

Publication Report



Scottish Bowel Screening Programme Statistics

For invitations between 1 November 2011 and 31 October 2013

Publication date – 26 August 2014



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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 (CHI) 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 2 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 target 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 2011 and 31 October 2013.

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

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 KPI report](#) .

Key points

For the two-year period November 2011 to October 2013:

- In Scotland the bowel screening uptake was 56.1%, an increase of 1.2 percentage points compared with the two-year period November 2010 to October 2012. Uptake for females was 58.8% and for males was 53.3%. The Healthcare Improvement Scotland standard for bowel screening uptake is 60%.
- Uptake was lower in areas of higher deprivation. Uptake for females in the two least deprived quintiles exceeded the 60% standard at 68.0% and 64.8%, respectively. Uptake for males living in the least deprived quintile was at 61.5%. For males living in the most deprived quintile the uptake was 41.7%.
- More than half of screen detected cancers (57.8%) were diagnosed at Dukes' stage A and B. The earlier a cancer is detected the greater the chances are of successful treatment.
- 6.7% of men and 6.0% of women who had a positive bowel screening test result (and who went on for further investigations) had either polyp cancer or invasive bowel cancer.

Results and Commentary

Prior to this publication Tables and Charts were based on the pre-2006 Health Board configuration. Please note that all tables and charts are now based on the 2006 Health Board configuration: NHS Highland now includes Argyll & Bute area and NHS Greater Glasgow now includes Clyde and is reported as NHS Greater Glasgow & Clyde.

Overall uptake of bowel screening

The overall uptake is the percentage of people with a 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 2011 to October 2013 is shown in Table 1. During this period over 1.7 million people were invited and more than 960,000 took up the offer and achieved an outright positive or negative test result.

The overall uptake for Scotland was 56.1%, an increase of 1.2 percentage points compared with the two-year period November 2010 to October 2012. The Healthcare Improvement Scotland (HIS) standard and bowel screening programme target for uptake is 60%. The uptake between individual boards ranged from 49.9% to 65.8%.

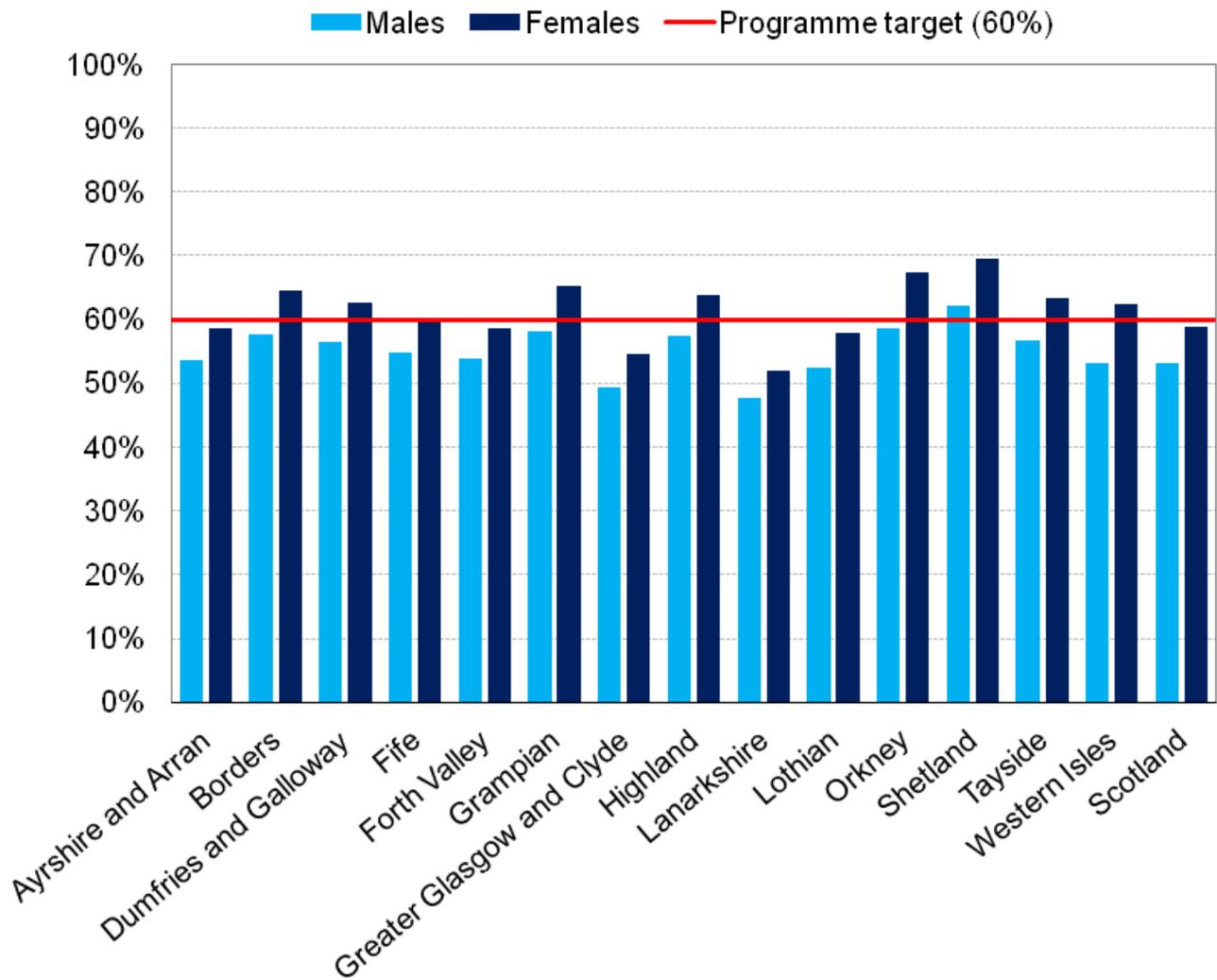
Table 1 - Overall uptake of bowel screening (%), by NHS Board, Nov 2011 to Oct 2013

NHS Board	Number of people invited	Number of people screened	Overall uptake (%)
Ayrshire and Arran	131,294	73,755	56.2
Borders	43,541	26,662	61.2
Dumfries and Galloway	57,010	34,028	59.7
Fife	120,678	69,129	57.3
Forth Valley	96,180	54,126	56.3
Grampian	177,472	109,566	61.7
Greater Glasgow and Clyde	375,819	195,763	52.1
Highland	116,804	70,918	60.7
Lanarkshire	186,381	93,007	49.9
Lothian	246,454	136,217	55.3
Orkney	7,732	4,864	62.9
Shetland	7,647	5,029	65.8
Tayside	135,800	81,736	60.2
Western Isles	10,110	5,848	57.8
Scotland	1,712,922	960,648	56.1

The overall uptake by NHS Board and sex for the two-year period November 2011 to October 2013 is shown in Figure 1.

In Scotland, uptake was 58.8% for females and 53.3% for males.

**Figure 1 - Overall uptake of bowel screening (%) by NHS Board and sex
Nov 2011 to Oct 2013**



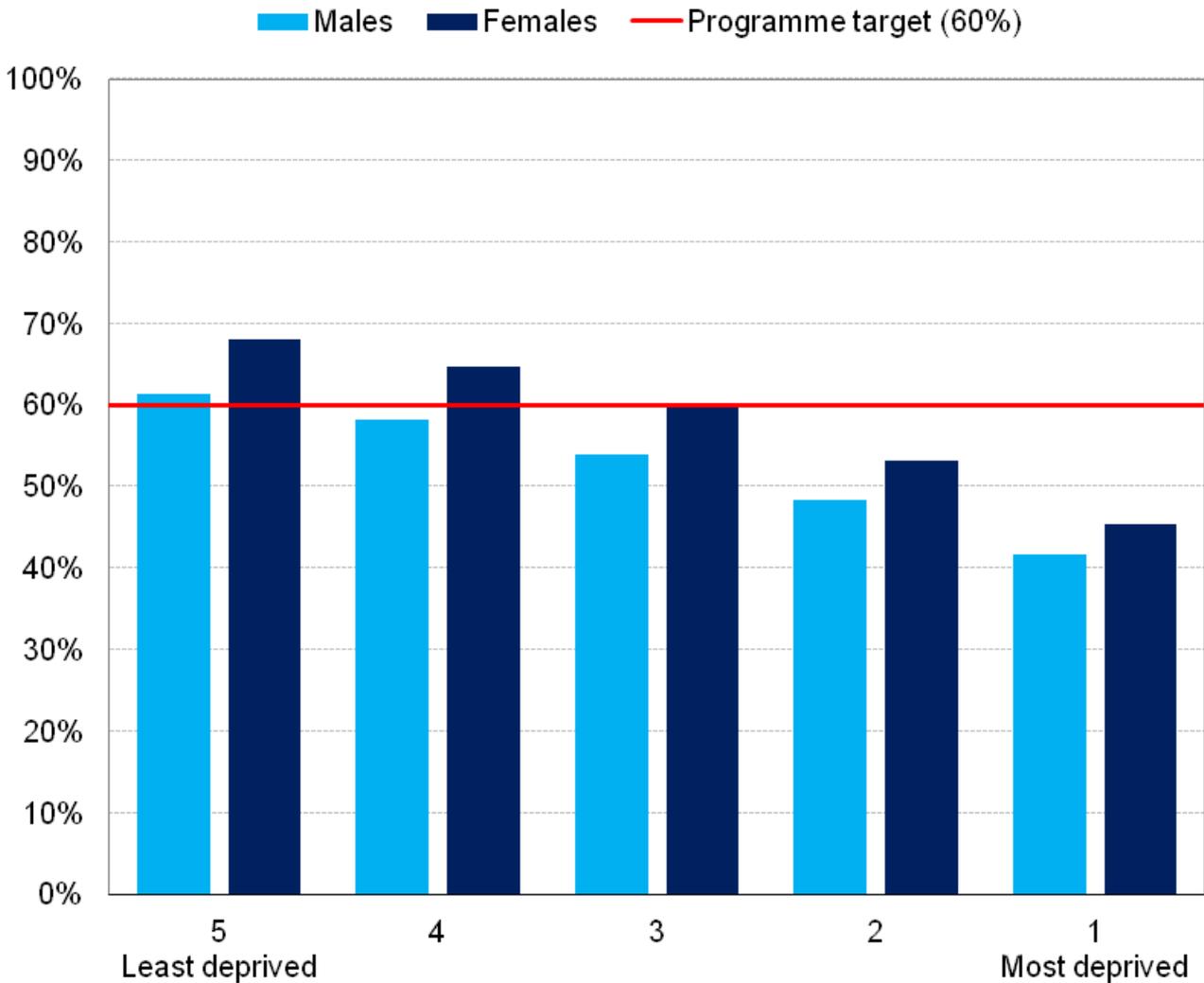
Overall uptake of bowel screening by Scottish Index of Multiple Deprivation (SIMD) 2012

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

Uptake for females in the two least deprived quintiles exceeded the 60% programme target at 68.0% and 64.8%, respectively. Male uptake in the least deprived quintile exceeded the programme target with uptake at 61.5%.

Bowel screening uptake for males living in the most deprived quintile was 41.7%.

Figure 2 - Overall uptake of bowel screening (%) by SIMD and sex, Nov 2011 to Oct 2013



Note: SIMD 2012 Scotland level population-weighted quintiles

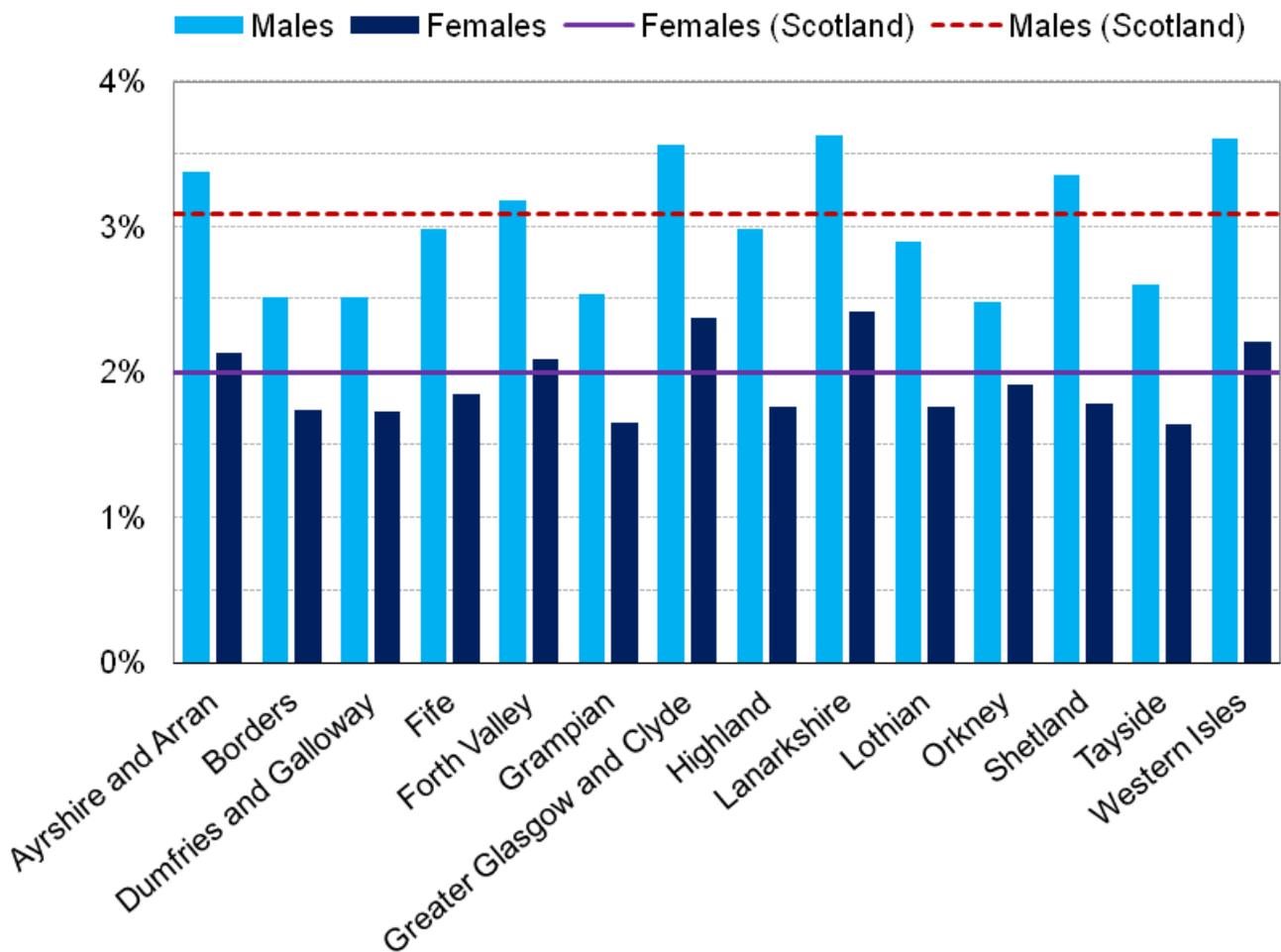
Positive bowel screening test result rate

Overall 2.5% of people who complete the screening test receive a positive result, although this varies across Scotland and by sex (Figure 3). The positive bowel screening test result rate in Scotland was 3.1% in men and 2.0% in women.

The highest positive screening test result rate for men was in NHS Lanarkshire at 3.63%. The highest positive screening test result rates for women was also in NHS Lanarkshire at 2.42%.

The lowest positive screening test rates for women were in NHS Grampian and NHS Tayside, both at 1.65%. Positive screening test rates were lowest for men in NHS Borders and NHS Dumfries and Galloway both at 2.52% (excluding island NHS Boards).

Figure 3 - Positive bowel screening test result rate (%) by NHS Board and sex, Nov 2011 to Oct 2013

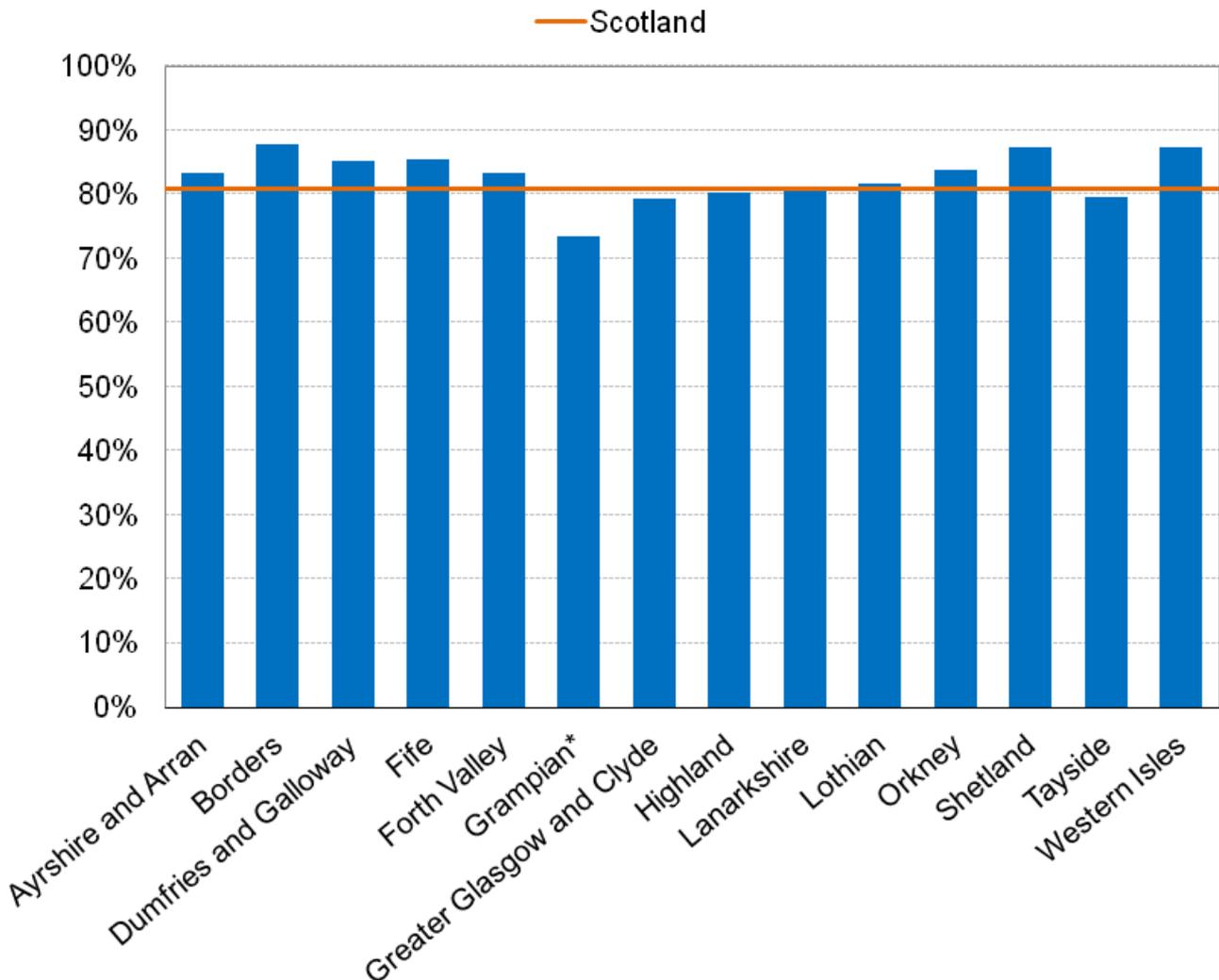


Percentage of people with a positive bowel screening test going on to have a colonoscopy performed

Colonoscopy is the first line examination following a positive screening test. In Scotland 80.9% 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 79.3% to 87.9% (Figure 4). This range excludes NHS Grampian, see note below 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 2011 to Oct 2013



Due to small numbers of positive test results recorded for island NHS Boards any comparison of figures with these NHS Boards should be treated with caution.

*It has been identified that there may be data linkage problems for a small proportion of NHS Grampian patients. We believe this has led to the reporting of a lower number of people with a positive screening test result going on to have a colonoscopy than had actually been recorded by NHS Grampian. There is not an issue with the data submitted by NHS Grampian but in the processing of this information. The problem is being investigated and, if required, a revision to the statistics presented here will be published.

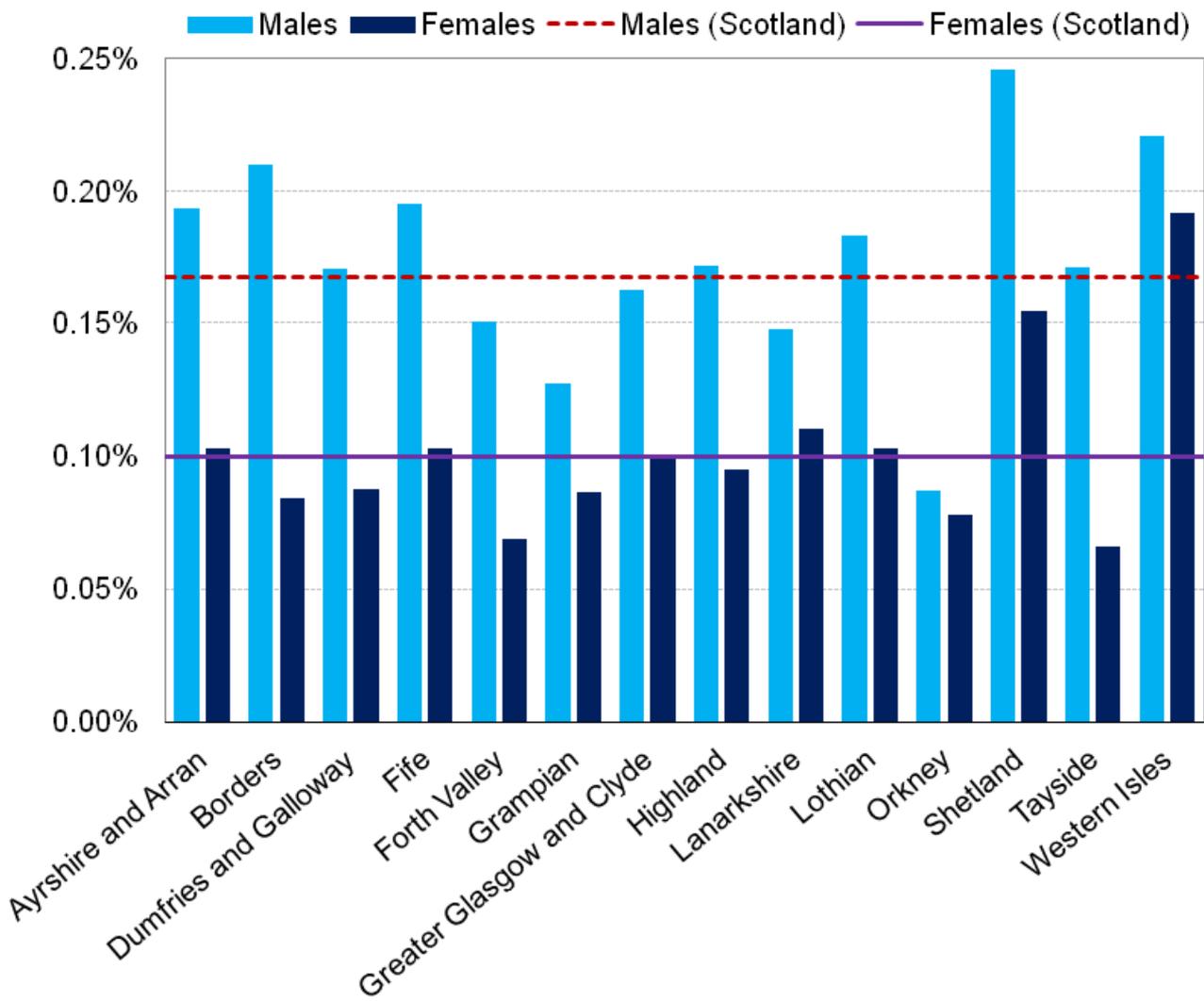
Crude cancer detection rate

The crude cancer detection rate is the percentage of people with cancer 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. The crude cancer detection rate for males was 0.17% and 0.10% for females.

The crude cancer detection rate varied across NHS Boards from 0.13% to 0.21% in men and 0.07% to 0.11% in women (excluding island NHS Boards).

Figure 5 - Crude bowel cancer detection rates (%) by NHS Board and sex, Nov 2011 to Oct 2013



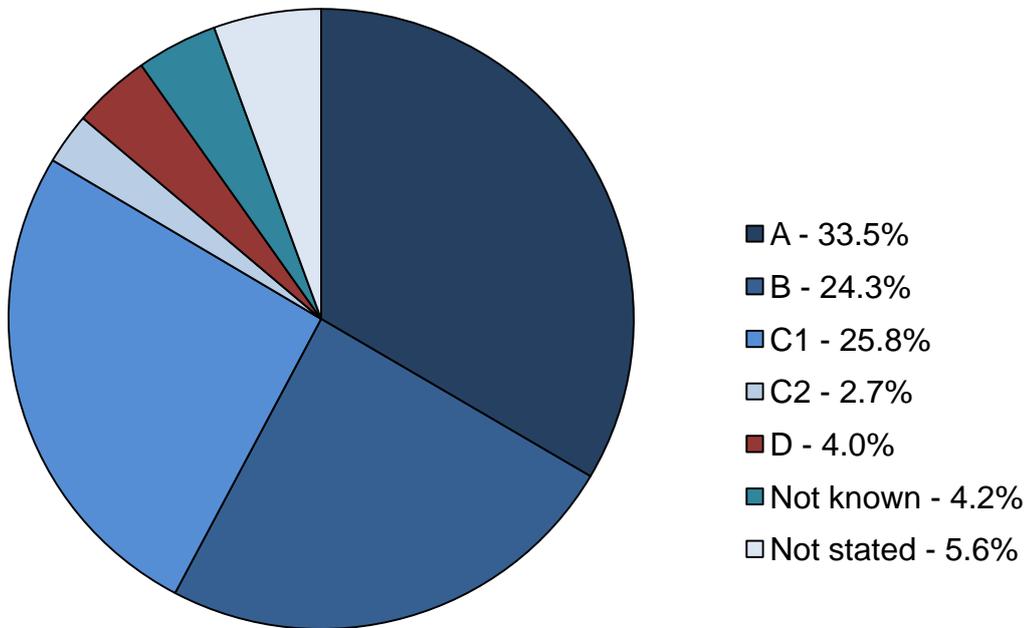
Note: Due to small numbers of positive test results recorded for island NHS Boards any comparison of figures with these NHS Boards should be treated with caution.

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 organs. Patients diagnosed with stage A disease tend to have better outcomes and longer survival compared to patients diagnosed with stage D disease. Around 9 out of 10 patients diagnosed with Bowel Cancer at Dukes' stage A will be cured of that cancer. More than 7 in 10 patients will be cured of a Dukes stage B cancer¹.

More than half of screen detected cancers were diagnosed at Dukes' stages A and B, 57.8%. There were 33.5% of cancers staged as Dukes A and 24.3% of cancers staged as Dukes B.

Figure 6 - Percentage of people with screen detected bowel cancers that are staged (Dukes), in Scotland Nov 2011 to Oct 2013



¹ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/bowel/survival/bowel-cancer-survival-statistics>

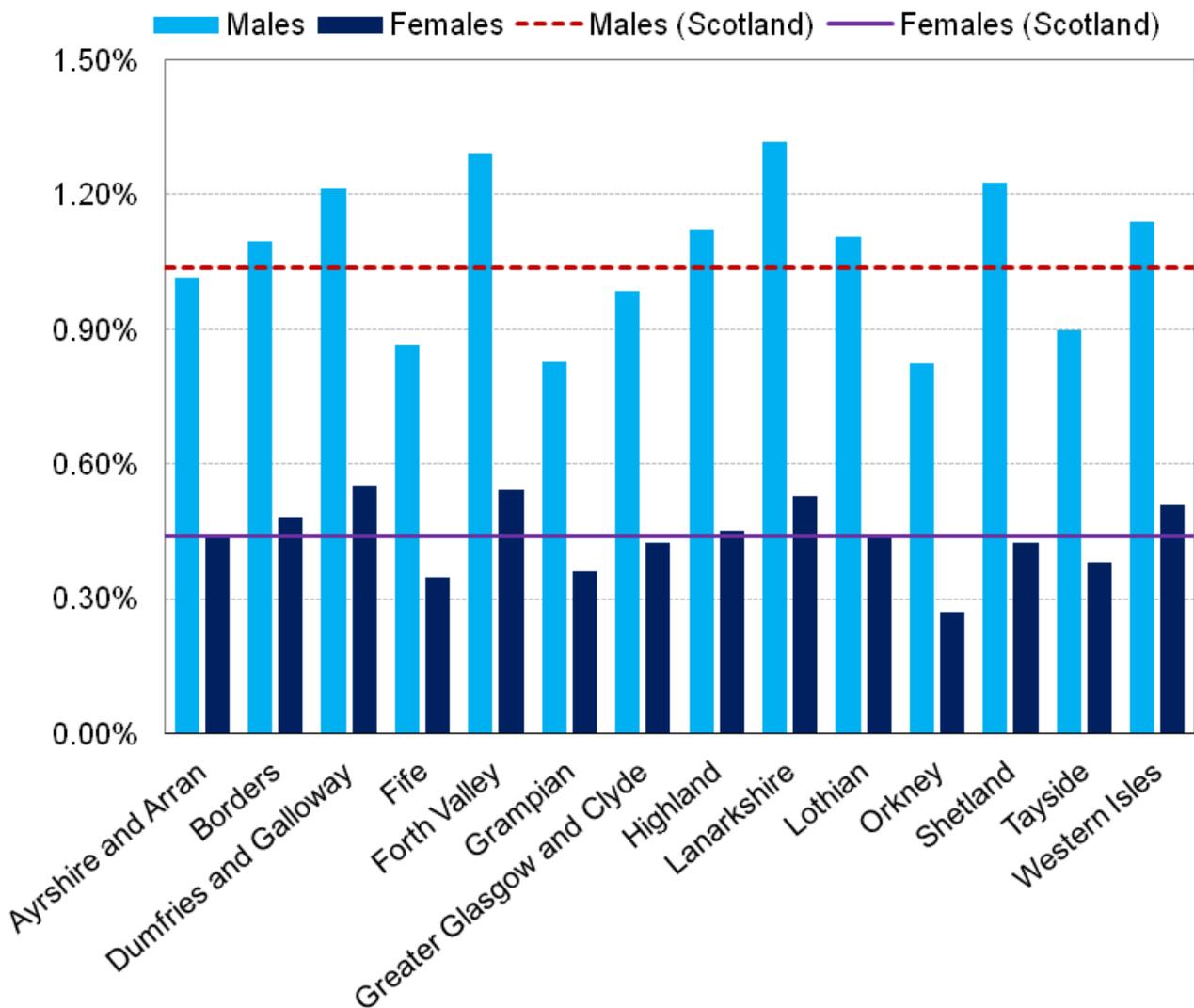
Overall adenoma detection rate

The adenoma detection rate is the percentage of people with adenomas detected out of those who completed a screening test. Adenomas can be a precursor to cancer and can be classed as high, medium or low risk depending on size and number.

Screening detected more than twice as many adenomas in men as in women. The overall adenoma detection rate in Scotland was 1.04% for men and 0.44% in women (Figure 6).

The overall adenoma detection rate varied across NHS Boards from 0.83% to 1.32% in men and 0.35% to 0.55% in women (excluding island NHS Boards).

Figure 7 - Overall adenoma detection rate (%) by NHS Board and sex, Nov 2011 to Oct 2013



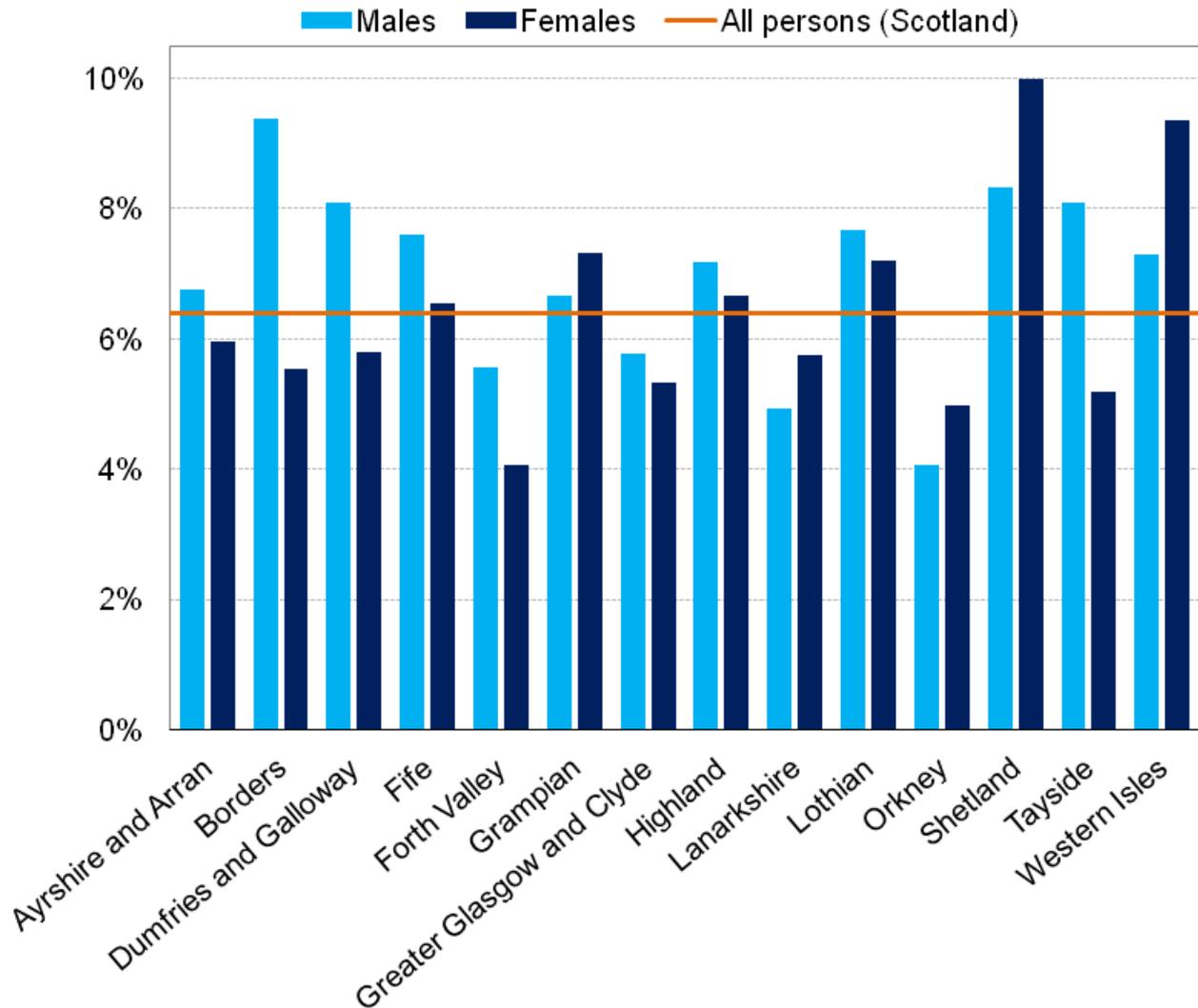
Note: Due to small numbers of positive test results recorded for island NHS Boards any comparison of figures with these NHS Boards should be treated with caution.

Positive predictive value of current bowel screening test for bowel cancer

The positive predictive value of the current bowel screening test for bowel cancer in Scotland is 6.4%.

Of those that had a positive screening test result (and went on for further investigations) 6.7% of men and 6.0% of women had either polyp cancer or invasive bowel cancer.

Figure 8 - Positive Predictive Value of current bowel screening test for bowel cancer (%) by NHS Board and sex, Nov 2011 to Oct 2013.



Note: Due to small numbers of positive test results recorded for island NHS Boards any comparison of figures with these NHS Boards should be treated with caution.

Glossary

Percentage points	A percentage point is the unit for the arithmetic difference between two percentages.
SIMD	Deprivation for individuals is estimated from aggregate 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
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/
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/
Surveillance programme	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.
Crude cancer detection rate	For this publication the crude cancer detection rate is calculated as the ratio of the number of bowel cancer diagnoses to the number of people who returned their screening test kit (and achieved an outright positive or negative result). There are no adjustments made when a crude rate is given.
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 at <http://www.cancerresearchuk.org/cancer-help/type/bowel-cancer/treatment/dukes-stages-of-bowel-cancer>)

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 or low risk depending on size and number.

Positive predictive value

The positive predictive value is the percentage of screen detected bowel cancers found in people who had a positive test and went on for further investigation (normally a colonoscopy).

List of Tables

Table No.	Name	Time period	File & size
All	Full Scottish Bowel Screening Report	November 2011 to October 2013	Excel (426 KB)

Contact

Greig Stanners

Senior Information Analyst/Statistician

nss.isdCANCERSTATS@nhs.net

0141 282 2333

Jaroslav Lang

Information Analyst/Statistician

nss.isdCANCERSTATS@nhs.net

0141 282 2202

Gary King

Principle Information Analyst

nss.isdCANCERSTATS@nhs.net

0141 282 2024

Further Information

Further information can be found on the [ISD website](#)

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Appendix

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.

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
Data source(s)	Scottish Bowel Screening Programme (SBoSP) Database
Date that data are acquired	May 2014
Release date	26 August 2014
Frequency	Annual
Timeframe of data and timeliness	Data from 1 November 2011 to 31 October 2013. 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 Bowel Screening 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 rates; • 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
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	28 August 2013
Next published	25 August 2015
Date of first publication	25 August 2009
Help email	nss.isdCANCERSTATS@nhs.net
Date form completed	12 August 2014

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 and, separately, those receiving extended Pre-Release Access.

Standard Pre-Release Access:

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

Extended Pre-Release Access

Extended Pre-Release Access of 8 working days is given to a small number of named individuals in the Scottish Government Health Department (Analytical Services Division). This Pre-Release Access is for the sole purpose of enabling that department to gain an understanding of the statistics prior to briefing others in Scottish Government (during the period of standard Pre-Release Access).

- Scottish Government Health Department (Analytical Services Division)

Early Access for Management Information

These statistics will also have been made available to those who needed access to 'management information', i.e. 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 (i.e. assessed by the UK Statistics Authority as complying with the Code of Practice)
- National Statistics (i.e. legacy, still to be assessed by the UK Statistics Authority)
- Official Statistics (i.e. 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.