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# Colonoscopy in Octogenarians at a United Kingdom District General Hospital: Indications, Diagnostic Yield, Completion Rates, and Procedural Tolerance

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## Abstract

### Background

Colonoscopy remains the standard investigation of the large bowel because it permits direct mucosal visualisation, biopsy, polypectomy and ultimately tissue diagnosis. However, colonoscopy in octogenarians can be technically challenging because of multimorbidity, frailty, impaired mobility, difficulties with bowel preparation and preexisting conditions such as diverticulosis. The balance between diagnostic yield and procedural burden is, therefore, particularly important in this cohort of patients.

### Methods

This was a single-centre retrospective analysis of prospectively collected data. All patients aged ⩾80 years who underwent colonoscopy at Southport and Ormskirk Hospital between January and December 2021 were evaluated; three were excluded because of insufficient documentation. Patient characteristics, indications for the procedure, comorbidities, medications and procedural outcomes were obtained from electronic medical records and endoscopy databases. Procedure-related outcomes included bowel preparation quality, caecal intubation, patient comfort, sedation and analgesia, endoscopic findings and the requirement for additional diagnostic investigations.

### Results

A total of 105 patients were analysed (65 men, 40 women). The most common indications were change in bowel habit (n = 37; 35.2%) and anaemia (n = 36; 34.3%), followed by rectal bleeding (n = 14; 13.3%), abnormal CT findings (n = 13; 12.4%), positive faecal occult blood test (n = 10; 9.5%) and surveillance for previous neoplasia or inflammatory bowel disease (n = 10; 9.5%). Fifty patients (47.6%) had more than three comorbidities, 61 (58.1%) were taking more than three regular medications, and 22 (21.0%) were receiving anticoagulation. Good or excellent bowel preparation was achieved in 46 (43.8%) examinations. Colonoscopy was complete (caecal, terminal ileal or anastomotic intubation) in 81 (77.1%) patients. Among the 24 incomplete examinations, documented causes were patient discomfort (n = 7; 29.2%), an obstructing or narrowing lesion (n = 6; 25.0%), looping, acute angulation or other difficult anatomy (n = 6; 25.0%), inadequate bowel preparation (n = 4; 16.7%) and diverticular disease (n = 2; 8.3%). Endoscopic findings included diverticulosis (n = 68; 64.8%), malignancy (n = 15; 14.3%), polyps (n = 14; 13.3%) and colitis (n = 4; 3.8%). Entonox (50% nitrous oxide and 50% oxygen) alone was used in 46 (43.8%) procedures, and three (2.9%) were performed without sedation or analgesia. Most patients (n = 78; 74.3%) had a comfort score of 1 or 2 on a five-point scale.

### Conclusions

Colonoscopy remains an important diagnostic investigation in appropriately selected octogenarians and demonstrated a substantial diagnostic yield in this cohort. However, completion and bowel preparation rates were lower than contemporary quality standards. Individualised assessment of frailty, comorbidity, mobility, bowel preparation tolerance, life expectancy and patient preferences may help identify patients most likely to benefit from colonoscopy and those in whom alternative large-bowel imaging should be considered.

**Categories:** General Surgery, Gastroenterology
**Keywords:** bowel preparation, caecal intubation, colonoscopy, colorectal cancer, elderly, frailty, octogenarians

## Introduction

The choice of large bowel investigations in elderly patients deserves particular attention considering the rapidly ageing population worldwide and the increased prevalence of colonic pathology, specifically tumours, with malignancy diagnosed in up to 24.6% of patients aged 80 years and older undergoing

colonoscopy [1]. Colonoscopy remains the gold standard modality allowing visualisation of the mucosa, biopsy, marking of lesions for subsequent treatment and endoscopic resection of benign polyps and early malignant tumours. Elderly patients with age-related frailty, reduced mobility and often multiple comorbidities can find it difficult to cope with osmotic bowel preparation for the procedure and face incomplete bowel visualisation due to inadequate preparation and pre-existing conditions such as extensive diverticulosis [2-6].

The National Health Service in the UK has now adopted protocol-driven diagnostic pathways that often bypass obtaining a detailed history and performing physical examination in favour of direct triaging for colonoscopy. This approach does not take into account patient-related factors such as frailty, cognitive function and functional status, and arguably neglects patient autonomy. Lin emphasised that colonoscopy should only proceed after careful consideration of potential benefits, risks, and patient preferences [7]. Despite this recommendation, routine practice still frequently omits the shared decision-making step, especially in elderly patients, exposing them to an increased risk of colonoscopy being incomplete and/or complicated. This concern is compounded by service-capacity pressures: a prospective UK national audit found colonoscopy services already stretched even before the introduction of national bowel cancer screening, raising the risk that shared decision-making is curtailed under demand pressure [8].

Advanced age alone should not be regarded as a contraindication to colonoscopy. There is no defined upper age at which colonoscopy becomes inappropriate, and a shared decision-making approach is particularly important in very elderly patients [2].

The aim of this study was to evaluate the indications, diagnostic yield, bowel preparation quality, completion rates, patient comfort and procedural limitations of colonoscopy in patients aged 80 years and older at a UK district general hospital.

## Materials And Methods

This was a single-centre retrospective analysis of prospectively collected data, carried out at Southport and Ormskirk Hospital, which serves a geographical area with a substantial geriatric population. All patients aged ⩾80 years who underwent colonoscopy in the department over a 12-month period, between January 2021 and December 2021, were evaluated; no further inclusion or exclusion criteria were applied. Three patients were excluded because of insufficient documentation, leaving 105 patients for analysis. The study was registered as a clinical audit with the Southport and Ormskirk Hospital NHS Trust Clinical Audit Department (registration number D22-074); formal research ethics committee approval and individual patient consent were therefore not required.

The patient-related variables included age; gender; symptoms that formed indications for colonoscopy; comorbidities such as diabetes mellitus, hypertension and coagulopathies; previous pelvic surgery such as hysterectomy; pre-existing colonic pathology; concurrent medications taken; and mobility and functional independence (independent, walking aid, wheelchair or trolley, or requiring assistance). The procedure-related variables were chosen in accordance with the recommendations of the NEDi2 Key Performance Indicators of the Joint Advisory Group on Gastrointestinal Endoscopy (JAG) [9] and included quality of bowel preparation following the Aronchick scale (graded as excellent, good, fair, poor or inadequate) [10], caecal and terminal ileal intubation (completion rate), patient comfort score on the 5-point modified Gloucester comfort scale [11], medications used for sedation and analgesia and their doses, endoscopic findings, polyp detection and retrieval rates, adverse events, complications, and additional diagnostic procedures required. A procedure was considered complete if the caecum, the terminal ileum or, after previous right hemicolectomy, the ileocolic anastomosis was reached. Indications and endoscopic findings were not mutually exclusive, and percentages are expressed relative to all 105 patients unless otherwise stated. Categorical variables were compared using Fisher's exact test, with $p < 0.05$ considered statistically significant. Completion rates were compared between independently mobile patients and those with reduced mobility (walking aid, wheelchair or trolley, or requiring assistance) using a two-sided Fisher's exact test. Statistical analysis was performed using Python (version 3.13; Python Software Foundation, Wilmington, DE, USA) with the SciPy library (version 1.18).

Data were stored in and obtained from the digital medical records system (Evolve; Kainos Group plc, Belfast, United Kingdom) and endoscopy reporting databases.

## Results

Of 108 patients aged ⩾80 years who underwent colonoscopy during the study period, three were excluded because of insufficient documentation. The remaining 105 patients (65 men, 40 women; median age 83 years, range 80 to 93 years) were included in the analysis (Figure *1*).

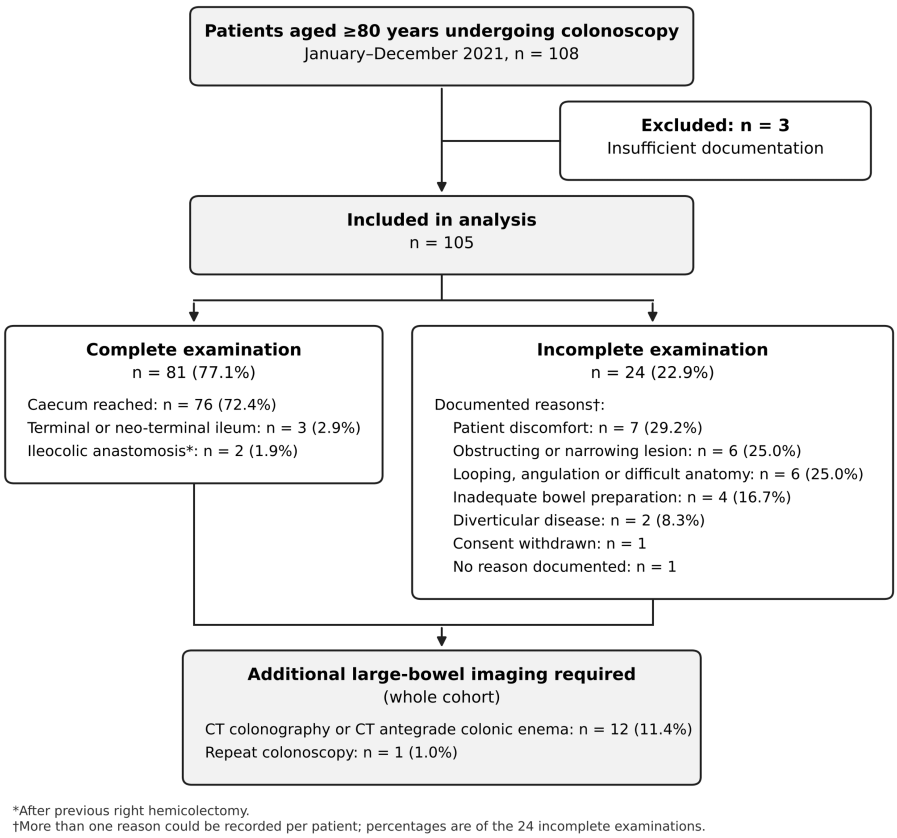



**FIGURE 1: Flowchart of patient selection for colonoscopy**

Flow of patients through colonoscopy, showing exclusions, completion, documented reasons for incomplete examination and additional large-bowel imaging. More than one reason for an incomplete examination could be recorded per patient; percentages for reasons are based on the 24 incomplete examinations. Additional imaging is reported for the whole cohort.

The most common indications for the procedure were change of bowel habit (35.2%) and anaemia (34.3%), followed by rectal bleeding (13.3%), abnormality on CT imaging (12.4%), positive test for faecal occult blood (9.5%) and surveillance for previous neoplasia or inflammatory bowel disease (9.5%); many patients had more than one indication (Table *1*). All but five patients had recorded comorbidities, and almost half (47.6%) had more than three medical conditions with the potential to adversely affect their ability to tolerate the procedure and to increase its risks. These included hypertension, diabetes mellitus, coagulopathy, diverticular disease, previous pelvic and orthopaedic surgery with associated impaired mobility and positioning difficulties during the procedure. More than half (58.1%) were taking more than three regular medications. Most patients (83.8%) were independently mobile, while 17 (16.2%) used a walking aid or wheelchair or required assistance. About a fifth of patients (21.0%) were receiving anticoagulation therapy (warfarin or a direct oral anticoagulant), and a further 19.0% were taking antiplatelet agents. Good or excellent bowel preparation was achieved in only a minority (43.8%) of patients. Preparation was graded excellent in three (2.9%), good in 43 (41.0%), fair in 48 (45.7%), poor in one (1.0%) and inadequate in nine (8.6%) patients and was not recorded in one (Table *2*).

| Variable | n (%) or median (range/IQR) |
|---|---|
| **Age, years, median (range)** | 83 (80-93) |
| 80-84 | 71 (67.6) |
| 85-89 | 30 (28.6) |
| ≥90 | 4 (3.8) |
| **Sex** | |
| Male | 65 (61.9) |
| Female | 40 (38.1) |
| **Co-morbidities** | |
| Number of co-morbidities, median (IQR) | 3 (2-5) |
| More than three co-morbidities | 50 (47.6) |
| **Medications** | |
| Number of regular medications, median (IQR) | 4 (3-6) |
| More than three regular medications | 61 (58.1) |
| **Anti-thrombotic therapy** | |
| Anticoagulant (warfarin or DOAC) | 22 (21.0) |
| Anti-platelet agent only | 20 (19.0) |
| **Mobility** | |
| Independent | 88 (83.8) |
| Walking aid (stick or frame) | 12 (11.4) |
| Wheelchair or trolley | 3 (2.9) |
| Requires assistance | 2 (1.9) |
| **Indication for colonoscopy*** | |
| Change in bowel habit | 37 (35.2) |
| Anaemia | 36 (34.3) |
| Rectal bleeding | 14 (13.3) |
| Abnormal CT imaging | 13 (12.4) |
| Positive faecal occult blood/FIT | 10 (9.5) |
| Surveillance (previous neoplasia or IBD) | 10 (9.5) |
| Weight loss | 7 (6.7) |
| Abdominal pain | 3 (2.9) |
| Urgent suspected cancer (two-week-wait) referral | 11 (10.5) |

**TABLE 1: Baseline characteristics of 105 patients aged ≥80 years undergoing colonoscopy**

Data are n (%) unless otherwise stated. * Categories are not mutually exclusive.

DOAC: direct oral anticoagulant; FIT: faecal immunochemical test; IBD: inflammatory bowel disease; IQR: interquartile range

| Outcome | n (%) |
|---|---|

| | |
|---|---|
| **Bowel preparation quality** | |
| Excellent | 3 (2.9) |
| Good | 43 (41.0) |
| Fair | 48 (45.7) |
| Poor | 1 (1.0) |
| Inadequate | 9 (8.6) |
| Not recorded | 1 (1.0) |
| **Extent of examination** | |
| Complete | 81 (77.1) |
| Caecum | 76 (72.4) |
| Terminal or neo-terminal ileum | 3 (2.9) |
| Ileocolic anastomosis | 2 (1.9) |
| Incomplete | 24 (22.9) |
| **Sedation and analgesia** | |
| Entonox alone† | 46 (43.8) |
| Midazolam and fentanyl† | 29 (27.6) |
| Midazolam and pethidine† | 15 (14.3) |
| Midazolam alone | 8 (7.6) |
| Other opioid-based regimen‡ | 2 (1.9) |
| Hyoscine butylbromide only | 2 (1.9) |
| None | 3 (2.9) |
| **Comfort score (1-5)** | |
| 1 | 34 (32.4) |
| 2 | 44 (41.9) |
| 3 | 18 (17.1) |
| 4 | 7 (6.7) |
| 5 | 1 (1.0) |
| Not recorded | 1 (1.0) |
| **Endoscopic findings*** | |
| Diverticulosis | 68 (64.8) |
| Malignancy | 15 (14.3) |
| Polyps | 14 (13.3) |
| Haemorrhoids | 9 (8.6) |
| Colitis | 4 (3.8) |
| Angiodysplasia/telangiectasia | 3 (2.9) |
| Normal examination | 12 (11.4) |
| **Subsequent large-bowel imaging** | |
| CT colonography or CT antegrade colonic enema | 12 (11.4) |
| Repeat colonoscopy | 1 (1.0) |

**TABLE 2: Procedural outcomes and endoscopic findings (n = 105)**

* Categories are not mutually exclusive. † With or without hyoscine butylbromide. ‡ Entonox with fentanyl (n = 1) and pethidine alone (n = 1). Completion was defined as intubation of the caecum, terminal ileum or, after previous right hemicolectomy, the ileocolic anastomosis.

The procedure was accomplished with Entonox (50% nitrous oxide and 50% oxygen) alone in 43.8% of patients, and 2.9% tolerated it without sedation or analgesia. Most of the remainder received midazolam, either with fentanyl (27.6%), with pethidine (14.3%) or alone (7.6%). Comfort scores were assessed, showing that 74.3% of patients scored 1 or 2 out of 5, with 24.8% scoring 3 or more (score not recorded in one patient).

The procedure was completed in just over three-quarters (77.1%, 81/105) of patients (Figure *1*); the caecum itself was reached in 72.4%, the terminal or neo-terminal ileum in a further 2.9%, and the ileocolic anastomosis in 1.9% (Table *2*). Among the 24 incomplete procedures, the documented factors were patient discomfort (seven; 29.2%), an obstructing or narrowing lesion (six; 25.0%), looping, acute angulation or other difficult anatomy (six; 25.0%), inadequate bowel preparation (four; 16.7%) and diverticular disease (two; 8.3%). More than one factor was recorded in some patients, one patient withdrew consent, and no reason was documented in one.

Diverticulosis was recorded in 64.8% of patients; the other principal positive endoscopic findings were malignancy (14.3%), polyps (13.3%) and colitis (3.8%). The examination was normal in 11.4%.

Colonoscopy did not always provide sufficient diagnostic information, necessitating additional large-bowel imaging by repeat colonoscopy (one patient; 1.0%) and/or CT colonography/CT antegrade colonic enema (12 patients; 11.4%).

Completion was achieved in 69 of 88 (78.4%) independently mobile patients and in 12 of 17 (70.6%) patients with reduced mobility; this difference was not statistically significant (p = 0.53; Table *3*).

| Mobility | Patients, n | Complete, n (%) | Incomplete, n (%) | p-value |
|---|---|---|---|---|
| Independent | 88 | 69 (78.4) | 19 (21.6) | 0.53† |
| Reduced mobility* | 17 | 12 (70.6) | 5 (29.4) | - |
| Total | 105 | 81 (77.1) | 24 (22.9) | - |

**TABLE 3: Colonoscopy completion according to mobility status (n = 105)**

* Walking aid (stick or frame), wheelchair or trolley, or requiring assistance. † Two-sided Fisher's exact test. Percentages are of the patients in each row. Completion was defined as intubation of the caecum, terminal ileum or, after previous right hemicolectomy, the ileocolic anastomosis.

## Discussion

The incidence of colonic pathology and, therefore, the diagnostic yield of colonoscopy increase with age. Karajeh et al. reported a higher diagnostic yield of colonoscopy in elderly patients than in younger controls, with carcinoma detected in 7.1% versus 1.3% of patients, respectively [3]. In a large UK series of 289 octogenarians, Khan et al. similarly reported a caecal intubation rate of 82%, poor bowel preparation in 20%, and malignancy in 15.2% of patients [12]. A more recent 2025 cohort of 447 patients aged ⩾80 years reported by Ding and Lin found that 81.4% completed colonoscopy and 24.6% were diagnosed with a malignant tumour, with inadequate bowel preparation and luminal stenosis again identified among the principal causes of incomplete examination [1]. This supports the use of colonoscopy as a valuable diagnostic tool in symptomatic elderly patients. Our study also highlights a complex interplay between the diagnostic yield of the procedure and its limitations in very elderly patients.

Completion, a key performance indicator, was achieved in only 77.1% of patients, below the minimum standard of 90% advocated by JAG [9]. This compares with the 82% completion rate reported by Khan et al. in 289 octogenarians [12], and with the pooled completion rate of 92.1% (95% CI 86.7-96.3%) reported in a 2024 systematic review and meta-analysis of colonoscopy in nonagenarians, in which adequate bowel preparation was achieved in 81.3% [13]. Similar limitations to ours were observed by Yoong and Heymann, who reported reduced completion in an elderly cohort attributed largely to severe diverticular disease, stricture formation, and poor bowel preparation [14]. Previous studies in octogenarians have also reported lower completion rates than in younger patients [5,12].

It is important to recognise that the 90% JAG standard is a population-level endoscopy quality indicator and should not necessarily be interpreted as an expected completion rate for every subgroup. Our cohort consisted specifically of patients aged ⩾80 years with substantial comorbidity and therefore represents a clinically challenging population.

We found that patient discomfort was the commonest single documented reason for an incomplete procedure (29.2% of incomplete examinations), followed by obstructing pathology and anatomical challenges such as looping, angulation and severe diverticulosis. Together with the patient who withdrew consent, this indicates that limited tolerance of, and cooperation with, the procedure was the most frequent patient-related barrier to completion; in very elderly patients this may be compounded by anxiety, cognitive impairment or difficulty with positioning, factors that were not formally assessed in this study. Inadequate bowel preparation contributed to 16.7% of incomplete examinations, and only 43.8% of all patients achieved good or excellent preparation. These difficulties are well recognised in older cohorts: Lukens et al. found that poor bowel preparation occurred in 16% of octogenarians compared with 4% of younger patients, despite similar preparation tolerance between the two groups [5]. Nearly half of our patients (45.7%) achieved only ‘fair’ preparation.

A prospective study examining risk factors for inadequate preparation in elderly patients found that reduced physical activity during bowel preparation was associated with preparation failure [15], which may be relevant to the subset of our cohort with impaired mobility (16.2%) and to the many with previous orthopaedic surgery. The difficulties associated with bowel preparation in older patients are likely multifactorial and may include reduced mobility, cognitive impairment, constipation, reduced ability to independently complete preparation, and difficulty maintaining adequate hydration.

Individually tailored interventions such as split-dose regimens, enhanced pre-procedure education, caregiver involvement, and assessment of the patient’s ability to complete bowel preparation may improve bowel preparation and, consequently, diagnostic yield. Bowel purgatives carry risks of hypovolaemia, electrolyte imbalance and acute kidney injury, particularly in frail individuals or those on diuretics and angiotensin-converting enzyme inhibitors; measurable electrolyte changes following bowel preparation, particularly with sodium phosphate-based regimens, have been demonstrated in very elderly patients [16]. Inpatient bowel preparation with simultaneous rehydration in selected high-risk and/or frail patients may optimise its safety and success.

Importantly, our findings reflect real-world practice, capturing an elderly, multimorbid patient population less frequently represented in controlled prospective studies. However, most of our patients (83.8%) were independently mobile, suggesting that referrers may already have favoured fitter octogenarians for colonoscopy. Completion was 70.6% (12/17) in patients who used a walking aid or wheelchair or required assistance, compared with 78.4% (69/88) in independently mobile patients; this difference was not statistically significant ($p = 0.53$; Table 3), although the number of less mobile patients was small.

Anaemia and change in bowel habit were the most frequent indications for colonoscopy in our cohort, both being recognisable manifestations of malignancy [17]. Colonoscopy should not be undertaken indiscriminately in elderly individuals, as life expectancy, performance status, age-related frailty and comorbidities must be carefully weighed while advocating for the investigation and considering alternative modalities.

Calderwood et al. found that most older adults undergoing surveillance colonoscopy were advised to return for a further procedure regardless of estimated life expectancy, even though the diagnostic yield of advanced polyps or cancer was low in those with limited life expectancy - supporting the view that in minimally symptomatic patients with limited life expectancy, procedural risk and burden may outweigh potential benefit [18]. Reported 30-day post-colonoscopy complications in the elderly - such as cardiac failure, arrhythmia and gastrointestinal bleeding - are often delayed and can occur after discharge [19], and the true burden of morbidity in these patients may well be underestimated.

The procedure could be tolerated with sufficient comfort, and in almost half of our patients was accomplished with Entonox or without sedation. This is compliant with recommendations on the use of sedatives from the British Society of Gastroenterology [20]. Contrary to the view that octogenarians require higher sedation doses to achieve comparable comfort levels, Karajeh et al. found that elderly patients received a significantly lower mean dose of midazolam than younger patients while still achieving satisfactory procedural outcomes [3]. Optimising sedation strategies, such as titration-to-effect protocols or the use of shorter-acting agents, may enhance safety without compromising patient experience.

The advantages of colonoscopy must be balanced against reduced completion rates, as 11.4% of our patients required additional large-bowel imaging by CT colonography and/or CT antegrade colonic enema. Limited- or minimal-preparation CT colonography has been shown to be feasible in frail elderly patients considered unsuitable for conventional colonoscopy [21] and may represent a useful alternative where colonoscopy is incomplete or considered inappropriate because of procedural risk; however, it does not permit biopsy or endoscopic therapy, and incidental extracolonic findings may prompt further investigation.

A relatively low diagnostic yield has also been reported from colonoscopy performed solely for screening or surveillance in patients aged ⩾80 years, supporting a more selective approach in asymptomatic individuals [22]. As populations age, healthcare systems should adopt more individualised, autonomy-centred approaches to intervention, making decisions based on physiological rather than chronological age. Incorporating frailty indices into triage protocols may further refine patient selection, particularly where face-to-face assessment is not routinely available.

The most pragmatic and realistic way forward is to continue offering colonoscopy to physiologically fit octogenarians selected by an individually tailored approach, while replacing it with less invasive imaging such as CT colonography in more frail individuals.

Several limitations should be acknowledged. This was a single-centre observational study of 105 patients without a younger comparator group, which may limit generalisability. Its retrospective design meant that the analysis depended on the completeness and accuracy of existing documentation: three patients were excluded because of insufficient records, and some variables, such as bowel preparation quality and the reason for an incomplete examination, were not recorded for every patient. The comparison of completion by mobility status was also limited by the small number of patients with reduced mobility (n = 17), and the study was not powered to detect a difference between these groups. Patient-reported outcomes, including satisfaction, willingness to repeat the procedure, and perceived impact on quality of life, were not systematically assessed but would provide valuable insight in future research; nor were frailty, cognitive function or functional status formally assessed using validated instruments, and mobility was recorded only as a simple descriptive category. These factors have important implications for clinical decision-making and service delivery, and when considered alongside the existing literature, our results support a more individualised and cautious approach to colonoscopy in this population.

## Conclusions

Colonoscopy remains an important diagnostic investigation in appropriately selected octogenarians and demonstrated a substantial diagnostic yield in this cohort, including a 14.3% rate of malignancy. However, completion and bowel preparation rates were lower than contemporary quality standards, reflecting the technical and physiological challenges of investigating this population.

Chronological age alone should not determine whether colonoscopy is offered. A more individualised approach incorporating frailty, comorbidity, mobility, bowel preparation tolerance, life expectancy, the indication for investigation and patient preferences may help identify patients most likely to benefit. In patients in whom the risk or likelihood of incomplete colonoscopy is high, alternative large-bowel imaging such as CT colonography should be considered where clinically appropriate.

## Additional Information

### Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Concept and design:** Pranavi Challapalli, Dmitri Artioukh, Krishnan Gokul

**Acquisition, analysis, or interpretation of data:** Pranavi Challapalli, Krishnan Gokul

**Drafting of the manuscript:** Pranavi Challapalli, Dmitri Artioukh, Krishnan Gokul

**Critical review of the manuscript for important intellectual content:** Pranavi Challapalli, Dmitri Artioukh, Krishnan Gokul

**Supervision:** Dmitri Artioukh, Krishnan Gokul

### Disclosures

**Human subjects:** Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Southport and Ormskirk Hospital NHS Trust Clinical Audit Department issued approval D22-074. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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