Northern Ireland bowel cancer screening programme

Information for health professionals

BOWEL CANCER SCREENING

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Background information: bowel cancer (colorectal)

Incidence and mortality

In Northern Ireland:

- Colorectal cancer is the second most common cancer in both men and women.[1]
- There are more than 1,000 new diagnoses and over 400 deaths each year.[1]
- The lifetime risk of developing bowel cancer is 1 in 16 for men and 1 in 20 for women.[2]

Table 1: UK bowel cancer cases and incidence rates (2006)[2]

	England	Wales	Scotland	Northern Ireland	UK
Cases					
Males	16,778	1,214	1,875	563	20,430
Females	14,012	957	1,635	480	17,084
All	30,790	2,171	3,510	1,043	37,514
Age-standardised rate (European) per 100,000 population					
Males	54.9	61.8	61.3	62.9	56.0
Females	36.0	39.1	40.4	41.1	36.4
All	44.4	49.4	49.4	50.8	45.3

Survival rates

Survival rates for bowel cancer have improved significantly over the past few decades through improvements in treatment. Early diagnosis is however vitally important, as survival in bowel cancer is greatly influenced by early detection.[3] Dukes' staging (a measure of how far advanced the cancer is at diagnosis) five year survival rates for Northern Ireland are shown in Table 2.

Table 2: Dukes' staging survival rates[3]

Dukes' stage	Approximate five year survival
A	**92%**
B	**79%**
C	**48%**
D	**11%**
Unstaged	**38%**

Risk factors

Although the exact cause of bowel cancer is not fully understood, the following risk factors have been identified:

- **Age/sex** – The development of bowel cancer is strongly associated with age. More than 80% of cases occur in those aged 60 and over. Men and women have a similar risk of developing bowel cancer up to the age of 50, but after this rates are significantly higher in men.[2]

- **Diet and lifestyle** – Reduced levels of physical activity, obesity and a diet that is high in red meat and low in fruit, vegetables and fibre have been shown to increase the risk of developing bowel cancer.[4,5] Excessive alcohol consumption of over 45g/day (approximately 5.5 units) has been shown to increase the risk of bowel cancer by 41%.[6]

- **Family history** – Individuals with either one first-degree relative (parent, child or sibling) diagnosed with bowel cancer before the age of 45 or two first-degree relatives diagnosed at any age have an increased risk of developing bowel cancer. For these individuals, the lifetime risk increases to 16–25% in men and 10–15% in women. [7] Having one first-degree relative diagnosed at over 45 years of age leads to only a slight increase in lifetime risk (normal lifetime risk is 1 in 16 (6%) for men and 1 in 20 (5%) for women).[2]

- **Genetic conditions**

  Familial adenomatous polyposis (FAP) accounts for around 1% of bowel cancer cases. People with this condition develop hundreds or thousands of polyps in the colon and rectum in their twenties and thirties, and have almost a 100% chance of developing bowel cancer by their forties. Individuals with FAP are usually offered prophylactic colectomy in their teens or twenties.[8]

  Hereditary non-polyposis colorectal cancer (HNPCC) accounts for around 2–5% of cases of bowel cancer. Polyps develop at a younger age and at a greater frequency than in individuals who do not have the disease, but not in such large numbers as in FAP. HNPCC is linked to bowel cancer in younger age groups and is the cause of around 40% of cases in individuals under 30.[8] There may be other non-colorectal sites affected, eg endometrium, ovary, stomach, pancreatobiliary system and urinary tract. The original definition of HNPCC has been modified to encompass the excess risk of endometrial cancer.

Disease course

Over 90% of bowel cancer cases are adenocarcinomas, arising mainly from adenomatous polyps.[9] Adenomatous polyps increase in prevalence with age, and are present in approximately one in four people by the age of 50. Studies suggest that 1–10% of polyps change into invasive cancers.[10] The development of a polyp into a cancer can take more than 10 years, with larger size, villous history and severe dysplasia being important indicators of progression to invasive cancer. Flat adenomas account for 10% of lesions, are harder to detect and may carry a higher risk of malignancy.[9]

Signs and symptoms

Patients with bowel cancer often present late having not reported their symptoms straight away. This tendency to present late is one of the reasons for advocating a screening programme. The most common signs and symptoms of bowel cancer are rectal bleeding, a change in bowel habit and anaemia. Nausea, weight loss, abdominal pain and anorexia may be experienced in more advanced disease.[11] While individual symptoms may be poor predictors of bowel cancer, the presence of a combination of signs and symptoms is more sensitive and specific.[12]

The Northern Ireland bowel cancer screening programme

Why screen for bowel cancer?

Population-based screening for bowel cancer is recommended for a number of reasons. Firstly, bowel cancer is a major public health problem. Secondly, most cases develop slowly over a number of years as benign adenomas which then transform into malignant adenocarcinomas. This provides the opportunity for early detection of asymptomatic conditions, either to remove polyps before malignant transformation or to treat cancers at an early stage when survival rates are high.

Benefits of screening

Four randomised controlled trials (RCTs) of mass population screening using the faecal occult blood test (FOBt) have been carried out across the world. A meta-analysis of these trials demonstrated a 15% reduction in bowel cancer specific mortality in the two-yearly screened population.[13]

UK bowel screening programmes

In the UK, national bowel cancer screening programmes were first introduced in England, then Scotland and then Wales. In Northern Ireland, the bowel cancer screening programme will commence in April 2010. The target population will initially be those aged 60–69.

The bowel cancer screening programme is quite different to other screening programmes because it will be carried out by the person themselves in their own home. This should make it very accessible to the public but technical and other barriers must be addressed in order to best promote its uptake.

The screening test

The faecal occult blood test (FOBt)

Individuals will be sent a FOBt kit to be completed at home. The kit comes with a letter, an instruction leaflet, and cardboard sticks with which to apply small samples of bowel motion to the various 'windows' (see instruction leaflet for further details). The completed kit is then placed, and hygienically sealed, in the Freepost envelope to be immediately sent to the screening laboratory for testing. The kit must be returned within 10 days of the first sample being taken to ensure reliable results are obtained.

FOBt uptake

Over 4.5 million test kits have now been issued as part of the English programme. Results from the screening programme in England show the uptake of FOBt screening is approximately 57%. Wales report an overall uptake rate of 60%. Uptake has been greater among women than men.

Test results

Participants will receive a letter giving them the result of their test within two weeks of the kit being received by the laboratory. The possible results of the FOBt are shown in Table 3.

Table 3: FOBt results

Result	Explanation
Negative	No blood detected
Unclear	1–4 windows show blood
Positive	5–6 windows show blood
Spoiled	Not correctly completed/ out of date

The faecal immunochemical test (FIT)

Individuals who receive an 'unclear' result following their FOBt will be sent a different test kit called the faecal immunochemical test (FIT) kit. Immunochemical tests are specific to human haemoglobin and have a lower false positive rate but are significantly more expensive than the FOBt.

Individuals who receive a 'spoiled' result for whatever reason following their FOBt will be sent a FIT kit with a letter and new instruction leaflet explaining this. The possible results of the FIT are shown in Table 4.

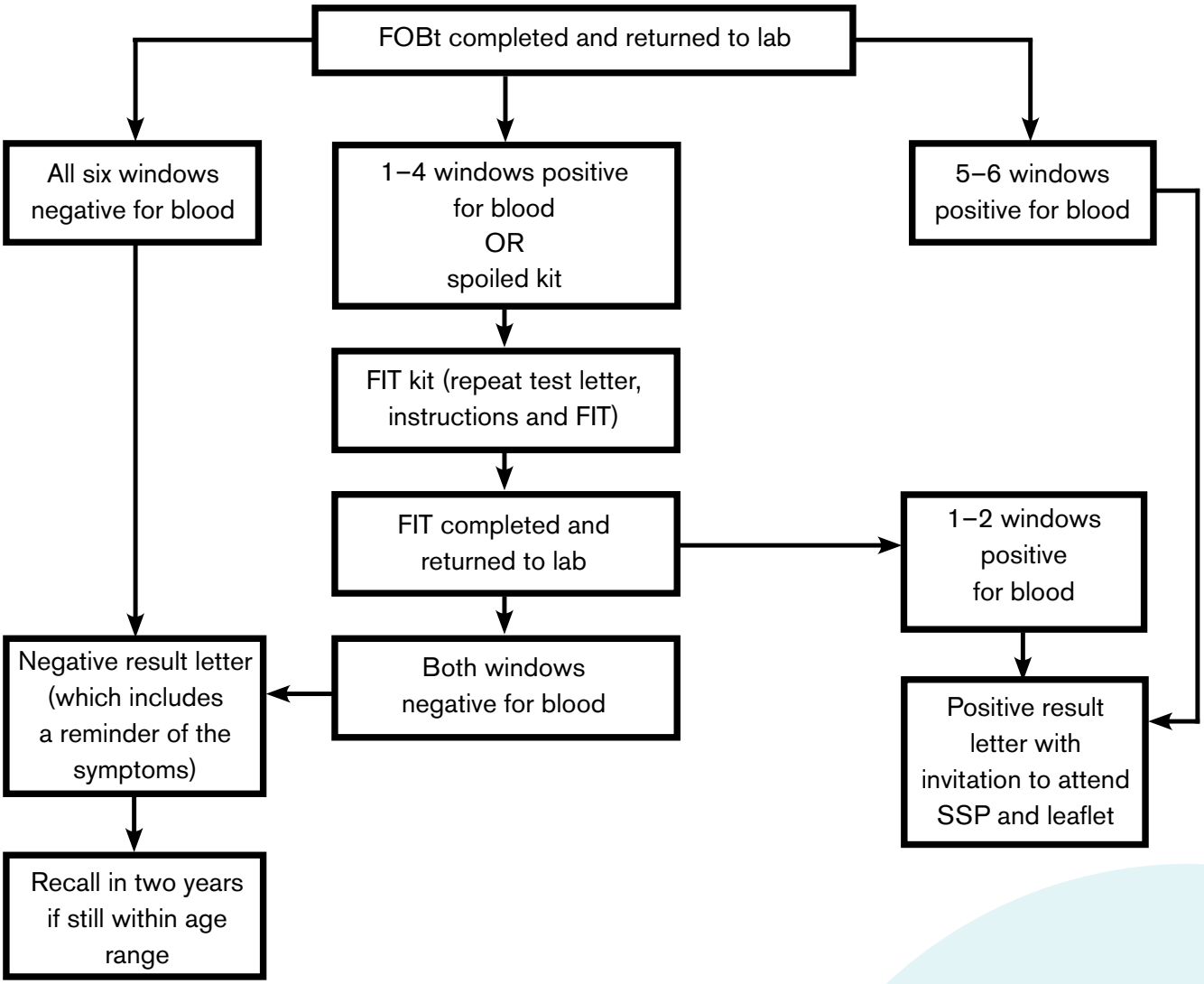
Table 4: FIT results

Result	Explanation
Negative	No blood detected
Positive	1–2 windows show blood
Spoiled	Not correctly completed/ out of date

Positive test results

When a person receives a positive FOBt or FIT result, they will be offered an assessment with a specialist screening practitioner (see page 8).

Figure 1: Flow chart showing possible outcomes of the bowel cancer screening tests



The role of the call/recall centre

The call/recall centre will cover the whole of Northern Ireland and be responsible for sending out the test kits to the eligible population every two years. The call/recall centre will identify all eligible members of the public that are registered with a GP in Northern Ireland. The centre will ensure that a FOBt kit is sent out to them within 24 months of them entering the eligible age group.

The centre will organise follow up reminder letters if people do not return their test kit. They will also organise an assessment appointment with the specialist screening practitioner (SSP) following a positive test result. The call/recall centre will operate the freephone helpline (0800 015 2514), which will offer advice to screening programme participants on completing the test. Participants seeking clinical advice will be directed to their GP.

Mechanisms will be put in place to enable suspension or ceasing of people from the programme. Failsafe procedures have been put in place across all aspects of the programme.

The role of the specialist screening practitioner (SSP)

Individuals with a positive FOB/FIT test will receive a leaflet explaining what happens next and a letter asking them to contact the freephone helpline to arrange an appointment with the specialist screening practitioner (SSP) for assessment for colonoscopy. The first offered assessment should be within 14 days of the individual contacting the helpline.

At the assessment for colonoscopy the SSP will seek to answer whatever questions a person has regarding the next steps and will provide information on why further investigation is necessary. They will discuss the suitability of colonoscopy or other investigations and the risks and benefits of each decision. Plenty of time will be allowed for this important discussion.

Specialist screening practitioners are specially trained in the pre-assessment of individuals for colonoscopy. They work closely with the local colonoscopy service and are able to seek the advice of the colonoscopist if required.

The SSP will arrange the necessary bowel preparation and a suitable date for colonoscopy. This should be within 28 days of the date the person contacted the call/recall centre. The colonoscopy will be carried out at a nominated Bowel Screening Colonoscopy Centre which is accredited by the Joint Advisory Group (JAG) on Gastrointestinal Endoscopy and the procedure will be performed by a colonoscopist who has completed an approved competency based training programme. Only the nominated centres are quality assured by the Northern Ireland Bowel Cancer Screening Programme.

The role of the GP and other health professionals

Although primary care professionals will not be directly involved in the delivery of this screening programme, GPs will be kept informed at all key stages in the screening pathway as relates to their patients. It is hoped that the majority of communication will be electronic and linked to in-house computer information systems.

Given the unique relationship that GPs have with their patients, and the knowledge that they have of their health situation, there may be occasions when clarification of an individual's previous health or prior investigations may require the GP to be involved.

It would be reasonable to expect some people to seek the advice of their GP regarding a decision to take part in the screening programme or further investigations. It is recognised that patients often rely on the advice of their GP when making health decisions.

Bowel cancer screening may not be appropriate for everybody. Individuals need not complete the test kit if they:

- have had their large bowel removed;
- have had a colonoscopy or a barium enema plus a sigmoidoscopy within the last two years;
- are on a bowel polyp surveillance programme;
- are currently being treated for bowel cancer;
- are currently being treated for ulcerative colitis or Crohn's Disease;
- are currently awaiting bowel investigations.

Outcomes of screening

There are ultimately only two possible outcomes of the initial screening phase - a negative or a positive result. The vast majority of people will have a negative test result and on receiving such confirmation will have no further contact with the programme until a further two years have passed (if they are still within the target age group).

Those with a positive FOBt or a positive or spoiled FIT (10 in every 500 tested) will be invited to attend an assessment with a specialist screening practitioner to discuss further investigations.

Diagnostic testing

The screening test is not diagnostic and only indicates a need for further investigation.

Colonoscopy

Only colonoscopy allows high definition direct visualisation of the bowel with the added ability of sampling and removal of polyps or other suspicious lesions. It is for these reasons that colonoscopy is the investigation of choice following a positive screening test. While other investigation methods are available these would only be considered if there was a genuine clinical reason for not doing a colonoscopy.

Other diagnostic tests

Other diagnostic tests include sigmoidoscopy, double-contrast barium enema and CT colonoscopy.

Treatment

If bowel cancer is diagnosed the care of the patient will be handed over from the screening programme to the relevant multidisciplinary team (MDT). Following the usual consultation by the MDT and discussion with the patient, an individual programme of treatment and care will be agreed. The vast majority of patients will have surgery to remove the cancer. Pre- or post-operative chemotherapy or radiotherapy may also be offered to patients.

Individuals with significant non-cancerous polyps will be entered into a polyp surveillance programme as per British Society of Gastroenterology guidelines.

Quality assurance

As with other cancer screening programmes, there will be ongoing monitoring of all aspects of the programme against an agreed set of quality standards. This will be coordinated and overseen by the Quality Assurance Reference Centre of the Public Health Agency.

References

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Further reading

Northern Ireland Bowel Cancer Screening Programme website
www.cancerscreening.hscni.net

Northern Ireland Cancer Network
www.cancerni.net

Northern Ireland Cancer Registry
www.qub.ac.uk/research-centres/nicr/

Action Cancer
www.actioncancer.org

Ulster Cancer Foundation
www.ulstercancer.org

Cancer Research UK
www.cancerresearchuk.org

NHS Bowel Cancer Screening Programme
www.cancerscreening.nhs.uk/bowel

Scottish bowel screening programme
www.bowelscreening.scot.nhs.uk

Welsh bowel screening programme
www.wales.nhs.uk/bsw

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www.cancerscreening.hscni.net

HSC Public Health Agency

DHSSPS
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