

Publication Report



Detect Cancer Early Staging Data

Year 1 (2011 and 2012 combined)

Publication date – 25 February 2014

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Introduction

Cancer is one of the major causes of death in Scotland. In 2012, over 15,700 people died of cancer in Scotland and 30,000 people were diagnosed with cancer. The most common causes of cancer death and diagnosis are lung, colorectal and breast cancer¹.

In February 2012 the Cabinet Secretary formally launched the Detect Cancer Early (DCE) programme². One aim of the DCE programme is to increase the percentage of people who are diagnosed early in the disease process (with stage 1 disease) by 25% by the end of 2015. A HEAT (Health, Efficiency, Access and Treatment) target has been developed to monitor performance in meeting this objective^{3,4}. The target will concentrate on breast, colorectal and lung cancers, which collectively account for over 45% of all cancers diagnosed in Scotland in 2011¹.

Cancer staging is the process of determining the extent to which a cancer has developed and spread. For the majority of patients with cancer it is common practice to assign a number from 1 to 4 to a cancer, with 1 indicating the cancer is confined to the original organ in which it occurred and 4 being a cancer which has spread beyond the original organ and local lymph glands (regional lymph nodes). Patients diagnosed with stage 1 disease tend to have better outcomes and longer survival compared to patients diagnosed with stage 4 disease.

The percentage of patients with cancer diagnosed with stage 1 disease can vary because of a number of factors including the presence and uptake of national screening programmes.

This publication presents the numbers and percentages of patients diagnosed during 2011 and 2012 (combined) by stage at diagnosis for NHS Board of residence, Cancer Network and Scotland for breast, colorectal and lung cancers combined and individually.

To help monitor performance towards the DCE HEAT target, stage 1 figures for year 1 (2011 and 2012 combined) are compared against the baseline (2010 and 2011 combined).

When making comparisons across Scotland for the breast cancer data, it should be noted that in the Island NHS Boards the breast screening mobile unit only visits once every three years. This may cause some variability in the staging figures, as well as the total figures and percentages. The variability in the percentages may also be exaggerated due to small numbers involved in the calculations. This will also affect the combined breast, colorectal and lung cancer data but to a lesser degree.

¹ http://www.isdscotland.org/Health-Topics/Cancer/Publications/2013-11-26/Cancer_in_Scotland_summary_m.pdf

² <http://www.scotland.gov.uk/Topics/Health/Services/Cancer/Detect-Cancer-Early>

³ <http://www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance>

⁴ <http://www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance/DetectCancerEarly>

Key points

- In Scotland, for the two year period 2011 and 2012, the percentage of people diagnosed with the earliest stage (stage 1) of breast, colorectal and lung cancer (combined) was 24.0%.
- The equivalent National figures for the individual cancers are: breast 39.0%, colorectal 17.9% and lung 14.8%.
- The two cancers with the highest percentage of stage 1 cancers (breast and colorectal) have national screening programmes in place.
- The variation in the percentage of stage 1 cancers diagnosed may reflect, at least in part, variation in the percentage of not known stage both at cancer type and Health Board level. The national percentage of not known stage for the three cancers combined is 7.5%.
- The equivalent National figures of not known stage in the individual cancers are: breast 5.3%, colorectal 12.9% and lung 5.3%.
- In Scotland, there was a 3.4%^R increase in the percentage of people diagnosed at stage 1 for breast, colorectal and lung cancer (combined) between the baseline (2010 and 2011 combined) and year 1 (2011 and 2012 combined).

R - Revised July 2014. The percentage increase of people diagnosed at stage 1 for breast, colorectal and lung cancer (combined) between the baseline (2010 and 2011 combined) and year 1 (2011 and 2012 combined) has changed from 4.3% to 3.4%. This is a result of NHS Dumfries and Galloway resubmitting their colorectal cancer data for 2010 as the original file contained incorrect staging data. This change impacts on Table 5 and Figure 5 in this publication. The figures affected are the:

- baseline (2010 and 2011 combined) number and percentage
- the percentage change from the baseline to year 1

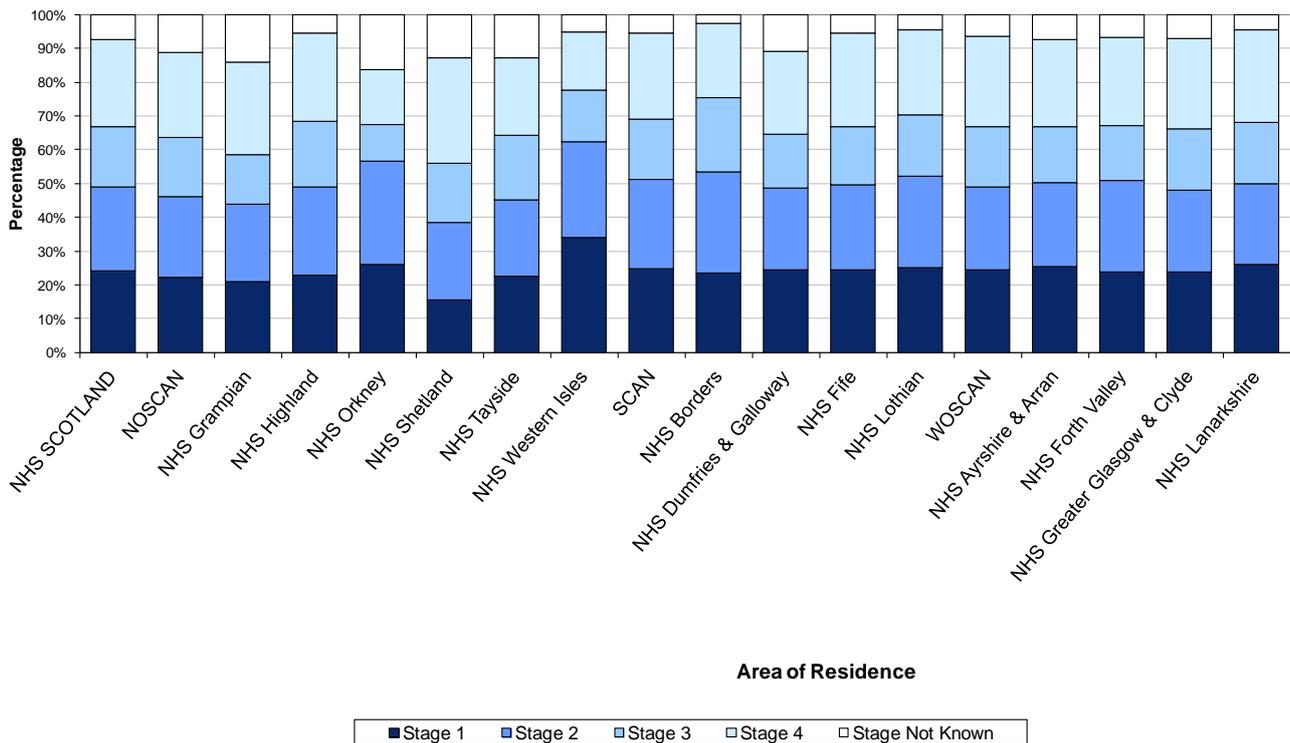
for NHS Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries and Galloway. All other NHS Boards are not affected.

Results and Commentary

Breast, Colorectal and Lung Cancer Combined

For the two-year period 01 January 2011 to 31 December 2012 the percentage of patients with breast, colorectal and lung cancer (combined) diagnosed with the earliest stage (stage 1) of disease was 24.0%. In the mainland NHS Boards the percentage diagnosed with the earliest stage varied from 20.8% to 26.1% (Figure 1 and [Table 1](#)).

Figure 1: Stage distribution for breast, colorectal and lung cancer by NHS Board of residence for 2011 and 2012 combined.



Source: ISD Detect Cancer Early data

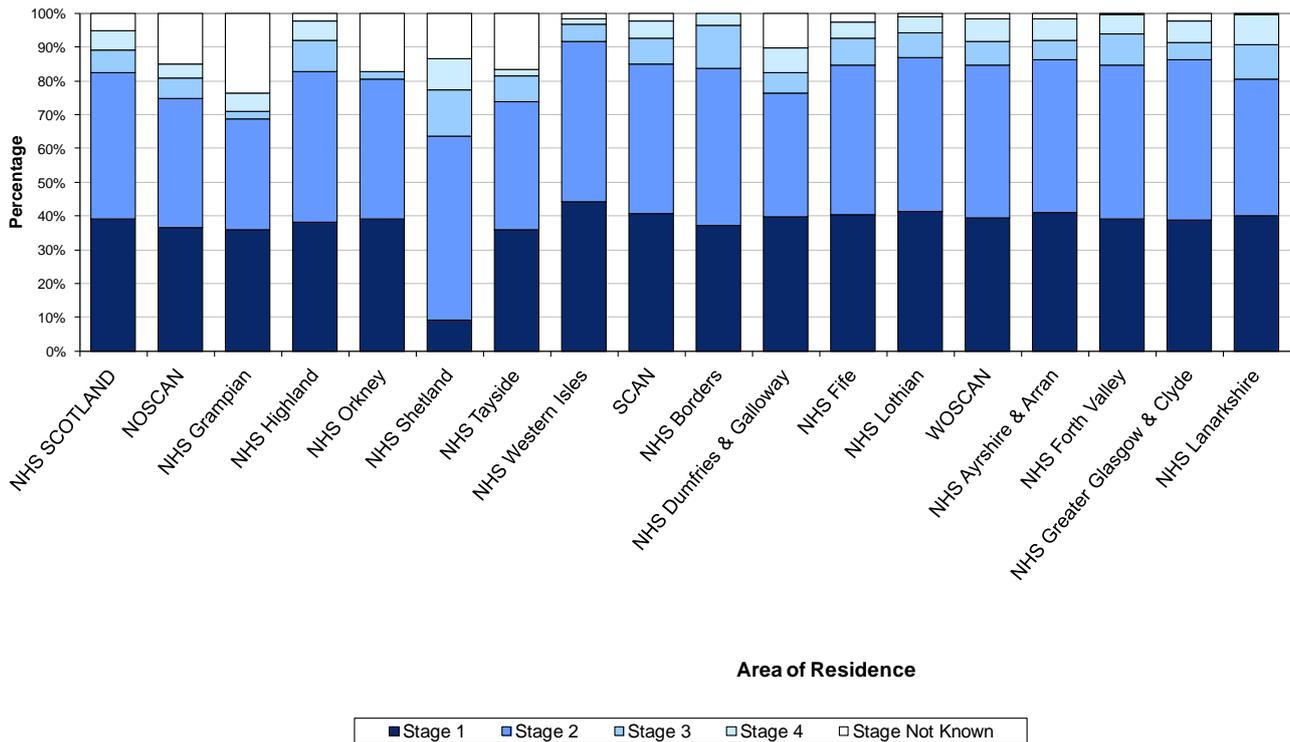
The variation in the percentage of cancers diagnosed at the earliest stage may reflect, at least in part, variation in the percentage of cancers with “not known” stage. For Scotland, the percentage of “not known” stage for the three cancers combined is 7.5% (Figure 1 and [Table 1](#)). The range between individual mainland NHS Boards is from 2.7% to 14.3%.

For NHS Shetland, only 15.6% of cancers were diagnosed at stage 1, lower than for any other NHS Board. This is likely to be due to the breast screening mobile unit not visiting the island during 2011 and 2012.

Breast Cancer

For the two-year period, 01 January 2011 to 31 December 2012, the most common stage of disease at diagnosis for breast cancer in Scotland was stage 2 which accounted for 43.2% of all patients. During this period the percentage of patients in Scotland, with breast cancer diagnosed with stage 1 disease was 39.0% (Figure 2 and [Table 2](#)). In the mainland NHS Boards this varied from 35.8% to 41.4%.

Figure 2: Stage distribution for breast cancer by NHS Board of residence for 2011 and 2012 combined.



Source: ISD Detect Cancer Early data

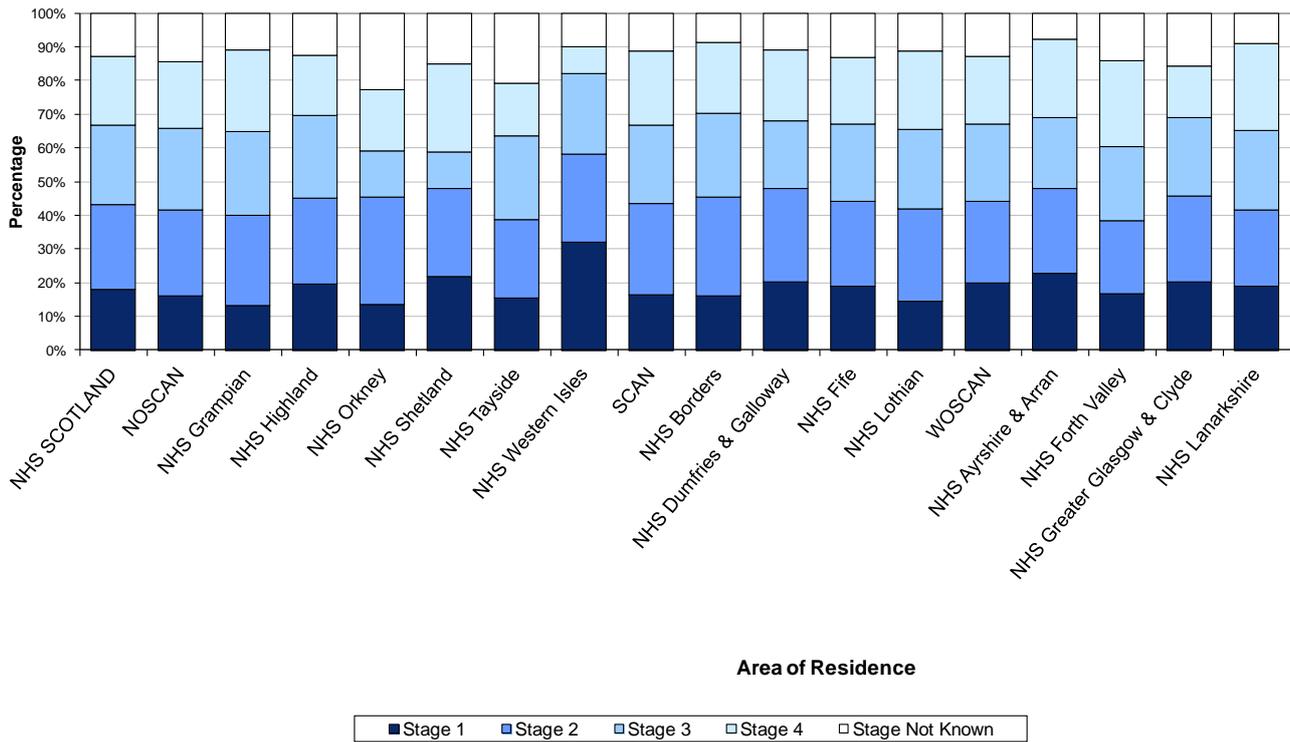
For Scotland, 5.3% of breast cancers had a stage “not known” on diagnosis. This varied for the individual mainland NHS Boards from 0% to 23.7%. These differences should be taken into account when comparing the figures.

For NHS Shetland, only 9.1% of breast cancers were diagnosed at stage 1, much lower than for other NHS Boards. This is likely to be due to the breast screening mobile unit not visiting the island during 2011 and 2012.

Colorectal Cancer

For the two-year period, 01 January 2011 to 31 December 2012, the most common stage of disease at diagnosis for colorectal cancer in Scotland was stage 2 which accounted for 25.4% of all patients. During this period the percentage of patients in Scotland, with colorectal cancer diagnosed with stage 1 disease was 17.9% (Figure 3 and [Table 3](#)). In the mainland NHS Boards this varied from 13.1% to 22.6%.

Figure 3: Stage distribution for colorectal cancer by NHS Board of residence for 2011 and 2012 combined.



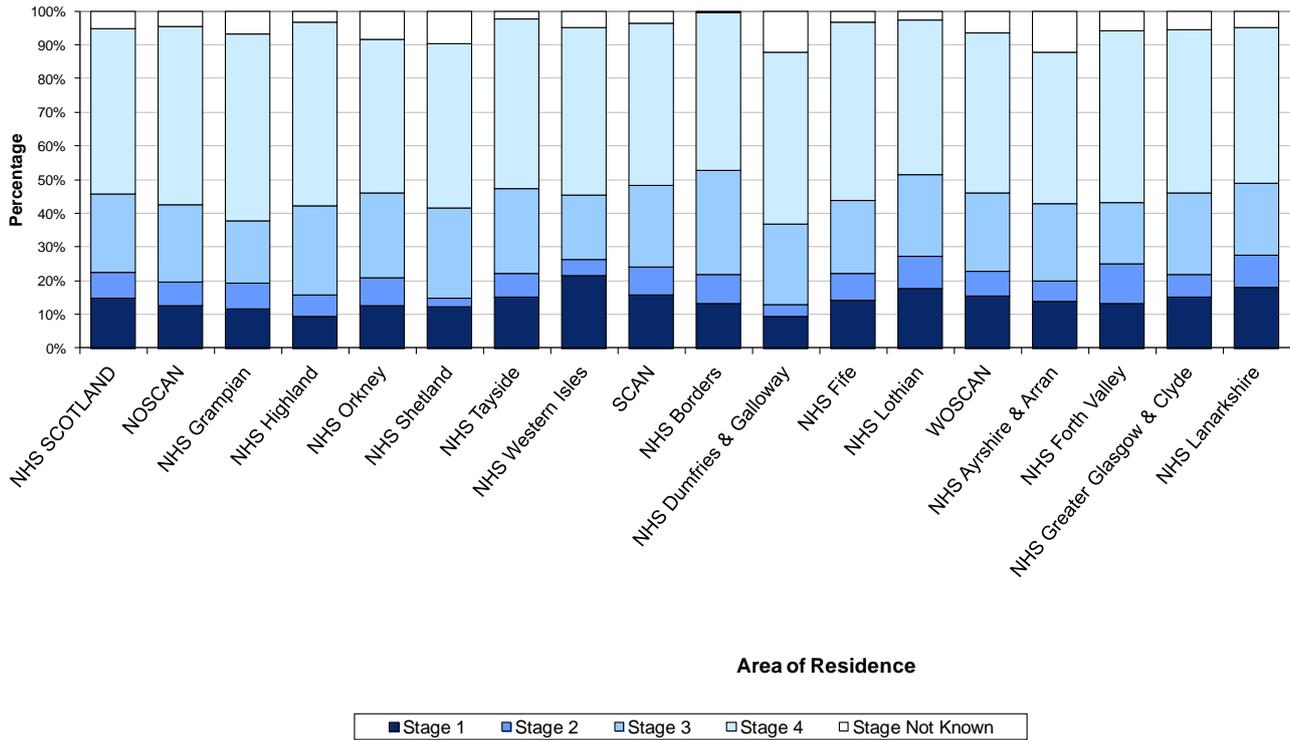
Source: ISD Detect Cancer Early data

For Scotland, 12.9% of colorectal cancers had a stage “not known” on diagnosis. This varied for the individual mainland NHS Boards from 7.9% to 20.8%. These differences should be taken into account when comparing the figures.

Lung Cancer

For the two-year period, 01 January 2011 to 31 December 2012, the most common stage of disease at diagnosis for lung cancer in Scotland was stage 4 which accounted for 48.9% of all patients. During this period the percentage of patients in Scotland, with lung cancer diagnosed with stage 1 disease was 14.8% (Figure 4 and [Table 4](#)). In the mainland NHS Boards this varied from 9.2% to 18.0%.

Figure 4: Stage distribution for lung cancer by NHS Board of residence for 2011 and 2012 combined.



Source: ISD Detect Cancer Early data

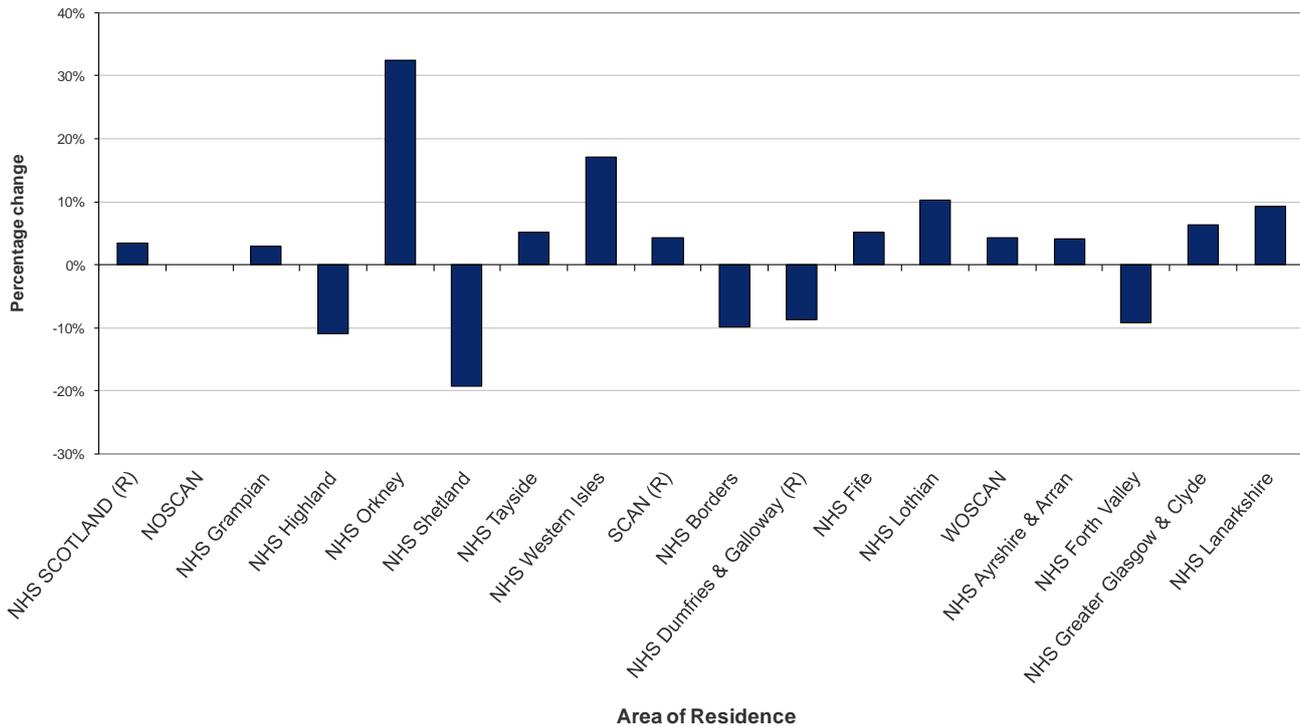
For Scotland, 5.3% of lung cancers had a stage “not known” on diagnosis. This varied for the individual mainland NHS Boards from 0.6% to 12.4%. These differences should be taken into account when comparing the figures.

DCE Baseline and Year 1 Comparison

The numbers and percentages of patients diagnosed with stage 1 for breast, colorectal and lung cancer (combined) by NHS Board of residence for the baseline (2010 and 2011 combined) and year 1 (2011 and 2012 combined) are presented in [Table 5](#).

In Scotland, there was a 3.4%^R increase in the percentage of people diagnosed at stage 1 for breast, colorectal and lung cancer (combined) between the baseline and year 1 ([Table 5](#) and Figure 5). In the mainland NHS Boards this varied from -10.9% to 10.2%

Figure 5: Percentage change in stage 1 at diagnosis from baseline to year 1 for breast, colorectal and lung cancer by NHS Board of residence.



Note: The percentage change used is the relative percentage change calculated as $(\text{year 1 percentage} - \text{baseline percentage}) / \text{baseline percentage} * 100$

Source: ISD Detect Cancer Early data

R - Revised July 2014. The percentage increase of people diagnosed at stage 1 for breast, colorectal and lung cancer (combined) between the baseline (2010 and 2011 combined) and year 1 (2011 and 2012 combined) has changed from 4.3% to 3.4%. This is a result of NHS Dumfries and Galloway resubmitting their colorectal cancer data for 2010 as the original file contained incorrect staging data. This change impacts on Table 5 and Figure 5 in this publication. The figures affected are the:

- baseline (2010 and 2011 combined) number and percentage
- the percentage change from the baseline to year 1 for NHS Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries and Galloway. All other NHS Boards are not affected.

The changes in Figure 5 are:

- NHS Scotland decreased from 4.3% to 3.4%
- SCAN decreased from 7.4% to 4.2%
- NHS Dumfries and Galloway is now presented having previously been suppressed due to issues with the 2010 colorectal cancer being investigated.

Glossary

Biopsy	A biopsy is a medical test involving removal of tissue to determine the presence of disease.
Cancer registry	The Scottish Cancer Registry is responsible for the collection of information on all new cases of cancer arising in residents of Scotland. More detailed information is available on the ISD website here .
Carcinoma	A cancer of the epithelial tissue that covers or lines organs in the body. Most cancers are carcinomas.
Clinical Information	This may include information about a cancer obtained by physical examination, radiological examination, and endoscopy.
Endoscopy	Examination of an internal organ using a tube like instrument. For example, examination of the colon using a flexible colonoscope.
HEAT	HEAT stands for Health Improvement, Efficiency, Access to Services and Treatment. It is an internal NHS performance management system that includes targets that support National Outcomes. NHS Boards are accountable to the Scottish Government for achieving HEAT targets.
ICD-10	The 10 th revision of the International Classification of Diseases produced by the World Health Organisation (WHO). It assigns codes to particular diseases and conditions.
Imaging	Examination of organs or tissue using a variety of techniques including x-ray, CT (Computerised Tomography) scan, MRI (Magnetic Resonance Imaging) scan etc.
Mainland NHS Boards	Health Boards in Scotland excluding the three Island Health Boards (Orkney, Shetland and Western Isles)
NOSCAN	North of Scotland Cancer Network.
Pathological Information	This information is obtained when a sample of tissue is examined by a pathologist.
Percentage	A rate, number or amount in each hundred. This is calculated by dividing the number of patients with each stage by the total number of patients, and multiplying by 100.
SCAN	South East of Scotland Cancer Network
WOSCAN	West of Scotland Cancer Network

List of Tables

Table No.	Name	Time period	File & size
1	Number and percentage of patients by stage at diagnosis for Breast, Colorectal and Lung cancer by NHS Board of residence for 2010 and 2011 combined.	2010 and 2011	Excel [176kb]
2	Number and percentage of patients by stage at diagnosis for Breast cancer by NHS Board of residence for 2010 and 2011 combined.	2010 and 2011	Excel [176kb]
3	Number and percentage of patients by stage at diagnosis for Colorectal cancer by NHS Board of residence for 2010 and 2011 combined.	2010 and 2011	Excel [176kb]
4	Number and percentage of patients by stage at diagnosis for Lung cancer by NHS Board of residence for 2010 and 2011 combined.	2010 and 2011	Excel [176kb]
5	Number and percentage of stage 1 patients for baseline and year 1 for breast, colorectal and lung cancer by NHS Board of residence, with relative percentage change from baseline to year 1.	2010 and 2011 2011 and 2012	Excel [176kb]

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Further Information

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

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Appendix

A1 – Background Information

Data collection

Data to support the Detect Cancer Early (DCE) initiative are collected by Cancer Audit staff across NHS Scotland and are part of the Scottish National Prospective Cancer Audit data sets, which are recorded onto the NHS Boards' prospective cancer audit systems.

These data are collected locally by individual NHS Boards using national data standards. The information is collected as patients progress through their pathway of care from initial referral, investigations and diagnosis, to staging, treatments and follow-up. Further information on prospective cancer audit data definitions can be found under [QPI data sets](#) in the Cancer Audit section of the website.

Quarterly data are submitted to ISD before being validated and loaded onto the Detect Cancer Early database to allow interrogation and reporting.

Data completeness

When the number of tumours recorded by National Prospective Cancer Audit in 2010 and 2011 were compared to an equivalent period in the Scottish Cancer Registry they were found to be approximately 90% complete.

Data Quality

The quality of these statistics are considered fit for publication. The data received were validated against the national data definitions to ensure that codes were consistent. NHS Boards were given the opportunity to review and amend all codes which did not appear in the national definitions.

By utilising both clinical and pathological information from across the patient record all attempts have been made to produce the most accurate staging information possible. However, some patients will legitimately never be staged, and it will not be possible to derive a stage category for some other patients owing to the complexities around data capture. Both these categories of patients will have their stage recorded as Not Known.

The number and percentage of Not Known stage should be taken into account when comparing stage distribution figures for individual cancers across geographical areas.

ISD routinely seeks clarification from NHS Boards amongst other things where there may be large changes in numbers, unusual patterns in the data or changes in trends. These changes may be influenced by a variety of factors including service changes/reconfiguration or data recording changes. The table below highlights where NHS Boards have provided comments on their data quality to ISD for this publication at the quality assurance stage.

NHS Board	Accuracy Issues	General / Service Issues
NHS Ayrshire & Arran	No comments were provided.	No comments were provided.
NHS Borders	No comments were provided.	No comments were provided.
NHS Dumfries and Galloway	No comments were provided.	No comments were provided.
NHS Fife	No comments were provided.	No comments were provided.
NHS Forth Valley	No comments were provided.	No comments were provided.
NHS Grampian	No comments were provided.	No comments were provided.
NHS Greater Glasgow & Clyde	We confirm that the figures give a complete and accurate account of data submitted for the publication.	No comments relating to general/service issues.
NHS Highland	No comments were provided.	No comments were provided.
NHS Lanarkshire	No comments were provided.	No comments were provided.
NHS Lothian	No comments were provided.	No comments were provided.
NHS Orkney	No comments were provided.	No comments were provided.
NHS Shetland	No comments were provided.	No comments were provided.
NHS Tayside	No comments were provided.	No comments were provided.
NHS Western Isles	No comments were provided.	No comments were provided.

Staging definitions

The method of defining stage can vary depending on the type of cancer. While the detail of the methods used here are different for breast, colorectal and lung cancer, in general they use a combination of the clinical and pathological information recorded for each patient. Clinical may include information about the cancer obtained by physical examination, imaging, and endoscopy, while pathological information is obtained when a sample of tissue is examined by a pathologist.

It should also be noted that it is not always possible to assign a stage of disease for every cancer patient. There will, therefore, always be a percentage of patients where their stage of disease remains unknown. In order to provide a more stable baseline the figures for two consecutive years, 2010 and 2011, have been combined.

A2 – Publication Metadata (including revisions details)

Metadata Indicator	Description
Publication title	Detect Cancer Early Staging Data
Description	Two years of data (2011 and 2012 combined) presented for three cancers (breast, colorectal and lung) by stage of disease at diagnosis. Comparison between baseline and year 1 figures for monitoring the DCE HEAT target.
Theme	Health and Social Care.
Topic	Conditions and Diseases.
Format	Excel workbooks and PDF.
Data source(s)	Prospective Cancer Audit data collected by Cancer Audit staff across NHS Scotland. Data are collected as the patient progresses through their pathway from referral, investigations, staging, treatment and follow-up. Quarterly data are submitted to ISD before being validated and loaded onto the Detect Cancer Early database to allow interrogation and reporting.
Date that data are acquired	Annual 2012 data files for the individual cancers were submitted to ISD up to 17 January 2014. 2011 data was previously submitted to ISD up to 09 April 2013.
Release date	25 February 2014.
Frequency	Due to be an annual publication from July 2014
Timeframe of data and timeliness	Data on patients diagnosed from 01 January 2011 to 31 December 2012.
Continuity of data	While the national prospective cancer audit data sets for the individual cancers have changed since 2010 every effort has been made to ensure that the specific data items used to report on DCE have remained stable. For example the guidance around the approach to coding Dukes' stage for polyp colorectal cancers has been revised to align with the recent Scottish Bowel Screening guidance. This change was applied retrospectively to the 2010 and 2011 data and NHS Boards were given the opportunity to revisit their audit records and, where appropriate, update information prior to submitting their data to ISD.
Revisions statement	Figures contained within each publication may also be subject to change in future publications. See ISD Statistical Revisions Policy.
Revisions relevant to this publication	Revised July 2014. All breast, colorectal and lung cancer (combined) baseline (2010 & 2011 combined) figures for Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries & Galloway have been updated. This was due to the resubmission of the 2010 colorectal cancer

	<p>data by NHS Dumfries and Galloway as the original file contained incorrect staging data. This change impacts on Table 5, Figure 5 and one of the key points. All other NHS Boards are not affected.</p>
Concepts and definitions	See Glossary and Appendix A1 contained within this report.
Relevance and key uses of the statistics	The DCE team, within ISD, will work in partnership with the SG Cancer Delivery Team and NHS Boards to collate data to facilitate the monitoring of NHSScotland's performance against the DCE HEAT target. Other uses of the data include support of NHS Boards, researchers, charities, media, and public, and to fulfil Freedom of Information requests and Parliamentary Questions.
Accuracy	The quality of these statistics are considered fit for publication. Data were validated against the national data definitions to ensure that codes were consistent. NHS Boards were given the opportunity to review and amend all codes which did not appear in the national definitions. By utilising both clinical and pathological information from across the patient record all attempts have been made to produce the most accurate staging information possible. However, some patients will legitimately never be staged, and it will not be possible to derive a stage category for some other patients owing to the complexities around data capture. Both these categories of patients will have their stage recorded as Not Known.
Completeness	When the number of tumours recorded by Prospective Cancer Audit in 2010 and 2011 were compared to an equivalent period in the Scottish Cancer Registry they were found to be approximately 90% complete
Comparability	Owing to the pragmatic approach taken for deriving stage based on a combination of clinical and pathological information it may not be possible to directly compare these results with other cancer staging data.
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to published guidelines .
Coherence and clarity	<p>Statistics are presented within Excel spreadsheets and PDF. Data are reported on a national, NHS Board and Regional Cancer Network level, broken down by cancer type. The distribution of stage at diagnosis is reported on for the three cancers combined and by cancer type. For completeness the number and percentage of patients with an unknown stage at diagnosis are also included.</p> <p>Further features to aid clarity:</p> <ol style="list-style-type: none"> 1. All tables are printer friendly. 2. Figures for the three cancers combined and the three

	cancers separately are available in separate tables to enable users to select a single cancer
Value type and unit of measurement	Distribution of stage (number and %) for NHS Scotland, Regional Cancer Network and NHS Board level, broken down by cancer type. The percentage change used is the relative percentage change - more specifically this is the difference in the stage 1 percentage between year 1 and the baseline relative to the baseline expressed as a percentage.
Disclosure	The ISD protocol on Statistical Disclosure Protocol is followed.
Official Statistics designation	Official statistics.
UK Statistics Authority Assessment	Not currently put forward for assessment.
Last published	None
Next published	None
Date of first publication	None
Help email	nss.isdDetectCancerEarly@nhs.net
Date form completed	16 July 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', ie as part of the delivery of health and care:

- Scottish Government Health Department (Cancer Access Delivery Team).

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 Detect Cancer Early Executive Leads and Cancer Audit 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](#).