

Publication Report



Detect Cancer Early Baseline.

**Stage at diagnosis for Breast, Colorectal and Lung cancer by NHS
Board of residence for 2010 and 2011 combined.**

Publication date – 28 May 2013

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Introduction

Cancer is one of the major causes of death in Scotland. In 2011, over 15,300 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 developed³ to monitor performance in meeting this objective. The target will concentrate on breast, colorectal and lung cancers, which collectively account for over 45% of all cancers diagnosed in Scotland in 2011⁴.

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 2010 and 2011 (combined) for the three cancers included in DCE by type of cancer, stage of disease at diagnosis for NHS Board, Cancer Network of residence and Scotland. These figures will be used to provide a baseline for the HEAT target

¹ http://www.isdscotland.org/Health-Topics/Cancer/Publications/2012-10-30/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>

Definitions

Data Collection

The source of the data is Scottish National Prospective Cancer Audit data sets. 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 (see [Appendix A1](#) for more information).

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.

Key points

- In Scotland for the two year period 2010 and 2011, the percentage of people diagnosed with the earliest stage (stage 1) of breast, colorectal and lung cancer (combined) was 23.2%^R.
- The equivalent National figures for the individual cancers are: breast 38.4%, colorectal 17.8%^R and lung 13.1%.
- 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 9.0%.
- The equivalent National figures of not known stage in the individual cancers are: breast 6.3%, colorectal 14.8%^R and lung 6.9%.

R - Revised July 2014. The colorectal and combined (breast, colorectal and lung) cancer figures for NHS Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries and Galloway have been updated. 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 1, Figure 1, Table 3 and Figure 3 in this publication. All other NHS Boards are not affected. The changes to the key points are:

- In Scotland for 2010 and 2011 (combined), the percentage of people diagnosed with stage 1 breast, colorectal and lung cancer (combined) has increased from 23.0% to 23.2%.
- The percentage of people diagnosed with stage 1 colorectal cancer has increased from 17.2% to 17.8%.
- The percentage not known stage for colorectal cancer has increased from 14.6% to 14.8%.

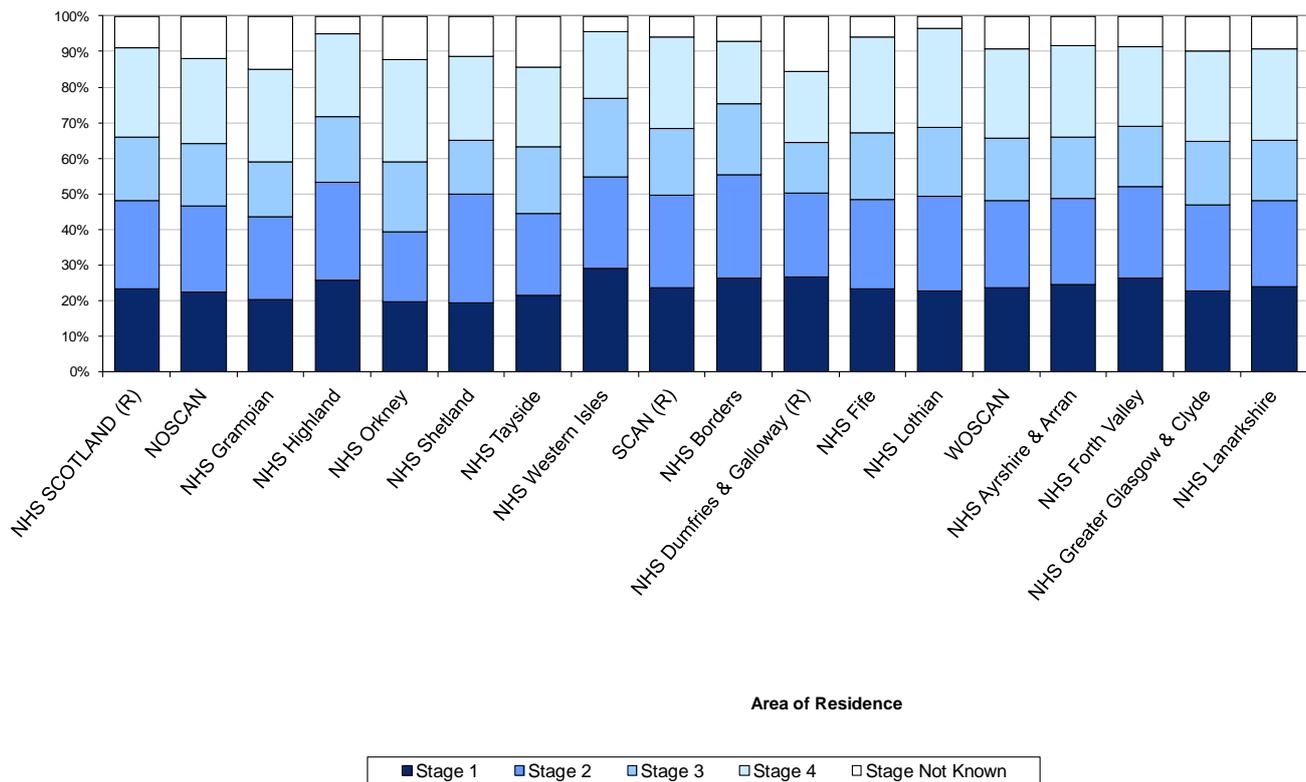
Prior to this revision there was also a revision to the publication in February 2014. See [Appendix A1 Revisions History](#) for more information.

Results and Commentary

Breast, Colorectal and lung cancer combined

For the two-year period 01 January 2010 to 31 December 2011 the percentage of patients with breast, colorectal and lung cancer (combined) diagnosed with the earliest stage (stage 1) of disease was 23.2%^R. The percentage between NHS Boards diagnosed with the earliest stage varied from 19.3% to 28.9% (Figure 1 and Table 1).

Figure 1: Stage distribution for breast, colorectal and lung cancer by NHS Board of residence for 2010 and 2011 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 9.0%. The range between individual NHS Boards is from 3.3% to 15.7%^R (Figure 1 and Table 1).

R - Revised July 2014. The combined (breast colorectal and lung) cancer figures for NHS Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries and Galloway have been updated. 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 1 and Figure 1. All other NHS Boards are not affected. For the two year period, 2010 and 2011, the percentage of people diagnosed with:

- stage 1 breast, colorectal and lung cancer (combined) has increased from 23.0% to 23.2% in Scotland, from 22.9% to 23.6% in SCAN and from 20.9% to 26.6% in NHS Dumfries and Galloway.

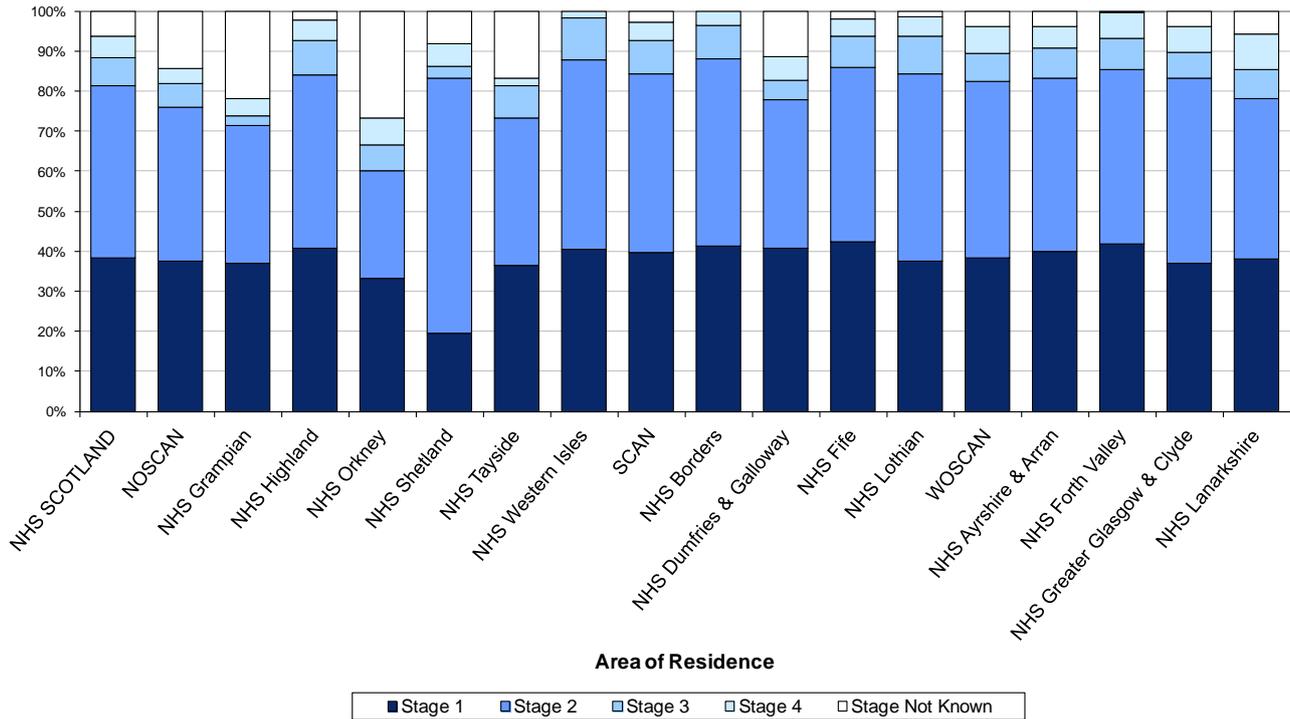
- stage 2 of breast, colorectal and lung cancer (combined) has decreased from 25.2% to 24.9% in Scotland, from 27.1% to 26.1% in SCAN and from 32.0 % to 23.6% in NHS Dumfries and Galloway.
- stage 3 of breast, colorectal and lung cancer (combined) has increased from 17.7% to 17.8% in Scotland, from 18.3% to 18.8% in SCAN and from 10.6% to 14.3% in NHS Dumfries and Galloway.
- stage 4 of breast, colorectal and lung cancer (combined) has decreased from 25.2% to 25.1% in Scotland, from 26.2% to 25.8% in SCAN and from 22.8 % to 19.7% in NHS Dumfries and Galloway.
- not known stage of breast, colorectal and lung cancer (combined) has increased from 5.5% to 5.8% in SCAN and from 13.7% to 15.7% in NHS Dumfries and Galloway.

The range in the percentage of “not known” stage for the three cancers combined for individual NHS Boards changed from 3.3% to 15.1% to 3.3% to 15.7%.

Breast Cancer

For the two-year period, 01 January 2010 to 31 December 2011, the most common stage of disease at diagnosis for breast cancer in Scotland was stage 2 which accounted for 42.8% of all patients. During this period the percentage of patients in Scotland, with breast cancer diagnosed with stage 1 disease was 38.4% (Figure 2 and Table 2). This varied for the individual NHS Boards from 19.4% to 41.7%.

Figure 2: Stage distribution for breast cancer by NHS Board of residence for 2010 and 2011 combined.



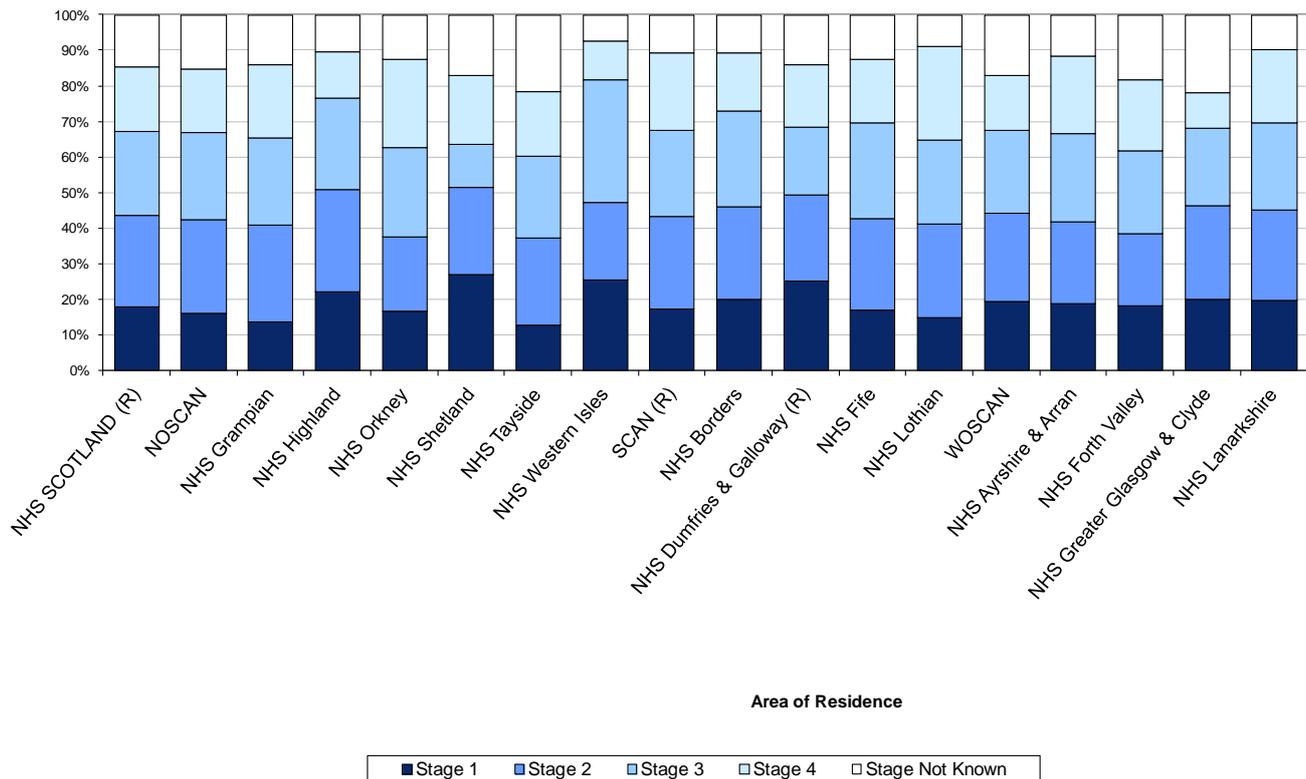
Source: ISD Detect Cancer Early data

For Scotland, 6.3% of breast cancers had a stage “not known” on diagnosis. This varied for the individual NHS Boards from 0% to 26.7%. These differences should be taken into account when comparing the figures.

Colorectal Cancer

For the two-year period, 01 January 2010 to 31 December 2011, the most common stage of disease at diagnosis for colorectal cancer in Scotland was stage 2 which accounted for 25.6%^R of all patients. During this period the percentage of patients in Scotland, with colorectal cancer diagnosed with stage 1 disease was 17.8%^R (Figure 3 and Table 3). This varied for the individual NHS Boards from 12.6%^R to 26.8%.

Figure 3: Stage distribution for colorectal cancer by NHS Board of residence for 2010 and 2011 combined.



Source: ISD Detect Cancer Early data

For Scotland, 14.8%^R of colorectal cancers had a stage “not known” on diagnosis. This varied for the individual NHS Boards from 7.3% to 21.9%. These differences should be taken into account when comparing the figures.

R - Revised July 2014. The colorectal cancer figures for NHS Scotland, SCAN and NHS Dumfries and Galloway have been updated. 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 3 and Figure 3. All other NHS Boards are not affected. For the two year period, 2010 and 2011, the percentage of people diagnosed with:

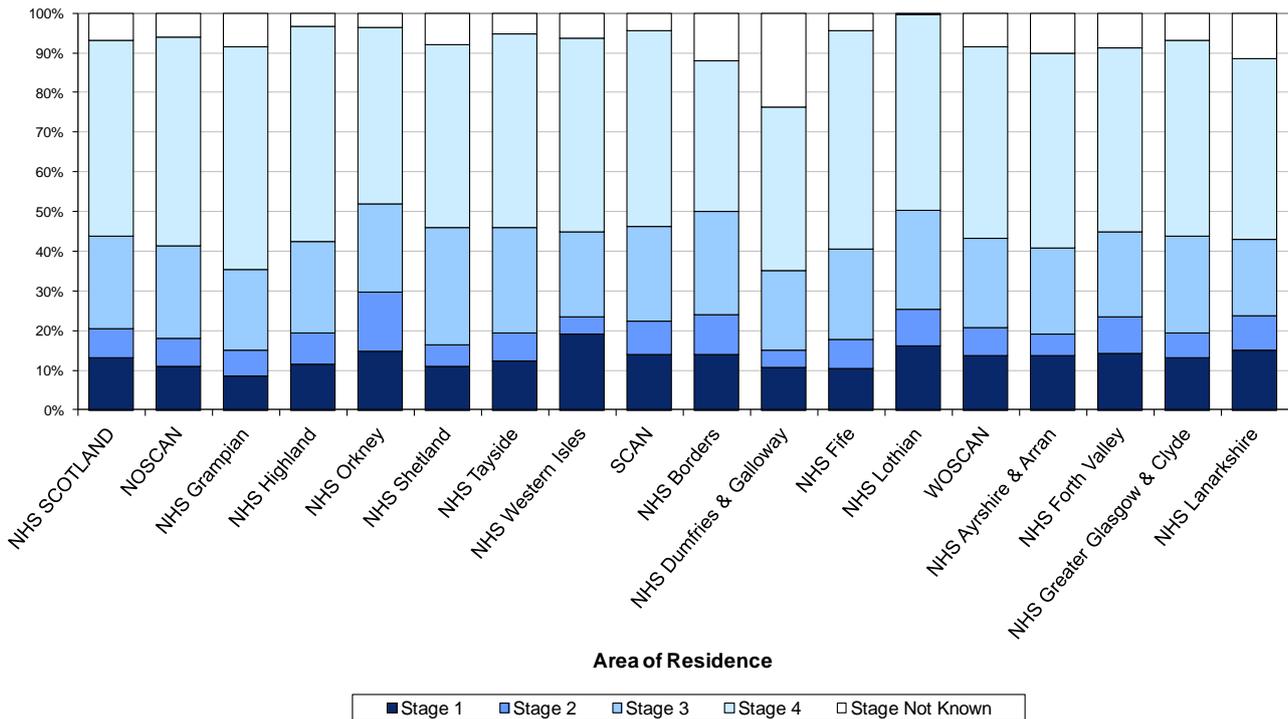
- stage 1 colorectal cancer has increased from 17.2% to 17.8% in Scotland, from 15.0% to 17.2% in SCAN and from 10.2% to 25.0% in NHS Dumfries and Galloway.
- stage 2 colorectal cancer has decreased from 26.5% to 25.6% in Scotland, from 29.1% to 25.9% in SCAN and from 46.1% to 24.3% in NHS Dumfries and Galloway.
- stage 3 of colorectal cancer has increased from 23.4% to 23.8% in Scotland, from 22.8% to 24.2% in SCAN and from 9.5% to 19.1% in NHS Dumfries and Galloway.

- stage 4 of colorectal cancer has decreased from 18.3% to 18.0% in Scotland, from 23.2% to 22.0% in SCAN and from 25.3% to 17.4% in NHS Dumfries and Galloway.
- not known stage of colorectal cancer has increased from 14.6% to 14.8% in Scotland, from 9.9% to 10.7% in SCAN and from 8.9% to 14.1% in NHS Dumfries and Galloway.

Lung Cancer

For the two-year period, 01 January 2010 to 31 December 2011, the most common stage of disease at diagnosis for lung cancer in Scotland was stage 4 which accounted for 49.5% of all patients. During this period the percentage of patients in Scotland, with lung cancer diagnosed with stage 1 disease was 13.1% (Figure 4 and Table 4). This varied for the individual NHS Boards from 8.5% to 19.1%.

Figure 4: Stage distribution for lung cancer by NHS Board of residence for 2010 and 2011 combined.



Source: ISD Detect Cancer Early data

For Scotland, 6.9% of lung cancers had a stage “not known” on diagnosis. This varied for the individual NHS Boards from 0.5% to 23.8%. These differences should be taken into account when comparing the figures.

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.
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	<u>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.</u>	2010 and 2011	Excel [78kb]
2	<u>Number and percentage of patients by stage at diagnosis for Breast cancer by NHS Board of residence for 2010 and 2011 combined.</u>	2010 and 2011	Excel [78kb]
3	<u>Number and percentage of patients by stage at diagnosis for Colorectal cancer by NHS Board of residence for 2010 and 2011 combined.</u>	2010 and 2011	Excel [78kb]
4	<u>Number and percentage of patients by stage at diagnosis for Lung cancer by NHS Board of residence for 2010 and 2011 combined.</u>	2010 and 2011	Excel [78kb]

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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 national prospective cancer audit data sets, which are recorded onto the NHS Boards' prospective cancer audit systems. Quarterly data are submitted to ISD before being validated and loaded onto the Detect Cancer Early database to allow interrogation and reporting.

Further information on prospective cancer audit data definitions can be found under [QPI data sets](#) in the Cancer Audit section of the website.

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.

Revisions History

July 2014. The colorectal and combined (breast, colorectal and lung) cancer figures for NHS Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries and Galloway have been updated. 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 1, Figure 1, Table 3 and Figure 3 in this publication. All other Tables, Figures and NHS Boards are not affected.

February 2014. The Detect Cancer Early (DCE) data mart was rolled out in November 2014, after the original baseline data was produced and published. There were some small differences identified in the assignment of NHS Board of Residence and all tables were updated to reflect this. This resulted in small changes in the number of patients by stage at

diagnosis by NHS Board of Residence and differences in the percentages ranging from 0 to 0.6 percentage points for mainland boards and 0 to 3 percentage points for the Island Boards (Tables 3 & 4).

In addition, an error in the implementation of the algorithm used to derive the breast cancer stage was discovered. As a result a small number of patients across some NHS Boards were assigned the incorrect stage. This affected the staging figures for NHS Dumfries and Galloway more significantly than any other board. The correction of this and NHS Board of Residence resulted in a reduction in the percentage of patients in the “not known” stage for Dumfries and Galloway of 10.2 percentage points with these patients predominantly re-allocated to stages 1 and 2, in approximately equal proportions. The Island Boards had changes in the staging percentages ranging from 0 to 5 percentage points and all other Boards had changes ranging from 0 to 1 percentage points (Table 2).

Overall, the impact of the February 2014 changes in the combined staging table (Table 1) is that for Scotland the percentage of patients in stages 1, 3 and 4 have not changed and there was only a 0.1 percentage points change to the stage 2 and stage “not known” figures. The biggest impact was in Dumfries & Galloway and the Island Boards.

A2 – Publication Metadata

Publication title	Detect Cancer Early Baseline
Description	Two years of calendar data (2010 and 2011) presented for three cancers (breast, colorectal and lung) by stage of disease at presentation
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 2010 and 2011 data files for the individual cancers were submitted to ISD up to 09 April 2013.
Release date	28 May 2013
Frequency	Once
Timeframe of data and timeliness	Data on patients diagnosed from 01 January 2010 to 31 December 2011.
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	Revised July 2014. See revisions relevant to this publication and Appendix A1 Revisions History for more information.
Revisions relevant to this publication	Revised July 2014. The colorectal and combined cancer figures for Scotland, South East Scotland Cancer Network (SCAN) and NHS Dumfries & Galloway have been updated. This was due to a resubmission of the 2010 colorectal cancer file by NHS Dumfries and Galloway as the original file contained incorrect staging data. This publication was initially released 28 May 2013 and then revised in Feb 2014 see Appendix A1 Revisions History for more information.
Concepts and definitions	See Glossary and A1 (Appendix 1) 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 <u>published guidelines</u> .
Coherence and clarity	<p>Statistics are presented within Excel spreadsheets and PDF. Baseline 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.
Disclosure	The <u>ISD protocol on Statistical Disclosure Protocol</u> 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](#).

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.