NHS England

Diagnostic Imaging Dataset Annual Statistical Release 2015/16

Diagnostic Imaging Dataset

Annual Statistical Release 2015/16

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  Diagnostic Imaging Dataset
- **NHS Digital**
  Previously Health and Social Care Information Centre
- **RIS**
  Radiology Information System

1 Introduction

The Diagnostic Imaging Dataset (DID) is a monthly data collection covering data on diagnostic imaging tests on NHS patients in England. It provides estimates of GP usage of direct access to key diagnostics tests for cancer, for example chest imaging, non-obstetric ultrasound and Brain MRI.

The DID was introduced to monitor progress on *Improving Outcomes: A Strategy for Cancer*[1]. This strategy set out how the Government, NHS and public can help prevent cancer, improve the quality and efficiency of cancer services and move towards achieving outcomes that rival the best. One aspect of that is to ensure that GPs have access to the right diagnostic tests to help them to diagnose or exclude cancer earlier. The DID therefore reports on imaging activity, referral source and timeliness.

These data are collated from Radiology Information Systems (RISs), which are hospital administrative systems used to manage the workflow of radiology departments, and uploaded into a database maintained by NHS Digital.

This publication finalises estimates of imaging activity in 2015/16.

[1] *Improving Outcomes: A Strategy for Cancer*, first published 12 January 2011, see https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213785/dh_123394.pdf updated https://www.england.nhs.uk/wp-content/uploads/2016/05/cancer-strategy.pdf

2 Headline Messages

For all imaging activity:

- 40.7 million imaging tests were reported in England in the year to March 2016, compared with 39.8 million in the previous year, an increase of 2.1%.

- Plain Radiography (X-ray) was most common with 22.6 million procedures, followed by Diagnostic Ultrasonography (Ultrasound, 8.92 million), Computerized Axial Tomography (CT Scan, 4.46 million) and Magnetic Resonance Imaging (MRI, 3.08 million).

- The median period between the request being made and the test being performed varied from the same day for X-ray, Fluoroscopy and Medical Photography up to 22 days for MRI in 2015/16, similar to 2014/15.

- Across all types of imaging, emergency admissions and inpatients have shorter waits than outpatients and referrals made under GP direct access arrangements.

- The median period from a test being performed to the report being issued varied from the same day for CT scan, Ultrasound, Fluoroscopy and Medical Photography up to 3 days for MRI in 2015/16, the same as in 2014/15.

For the key tests[2] Chest X-ray, Brain MRI and Non-Obstetric Ultrasound of the Abdomen and/or Pelvis:

- In 2015/16, GPs requested over a quarter (26%) of all tests that may have been used to diagnose or discount cancer, under direct access arrangements. This is compares to 27% in 2014/15.

- The test most commonly requested by GPs was Chest X-ray with 2.02 million tests (down 4.9% from 2014/15), whilst the test with the highest proportion of GP referrals was ultrasounds that may have been used to diagnose ovarian cancer (46% of which were requested by GPs in 2015/16).

- The median period between the request being made and the test being performed varied between each of the key tests under GP direct access arrangements. This ranged from the same day for Chest X-ray to 27 days for Abdomen and/or pelvis Ultrasound.

[2] Although these tests are used to diagnose cancer, many of the tests also have wider clinical uses. Within this dataset it is not possible to distinguish the different uses of these tests.

3 Annual Imaging Activity

3.1 Imaging Activity by modality

3.1.1. 40.7 million imaging tests were reported in England in the year to March 2016, compared with 39.8 million in the previous year, an increase of 2.1%[3].

3.1.2. Plain Radiography (X-ray) had the biggest share of all tests performed during the year, with 22.6 million X-rays reported in 2015/16, the same as in 2014/15. The next most common procedures were Ultrasound (8.92 million, up 4.1% from 2014/15), CT scans (4.46 million, up 6.2%) and MRI Scans (3.08 million, up 6.7%). Medical Photography accounted for relatively little imaging activity (about 24,000 records) but has the largest proportional increase (48%) as reporting of these in DID continues to become more widespread. There is also increased coverage for SPECT scans (up 19%) and PET-CT scans (up 10%). Table 1 shows the imaging counts and growth for each modality.

3.1.3. July was the month with the most reported activity, followed by June. Both months reported over 3.5 million tests, although July was the only month with 23 working days (June had 22 and the average was 21). August had the lowest number of reported tests, with a little over 3.1 million. Graph 1 shows this seasonal fluctuation overall and by modality. Whilst there is a reduction in August for most modalities, some show a rising trend over the year.

Further information on the tests included in these tables is given in the glossary at Section 4.3.

Full break-downs of activity by modality, provider and referral source setting are given in Additional Tables 1a – 6l (separate excel files), available from http://www.england.nhs.uk/statistics/statistical-work-areas/diagnostic-imaging-dataset/

[3] In this period the data completeness has increased from 99.2% in 2014/15 to 99.7% in 2015/16.

Table 1: Count of NHS imaging activity in England, 2012/13 to 2015/16

	X-ray	Ultrasound	CT Scan	MRI	Fluoro-scopy	Nuclear Medicine	PET-CT Scans	SPECT Scans	Medical Photography	% organisations included	Total[1]
2012/13	21,174,005	7,687,850	3,346,840	2,349,160	1,018,620	437,155	71,080	11,390	6,085	97.8%	36,102,195
2013/14	21,832,985	8,140,175	3,780,405	2,614,865	1,028,735	446,365	75,255	16,350	10,530	97.8%	37,945,665
2014/15	22,576,785	8,566,470	4,199,515	2,890,310	1,018,100	439,655	89,165	21,850	16,180	99.2%	39,818,030
2015/16	22,570,870	8,916,225	4,461,650	3,084,815	1,040,560	432,755	97,990	25,900	23,945	99.7%	40,654,715
% Growth	0.0%	4.1%	6.2%	6.7%	2.2%	-1.6%	9.9%	18.5%	48.0%	0.5%	2.1%
2015/16											
Apr	1,876,000	710,225	352,060	238,620	83,495	34,200	6,820	1,870	1,635	100.0%	**3,304,925**
May	1,853,105	688,650	353,785	239,170	81,775	33,185	6,815	1,925	1,605	100.0%	**3,260,010**
Jun	1,975,450	762,375	373,090	252,965	91,710	38,430	7,400	2,300	1,840	100.0%	**3,505,560**
Jul	1,956,610	777,430	382,285	270,940	93,960	39,080	7,475	2,215	1,970	99.4%	**3,531,965**
Aug	1,748,305	686,380	352,130	249,925	79,790	32,390	6,950	1,895	1,585	98.9%	**3,159,360**
Sep	1,901,945	758,970	370,995	256,160	89,495	36,885	8,340	2,285	1,855	100.0%	**3,426,925**
Oct	1,917,215	770,465	380,885	268,595	90,560	38,295	8,635	2,345	2,360	99.4%	**3,479,350**
Nov	1,852,090	759,165	371,505	267,480	89,000	36,960	8,310	2,245	2,375	99.4%	**3,389,130**
Dec	1,761,890	732,595	371,215	249,735	83,260	34,335	9,135	2,005	2,185	99.4%	**3,246,340**
Jan	1,896,235	754,355	385,185	265,765	84,910	36,365	9,080	2,195	2,255	100.0%	**3,436,350**
Feb	1,890,215	755,055	380,125	262,350	86,225	36,900	9,635	2,350	2,405	100.0%	**3,425,255**
Mar	1,941,805	760,560	388,385	263,115	86,385	35,735	9,400	2,270	1,875	99.4%	**3,489,530**

Notes:

1. Totals do not always equal the sum of parts due to rounding.
2. 2012/13 was the first year of the DID collection and as such some of the changes since then may be due to improved coverage of the dataset.
3. % Growth is between 2014/15 and 2015/16.
4. Some data for several organisations are not included for 2015/16; see Section 6.1 for details.

Graph 1: NHS imaging activity in England, April 2015 to March 2016

3.2 Imaging Activity by Age and Gender

3.2.1. Almost 6 million more tests were performed on females than on males in 2015/16. The largest difference occurred for ultrasound procedures (4.0 million more on females) and for X-rays (1.8 million more). The majority of ultrasounds were on patients aged under 44 whilst the rate of X-rays increased markedly with age. Over half of the 1.8 million more X-rays for females than males was attributable to demographic differences, especially the higher number of older women compared to older men. Conversely there were more PET-CT scans on males than females, with the rate of CT scanning on males also slightly higher than for females. Table 2 shows the age and gender of patients who have received diagnostic tests in 2015/16.

Table 2: NHS Imaging activity in England by gender and age, 2015-16

	X-ray	Ultrasound	CT Scan	MRI	Fluoro-scopy	Nuclear Medicine	PET-CT Scan	SPECT Scan	Medical Photography	Total[1]
Female	11,982,320	6,352,960	2,189,130	1,631,900	506,045	231,970	43,045	15,455	12,780	22,965,605
Male	10,187,900	2,394,195	2,207,880	1,415,245	523,480	195,780	54,235	10,150	11,165	17,000,035
Not known / specified[2]	404,375	181,775	64,565	39,070	11,030	4,985	705	295	0	706,815
0-14	1,998,165	409,560	52,610	131,490	54,020	17,995	315	350	1,570	2,666,075
15-44	5,261,755	4,385,080	734,230	962,430	186,900	59,870	10,490	5,675	4,440	11,610,860
45-59	4,542,165	1,697,510	893,380	856,845	238,430	98,855	21,445	5,810	4,320	8,358,750
60-74	5,368,395	1,374,265	1,328,970	750,830	316,505	152,365	42,455	8,415	5,500	9,347,710
75+	5,087,755	954,020	1,393,935	358,135	233,175	98,925	22,240	5,465	8,020	8,161,675
Not Known	316,365	108,495	58,455	26,475	11,535	4,735	1,055	175	95	527,385

Notes:

1. Totals do not always equal the sum of parts due to rounding.
2. “Not Specified” means that the patient did not want to reveal their gender. “Not known” means that the patient’s gender was recorded as “Not known” or else was not reported (including most activity for a few providers).

4 Patient Test Times

4.1 Patient Test Times – Request to test

4.1.1. The DID collects data on four dates that are associated with each imaging event:

- Date of Test Request (by a health care professional).
- Date of Test Request Received (by the organisation that provides the imaging necessary for the test).
- Date of Test
- Date of Test Report Issued (by a health care professional interpreting the imaging output).

4.1.2. This publication is based on all imaging which had a Date of Test between April 2015 and March 2016.

4.1.3. There were big differences in the median period between the request being made and the test being performed for the different tests. The median ranged from the same day for X-ray, Fluoroscopy and Medical Photography to 22 days for MRI scans. There was also some variability within individual tests over the course of the year, with the median for MRI varying by up to a week, from 21 to 28 days, see Table 3.

Table 3: Median number of days between date of test request and date of test, by modality, April 2015 to March 2016

	X-ray	Ultra-sound	CT Scans	MRI	Fluoro-scopy	Nuclear Medicine	PET-CT Scans	SPECT Scans	Medical Photography
2012/13	0	13	2	23	0	15	8	14	0
2013/14	0	13	2	24	0	14	7	17	0
2014/15	0	13	2	24	0	15	8	15	0
2015/16	0	13	1	22	0	16	7	15	0
Apr	0	14	2	23	0	17	8	15	0
May	0	13	1	22	0	16	7	16	0
Jun	0	13	1	21	0	16	7	15	0
Jul	0	12	1	21	0	15	7	14	0
Aug	0	13	1	22	0	15	7	14	0
Sep	0	13	1	21	0	15	7	14	0
Oct	0	13	2	20	0	15	7	14	0
Nov	0	13	2	22	0	16	7	16	0
Dec	0	12	1	22	0	15	7	15	0
Jan	0	14	1	28	0	20	8	18	0
Feb	0	13	2	21	0	15	7	14	0
Mar	0	13	1	22	0	15	8	14.5	0

Note: Median values of 0 occur where at least 50% of activity has a 'date of test request' and 'date of test' which is recorded as the same day. Records where either of these dates is missing are not used to calculate medians.

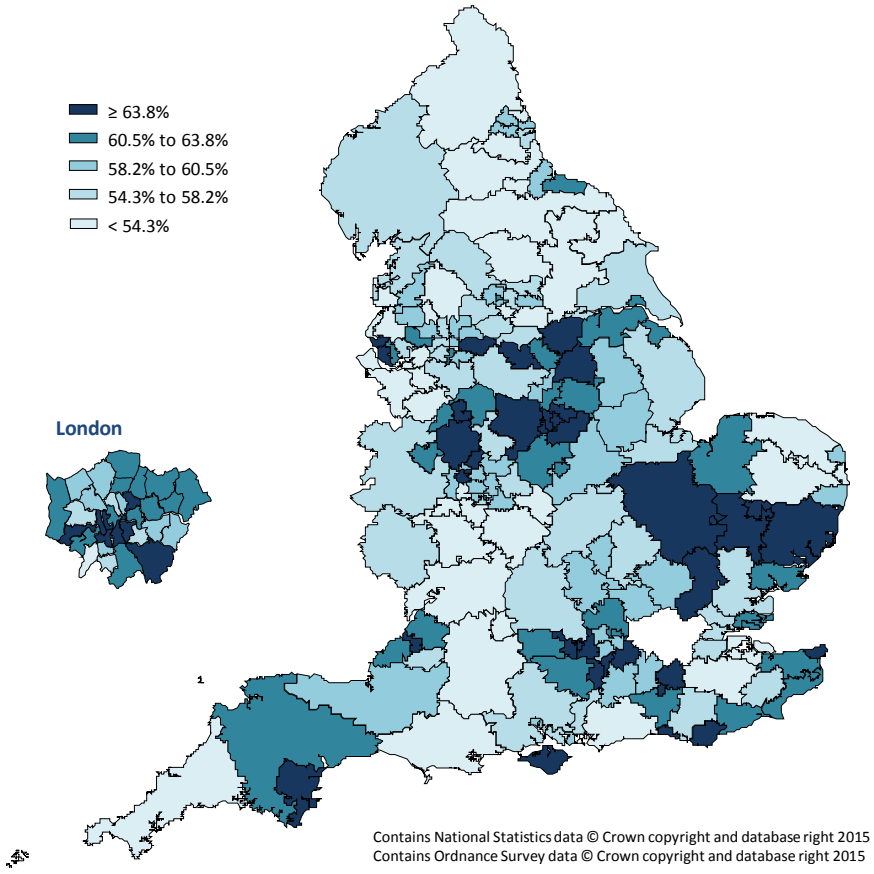
4.1.4. There were some slight changes in the median number of days between test request and date of test in 2015/16 compared to 2014/15. CT scans, MRI and PET-CT all showed a small reduction in the median period from request to test, whereas the median for Nuclear medicine rose by one day. All other modalities remained the same as in 2014/15.

4.1.5. The figures in Table 3 should not be compared to “waiting time” statistics that measure how long patients are on a waiting list for a procedure, since these figures included both planned and unplanned imaging activity. In addition, these figures exclude any cancelled or missed appointments and they count the period for individual tests not each patient appointment.

4.1.6. There was some regional variation in the proportion of imaging which occurred within seven days of the test being requested for CT Scans and within fourteen days of the test being requested for Ultrasound and MRI Scans. Maps 1-3 illustrate this for each CCG in England (with a fifth of CCGs in each band shown). The underlying data for these charts are given in Table 7a-7h (separate Excel file[4]).

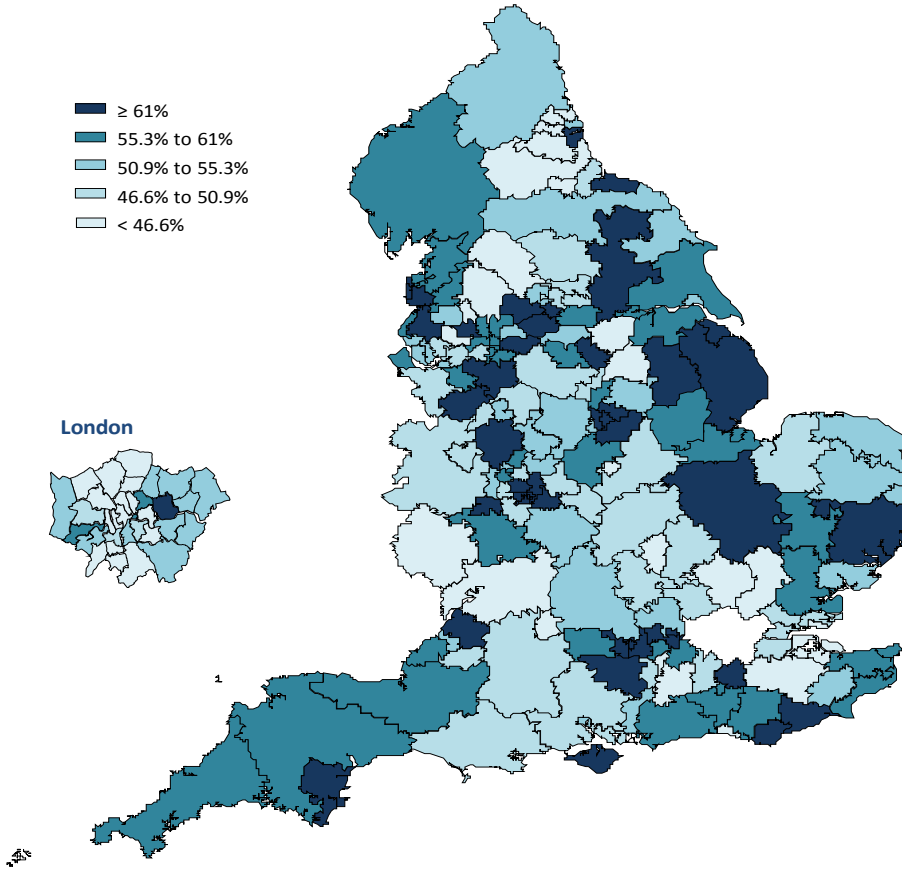
4.1.7. Patients from Accident & Emergency departments and admitted patients have shorter waits for their test than other sources of referral. GP direct access and outpatient referrals show a longer “waiting time” distribution. This affects the median number of days from request to test for those modalities with more outpatient and GP referrals. This is illustrated in Graph 2, which shows the distribution of periods from request to test for individual procedures, by patient source setting and modality. Table 9 (separate Excel file) gives the underlying figures for these charts.

Map 1: Proportion of CT scans where date of test is less than 7 days after date of referral, for each CCG, 2015/16

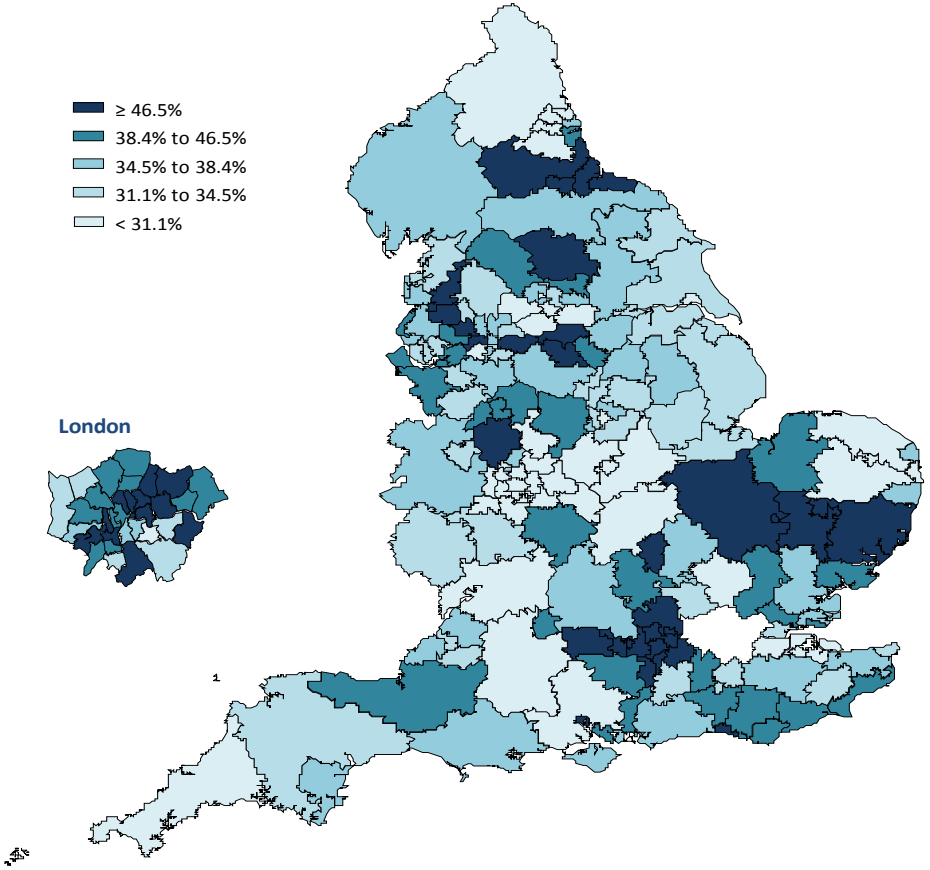


[4] Figures for some CCGs may be based on incomplete data due to missing GP practice information from which to attribute activity to CCGs. For further details see Annex 4 to the Technical Report.

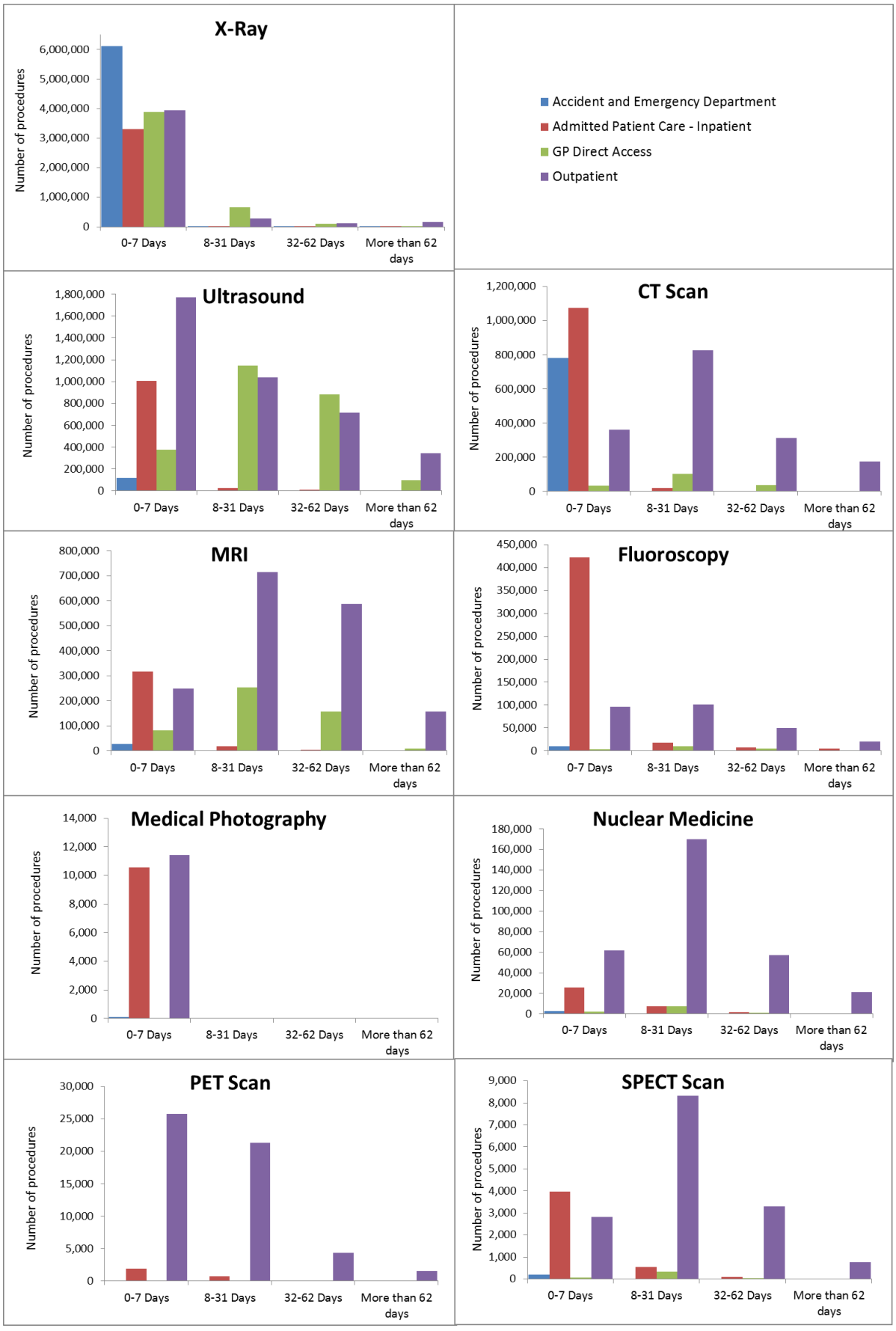
Map 2: Proportion of Ultrasounds where date of test is less than 14 days after date of request, for each CCG, 2015/16



Map 3: Proportion of MRI Scans where date of test is less than 14 days after date of request, for each CCG, 2015/16



Graph 2: Imaging activity by number of days from date of test request to date of test, by modality and source of referral, 2015/16



4.2 Patient Test Times – Test to report

4.2.1. The median number of days between the 'date of test' and the 'date of test report issued' varied between the different modalities, see Table 4. For Ultrasound, CT Scans, Fluoroscopy and Medical Photography, at least half the procedures (with a report issue date) were reported the same day as the test (that is, a median of 0). For MRI the median difference was 3 days, for PET-CT scans the median difference was 2 days, and for the other modalities the median difference was 1 day.

4.2.2. Within each modality, the elapsed period for a test report in 2015/16 was the same as the previous year and remained fairly consistent throughout the 12 months, with two modalities showing slight fluctuations of one day.

Table 4: Median number of days between date of test and date test report issued, by modality, April 2015 to March 2016

	X-ray	Ultra-sound	CT Scans	MRI	Fluoro-scopy	Nuclear Medicine	PET-CT Scans	SPECT Scans	Medical Photography
2012/13	1	0	0	2	0	2	2	1	1
2013/14	1	0	0	2	0	1	2	1	0
2014/15	1	0	0	3	0	1	2	1	0
2015/16	1	0	0	3	0	1	2	1	0
Apr	1	0	0	3	0	1	2	1	0
May	1	0	0	3	0	1	2	1	0
Jun	1	0	0	3	0	1	2	1	0
Jul	1	0	0	3	0	1	2	1	1
Aug	1	0	0	3	0	1	2	1	0
Sep	1	0	0	3	0	1	2	1	0
Oct	1	0	0	3	0	1	2	2	1
Nov	1	0	0	3	0	1	2	1	0
Dec	1	0	0	3	0	1	2	1	0
Jan	1	0	0	3	0	1	2	1	0
Feb	1	0	0	3	0	1	2	1	0
Mar	1	0	0	3	0	1	2	1	0

4.2.3. The National Imaging Board guidance states that investigations will be seen and accurately reported within as short a time as possible and stresses the importance of reporting imaging activity in a timely manner. It suggested that Inpatient and Accident & Emergency referrals should be reported the same working day whilst all other referrals should be reported by the next working day. A tolerance of 90% for this was considered reasonable.

4.2.4. Most modalities show some progress towards this standard in 2015/16 compared with 2014/15, but fall short of achieving such rapid reporting. Table 5 shows the percentage of reports that were issued the same day as the test and those issued by the end of the next day separately for Admitted patient and A&E referred tests and for Outpatient and GP direct access tests, for each modality. Tables 10a-10d (separate Excel file) gives this breakdown by provider and type of referral.

Table 5: Proportion of imaging reports that were issued, either the same day as the test or by the end of the following day, by modality, April 2015 to March 2016.

		X-ray		Ultrasound		CT Scans		MRI		Fluoroscopy		Nuclear Medicine		PET-CT Scans		SPECT Scans		Medical Photography	
		Same day	By next day	Same day	By next day	Same day	By next day	Same day	By next day	Same day	By next day	Same day	By next day	Same day	By next day	Same day	By next day	Same day	By next day
Inpatient and A&E	2012/13	25%	50%	91%	94%	81%	92%	64%	81%	70%	79%	58%	76%	23%	54%	75%	84%	20%	59%
	2013/14	25%	51%	92%	96%	84%	94%	65%	81%	71%	80%	59%	78%	28%	52%	73%	84%	48%	76%
	2014/15	26%	53%	93%	96%	85%	95%	66%	82%	72%	81%	60%	78%	29%	57%	67%	87%	49%	73%
	2015/16	28%	55%	94%	96%	88%	96%	67%	83%	72%	82%	62%	77%	35%	61%	72%	85%	52%	74%
	Apr	27%	53%	94%	97%	86%	96%	67%	83%	72%	83%	60%	78%	34%	60%	67%	86%	51%	72%
	May	28%	55%	94%	97%	87%	96%	67%	82%	73%	81%	61%	76%	33%	58%	60%	84%	51%	73%
	Jun	29%	57%	93%	96%	86%	96%	67%	83%	71%	81%	59%	76%	36%	59%	72%	89%	54%	81%
	Jul	29%	55%	92%	95%	87%	96%	68%	83%	72%	82%	61%	78%	37%	64%	68%	87%	39%	66%
	Aug	28%	55%	94%	97%	87%	96%	67%	82%	73%	83%	62%	78%	44%	67%	68%	87%	52%	77%
	Sep	28%	54%	94%	96%	88%	96%	67%	82%	73%	82%	61%	76%	32%	61%	68%	79%	52%	84%
	Oct	29%	56%	95%	97%	88%	97%	67%	82%	72%	81%	61%	76%	33%	54%	77%	87%	48%	70%
	Nov	30%	59%	94%	97%	88%	97%	67%	82%	72%	82%	63%	79%	34%	64%	79%	87%	50%	72%
	Dec	30%	56%	94%	97%	89%	97%	69%	83%	73%	82%	65%	79%	41%	62%	74%	81%	59%	80%
	Jan	28%	54%	93%	96%	87%	96%	66%	82%	72%	82%	62%	75%	35%	62%	75%	83%	56%	72%
	Feb	28%	54%	93%	96%	87%	96%	66%	82%	72%	81%	64%	78%	34%	56%	77%	86%	58%	76%
	Mar	28%	53%	95%	97%	89%	97%	67%	83%	73%	82%	66%	80%	35%	62%	78%	84%	56%	72%
Outpatients & GP Direct Access	2012/13	37%	53%	84%	90%	34%	50%	20%	35%	54%	68%	23%	45%	9%	39%	23%	46%	25%	70%
	2013/14	38%	53%	87%	91%	32%	47%	19%	34%	56%	70%	25%	46%	9%	35%	22%	43%	66%	90%
	2014/15	38%	54%	88%	93%	29%	45%	18%	33%	59%	72%	26%	47%	10%	38%	20%	44%	70%	86%
	2015/16	39%	54%	89%	93%	27%	42%	17%	32%	61%	73%	29%	50%	13%	38%	23%	44%	57%	76%
	Apr	37%	53%	88%	93%	27%	42%	16%	29%	59%	72%	27%	49%	10%	32%	25%	48%	64%	79%
	May	39%	54%	89%	93%	27%	42%	16%	29%	60%	72%	28%	48%	10%	31%	22%	45%	51%	71%
	Jun	38%	54%	88%	92%	28%	43%	16%	30%	59%	73%	27%	49%	12%	38%	23%	46%	51%	79%
	Jul	38%	52%	89%	93%	27%	41%	18%	32%	60%	73%	30%	50%	13%	38%	20%	42%	48%	80%
	Aug	40%	55%	89%	93%	28%	42%	16%	30%	62%	74%	29%	50%	12%	38%	22%	44%	58%	88%
	Sep	39%	54%	89%	93%	27%	42%	18%	32%	60%	73%	29%	49%	12%	41%	26%	44%	53%	84%
	Oct	40%	56%	90%	93%	28%	42%	18%	32%	60%	72%	28%	48%	14%	38%	22%	40%	49%	65%
	Nov	41%	57%	90%	93%	28%	43%	18%	33%	60%	72%	30%	51%	13%	41%	22%	46%	58%	75%
	Dec	42%	59%	90%	94%	28%	43%	19%	34%	63%	75%	31%	52%	14%	40%	24%	45%	60%	76%
	Jan	40%	56%	89%	92%	27%	42%	19%	33%	61%	73%	28%	49%	15%	40%	23%	45%	55%	71%
	Feb	37%	52%	89%	93%	26%	40%	18%	32%	60%	72%	27%	49%	15%	41%	21%	41%	60%	75%
	Mar	37%	50%	90%	94%	27%	41%	17%	31%	62%	74%	30%	52%	15%	42%	23%	43%	74%	87%

5 Imaging Tests that could contribute to Early Diagnosis of Cancer

5.1 Definition of the tests

5.1.1. One of the main drivers for establishing the DID was to assess the use of diagnostic imaging that could contribute to the early diagnosis of cancer and, in particular, General Practitioner (GP) direct access to these tests. To enable this analysis, a subset of procedures that are often used to diagnose or discount a diagnosis of cancer has been identified:

Brain (MRI)

- This may diagnose brain cancer, this includes – MRI of brain (often with contrast);

Kidney or bladder (Ultrasound)

- This may diagnose kidney or bladder cancer, this includes – ultrasound of kidney, ultrasound scan of bladder or ultrasound and Doppler scan of kidney;

Chest and/or abdomen (CT)

- CTs which may diagnose lung cancer, this includes – chest + abdominal CT, CT of chest (high resolution or other), CT thorax + abdomen with contrast, CT thorax with contrast or CT chest + abdomen;

Chest (X-ray)

- This may diagnose lung cancer, this includes – plain chest X-ray only;

Abdomen and/or pelvis (Ultrasound)

- This may diagnose ovarian cancer, this includes – ultrasonography of pelvis, ultrasonography of abdomen (upper, lower or other) or abdomen + pelvis.

5.1.2. Although these tests are used to diagnose cancer, many of them also have wider clinical uses. Within this data, it is not possible to distinguish between the different uses of these tests.

5.1.3. Brain MRI, chest X-ray, and ultrasounds of the abdomen and pelvis to diagnose Ovarian Cancer were three of the key tests outlined in *Improving Outcomes: a Strategy for Cancer*.

5.2 Imaging activity and GP referral

5.2.1. In 2015/16, 10.7 million of these tests that may have been used to diagnose or discount cancer were performed, similar to in 2014/15. There were sustained increases for Brain MRI and Chest and/or abdomen CT, offset by a slight reduction in Chest X-ray. The number of Ultrasounds showed less monthly variation across the year, as seen in graph 3.1.

5.2.2. The most common test requested through all source settings was Chest X-ray, with 8.1 million tests being requested in 2015/16. This was also the most common test requested by GPs (2.0 million, 4.9% less than in 2014/15). Next most common were tests that may have been used to diagnose ovarian cancer (abdominal or pelvic ultrasound, 1.3 million), with 46% of such tests being requested by a GP. Table 6 shows the total number of tests suitable for diagnosing cancer, with the subset of these that had a referral source of GP direct access.

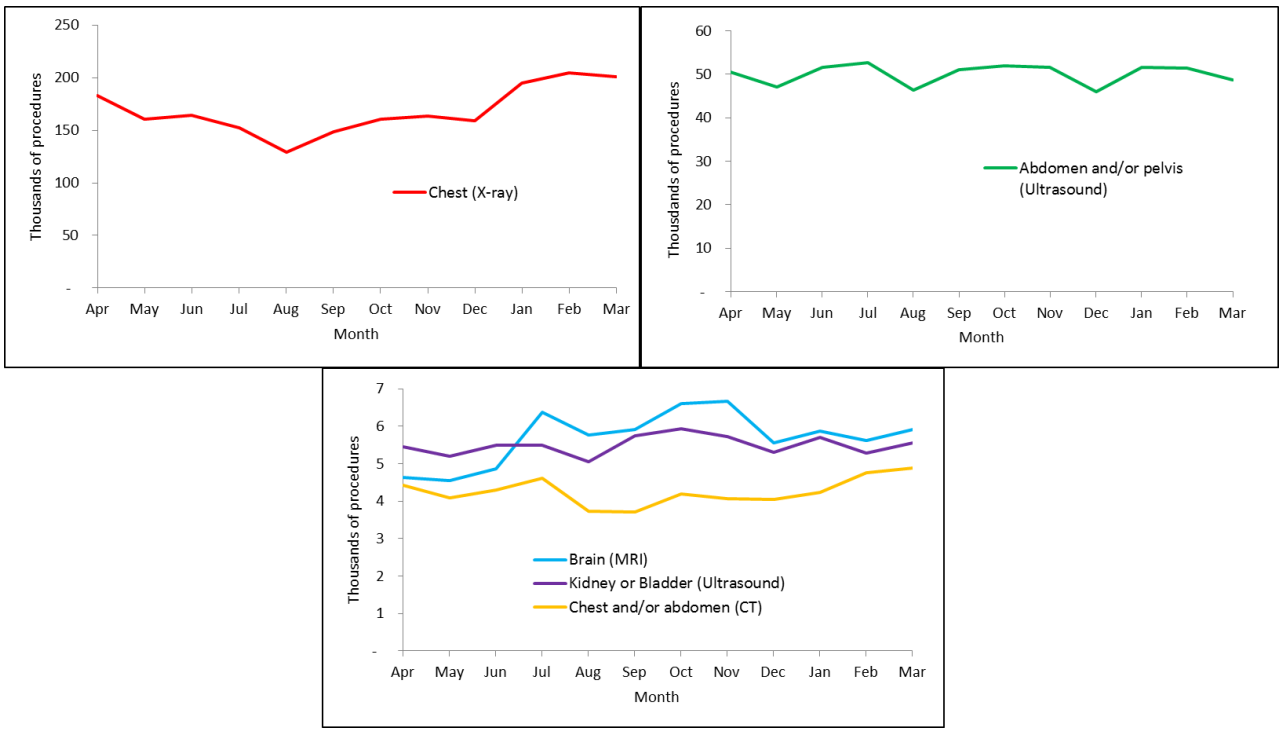
Table 6: Imaging activity for groups of tests suitable for diagnosing cancer, for all patients referred and for those directly referred by a GP, April 2015 to March 2016

	Brain (MRI)		Kidney or bladder (Ultrasound)		Chest and/or abdomen (CT)		Chest (X-ray)		Abdomen and/or pelvis (Ultrasound)	
	All	GP	All	GP	All	GP	All	GP	All	GP
2012/13	472,755	31,030	220,230	67,460	388,655	32,185	7,723,410	1,991,705	1,165,345	536,930
2013/14	528,870	39,540	220,075	65,450	438,245	39,180	7,691,055	1,931,250	1,246,225	570,235
2014/15	582,905	50,090	228,525	67,035	489,195	46,620	8,149,525	2,124,255	1,300,660	598,910
2015/16	629,095	68,330	222,765	65,925	512,865	50,995	8,070,460	2,019,315	1,312,745	600,435
Growth	7.9%	36.4%	-2.5%	-1.7%	4.8%	9.4%	-1.0%	-4.9%	0.9%	0.3%
2015/16										
Apr	49,395	4,640	17,965	5,450	42,075	4,415	677,650	182,615	106,890	50,470
May	48,740	4,545	17,320	5,195	41,405	4,080	654,060	160,165	104,765	46,975
Jun	52,060	4,870	18,710	5,495	43,945	4,290	652,265	164,405	113,565	51,640
Jul	54,055	6,375	18,870	5,490	44,210	4,615	644,245	151,935	115,670	52,690
Aug	50,330	5,775	17,250	5,055	39,545	3,720	590,730	129,070	101,070	46,305
Sep	51,780	5,905	19,290	5,745	41,490	3,705	630,590	148,460	111,410	51,045
Oct	53,805	6,595	19,390	5,925	43,395	4,190	660,045	160,150	113,590	51,960
Nov	53,925	6,670	18,665	5,730	41,805	4,060	666,465	163,195	111,375	51,665
Dec	51,330	5,550	18,330	5,305	41,605	4,045	674,760	158,720	103,400	46,040
Jan	54,990	5,870	19,425	5,695	43,860	4,235	743,785	194,980	112,895	51,615
Feb	54,135	5,615	18,420	5,290	44,700	4,755	727,305	204,695	110,740	51,320
Mar	54,550	5,920	19,130	5,550	44,830	4,885	748,560	200,925	107,375	48,710

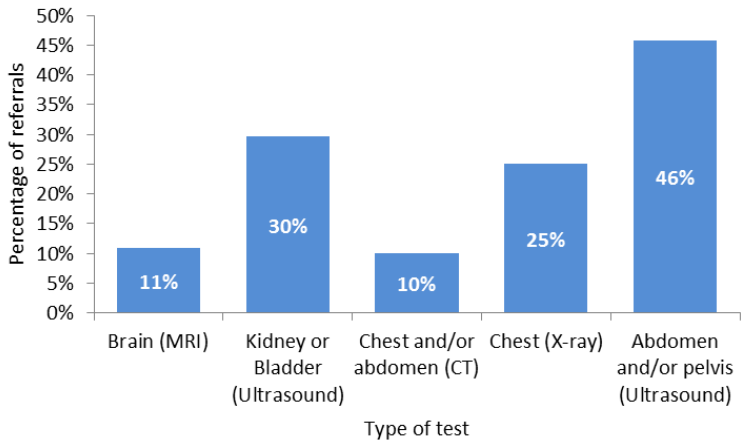
Totals do not always equal the sum of parts due to rounding
% Growth is between 2014/15 and 2015/16

5.2.3. Of the 10.7 million tests requested in 2015/16, 26% were requested by GPs under direct access arrangements, compared with 27% in 2014/15. Graph 3.2 shows the proportion of tests requested by GPs by test. The lowest proportions of GP direct access were for Brain MRI and Chest and/or abdomen CT. But for the third year running, these were also the tests with most increase year on year and where the GP access source increased more than the overall rise in the number of tests.

Graph 3.1: Imaging activity for patients directly referred by a GP, April 2015 to March 2016



Graph 3.2: Percentage of referrals made by GPs by type of test, 2015/16



5.3 Patient test times

Patient test times – Request to test

5.3.1. For the key tests that may be used to diagnose or discount cancer, the median period from a test being requested to being performed is longer for GP direct access than for all referrals, see Table 7. The exception is Chest X-ray, where the median is zero (same day) for GP and all referrals. The main reason for this difference is that 'all referrals' includes tests on emergency admissions and inpatients, which have shorter waits.

Table 7: Median number of days between date of test request and date of test for groups of tests suitable for diagnosing cancer, overall and for GP Direct Access, April 2015 to March 2016

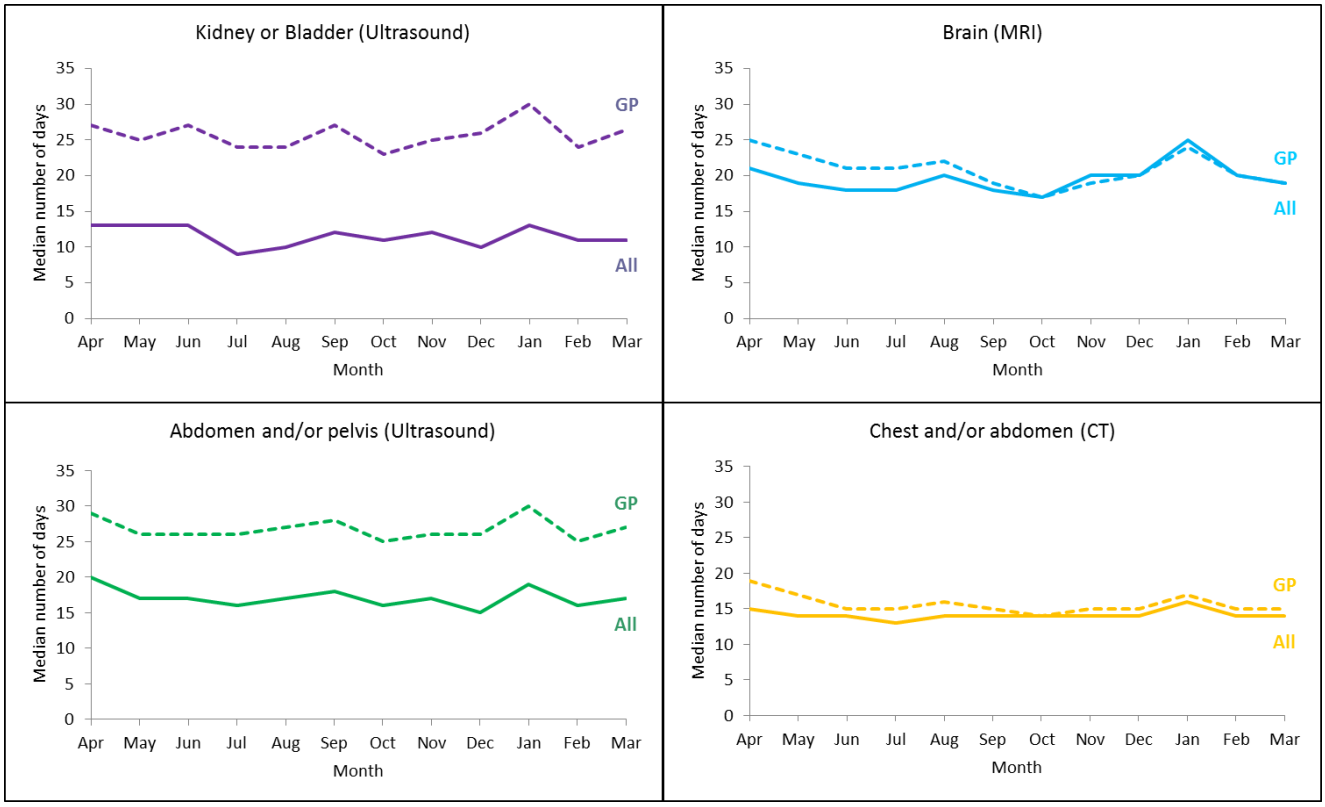
	Brain (MRI)		Kidney or bladder (Ultrasound)		Chest and/or abdomen (CT)		Chest (X-ray)		Abdomen and/or pelvis (Ultrasound)	
	All	GP	All	GP	All	GP	All	GP	All	GP
2012/13	21	25	13	23	13	17	0	0	14	22
2013/14	21	25	13	23	13	16	0	0	15	24
2014/15	21	26	13	24	14	17	0	0	17	26
2015/16	19	21	11	26	14	16	0	0	17	27
Apr	21	25	13	27	15	19	0	0	20	29
May	19	23	13	25	14	17	0	0	17	26
Jun	18	21	13	27	14	15	0	0	17	26
Jul	18	21	9	24	13	15	0	0	16	26
Aug	20	22	10	24	14	16	0	0	17	27
Sep	18	19	12	27	14	15	0	0	18	28
Oct	17	17	11	23	14	14	0	0	16	25
Nov	20	19	12	25	14	15	0	0	17	26
Dec	20	20	10	26	14	15	0	0	15	26
Jan	25	24	13	30	16	17	0	0	19	30
Feb	20	20	11	24	14	15	0	0	16	25
Mar	19	19	11	26.5	14	15	0	0	17	27

5.3.2. Two out of the five tests had a longer median period from request to test for GP referrals in 2015/16 than in 2014/15, both ultrasound procedures (kidney or bladder and abdomen and/or pelvis). The median for Chest X-ray remained zero (same day), whilst that for Chest and/or abdomen CT was similar to previous years. The median period from request to test for Brain MRI appeared to fall quite markedly, which is due to the growth in GP-referred activity by a national provider[5].

5.3.3. The median number of days between date of request and date of test has shown some fluctuation throughout 2015/16 for tests that are suitable for diagnosing cancer, as shown in Graph 4. Brain MRI and kidney or bladder ultrasound both have shown the largest variation across the months of 2015/16 with a range of about a week (17-25 days for brain MRI and 23-30 days for kidney or bladder ultrasound), but there is no consistent seasonality except a peak in January for all tests.

[5] InHealth Group Ltd provide MRI services to the NHS, over half of which was GP-referred. The remainder was submitted to DID by the NHS Trusts responsible.

Graph 4: Median number of days between date of test request and date of test for groups of tests suitable for diagnosing cancer, overall and for GP Direct Access, April 2015 to March 2016



Patient test times – Test to report

5.3.4. There is generally little difference in the time taken for a test report to be issued for GP direct access and all referrals, as shown in Table 8. However, the median period between the date of test and the date the report was issued was 3 days for GP-referred brain MRI, compared with 2 days overall, and 2 days for GP-referred chest and/or abdomen CT, compared with 1 day overall.

5.3.5. The median time between test and report issued has not changed between 2014/15 and 2015/16 for tests that could be used to diagnose or discount cancer.

5.3.6. Throughout 2015/16 there has been only minor fluctuation of the median test to report period. December and January tended to be slightly longer for many of the tests, but this was not universal.

Table 8: Median number of days between date of test and date test report issued and Percentage of records where report issued on day of test, for groups of tests suitable for diagnosing cancer, for All referrals and GP Direct Access, April 2015 to March 2016

	Brain (MRI)				Kidney or bladder (Ultrasound)			
	All Median	All % Same day	GP Median	GP % Same day	All Median	All % Same day	GP Median	GP % Same day
2012/13	2	32%	3	17%	0	85%	0	80%
2013/14	2	34%	3	18%	0	89%	0	85%
2014/15	2	33%	3	18%	0	91%	0	88%
2015/16	2	35%	3	21%	0	92%	0	89%
Apr	2	34%	4	16%	0	92%	0	90%
May	2	34%	4	16%	0	93%	0	90%
Jun	2	35%	3	16%	0	92%	0	88%
Jul	2	36%	3	21%	0	92%	0	90%
Aug	2	36%	2	21%	0	92%	0	90%
Sep	2	35%	2	23%	0	92%	0	89%
Oct	2	35%	2	21%	0	93%	0	89%
Nov	2	35%	2	23%	0	92%	0	88%
Dec	1	36%	2	24%	0	93%	0	89%
Jan	2	36%	2	24%	0	93%	0	89%
Feb	2	34%	2	22%	0	91%	0	88%
Mar	2	34%	3	22%	0	91%	0	88%

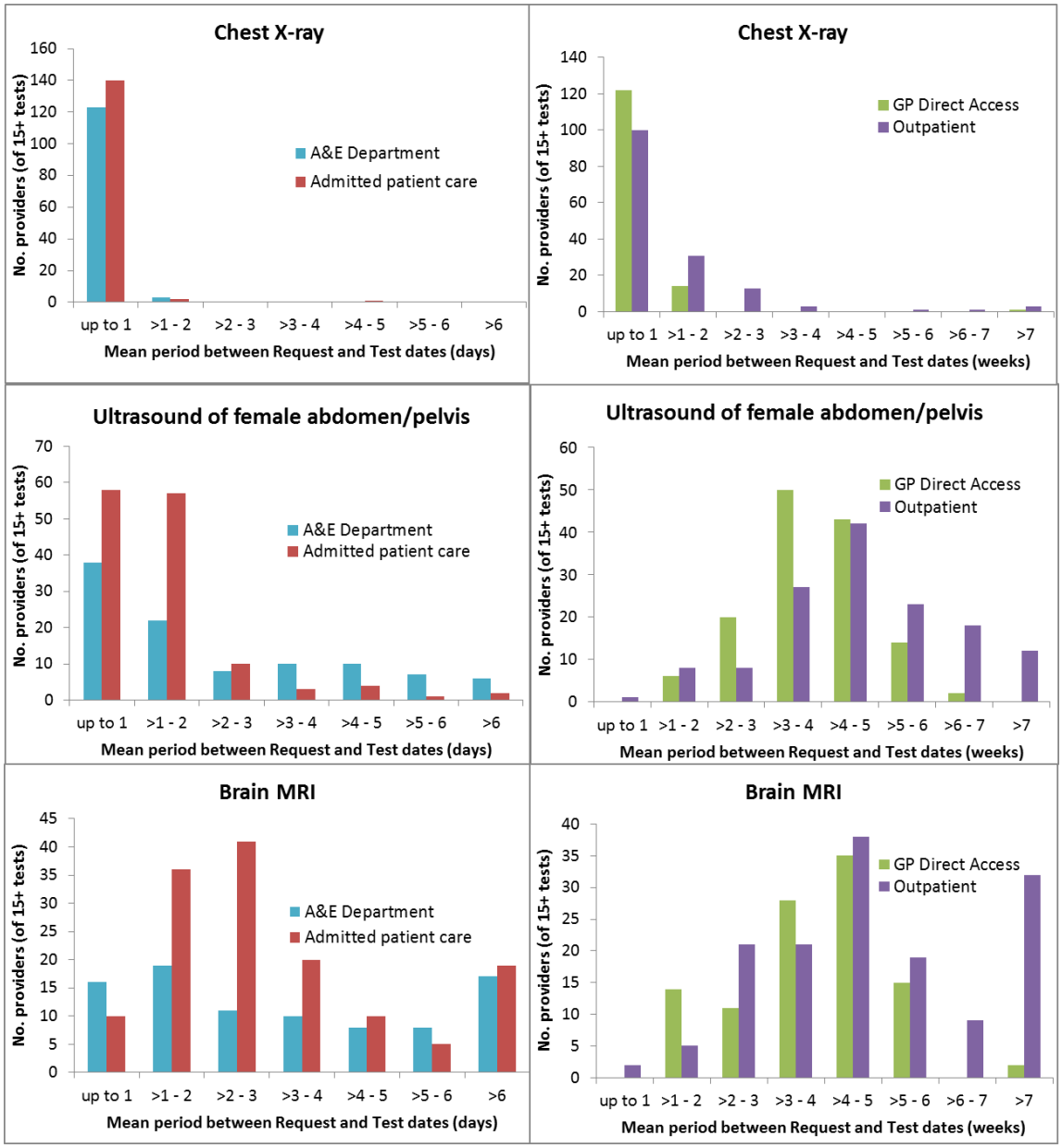
	Chest and/or abdomen (CT)				Chest (X-ray)				Abdomen and/or pelvis (Ultrasound)			
	All Median	All % Same day	GP Median	GP % Same day	All Median	All % Same day	GP Median	GP % Same day	All Median	All % Same day	GP Median	GP % Same day
2012/13	1	42%	2	32%	2	25%	2	29%	0	86%	0	84%
2013/14	1	40%	2	29%	2	25%	2	28%	0	89%	0	88%
2014/15	1	38%	2	27%	2	25%	2	28%	0	90%	0	89%
2015/16	1	36%	2	25%	2	26%	2	29%	0	92%	0	90%
Apr	2	35%	3.5	23%	2	25%	2	27%	0	91%	0	89%
May	2	36%	3	24%	2	26%	1	30%	0	91%	0	88%
Jun	2	36%	3	24%	2	27%	1	29%	0	91%	0	89%
Jul	2	36%	3	25%	2	26%	2	27%	0	91%	0	89%
Aug	2	36%	3	25%	2	26%	1	27%	0	91%	0	89%
Sep	2	36%	3	25%	2	26%	1	29%	0	92%	0	91%
Oct	2	36%	3	25%	2	27%	1	31%	0	93%	0	91%
Nov	1	36%	2	25%	1	28%	1	33%	0	92%	0	91%
Dec	1	37%	3	25%	2	28%	1	33%	0	93%	0	92%
Jan	2	37%	3	25%	2	28%	1	33%	0	93%	0	92%
Feb	2	35%	3	27%	2	25%	2	27%	0	92%	0	90%
Mar	2	35%	3	27%	2	25%	2	27%	0	92%	0	90%

Variation by provider

5.3.7. The mean period between date of test request and date of test varies by provider as well as by referral source and modality; see Graph 5.1 for Chest X-ray, Ultrasound of the abdomen and/or pelvis in females and Brain MRI. For chest X-ray, there is slightly more variation by provider for GP referrals and outpatients, where the averages from request to test range from less

than one day to over a week[6], than for admitted patients and those referred by A&E, where most providers average less than one day[7] between request and test. For female ultrasound there is also more variation for GP referrals and outpatients, with providers differing in their mean request to test period by several weeks. For brain MRI, there is variation between providers for A&E and admitted patients (of several days) as well as for GP referrals and outpatients (of several weeks).

Graph 5.1 Average period from date of test request to date of test for procedures suitable for diagnosing cancer, by provider and referral source, 2015/16

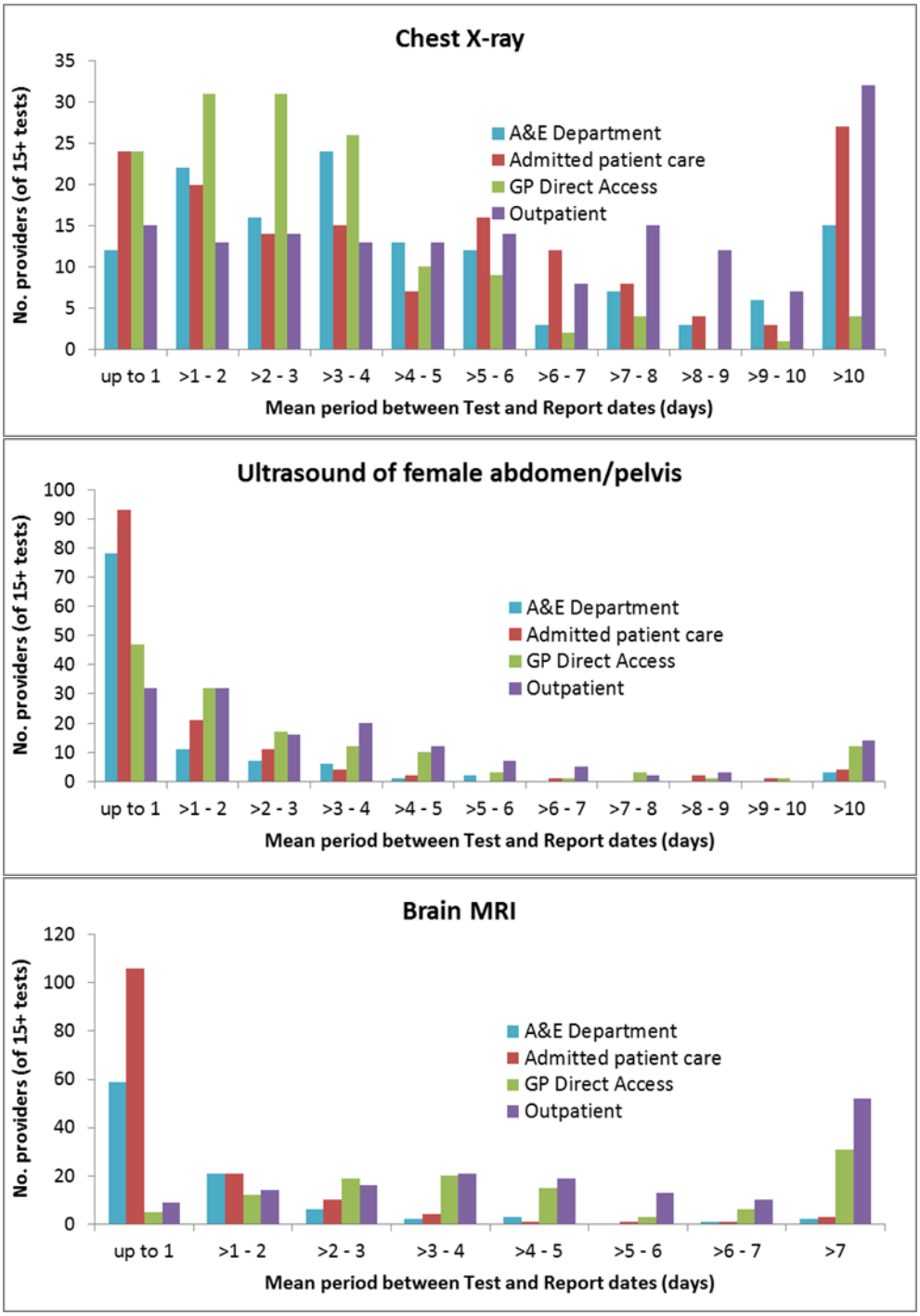


5.3.8. The mean period between date of test and date of test report also varies by provider for Chest X-ray, Ultrasound of the abdomen and/or pelvis in females

[6] Very high values may reflect inaccurately reported dates.
[7] Period measured between dates and not times of day.

and Brain MRI, see Graph 5.2. There is less variation in test to report periods by source of referral than for the period from test request to test, but there are still big differences between the diagnostic types. Female ultrasounds were generally reported the same day but chest X-ray and brain MRI were up to a week or so later. No significant correlation was observed between the mean request to test period and the mean test to report period at provider level, neither were the provider means for either period related to the volume of imaging tests performed for these three diagnostics.

Graph 5.2 Average period from date of test to date test report issued for procedures suitable for diagnosing cancer, by provider and referral source, 2015/16



6 Annex

6.1 Data Quality Statement

Although data from Radiology Information Systems (RISs) were not originally intended for statistical purposes and have some shortfalls, they do provide a rich resource with great potential. This data collection is aligned with the code of practice for official statistics in making better use of administrative data and evaluating existing data sources to limit the burden on respondents. Some RIS systems cover additional test activity not reported in this publication.

There are a large number of validations built into the DID upload system, verifying that the data provided by organisations makes sense. Whilst validations and other checks have been made to ensure that the data are complete and accurately reflect activity, data issues may affect activity for some providers.

Final data for each month are extracted from the DID data warehouse around the 28th of the sixth month after the period. Any data submitted after this date may not be included in the publication but would be available in the iView tool. In 2015/16, data for five organisations were not included the finalised publication, the missing data was:

- August data for Virgin Care Services Ltd (NDA).
- October data for University Hospitals of Leicester NHS Trust (RWE)
- November data for Royal Surrey County Hospital NHS Foundation Trust (RA2)
- December data for George Eliot Hospital NHS Trust (RLT)
- March data for Luton and Dunstable University Hospital NHS Foundation Trust (RC9).

Nevertheless, the coverage and quality has continued to improve in 2015/16, as data providers become more familiar and the information is further evaluated. Provider data completeness is now 99.7%. However within this, some data submissions may be incomplete. Known problems are:

- Barking, Havering and Redbridge University Hospitals NHS Trust (RF4) had a shortfall in their reported data up to September 2015 due to problems they had validating NICIP codes. This was corrected from October 2015.
- Royal Free London NHS Foundation Trust (RAL) had an apparent shortfall in their data from May to July/August 2015. They had a gap in submissions at this time and were able to submit some data at a later stage, but not for the sites that were previously part of Barnet & Chase Farm Hospitals NHS Trust.

The Technical Report gives more information on the differences in data completeness in provisional and final monthly data extracts, in section 4.3.

Reported times from test request to test should not be compared to diagnostic test waiting time statistics, as these are collected using different definitions. Unlike these statistics, the DM01 diagnostic test waiting times statistics exclude records where, for example:

- The patient is waiting for a planned (or surveillance) diagnostic test/procedure, that is a procedure or series of procedures as part of a treatment plan which is required for clinical reasons to be carried out at a specific time or repeated at a specific frequency, such as 6-month check cystoscopy;
- The patient is currently admitted to a hospital bed and is waiting for a diagnostic test/procedure as part of their inpatient treatment.

In addition, for the data published here, approximately 86% of tests had a date of test request included and 87% of tests had a date of test report issue included.

Some patient records have no known commissioner as this is derived from patient registered GP practice which is not a mandatory field. Data are submitted by provider, so data quality is better for providers than for commissioners.

Details of coverage, completeness, comparability with other data sources and a discussion on the types of data quality issues encountered are provided in the Technical Report which is available on the NHS England Statistics website.

6.2 Revisions

In the provisional publications, several Trusts did not provide data on time and their figures were either blank or "0" for all or selected fields. Most subsequently submitted data, with the exceptions listed above. Submissions made after the deadline may be available in iView, but these data are now finalised and revisions will only be made in exceptional circumstances. For more detail of the revisions policy, see the Technical Report.

6.3 Glossary

Computerised Axial Tomography (CT Scan)
Computed tomography (CT), sometimes called CAT scan, uses special X-ray equipment to obtain image data from different angles around the body, then uses computer processing of the information to show a cross-section of body tissues and organs. In the DID this means all codes mentioning CAT or computed tomography except those also mentioning PET.

Diagnostic Ultrasonography (Ultrasound)
The use of ultrasonic waves for diagnostic or therapeutic purposes, specifically to image an internal body structure, monitor a developing foetus or generate localised deep heat to the tissues. In the DID this means any code relating to ultrasound.

Fluoroscopy
Fluoroscopy is an imaging technique commonly used by physicians to obtain real-time images of the internal structures of a patient through the use of a fluoroscope. In its simplest form, a fluoroscope consists of an X-ray source and fluorescent screen between which a patient is placed. In the DID this is a collection of codes mentioning fluoroscopy or using fluoroscopic guidance, Barium enema or swallow. Interventional procedures are classified under imaging modalities which provide guidance. Almost all interventional procedures are under fluoroscopy procedure. A very small number of interventional procedures are under CT or MRI procedures.

Magnetic Resonance Imaging (MRI)
Magnetic resonance imaging (MRI) is a method of producing extremely detailed pictures of body tissues and organs without the need for X-rays. The electromagnetic energy that is released when exposing a patient to radio waves in a strong magnetic field is measured and analysed by a computer, which forms two- or three-dimensional images that may be viewed on a TV monitor. In the DID this means all codes mentioning MRI.

Plain Radiography (X-ray)
A Radiograph is an image produced on a radiosensitive surface, such as a detector, by radiation other than visible light, especially by X-rays passed through an object or by photographing a fluoroscopic image. In the DID this means any code referring to radiography or X-ray.

Medical Photography
A Photograph is an image recorded on sensitised material by energy from the light spectrum, which is then processed to create a print that can be viewed clearly. Medical Photography is used in order to document a variety of different medical conditions and their treatment.

Nuclear Medicine
Nuclear medicine (NM) is a branch of medicine and medical imaging that uses unsealed radioactive substances in diagnosis and therapy. These substances consist of radionuclides, or pharmaceuticals that have been labelled with radionuclides (radiopharmaceuticals). In diagnosis, radioactive substances are administered to patients and the radiation emitted is measured.

Nuclear medicine imaging tests differ from most other imaging modalities in that the tests primarily show the physiological function of the system being investigated, as opposed to the anatomy. It has both diagnostic and therapeutic uses, such as planning cancer treatments and evaluating how well a patient has responded to a treatment. It can be used with other diagnostic methods, including CT scans and MRI, where the images are superimposed to produce complex cross-sectional, three-dimensional scans.

Position Emission Tomography – Computer Tomography (PET-CT Scans)
Position Emission Tomography - Computed Tomography (PET-CT Scan) is an imaging technique used in the diagnosis and treatment of cancer which combines PET with CT. PET uses gamma-type cameras to produce crude three-dimensional images highlighting radionuclide concentration in the body. CT allows precise localisation of the radionuclide concentration. PET-CT scans can be used to show how far a cancer has spread and can determine if a patient is responding positively to a treatment. In the DID this means all codes mentioning PET, whether or not they also mention CT.

Single Photon Emission Computerised Tomography (SPECT scans)
Single Photon Emission Computerised Tomography (SPECT scans) is an imaging method that allows for analysis of internal organs. Gamma photon-emitting radionuclides are administered to a patient prior to being exposed to gamma

cameras that rotate around a patient to produce cross-sectional slices that can then be reformatted into a true three-dimensional image of the patient.

Median
The median is the preferred measure of the average time between pairs of dates within records as it is less susceptible to extreme values than the mean. The median number of days between pairs of dates is calculated by ordering the values obtained by subtracting the dates for each record and selecting the middle value when all records are ranked by these numbers of days.

Modality
The broad procedure or method used for examination, for example MRI. This may include procedures assisted by the method, e.g. biopsy or injection. In the DID the modality of the examination is derived from SNOMED CT (Systematised Nomenclature of Medicine – Clinical Terms) or NICIP (National Interim Clinical Imaging Procedure) codes.

Referral source setting
This is a categorisation of the department or organisation making the referral for the imaging activity. It includes categories for admitted patient care, outpatients, GP Direct Access, A&E and health care providers other than the organisation providing the imaging activity.

6.4 Contact Us

6.4.1 Feedback

We welcome feedback on this publication. Please contact us at did@dh.gsi.gov.uk

6.4.2 iView

NHS Digital allow health sector colleagues to access DID information through their web-based reporting tool, iView. Registered users may access anonymised data at an aggregate level in a consistent and flexible format:

- **Access Information** – choose from a variety of data areas.
- **Build Reports** – select data to suit your needs.
- **Generate Charts** – customise report tables and graphs.
- **Export Data** – copy to Excel and manipulate data your way.
- **Save Reports** – store your favourite views for future use.

For more information, please visit the iView website http://content.digital.nhs.uk/iview. If you would like to register to use iView for DID, please email enquiries@nhsdigital.nhs.uk (subject: DID iView Access).

6.4.3 Websites

The DID information website can be found here: http://content.digital.nhs.uk/DID.

Those who submit data to DID do so via a secure submission portal here: https://did.hscic.gov.uk/

The DID Additional Tables and Technical Report can be found here:
http://www.england.nhs.uk/statistics/diagnostic-imaging-dataset/

6.4.4 Additional Information

For press enquiries contact the NHS England Media team on 0113 825 0958 or 0113 825 0959. Email enquiries should be directed to nhsengland.media@nhs.net

The Government Statistical Service (GSS) statistician responsible for producing these data is:

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