected gynecologic origin, see OG08. Evaluation of acute pelvic pain of presumed gynecologic origin	
GI04. CHRONIC ABDOMINAL PAIN		
	1. In patients who meet the diagnostic criteria for irritable bowel syndrome, we recommend **against imaging** in the absence of concerning clinical and/or biochemical findings.	↓↓
	2. In patients with chronic abdominal pain, we recommend **against MRI** as an imaging modality due to limited sensitivity and specificity.	EPc
	3. In patients with chronic abdominal pain, we recommend **CT abdomen and pelvis** as the initial imaging modality.	↑↑
	↳ **3.1** If CT is unavailable, we suggest **US abdomen** as an alternative imaging modality, accepting its limited scope of assessment compared to CT.	↑
	4. In patients with chronic abdominal pain (suspected chronic mesenteric ischemia), we recommend **CTA abdomen and pelvis** as the initial imaging modality.	↑↑
GI05. INFLAMMATORY BOWEL DISEASE		
	In endoscopy-negative patients with suspected inflammatory bowel disease	
	1. In endoscopy-negative patients with suspected inflammatory bowel disease, we recommend against **fluoroscopy small bowel follow through**.	↓↓

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
	2. In younger patients with suspected inflammatory bowel disease, we recommend **MR enterography** as the initial imaging modality.	↑↑
	↳ **2.1** If MR enterography is contraindicated or unavailable, we suggest **CT enterography**.	↑
	3. In older patients with suspected inflammatory bowel disease, we recommend **CT enterography** as the initial imaging modality.	↑↑
	↳ **3.1** If CT enterography cannot be tolerated, we suggest **CT abdomen and pelvis**.	↑
	In non-obstructed patients with suspected acute exacerbation of known inflammatory bowel disease	
	4. In younger patients with suspected acute exacerbation of known inflammatory bowel disease, we recommend **MR enterography** as the initial imaging modality.	↑↑
	↳ **4.1** If MR enterography is contraindicated or unavailable, we suggest **CT enterography**.	↑
	↳ **4.2** If MR/CT enterography cannot be tolerated, we recommend **CT abdomen and pelvis**.	↑↑
	5. In older patients with inflammatory bowel disease with suspected acute exacerbation, we recommend **CT enterography** as the initial imaging modality.	↑↑
	↳ **5.1** If CT enterography cannot be tolerated, we recommend **CT abdomen and pelvis**.	↑↑
	If clinical concern for obstruction, see GI02. Acute nonlocalized abdominal pain	
GI06. ACUTE GI BLEEDING		
GI06A. Upper acute GI bleeding	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy confirms nonvariceal upper GI bleeding, endoscopy is not readily available/contraindicated**). If imaging is required, then:	
	1. In patients with acute upper GI bleeding, we recommend **CTA or Diagnostic angiography** as the initial imaging modality.	↑↑
GI06B. Lower acute GI bleeding	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy is not readily available/contraindicated**). If imaging is required, then:	
	1. In patients with acute lower GI bleeding, we recommend **CTA or Diagnostic angiography** as the initial imaging modality.	↑↑
	↳ **1.1** If CTA is negative or inconclusive, we suggest **NM scintigraphy (RBC scan)**.	↑

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
GI07. CHRONIC GI BLEEDING/ANEMIA		
	1. In patients with suspected chronic GI bleeding, we suggest **against routine use of MR enterography** due to limited spatial resolution.	↓
	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging (e.g., **if endoscopy it is not readily available,** if the patient declines endoscopy). If imaging is required, then:	
	2. In patients with suspected chronic GI bleeding, we recommend **CT enterography** as the initial imaging modality.	↑↑
	↳ **2.1** If CT enterography cannot be tolerated, we suggest **CT abdomen and pelvis**.	↑
	↳ **2.2** If CT enterography is negative and further investigation is required, we suggest **NM scintigraphy (RBC and/or Meckel's study) ± capsule endoscopy** as the next imaging modality. *Consultation with a nuclear medicine physician and/or gastroenterologist is suggested to determine the need for further evaluation with NM scintigraphy and/or capsule endoscopy due to varying regional practice preferences.*	↑
GI08. ABNORMAL LIVER BIOCHEMISTRY		
GI08A. Acute abnormal liver biochemistry	**1.** In patients with acute abnormal liver biochemistry, we recommend **US abdomen** as the initial imaging modality.	↑↑
	↳ **1.1** If US is inconclusive or if further investigation is required, we suggest **CT abdomen or MR abdomen** (equivalent alternatives) as the next imaging modality.	↑
	For suspected biliary disease, see GI03B. Right upper quadrant pain.	
GI08B. Chronic abnormal liver biochemistry	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:	
	1. In patients with chronic abnormal liver biochemistry, we recommend **US abdomen** as the initial imaging modality, ideally with the use of a high frequency linear probe to assess the hepatic surface.	↑↑
	↳ **1.1** If further investigation is required, we recommend **MR abdomen** as the next imaging modality.	↑↑
	↳ **1.2** If MR abdomen is contraindicated or unavailable, we suggest **CT abdomen**.	↑
	1. In noncirrhotic patients with chronic abnormal liver biochemistry, if available, we suggest **US shear wave elastography** in addition to **US abdomen** to diagnose, follow, or stage occult hepatic fibrosis.	↑

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
	↳ **2.1** If US shear wave elastography is not available or inconclusive and imaging is required, we suggest **MR elastography**. *Although MR elastography is more sensitive and specific than US shear wave elastography, due to accessibility concerns, the Expert Panel chose to suggest US shear wave elastography ahead of MR elastography.*	↑
GI09. PANCREATITIS		
GI09A. Acute pancreatitis	**1.** As per the revised Atlanta Criteria, in patients who meet the diagnostic criteria for acute pancreatitis, we recommend **against imaging** for the purpose of diagnosis.	↓↓
	The guideline recommendations are to assist the choice of imaging modality in situations where it is clinically and/or biochemically necessary to obtain imaging as per the revised Atlanta Criteria [66]. If imaging is required, then:	
	2. In patients with suspected acute pancreatitis due to gallstones, we recommend **US abdomen** as the initial imaging modality.	↑↑
	↳ **2.1** If further investigation is required, we recommend **MR abdomen with MRCP** as the next imaging modality.	↑↑
	3. In patients with suspected complicated sub-acute pancreatitis, we recommend imaging as per the revised Atlanta Criteria.	↑↑
GI09B. Chronic pancreatitis	**1.** In patients with suspected chronic pancreatitis, we recommend **CT abdomen** as the initial imaging modality.	↑↑
	↳ **1.1** If CT is negative, we suggest **GI referral ± endoscopic US**.	↑
	2. In patients with known chronic pancreatitis, we recommend **MR abdomen with MRCP** for any required follow-up imaging.	↑↑
	↳ **2.1** If MR abdomen is contraindicated or unavailable, we suggest **CT abdomen**.	↑
GI10. ANORECTAL DISEASES		
	1. In patients with suspected perianal fistula, we recommend **against CT pelvis**.	↓↓
	2. In patients with suspected perianal fistula, we recommend **MR pelvis** as the initial imaging modality.	↑↑
	↳ **2.1** If MRI is not available or contraindicated, we suggest **endoanal US** as an alternative imaging modality.	↑
	3. In patients with suspected perianal abscess, we recommend **MR pelvis** as the initial imaging modality.	↑↑
	↳ **3.1** If MRI is not available or contraindicated, we suggest **endoanal US** as an alternative imaging modality.	↑

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
	↳ **3.2** In patients with suspected large perianal abscess, if MRI or US is not available or contraindicated, we suggest **CT pelvis** as an alternative imaging modality.	↑
	4. In patients with suspected anovesicular or anovaginal fistula, we recommend **CT pelvis**.	↑↑
	↳ **4.1** In patients with suspected anovesicular or anovaginal fistula, we suggest **MR pelvis** as an alternative imaging modality. *The choice of CT pelvis with rectal contrast or MR pelvis may vary based on regional practice preferences.*	↑
GI11. DIARRHEA		
	1. In patients with suspected uncomplicated acute infectious colitis presenting with acute nonlocalized abdominal pain, we recommend **against imaging** in the absence of other concerning clinical and/or biochemical findings.	↓↓
	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:	
	2. In patients with diarrhea (unknown cause), we suggest **XR** as the initial imaging modality.	↑
	↳ **2.1** If XR is inconclusive, we suggest **specialist consultation (e.g., gastroenterology, general surgery)** and/or **CT abdomen and pelvis**.	↑
GI12. FECAL INCONTINENCE		
	1. In patients with fecal incontinence (clinically diagnosed constipation), we recommend **against imaging** in the absence of other concerning clinical and/or biochemical findings.	↓↓
	The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically and/or biochemically necessary to obtain imaging. If imaging is required, then:	
	2. In patients with fecal incontinence (clinically indeterminate for constipation), we suggest **XR** as the initial imaging modality.	↑
	3. In patients with fecal incontinence (suspected cauda equina), we recommend **MR lumbar spine** as the initial imaging modality.	EPc
	4. In patients with fecal incontinence (suspected pelvic floor dysfunction), we suggest **dynamic MR pelvic floor**.	EPc
	↳ **4.1** If MRI is not available or contraindicated, we suggest **fluoroscopic defecography**.	EPc
GI13. FOREIGN BODY INGESTION		
	1. In patients with suspected or known foreign body ingestion, we recommend **XR** as the initial imaging modality.	↑↑
	↳ **1.1** If XR is suspicious for obstruction or perforation, we suggest **CT abdomen and pelvis** as the next imaging modality.	↑

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

Clinical/ Diagnostic Scenario	Recommendations	Strength of Rec.
CT: computed tomography; **ERCP**: Endoscopic retrograde cholangiopancreatography; **MRCP**: magnetic resonance cholangiopancreatography; **MRI**: magnetic resonance imaging; **RBC**: red blood cell; **US**: ultrasound; **XR**: radiography **Strength of Recommendation:** ↑↑: strong for; ↑: conditional for; ↓↓: strong against; ↓: conditional against; **EPc**: Expert Panel consensus		
	↳ **1.2 I**f XR is negative and additional management is being considered, we suggest **CT abdomen and pelvis** as the next imaging modality.	↑
	For foreign body ingestion in children, see Pediatrics guideline.	

The guideline recommendations are to assist the choice of imaging modality in situations where it is felt clinically necessary to obtain imaging. Imaging should not delay definitive management. Whether or not imaging is indicated is outside the scope of this guideline. Additionally, we did not cover serial imaging, and time intervals for follow-up of known disease and/or treatment monitoring. These recommendations are not intended to stand alone. Medical care should be based on evidence, a clinician's expert judgment, the patient's circumstances, values, and preferences, and resource availability. We recognize that not all imaging modalities are available in all locations, particularly in rural or remote areas of Canada. Decisions about whether to recommend that a patient travel for recommended imaging or perform alternate imaging locally can be difficult, and should consider the expected benefits of recommended imaging, risks of travel, patient preference, and other factors. This guideline is based on evidence related to diagnostic imaging tests only, not the clinical management of a patient.

APPENDIX 3B. GASTROINTESTINAL SYSTEM SUMMARY OF RECOMMENDATIONS (FRENCH)

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
GI01. DYSPHAGIE OU DYSPEPSIE		
	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images (par exemple, **si une endoscopie n'est pas immédiatement réalisable**, ou si le patient refuse d'en subir une). Si le recours à l'imagerie est nécessaire, alors :	
	1. Chez les patients présentant une dysphagie, nous suggérons **la fluoroscopie (œsophagramme ou transit œso-gastro-duodénal [TOGD])** comme modalité d'imagerie initiale.	↑
	2. Chez les patients présentant une dyspepsie de cause inconnue, nous suggérons **un transit œso-gastro-duodénal (TOGD) par fluoroscopie** comme modalité d'imagerie initiale.	↑
	3. Chez les patients présentant une dyspepsie, quand on soupçonne une anomalie de la motilité gastrique, nous suggérons une **scintigraphie de vidange gastrique (médecine nucléaire)** comme modalité d'imagerie initiale.	↑
	Pour les patients à risque d'un reflux gastro-œsophagien, voir la section GI03D : douleur du quadrant supérieur gauche	
GI02. DOULEUR ABDOMINALE AIGUË NON LOCALISÉE		
	1. Chez les patients rapportant une douleur abdominale aiguë non localisée chez qui l'on soupçonne une colite infectieuse aiguë non compliquée, nous **déconseillons l'imagerie** en l'absence d'autres constatations cliniques ou biochimiques préoccupantes.	↓↓
	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images. Si un examen d'imagerie est nécessaire, alors :	
	2. Chez les patientes non enceintes présentant une douleur abdominale aiguë non localisée ou une obstruction intestinale, ou les deux, nous suggérons la **RX** comme modalité d'imagerie initiale.	↑
	↳ **2.1** Si le résultat de la RX est ambigu ou si des examens supplémentaires sont nécessaires, nous recommandons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie subséquente.	↑↑
	3. Chez les patientes enceintes présentant une douleur abdominale aiguë non localisée, nous recommandons une **échographie de l'abdomen et du bassin** comme modalité d'imagerie initiale.	↑↑
	Si une appendicite constitue une préoccupation clinique, voir la section GI03D : douleur du quadrant inférieur droit.	

Ces recommandations ne sont pas conçues pour être utilisées seules. Les soins médicaux doivent reposer sur des données probantes, le jugement expert d'un clinicien, la situation, les valeurs et les préférences d'un patient, ainsi que sur la disponibilité des ressources. Nous sommes conscients que certaines modalités d'imagerie ne sont pas disponibles partout, en particulier dans les zones rurales et isolées du Canada. Il peut être difficile de décider s'il vaut mieux recommander à un patient de se déplacer pour obtenir l'imagerie recommandée ou d'effectuer localement un autre type d'imagerie; à cet égard, il faut tenir compte des avantages attendus de l'imagerie recommandée, des risques liés au déplacement, des préférences du patient et d'autres facteurs. La présente ligne directrice repose sur des données probantes liées uniquement aux tests d'imagerie diagnostique et non à la gestion clinique du patient.

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
GI03. DOULEUR ABDOMINALE AIGUË LOCALISÉE		
GI03A. Douleur épigastrique	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images (par exemple, **si une endoscopie n'est pas immédiatement réalisable**, ou si le patient refuse d'en subir une). Si un examen d'imagerie est nécessaire, alors :	
	1. Chez les patients présentant une douleur épigastrique dont l'étiologie est probablement œsophagienne ou gastrique, nous suggérons un **transit œso-gastro-duodénal (TOGD) par fluoroscopie** comme modalité d'imagerie initiale.	↑
	↳ **1.1** Si un transit œso-gastro-duodénal (TOGD) par fluoroscopie n'est pas réalisable, nous suggérons une **TDM de l'abdomen et du bassin**.	↑
	2. Chez les patients présentant une douleur épigastrique dont l'étiologie n'est probablement pas œsophagienne ou gastrique, nous suggérons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie initiale.	↑
GI03B. Douleur du quadrant supérieur droit	**1.** Chez les patients présentant une douleur dans le quadrant supérieur droit (soupçon de maladie hépatobiliaire), nous déconseillons la **radiographie**.	↓↓
	2. Chez les patients présentant une douleur dans le quadrant supérieur droit (soupçon de maladie hépatobiliaire), nous recommandons l'**échographie de l'abdomen** comme modalité d'imagerie initiale.	↑↑
	↳ **2.1** Si une échographie n'est pas réalisable ou si des examens supplémentaires sont nécessaires, nous suggérons une **TDM de l'abdomen et du bassin ou une cholécintigraphie à l'acide iminodiacétique marqué (HIDA) (médecine nucléaire)** comme modalité d'imagerie subséquente.	↑
	↳ **2.2** Si l'échographie n'est pas concluante et que la présentation clinique ou biochimique semble indiquer une lithiase du cholédoque, nous suggérons une consultation pour **une échographie endoscopique/ERCP** ou une **MRCP, ou les deux**.	↑
	3. Chez les patients présentant une douleur dans le quadrant supérieur droit (maladie non hépatobiliaire), nous recommandons une **échographie de l'abdomen** comme modalité d'imagerie initiale.	EPc
	↳ **3.1** Si l'échographie n'est pas concluante, nous suggérons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie subséquente.	EPc
	↳ **3.2** Si l'échographie et la TDM ne sont pas réalisables immédiatement, nous suggérons la **radiographie** comme modalité d'imagerie initiale.	EPc
GI03C. Douleur du quadrant inférieur droit	**1.** Chez les jeunes patients présentant une douleur dans le quadrant inférieur droit, nous recommandons l'**échographie** comme modalité d'imagerie initiale, conformément aux principes ALARA. *Principes ALARA « aussi bas que raisonnablement possible » : temps, distance et protection*	↑↑

Ces recommandations ne sont pas conçues pour être utilisées seules. Les soins médicaux doivent reposer sur des données probantes, le jugement expert d'un clinicien, la situation, les valeurs et les préférences d'un patient, ainsi que sur la disponibilité des ressources. Nous sommes conscients que certaines modalités d'imagerie ne sont pas disponibles partout, en particulier dans les zones rurales et isolées du Canada. Il peut être difficile de décider s'il vaut mieux recommander à un patient de se déplacer pour obtenir l'imagerie recommandée ou d'effectuer localement un autre type d'imagerie; à cet égard, il faut tenir compte des avantages attendus de l'imagerie recommandée, des risques liés au déplacement, des préférences du patient et d'autres facteurs. La présente ligne directrice repose sur des données probantes liées uniquement aux tests d'imagerie diagnostique et non à la gestion clinique du patient.

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
	↳ **1.1** Chez des patientes non enceintes, si l'échographie est négative pour l'appendicite ou non concluante et qu'un examen d'imagerie supplémentaire est nécessaire, nous suggérons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie subséquente.	↑
	↳ **1.2** Chez des patientes enceintes, si l'échographie n'est pas concluante pour l'appendicite, nous recommandons une **IRM de l'abdomen et du bassin** comme modalité d'imagerie subséquente.	↑↑
	2. Chez des patients plus âgés présentant une douleur dans le quadrant inférieur droit, nous recommandons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie initiale.	↑↑
	Dans le cas des affections dont la cause est probablement gynécologique, voir la section OG08 : évaluation d'une douleur pelvienne aiguë supposée d'origine gynécologique	
GI03D. Douleur du quadrant supérieur gauche	**1.** Chez les patients présentant une douleur dans le quadrant supérieur gauche (crainte d'un reflux ou d'un ulcère), nous **déconseillons les TOGD par fluoroscopie**. *Un TOGD par fluoroscopie peut être envisagé dans les établissements ayant acquis une expertise liée à la conduite de cet examen chez des patients pour lesquels l'endoscopie n'est pas réalisable, n'est pas indiquée ou est refusée par le patient*	↓
	2. Chez les patients présentant une douleur dans le quadrant supérieur gauche d'étiologie inconnue, nous recommandons l'**échographie de l'abdomen** comme modalité d'imagerie initiale.	EPc
	↳ **2.1** Si l'échographie n'est pas concluante, nous suggérons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie subséquente.	EPc
	↳ **2.2** Si l'échographie et la TDM ne sont pas réalisables immédiatement, nous suggérons la **radiographie** comme modalité d'imagerie initiale.	EPc
GI03E. Douleur du quadrant inférieur gauche	**1.** Chez les patients présentant une douleur du quadrant inférieur gauche (soupçon de diverticulite), nous recommandons **une TDM de l'abdomen et du bassin** comme modalité d'imagerie initiale.	↑↑
	2. Chez les patients présentant une douleur du quadrant inférieur gauche (autre cause intra-abdominale), nous recommandons la **RX** comme modalité d'imagerie initiale	EPc
	↳ **2.1** Si le résultat de la radiographie est négatif ou non concluant et qu'un examen d'imagerie supplémentaire est nécessaire, nous suggérons une **TDM de l'abdomen et du bassin** comme modalité d'imagerie subséquente.	EPc
	↳ **2.2** Chez des patients plus jeunes ou en cas de contre-indication de la TDM, nous suggérons une **échographie** comme modalité d'imagerie subséquente.	EPc
	Dans les cas où l'on soupçonne une origine gynécologique, voir la section OG08 : évaluation d'une douleur pelvienne aiguë supposée d'origine gynécologique	

Ces recommandations ne sont pas conçues pour être utilisées seules. Les soins médicaux doivent reposer sur des données probantes, le jugement expert d'un clinicien, la situation, les valeurs et les préférences d'un patient, ainsi que sur la disponibilité des ressources. Nous sommes conscients que certaines modalités d'imagerie ne sont pas disponibles partout, en particulier dans les zones rurales et isolées du Canada. Il peut être difficile de décider s'il vaut mieux recommander à un patient de se déplacer pour obtenir l'imagerie recommandée ou d'effectuer localement un autre type d'imagerie; à cet égard, il faut tenir compte des avantages attendus de l'imagerie recommandée, des risques liés au déplacement, des préférences du patient et d'autres facteurs. La présente ligne directrice repose sur des données probantes liées uniquement aux tests d'imagerie diagnostique et non à la gestion clinique du patient.

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
GI04. DOULEUR ABDOMINALE CHRONIQUE		
	1. Chez des patients qui satisfont les critères diagnostiques du syndrome du côlon irritable, nous **déconseillons le recours à l'imagerie** en l'absence de constatations cliniques ou biochimiques préoccupantes.	↓↓
	2. Chez les patients présentant une douleur abdominale chronique, nous **déconseillons l'IRM** comme modalité d'imagerie en raison de sa sensibilité et spécificité limitées.	EPc
	3. Chez les patients présentant une douleur abdominale chronique, nous recommandons la **TDM de l'abdomen et du bassin** comme modalité d'imagerie initiale.	↑↑
	↳ **3.1** Si la TDM n'est pas réalisable, nous suggérons l'**échographie de l'abdomen** comme modalité d'imagerie de remplacement; il faut tenir compte des limites de la portée de son évaluation par rapport à la TDM.	↑
	4. Chez les patients présentant une douleur abdominale chronique (soupçon d'ischémie mésentérique chronique), nous recommandons une **angiotomodensitométrie (angio-TDM) de l'abdomen et du bassin** comme modalité d'imagerie initiale.	↑↑
GI05. MALADIES INFLAMMATOIRES DE L'INTESTIN		
	Patients dont les résultats d'endoscopie sont négatifs et chez qui l'on soupçonne une maladie inflammatoire de l'intestin	
	1. Chez les patients dont les résultats d'endoscopie sont négatifs et chez qui l'on soupçonne une maladie inflammatoire de l'intestin, nous **déconseillons un examen par fluoroscopie du petit intestin**.	↓↓
	2. Pour les patients plus jeunes chez qui l'on soupçonne une maladie intestinale inflammatoire, nous recommandons **une entéro-IRM** comme modalité d'imagerie initiale.	↑↑
	↳ **2.1** Si l'entéro-IRM est contre-indiquée ou non réalisable, nous suggérons une **entéro-TDM**.	↑
	3. Pour les patients plus âgés chez qui l'on soupçonne une maladie intestinale inflammatoire, nous recommandons une **entéro-TDM** comme modalité d'imagerie initiale.	↑↑
	↳ **3.1** Si une entéro-TDM ne peut pas être tolérée, nous suggérons une **TDM de l'abdomen et du bassin**.	↑
	Patients qui ne présentent pas d'obstruction digestive et chez qui on soupçonne une poussée aiguë d'une maladie inflammatoire intestinale connue	
	4. Pour les patients plus jeunes chez qui l'on soupçonne une poussée aiguë de maladie inflammatoire intestinale connue, nous recommandons une **entéro-IRM** comme modalité d'imagerie initiale.	↑↑
	↳ **4.1** Si l'entéro-IRM est contre-indiquée ou non réalisable, nous suggérons une **entéro-TDM**.	↑
	↳ **4.2** Si l'entéro-IRM ou l'entéro-TDM ne peuvent pas être tolérées, nous recommandons une **TDM de l'abdomen et du bassin**.	↑↑

Ces recommandations ne sont pas conçues pour être utilisées seules. Les soins médicaux doivent reposer sur des données probantes, le jugement expert d'un clinicien, la situation, les valeurs et les préférences d'un patient, ainsi que sur la disponibilité des ressources. Nous sommes conscients que certaines modalités d'imagerie ne sont pas disponibles partout, en particulier dans les zones rurales et isolées du Canada. Il peut être difficile de décider s'il vaut mieux recommander à un patient de se déplacer pour obtenir l'imagerie recommandée ou d'effectuer localement un autre type d'imagerie; à cet égard, il faut tenir compte des avantages attendus de l'imagerie recommandée, des risques liés au déplacement, des préférences du patient et d'autres facteurs. La présente ligne directrice repose sur des données probantes liées uniquement aux tests d'imagerie diagnostique et non à la gestion clinique du patient.

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
	5. Chez les patients plus âgés atteints d'une maladie inflammatoire de l'intestin dont on soupçonne une poussée aiguë, nous recommandons l'**entéro-TDM** comme modalité d'imagerie initiale.	↑↑
	↳ **5.1** Si l'entéro-TDM ne peut pas être tolérée, nous recommandons une **TDM de l'abdomen et du bassin**.	↑↑
	Si l'existence d'une obstruction constitue une préoccupation clinique, voir la section GI02 : douleur abdominale aiguë non localisée	
GI06. HÉMORRAGIE DIGESTIVE AIGUË		
GI06A. Hémorragie digestive haute aiguë	Les recommandations ont pour but de guider le choix de la modalité d'imagerie à dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images (par exemple, **si l'endoscopie confirme une hémorragie digestive haute non liée à des varices, ou si l'endoscopie n'est pas facilement réalisable ou est contre-indiquée**). Si un examen d'imagerie est nécessaire, alors :	
	1. Chez les patients ayant une grave hémorragie digestive haute, nous recommandons une **angio-TDM ou une angiographie diagnostique** comme modalité d'imagerie initiale.	↑↑
GI06B. Hémorragie digestive basse aiguë	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images (par exemple, **si l'endoscopie n'est pas facilement réalisable ou est contre-indiquée**). Si un examen d'imagerie est nécessaire, alors :	
	1. Chez les patients présentant une hémorragie digestive basse aiguë, nous recommandons une **angio-TDM ou une angiographie diagnostique** comme modalité d'imagerie initiale.	↑↑
	↳ **1.1** Si les résultats de l'angio-TDM sont négatifs ou non concluants, nous suggérons la **scintigraphie aux GR marqués (médecine nucléaire)**.	↑
GI07. SAIGNEMENT DIGESTIF CHRONIQUE/ANÉMIE		
	1. Pour les patients chez qui l'on soupçonne un saignement digestif chronique, nous **déconseillons le recours à une l'entéro-IRM usuelle** en raison de sa résolution spatiale limitée.	↓
	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images (par exemple, **si une endoscopie n'est pas immédiatement réalisable**, ou si le patient refuse d'en subir une). Si un examen d'imagerie est nécessaire, alors :	
	2. Pour les patients chez qui l'on soupçonne un saignement digestif chronique, nous recommandons une **entéro-TDM** comme modalité d'imagerie initiale.	↑↑
	↳ **2.1** Si une entéro-TDM ne peut pas être tolérée, nous suggérons une **TDM de l'abdomen et du bassin**.	↑

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
	↳ **2.2** Si les résultats de l'entéro-TDM sont négatifs et que des examens supplémentaires sont nécessaires, nous suggérons la **scintigraphie aux GR marqués ou un test de détection du diverticule de Meckel, ou les deux ± une vidéocapsule endoscopique** comme modalité d'imagerie subséquente. *Une consultation avec un médecin spécialisé en médecine nucléaire ou un gastroentérologue est suggérée afin de déterminer s'il est nécessaire de poursuivre l'évaluation à l'aide d'une scintigraphie ou d'une vidéocapsule endoscopique en raison des différences de pratique régionales.*	↑
GI08. ANOMALIES BIOCHIMIQUES DU FOIE		
GI08A. Anomalies biochimiques aiguës du foie	**1.** Chez des patients présentant des anomalies biochimiques aiguës du foie, nous recommandons une **échographie de l'abdomen** comme modalité d'imagerie initiale.	↑↑
	↳ **1.1** Si les résultats de l'échographie ne sont pas concluants ou si des examens supplémentaires sont nécessaires, nous suggérons **une TDM ou une IRM de l'abdomen** (options équivalentes) comme modalité d'imagerie subséquente.	↑
	En cas de soupçon de maladie biliaire, voir la section GI03B : douleur du quadrant supérieur droit	
GI08B. Anomalies biochimiques chroniques du foie	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images. Si un examen d'imagerie est nécessaire, alors :	
	1. Chez les patients présentant des anomalies biochimiques chroniques du foie, nous recommandons l'**échographie de l'abdomen** comme modalité d'imagerie initiale, idéalement associée à l'utilisation d'une sonde linéaire à haute fréquence pour évaluer la surface du foie.	↑↑
	↳ **1.1** Si des examens supplémentaires sont nécessaires, nous recommandons une **IRM de l'abdomen** comme modalité d'imagerie subséquente.	↑↑
	↳ **1.2** Si l'IRM de l'abdomen est contre-indiquée ou non réalisable, nous suggérons une **TDM de l'abdomen**.	↑
	2. Chez les patients qui ne sont pas atteints de cirrhose, mais qui présentent des anomalies biochimiques chroniques du foie, si possible, nous suggérons une **élastographie ultrasonore par onde de cisaillement** en plus d'une **échographie de l'abdomen** pour le diagnostic, le suivi ou la stadification d'une fibrose hépatique occulte.	↑
	↳ **2.1** Si l'élastographie ultrasonore par onde de cisaillement n'est pas réalisable ou non concluante et qu'une imagerie est nécessaire, nous suggérons une **élastographie par IRM**. *Bien que l'élastographie par IRM soit plus sensible et plus spécifique que l'élastographie ultrasonore par onde de cisaillement, le groupe d'experts a choisi, au vu de préoccupations concernant l'accessibilité, de*	↑

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
	suggérer l'élastographie ultrasonore par onde de cisaillement avant l'élastographie par IRM.	
GI09. PANCRÉATITE		
GI09A. Pancréatite aiguë	**1.** Conformément au consensus d'Atlanta révisé, chez les patients satisfaisant les critères diagnostiques de pancréatite aiguë, nous **déconseillons le recours à l'imagerie** aux fins diagnostiques.	↓↓
	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images conformément au consensus d'Atlanta révisé[66]. Si un examen d'imagerie est nécessaire, alors :	
	2. Pour les patients chez qui l'on soupçonne une pancréatite aiguë secondaire à des calculs biliaires, nous recommandons une **échographie de l'abdomen** comme modalité d'imagerie initiale.	↑↑
	↳ **2.1** Si des examens supplémentaires sont nécessaires, nous recommandons une **IRM de l'abdomen avec MRCP** comme modalité d'imagerie subséquente.	↑↑
	3. Pour les patients chez qui l'on soupçonne une pancréatite subaiguë compliquée, nous recommandons une modalité d'imagerie conformément au consensus d'Atlanta révisé.	↑↑
GI09B. Pancréatite chronique	**1.** Pour les patients chez qui l'on soupçonne une pancréatite chronique, nous recommandons une **TDM de l'abdomen** comme modalité d'imagerie initiale.	↑↑
	↳ **1.1** Si les résultats de la TDM sont négatifs, nous suggérons de **demander l'avis d'un gastroentérologue ± échographie endoscopique**.	↑
	2. Chez les patients ayant une pancréatite chronique connue, nous recommandons une **IRM de l'abdomen avec MRCP**.	↑↑
	↳ **2.1** Si l'IRM de l'abdomen est contre-indiquée ou non réalisable, nous suggérons une **TDM de l'abdomen**.	↑
GI10. MALADIES ANO-RECTALES		
	1. Pour les patients chez qui l'on soupçonne une fistule anale, nous déconseillons la **TDM pelvienne**.	↓↓
	2. Pour les patients chez qui l'on soupçonne une fistule anale, nous recommandons l'**IRM pelvienne** comme modalité d'imagerie initiale.	↑↑
	↳ **2.1** Si une IRM n'est pas réalisable ou est contre-indiquée, nous suggérons une **échographie endoanale** comme modalité d'imagerie initiale.	↑
	3. Pour les patients chez qui l'on soupçonne des abcès périanaux, nous recommandons l'**IRM pelvienne** comme modalité d'imagerie initiale.	↑↑
	↳ **3.1** Si une IRM n'est pas réalisable ou est contre-indiquée, nous suggérons une **échographie endoanale** comme modalité d'imagerie initiale.	↑

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
	↳ **3.2** Pour les patients chez qui l'on soupçonne un grand abcès périanal, si l'IRM ou l'échographie n'est pas réalisable ou est contre-indiquée, nous suggérons une **TDM pelvienne** comme modalité d'imagerie alternative.	↑
	4. Pour les patients chez qui l'on soupçonne une fistule ano-vésicale ou ano-vaginale, nous recommandons une **TDM pelvienne**.	↑↑
	↳ **4.1** Pour les patients chez qui l'on soupçonne une fistule ano-vésicale ou ano-vaginale, nous suggérons une **IRM pelvienne** comme modalité d'imagerie alternative. *Le choix de la TDM du bassin avec contraste rectal ou de l'IRM du bassin peut varier en fonction des préférences de pratique régionales.*	↑
GI11. DIARRHÉE		
	1. Chez les patients rapportant une douleur abdominale aiguë non localisée chez qui l'on soupçonne une colite infectieuse aiguë non compliquée, nous **déconseillons l'imagerie** en l'absence d'autres constatations cliniques ou biochimiques préoccupantes.	↓↓
	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images. Si un examen d'imagerie est nécessaire, alors :	
	2. Chez les patients présentant une diarrhée (de cause inconnue), nous suggérons la **RX** comme modalité d'imagerie initiale.	↑
	↳ **2.1** Si la radiographie n'est pas concluante, nous suggérons de demander l'**avis d'un spécialiste (par exemple gastroentérologue, chirurgien général)** et/ou une **TDM de l'abdomen et du bassin**.	↑
GI12. INCONTINENCE FÉCALE		
	1. Chez les patients présentant une incontinence fécale (constipation diagnostiquée cliniquement), nous **déconseillons le recours à l'imagerie** en l'absence d'autres constatations cliniques ou biochimiques préoccupantes.	↓↓
	Les recommandations ont pour but de guider le choix de la modalité d'imagerie dans les cas où le praticien estime qu'il est nécessaire, en vue d'une évaluation clinique ou biochimique, d'obtenir des images. Si un examen d'imagerie est nécessaire, alors :	
	2. Chez les patients présentant une incontinence fécale (constipation cliniquement indéterminée), nous suggérons la **RX** comme modalité d'imagerie initiale.	↑
	3. Chez les patients présentant une incontinence fécale (soupçon de syndrome de la queue de cheval), nous recommandons une **IRM de la colonne vertébrale lombaire** comme modalité d'imagerie initiale.	EPc

Ces recommandations ne sont pas conçues pour être utilisées seules. Les soins médicaux doivent reposer sur des données probantes, le jugement expert d'un clinicien, la situation, les valeurs et les préférences d'un patient, ainsi que sur la disponibilité des ressources. Nous sommes conscients que certaines modalités d'imagerie ne sont pas disponibles partout, en particulier dans les zones rurales et isolées du Canada. Il peut être difficile de décider s'il vaut mieux recommander à un patient de se déplacer pour obtenir l'imagerie recommandée ou d'effectuer localement un autre type d'imagerie; à cet égard, il faut tenir compte des avantages attendus de l'imagerie recommandée, des risques liés au déplacement, des préférences du patient et d'autres facteurs. La présente ligne directrice repose sur des données probantes liées uniquement aux tests d'imagerie diagnostique et non à la gestion clinique du patient.

Scénario clinique/diagnostique	Recommandations	Force
TDM : tomodensitométrie; **ERCP** : cholangiopancréatographie rétrograde endoscopique; **MRCP** : cholangiopancréatographie par résonance magnétique; **IRM** : imagerie par résonance magnétique; **GR** : globules rouges; **ÉCHO** : échographie; **RX** : radiographie **Force de la recommandation:** ↑↑: fortement en faveur; ↑: en faveur sous certaines conditions; ↓: contre sous certaines conditions; ↓↓: fortement contre; **EPc**: Consensus d'un panel d'experts		
	4. Chez les patients présentant une incontinence fécale (soupçon de dysfonctionnement du plancher pelvien), nous suggérons une **IRM dynamique du plancher pelvien**.	EPc
	↳ **4.1** Si une IRM n'est pas réalisable ou est contre-indiquée, nous suggérons une **défécographie par fluoroscopie**.	EPc
GI13. INGESTION DE CORPS ÉTRANGER		
	1. Pour les patients chez qui l'on suspecte l'ingestion d'un corps étranger inconnu, nous recommandons la **RX** comme modalité d'imagerie initiale.	↑↑
	↳ **1.1** Si une obstruction ou une perforation est suspectée à la radiographie, nous suggérons une **TDM de l'abdomen et du pelvis** comme modalité d'imagerie subséquente.	↑
	↳ **1.2** Si la radiographie est négative et qu'une prise en charge supplémentaire est envisagée, nous suggérons une **TDM de l'abdomen et du pelvis** comme modalité d'imagerie subséquente.	↑
	Dans les cas d'ingestion de corps étrangers chez les enfants, voir les lignes directrices pédiatriques.	

APPENDIX 4. POTENTIALLY RELEVANT NON-ENGLISH GUIDELINES

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APPENDIX 5. AGREE-II ASSESSMENTS

Guideline	Domain 1				Domain 2				Domain 3									Domain 4				Domain 5					Domain 6			Overall quality
	1	2	3	Score (%)	4	5	6	Score (%)	7	8	9	10	11	12	13	14	Score (%)	15	16	17	Score (%)	18	19	20	21	Score (%)	22	23	Score (%)	
ACG/CAG 2017 [19]	3	3	3	9 (100)	2	1	2	5 (56)	3	3	3	3	3	3	1	1	20 (83)	3	3	3	9 (100)	2	2	2	2	8 (67)	3	2	5 (83)	Moderate
ACR 2019 [20]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
ACR 2021 [21]	2	2	2	6 (67)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
CAG 2018 [22]	3	2	2	7 (78)	3	1	3	7 (78)	3	2	3	3	3	3	2	1	20 (83)	3	3	3	9 (100)	2	2	2	1	7 (58)	3	3	6 (100)	Moderate
ISDE 2018 [23]	3	2	3	8 (89)	3	3	3	9 (100)	3	3	3	3	3	3	1	1	20 (83)	3	3	3	9 (100)	2	2	2	2	8 (67)	2	2	4 (67)	High
KSNM/ANMA 2020 [24]	3	2	3	8 (89)	3	1	3	7 (78)	3	3	3	3	3	3	3	3	24 (100)	3	3	3	9 (100)	1	3	2	2	8 (67)	3	3	6 (100)	High
RCR 2017 [25]	3	3	3	9 (100)	3	2	3	8 (89)	3	3	3	3	3	1	3	1	20 (83)	3	3	3	9 (100)	3	2	3	1	9 (75)	2	2	4 (67)	High
UEG/ESNM 2020 [26]	3	3	3	9 (100)	3	1	2	6 (67)	3	3	3	3	3	3	1	1	20 (83)	3	3	3	9 (100)	2	2	2	2	8 (67)	3	3	6 (100)	High
ACPGBI 2020 [27]	3	3	3	9 (100)	3	1	3	7 (78)	3	3	3	3	2	3	1	1	19 (79)	3	3	3	9 (100)	1	2	2	2	7 (58)	2	2	4 (67)	Moderate
ACR 2018 [28]	2	2	2	6 (67)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
ACR 2020 [29]	2	2	2	6 (67)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	2	4 (67)	Moderate
ACR 2018 [30]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
ACR 2019 [31]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
BSG/UK-PSC 2019 [32]	3	3	3	9 (100)	3	3	3	9 (100)	3	2	3	2	2	3	1	3	19 (79)	3	3	3	9 (100)	3	2	2	3	10 (83)	3	2	5 (83)	High
EASL 2017 [33]	3	2	3	8 (89)	2	3	3	8 (89)	3	2	3	2	3	3	2	1	19 (79)	3	3	3	9 (100)	2	2	2	2	8 (67)	3	3	6 (100)	Moderate
EAGE/EASL 2017 [34]	3	2	3	8 (89)	2	1	2	5 (56)	3	2	3	3	3	3	1	2	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	2	4 (67)	Moderate
ESTES 2019 [35]	2	3	2	7 (78)	2	1	2	5 (56)	3	2	3	2	3	3	1	1	18 (75)	3	3	3	9 (100)	2	2	2	1	7 (58)	2	3	5 (83)	Moderate
ACR 2018 [36]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	2	4 (67)	Moderate
EAES 2021 [37]	3	3	3	9 (100)	3	3	3	9 (100)	3	3	3	3	3	3	3	3	24 (100)	3	3	3	9 (100)	3	3	3	3	12 (100)	3	3	6 (100)	High
SFCD/SIAD 2021 [38]	2	2	3	7 (78)	1	1	2	4 (44)	3	2	3	3	2	3	1	1	18 (75)	3	3	3	9 (100)	2	2	1	1	6 (50)	3	3	6 (100)	Moderate

Appendix 5. AGREE-II assessments

Guideline	Domain 1				Domain 2				Domain 3									Domain 4				Domain 5					Domain 6			Overall quality
	1	2	3	Score (%)	4	5	6	Score (%)	7	8	9	10	11	12	13	14	Score (%)	15	16	17	Score (%)	18	19	20	21	Score (%)	22	23	Score (%)	
SPIGC 2020 [39]	2	2	3	7 (78)	3	1	2	6 (67)	3	2	3	2	2	2	1	1	16 (67)	3	3	3	9 (100)	1	1	2	3	7 (58)	2	3	5 (83)	Moderate
WSES 2020 [40]	3	3	3	9 (100)	3	1	2	6 (67)	3	2	3	2	2	3	3	1	19 (79)	3	3	3	9 (100)	2	3	1	1	7 (58)	3	3	6 (100)	Moderate
ACP 2022 [41]	3	3	3	9 (100)	2	3	3	8 (89)	3	3	3	3	3	3	3	1	22 (92)	3	3	3	9 (100)	2	2	3	1	8 (67)	3	3	6 (100)	Moderate
ACR 2019 [42]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
AMG 2019 [43]	3	2	3	8 (89)	2	1	2	5 (56)	3	2	3	3	2	3	1	1	18 (75)	3	3	3	9 (100)	2	2	1	1	6 (50)	3	2	5 (83)	Moderate
EAES/SAGES 2019 [44]	3	3	3	9 (100)	3	1	3	7 (78)	3	3	3	3	3	3	1	1	20 (83)	3	3	3	9 (100)	2	2	2	2	8 (67)	3	3	6 (100)	High
ESCP 2020 [45]	3	3	3	9 (100)	3	1	2	6 (67)	3	3	3	3	2	3	1	1	19 (79)	3	3	3	9 (100)	2	1	2	1	6 (50)	3	3	6 (100)	Moderate
ICDDD 2019 [46]	3	2	3	8 (89)	3	1	2	6 (67)	3	2	3	3	2	2	1	2	18 (75)	3	3	3	9 (100)	2	1	2	2	7 (58)	1	1	2 (33)	Moderate
JGA 2019 [47]	3	2	3	8 (89)	3	3	3	9 (100)	3	3	3	3	3	3	3	1	22 (92)	3	3	3	9 (100)	2	2	2	3	9 (75)	3	2	5 (83)	High
European Gdl 2020 [48]	3	3	3	9 (100)	3	1	3	7 (78)	3	3	3	3	3	3	2	3	23 (96)	3	3	3	9 (100)	2	2	2	3	9 (75)	3	2	5 (83)	High
JSGE 2021 [49]	3	3	3	9 (100)	3	3	3	9 (100)	3	3	3	3	3	3	3	3	24 (100)	3	3	3	9 (100)	3	3	3	3	12 (100)	3	3	6 (100)	High
NICE 2017 [50]	3	3	3	9 (100)	3	3	3	9 (100)	3	3	3	3	3	3	2	3	23 (96)	3	3	3	9 (100)	3	3	3	3	12 (100)	3	3	6 (100)	High
SVS 2021 [51]	3	2	3	8 (89)	3	1	2	6 (67)	3	2	3	3	2	3	3	1	20 (83)	3	3	3	9 (100)	2	2	3	1	8 (67)	2	3	5 (83)	Moderate
ACG 2018 [52]	3	2	3	8 (89)	2	2	3	7 (78)	3	3	3	2	2	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	2	7 (58)	2	2	4 (67)	Moderate
ACR 2020 [53]	2	2	2	6 (67)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	2	4 (67)	Moderate
DGVS 2019 [54]	3	2	3	8 (89)	3	3	3	9 (100)	3	2	3	3	2	3	3	3	22 (92)	3	3	3	9 (100)	2	3	2	2	9 (75)	3	3	6 (100)	High
JSGE 2021 [55]	3	3	3	9 (100)	3	2	3	8 (89)	3	2	3	3	3	3	1	2	20 (83)	3	3	3	9 (100)	2	3	2	2	9 (75)	3	2	5 (83)	High
PSG/PNSG 2021 [56]	3	3	3	9 (100)	3	1	2	6 (67)	3	2	3	3	2	3	1	1	18 (75)	3	3	3	9 (100)	1	1	2	3	7 (58)	2	1	3 (50)	Moderate
ACR 2017 [57]	2	2	2	6 (67)	3	2	3	8 (89)	2	2	2	3	3	3	1	3	19 (79)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	2	4 (67)	Moderate
ASGE 2017 [58]	2	2	2	6 (67)	1	1	3	5 (56)	3	2	3	2	3	2	1	3	19 (79)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
ACR 2021 [59]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate

Appendix 5. AGREE-II assessments

Guideline	Domain 1				Domain 2				Domain 3									Domain 4				Domain 5					Domain 6			Overall quality
	1	2	3	Score (%)	4	5	6	Score (%)	7	8	9	10	11	12	13	14	Score (%)	15	16	17	Score (%)	18	19	20	21	Score (%)	22	23	Score (%)	
BSG 2019 [60]	3	2	3	8 (89)	3	1	3	7 (78)	3	3	3	3	3	3	3	1	22 (92)	3	3	3	9 (100)	2	3	2	2	9 (75)	3	2	5 (83)	Moderate
ESGE 2021 [61]	3	3	3	9 (100)	3	1	2	6 (67)	3	2	3	2	3	3	3	3	22 (92)	3	3	3	9 (100)	2	2	2	2	8 (67)	3	2	5 (83)	Moderate
AIGO/SIGENP 2019 [62]	3	2	3	8 (89)	3	1	3	7 (78)	3	2	3	3	2	3	1	1	18 (75)	3	3	3	9 (100)	2	2	1	1	6 (50)	3	1	4 (67)	Moderate
ACR 2019 [63]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
ASGE 2019 [64]	3	3	3	9 (100)	3	1	3	7 (78)	3	2	3	3	3	3	2	2	21 (88)	3	3	3	9 (100)	2	3	2	2	9 (75)	2	3	5 (83)	High
ACR 2020 [65]	2	2	2	6 (67)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	2	4 (67)	Moderate
ACR 2019 [67]	2	2	3	7 (78)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
ESGE 2019 [68]	3	3	2	8 (89)	2	1	2	5 (56)	3	2	3	3	2	3	3	3	22 (92)	3	3	3	9 (100)	2	2	1	2	7 (58)	1	2	3 (50)	Moderate
Taiwanese Gld 2020 [69]	3	2	2	7 (78)	2	1	2	5 (56)	3	2	3	3	2	3	1	1	18 (75)	3	3	3	9 (100)	1	1	1	2	5 (42)	3	3	6 (100)	Moderate
ACG 2020 [70]	2	3	3	8 (89)	2	1	2	5 (56)	3	2	3	2	2	3	1	1	17 (71)	3	3	3	9 (100)	2	3	1	1	7 (58)	3	3	6 (100)	Moderate
UEG 2017 [71,72]	3	3	3	9 (100)	3	1	3	7 (78)	3	3	3	3	2	3	3	3	23 (96)	3	3	3	9 (100)	2	3	2	2	9 (75)	3	3	6 (100)	High
ACR 2021 [73]	2	2	2	6 (67)	3	2	3	8 (89)	3	2	2	3	3	3	1	3	20 (83)	3	3	3	9 (100)	2	2	1	1	6 (50)	2	3	5 (83)	Moderate
German Gdl 2017 [74]	2	2	3	7 (78)	3	1	2	6 (67)	3	3	3	3	3	3	1	3	22 (92)	3	3	2	8 (89)	1	2	2	1	6 (50)	3	3	6 (100)	Moderate
BSG 2018 [75]	3	2	3	8 (89)	3	3	3	9 (100)	3	2	3	3	2	3	3	3	22 (92)	3	3	3	9 (100)	2	2	2	3	9 (75)	3	3	6 (100)	High
IDSA 2017 [76]	2	3	3	8 (89)	3	1	3	7 (78)	3	3	3	3	3	3	3	3	24 (100)	3	3	3	9 (100)	2	2	2	2	8 (67)	3	3	6 (100)	High
WSES 2019 [77]	3	3	2	8 (89)	2	1	3	6 (67)	3	2	2	3	2	3	1	1	17 (71)	3	3	3	9 (100)	3	1	2	1	7 (58)	3	3	6 (100)	Moderate

Abbreviations: **ACG**: American College of Gastroenterology; **ACP**: American College of Physicians; **ACPGBI**: Association of Coloproctology of Great Britain and Ireland; **ACR**: American College of Radiology; **AIGO**: Italian Association of Hospital Gastroenterologists and Endoscopists; **AMG**: Asociación Mexicana de Gastroenterología; **ANMA**: Asian Neurogastroenterology and Motility Association; **ASGE**: American Society for Gastrointestinal Endoscopy; **BSG**: British Society of Gastroenterology; **CAG**: Canadian Association of Gastroenterology; **DGVS**: German Society for Digestive and Metabolic Diseases; **EAES**: European Association for Endoscopic Surgery; **EASL**: European Association for the Study of the Liver; **ESCP**: European Society of Coloproctology; **ESGE**: European Society of Gastrointestinal Endoscopy; **ESNM**: European Society of Neurogastroenterology and Motility; **IDSA**: Infectious Diseases Society of America; **ICDDD**: International Consensus on Diverticulosis and Diverticular Disease; **ISDE**: International Society for Esophageal Diseases; **JGA**: Japan Gastroenterological Association; **JSGE**: Japanese Society of Gastroenterology; **KSNM**: Korean Society of Neurogastroenterology and Motility; **NICE**: National Institute for Health and Clinical Excellence; **PNCG**: Polish National Consultant in Gastroenterology; **PSG**: Polish Society of Gastroenterology; **RCR**: Royal College of Radiologists; **SAGES**: Society of American Gastrointestinal and Endoscopic Surgeons; **SFCD**: Société français de chirurgie digestive; **SIAD**: Société d'imagerie abdominale et digestive; **SIGENP**: Italian Society of Paediatric Gastroenterology Hepatology and Nutrition; **SPIGC**: Italian Polispecialistic Society of Young Surgeons; **SVS**: Society for Vascular Surgery; **UEG**: United European Gastroenterology; **UK-PSG**: United Kingdom Primary Sclerosing Cholangitis; **WSES**: World Society of Emergency Surgery