Publication Report

Detect Cancer Early Staging Data

Year 2 (2012 and 2013 combined)

Publication date – 29 July 2014

An Official Statistics Publication for Scotland

Contents

Introduction

Cancer is one of the major causes of death in Scotland. In 2012, nearly 15,800 people died of cancer in Scotland and almost 30,500 people were diagnosed with cancer. The most common causes of cancer death and diagnosis are lung, colorectal and breast cancer[1].

In February 2012 the Cabinet Secretary for Health and Wellbeing formally launched the Detect Cancer Early (DCE) programme[2]. 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 44% of all cancers diagnosed in Scotland in 2012[1].

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 2012 and 2013 (combined) by stage at diagnosis for NHS Board of residence, Cancer Network and Scotland for breast, colorectal and lung cancers combined, as well as individually.

To help monitor performance towards the DCE HEAT target, stage 1 figures for year 2 (2012 and 2013 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 the breast screening mobile unit only visits the island NHS Boards once every three years. In other more rural NHS Boards, especially those without a screening centre such as NHS Borders and NHS Dumfries and Galloway, the breast screening mobile unit may not visit every year. This may cause some variability in the staging figures, as well as the total figures and percentages. This will also affect the combined breast, colorectal and lung cancer data but to a lesser degree.

The variability in the percentages may also be exaggerated in some NHS Boards due small numbers involved in the calculations. This can be seen in many cases with the island NHS Boards. For this reason only the mainland NHS boards are used when quoting the range of the percentage staging figures.

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[1] http://isdscotland.org/Health-Topics/Cancer/Publications/2014-04-29/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 2012 and 2013, the percentage of people diagnosed with breast, colorectal and lung cancer (combined) at the earliest stage (stage 1) was 24.3%.

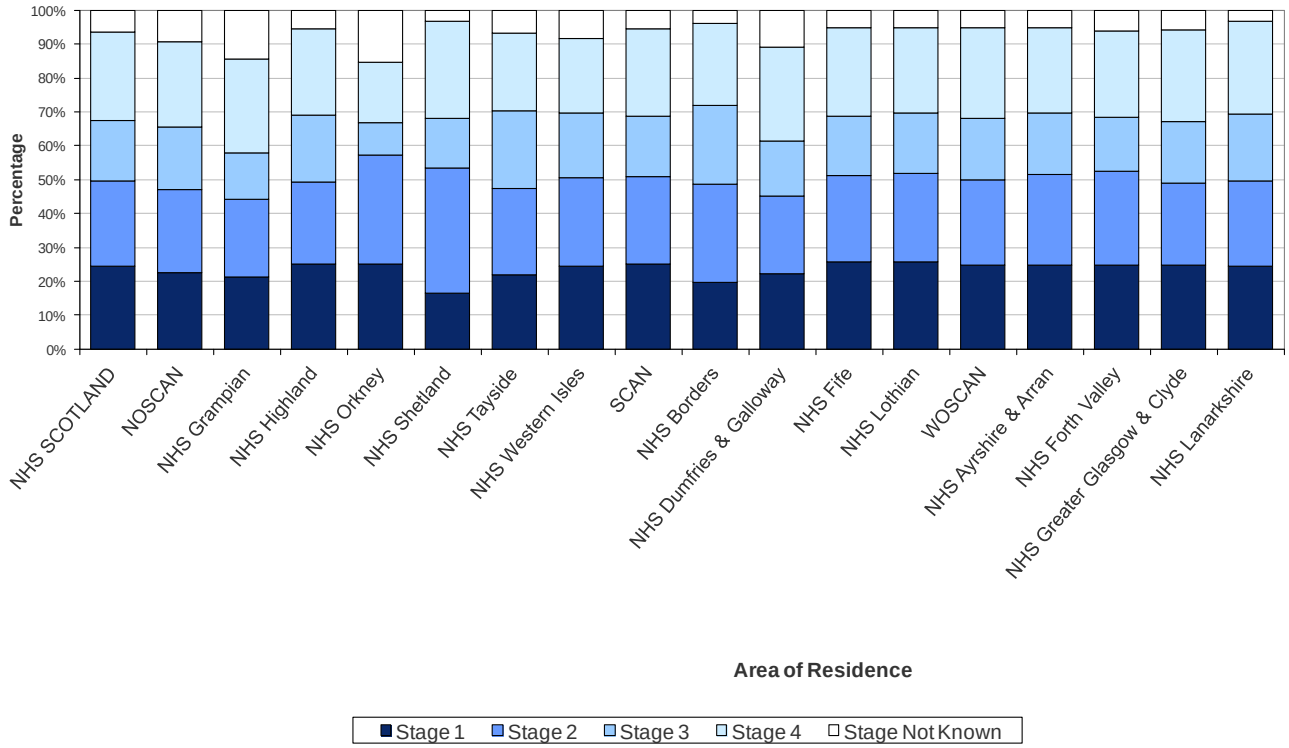
- In Scotland, there was a 4.7% increase in the percentage of people diagnosed at stage 1 for breast, colorectal and lung cancer (combined) between the baseline (2010 and 2011 combined) and year 2 (2012 and 2013 combined).

Results and Commentary

Breast, Colorectal and Lung Cancer Combined

For the two-year period 01 January 2012 to 31 December 2013 the percentage of patients with breast, colorectal and lung cancer (combined) diagnosed with the earliest stage (stage 1) of disease was 24.3%. In the mainland NHS Boards the percentage diagnosed with the earliest stage varied from 19.7% to 25.8% (Figure 1 and Table 1).

Figure 1: Stage distribution for breast, colorectal and lung cancer by NHS Board of residence for 2012 and 2013 combined.



Source: ISD Detect Cancer Early data

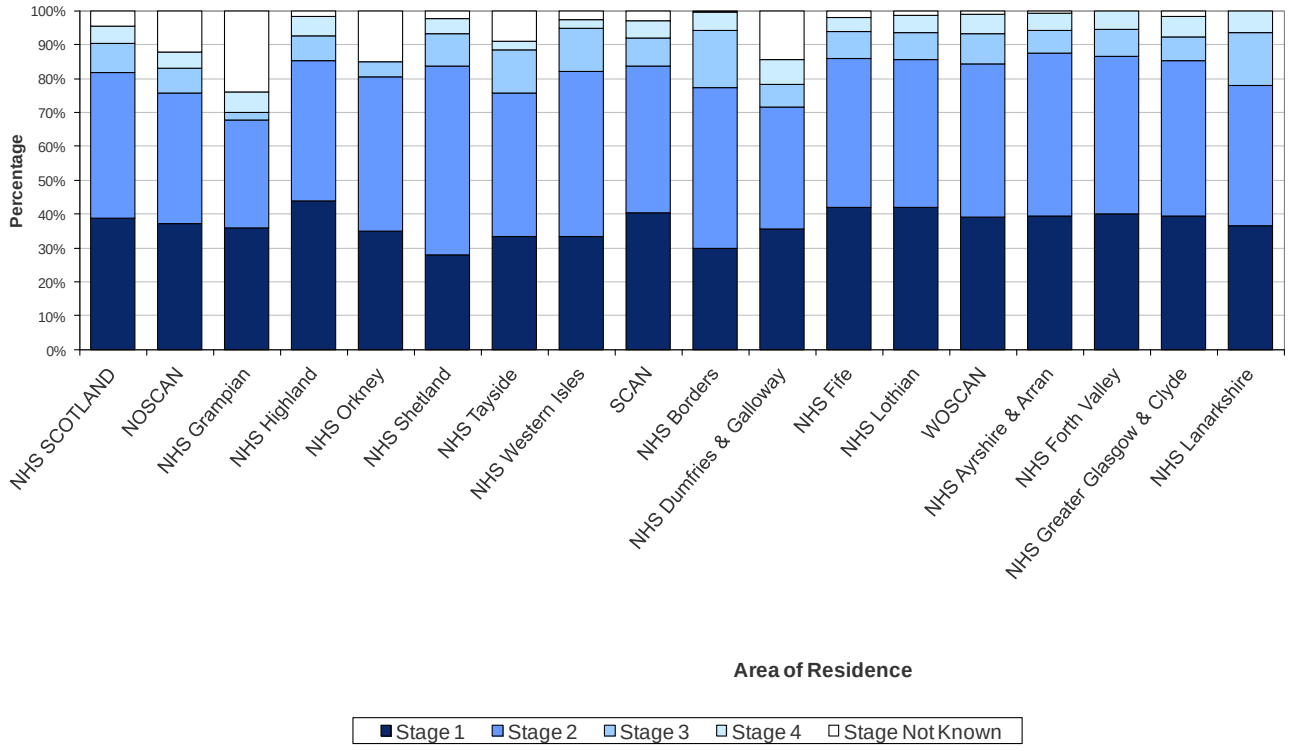
The variation in the percentage of cancers diagnosed at the earliest stage may reflect, at least in part, variation in the percentage of cancers with a not known stage. For Scotland, the percentage of patients with a not known stage for the three cancers combined is 6.4% (Figure 1 and Table 1). The range between individual mainland NHS Boards is from 3.4% to 14.5%.

For NHS Shetland, only 16.4% of cancers were diagnosed at stage 1, lower than for any other NHS Board. This may be due, to some extent, to the breast screening mobile unit not visiting the island during 2012. For NHS Borders, only 19.7% of cancers were diagnosed at stage 1, the second lowest NHS Board. This may be due, in some part, to the breast screening mobile unit not visiting during all of 2012 and only from August 2013 onwards.

Breast Cancer

For the two-year period, 01 January 2012 to 31 December 2013, the most common stage of disease at diagnosis for breast cancer in Scotland was stage 2 which accounted for 43.0% of all patients. During this period the percentage of patients in Scotland, with breast cancer diagnosed with stage 1 disease was 38.8% (Figure 2 and Table 2). In the mainland NHS Boards this varied from 29.7% to 43.8%.

Figure 2: Stage distribution for breast cancer by NHS Board of residence for 2012 and 2013 combined.



Source: ISD Detect Cancer Early data

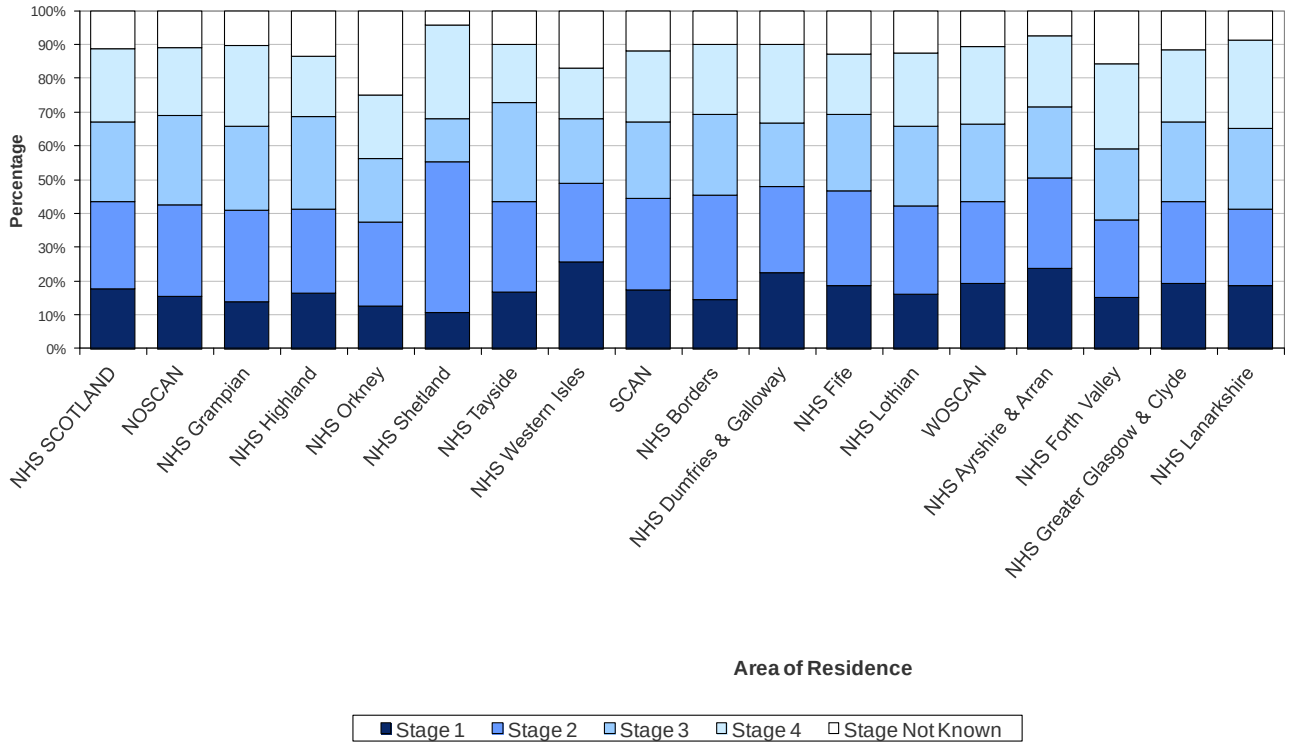
For Scotland, 4.5% of breast cancers had a not known stage on diagnosis. This varied for the individual mainland NHS Boards from 0% to 24.1%. These differences should be taken into account when comparing the figures.

For NHS Shetland, only 27.9% of cancers were diagnosed at stage 1, lower than for any other NHS Board. This may be due, to some extent, to the breast screening mobile unit not visiting the island during 2012. For NHS Borders, only 29.7% of cancers were diagnosed at stage 1, the second lowest NHS Board. This may be due, in some part, to the breast screening mobile unit not visiting during all of 2012 and only from August 2013 onwards.

Colorectal Cancer

For the two-year period, 01 January 2012 to 31 December 2013, the most common stage of disease at diagnosis for colorectal cancer in Scotland was stage 2 which accounted for 25.6% of all patients. During this period the percentage of patients in Scotland, with colorectal cancer diagnosed with stage 1 disease was 17.7% (Figure 3 and Table 3). In the mainland NHS Boards this varied from 13.7% to 23.6%.

Figure 3: Stage distribution for colorectal cancer by NHS Board of residence for 2012 and 2013 combined.



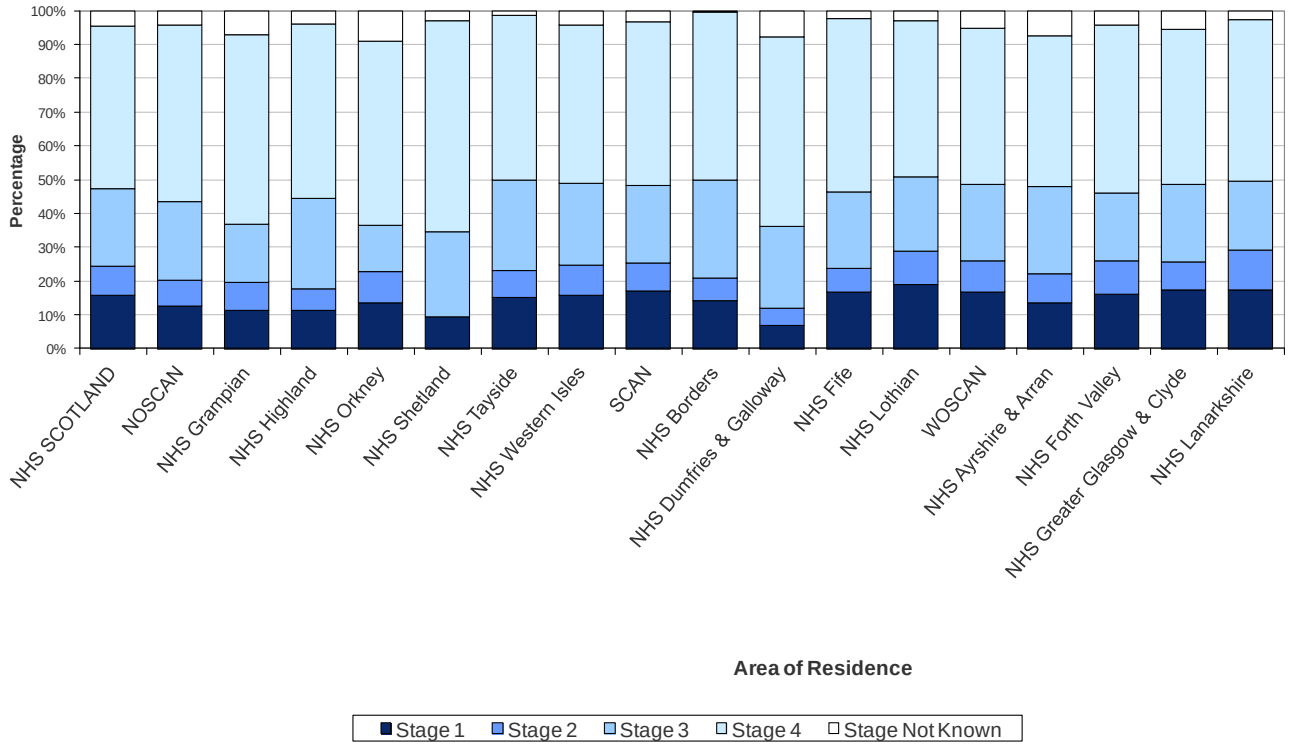
Source: ISD Detect Cancer Early data

For Scotland, 11.3% of colorectal cancers had a not known stage on diagnosis. This varied for the individual mainland NHS Boards from 7.4% to 15.7%. These differences should be taken into account when comparing the figures.

Lung Cancer

For the two-year period, 01 January 2012 to 31 December 2013, the most common stage of disease at diagnosis for lung cancer in Scotland was stage 4 which accounted for 48.3% of all patients. During this period the percentage of patients in Scotland, with lung cancer diagnosed with stage 1 disease was 15.8% (Figure 4 and Table 4). In the mainland NHS Boards this varied from 6.8% to 18.9%.

Figure 4: Stage distribution for lung cancer by NHS Board of residence for 2012 and 2013 combined.



Source: ISD Detect Cancer Early data

For Scotland, 4.5% of lung cancers had a not known stage on diagnosis. This varied for the individual mainland NHS Boards from 0.6% to 7.7%. These differences should be taken into account when comparing the figures.

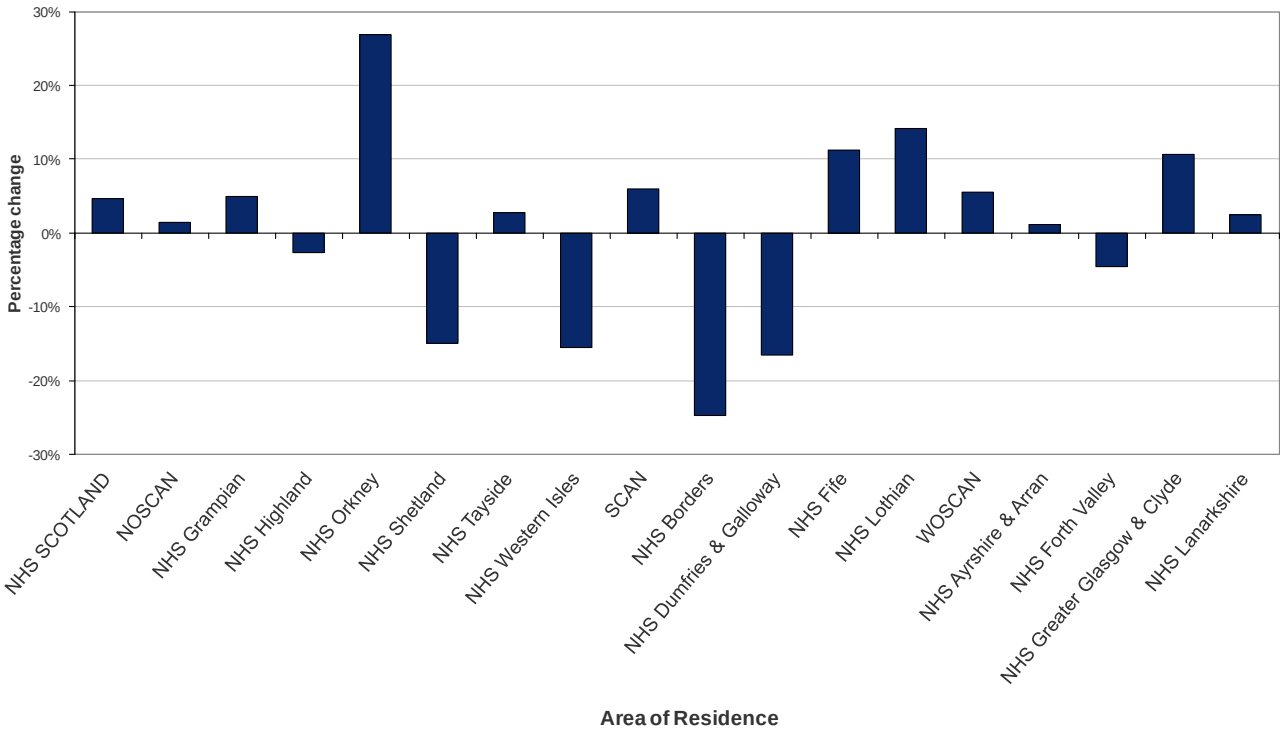
DCE Baseline and Year 2 Comparison

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 2 (2012 and 2013 combined) are presented in Table 5. To help monitor performance towards the DCE HEAT target (to increase the percentage of people diagnosed at the first stage of breast, colorectal and lung cancer by 25%), Table 5 also shows the percentage change in stage 1 diagnosis from the baseline compared to year 1 and year 2.

In Scotland, there was a 4.7% increase in the percentage of people diagnosed at stage 1 for breast, colorectal and lung cancer (combined) between the baseline and year 2 (Table 5 and Figure 5). In the mainland NHS Boards this varied from -24.8% to 14.2%.

The largest increase in stage 1 was seen for NHS Orkney at 26.9%. This is likely explained by the small number of patients in the initial baseline due to the breast screening mobile unit not visiting the island during 2010 and 2011. For NHS Borders, there was a 24.8% decrease in stage 1 for year 2, the largest decrease for any NHS Board. This may be due, in some part, to the breast screening mobile unit not visiting during all of 2012 and only from August 2013 onwards.

Figure 5: Percentage change in stage 1 at diagnosis from baseline to year 2 for breast, colorectal and lung cancer by NHS Board of residence.



Note: The percentage change used is the relative percentage change calculated as ((year 2 percentage – baseline percentage) / baseline percentage) * 100

Source: ISD Detect Cancer Early data

For several NHS Boards (NHS Borders, NHS Dumfries & Galloway, NHS Greater Glasgow & Clyde, NHS Highland, NHS Lanarkshire, NHS Lothian, NHS Shetland and NHS Western Isles), the start of the bowel screening programme occurred sometime during the baseline

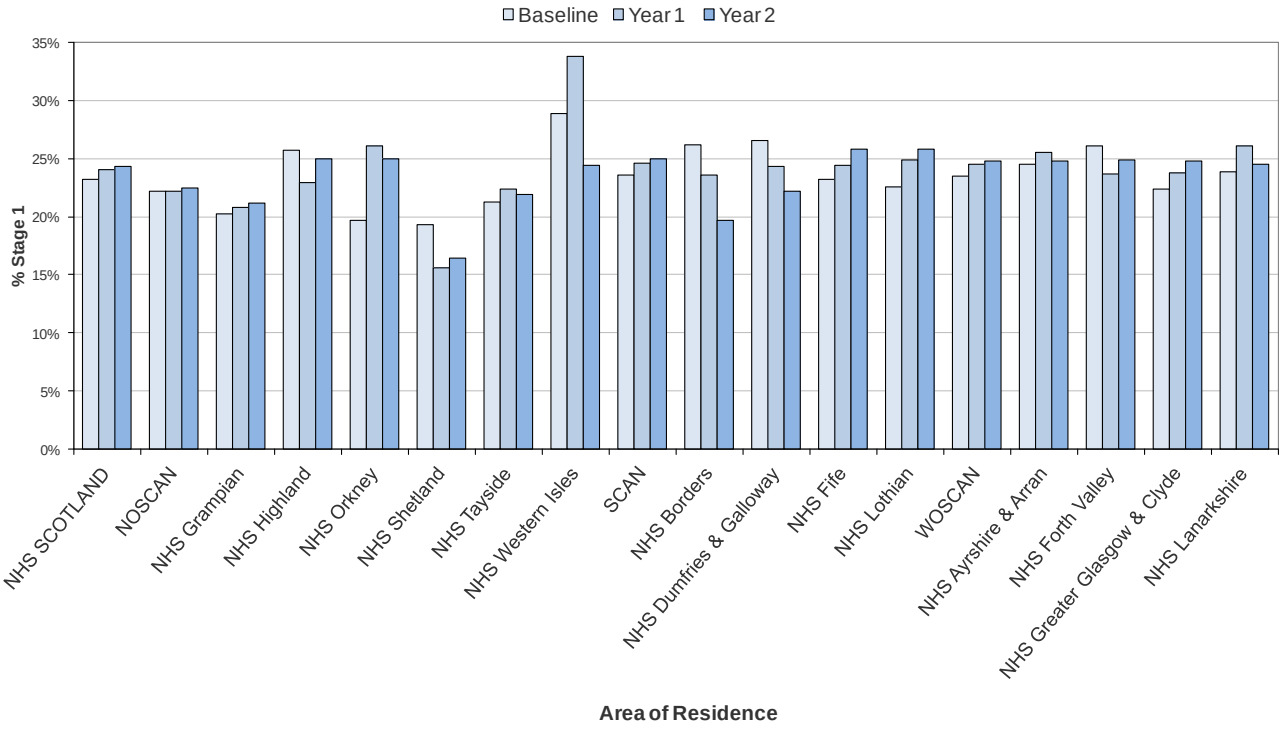
years 2010 and 2011. The first round of bowel screening (the prevalence round) could result in a higher number of patients being diagnosed with stage 1 colorectal cancer than in later years, depending on several factors including the uptake rate. As a result, some of these NHS boards could see higher than usual proportions of stage 1 colorectal cancer for the baseline. However, this will have had less impact on the overall combined breast, colorectal and lung cancer figures.

Trend in Stage 1

The trend in the percentage of patients diagnosed with stage 1 for breast, colorectal and lung cancer (combined) by NHS Board of residence have been presented in Figure 6.

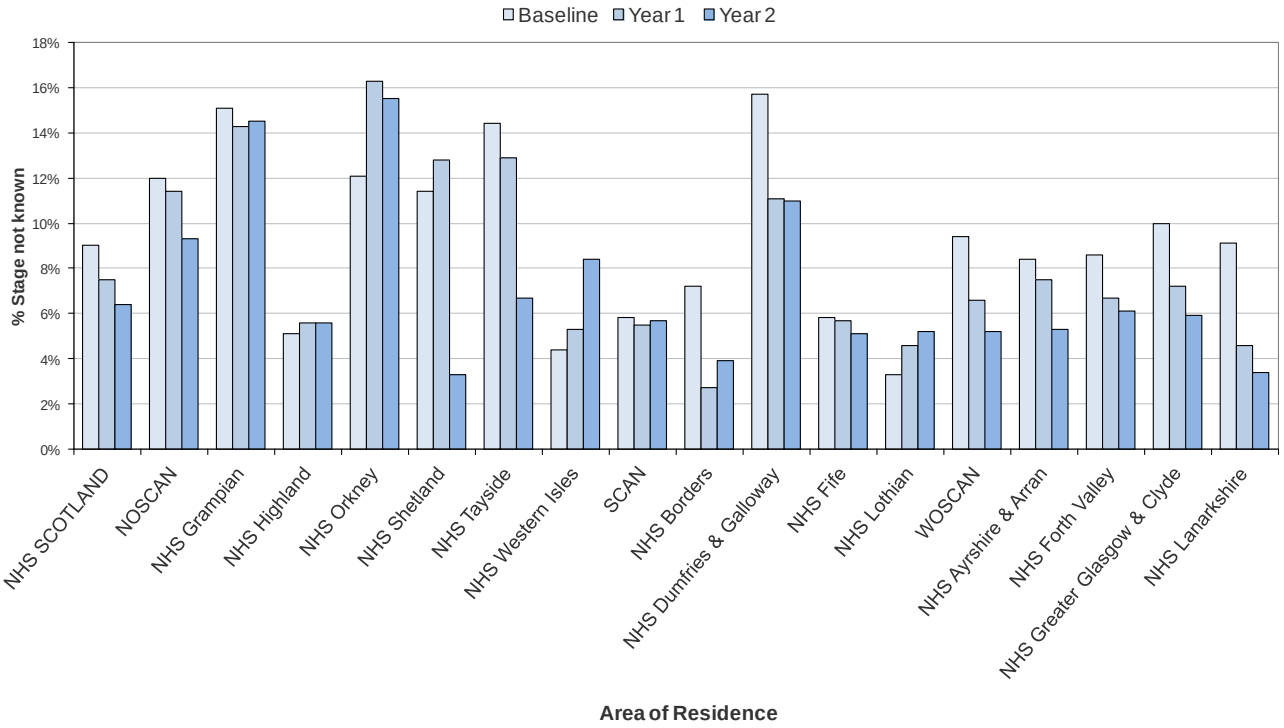
In Scotland, there has been a slight increase in the percentage of people diagnosed at stage 1 from the baseline level. For mainland NHS Boards, most show an increase from the original baseline level while four show a decrease (NHS Highland, NHS Borders and NHS Dumfries and Galloway and NHS Forth Valley).

Figure 6: Trend in percentage stage 1 at diagnosis for breast, colorectal and lung cancer combined by NHS Board of residence.



The trend in the percentage of cancers diagnosed at stage 1 may reflect, at least in part, the reduction in the percentage of cancers with a not known stage. In Scotland, there has been a decrease in the percentage of people diagnosed with a not known stage from the original baseline level, see Figure 7. For mainland NHS Boards, most show a decrease from the baseline while NHS Highland and NHS Lothian show a slight increase. NHS Lothian do, however, show an associated decrease in patients diagnosed with later stage cancer; stages 3 and 4 (see current Year 2 data tables compared with Baseline and Year 1 data tables).

Figure 7: Trend in percentage stage not known at diagnosis for breast, colorectal and lung cancer combined by NHS Board of residence.



For several NHS Boards (NHS Borders, NHS Dumfries & Galloway, NHS Greater Glasgow & Clyde, NHS Highland, NHS Lanarkshire, NHS Lothian, NHS Shetland and NHS Western Isles), the start of the bowel screening programme occurred sometime during the baseline years 2010 and 2011. The first round of bowel screening (the prevalence round) could result in a higher number of patients being diagnosed with stage 1 colorectal cancer than in later years, depending on several factors including the uptake rate. As a result, some of these NHS boards could see higher than usual proportions of stage 1 colorectal cancer for the baseline. However, this will have had less impact on the overall combined breast, colorectal and lung cancer figures.

Glossary

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.
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 colonoscopy.
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 10th 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 2012 and 2013 combined.	2012 and 2013	Excel [183kb]
2	Number and percentage of patients by stage at diagnosis for Breast cancer by NHS Board of residence for 2012 and 2013 combined.	2012 and 2013	Excel [183kb]
3	Number and percentage of patients by stage at diagnosis for Colorectal cancer by NHS Board of residence for 2012 and 2013 combined.	2012 and 2013	Excel [183kb]
4	Number and percentage of patients by stage at diagnosis for Lung cancer by NHS Board of residence for 2012 and 2013 combined.	2012 and 2013	Excel [183kb]
5	Number and percentage of stage 1 patients for baseline and year 2 for breast, colorectal and lung cancer by NHS Board of residence, with relative percentage change from baseline to year 2.	2010 and 2011 2012 and 2013	Excel [183kb]

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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 on their data 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	We confirm that the data is accurate.	Our 8th round of breast screening ran from August 2010 until October 2011, the 9th round only started in August 2013. Hence the baseline of 2010/11 includes the screen detected cancers from the 8th round. The baseline data for colorectal included screen detected cancers seen during the bowel screening programme prevalent round that lasted from November 2009-October 2011.
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.	Data relating to health board of residence will include data generated by Health Boards other than NHS Orkney
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 (2012 and 2013 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	Quarterly data submission files for the individual cancers were submitted to ISD up to 17 January 2014 for 2012 data and up to 20 June 2014 for 2013 data.
Release date	29 July 2014.
Frequency	Annual.
Timeframe of data and timeliness	Data on patients diagnosed from 01 January 2012 to 31 December 2013.
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	Detect Cancer Early Baseline to be revised in July 2014 (originally released on 28 May 2013). It is necessary to update the baseline figures for both Scotland and NHS Dumfries & Galloway due to a resubmission of a file submitted by NHS Dumfries and Galloway. The original file contained incorrect staging data.

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	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. Further features to aid clarity: 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	Distribution of stage (number and %) for NHS Scotland, Regional Cancer Network and NHS Board level, broken

measurement	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 2 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	25 February 2014
Next published	28 July 2015
Date of first publication	28 May 2013
Help email	nss.isdDetectCancerEarly@nhs.net
Date form completed	15 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.