Advisory Board | Imaging Performance Partnership

Imaging Productivity and Turnaround Time Benchmarks Preview

Snapshot of the Data and Benchmark Generators

What to Expect Inside

Radiology leaders face a host of challenges caused by regulatory changes, reimbursement pressures, health system consolidation, and changes in health care delivery. As a result, imaging leaders must do more with less.

One way to meet this mandate is to focus on operational efficiency and reducing wasted time. The Imaging Performance Partnership conducted two surveys at the end of 2015 to provide our members with reliable survey data focused on technologist productivity and imaging turnaround times. This presentation shares highlights and sample data points from these surveys.

Please direct any inquiries to IPPBenchmarking@advisory.com. .

Ty Aderhold
Analyst
AderholM@advisory.com

Solomon Banjo
Senior Analyst
BanjoS@advisory.com

Sruti Nataraja
Managing Director
NatarajS@advisory.com

2016 Technologist Productivity Survey in a Snapshot

Technologist Productivity Survey in Brief

- Respondents reported on their institution's:
  - Total number of procedures by modality
  - Average number of procedures per FTE[1] by modality
  - Average number of technologist FTEs, nursing FTE, tech-aid FTE by modality
  - The number of scanners in each modality
- Survey goal: Provide technologist productivity benchmarks by assessing the number of staff used to perform procedures by modality

Technologist Productivity Metrics Collected by Modality[2]

- Number of Scanners
- Number of procedures
- Technologist FTEs
- Percent clinical time
- Annual procedures per FTE
- Nurse FTEs
- Tech aide FTEs

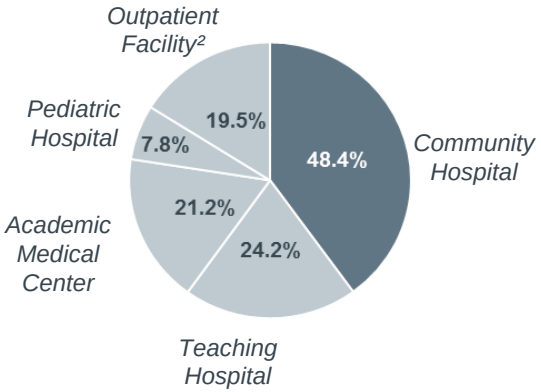
1) Full time equivalent. Used to normalized respondent data to a 40 hour work week.
2) CT, MRI, Ultrasound, Mammography, X-Ray, Nuclear Medicine, PET/PET-CT.

Source: 2016 Technologist Productivity Survey; Imaging Performance Partnership Interviews and Analysis.

Characteristics of Reporting Institutions

Survey Respondents by Institution Type[1]

n=76



Modalities Offered by Respondents

n=76

Modality	Percent Offering
CT	95%
MRI	92%
Ultrasound	97%
Mammography	67%
X-Ray	89%
Nuclear Medicine	86%
PET/PET-CT	46%

Survey Respondent Bed Size

n=68

25th Percentile	153
50th Percentile	300
75th Percentile	625

Technologist Productivity Benchmark Generator allows users to modify cohort by institution type, region, trauma center designation, and bed size

1) Values may not add up to 100% due to rounding.
2) Includes independent diagnostic testing facilities, physician offices, outpatient hospital-based departments.

Source: 2016 Technologist Productivity Survey; 2016 Imaging turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

Technologist Staffing Levels

Snapshot of CT, Ultrasound, and X-Ray Staffing Levels

Technologist FTEs by Modality

Modality	n	25th Percentile	Median	75th Percentile
CT	68	5.0	8.2	13.6
Ultrasound	64	4.3	6.6	10.0
X-Ray	59	9.5	18	29.2

X-Ray shows a larger staffing variation than CT or Ultrasound. The variation in number of procedures performed between the 25th and 75th percentile is likely to explain much of this variation.

Source: 2016 Technologist Productivity Survey; 2016 Imaging turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

Annual Technologist Productivity

Snapshot of CT, Ultrasound, and X-Ray Technologist Productivity

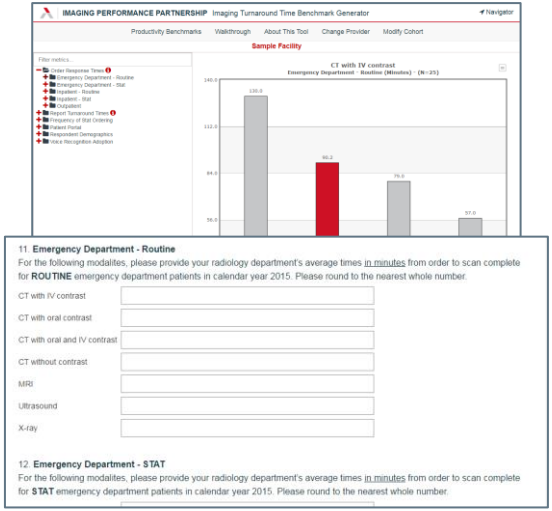
Annual Procedures per FTE by Modality

Modality	n	25th Percentile	Median	75th Percentile
CT	56	1,786	2,506	2,714
Ultrasound	49	1,620	1,839	2,136
X-Ray	45	2,454	2,864	3,500

55% X-Ray technologists perform 55% more scans per year on average than Ultrasound technologists. Slot times, complexity, and patient volumes could all contribute to this variation.

Source: 2016 Technologist Productivity Survey; 2016 Imaging turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

2016 Imaging Turnaround Times Survey in a Snapshot



Turnaround Times Survey in Brief

- Respondents reported on their institution's performance by modality on:
  - Order response times[1] for the emergency department, inpatient, and outpatient settings
  - Report turnaround times[2] for all modalities below
- Survey goal: Provide turnaround times benchmarks to help imaging providers better understand their performance

Order Response Metrics Collected[3]

- CT with IV contrast
- CT with oral contrast
- CT with oral and IV contrast
- CT without contrast
- MRI
- Ultrasound
- X-Ray
- Mammography
- Nuclear Medicine
- PET/PET-CT

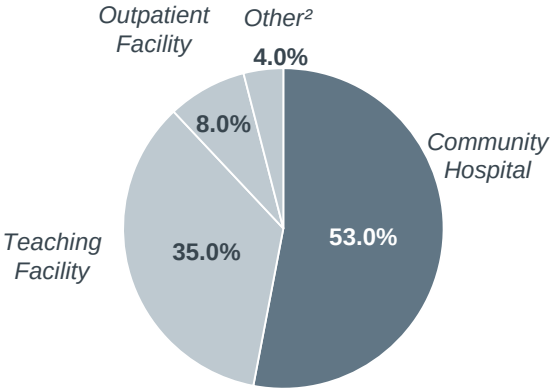
1) Time, in minutes, from placement of the order until the scan is complete .
2) Time, in hours, from completion of the scan to signed final report.
3) Inpatient and ED data collected for both stat and routine.

Source: 2016 Imaging Turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

Characteristics of Reporting Institutions

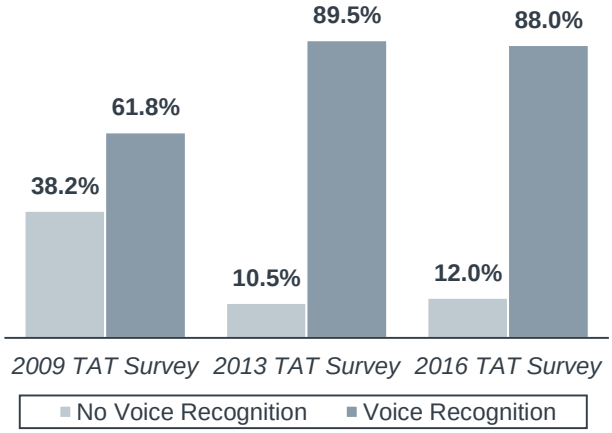
Survey Respondents by Institution Type[1]

n=51



Percentage of Respondents Using VR[3]

n=50



Survey Respondent Bed Size

n=51

25th Percentile	186
50th Percentile	355
75th Percentile	637

Turnaround Time Benchmark Generator allows users to modify cohort by institution type, region, and bed size

1) Values may not add up to 100% due to rounding.
2) Includes independent diagnostic testing facilities, physician offices.
3) Voice Recognition.

Source: 2016 Technologist Productivity Survey; 2016 Imaging turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

Outpatient Order Response Time

Snapshot of CT Response Time

Median Time From Arrival to Scan Completion (minutes)

Modality	n	25th Percentile	Median	75th Percentile
CT with IV contrast	30	84.8	60	37.8
CT with oral contrast	26	98.0	82.5	50.0
CT with oral and IV contrast	25	95.0	90.0	60.0
CT without contrast	30	48.0	41.0	30.0

This data shows that oral contrast administration adds 41 minutes to the patient appointment when compared to a CT without contrast. IV administration adds 19 minutes compared to a CT without contrast.

Source: 2016 Technologist Productivity Survey; 2016 Imaging turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

Outpatient Final Report Turnaround

Snapshot of CT, Ultrasound, and X-Ray Report Turnaround

Outpatient Report Turnaround Time by Modality (hours)

Modality	n	25th Percentile	Median	75th Percentile
CT	29	8	5.1	1.5
Ultrasound	28	5.8	3.1	1.5
X-Ray	28	5.0	3.3	1.8

6.5 hours

Difference in CT report turnaround time between 75th percentile and 25th percentile. This shows that there is still significant opportunities for many facilities to cut their final report turnaround times.

Source: 2016 Technologist Productivity Survey; 2016 Imaging turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.

Five Insights From the Surveys

Technologist Productivity Survey Insights

1 Improving technologist productivity from the median to 75th percentile would lead to an increase of $155,000 for the facility, using Medicare payments under the Hospital Outpatient Prospective Payment System (HOPPS)

2 Mammography has the greatest productivity variation[1] (42.0%) across all modalities, and is likely an area where significant improvements can be made to improve workflows

3 The use of tech-aides does not reduce the amount of non-clinical work technologists are performing. While the number of tech-aides used in different modalities varies, the median amount of technologist time spent on non-clinical duties held constant between 80%-85% across modalities.

Turnaround Time Survey Insights

4 Patient arrival to scan completion times went up in every modality except X-Ray from our 2013 to 2016 surveys. With slot times presumed to be holding steady, this means patients are spending more time waiting before the exam begins. Our Consumer Preferences Survey found that wait time was a significant factor for patients when choosing where to have their imaging done.

5 Outpatient report turnaround time held fairly steady between the 2013 and 2016 survey for X-Ray and CT at the 50th percentile and above. Ultrasound turnaround time, however, dropped significantly across all percentiles over the same three year period. This suggests that X-Ray and CT turnaround times may be at near-minimum turnaround times, while a focused effort on other modalities may still yield reductions.

1) Difference between the 25th and 75th percentile.

Source: 2016 Technologist Productivity Survey; 2016 Imaging Turnaround Times Survey; 2013 Imaging Turnaround Times Survey; Imaging Performance Partnership Interviews and Analysis.