BowelScreen Programme Report 2020-2021

An tSeirbhís Náisiúnta Scagthástála
National Screening Service

BowelScreen
An Clár Náisiúnta Scagthástála Putóige
The National Bowel Screening Programme

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The National Bowel Screening Programme

Screening charter

About BowelScreen – The National Bowel Screening Programme

- BowelScreen – The National Bowel Screening Programme offers free bowel screening to men and women aged 60 to 69. The BowelScreen programme will over time be offered to all people aged 55-74.
- The bowel screening test is carried out in your own home.
- Bowel screening can detect changes in the bowel before they become cancer.
- Bowel screening aims to find bowel cancer at an early stage when it is easier to treat.

Our commitment to you

- We will respect your privacy, dignity, religion, race and cultural beliefs.
- We will arrange services and facilities so that you can use the service, including special needs.
- We will keep your screening records safe and confidential.
- We will welcome your views and take them into account.
- We will provide a Freephone information and support line during normal working hours.
- We will offer you free screening every two years while you are aged 60 to 69, once you become known to the programme.
- We will provide information explaining each step in the screening process.
- We will send your home test kit, instructions and information to you within five working days of you letting us know you want to take part in the programme.
- We will screen your test in a laboratory that meets high quality standards.
- We will send your test result to you and to your GP (family doctor) within four weeks.

If you take part in the screening programme and your test result is not normal

- We will offer you a colonoscopy – a special examination of your bowel.
- A colonoscopy will be offered within four weeks of you being assessed as suitable.

If you need treatment

- We will tell you sensitively and honestly.
- We will explain the treatment available to you.
- We will encourage you to share in decision-making about your treatment.
- We can include your partner, friend or relative in any discussions if that is what you want.
- We will offer you surgery or other treatment within 25 working days after your colonoscopy, if you need it.
- We will offer you support from a nurse before and during your colonoscopy.
- You have the right to refuse treatment, to get a second opinion or to choose an alternative treatment.

Ways you can help us

- Read any information we send you and if you have any questions you can call the Freephone information and support line.
- Follow the instructions with your BowelScreen home test and return the test to us within seven days.
- If we refer you for more tests, keep your appointment time and give at least three days' notice if you need to change your appointment.
- Tell us if you have special needs that we need to plan for.
- Tell us if you change your address.
- Tell us what you think of the service and the care you received. Your views will help us to improve the service for you and for other people.

Freephone
1800 45 45 55
www.bowelscreen.ie

An tSeirbhís Náisiúnta Scagthástála
National Screening Service

The National Screening Service is part of the Health Service Executive. It encompasses BreastCheck – The National Breast Screening Programme, CervicalCheck – The National Cervical Screening Programme, BowelScreen – The National Bowel Screening Programme and Diabetic RetinaScreen – The National Diabetic Retinal Screening Programme.

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Introduction from the

BowelScreen Clinical Director

BowelScreen is one of the National Screening Service's three cancer-screening programmes. It aims to detect colorectal (bowel) cancer as early as possible and to identify and remove adenomas or polyps (abnormal tissue growths). This greatly reduces the risk of bowel cancer developing in future.

Colorectal cancer in Ireland

Bowel cancer was consistently the second most common cancer accounting for male deaths from 2005 to 2017, but during 2018-2020 it fell to third, behind lung and prostate cancers[1]. The number of new cases is expected to increase significantly over the next 10 years, due mainly to an increasing and ageing population[2].

As most colorectal cancers are thought to arise from benign growths known as adenomas, a screening programme that can detect many of these adenomas early will save many lives.

Colorectal screening

The primary objective of colorectal cancer screening is to detect and remove pre-cancerous adenomas in the lining of the bowel, thereby making colorectal cancer screening a truly preventative health measure.

This has the effect of potentially reducing the burden of treatment on both the individual and the health system. It reduces the stress, disruption, and anguish that cancer diagnoses and subsequent treatment can bring to the individual, their family, and their wider community.

About BowelScreen

The BowelScreen colorectal screening programme began in 2012 to offer free screening to men and women aged 60-69 on a two-yearly cycle. We are now working to offer screening to all people aged 55-74 over time.

As its primary screening tool, the programme uses the faecal immunochemical test (FIT) a home-based test which detects a level of blood in the stool. It operates on an automated testing platform. Ireland was one of the first countries to adopt this technology for organised population-based colorectal cancer screening. One of the advantages of using this test in a population-based screening programme is that it can be self-administered in the privacy of the person's own home.

No screening test is 100 per cent accurate and not all cancers or abnormalities will be detected through screening. The FIT relies on a cancer, or adenoma, bleeding at the time of the test. Therefore, there will be false negatives when the FIT is negative, and an adenoma or polyp is present. Alternatively, there will be false positives when the FIT is positive, and a subsequent colonoscopy shows no significant cause. In some of these cases, it may be that the FIT detects blood from benign conditions such as piles, rather than adenomas linked to cancer.

For the majority (approximately 95 per cent) of people, the FIT will be the only test needed. For a small minority (approximately 5 per cent), a further test, called a colonoscopy, will be necessary and is performed at a hospital endoscopy unit.

COVID-19

Ireland had its first case of COVID-19 in February 2020 which led to a containment phase followed by full lockdown in March 2020.

BowelScreen adhered to the national priority to keep essential services going as directed by the National Public Health Emergency Team. Healthcare staff, including screening programme staff, were redeployed and/or working as part of the national response to COVID-19 and protecting essential services for people with symptoms of illness.

In March 2020, all BowelScreen units stopped scheduling screening colonoscopies, and endoscopy staff were redeployed. By the end of July 2020, all BowelScreen units were starting to schedule screening colonoscopies again. Colonoscopy capacity was estimated to be at 30 to 50 per cent. In October 2020, endoscopy capacity was estimated to be at 40 to 70 per cent.

In Q1 2021, endoscopy capacity varied across sites. It was evident that units would not operate at full capacity for the foreseeable future. In addition, in May 2021, the HSE cyber-attack severely impacted endoscopy capacity, resulting in a period where there was no access to the BowelScreen database in any BowelScreen colonoscopy site.

Despite these significant challenges, in December 2020, we expanded to offer endoscopy services in Waterford University Hospital, bringing the total number of participating hospitals to 14.

Throughout 2020 and 2021 good communication was key. Good working relationships are essential to the success of the BowelScreen programme. We acknowledge the valuable contribution from our service delivery partners in working with us as we remained vigilant, flexible and ready to respond to changing situations in a timely way. Throughout the period the programme remained flexible and agile as we responded to the updated information, advice and guidelines related to COVID-19.

I am pleased to present the key findings arising from the 2020 to 2021 reporting period of colorectal screening in Ireland.

The figures reported relate to people invited for screening between 01 January 2020 and 31 December 2021. Some of these people may have been screened and/or treated in 2022.

Results during the period 2020-2021

Bowel cancer can be a treatable disease, if detected early. Evidence indicates that there is about a 90 per cent chance of living more than five years following diagnosis, if cancer is detected at Stage 1 of the disease[3].

During the 2020 to 2021 reporting period, BowelScreen invited 299,898 eligible people and screened 139,618 people. The programme performed 3,878 index colonoscopies, 3,233 surveillance colonoscopies and detected 208 cancers. This represents a screening uptake rate of 46.6 per cent, which was an increase on the 2018 to 2019 period, and a cancer detection rate of 1.49 per 1,000 people screened.

In addition, 6,720 adenomas or polyps were removed. These are abnormal tissue growths that can become cancerous at a later stage. The removal of pre-cancerous polyps greatly reduces the risk of future bowel cancer development.

We also detected 835 sessile serrated lesions (SSLs). SSLs are flat, pre-cancerous polyps that can develop into bowel cancer. They can be difficult to visualise at colonoscopy, which is why excellent bowel preparation is so important. BowelScreen is one of the first international bowel screening programmes to report on these lesions.

Concluding remarks

The years 2020-2021 were unprecedented in the delivery of any health service. Despite the well documented challenges of COVID-19 during 2020-2021, the programme ensured it maximised what it could deliver for the Irish public. This could not have been achieved without the dedication and professionalism of the people who work to ensure that services are delivered to high standards.

I would like to thank the NSS's Programme Evaluation Unit for compiling the data contained in this report. I also wish to acknowledge the BowelScreen Programme Manager, the BowelScreen team, the ICT Department, and those who provide leadership and advice within the National Screening Service.

In addition, I must extend my thanks to past and present members of our Clinical Advisory Group and Quality Assurance Committee, for their ongoing professional dedication, input and support.

Finally, it is important to note that the BowelScreen programme would not be possible without the professionalism of clinicians, hospital administration and management.

I am greatly encouraged that the additional support provided by the HSE National Endoscopy Working Group of the HSE Acute Operations Endoscopy Programme, and the Department of Health, will ensure that the programme continues to progress and mature.

Professor Pádraic Mac Mathúna,
Clinical Director

Message from the

Programme Manager of BowelScreen

Since the establishment of BowelScreen in 2012, the NSS has made significant progress in developing the programme. As the programme matures, strategic planning is provided by the Executive Management Team and Corporate Management Team.

These groups incorporate support from across the NSS, including the Programme Evaluation Unit; Public Health Department; Information Communication Technology; Strategy Business and Projects; Communications; Quality Safety and Risk; Human Resources; Client Services; and Finance, as well as the Colorectal Operations Committee.

The programme delivers through its strong relationships with our hospital partner sites, clinical staff, hospital administration management and administration.

I wish to acknowledge the work and dedication of everyone involved in the continued delivery of the programme, as well as the individual patient and public representatives who work with us in the delivery of our services as part of the Patient and Public Partnership strategy.

I also wish to recognise the contribution of BowelScreen service delivery partners who provide FIT home test distribution, analysis, letter management and call management. Their dedication and professionalism have ensured that, during the reporting period, almost 300,000 invitation letters were issued, along with the many thousands of reminder, recall, result and GP letters.

The NSS continues to work with the Acute Hospitals Division of the HSE and the Department of Health. BowelScreen is committed to working in partnership with the National Endoscopy Working Group to promote and drive service improvements across all hospital groups.

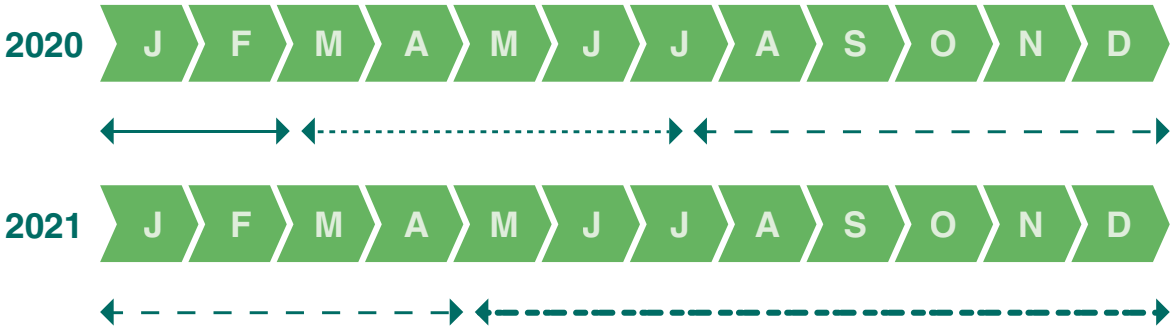
The impact of COVID-19 was significant on clinical services within our hospitals with many staff being temporarily redeployed to critical areas within the health service. Colleagues who remained within endoscopy worked tirelessly to support the service. Our service delivery partners worked closely with us during this difficult period to ensure that we delivered a service where possible. I am grateful to my colleagues, both those who were redeployed, and those who remained to support our core services, and the BowelScreen team for their professionalism and flexibility during this period.

COVID-19 presented a unique opportunity for us to support the symptomatic service using our knowledge, skills, and expertise on the procedure of using FIT. The programme worked with National Endoscopy to explore how we could support the symptomatic service during this time. We delivered a proof-of-concept pilot on behalf of the HSE acute operations endoscopy programme. It aimed to identify if the use of the FIT is effective as a means of clinically validating patients on the routine symptomatic colonoscopy waiting list.

As we work to return to pre-pandemic levels of activity and build capacity that will allow us to expand the age range of the programme in line with the National Cancer Strategy (2017-2026), we will deliver continuous improvements so that we have a positive impact on population health in Ireland. In the years ahead, we will continue to work to ensure the quality and equity of our service. We will prioritise groups that we need to reach, to increase the number of people who choose bowel screening.

Hilary Coffey Farrell,
Programme Manager

Figure 1. Description of BowelScreen operational response to the COVID-19 pandemic



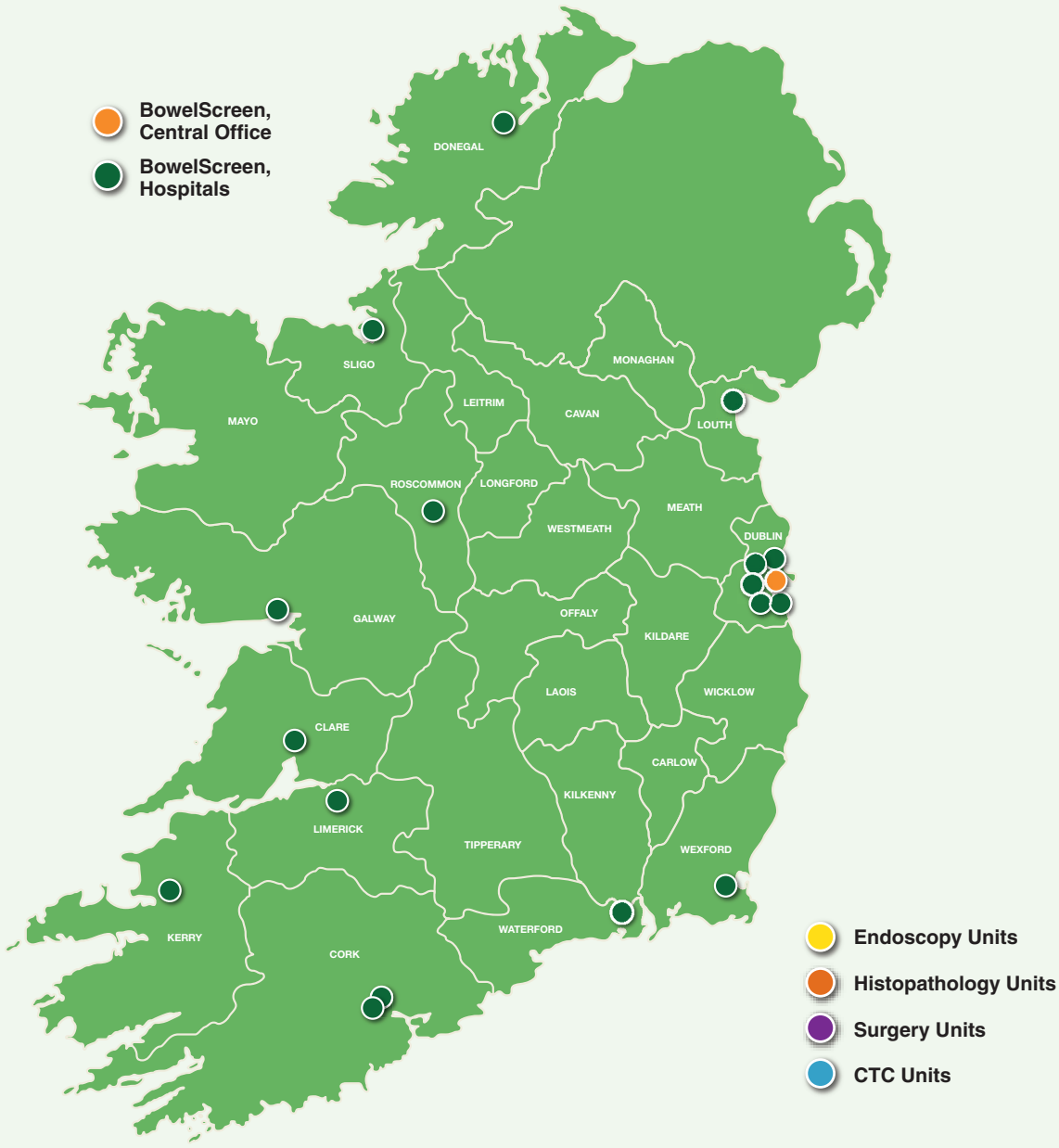
BowelScreen operational period.

On 12 March 2020, BowelScreen stopped issuing invitations and endoscopy units stopped scheduling screening colonoscopies in response to the COVID-19 pandemic.

By the end of July 2020, all BowelScreen units were scheduling screening colonoscopies at reduced capacity. In August 2020, the programme restarted issuing invitations in line with available endoscopy capacity. In Q1 and April of 2021, endoscopy capacity remained at reduced levels.

The HSE cyber-attack on 14 May 2021 and the continued impact of COVID-19 severely affected endoscopy capacity in Q2 and Q3 2021. BowelScreen endoscopy capacity remained at reduced levels due to these two national emergencies.

Figure 2. An overview of BowelScreen's clinical service providers



Mater Misericordiae, Dublin	●	●	●	●
St. Vincent's, Dublin	●	●	●	●
Connolly Hospital, Dublin	●			
St. James Hospital, Dublin	●	●	●	●
Beaumont Hospital, Dublin		●	●	●
Louth County Hospital	●			
Ennis Hospital, Co. Clare	●			
Letterkenny University Hospital	●			
University Hospital Limerick		●	●	

Mercy, Cork	●			
Cork University Hospital		●	●	●
University Hospital Kerry	●			
Galway University Hospital	●	●	●	
Sligo University Hospital	●			
University Hospital Waterford	●	●	●	
Wexford General Hospital	●			
Roscommon University Hospital	●			

Highlights of 2020-2021

299,898
eligible people invited

139,618
satisfactory FIT tests completed

46.6%
screening uptake rate

208
cancers detected

2,255
participants found to have adenomas

6,720
adenomas removed

376
participants with advanced adenomas removed

58.2%
adenoma detection rate

Programme performance

Screening activity

The years 2020-2021 were unprecedented in the delivery of any health service in Ireland. Despite the well-documented challenges of COVID-19, during 2020-2021 the programme ensured it maximised what it could deliver for the Irish public. The figures reported relate to people invited by BowelScreen for screening between 01 January 2020 and 31 December 2021. Some of these people may have completed their screening care and have been screened and/or treated into 2022. The data for previous years have been previously published online[4-6].

Programme standards, against which performance is measured, are based on the *Guidelines for Quality Assurance in Colorectal Screening*[7].

During 2020 and 2021, 299,898 people were invited by BowelScreen for screening (Table 1). Of these, 154,472 chose screening, and 139,618 satisfactory faecal immunochemical tests (FIT) were completed and returned. This reflects a screening uptake rate based on the eligible population of 46.6 per cent, which was the highest uptake achieved by the programme to date but still below the programme standard of 50 per cent.

BowelScreen can be most effective in reducing mortality from bowel cancer in the population if at least 50 per cent of eligible people attend for screening. Adenomas were detected in 2,255 people undergoing colonoscopy, giving an adenoma detection rate (ADR) of 58.2 per cent which was well above the programme standard of >45 per cent. As most bowel cancers develop from adenomas, their removal at colonoscopy meets an integral aim of the programme, a preventative measure that lowers the risk of developing bowel cancer. In the 2020-2021 reporting period, 376 people had advanced adenomas removed and 208 cancers were detected.

Table 1: BowelScreen screening performance, 2016-2021

Performance Parameter	Total 2016-2017	Total 2018-2019	Total 2020-21	Quality Assurance Standard
Number of eligible people invited	546,767	534,926	299,898	
Number of people consented	239,682	249,112	154,472	
Number of FIT returns	226,671	224,762	140,063	
FIT returns by consent	94.6%	90.2%	90.7%	
Number of FIT satisfactory	226,374	224,153	139,618	
Uptake	41.4%	41.9%	46.6%	≥50%
Number of FIT positive	8,204	7,397	4,740	
FIT positive	3.6%	3.3%	3.4%	
Number of colonoscopies completed	9,008	9,385	7,913	
Number of cancers detected	410	304	208	
Cancer detection rate (CDR) per 1,000 screened	1.81	1.36	1.49	
Number of participants with adenomas on index colonoscopy	3,700	3,212	2,255	
Adenoma detection rate (ADR) on index colonoscopy	56.7%	55.1%	58.2%	>45%

To undertake bowel screening, people are invited by letter to take a FIT test, which is a home test kit that is returned for analysis by a contracted laboratory. Approximately 96 per cent of people's tests are given a normal result by the laboratory. If a person has a positive (not normal) test result, they move to the endoscopy stage of the screening pathway, where they are offered a colonoscopy in one of the programme's endoscopy units. Once this is completed, the person is either discharged, offered a surveillance scope at a planned interval to monitor them, or offered treatment if a cancer has been diagnosed.

Uptake by type of screen, gender and age group

The statistics presented in this report relate to those people who received an invitation between 01 January 2020 and 31 December 2021. Some people were invited for their first screen (initial participants) having only become eligible, or known to the programme, and some people who attended previously were invited for their second or subsequent screen (subsequent participants).

Initial participants are people who are being invited for the first time to have their first screening test, and include those who were invited previously, but failed to take up the offer of screening and were re-invited in the 2020-2021 reporting period.

Uptake of initial participants was higher in the younger age group in both males and females (Table 2). Female initial uptake was higher than male uptake in the younger age group while uptake in the older age group was similar for both genders. Most of those in the older age group were invited previously but did not choose to take up their offer of screening. Evidence from other screening programmes has shown that non-participation often persists over time and that these people are less likely to attend subsequently, reducing uptake among initial participants. It is noted that the number of initial participants is reducing - this is to be expected as the programme matures.

Table 2: Initial participants by gender and age group, 2020-2021

Performance Parameter	Male		Female		Total
	60-64	65-69	60-64	65-69	60-69
Number of eligible people invited	57,066	41,376	50,055	30,834	179,331
Number screened	13,180	3,564	15,290	2,631	34,665
Uptake	23.1%	8.6%	30.5%	8.5%	19.3%

The term ‘subsequent participants’ describes people who have previously completed a satisfactory FIT with BowelScreen. These people are issued FITs in subsequent years if they are within the eligible age range. Uptake was 90.4 per cent overall and was higher among females across both age groups (Table 3). Uptake was slightly lower in older age groups compared to younger age groups. These trends are similar to those found in other bowel screening programmes.

Table 3: Subsequent invites by gender and age group, 2020-2021

Performance Parameter	Male		Female		Total
	60-64	65-69	60-64	65-69	60-69
Number of eligible invited	17,030	37,538	20,136	36,715	111,419
Number screened	15,408	33,695	18,462	33,153	100,718
Uptake	90.5%	89.8%	91.7%	90.3%	90.4%

Uptake in 2020-2021 by age, gender, and type of invitation (initial or subsequent) against the Quality Assurance (QA) standard is shown in Figure 3. This demonstrates that subsequent participants remain with the programme in high numbers. This is an indication that these people find the test and the service acceptable and are participating when invited subsequently. The uptake rate among initial participants remains a challenge, with low uptake reported especially among the older age groups and in males.

Figure 3: Uptake by age, gender, and invitation type, 2020-2021

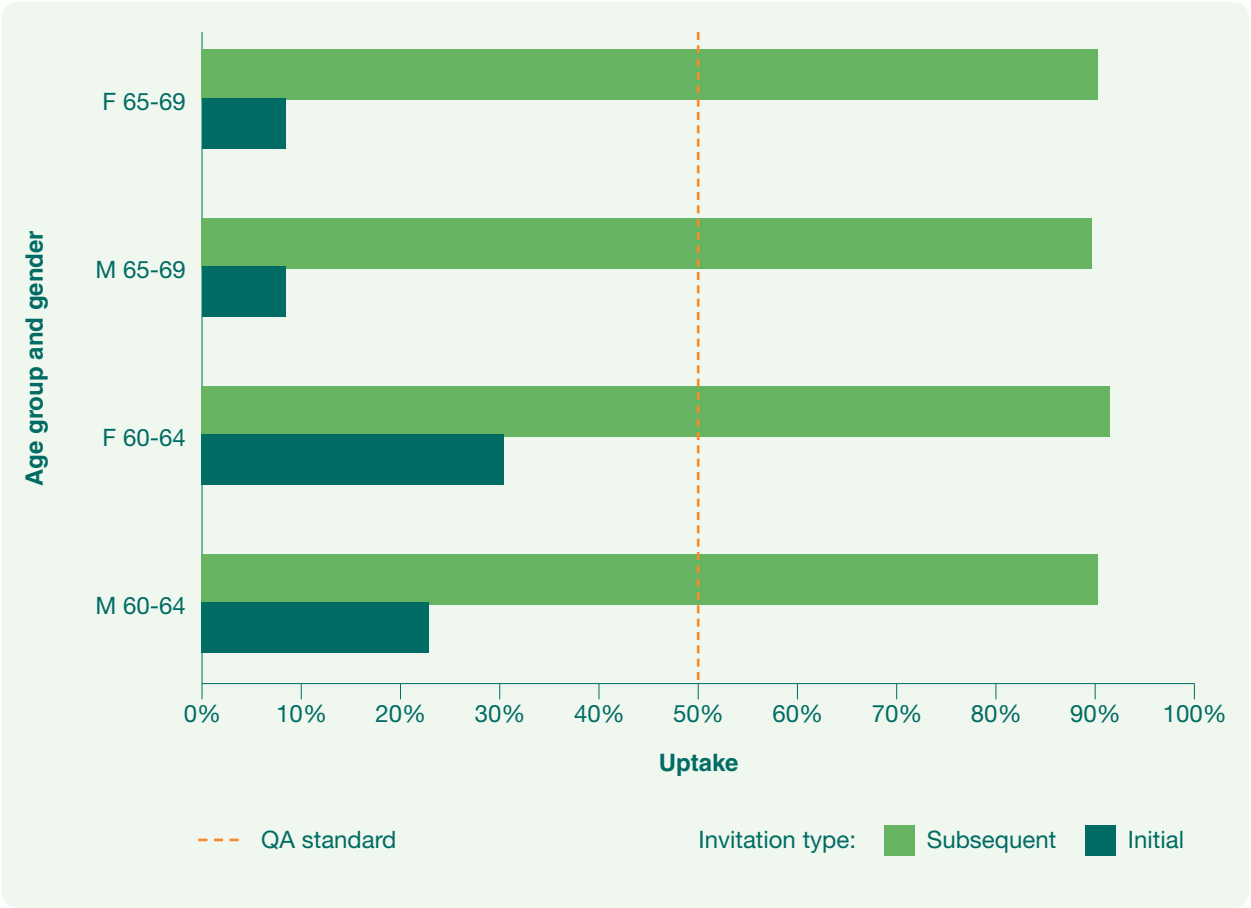


Figure 4 shows uptake of initial participants in the 2018-2019 and 2020-2021 periods. In both males and females in the younger age group, uptake rose during those years, but is still well below the programme standard of 50 per cent.

In the older age group, uptake fell slightly for both males and females during the reporting periods, and there was a decline in uptake among participants aged 65-69 years. Lower initial uptake may be partly due to the dilution effect of eligible participants who persistently don't attend but who continue to be invited for their first (initial) screening appointment. Low uptake is a challenge for the programme and initiatives to improve uptake are being explored.

Figure 4: Initial participants - uptake by age, 2018-2021

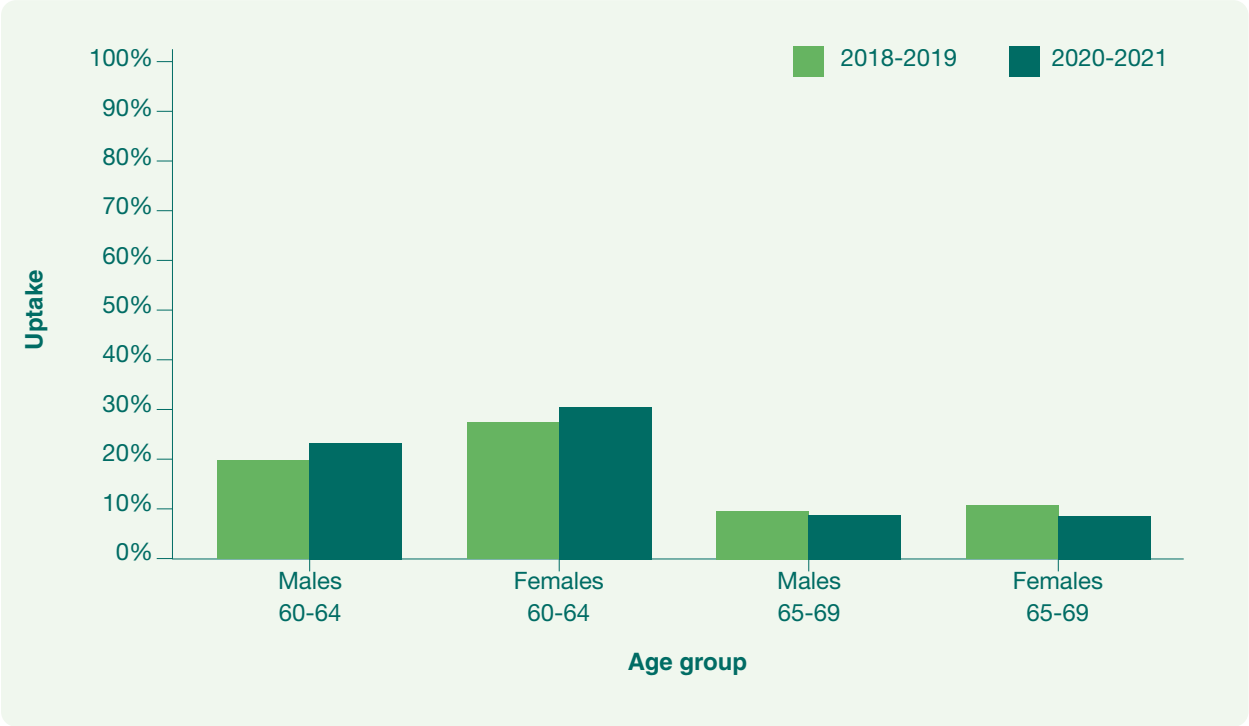
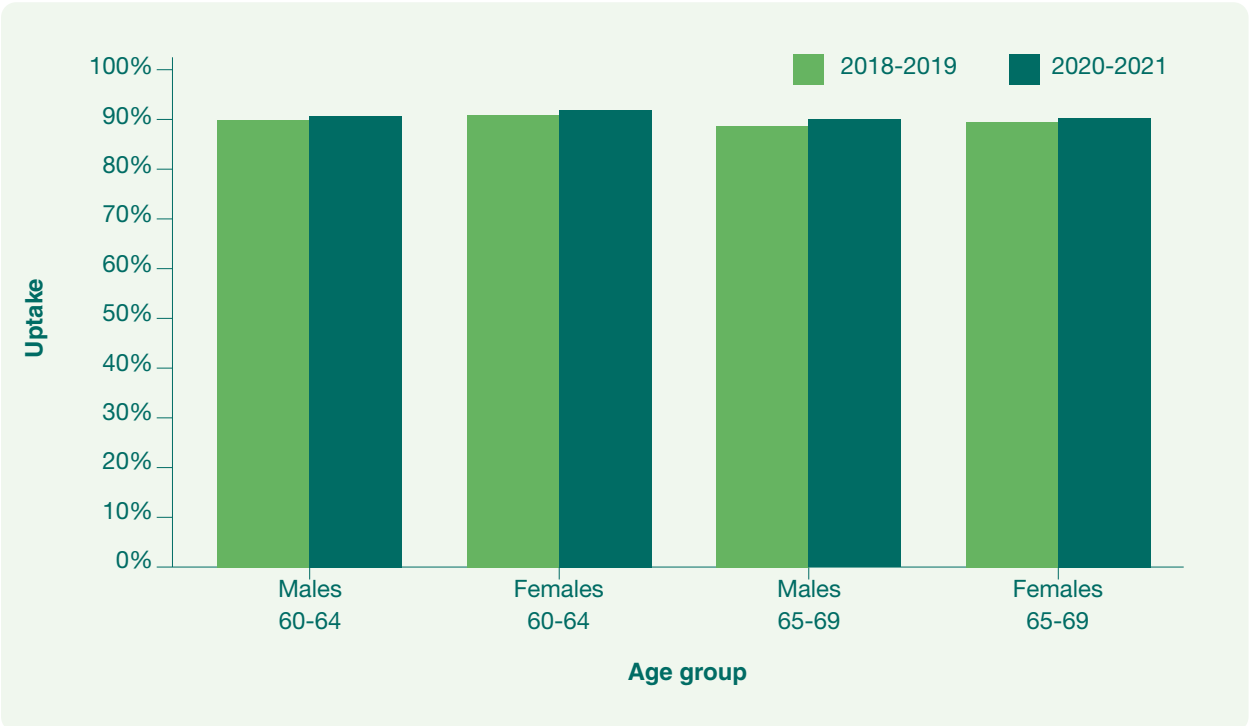


Figure 5 shows uptake of subsequent participants between the years 2018-2021. Overall subsequent uptake was higher in the later reporting period compared to the earlier one. Among both genders and across age-groups, uptake increased in 2020-2021.

Figure 5: Subsequent participants - uptake by age, 2018-2021



Programme coverage

Coverage by invitation

BowelScreen aims to invite all eligible people for screening every two years. To that end, the quality standard 'coverage by invitation' measures the proportion of the eligible population on the bowel screening register that has been invited in the previous two years. Because of COVID-19 related restrictions, invitations were paused from March 2020 to July 2020. The programme had to invite at a reduced rate thereafter as a result of reduced colonoscopy capacity.

In March 2020, all BowelScreen units stopped scheduling screening colonoscopies and endoscopy staff were redeployed. By the end of July 2020, all BowelScreen units were starting to schedule screening colonoscopies. The impact of reduced colonoscopy capacity and the HSE cyber-attack during the reporting period resulted in lower rates of invitation.

Coverage by invitation for the two-year period ending 31 December 2021 was 61 per cent, which means the programme standard was not achieved and not all people on the register were invited during this reporting period.

Screening outcomes

As its primary screening tool, the programme uses the FIT, which looks for a level of blood in the stool sample provided. This blood is often not visible to the human eye. If a level of blood is detected (a FIT positive result), a colonoscopy is offered in one of the programme's contracted endoscopy centres.

The results of FIT testing for initial participants invited during 2020 and 2021 are shown in Table 4. The number of people participating in the programme for the first time reduced in the 2020-2021 period, due to COVID-19-related pauses in the programme. This is also to be expected as the programme matures, and most newly invited people are in the 60 to 62-year age range. Older attendees are mainly subsequent participants who are re-attending for the second or third time. In the reporting period, for participants who had their initial or first screen, the FIT positive rate was 3.7 per cent, which is the same as the FIT positivity rate during the 2018-2019 reporting period. Among the younger age group, the positivity rate was 4.3 per cent for males compared to 2.6 per cent for females. In the older age group, the rate was 5.4 per cent for males compared to 4.3 per cent for females.

Of the 34,987 FIT kits examined, a small number (86) were unsatisfactory, and these people were offered a repeat test. The unsatisfactory FIT rate as a percentage of the number returned was slightly higher in 2020-2021, remains low and within the programme standard of less than 3 per cent.

Table 4: BowelScreen screening outcome: Initial screen by age group and gender, 2016-2021

Performance Parameter	Male 60-64	Male 65-69	Female 60-64	Female 65-69	Overall 2020-2021	Overall 2018-2019	Overall 2016-2017
Number of satisfactory FIT returns	13,180	3,564	15,290	2,631	34,987	69,844	132,405
Satisfactory FIT by number returned	99.8%	99.7%	99.8%	99.7%	99.8%	99.8%	99.9%
Number of unsatisfactory FIT	28	10	35	8	86	138	175
Unsatisfactory FIT by number returned	0.2%	0.3%	0.2%	0.3%	0.3%	0.2%	0.13%
Number of FIT positive	570	192	402	113	1,296	2,559	5,006
FIT positive rate of satisfactory tests	4.3%	5.4%	2.6%	4.3%	3.7%	3.7%	3.8%
Number of FIT negatives	12,610	3,372	14,888	2,518	33,691	67,285	127,399
FIT negative rate of satisfactory tests	95.7%	94.6%	97.4%	95.7%	96.3%	96.3%	96.2%

The results of FIT testing for subsequent participants invited during 2020-2021 are shown in Table 5. The number of people subsequently participating decreased from 154,318 in the earlier reporting period (2018-2019) to 104,631 in 2020-2021, as a result of the impact of COVID-19 and the programme's pauses in issuing invitations. In the 2020-2021 reporting period, among participants who had their second or subsequent screen, the FIT positive rate was 3.3 per cent. In all age groups the FIT positive rate was higher for males than females.

Of the 104,631 FIT kits examined among subsequent participants, a small number of returned FIT kits (359) were unsatisfactory and these individuals were offered a repeat test. The rate is within the programme standard of less than 3 per cent.

Table 5: BowelScreen screening outcome: Subsequent screen by age group and gender, 2016-2021

Performance Parameter	Male 60-64	Male 65-69	Female 60-64	Female 65-69	Overall 2020-2021	Overall 2018-2019	Overall 2016-2017
Number of satisfactory FIT returns	15,408	33,695	18,462	33,153	104,631	154,318	93,969
Satisfactory FIT by number returned	99.6%	99.6%	99.8%	99.7%	99.7%	99.7%	99.9%
Number of unsatisfactory FIT	60	125	46	103	359	471	122
Unsatisfactory FIT by number returned	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.1%
Number of FIT positive	612	1,348	425	908	3,444	4,838	3,198
FIT positive rate of satisfactory tests	4.0%	4.0%	2.3%	2.7%	3.3%	3.1%	3.4%
Number of FIT negatives	14,796	32,347	18,037	32,245	101,187	149,480	90,771
FIT negative rate of satisfactory tests	96.0%	96.0%	97.7%	97.3%	96.7%	96.9%	96.6%

Colonoscopy

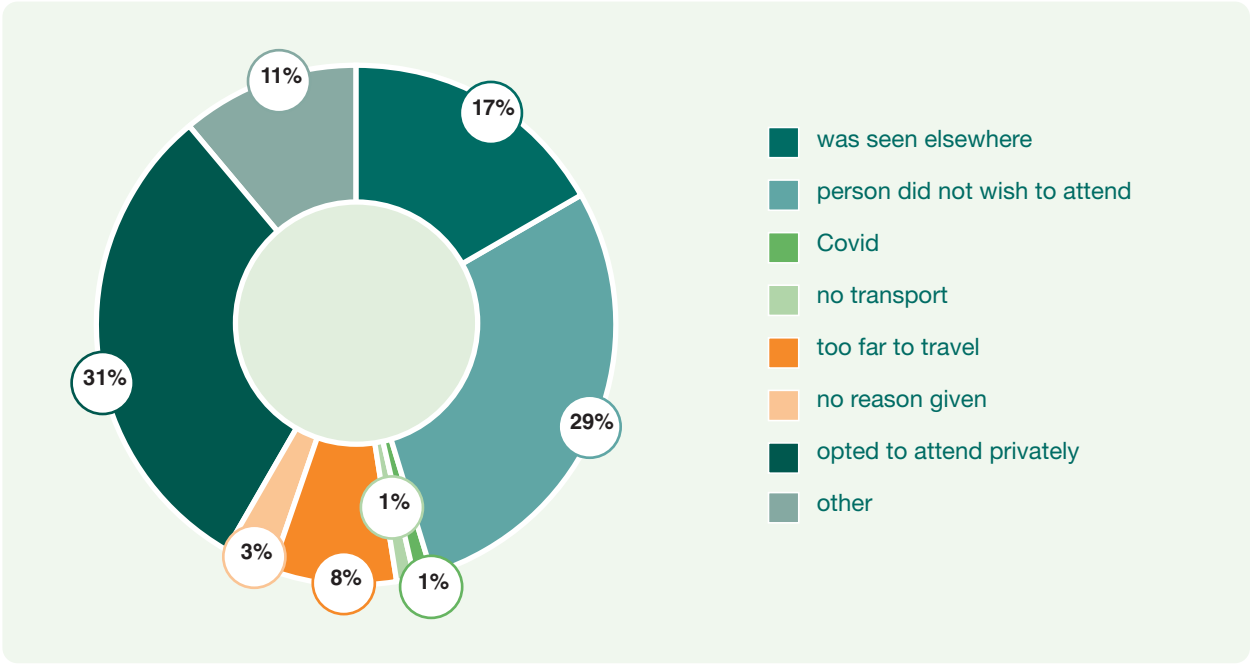
Colonoscopy is the procedure used to assess the colon and rectum following a positive FIT result. It enables examination, biopsy and subsequent histopathological diagnosis of abnormalities in the bowel, as well as identification and endoscopic removal of polyps and adenomas. This colonoscopy is known as an index colonoscopy.

People who receive a positive FIT result are contacted by a dedicated nurse from a BowelScreen-contracted endoscopy centre for a pre-assessment to establish their suitability for colonoscopy. This pre-assessment includes a telephone interview enquiring about their general health, any co-morbidities, and any medication they may be taking.

Almost 82 per cent of participants who had a positive FIT underwent index colonoscopy at a BowelScreen contracted endoscopy centre (Table 6). While this is below the QA standard of 85 per cent, it is a 3 per cent increase on the 2018-2019 reporting period. Among people who had a positive FIT and were deemed suitable for colonoscopy, 96 per cent accepted and underwent an index colonoscopy.

The reason why people with positive FIT results declined colonoscopy in the 2020-2021 reporting period are shown in Figure 6. The number of people who declined colonoscopy was 140. The main reason was that the person opted to attend colonoscopy privately, followed by not wishing to attend.

Figure 6: Reasons for not attending colonoscopy*, 2020-2021



Index only; index colonoscopy participants based on date of FIT KIT abnormal result.

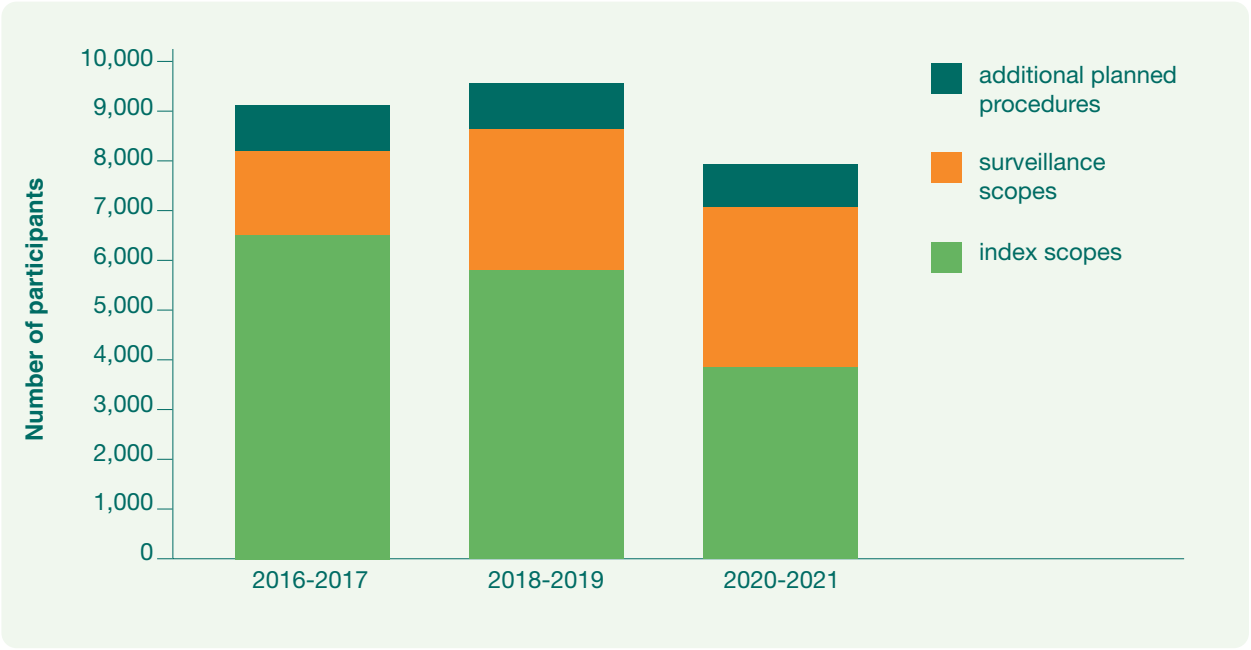
Table 6: BowelScreen participant colonoscopy referrals, 2016-2021

Performance Parameter	Total 2020-2021	Total 2018-2019	Total 2016-2017	QA Standard
Number of participants referred for index colonoscopy	4,741	7,397	8,204	
Number of participants who completed pre-assessment	4,120	6,295	7,067	
Number deemed suitable for index colonoscopy	4,044	6,159	6,906	
Number attending index colonoscopy	3,878	5,826	6,523	
Acceptance rate based on positive FIT	81.8%	78.8%	79.5%	>85%
Acceptance rate for colonoscopy participants deemed suitable	95.9%	94.6%	94.5%	
Number of participants who attended for a surveillance colonoscopy	3,233	2,817	1,702	
Number of additional planned procedures performed	802	742	783	

In addition to index colonoscopy the programme also carries out surveillance colonoscopy for people who had a previous programme colonoscopy where the outcome was determined to be intermediate-risk or high-risk. People who have an intermediate risk are recalled for a surveillance colonoscopy after three years and people deemed to have a high-risk are recalled after one year. Surveillance colonoscopies comprise a large proportion of the programme's endoscopy capacity, with the numbers increasing as the programme matures. Numbers of surveillance colonoscopies performed were higher in 2020-2021, compared to the previous reporting periods, and are shown in Table 6 and Figure 7.

Additional planned colonoscopies are part of any screening programme. An additional endoscopic procedure may be deemed clinically necessary for many reasons. These include that the first colonoscopy may be incomplete because of poor bowel preparation, patient tolerance to the first procedure, the requirement to have a second colonoscopy to site-check, or a clinical decision to perform colonoscopy over two visits instead of surgery.

Figure 7: Number of index scopes, surveillance scopes and additional planned procedures undertaken by BowelScreen, 2016-2021



Colonoscopy waiting times

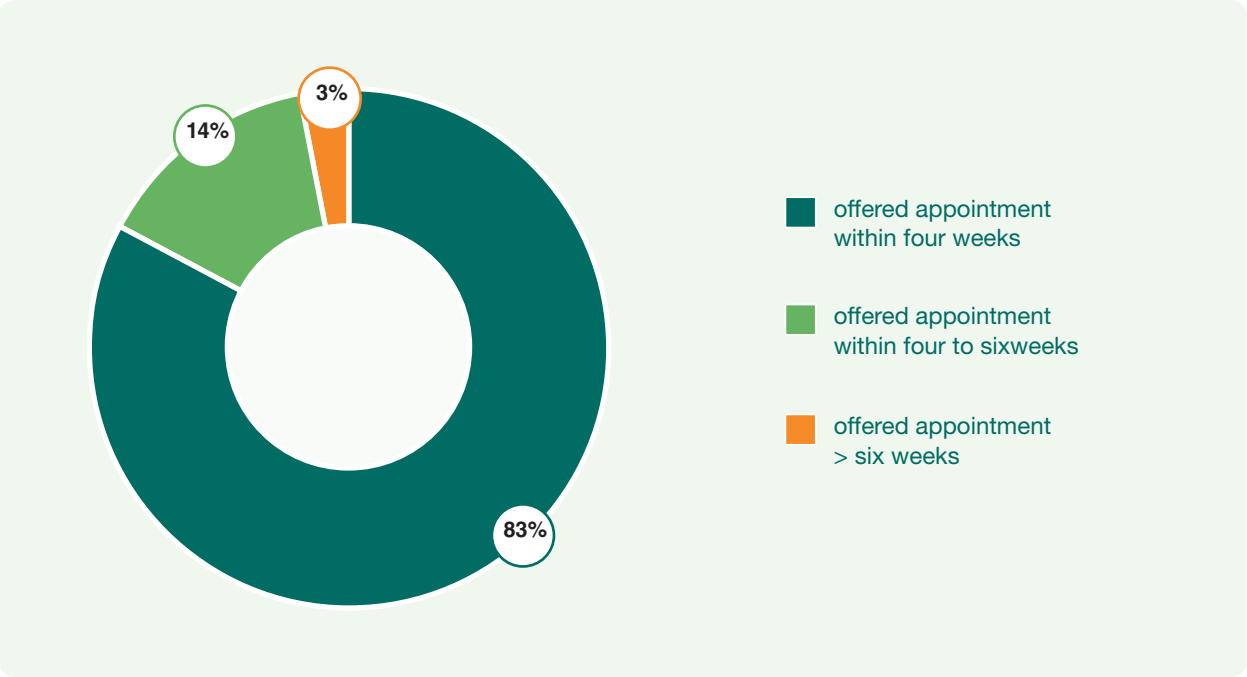
The BowelScreen programme QA standard requires that an index colonoscopy will be offered within four weeks in over 90 per cent of suitable cases. This is to reduce unnecessary anxiety to screening participants and to facilitate timely investigation of positive screening results.

Providing access to colonoscopy services in a timely manner depends on many factors including demand for colonoscopy services (for both symptomatic services and BowelScreen), capacity and waiting list management protocols.

The proportion of participants from the 2020-2021 reporting period who were offered an index colonoscopy appointment within four weeks was 83 per cent which is below the programme target of over 90 per cent (Figure 8). A further 14 per cent were offered an appointment within four to six weeks and just 3 per cent of participants had to wait longer than six weeks for an appointment.

Nationally, colonoscopy capacity is constrained by the short supply of endoscopists with an appropriate level of skill. Pressures on symptomatic services may have an impact on waiting times for people referred from BowelScreen, as the programme operates within the general symptomatic service. While many of these issues are outside of the programme's control, continued efforts have been made to gain improvements in these waiting times and ensure that BowelScreen patients are treated as urgent symptomatic. We continue to work with current and potential providers to seek to increase capacity and to increase the number of endoscopy units participating in the programme.

Figure 8: Waiting times for index colonoscopy, 2020-2021



Colonoscopy performance

In the reporting period over 3,800 participants presented for an index colonoscopy at one of BowelScreen's contracted endoscopy centres. Given the challenges presented by COVID-19 during this period this is a commendable number of index colonoscopies that were delivered.

Effective bowel preparation is crucial to carrying out a colonoscopy as it supports improved detection of adenomas and/or polyps, as well as caecal intubation. Poor bowel preparation is associated with failure to reach the caecum and hinders the detection of lesions.

Overall, bowel preparation was effectively carried out, colonoscopies could proceed, and completion rates were high. Reported adverse effects were low and well within QA standards. Colonoscopy performance for index scopes is shown in Table 7. There was a slight increase in the proportion of people with bowel cleanliness classified as adequate or excellent in the 2020-2021 reporting period, compared to 2018-2019. The proportion of people with colonoscopies complete in 2020-2021 was higher than for 2018-2019.

It is essential that colonoscopy is performed to a high standard and that it is both safe and comfortable. This is to minimise harm to the screening population and to optimise the patient experience. The patient should be appropriately sedated. 80 per cent of patients undergoing colonoscopy should have a comfort score of 1 or 2 from the Gloucester Scale. The percentage of patients with a comfort score of ≤ 2 in the 2020-2021 period was 88.7 per cent, compared to 85.0 per cent in 2018-2019, and 85.5 per cent in the 2016-2017 reporting period.

Table 7: Colonoscopy performance, 2018-2021, and in 2016-2017 (index colonoscopy only)

Quality Standard	Overall 2020-2021	Overall 2018-2019	Overall 2016-2017	QA Standard
Bowel cleanliness adequate or excellent	94.2%	93.6%	94.2%	≥90%
Reported colonic perforation rate (per 1,000 colonoscopies)	0.3	0.2	0.8	<1
Reported post-polypectomy perforation rate (per 1,000 colonoscopies)	0.0	0.3	1.4	<2
Post-polypectomy bleeding requiring transfusion (PPB)	0.0%	0.1%	0.11%	<1%
Colonoscopy complete	97.1%	96.5%	96.3%	
Colonoscopy Comfort Score ≤ 2	88.7%	85.0%	85.5%	80%

Computed tomography colonography

On some occasions, it is not possible to carry out a colonoscopy on a patient. In these instances, the patient may be referred for a computed tomography (CT) colonography.

Of the 4,740 participants with a positive FIT result in the 2020-2021 reporting period, 72 were referred for CT colonography. This corresponds to 1.6 per cent of all FIT-positive participants and was within the programme standard of less than 10 per cent. Of those referred for CT colonography, all had the procedure performed. Colonography performance is shown in Table 8.

Table 8: BowelScreen participant CT colonography referrals, 2016-2021

Quality Standard	Overall 2020-2021	Overall 2018-2019	Overall 2016-2017	QA Standard
Referral rate of participants to CT colonography following a positive FIT	1.6%	2.3%	2.5%	≤10%
Number of participants with CT performed	72	163	204	
Participants with CT colonography performed within 30 days of referral*	62.5%	77.3%	80.9%	≥95%
Participants with CT colonography complete/ adequate	94.4%	97.6%	99.5%	≥95%
CT colonography reports issued to programme within 15 working days of examination**	100%	100%	98.9%	
CT colonography reports issued to programme within 10 working days of examination	100%	99.4%	99.4%	

* *This figure does not necessarily capture individuals offered appointments within the timeframe of 30 days but who deferred their appointment often due to travel distances, personal reasons, etc.*

** *There is a programme standard of ≤15 working days for report turnaround time after CT colonography examination.*

Histopathological findings

Cancers detected

During the reporting period, 208 people had bowel cancer detected. Of these, there were 127 colon cancers, 78 rectal cancers and 3 cases of cancer where the site was unconfirmed, giving an overall cancer detection rate of 1.5 per 1,000 people screened by the FIT (Table 9). This corresponds to a detection rate of 5.4 per cent at colonoscopy.

The cancer detection rate among initial participants overall (2.39 per 1,000 participants screened) was higher than among subsequent participants (1.24 per 1,000 participants screened). This is to be expected because subsequent participants have been screened previously, and it is expected that abnormalities might have been found and removed following an earlier screening test.

Of those cancers diagnosed and treated by BowelScreen where the stage was known to the Programme, over 46 per cent were stage I or II. This indicates that they were detected at an early stage where successful treatment could be expected (Table 9).

The adenoma detection rate increased from 55 per cent in the 2018-2019 reporting period, to 58 per cent in the 2021-2021 one; both of which are well above the standard of 45 per cent.

Histopathology outcomes from 2016 to 2021 are detailed in Table 9.

Table 9: Histopathology outcomes for the BowelScreen programme, 2016-2021

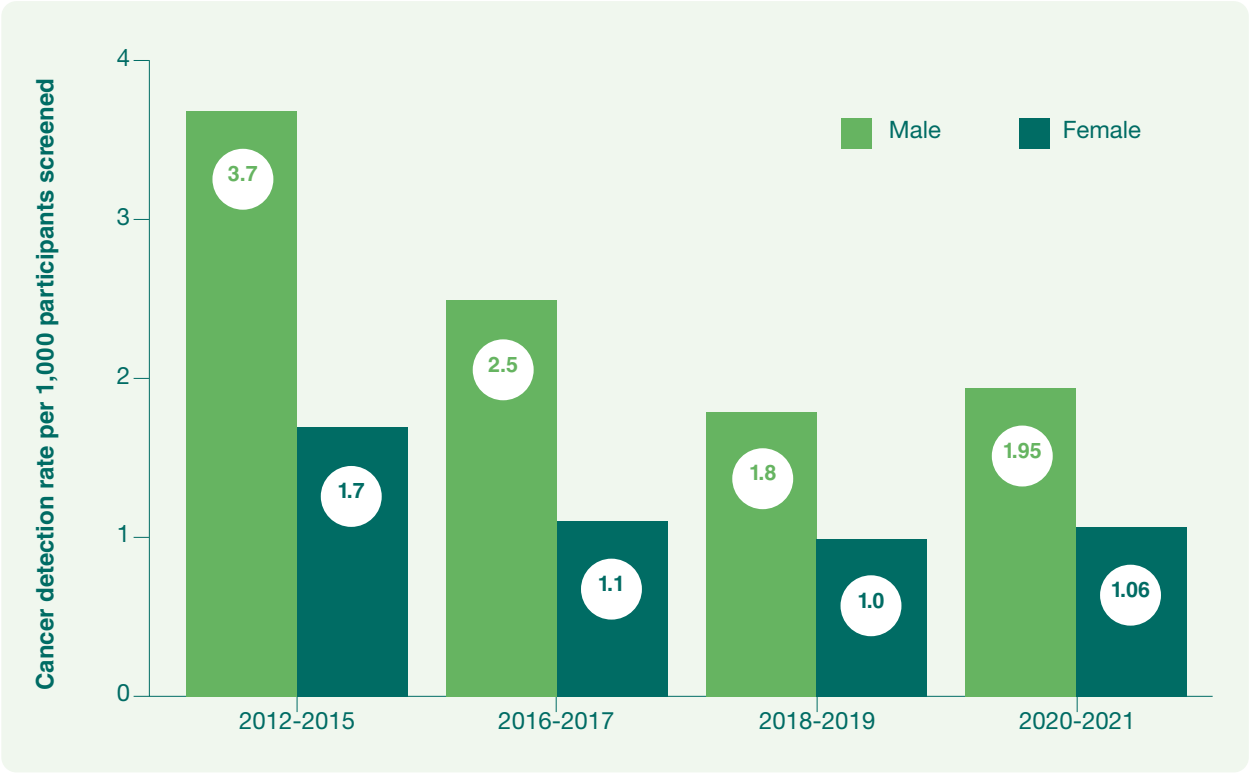
Performance Parameter	First screen	Subsequent screen	Overall 2020-2021	Overall 2018-2019	Overall 2016-2017	QA Standard
Number of cancers	83	125	208	304	410	
Cancer detection rate per 1,000 participants screened	2.39	1.24	1.49	1.36	1.81	
Stage I and II *	50.6%	44.0%	46.6%	58.9%	59.9%	
Adenoma detection rate	64.3%	55.8%	58.1%	55.1%	56.7%	>45%
Number of participants with adenomas	684	1,571	2,255	3,213	3,700	
Number of adenomas removed	2,127	4,593	6,720	8,616	12,367	
Number of participants with advanced adenomas removed	130	246	376	451	584	
Adenomas with high grade dysplasia	5.5%	3.07%	3.82%	4.8%	5.1%	<10%
Sessile Serrated Lesions (SSL)	310	525	835	940	879	
SSL with high-grade dysplasia	1.29%	1.14%	1.20%	0.3%	0.6%	

**Histopathological stage; this excludes cases that were diagnosed by BowelScreen but went elsewhere for treatment*

Cancer detection rate

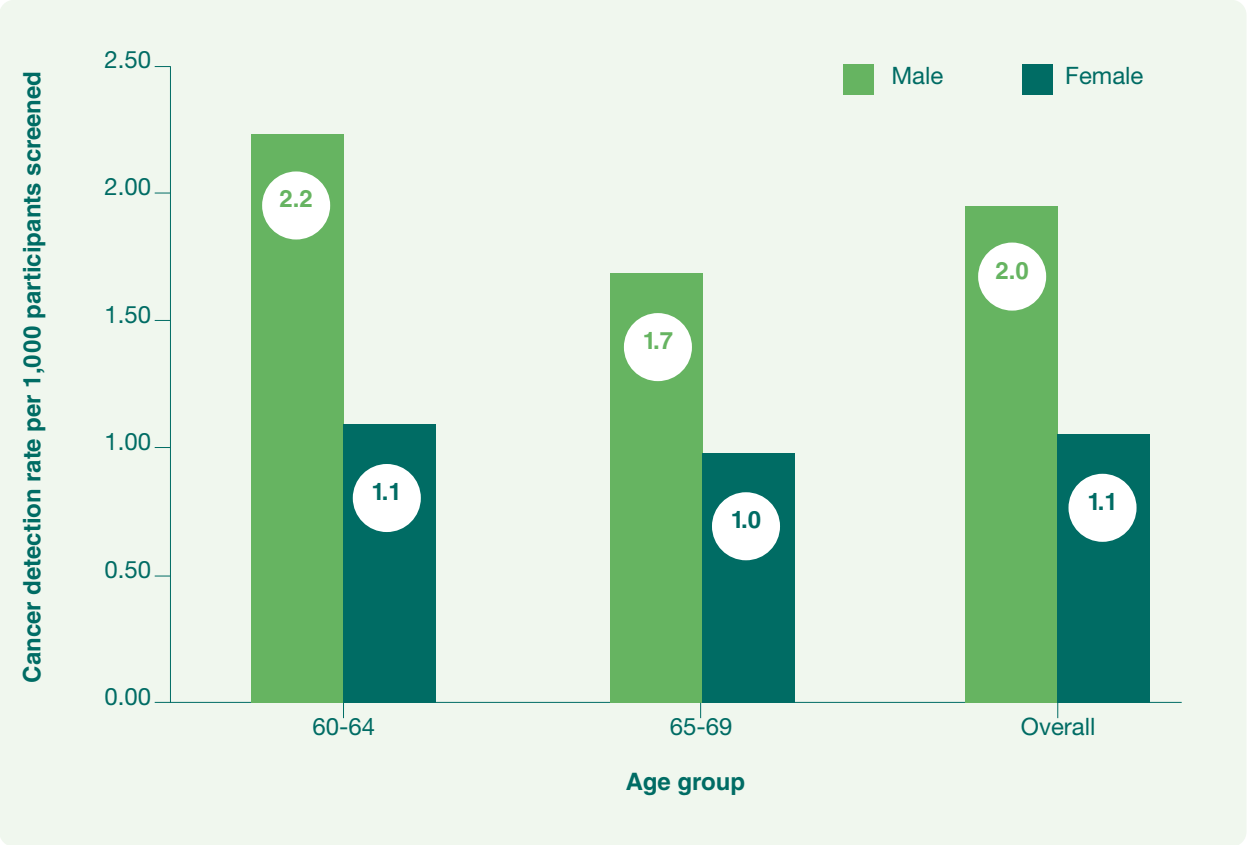
Figure 9 shows the cancer detection rate (per 1,000 participants screened) by gender and age group. The cancer detection rate among males in all age groups was higher than in females. The cancer detection rate among both males and females has decreased with age (Figure 10).

Figure 9: Cancer detection rate (per 1,000 screened) by gender, 2012-2021



The cancer detection rate among male participants was higher than for female participants in the 2020-2021 reporting period. This pattern was also observed in the previous reporting periods, and it reflects gender-incidence statistics from the National Cancer Registry of Ireland[1]. There was a slight increase in the cancer detection rate for both males and females in 2020-2021 compared to the 2018-2019 period.

Figure 10: Cancer detection rate (per 1,000 screened) by gender and age group, 2020-2021



Adenoma detection

Over 6,700 adenomas or polyps were removed during the reporting period. These are abnormal tissue growths that can become cancerous at a later stage. The removal of pre-cancerous adenomas greatly reduces the risks associated with future bowel cancer development. Adenomas with the most risk associated with bowel cancer are known as advanced adenomas. Advanced adenomas are defined as the finding of five or more small adenomas in the large bowel or one or more adenomas equal to or greater than 2cm. The number of screening participants that had advanced adenomas in the 2020-2021 reporting period was 376, compared to 451 in the 2018-2019 period.

BowelScreen Charter indicators

BowelScreen has a charter of programme commitments to people who choose screening that outlines the service that they can expect from the programme. In addition, BowelScreen has developed standards to ensure that timelines are reasonable to minimise waiting times and possible anxiety for participants. Table 10 outlines how the programme performed against these standards during the 2020-2021 reporting period.

The programme acknowledges that some of the charter's indicators were negatively impacted by COVID-19. The number of participants receiving a reminder letter to participate was below the target of ≥95 per cent. The proportion of repeat FIT test kits dispatched to participants within 10 working days increased from 91.9 per cent in the 2018-2019 reporting period to 92.5 per cent in 2020-2021. The programme continues to work on achieving this standard.

Additionally, participants with no pathology taken at colonoscopy, with a result of routine recall, fell outside the target. This is likely due to variance in practice across screening units. The programme is working to address this.

The programme aimed for, and has achieved, its target in timely dispatch of FIT kits, analysis of kits returned, and reporting results to participants. In general, timelines for dispatch of FIT and receipt of results were very well adhered to.

Table 10: BowelScreen charter results for the 2020-2021 reporting period

Quality Standard	2020-2021	QA Standard
People invited (who do not decline or are not excluded), who do not consent to screening within eight weeks who are sent one reminder	88.7%	≥95%
FIT test kits and instructions dispatched within five working days to people above who requested them	100%	≥95%
Participants (where it is possible to do so), who are sent a reminder if FIT test kit is not received at laboratory within four weeks	95.4%	≥95%
Repeat FIT test kits dispatched to participants who were contactable and satisfied for a replacement to be sent within 10 working days following receipt of unacceptable kit by laboratory	92.5%	≥95%
FIT results where file sent to NSS within five working days	100%	≥95%
FIT results where file sent to participants within five working days	98.1%	≥95%
FIT results where file sent to GP within five working days	98.1%	≥95%
Positive FIT appearing on preassessment list of screening endoscopy unit within seven working days of result received by NSS	100%	≥95%
Participants with no pathology taken as part of colonoscopy and result classified as routine recall where file dispatched to mail provider within 10 working days	73.4%	≥95%
Participants with a routine recall colonoscopy result where file sent to mail provider (for circulation to GP) within 10 working days	99.1%	≥95%
Participants with a surveillance colonoscopy result where file sent to mail provider within 10 working days	98.4%	≥95%
People who received first ever invitation were invited within 24 months of becoming known to the programme or becoming eligible	99.0%	≥95%
Participants re-invited within 24 months of becoming due for re-invite	99.4%	≥95%

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An tSeirbhís Náisiúnta Scagthástála
National Screening Service

BowelScreen
An Clár Náisiúnta Scagthástála Putóige
The National Bowel Screening Programme