

Scottish Bowel Screening Programme Statistics



For invitations between 1 November 2014 and 31 October 2016

Publication date – 08 August 2017

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Introduction

The Scottish Bowel Screening Programme commenced a phased roll out in June 2007 and by December 2009 all NHS Boards in Scotland were participating in the Programme.

This publication relates to men and women registered with a Community Health Index number aged between 50-74 years who are invited to participate and to be screened every two years. Eligible people are posted a screening kit which is completed at home and involves collecting two samples from each of three separate bowel movements. The kit is then returned to the central screening centre in Dundee and tested for hidden traces of blood in the stool. From 1 April 2013 those over the age of 74 can now self-refer and opt into bowel screening.

In February 2012 the Scottish Government formally launched the Detect Cancer Early programme with the aim of increasing the early detection of cancer by 25%. The standard concentrates on breast, colorectal (bowel) and lung cancers. Part of this initiative has been focussing on raising awareness of bowel screening.

This current release includes data for people invited between 1 November 2014 and 31 October 2016.

The publication report summarises the Key Performance Indicators which are a series of measures used to monitor and evaluate the Scottish Bowel Screening Programme. The Key Performance Indicators report is a series of percentages with no raw numbers shown.

In addition to the Key Performance Indicators the trend in bowel screening uptake since the start of the programme is also reported. Instead of using conventional calendar or financial years, a year runs from November until October to mirror the reporting period of the KPI report, this is the latest data available.

When making comparisons across NHS Boards, it should be noted that the percentage figures for some measures may be exaggerated for some NHS Boards due to the small numbers involved in the calculations. This can be seen in many cases with the island NHS Boards. For this reason the mainland NHS Boards may only be used when quoting ranges for the health boards.

Details of all bowel screening statistics included within this publication can be found in the [bowel screening Key Performance Indicators report](#).

Main points

For the two-year period November 2014 to October 2016:

- The overall uptake for Scotland was 56.4%, which was less than the uptake reported for the period 1 November 2013 to 31 October 2015 (57.5%).
- Analysis by two-year period for years beginning 1 November to 31 October (e.g. November 2007 to October 2009) shows that uptake reached a high of 57.6% in 2012/14 but has decreased to 56.4 % in 2014/16.
- Uptake was lower in areas of higher deprivation. Uptake in the most deprived group was 43.4% compared with 65.7% in the least deprived group.
- Around two percent of those returning their screening kit received a positive test result. Of those with a positive test result, 6.5% had a bowel cancer.
- Three out of five screen detected cancers (61.3%) were diagnosed at the earliest two stages. The earlier a cancer is detected the greater the chances are of successful treatment.

Results and Commentary

Please note that all tables and charts are based on the 2014 Health Board configuration, see Appendix A1 for more information.

Overall bowel screening uptake

The overall uptake is the percentage of people with a final outright screening test result from all of those invited. It includes only people successfully completing a bowel screening test i.e. an outright positive or negative result.

The overall uptake by NHS Board for the two-year period November 2014 to October 2016 is shown in Table 1. During this period over 1.8 million people were invited and more than one million took up the offer and achieved an outright positive or negative test result.

The overall uptake for Scotland was 56.4%, which was less than the uptake reported for the period 1 November 2013 to 31 October 2015 (57.5%). The Healthcare Improvement Scotland (HIS) standard and bowel screening programme target for uptake is 60%. The uptake between individual boards ranged from 51.9% (NHS Greater Glasgow and Clyde) to 66.4% (NHS Shetland).

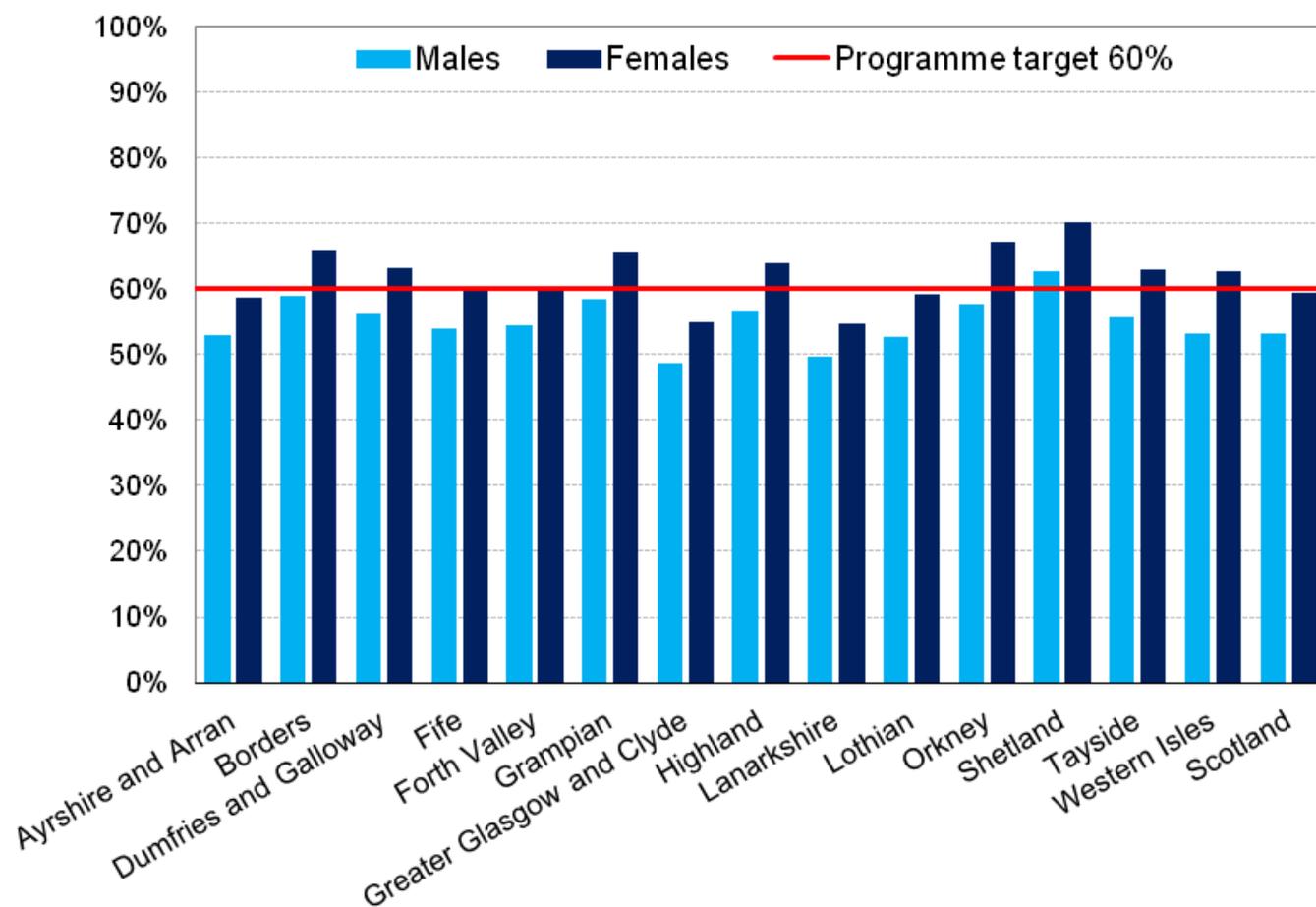
Table 1 - Overall uptake of bowel screening (%), by NHS Board, Nov 2014 to Oct 2016

NHS Board	Number of people invited	Number of people screened	Overall uptake (%)
Ayrshire and Arran	137,235	76,828	56.0
Borders	45,782	28,605	62.5
Dumfries and Galloway	59,355	35,517	59.8
Fife	126,397	72,150	57.1
Forth Valley	102,488	58,837	57.4
Grampian	185,200	114,909	62.0
Greater Glasgow and Clyde	371,307	192,824	51.9
Highland	122,877	74,270	60.4
Lanarkshire	223,404	116,737	52.3
Lothian	263,842	147,999	56.1
Orkney	8,161	5,088	62.3
Shetland	7,986	5,302	66.4
Tayside	142,092	84,533	59.5
Western Isles	10,362	6,011	58.0
Scotland	1,806,488	1,019,610	56.4

The overall uptake by NHS Board and sex for the two-year period November 2014 to October 2016 is shown in Figure 1.

In Scotland, uptake was 59.5% for females and 53.3% for males. The group with the highest uptake was females living in NHS Shetland and the group with the lowest uptake was males living in NHS Greater Glasgow & Clyde. The difference between the two groups may be due to there being more deprived areas in NHS Greater Glasgow & Clyde and also that males are less likely to participate in bowel screening.

Figure 1 - Overall uptake of bowel screening (%) by NHS Board and sex, Nov 2014 to Oct 2016



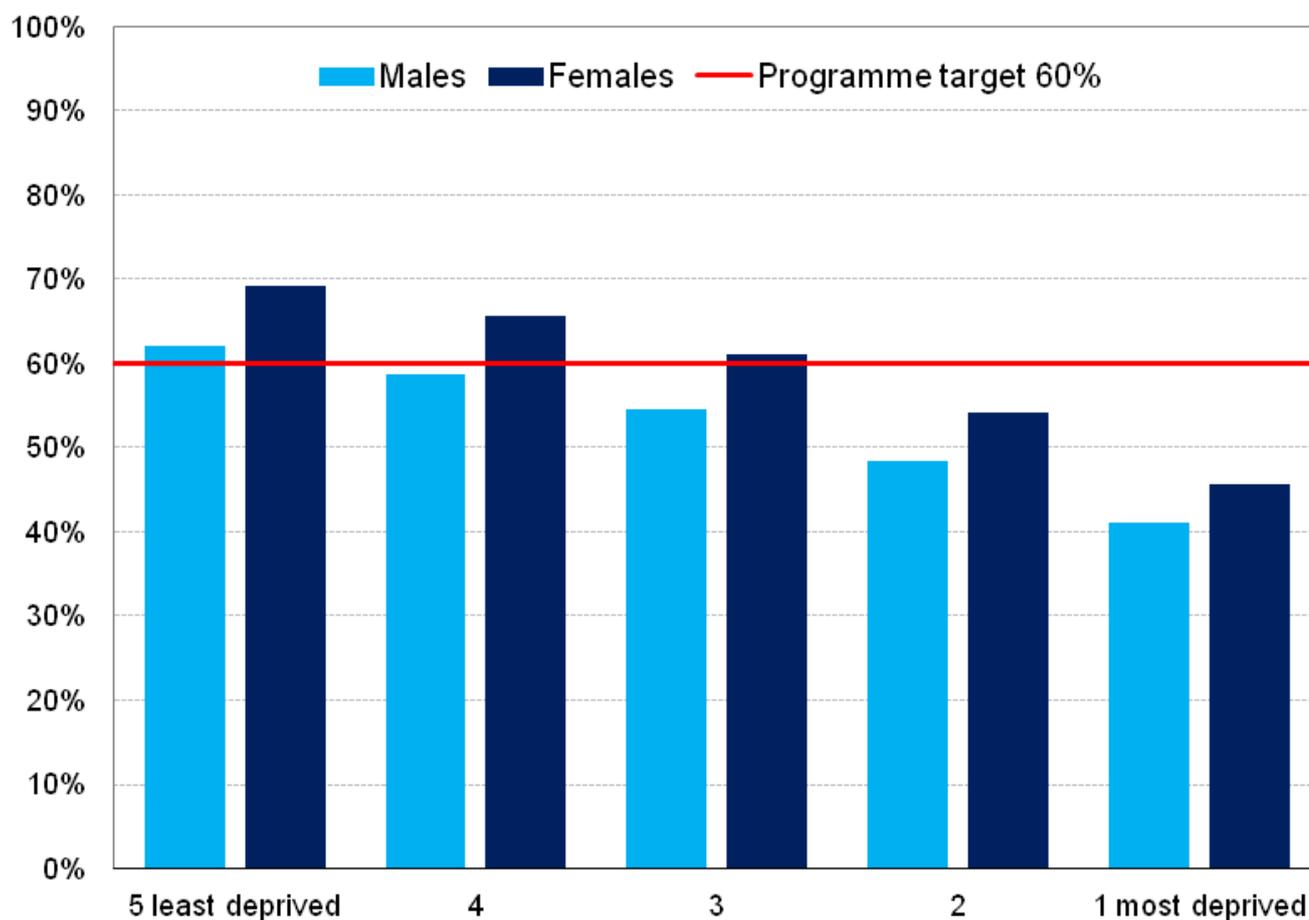
Overall bowel screening uptake by deprivation

There is a characteristic pattern of uptake across the deprivation categories for both males and females – uptake decreases with increasing deprivation (Figure 2).

Uptake for females in the three least deprived categories (deprivation categories 5, 4 and 3) exceeded the 60% programme target at 69.2%, 65.7% and 61.1%, respectively. This is the same as last year when three of the least deprived categories exceeded the programme target.

Uptake for males in the least deprived category (deprivation category 5) exceeded the programme target with an uptake of 62.1%. Bowel screening uptake for males living in the most deprived category (deprivation category 1) was 41.2%.

Figure 2 - Overall uptake of bowel screening (%) by sex and deprivation category, Nov 2014 to Oct 2016



Note: Deprivation categories are SIMD 2016 Scotland level population-weighted quintiles

Trend in bowel screening uptake

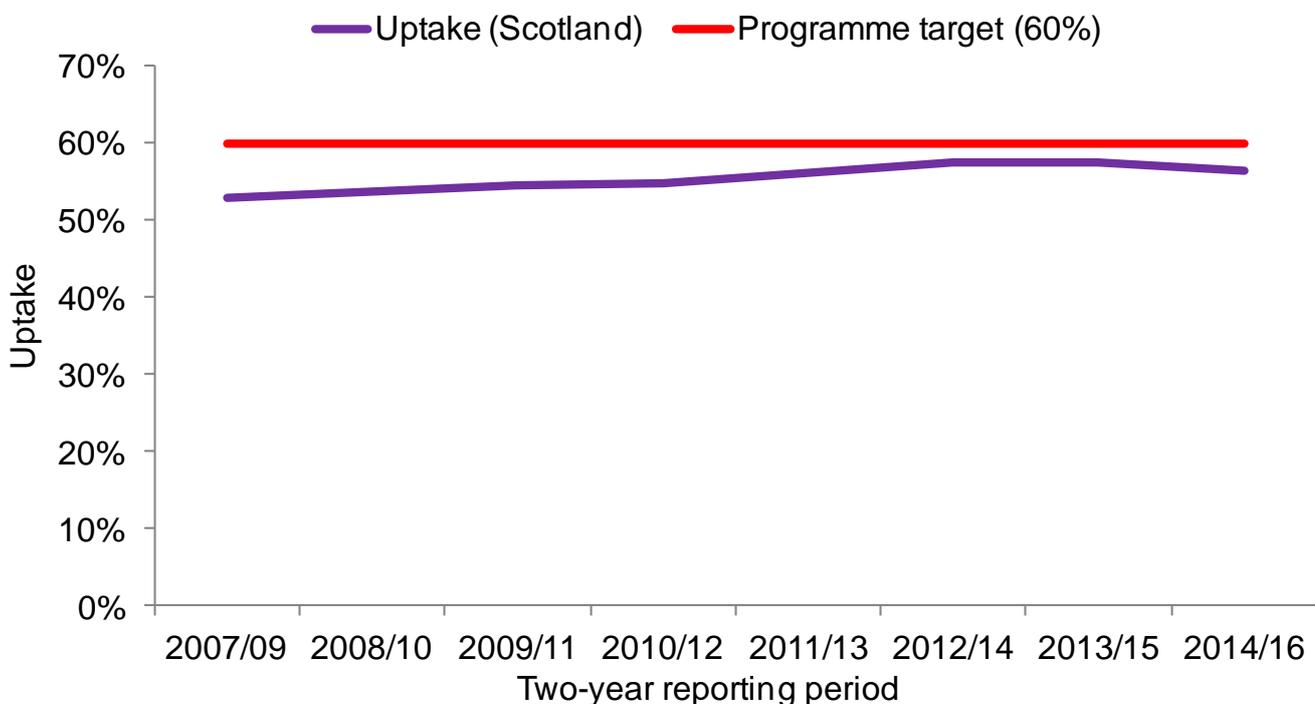
Since the Scottish Bowel Screening Programme began a phased rollout in 2007 uptake has generally increased steadily over time.

Figure 4 shows uptake by two-year period for years beginning 1 November to 31 October (e.g. November 2007 to October 2009). This shows that uptake reached a high of 57.6% in 2012/14 but has decreased to 56.4 % in 2014/16.

The launch of a new testing kit in 2017 which is easier to use may have a positive impact on uptake levels in the future¹.

More information on the new kit can be found using the following link: [Fighting FIT – Scotland’s pioneering change to its bowel screening programme](#).

Figure 4 - Trend in uptake of bowel screening for all persons in Scotland, 1 November 2007 to 31 October 2016



1. [Steele, RJC et al. Clinical outcomes using a faecal immunochemical test for haemoglobin as a first-line test in a national programme constrained by colonoscopy capacity. United European Gastroenterol J. 2013 Jun; 1\(3\): 198–205.](#)

Positivity

Around 2% of people who completed the screening test received a positive result, although this varied across Scotland and by sex (Figure 3). The positive bowel screening test result percentage in Scotland was 2.46% in men and 1.69% in women.

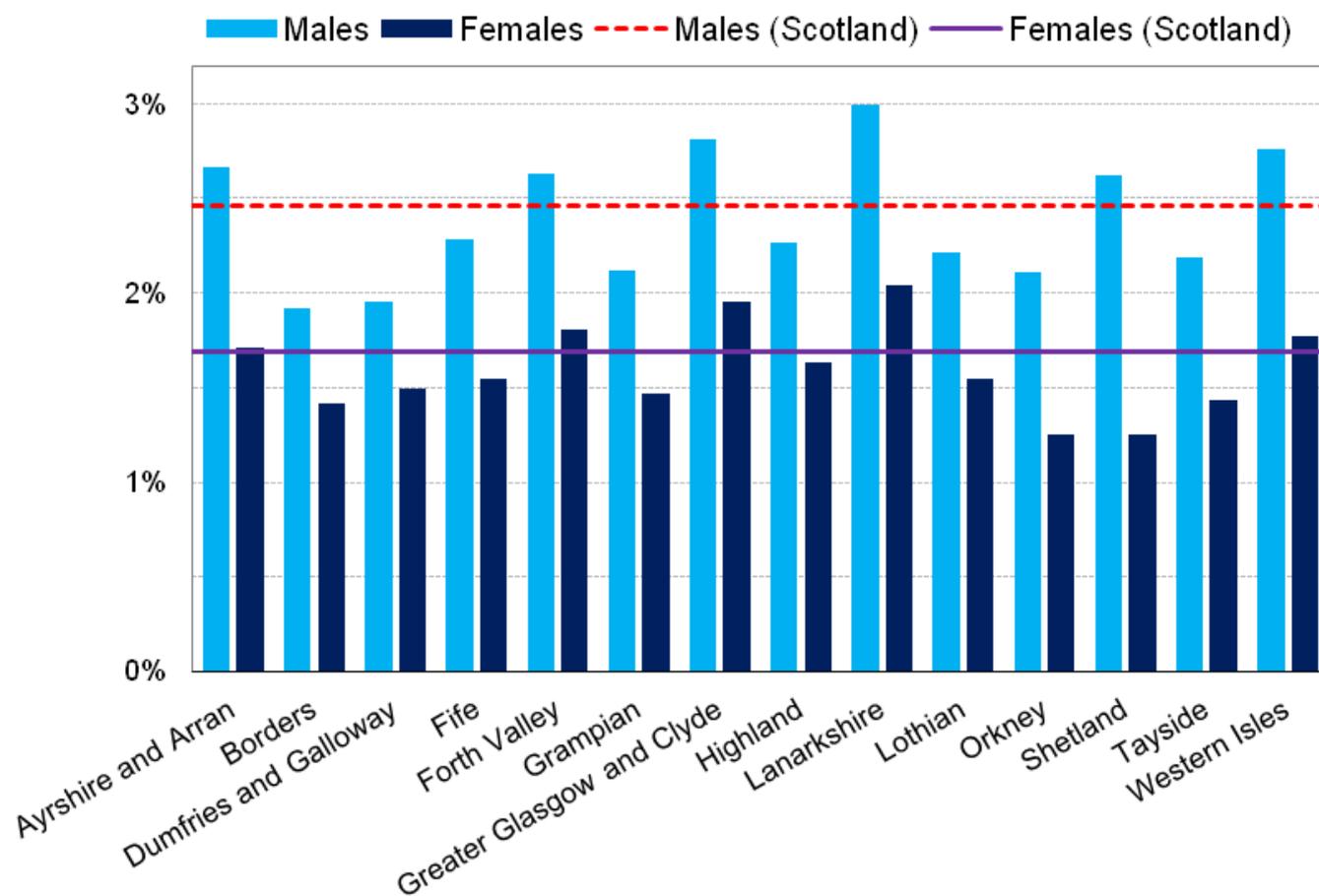
The highest positive screening test result percentage for men and women was in NHS Lanarkshire with 3% for males and 2% for women.

Higher positivity percentages have been observed in areas with large concentrations of deprivation (Ayrshire, Greater Glasgow and Clyde, and Lanarkshire). These high positivity percentages do not, however, translate into higher levels of cancer detection².

It has been suggested by researchers that dietary factors account for this finding, and if this is the case, it highlights one of the limitations of the guaiac test³.

In the mainland boards, the lowest positive test percentages for women and men were in NHS Borders, with 1.42% in women and 1.92% in men.

Figure 3 - Positive bowel screening test result by NHS Board and sex, Nov 2014 to Oct 2016



[2. Bowel screening Key Performance Indicators report 2017.](#)

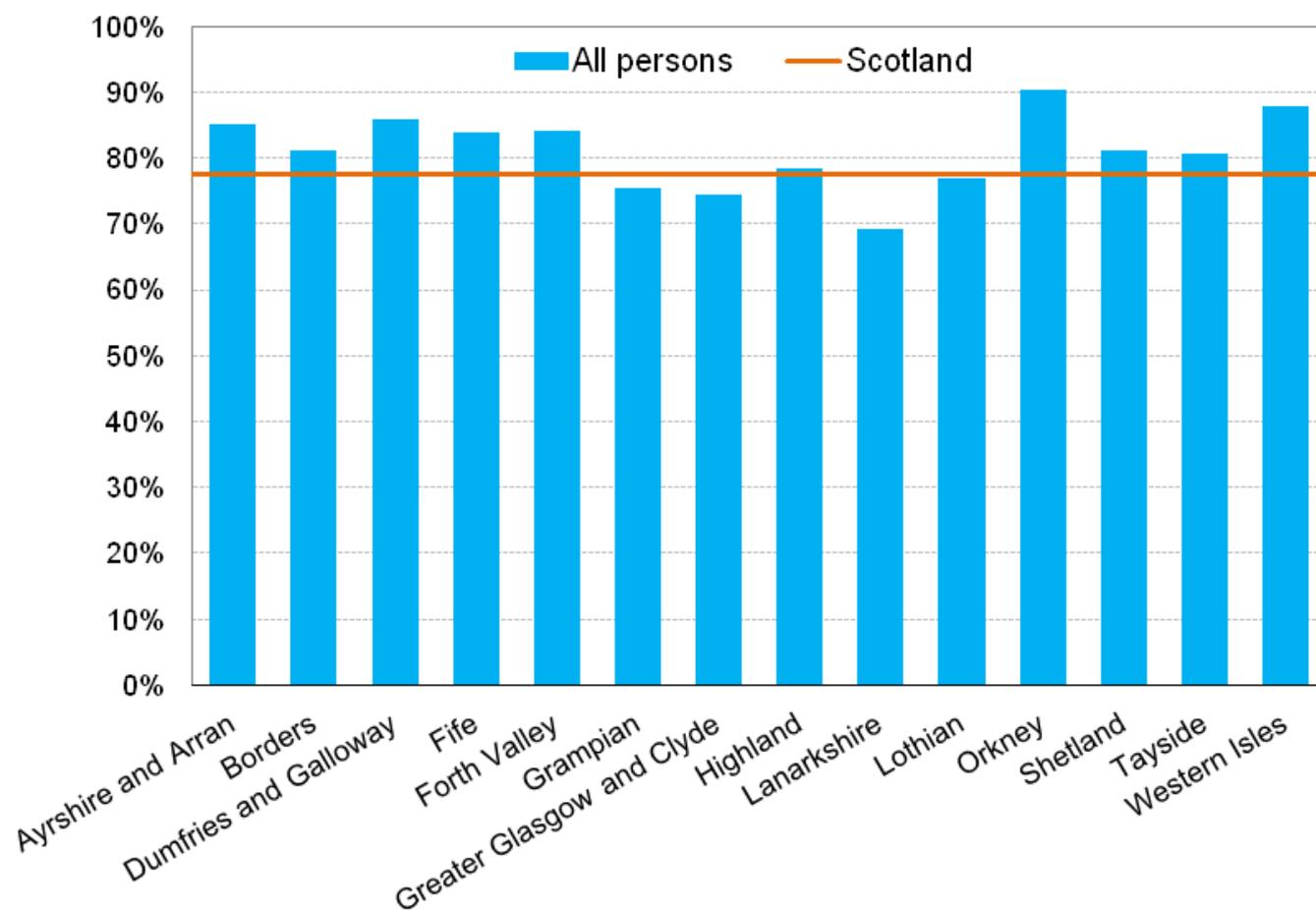
[3. Digby, J et al. Use of a faecal immunochemical test narrows current gaps in uptake for sex, age and deprivation in a bowel cancer screening programme. J Med Screen 2013; 20:80-85.](#)

Percentage of colonoscopies performed

Colonoscopy is the first line examination following a positive screening test. In Scotland, 77.7% of people with a positive test went on to have a colonoscopy performed. The main reasons for individuals not proceeding to colonoscopy were that they declined the offer or that it was clinically inappropriate. Individuals already on surveillance programmes may not always proceed to colonoscopy after a positive screening test as their surveillance colonoscopy may have been undertaken recently.

In the mainland NHS Boards, the percentage of people with a positive bowel screening test result going on to have a colonoscopy performed varied from 69.4% (NHS Lanarkshire) to 86.0% (NHS Dumfries & Galloway), see Figure 4.

Figure 4 - Percentage of people with a positive bowel screening test result going on to have a colonoscopy performed by NHS Board, Nov 2014 to Oct 2016



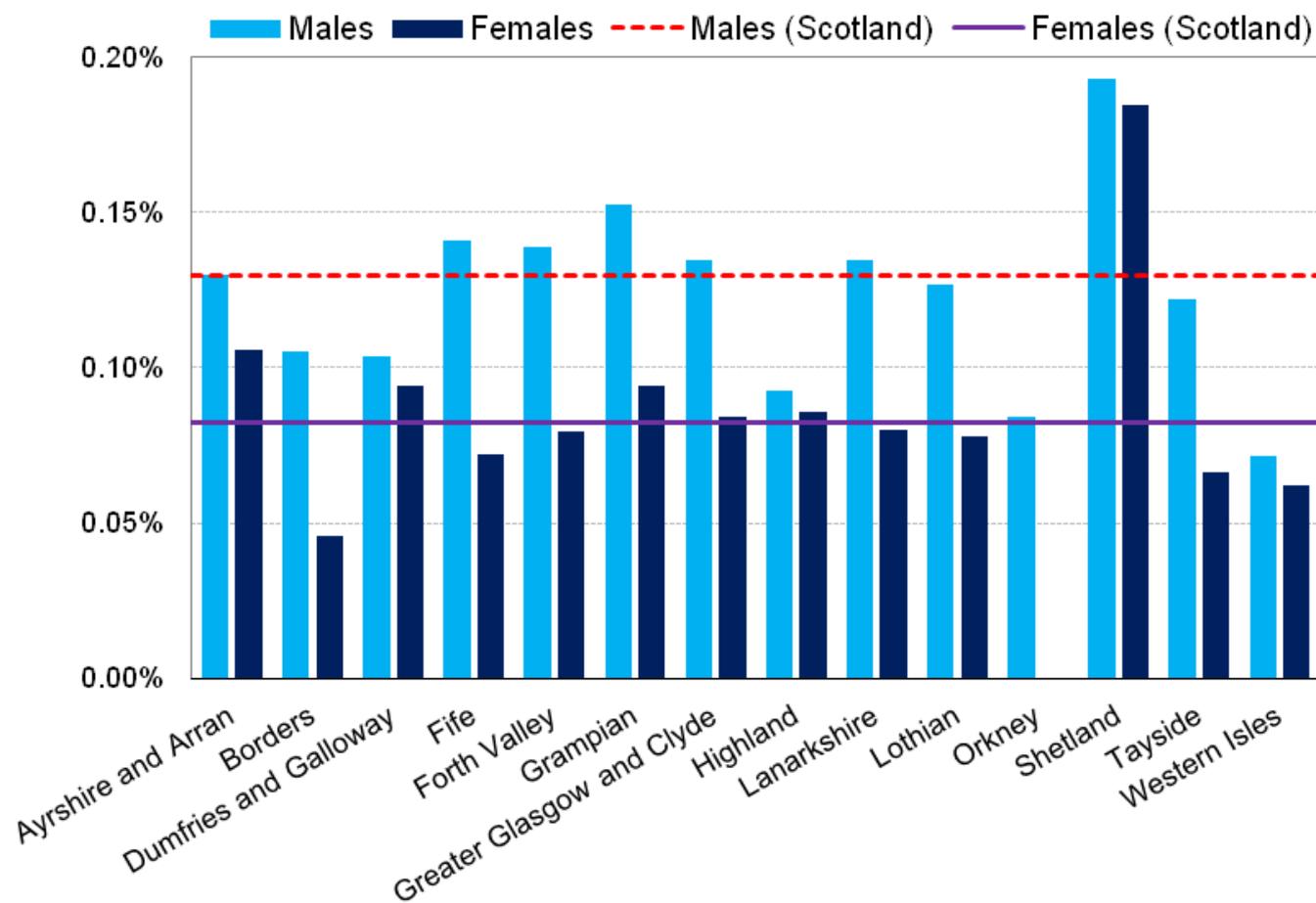
Bowel cancer detection

This is the percentage of people with bowel cancer detected out of those who completed a screening test i.e. those who received an outright positive or negative test result.

More cancers were detected in men than in women (0.13% in males and 0.08% in females). This is broadly similar for both males and females compared with the two-year period November 2013 to October 2015 (0.13% in males and 0.07 in females). As screening continues a reduction and eventual levelling off of the cancer detection is to be expected⁴.

The percentage of cancers detected varied across the mainland NHS Boards from 0.09% to 0.15% in men and 0.05% to 0.10% in women.

Figure 5 - Percentage of cancers detected by NHS Board and sex, Nov 2014 to Oct 2016



4. Steele, RJC et al. Results from the first three rounds of the Scottish demonstration pilot of FOBT screening for colorectal cancer. Gut 2009;58;530-535.

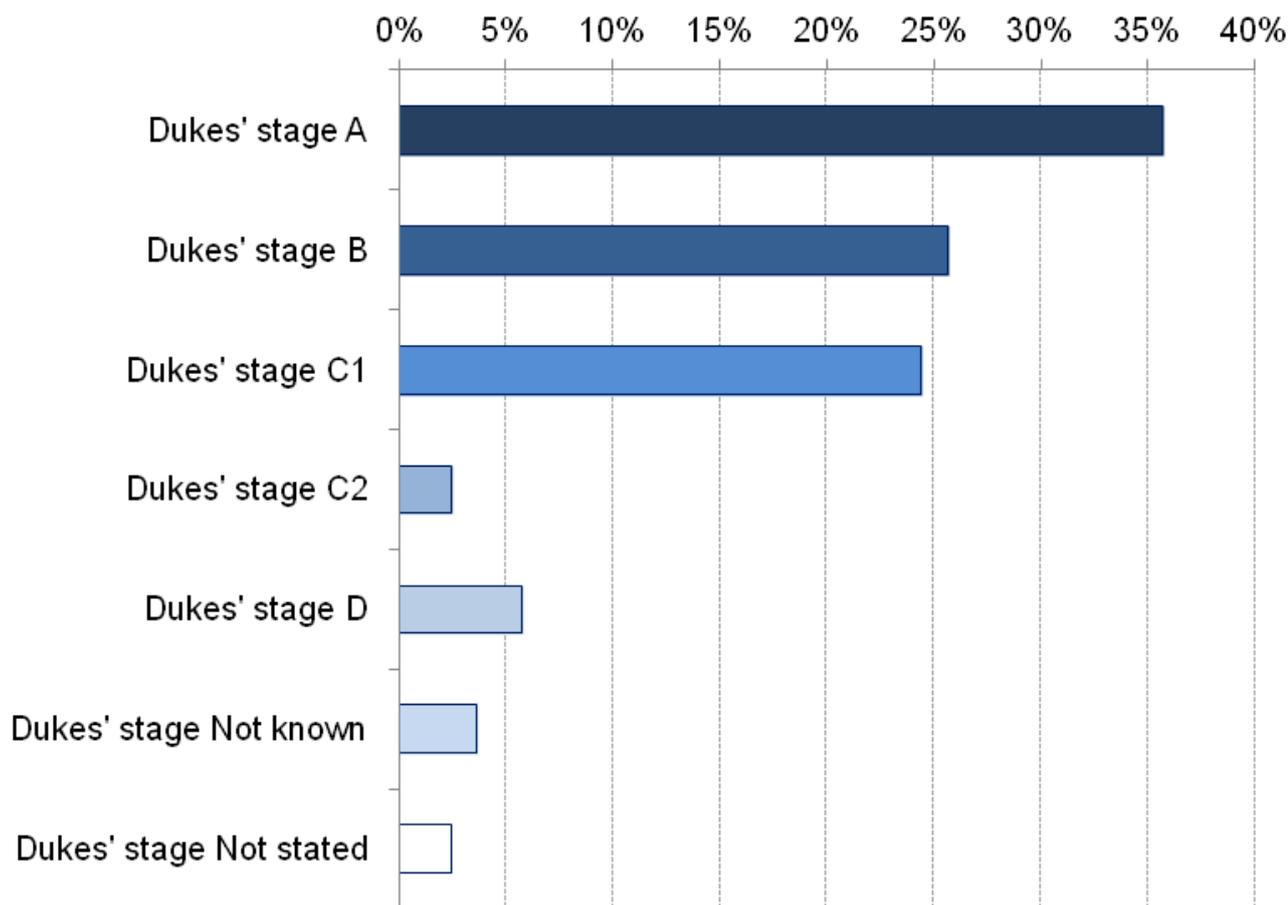
Dukes' Staging

Dukes' staging is the process of determining the extent to which bowel cancer has developed and spread. For the majority of patients with bowel cancer it is common practice to assign a letter from A to D to a cancer, with A indicating the cancer is confined to the bowel and D indicating that it has further spread to other more distant organs. Patients diagnosed with stage A disease tend to have better outcomes and longer survival compared to patients diagnosed with stage D disease.

9 out of 10 patients diagnosed with bowel cancer at Dukes' stage A will be cured of that cancer. More than 8 in 10 patients will be cured of a Dukes' stage B cancer⁵.

The percentage of screen detected bowel cancers that were diagnosed at the earliest two stages (Dukes' stages A or B) was 61.3%. There were 35.7% of cancers diagnosed at Dukes A and 25.7% of cancers diagnosed at Dukes B.

Figure 6 - Percentage of screen detected bowel cancers by stage at diagnosis in Scotland, Nov 2014 to Oct 2016



[5. Statistics and outlook for bowel cancer \(Cancer Research UK\).](#)

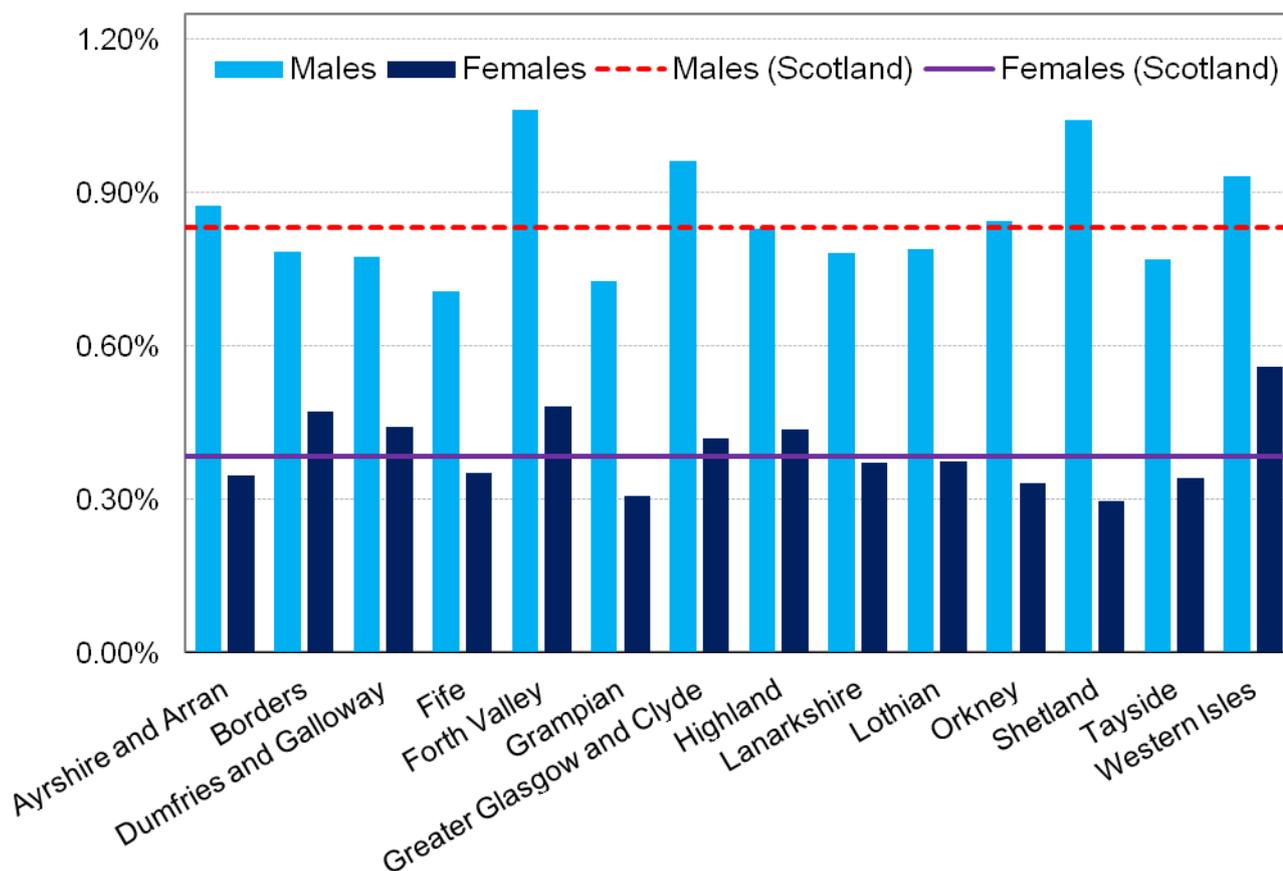
Adenoma detection

This is the percentage of people with adenoma as the most serious diagnosis⁶ detected out of those who completed a screening test. Adenoma can be a precursor to cancer and can be classed as high, medium, low, or unclassified risk depending on size and number.

Screening detected more than twice as many adenomas in men as in women. The percentage of adenoma detected in Scotland was 0.83% for men and 0.39% in women (Figure 7). These are similar to the percentages that were reported last year (0.83% for men and 0.37% for women). As with the cancer detection, adenoma detection is expected to lower and eventually level out as screening continues.

The overall percentage of adenoma detection varied across mainland NHS Boards from 0.71% to 1.06% in men and 0.31% to 0.48% in women.

Figure 7 - Percentage of adenomas detected by NHS Board and sex, Nov 2014 to Oct 2016



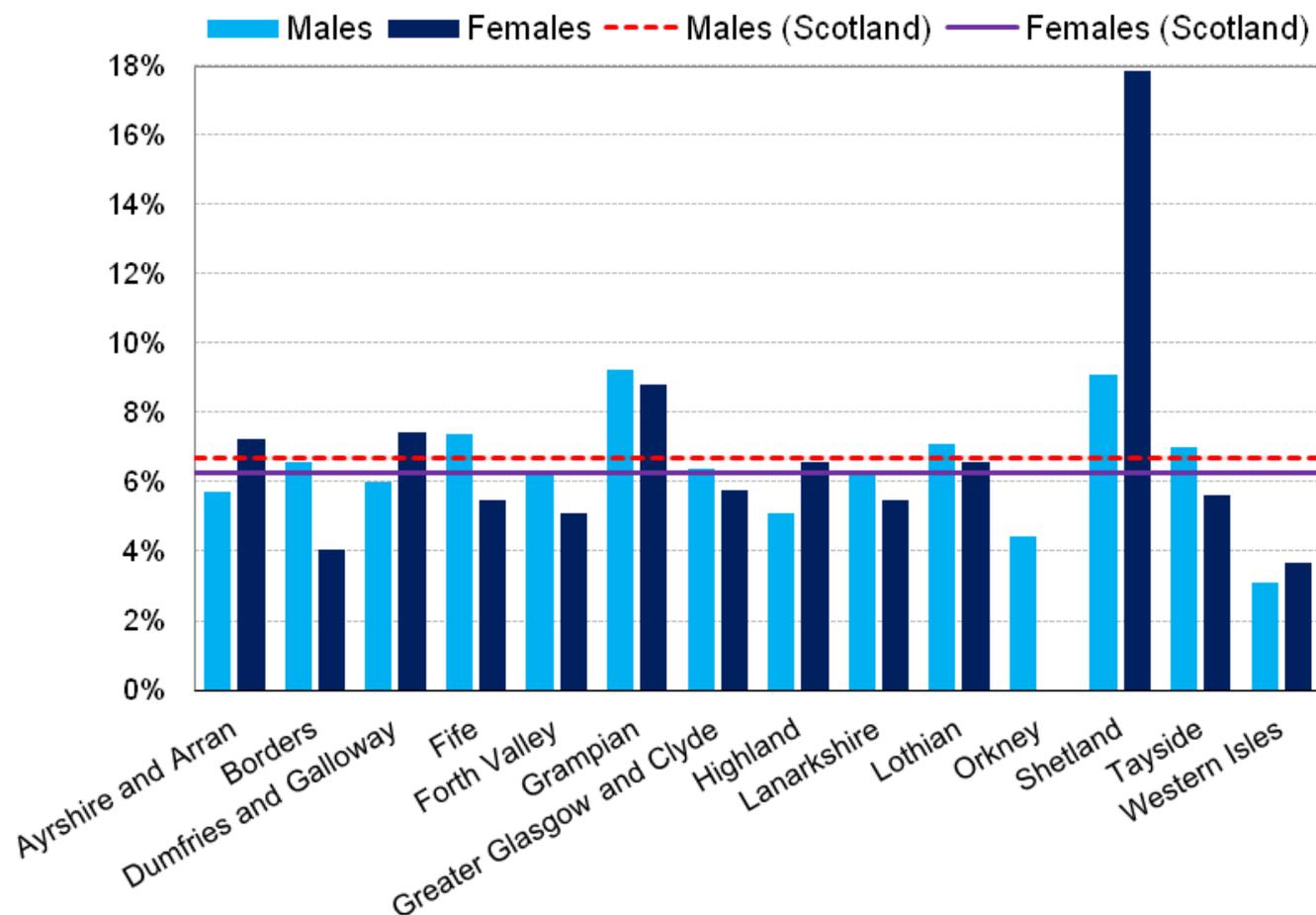
6. No colorectal cancer confirmed.

Positive predictive value of current screening test for bowel cancer

The positive predictive value of the current bowel screening test for bowel cancer in Scotland is 6.5%.

Of those that had a positive screening test result (and went on for further investigations) 6.7% of men and 6.3% of women had a bowel cancer⁷.

Figure 8 - Positive Predictive Value of current screening test for bowel cancer by NHS Board and sex, Nov 2014 to Oct 2016



7. The positive predictive value for females in NHS Shetland is high due to the small number of positive results and cancers detected in that board.

Glossary

Adenoma	An adenoma is an overgrowth of harmless (benign) glandular cells. Glandular tissue is made up of cells that make and release liquids, enzymes, hormones or other chemicals. Adenomas can be a precursor to cancer and can be classed as high, medium, low or unclassified risk depending on size and number.
Bowel cancer	Also referred to as colorectal cancer. For the purposes of this publication bowel/colorectal cancer refers to bowel cancers (including polyp cancers, but excluding non-invasive lesions, such as carcinoma in situ).
Colonoscopy	A colonoscopy is an examination of the lining of the bowel wall. More information can be found at the following web address: http://www.bowelscreening.scot.nhs.uk/ .
Dukes' stage	The 'stage' of a cancer relates to how big it is and where it has spread to. Dukes' stage A means the cancer is only on the inner lining of the rectum or colon and is also possibly growing slightly into the muscle lining. Dukes' stage D means the cancer has spread to another part of the body such as the liver or lung. (More information on cancer staging can be found on the Cancer Research UK website .)
Deprivation gradient	The ratio of percentages between the most and least deprived categories.
Mainland health boards	Health Boards in Scotland excluding the three Island Health Boards (Orkney, Shetland and Western Isles).
Percentage points	A percentage point is the unit for the arithmetic difference between two percentages.
Positive Bowel Screening test result	A positive bowel screening test result means that blood has been found in the samples. Most people will have a 'negative' result, which means that no blood was found in the samples. More information can be found at the following web address: http://www.bowelscreening.scot.nhs.uk/ .
Positive predictive value	The proportion of those who have a positive test who actually have the disease (bowel cancer).
Deprivation	Deprivation for individuals is estimated from aggregate

Category (SIMD)	<p>data derived from the census and other routine sources. These are used to estimate the deprivation of small geographical areas. The Scottish Index of Multiple Deprivation (SIMD) has seven domains (income, employment, education, housing, health, crime, and geographical access), which have been combined into an overall index to pick out area concentrations of multiple deprivation. ISD use population weighting when using SIMD. More information on SIMD can be found at the following web address: http://www.isdscotland.org/Products-and-Services/GPD-Support/Deprivation/SIMD/index.asp.</p>
Surveillance programme	<p>Usually those with inflammatory bowel disease and those at moderate risk resulting from a family history of bowel cancer are placed in what is termed as a surveillance programme, with a view to diagnosing any cancers at an early stage.</p>

List of Tables

Table No.	Name	Time period	File & size
All	Full Scottish Bowel Screening Report	November 2014 to October 2016	Excel (574 KB)

Frequency of future publications

Scottish Bowel Screening Programme statistics are released every six months. The August update provides a more comprehensive commentary than the February update. Readers are invited to send any comments on this publication to nss.isdCANCERSTATS@nhs.net.

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Further Information

For more information on Bowel Screening see the [Bowel screening section of our website](#).

You can find more information on Detect Cancer Early (DCE) on the [ISD website DCE pages](#).

For related topics, please [see the Cancer pages](#) on the ISD website.

The next release of this publication will be 06 February 2018 (KPI report and summary only).

Rate this publication

Please [provide feedback](#) on this publication to help us improve our services.

Appendices

A1 – Background Information

In screening programmes when the screening test is first applied to the population, this is known as the prevalence round since it is to be expected that a number of prevalent cases will be detected. Potentially, some of these tumours may have been present for a number of years without causing symptoms or signs. In subsequent rounds of screening the cases detected will be known to have arisen in a fixed time period and these are known as incidence rounds. In the case of bowel screening the interval between rounds is two years.

Tayside, Grampian and Fife NHS Boards participated in the Scottish Bowel Screening Pilot which ran from March 2000 to May 2007. The pilot was successful and these Boards then proceeded to roll out in June 2007. The Pilot Boards and the other NHS Boards have completed their prevalence round and are now established in their incidence round. NHS Boards are also at different points within the rounds. Direct comparisons must be treated with caution; the publication in August 2012 was the first report with all NHS Boards in their incidence rounds.

Due to small numbers of positive test results recorded for NHS Orkney, NHS Western Isles and NHS Shetland any comparison of figures with these NHS Boards should also be treated with caution.

Health Board boundary changes

On 1st April 2014, Scottish NHS Board boundaries were changed to align with those of local authorities. The purpose of this change was to help NHS Boards and local authorities to work closer together in the provision of care in the community. More information on the background to this change can be found on the [Scottish Government website](#). The Boards most affected were NHS Greater Glasgow and Clyde and NHS Lanarkshire. Over 72,000 people were transferred from NHS Greater Glasgow and Clyde to NHS Lanarkshire. There were also over 16,000 people transferred from NHS Lanarkshire to NHS Greater Glasgow and Clyde.

A2 – Publication Metadata (including revisions details)

Metadata Indicator	Description
Publication title	Scottish Bowel Screening Programme Statistics
Description	The publication of the Scottish Bowel Screening Programme Key Performance Indicators and includes uptake, laboratory and clinical outcomes of screened individuals.
Theme	Health and Social Care
Topic	Conditions and Diseases
Format	PDF, Excel
Data source(s)	Scottish Bowel Screening Programme (SBoSP) Database
Date that data are acquired	June 2017
Release date	08 August 2017
Frequency	Bi-annual
Timeframe of data and timeliness	Data from 1 November 2014 to 31 October 2016. To increase completeness data published are at least six months after a positive test result.
Continuity of data	The roll out of the Scottish Bowel Screening Programme was completed in December 2009.
Revisions statement	Figures contained within each publication may be subject to change in future publications. See the ISD Revisions Policy .
Revisions relevant to this publication	
Concepts and definitions	Please see Cancer FAQs http://www.isdscotland.org/Health-Topics/Cancer/FAQ/
Relevance and key uses of the statistics	<p>ISD's Scottish Bowel Screening Programme statistics are designed for monitoring and evaluating the effectiveness of the Scottish Bowel Screening Programme, including progress against the specific national uptake standard and performance indicators. The statistics are used for a variety of other purposes, including:</p> <ul style="list-style-type: none"> • informing Scottish Government planning, including NHS spending and the development of the Scottish cancer care action plan; • informing Health Boards' planning and commissioning of cancer services; • health services research and clinical audit; • promoting changes in societal behaviour, such as increasing screening uptake;

	<ul style="list-style-type: none"> • targeting common strategies to areas of low uptake; and • providing information to compare with UK and international health data.
Accuracy	Bowel screening data are subject to validation and quality assurance procedures when submitted to ISD.
Completeness	See note on 'Timeframe of data and timeliness'. Currently, we are accepting data from NHS Boards after 6 months in the anticipation that the data will be complete. Assessments of this completeness will be done after data are available from all NHS Boards.
Comparability	Bowel Screening data, both in Scotland and the UK as a whole, are fairly new data and once firmly established will be compared. It should be noted, however, that the four UK bowel screening programmes do not all invite individuals of the same age range.
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to published guidelines .
Coherence and clarity	The Bowel Screening report is accessible via the ISD website at www.isdscotland.org/Health-Topics/Cancer/Bowel-Screening/
Value type and unit of measurement	Counts and percentages.
Disclosure	The ISD protocol on Statistical Disclosure Protocol is followed. For this publication, at the levels of aggregation presented, the risk of disclosure was assessed as being low risk and so no further statistical disclosure control methods were employed.
Official Statistics designation	National Statistics
UK Statistics Authority Assessment	Assessment by UK Statistics Authority for National Statistics designation completed.
Last published	07 February 2017
Next published	06 February 2018
Date of first publication	25 August 2009
Help email	nss.isdCANCERSTATS@nhs.net
Date form completed	06 July 2017

A3 – Early Access details (including Pre-Release Access)

Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", ISD are obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

- Scottish Government Health Department
- NHS Board Chief Executives
- NHS Board Communication leads

Early Access for Management Information

These statistics will also have been made available to those who needed access to 'management information', ie as part of the delivery of health and care:

The Monitoring and Evaluation Group for the Scottish Bowel Screening Programme

Early Access for Quality Assurance

These statistics will also have been made available to those who needed access to help quality assure the publication:

NHS Board Bowel Screening Co-ordinators and Data Management staff.

A4 – ISD and Official Statistics

About ISD

Scotland has some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow patient based analysis and follow up.

Information Services Division (ISD) is a business operating unit of NHS National Services Scotland and has been in existence for over 40 years. We are an essential support service to NHSScotland and the Scottish Government and others, responsive to the needs of NHSScotland as the delivery of health and social care evolves.

Purpose: To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.

Mission: Better Information, Better Decisions, Better Health

Vision: To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

Official Statistics

Information Services Division (ISD) is the principal and authoritative source of statistics on health and care services in Scotland. ISD is designated by legislation as a producer of 'Official Statistics'. Our official statistics publications are produced to a high professional standard and comply with the Code of Practice for Official Statistics. The Code of Practice is produced and monitored by the UK Statistics Authority which is independent of Government. Under the Code of Practice, the format, content and timing of statistics publications are the responsibility of professional staff working within ISD.

ISD's statistical publications are currently classified as one of the following:

- National Statistics (ie assessed by the UK Statistics Authority as complying with the Code of Practice)
- National Statistics (ie legacy, still to be assessed by the UK Statistics Authority)
- Official Statistics (ie still to be assessed by the UK Statistics Authority)
- other (not Official Statistics)

Further information on ISD's statistics, including compliance with the Code of Practice for Official Statistics, and on the UK Statistics Authority, is available on the [ISD website](#).

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics. Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.