

Name: Rozalia Alexandra Miulet

Student Number: 2436095

Lecturer: Christopher Mafuva

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Bowel cancer: definition, symptoms and scale of the problem

Introduction

Bowel cancer (colorectal cancer) refers to malignant growths arising from the lining of the large intestine — the colon and rectum — typically developing from benign adenomatous polyps that accumulate genetic mutations over years. Early-stage bowel cancer often produces few or non-specific symptoms, which delays diagnosis and reduces the probability of curative treatment; as lesions advance, symptoms such as blood in the stool, persistent change in bowel habit, abdominal pain, unexplained weight loss and tiredness become more common. Globally, colorectal cancer is one of the most frequently diagnosed cancers and a leading cause of cancer death, with nearly two million new cases and roughly 930,000 deaths estimated in 2020, demonstrating substantial international variation in incidence and mortality. In the United Kingdom, bowel cancer remains among the top common cancers with around 44,000 new cases annually and many thousands of deaths each year, underlining the disease's heavy burden on patients, families and health services.

Definition and clinical features

Bowel cancer denotes malignant transformation of epithelial cells lining the colon or rectum. The common pathway is adenoma → carcinoma sequence driven by stepwise genetic and epigenetic changes. Tumours confined to the mucosa or submucosa may be curable by resection; invasion through the bowel wall or metastasis (commonly liver, lung, peritoneum) worsens prognosis and requires multimodal therapy.

Signs and symptoms

Symptoms are frequently subtle in early disease but commonly include persistent change in bowel habit (diarrhoea or constipation), blood in or on the stool, bleeding from the bottom, a persistent urge to defecate, abdominal pain, a palpable abdominal mass, unexplained weight loss and fatigue. Because these symptoms overlap with benign conditions, persistent or progressive signs should prompt urgent investigation.

Incidence and mortality (global and UK)

Worldwide estimates for 2020 indicate 1.9 million new colorectal cancer cases and 930,000 deaths, ranking colorectal cancer among the top three most diagnosed cancers globally; incidence and mortality vary greatly by region, with higher incidence in many high-income countries and higher mortality where diagnostic and treatment access are limited. In the UK, around 44,100 new bowel cancer cases occur each year (2017–2019 average), representing roughly 11% of new cancers; deaths registered in England and Wales for colorectal cancer numbered more than 15,500 in 2023, illustrating substantial national impact. Projections and continuing surveillance show concerning rises in early-onset disease (under 50s) in some countries, including the UK, prompting research into changing risk exposures.

Consequences of bowel cancer for the community and the NHS

Bowel cancer's consequences are multi-layered, affecting patients and families, community wellbeing and the National Health Service (NHS). At the individual level, diagnosis commonly leads to physical morbidity from surgery, chemotherapy and radiotherapy — procedures that carry acute risks (infection, anastomotic leak, treatment toxicity) and long-term effects (bowel dysfunction, stoma care, neuropathy, fatigue). Psychological consequences — anxiety, depression, body-image disturbance and fear of recurrence — are widespread, with impacts on relationships, work capability and financial security.

For families and communities, the disease imposes care burdens (informal caregiving, time off work) and emotional strain. Early-onset cases (working-age adults) amplify socio-economic consequences: loss of productive years, childcare disruption, and increased reliance on social support systems. Community health literacy also affects outcomes; areas with lower awareness or reduced access to primary care often see later-stage diagnoses.

For the NHS, bowel cancer is a major driver of service demand. High incidence translates to significant surgical caseloads (elective and emergency resections), endoscopy workload (diagnostic colonoscopies, polypectomies), oncology services (chemotherapy, radiotherapy), imaging and long-term follow-up. Screening programmes (faecal immunochemical tests (FIT), colonoscopy lists) and surveillance colonoscopies for high-risk populations require considerable capacity. Backlogs in diagnostics raise the risk of delayed diagnosis; late presentation increases the use of intensive, costly treatments (metastatic systemic therapy, complex surgeries, long-term stoma care). Collectively, these demands exert pressure on workforce, theatre time, endoscopy suites, and budgets, especially in times of constrained resources.

How bowel cancer is controlled (prevention, screening, diagnosis and treatment)

Control of bowel cancer combines primary prevention, secondary prevention (screening), early diagnosis pathways, treatment and survivorship care.

Primary prevention targets modifiable risk factors: promoting high-fibre diets rich in fruit, vegetables and whole grains; reducing processed and red meat intake; supporting healthy body weight and physical activity; limiting alcohol and tobacco use. Public health campaigns and policy levers (nutritional guidance, obesity strategies, alcohol pricing, tobacco control) are central to population risk reduction.

Secondary prevention: organised population screening detects cancer early and removes precancerous polyps. The UK runs a national bowel screening programme using FIT for age-based cohorts (with colonoscopy follow-up for positive tests), which reduces mortality and incidence by detecting early cancers and adenomas. Rapid-access two-week-wait referral pathways from primary care for suspected cancer and triage tools aim to shorten diagnostic delay.

Diagnosis and staging rely on colonoscopy with biopsy, cross-sectional imaging, and multidisciplinary team (MDT) assessment to determine stage and optimal management. Treatment is stage-specific: surgery is curative for localised disease; adjuvant chemotherapy for selected stage II/III; combined chemoradiotherapy for rectal tumours; targeted agents and immunotherapy for selected advanced cases. Palliative care and supportive services are integral for quality of life in incurable disease. Advances in minimally invasive surgery, neoadjuvant therapy, and molecularly targeted treatments have improved outcomes but require infrastructure and specialist expertise.

Factors influencing health and well-being of affected people and their circles

Multiple interlocking factors determine outcomes for people with bowel cancer and their families:

1. Socioeconomic determinants — Deprivation influences stage at diagnosis, access to screening and treatments, and long-term survival. Socially disadvantaged groups often present later and have worse outcomes due to barriers in healthcare access, lower health literacy and competing life priorities.

2. Health-system factors — Availability of timely primary care, diagnostic endoscopy capacity, specialist surgical units, oncology services and survivorship support influence prognosis. Regions with robust screening and rapid diagnostic pathways show improved stage distribution and survival; where capacity is limited, late presentation and poorer outcomes predominate.

3. Biological and genetic factors — Age, family history, and inherited syndromes (Lynch syndrome, familial adenomatous polyposis) substantially alter risk and shape surveillance needs. Tumour biology (molecular subtypes, mismatch repair status) informs therapy choices, especially immunotherapy eligibility.

4. Lifestyle and comorbidities — Obesity, sedentary behaviour, poor diet, smoking and heavy alcohol consumption increase both incidence and poorer perioperative outcomes. Comorbidities (cardiovascular disease, diabetes) raise surgical risk and complicate treatment tolerance.

5. Psychological and social support — Emotional resilience, social networks, employment flexibility, and access to psychological and rehabilitation services influence recovery, return to work and long-term wellbeing. Lack of support worsens mental health and can reduce adherence to follow-up and adjuvant therapy schedules.

6. Emerging environmental and microbiome factors — Recent genomic and microbiome research suggests that early-life exposures (including gut bacteria producing the genotoxin colibactin) may leave mutational signatures that raise early-onset risk decades later. Such discoveries highlight complex etiologies beyond classic lifestyle risk factors and may influence future prevention strategies (for example, microbiome-directed interventions).

Community and system responses to reduce burden

To reduce the burden, coordinated strategies include: expanding and optimising screening coverage; improving public awareness of red-flag symptoms especially among younger adults; strengthening primary-care recognition and referral; investing in endoscopy capacity to reduce diagnostic waits; offering genetic counselling for high-risk families; and integrating rehabilitation, mental-health and social support into survivorship care. Population-level prevention policies (dietary, obesity, alcohol and tobacco controls) coupled with targeted interventions (screening, surveillance and vaccination where appropriate) form the essential mix to reduce future incidence and mortality.

Conclusion

Bowel cancer remains a major public-health problem worldwide and in the UK: common, potentially preventable, and highly treatable when detected early. The disease imposes profound physical, psychological and socioeconomic consequences on individuals, families and health systems. Effective control requires a dual approach — population-level prevention to reduce exposure to modifiable risks (unhealthy diets, obesity, smoking, alcohol, inactivity) and robust secondary prevention (screening and rapid diagnostic pathways) to detect and treat disease early. Health inequities and rising early-onset incidence highlight the need for tailored awareness, expanded research into emerging causes (including microbiome-related mechanisms), and investment in NHS diagnostic and treatment capacity. Strengthening social and psychological support for patients and caregivers is equally vital. Continued surveillance, research, health-promotion policy and well-resourced clinical services together can reduce the burden of bowel cancer and improve outcomes for affected people and communities.

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