

Australian and New Zealand position statement on the role of bidirectional endoscopy (same-day upper and lower gastrointestinal endoscopy)

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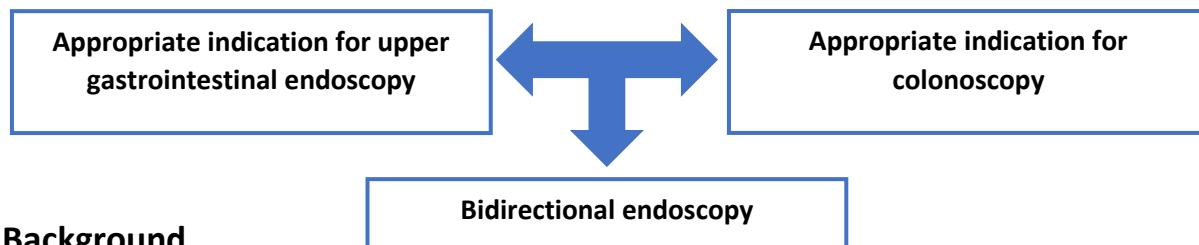
Abstract

Bidirectional endoscopy (BDE), defined as same-day upper and lower gastrointestinal endoscopy, is often performed to evaluate gastrointestinal presentations and abnormalities. When used appropriately, BDE can improve patient outcomes and potentially minimise risk, as well as being potentially cost-effective. However, when BDE is used inappropriately, and endoscopy is performed with no or a low-value indication, it may result in risks to the patient that are greater than the benefit and disproportionate to cost. Endoscopy without an indication or low-value care should be avoided.

In formulating this Australian and Aotearoa New Zealand position statement, we performed a literature search using the MEDLINE database and reviewed relevant guidelines to identify best-practice recommendations for BDE. We highlight specific scenarios in which BDE is strongly recommended and others where it may be beneficial when supported by good clinical practice. We describe scenarios where endoscopy is either not indicated or of low or negligible clinical benefit and thus BDE is not routinely recommended.

To enable delivery of high-quality, high-value, equitable and patient-centred care, BDE should only be performed when there is an appropriate indication for both upper and lower endoscopy and combining these procedures is clinically justified.

This Gastroenterological Society of Australia (GESA) initiative was undertaken in collaboration with the Royal Australasian College of Surgeons (RACS) and endorsed by GESA, the New Zealand Society of Gastroenterology (NZSG) and the Royal Australasian College of Physicians (RACP).



Background

Bidirectional endoscopy (BDE), defined as combined upper and lower gastrointestinal endoscopy performed on the same day, is common in clinical practice. In the largest study assessing the prevalence of this practice, the Clinical Outcomes Research Initiative national endoscopic database in the United States was analysed to determine how many patients underwent BDE between 2000 and 2004.¹ Among 591,074 patients in this cohort, 11.2% had BDE. In Australia, based on Medicare Benefits Schedule (MBS) data, 966,561 colonoscopies (MBS items 32084, 32087 and 32222–32229) and 421,940 gastroscopies (MBS item 30473) were performed in 2022.² The exact number of BDEs performed in 2022 in Australia is unknown. Extrapolating from the available MBS data suggests that 89,399 BDEs were performed for patients aged 18–54 years in 2018–2019. Nationwide non-MBS-funded public hospital endoscopic procedure data are not available, but an equivalent percentage breakdown is assumed.

For patients with appropriate indications, BDE reduces sedation exposure and is cost-saving for patients and the health care system.^{3,4} It is consistent with the principles of sustainable endoscopy.⁵ Recent studies have focused on determining the correct order of procedures, with randomised controlled trials identifying gastroscopy as the appropriate test to be performed first in BDE.^{6–8}

Various clinical reasons may be considered justifications for performing BDE. In this position statement, we highlight the specific indications for BDE that are well supported by established guidelines. We also emphasise clinical scenarios for which guidelines do not exist, but where literature review and good clinical practice suggest that performance of BDE can be beneficial. In addition, we discuss specific scenarios for which there is no supportive evidence for BDE or where endoscopy has negligible clinical benefit.

Endoscopic procedures in the paediatric population and combined procedures in the emergency management of significant gastrointestinal bleeding are not reviewed in this position statement.

Finally, we consider the unique social and geographical challenges in the Australian and Aotearoa New Zealand context that may justify BDE and facilitate equitable access to endoscopy for our regional and remote populations. There are specific considerations for ethnic minorities and First Nations peoples in Australia and Aotearoa New Zealand. The Indigenous Māori population in Aotearoa New Zealand, including those who have emigrated to Australia, are at two- to threefold greater risk of gastric cancer (including hereditary diffuse gastric cancer) than the non-Māori population, with cancer also tending to occur at younger ages in this group because of a higher prevalence of the *CDH1* gene and exposure to environmental risk factors, including *Helicobacter pylori*. Māori experience poorer survival outcomes in other cancer groups and similar conditions to non-Māori, contributed to by health care access.

Access to and provision of quality endoscopic services for disadvantaged minority populations and rural or remote populations should be considered a priority.^{9–12}

Methods

We conducted an initial MEDLINE database search for studies published in English using keywords including “bidirectional endoscopy”, “combined upper and lower endoscopy” and “bundling of endoscopy procedures”. In addition, we reviewed all relevant guidelines for potential indications for BDE from the American Society for Gastrointestinal Endoscopy (ASGE), European Society of Gastrointestinal Endoscopy (ESGE) and British Society of Gastroenterology. We also performed a literature search of MEDLINE for papers on opportunistic screening of the upper gastrointestinal tract in low-risk populations and benefits of gastroscopy in patients with a positive faecal occult blood test (FOBT) result.

Recommendations

The recommendations are summarised in Table 1.

Statement 1: BDE has significant clinical value and is beneficial for patients in the following scenarios.

1. Iron deficiency anaemia (IDA) or persistent unexplained iron deficiency:

- a. **It is strongly recommended that BDE be performed for asymptomatic men and postmenopausal women with IDA.**
- b. **BDE may be offered to premenopausal women after specialist assessment and exclusion of other causes of IDA or persistent iron deficiency, including gynaecological causes.**

In the presence of symptoms, endoscopic tests should be tailored to improve diagnostic yield, and shared decision making with these patients is considered valuable.¹³ Although the benefits of BDE in patients with iron deficiency without anaemia are less well studied, it is appropriate to investigate the upper and lower gastrointestinal tract in asymptomatic men and women with persistent unexplained iron deficiency. It is important to consider whether iron deficiency may be due to frequent blood donation. In a recent study from Western Australia, male sex and presence of anaemia with iron deficiency were found to be significant predictors of malignancy. Gastrointestinal disorders were discovered to be a cause of iron deficiency in more than 60% of the cohort of 584 patients.¹⁴ This finding supports endoscopic evaluation in such patients.

2. Assessment and surveillance of polyposis and inherited cancer syndromes:

- a. **Polyposis and inherited cancer syndromes with manifestations throughout the gastrointestinal tract require BDE for assessment or combined surveillance procedures at various intervals, as suggested by established guidelines (ESGE, ASGE).^{15,16}**

Assessment and surveillance of both the upper and lower gastrointestinal tract are suggested for people with familial adenomatous polyposis (FAP), MUTYH-associated polyposis (MAP), Peutz–Jeghers syndrome (PJS) or juvenile polyposis. In those with FAP or MAP, the frequency of gastroscopy is determined by the presence and number of duodenal, papillary and gastric polyps, as well as their morphology, level of dysplasia and other relevant information. Guidelines suggest using the Spigelman classification of duodenal polyps to aid this decision. In patients with hamartomatous syndromes, such as PJS and juvenile polyposis, the recommendation for routine surveillance is to perform gastroscopy every 1–3 years, depending on polyp burden and other individual patient

characteristics. Gastroscopy can therefore be combined with colonoscopy at the recommended intervals.

In patients with Lynch syndrome, colonoscopy surveillance is recommended for mutation carriers. Surveillance every 1–2 years should begin at the age of 25 years for *MLH1* and *MSH2* mutation carriers and at the age of 35 years for *MSH6* and *PMS2* mutation carriers.^{11,12} Baseline gastroscopy can be considered at the initial examination to exclude *H. pylori* infection or gastric atrophy. Guidelines vary on recommendations and need for surveillance gastroscopy. Routine surveillance gastroscopy is not recommended by the ESGE. The American College of Gastroenterology recommends surveillance gastroscopy every 3–5 years, starting between 30 and 35 years of age, where there is a family history of gastric or duodenal cancer.¹⁷

Statement 2: BDE can be considered in the following clinical scenarios.

1. Patients with clinically appropriate indications for both upper and lower endoscopy

Patients may present with symptoms or results of investigations that are strong indications for both upper and lower endoscopy (e.g. dysphagia and new rectal bleeding). These scenarios are appropriate to investigate with BDE, as it is a safe and efficient use of resources. Patients with recurrent overt obscure gastrointestinal bleeding may require BDE. Care should be taken to avoid low-value endoscopy (endoscopy with no or negligible clinical benefit, or where the risks exceed the clinical benefit).

2. Chronic diarrhoea

Chronic diarrhoea in adults may require BDE in addition to laboratory tests (faecal and blood investigations). Endoscopic assessment is relevant when clinical assessment and non-invasive testing suggest malabsorption, gut inflammation or neoplasia. The timing of endoscopic procedures and consideration for BDE are determined by the clinical context of the individual and by specialist assessment.¹⁸

3. Inflammatory bowel disease

BDE is not routinely recommended in the evaluation of inflammatory bowel disease (IBD) in adults. BDE could, however, be considered for assessment of upper gastrointestinal Crohn's disease in patients with pertinent symptoms; Crohn's disease can involve the upper gastrointestinal tract in 16% of adults. In patients with unclassified or indeterminate IBD, excluding upper gastrointestinal involvement may help differentiate between ulcerative colitis and Crohn's disease. Similarly, establishing the involvement of the upper gastrointestinal tract, if any, could help determine the severity of disease and phenotype. BDE may be justified in patients with IBD with an overlap of other symptoms, such as weight loss, nausea and vomiting.^{19,20}

4. Unintentional weight loss

Patients presenting with unintentional weight loss without gastrointestinal symptoms may require BDE in addition to other tests. BDE should not be routinely performed, but the need for this procedure should be determined after clinical assessment and relevant laboratory tests and imaging studies.

5. Metastatic malignancy with unknown primary

Patients presenting with abnormal imaging indicative of metastatic malignancy with unknown primary may require BDE. The need for this procedure can be determined after specialist clinical

review. Immunohistochemistry, along with radiological findings, guides decision making. Endoscopic investigations are not indicated when the results would not alter clinical management.

6. Surveillance procedures due within 6 months of each other

Patients awaiting surveillance procedures that are due within 6 months of each other may undergo BDE, as combining these procedures will reduce the economic, social and anaesthetic burden for the patient. Non-indicated surveillance or opportunistic early surveillance should be avoided.

7. Patients living in rural or remote areas who have separate valid indications for upper and lower endoscopy

Due to the unique geographical and logistical challenges of delivering health care in rural and remote Australia and Aotearoa New Zealand, a modified threshold for combining upper and lower endoscopy on the same day could be considered for patients who meet the criteria for a clinically appropriate indication. This is particularly relevant for patients with routine surveillance gastroscopy (e.g. Barrett's oesophagus) and colonoscopy (e.g. polyp surveillance) procedures both due within 6 months.

Statement 3: BDE should be avoided when there are no appropriate indications for endoscopy or when endoscopy is of low clinical yield and value.

All endoscopy procedures should be performed after assessing the benefits for the patient, the procedural and sedation risks and the cost. Low-value endoscopy that may have no benefit for the patient, or risks greater than the benefit, or a benefit that is disproportionately low compared with its cost should be avoided. Patients who present with an indication for colonoscopy should not undergo an opportunistic upper endoscopy with no indication, and vice versa.

1. Routine gastroscopy testing for *H. pylori* in a patient referred for colonoscopy

Routine testing for *H. pylori* infection in a patient referred for colonoscopy and without any upper gastrointestinal symptoms is not recommended in Australia or Aotearoa New Zealand because of the low prevalence of *H. pylori* in the general population. There may be a role for screening in specific contexts, such as in patients from areas with a high incidence of gastric cancer or with a first-degree relative with gastric cancer. However, further studies are needed before this can be recommended in the asymptomatic general population in Australia and Aotearoa New Zealand.²¹⁻²⁴

2. Positive result of faecal immunochemical test or immunohistochemical faecal occult blood test without upper gastrointestinal symptoms

Routine upper endoscopy is not recommended for asymptomatic patients with a positive immunohistochemical FOBT or faecal immunochemical test (FIT) result from bowel cancer screening (including the National Bowel Cancer Screening Program in Australia).

The FIT has high specificity (85–100%) for lower gastrointestinal bleeding and is more sensitive (60–85%) than the guaiac FOBT for colonic lesions.^{25,26} The Australian National Bowel Cancer Screening Program is solely based on immunohistochemical faecal occult blood testing. There is little evidence regarding the diagnostic yield of upper gastrointestinal endoscopy in asymptomatic patients with a positive FIT result. A recent systematic review identified only four of 2409 studies that were sufficient quality to fulfil the criteria for review.²⁷ Abnormal upper gastrointestinal endoscopy findings were common, ranging from 24% to 87%. Gastric cancer was diagnosed in

0.5% of patients (range, 0–1.2%). All patients diagnosed with gastric cancer were from a South Korean cohort with a high prevalence of the disease. No cost-effectiveness analyses were performed. The results of these studies suggest that the rate of preneoplastic or neoplastic lesions diagnosed at upper gastrointestinal endoscopy after a positive FIT result in Australia is likely to be low, given the low prevalence of disease.

In patients who have undergone a non-immunohistochemical FOBT, colonoscopy is still indicated as the primary procedure. BDE is not routinely recommended for asymptomatic patients, but gastroscopy may be required at a later date in some of these patients if occult gastrointestinal blood loss is suspected.

A caveat is that, if pre-screening assessment in the context of a positive FOBT result suggests upper gastrointestinal abnormalities (e.g. dysphagia), BDE may be appropriate.

3. Routine screening for Barrett's oesophagus or gastric intestinal metaplasia in a patient referred for colonoscopy

There are no data to support general population screening for Barrett's oesophagus or population screening for gastric cancer in a low-risk, predominantly European population such as in Australia and Aotearoa New Zealand, which have a low annual incidence of gastric cancer. A study examining opportunistic upper endoscopy in patients presenting for colonoscopy in Singapore, where there is an intermediate risk of gastric cancer, showed that the number needed to scope (NNS) to detect one gastric cancer was 282. The NNS to detect extensive intestinal metaplasia or cancer was 54.²⁸ Although opportunistic screening could be considered in high-risk and even intermediate-risk groups, it cannot currently be recommended for low-risk populations.^{28,29} As noted, Indigenous populations, particularly Māori in Aotearoa New Zealand, have specific risks.

4. Non-specific abdominal pain

Endoscopy is not recommended as the appropriate initial investigation in patients with non-specific abdominal pain, in the absence of red flags or any other symptom pertaining to the upper or lower gastrointestinal tract, and has a poor yield in this situation.¹ Patients with non-specific abdominal pain should undergo an appropriate clinical work-up.

Table 1. Summary of recommendations for bidirectional endoscopy (BDE)

BDE is strongly recommended based on current guidelines	BDE may be recommended based on clinical review and results of other investigations	BDE is not routinely recommended
<ul style="list-style-type: none"> Iron deficiency anaemia or persistent unexplained iron deficiency Assessment and surveillance of polyposis and inherited cancer syndromes 	<ul style="list-style-type: none"> Patients with clinically appropriate indications for both upper and lower endoscopy Chronic diarrhoea Inflammatory bowel disease Unintentional weight loss Metastatic malignancy with unknown primary Surveillance procedures due within 6 months of each other Patients living in rural or remote areas who have separate valid indications for upper and lower endoscopy 	<ul style="list-style-type: none"> Routine gastroscopy testing for <i>Helicobacter pylori</i> in a patient referred for colonoscopy Positive result of faecal immunochemical test or immunohistochemical faecal occult blood test without upper gastrointestinal symptoms Australian National Bowel Cancer Screening Program participants without upper gastrointestinal symptoms Routine screening for Barrett's oesophagus or gastric intestinal metaplasia in a patient referred for colonoscopy Non-specific abdominal pain Any other scenario where endoscopy is not indicated or has low clinical yield and value

Conclusion

When performed for an appropriate indication, BDE is cost-effective for both patients and the health care system, while minimising procedural risk.

GESA, RACS, RACP and NZSG support high-quality, high-value endoscopic care and the performance of BDE in the appropriate clinical contexts, as highlighted above.

BDE is inappropriate when there are no valid indications for upper or lower gastrointestinal endoscopy or when endoscopy is of low clinical value and yield. Inappropriate use of BDE can cause harm through procedural complications, prolonged sedation and potential financial cost to the patient, in addition to delaying care for other patients awaiting appropriately indicated procedures.

This position statement considers the common clinical scenarios in which BDE is strongly recommended by guidelines, as well as scenarios where clinical review suggests benefit. In addition,

it considers situations that may be unique to the Australian and Aotearoa New Zealand context. Some statements may require future review, as suggested by new research or changes in guidelines.

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