Publication Report

Cancer Incidence in Scotland (2009)

Publication date – 30 August 2011

A National Statistics Publication for Scotland

Contents

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.

Introduction

The Scottish Cancer Registry has been collecting information on cancer since 1958. Data collected by the Registry are published by ISD and are used for a wide variety of purposes including: public health surveillance; health needs assessment, planning and commissioning of cancer services; evaluation of the impact of interventions on incidence and survival; clinical audit and health services research; epidemiological studies; and providing information to support genetic counselling and health promotion.

The updated figures show cancer incidence (1985-2009) for many types of cancer, and replace information previously available on the ISD Scotland website. Cancer registrations are believed to be essentially complete (>99% at time of analysis) for the year 2009, but it is important to note that the cancer registration database is dynamic. In common with cancer registries in other countries, cancer incidence rates in Scotland can take up to five years after the end of a given calendar year to reach 100% completeness and stability, due to the continuing accrual of late registrations coming to light through death certification, for example.

It may be misleading to focus too much attention on any apparent changes in incidence between 2008 and 2009; it is more informative to examine trends in incidence observed over a number of years. Striking changes from one year to the next may occur in the case of rare cancers, but these are likely to reflect random fluctuation caused by small numbers of cases. In such cases it is even more important to examine incidence rates for a number of years aggregated together, rather than focussing on a single year of incidence.

Key points

- In recent years, the overall age-standardised incidence rates have fallen slightly in males and increased significantly in females.
- Incidence rates and trends in incidence rates show considerable variation between different types of cancer.
- Actual numbers of cases of cancer have risen over the last decade, likely to be largely due to an ageing population.
- Based on current trends, more than one in three people in Scotland will develop cancer in their lifetime.
- As at 31 December 2009, there were approximately 153,000 people in Scotland who were living with a cancer that had been diagnosed within the previous 20 years.

Results and Commentary

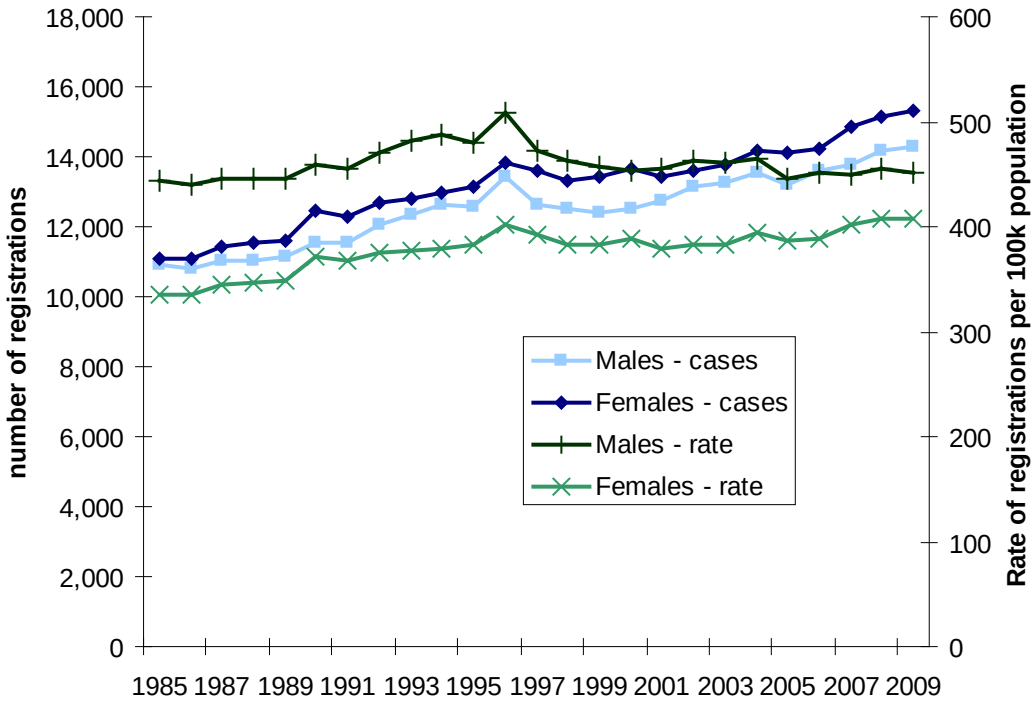
Please note that details of these statistics can be found by cancer site on the Cancer website and summarised in the Cancer in Scotland Summary report.

Cancer Incidence

Approximately 14,300 males and 15,300 females were diagnosed with cancer (excluding non-melanoma skin cancer) in 2009. These figures for all cancers combined are slight increases on 2008 data.

Over the last decade (1999-2009), the age-standardised incidence rate of cancer has fallen for males (a 2% decrease) and shows a significant, increasing trend for females (6% increase). In conjunction with the slight overall increase in rate, the number of new cancer cases per year has grown from 25,841 cases in 1999 to 29,566 in 2009. This increase is due in large part to an ageing population.

Figure 1. New cancer[1] registrations in Scotland, 1985-2009: number of cases and standardised rate[2]

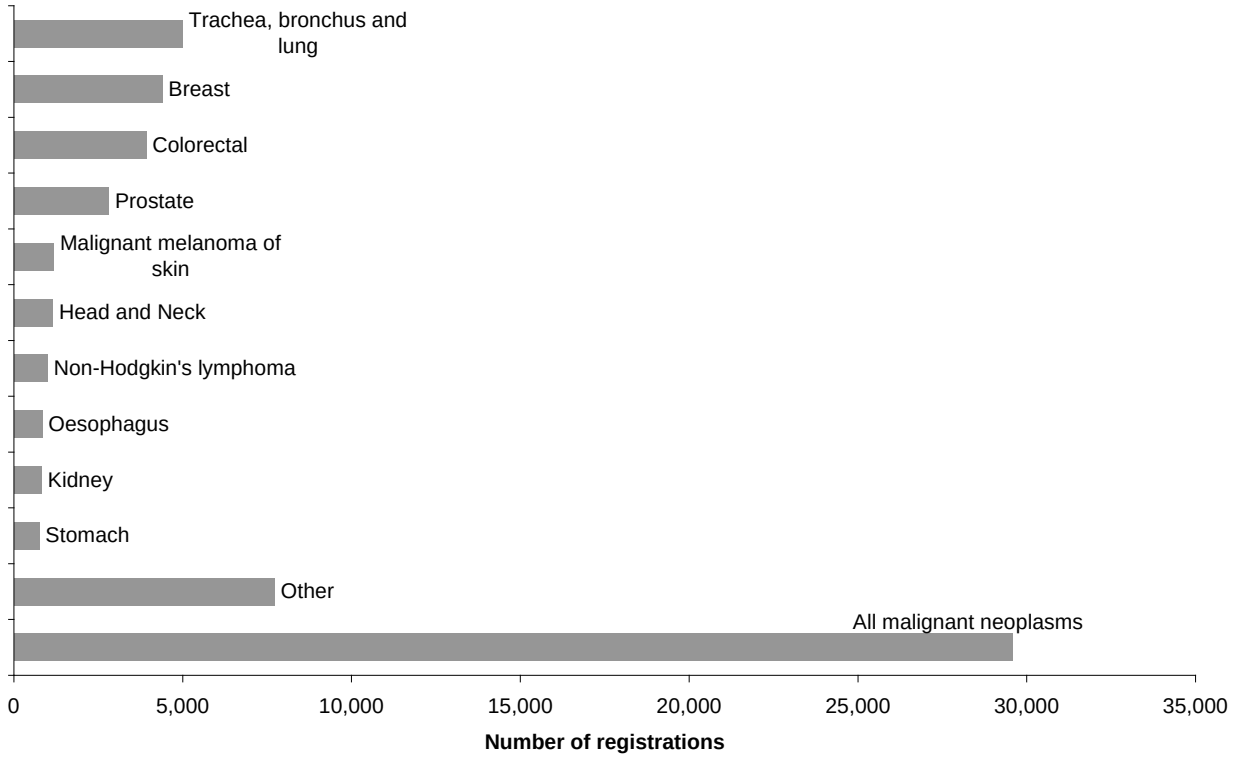


1 All cancers excluding non-melanoma skin cancers (ICD-10 C00-C97 excl C44)
2 European Age Standardised Rate
Source: Scottish Cancer Registry

Lung cancer is the most common cancer diagnosed in all persons combined (Figure 2). The long-term decline seen in the incidence rate in males has continued, with a significant fall in the incidence rate of 15% over the last ten years. Lung cancer incidence rates in females continue to increase, with an 18% increase over the last ten years, which is a

higher rate of increase than in previous years' analyses. To a large extent, these trends reflect historic trends in the prevalence of smoking, which have differed between men and women.

Figure 2. Top 10 Cancers in Scotland, 2009; all persons



All cancers excluding non-melanoma skin cancers (ICD-10 C00-C97 excl C44)
Source: Scottish Cancer Registry

Breast cancer is the most common cancer in women, with the incidence rate continuing to rise. Over the last decade the incidence rate has increased by 10%; this is partly due to increased detection by the Scottish Breast Screening Programme, which has seen a rise in attendance over the same time period, and an extension in the age range invited for screening to include women up to the age of 70 years, phased in over the 3-year period beginning 1st April 2003. However, increases in the incidence of breast cancer might also be anticipated with higher prevalence of known risk factors among the female population, such as increases in the mother's age at the birth of her first child, decreases in family size, increases in post-menopausal obesity, and increases in alcohol consumption.

Prostate and lung cancers are the most common cancers in men with relative frequencies of 20% and 19% respectively, but the incidence rate of lung cancer has been generally decreasing while the incidence rate of prostate cancer has risen approximately 15% over the last decade. The increased prostate cancer incidence rate is due, at least in part, to increased detection through use of the prostate specific antigen (PSA) test, and is not necessarily due to a genuine increase in the risk of developing the cancer.

Malignant melanoma of the skin remains the sixth most common cancer in men and the fourth most common in women. Incidence rates continue to rise significantly, with a steep increase of 73% in males and 69% in females over the last decade. The primary

recognised risk factor for melanoma of the skin is exposure to natural and artificial sunlight, especially but not exclusively at a young age.

Cancers of the kidney, while small in absolute numbers, continue to show significant increases in incidence rates over the last 10 years of 23% and 37% for males and females, respectively. The increase has occurred primarily in cancers of the renal parenchyma (ICD-10 C64) rather than of the renal pelvis (C65). The reason for this increase is not clear. Established risk factors include obesity and smoking, but advances in imaging may also have led to an increase in incidental diagnosis of some tumours.

Cancers of the cervix uteri, or cervical cancers, have historically decreased since the introduction of the Scottish Cervical Screening Programme in 1988 (see Chart). In the past few years the incidence rate has begun to increase, following a slight decrease in uptake of the cervical smear test (see annual uptake statistics on the Cervical Screening page), although some of the decrease in uptake may have been due to a change in recording practice in 2007.

Other cancers where the incidence rates have risen significantly over the past ten years include: in females, cancer of the uterus (28% increase), probably reflecting a variety of factors including the trend towards smaller family sizes, increasing levels of obesity, and use of certain medications; and non-melanoma skin cancers in both sexes (approximately 41% for females, 51% for males), most likely reflecting increased chronic exposure to sunlight. While still relatively small in absolute numbers, the incidence rate of cancer of the liver in males has increased by approximately 60% in the last decade, probably reflecting a variety of factors, including greater levels of chronic exposure to hepatitis viruses, alcohol abuse, and other causes of cirrhosis, as well as improvements in diagnosis through advances in imaging.

Cancers for which incidence rates have fallen significantly over the past ten years include stomach (28% in males and 36% in females), cancer of the larynx in males (26% decrease); cancer of the ovary in females (9% decrease), and leukaemias in both sexes (22% decrease in males, 25% decrease in females).

The decline in bladder cancer incidence since 1998 is an artefact due to a change in coding practice across cancer registries in the UK. Around a quarter of bladder tumours are no longer coded as invasive bladder cancers. This decrease is large enough to have an impact on the figures for all cancers combined.

Lifetime risk of developing cancer

More than one in three people in Scotland will be diagnosed with some form of cancer, including cancers that have no detrimental impact on life expectancy, such as indolent prostate tumours. Risk estimates are based on existing trends and are group statistics, meaning that individual variation in lifestyle, environmental influences and genetics will have an impact on an individual's likelihood of developing cancer.

Details on the risk estimates for individual types of cancer, broken down by sex and by age bands are available on Cancer Statistics webpages.

Information on how lifetime risk is calculated can be found on our FAQs webpage.

Prevalence of cancer (cancer survivors)

The number of people in Scotland diagnosed with some form of cancer in the last 20 years who are still alive is estimated to be approximately 154,000 individuals, or approximately 3% of the population. This number is broken down by sex within each of the cancer types on the Cancer Statistics webpages.

Information on how prevalence is calculated can be found on our FAQs webpage.

Glossary

Colorectal cancer	Bowel cancer
Neoplasm	abnormal growth/cancer

List of Tables

Table No.	Cancer Incidence by year	Time period	File & size
0	Cancer in Scotland Summary	1985-2009	PDF [264 kb]
1	All Cancers	1985-2009	Excel [709 kb]
2	Bladder	1985-2009	Excel [728 kb]
3	Bone and Connective Tissues	1985-2009	Excel [1492 kb]
4	Brain and CNS	1985-2009	Excel [2047 kb]
5	Breast	1985-2009	Excel [1096 kb]
6	Colorectal	1985-2009	Excel [1404 kb]
7	Female Genital Organs	1985-2009	Excel [1209 kb]
8	Head and Neck	1985-2009	Excel [3295 kb]
9	Hodgkins Disease	1985-2009	Excel [747 kb]
10	Kidney	1985-2009	Excel [734 kb]
11	Leukaemias	1985-2009	Excel [2212 kb]
12	Liver	1985-2009	Excel [743 kb]
13	Lung and Mesothelioma	1985-2009	Excel [1083 kb]
14	Male Genital Organs	1985-2009	Excel [737 kb]
15	Multiple Myeloma	1985-2009	Excel [741 kb]
16	Non-Hodgkins Lymphoma	1985-2009	Excel [730 kb]
17	Oesophagus	1985-2009	Excel [731 kb]
18	Pancreas	1985-2009	Excel [733 kb]
19	Skin	1985-2009	Excel [1753 kb]
20	Stomach	1985-2009	Excel [728 kb]

Table No.	Summarised Cancer Incidence	Time period	File & size
21	All Cancers	2005-2009	Excel [169 kb]
22	Bladder	2005-2009	Excel [170 kb]
23	Bone and Connective Tissues	2005-2009	Excel [247 kb]
24	Brain and CNS	2005-2009	Excel [283 kb]
25	Breast	2005-2009	Excel [207 kb]
26	Colorectal	2005-2009	Excel [243 kb]
27	Female Genital Organs	2005-2009	Excel [221 kb]
28	Head and Neck	2005-2009	Excel [433 kb]
29	Hodgkins Disease	2005-2009	Excel [170 kb]
30	Kidney	2005-2009	Excel [169 kb]
31	Leukaemias	2005-2009	Excel [322 kb]
32	Liver	2005-2009	Excel [170 kb]
33	Lung and Mesothelioma	2005-2009	Excel [207 kb]
34	Male Genital Organs	2005-2009	Excel [170 kb]
35	Multiple Myeloma	2005-2009	Excel [170 kb]
36	Non-Hodgkins Lymphoma	2005-2009	Excel [169 kb]
37	Oesophagus	2005-2009	Excel [169 kb]
38	Pancreas	2005-2009	Excel [169 kb]
39	Skin	2005-2009	Excel [280 kb]
40	Stomach	2005-2009	Excel [169 kb]

Table No.	Lifetime Risk of Cancer	Time period	File & size
41	All Cancers	2005-2009	Excel [169 kb]
42	Bladder	2005-2009	Excel [170 kb]
43	Bone and Connective Tissues	2005-2009	Excel [45kb]
44	Brain and CNS	2005-2009	Excel [45kb]
45	Breast	2005-2009	Excel [45kb]
46	Colorectal	2005-2009	Excel [45kb]
47	Female Genital Organs	2005-2009	Excel [42kb]
48	Head and Neck	2005-2009	Excel [51kb]
49	Hodgkins Disease	2005-2009	Excel [45kb]
50	Kidney	2005-2009	Excel [54kb]
51	Leukaemias	2005-2009	Excel [44kb]
52	Liver	2005-2009	Excel [44kb]
53	Lung and Mesothelioma	2005-2009	Excel [44kb]
54	Male Genital Organs	2005-2009	Excel [45kb]
55	Multiple Myeloma	2005-2009	Excel [44kb]
56	Non-Hodgkins Lymphoma	2005-2009	Excel [43kb]
57	Oesophagus	2005-2009	Excel [45kb]
58	Pancreas	2005-2009	Excel [44kb]
59	Skin	2005-2009	Excel [44kb]
60	Stomach	2005-2009	Excel [44kb]

Table No.	Cancer Prevalence	Time period	File & size
61	All Cancers	up to 31 Dec 2009	Excel [51kb]
62	Bladder	up to 31 Dec 2009	Excel [51kb]
63	Bone and Connective Tissues	up to 31 Dec 2009	Excel [60kb]
64	Brain and CNS	up to 31 Dec 2009	Excel [55kb]
65	Breast	up to 31 Dec 2009	Excel [55kb]
66	Colorectal	up to 31 Dec 2009	Excel [59kb]
67	Female Genital Organs	up to 31 Dec 2009	Excel [55kb]
68	Head and Neck	up to 31 Dec 2009	Excel [82kb]
69	Hodgkins Disease	up to 31 Dec 2009	Excel [51kb]
70	Kidney	up to 31 Dec 2009	Excel [51kb]
71	Leukaemias	up to 31 Dec 2009	Excel [69kb]
72	Liver	up to 31 Dec 2009	Excel [51kb]
73	Lung and Mesothelioma	up to 31 Dec 2009	Excel [55kb]
74	Male Genital Organs	up to 31 Dec 2009	Excel [48kb]
75	Multiple Myeloma	up to 31 Dec 2009	Excel [48kb]
76	Non-Hodgkins Lymphoma	up to 31 Dec 2009	Excel [51kb]
77	Oesophagus	up to 31 Dec 2009	Excel [50kb]
78	Pancreas	up to 31 Dec 2009	Excel [51kb]
79	Skin	up to 31 Dec 2009	Excel [64kb]
80	Stomach	up to 31 Dec 2009	Excel [51kb]

Contact

Susan Jensen
Principal Information Analyst
Susan.Jensen@nhs.net
0131 275 6125

Paula McClements
Senior Statistician
Paula.McClements@nhs.net
0131 275 7666

Further Information

Further information can be found on the ISD website

Appendix

A1 – Background Information

Note that cancer registrations are not the same as hospital admissions due to cancer, which are reported on the ISD website under Hospital Care.

Comparisons of cancer statistics across the UK are regularly produced by Cancer Research UK, and the most recent incidence report can be found on their CancerStats page.

Comparison of Scottish and UK cancer data to that of other countries is a complex process because of the wide variation amongst data collection and coding practices, as well as variation in the quality and completeness of data. The International Agency for Research on Cancer maintain an online database, Cancer Mondial, that is searchable for comparative data.

A2 – Publication Metadata (including revisions details)

Metadata Indicator	Description
Publication title	**Cancer Incidence**
Description	Annual and 5 year summaries of new incidence cases of cancer in Scotland, by Cancer Network Region and Health Board. Within Scotland and Network levels of reporting, the incidence figures are broken down by age group and sex.
Theme	Health and Social Care
Topic	Conditions and Diseases
Format	Excel workbooks
Data source(s)	Scottish Cancer Registry (SMR06)
Date that data were acquired	4 July 2011
Release date	30 August 2011
Frequency	Annual
Timeframe of data and timeliness	Data up to 31 December 2009. No delays between data availability and processing of data for publication.
Continuity of data	Reports include data from 1985 to 2009. Coding of cancer registrations moved from ICD-9 to ICD-10 and from ICD-O to ICD-O2 in incidence year 1997, then to ICD-O3 in incidence year 2006. ICD codes have been back-mapped to 1985 for continuity of reporting. The range of statistics provided does mean that the continuity will vary, and while considered to be very high, any notable discontinuities (eg for specific conditions) will be highlighted within the published data.
Revisions statement	As with other population-based cancer registries, the Scottish Cancer Registry is dynamic, with ongoing updating of records. Each year's release includes a refresh of the previous years, and as new registrations from previous years come to light, or changes in the coding are taken into account, the numbers may change. The timing of the release is intended to balance the likelihood of significant revision with timeousness of data.
Revisions relevant to this publication	As above
Concepts and definitions	See the Cancer Information FAQs
Relevance and key uses of the statistics	The number and type of cancer registrations, by sex and geography, allow planning for provision of cancer treatment services and palliative care planning. Permits indirect measure of success of public health measures and interventions over the longer term.
Accuracy	Registry data are subject to validation at data entry and quality assurance procedures. See the Cancer Information FAQs. Reported data are compared to previous years' figures and to expected trends.
Completeness	At time of extraction, data for the most recent year are estimated to be at least 98% complete. See above note on Revisions. Routine indicators of data quality are compared

	to the rest of the UK and to other countries, and are available at www.ukacr.org. There have been adhoc studies of data completeness in the past. See the Cancer Information FAQs.
Comparability	Cancer incidence data are regularly compared with the UK and other countries, for example in the publication Cancer Incidence in Five Continents: http://www-dep.iarc.fr/CI5_IX_frame.htm
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to published guidelines.
Coherence and clarity	All Cancer tables are accessible via the Cancer pages on the ISD website. Cancer sites are presented within Excel spreadsheets of cancer groupings, where appropriate. This should minimise the number of spreadsheets a user has to go through to find data, as well as ensure that they are selecting the correct data. Geographical hierarchies are also presented using drop down menus. Spreadsheets may require the user to manipulate drop-down menus, to avoid a frequent problem of confounding data on males and females, and geographical designations.
Value type and unit of measurement	Number of new cases of cancer as count; rates of cancer as crude, European age standardised, World Age standardised, and as Standardised incidence ratios. Number, eg 1.1
Disclosure	The ISD protocol on Statistical Disclosure Protocol is followed.
Official Statistics designation	National Statistics
UK Statistics Authority Assessment	May 2010
Last published	October 2010
Next published	June 2012
Help email	nss.isdcancerstats@nhs.net
Date form completed	August 2011

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)