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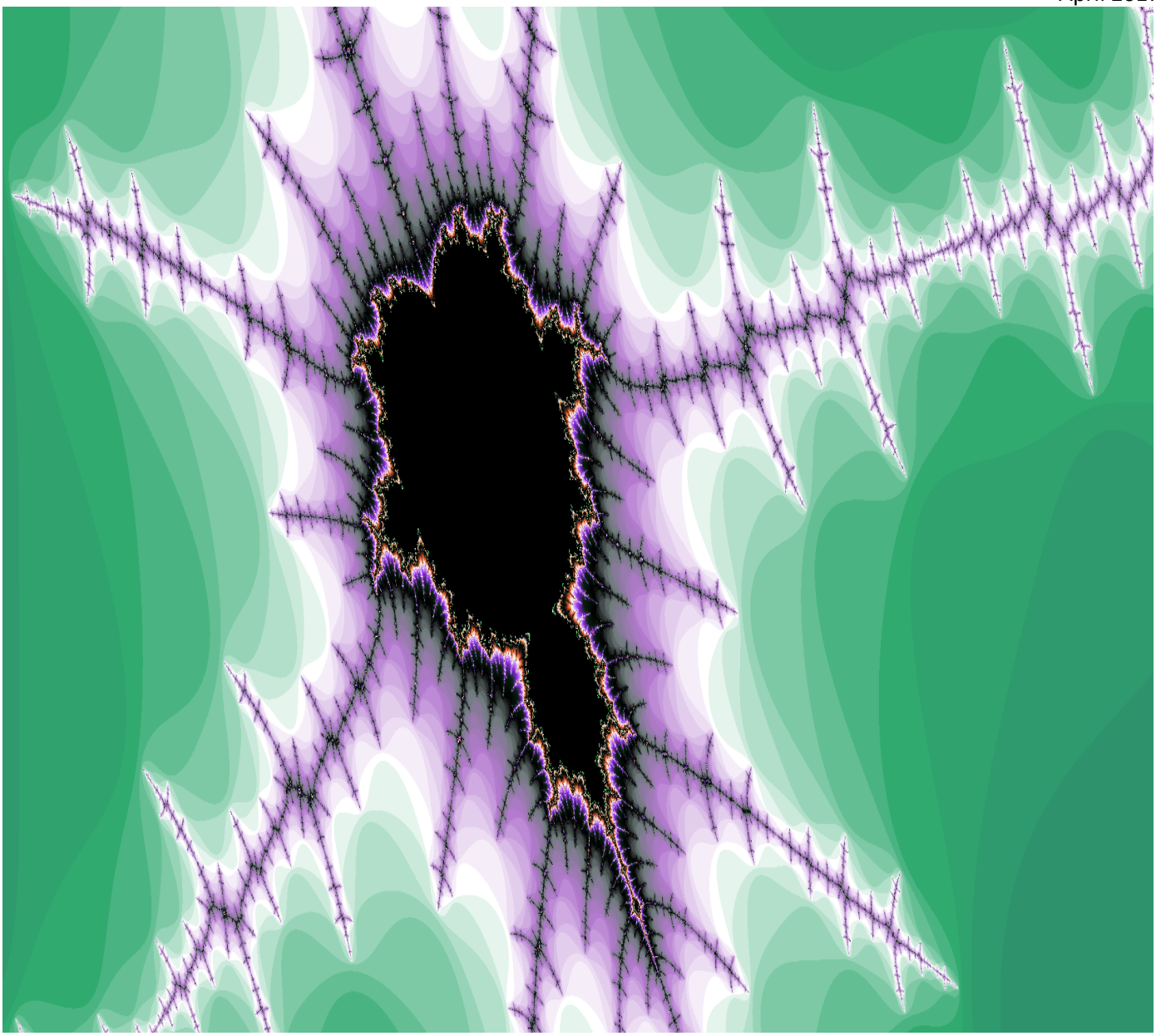
Radiologic Sciences Staffing and Workplace Survey 2017

April 2017



asrt
American Society of Radiologic Technologists

Table of Contents

Executive Summary **2**
Staffing Levels 2
Longitudinal Tracking of Staffing Trends 2
Work Volume 3
Facility Demographics 3
Personnel Demographics 4
Calculation of Percent Vacancy Rates 4
Staffing Levels **5**
Please provide information on the following services provided at your primary workplace: 5
Longitudinal Tracking of Estimated Percent of Unfilled Positions 5
Longitudinal Tracking of Mean Budgeted FTEs 6
Estimated Vacancy Rates by Region[a] 7
Work Volume **8**
Please indicate the number of imaging machines of each type at your facility: 8
Please indicate the number of patients imaged per year at your facility: 9
Facility Demographics **11**
In which employment setting do you practice most of the time? 11
If your primary employment setting is a hospital, how many beds are at the facility? 12
Is the imaging center in your hospital open 24 hours a day, 7 days a week? 12
Location of facility: 13
In what state is your facility located? 14
Personnel Demographics **15**
Over the last year, the number of radiologic technologist positions in my department has: 15
Does your department offer sign-on bonuses for new hires? 15

Appendix A. Survey Instruments and Invitation Letter (Please contact the ASRT for a copy.)
Appendix B. Verbatim responses (Please contact the ASRT for a copy.)

Executive Summary

The ASRT surveys managers of radiology departments across the United States on a biannual basis regarding the capacities and staffing levels of their facilities. In early February 2017, an invitation to participate in the *Radiologic Sciences Staffing and Workplace Survey 2017* was sent via e-mail to 18,002 department managers. At the close of the survey on March 13, 2017, a total of 947 responses had been received, yielding an overall response rate of 5.3%.

At its widest, a sample size of 947 yields a margin of error of ± 3.2% (at the 95% confidence interval.)

Staffing Levels

Respondents were asked the number of budgeted full-time equivalent (FTE) positions within each discipline at their facility. The averages per facility were:

- Radiography/Fluoroscopy (8.7)
- Computed Tomography (5.8)
- Sonography (4.2)
- Magnetic Resonance Imaging (4.1)
- Mammography (4.2)
- Nuclear Medicine Technology (2.7)
- Cardiovascular Interventional Technology (CVIT) (5.0)
- Bone Densitometry (1.7)

The figures for budgeted FTEs in each discipline, along with figures on positions that are currently vacant and recruiting, are used to estimate the percent of unfilled positions in each discipline:

- Radiography (4.2%)
- Computed Tomography (4.2%)
- Sonography (4.3%)
- Magnetic Resonance Imaging (3.9%)
- Mammography (2.7%)
- Nuclear Medicine Technology (2.3%)
- Cardiovascular Interventional Technology (CVIT) (8.7%)
- Bone Densitometry (1.7%)

Vacancy rates were cross-tabulated by region and discipline. An overall mean vacancy rate was computed for these figures.

- The West-South Central region had the highest estimated vacancy rate at 5.7%.
- The East-South Central had the lowest estimated vacancy rate at 1.8%.

Longitudinal Tracking of Staffing Trends

The ASRT has been tracking staffing levels in terms of mean budgeted full-time equivalents (FTEs) and estimated percent of unfilled positions since 2003. The staffing survey is typically sent to facility managers biannually. With more than 10 years of data available, the ASRT is able to provide a look at long-term trends in staffing.

- Radiography has experienced a long-term decline in the average number of budgeted FTEs per department.
    - In 2003, the average department had 10.1 FTEs in radiography. The average peaked at 10.7 in 2007. Since then, there has been a considerable decline in budgeted radiography FTEs, with a low of 8.4 budgeted FTEs per department in 2015 followed by a slight rebound to 8.7 in 2017.
- Every other discipline surveyed has experienced at least modest growth in the average number of budgeted FTEs per department since 2003.
    - CT continues to grow: 3.8 FTEs were budgeted per department in 2003; by 2015, there were 5.5 FTEs per department, and in 2017, there are 5.8 budgeted FTEs per department.
    - Mammography has also seen consistent growth, rising from 2.1 budgeted FTEs per department in 2003 to 4.1 in 2015 and 4.2 in 2017.
    - MR grew from 1.7 budgeted FTEs per department in 2003 to 4.1 in 2015; in 2017, the average department budgeted 4.1 FTEs in MR.

- All other disciplines saw modest declines in the number of budgeted FTEs per department between 2015 and 2017.
    - Sonography declined from 4.3 in 2015 to 4.2 in 2017.
    - Nuclear Medicine declined from 3.0 in 2015 to 2.7 in 2017.
    - CVIT declined from 5.8 in 2015 to 5.0 in 2017.
    - Bone densitometry declined from 1.9 in 2015 to 1.7 in 2017.
- Estimated percent vacancy rates have declined without exception since their respective highs at the survey's inception in 2003.
    - For example, there was a 10.3% vacancy rate in radiography in 2003; in 2017, the vacancy rate in radiography was 4.2%.
- Despite this overall trend since 2003, the vacancy rates in some disciplines were higher in 2017 than they were in 2015.
    - Radiography vacancy rates went up from 3.4% in 2015 to 4.2% in 2017.
    - Mammography saw a marginal increase in vacancies from 2.6% in 2015 to 2.7% in 2017.
    - Bone densitometry's vacancy rate rose from 1.0% in 2015 to 1.7% in 2017.
    - CVIT, which has shown considerable volatility in vacancy rates, rose from 4.1% in 2015 to 8.7% in 2017.
- In the other disciplines surveyed, vacancy rates declined slightly.
    - CT vacancy rates fell from 4.5% in 2015 to 4.2% in 2017.
    - Sonography vacancies fell from 5.1% in 2015 to 4.3% in 2017.
    - MR openings fell from 4.2% in 2015 to 3.9% in 2017.
    - Nuclear medicine vacancies declined from 2.8% in 2015 to 2.3% in 2017.

Work Volume

Respondents were asked a number of questions about the number of patients imaged per year, the number of images performed per year, and number of imaging machines in their department:

- In radiography, the average department has 3.7 machines and images 11,658 patients per year with a total of 20,566 images performed.
- In CT, the average department has 1.9 machines and images 7,986 patients per year, with a total of 12,998 images performed.
- In Sonography, the average department has 3.0 machines and images 4,559 patients per year, with a total of 13,881 images performed.
- In MR, the average department has 1.6 machines and images 4,075 patients per year, with a total of 7,496 images performed.
- In Mammography, the average department has 2.1 machines and images 9,187 patients per year, with a total of 9,320.8 images performed.
- In Nuclear Medicine, the average department has 2.0 machines and images 1,874 patients per year, with a total of 1,904 images performed.
- In Cardiovascular Interventional Technology, the average department has 2.2 machines and images 954.5 patients per year, with a total of 4,098 images performed.
- In Bone Densitometry, the average department has 1.2 machines and images 1,155 patients per year, with a total of 1,422 images performed.

Facility Demographics

Respondents were asked a number of questions about their facility.

- A majority of respondents work in hospitals (53.2%), with 37.8% in non-profit hospitals alone.
- Imaging centers (14.3%)
- Physician's office (8.4%)
- Large clinic (7.0%)
- Small clinic (6.8%)
- Education (3.1%)
- Corporate setting (1.3%)
- Mobile unit (1.2%)
- The remaining 4.9% work in some other setting.
- On average, the hospitals where respondents work have 263 beds.
    - Respondents were asked whether their imaging center in the hospital is open 24 hours a day, 7 days a week; 93.8% said yes and only 6.2% said no.

  - Imaging centers in hospitals that are not open all of the time are, on average, open 50.6 hours per week.
- Many respondents (40.9%) work in suburban facilities, while 32.5% work in urban facilities and 26.6% work in a rural setting.

Personnel Demographics

Respondents were asked about turnover in the workforce in their department over the last two years.

- Asked if their department had made any changes to the number of budgeted positions, 67.2% of respondents said their department had remained the same, 21.4% said their department had added positions, and 11.4% said their department had reduced the number of positions.

Respondents were asked if their department awards a signing bonus to new hires.

- The vast majority of departments (94.1%) do not award a bonus.
- The 5.9% who do give a bonus award $2,500 on average.

Calculation of Percent Vacancy Rates

The estimated proportion of unfilled positions for a given discipline for the population of U.S. radiology facilities is defined as:

(Mean number of vacant and recruiting FTEs per facility) ÷ (Mean number of budgeted FTEs per facility)

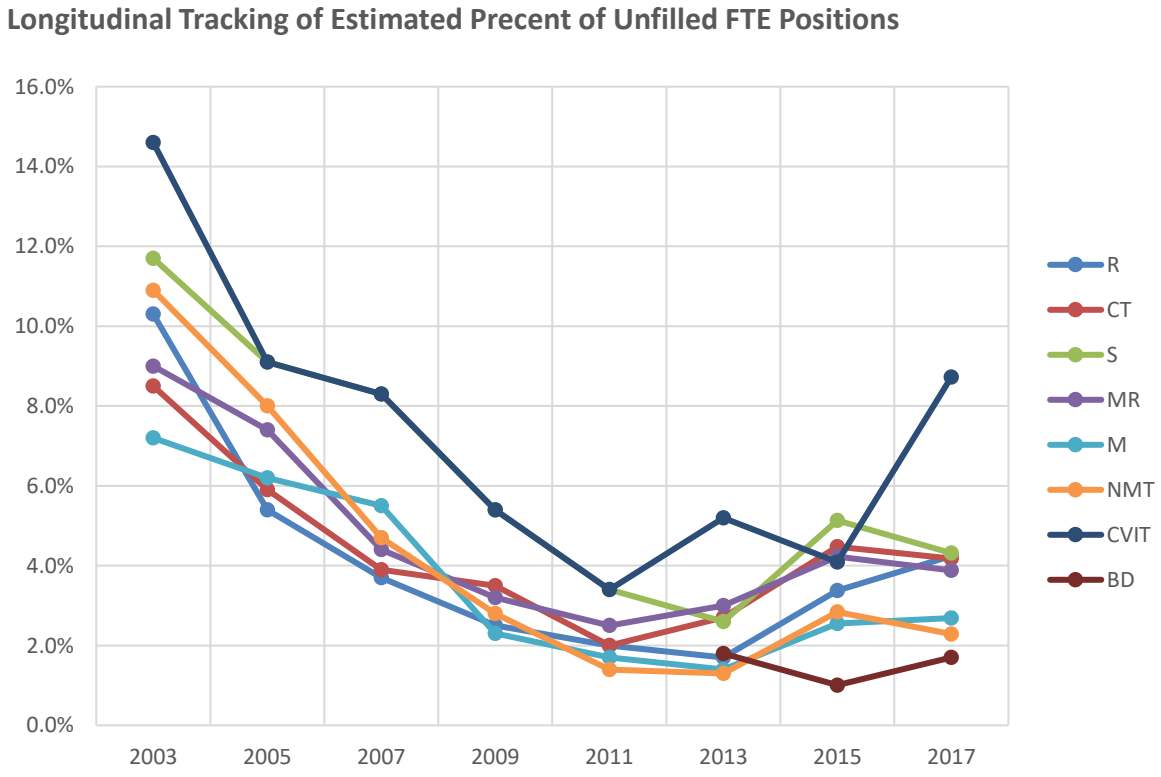
Staffing Levels

Please provide information on the following services provided at your primary workplace:

Discipline	N	Mean Budgeted FTEs	*SD*	Mean Vacant and Recruiting FTEs	*SD*	Estimated Percent Unfilled FTE Positions
Radiography	621	**8.7**	12.3	**0.37**	1.2	**4.2%**
Computed Tomography	470	**5.8**	7.1	**0.24**	0.7	**4.2%**
Sonography	460	**4.2**	4.6	**0.18**	0.5	**4.3%**
Magnetic Resonance Imaging	417	**4.1**	5.2	**0.16**	0.5	**3.9%**
Mammography	395	**4.2**	6.2	**0.11**	0.4	**2.7%**
Nuclear Medicine Technology	304	**2.7**	2.2	**0.06**	0.3	**2.3%**
Cardiovascular Interventional Technology	157	**5.0**	5.0	**0.44**	0.9	**8.7%**
Bone Densitometry	280	**1.7**	3.0	**0.03**	0.2	**1.7%**

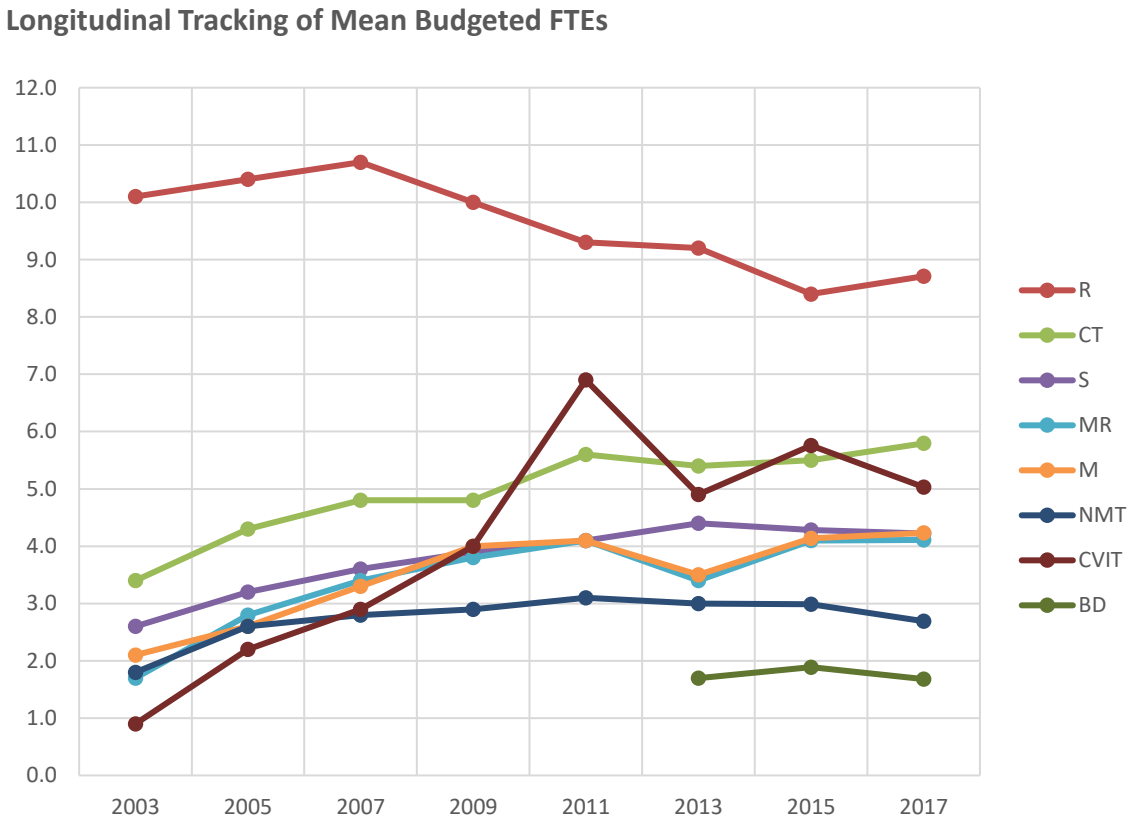
Longitudinal Tracking of Estimated Percent of Unfilled Positions

	2003	2005	2007	2009	2011	2013	2015	2017
R	10.3%	5.4%	3.7%	2.5%	2.0%	1.7%	3.4%	**4.2%**
CT	8.5%	5.9%	3.9%	3.5%	2.0%	2.7%	4.5%	**4.2%**
S	11.7%	9.1%	8.3%	5.4%	3.4%	2.6%	5.1%	**4.3%**
MR	9.0%	7.4%	4.4%	3.2%	2.5%	3.0%	4.2%	**3.9%**
M	7.2%	6.2%	5.5%	2.3%	1.7%	1.4%	2.6%	**2.7%**
NMT	10.9%	8.0%	4.7%	2.8%	1.4%	1.3%	2.8%	**2.3%**
CVIT	14.6%	9.1%	8.3%	5.4%	3.4%	5.2%	4.1%	**8.7%**
BD						1.8%	1.0%	**1.7%**



Longitudinal Tracking of Mean Budgeted FTEs

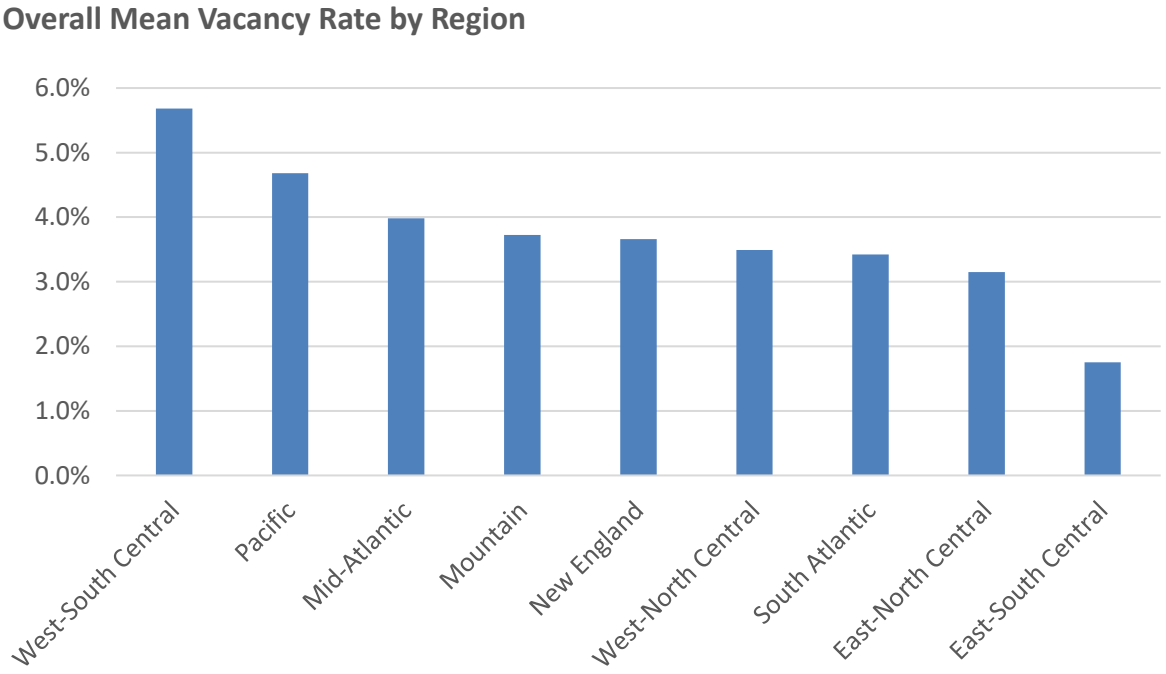
	2003	2005	2007	2009	2011	2013	2015	2017
R	10.1	10.4	10.7	10.0	9.3	9.2	8.4	**8.7**
CT	3.4	4.3	4.8	4.8	5.6	5.4	5.5	**5.8**
S	2.6	3.2	3.6	3.9	4.1	4.4	4.3	**4.2**
MR	1.7	2.8	3.4	3.8	4.1	3.4	4.1	**4.1**
M	2.1	2.6	3.3	4.0	4.1	3.5	4.1	**4.2**
NMT	1.8	2.6	2.8	2.9	3.1	3.0	3.0	**2.7**
CVIT	0.9	2.2	2.9	4.0	6.9	4.9	5.8	**5.0**
BD						1.7	1.9	**1.7**



Estimated Vacancy Rates by Region[a]

Discipline	Statistic	West-South Central	Pacific	Mid-Atlantic	Mountain	New England	West-North Central	South Atlantic	East-North Central	East-South Central
R	%	7.1%	4.5%	4.0%	2.7%	7.4%	4.9%	2.8%	4.2%	1.7%
	N	58	75	74	52	30	64	119	90	48
CT	%	6.1%	5.1%	5.3%	3.6%	3.0%	2.6%	4.1%	3.2%	0.0%
	N	48	57	58	39	29	42	88	64	35
S	%	6.6%	2.7%	4.6%	4.0%	4.3%	5.8%	3.6%	5.2%	5.5%
	N	47	63	62	32	24	45	86	61	34
MR	%	1.4%	6.0%	2.0%	4.0%	5.1%	4.3%	5.0%	3.2%	0.0%
	N	39	51	54	34	26	34	84	64	26
M	%	1.1%	2.6%	4.5%	3.0%	2.6%	2.2%	2.3%	2.0%	2.5%
	N	28	40	56	28	28	44	73	58	31
NMT	%	2.9%	4.3%	2.1%	5.3%	0.0%	0.0%	2.8%	1.4%	0.0%
	N	28	37	49	22	19	17	59	45	24
CVIT	%	11.8%	11.3%	8.1%	10.5%	6.3%	10.3%	8.7%	5.8%	5.4%
	N	16	31	19	13	7	6	31	22	10
BD	%	10.4%	2.7%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	N	27	32	36	17	19	29	52	43	20
Overall		**5.7%**	**4.7%**	**4.0%**	**3.7%**	**3.7%**	**3.5%**	**3.4%**	**3.2%**	**1.8%**

[a] ***West-South Central:*** *Oklahoma, Texas, Arkansas and Louisiana.*
Pacific: *Alaska, Washington, Oregon, California and Hawaii.*
Mid-Atlantic: *New York, Pennsylvania and New Jersey.*
Mountain: *Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico.*
New England: *Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.*
West-North Central: *Missouri, North Dakota, South Dakota, Nebraska, Kansas, Minnesota and Iowa.*
South Atlantic: *Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Caroline, Georgia and Florida.*
East-North Central: *Wisconsin, Michigan, Illinois, Indiana and Ohio.*
East-South Central: *Kentucky, Tennessee, Mississippi and Alabama.*

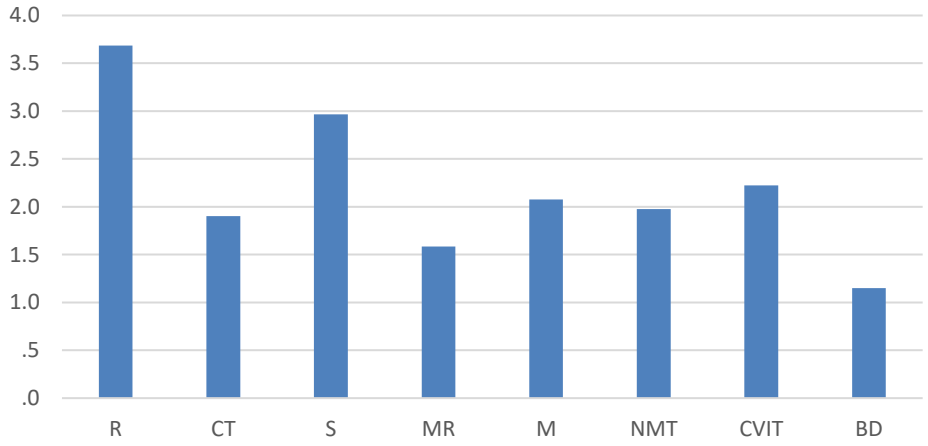


Work Volume

Please indicate the number of imaging machines of each type at your facility:

	N	Mean	*SD*	Percentiles				
				5th	25th	50th	75th	95th
R	583	**3.7**	4.4	1.0	1.0	2.0	4.0	12.0
CT	438	**1.9**	2.1	1.0	1.0	1.0	2.0	4.1
S	427	**3.0**	2.6	1.0	1.0	2.0	4.0	8.0
MR	390	**1.6**	1.4	1.0	1.0	1.0	2.0	4.0
M	366	**2.1**	1.9	1.0	1.0	1.0	2.0	6.0
NMT	266	**2.0**	1.3	1.0	1.0	2.0	2.0	4.7
CVIT	152	**2.2**	1.7	1.0	1.0	2.0	3.0	5.0
BD	320	**1.2**	.7	1.0	1.0	1.0	1.0	2.0

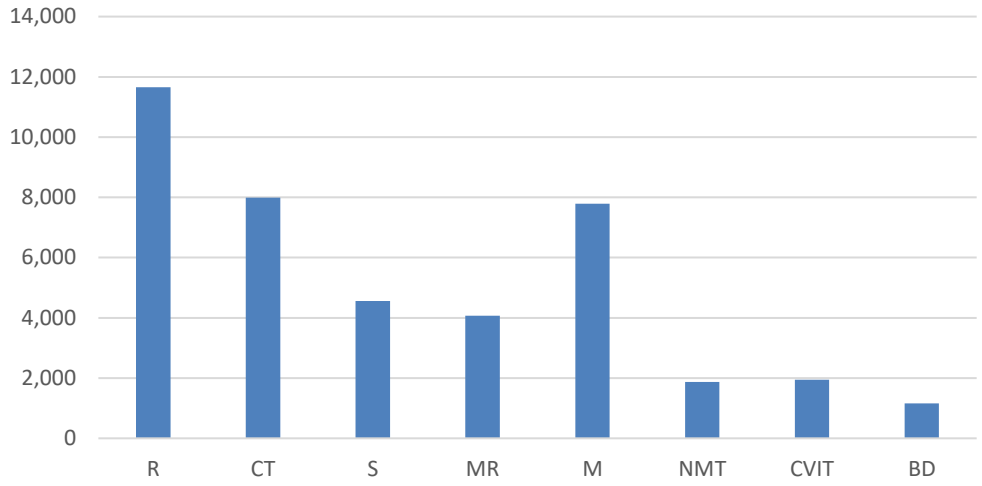
Mean number of imaging machines of each type at your facility:



Please indicate the number of patients imaged per year at your facility:

	N	Mean	*SD*	Percentiles				
				5th	25th	50th	75th	95th
R	242	**11,658**	20,381	200	1,400	3,950	12,000	51,387
CT	161	**7,986**	12,281	308	1,309	3,000	10,386	27,401
S	145	**4,559**	5,194	300	1,086	2,700	5,990	13,944
MR	147	**4,075**	5,237	260	1,128	2,386	5,000	15,600
M	136	**7,785**	19,676	425	1,200	3,000	7,800	26,150
NMT	93	**1,874**	2,929	56	317	780	2,250	7,750
CVIT	51	**1,946**	1,904	200	650	1,300	2,800	7,080
BD	124	**1,155**	1,994	61	266	525	1,277	3,938

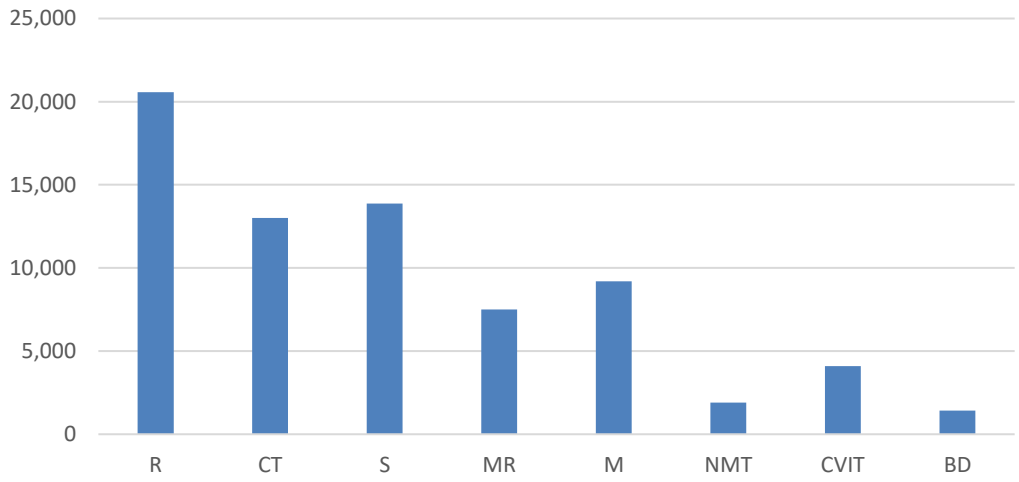
Mean number of patients imaged per year at your facility:



Please indicate the number of images performed per year at your facility:

	N	Mean	*SD*	Percentiles				
				5th	25th	50th	75th	95th
R	208	**20,566**	35,251	368	2,250	5,902	19,049	105,000
CT	99	**12,998**	24,530	500	1,500	3,500	12,000	75,000
S	101	**13,881**	55,395	323	1,200	3,500	6,991	29,200
MR	88	**7,496**	25,448	202	820	2,000	5,660	18,420
M	92	**9,187**	16,916	364	1,125	3,000	9,555	43,500
NMT	74	**1,904**	2,325	26	326	1,075	2,676	8,869
CVIT	29	**4,098**	5,472	120	600	2,198	4,839	19,151
BD	88	**1,422**	2,327	77	200	510	1,698	5,150

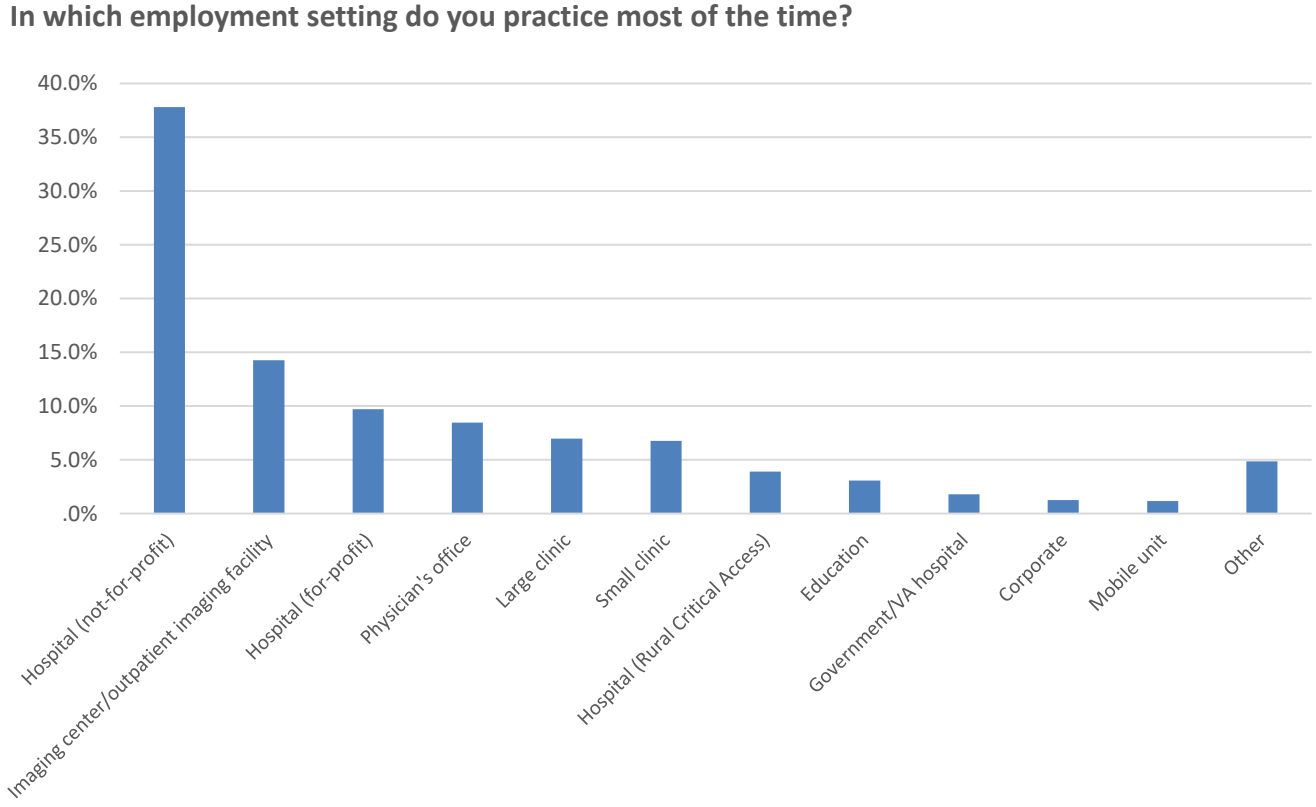
Mean number of images performed per year at your facility:



Facility Demographics

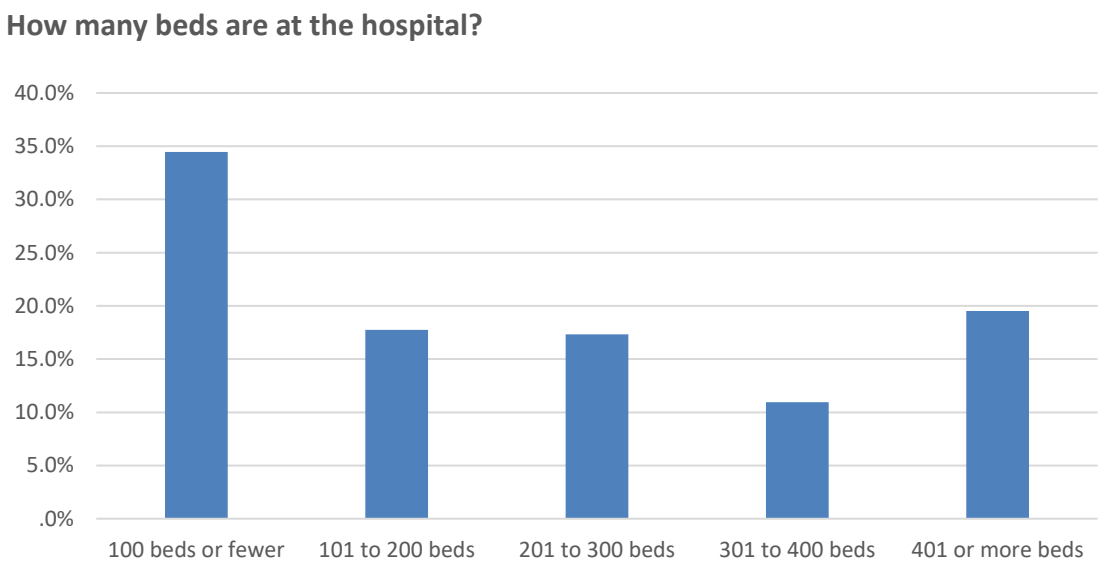
In which employment setting do you practice most of the time?

	N	Valid Percent
Hospital (not-for-profit)	358	37.8%
Imaging center/outpatient imaging facility	135	14.3%
Hospital (for-profit)	92	9.7%
Physician's office	80	8.4%
Large clinic	66	7.0%
Small clinic	64	6.8%
Hospital (Rural Critical Access)	37	3.9%
Education	29	3.1%
Government/VA hospital	17	1.8%
Corporate	12	1.3%
Mobile unit	11	1.2%
Other	46	4.9%
Total	**947**	**100.0%**



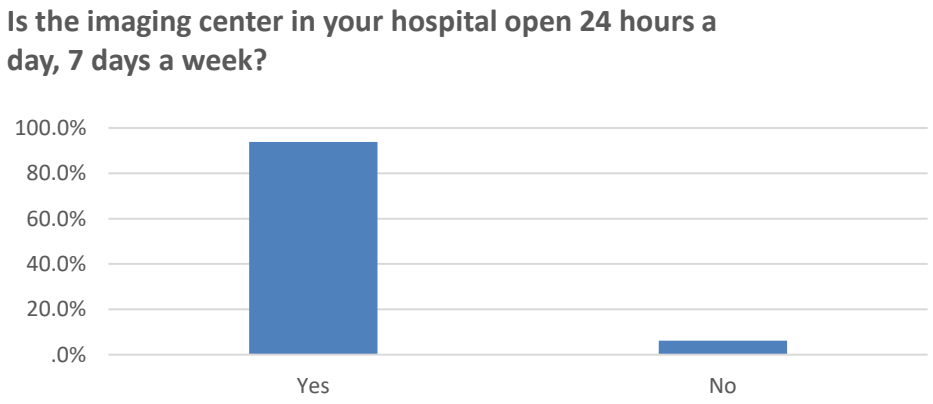
If your primary employment setting is a hospital, how many beds are at the facility?

	N	Valid Percent	Cumulative Percent
100 beds or fewer	173	34.5%	34.5%
101 to 200 beds	89	17.7%	52.2%
201 to 300 beds	87	17.3%	69.5%
301 to 400 beds	55	11.0%	80.5%
401 or more beds	98	19.5%	100.0%
Total	502	100.0%	
Mean	**263.0 (*SD*=269.0)**		
Percentiles	5th=20.0, 25th=62.3, 50th=200.0, 75th=350.0, 95th=800.9		



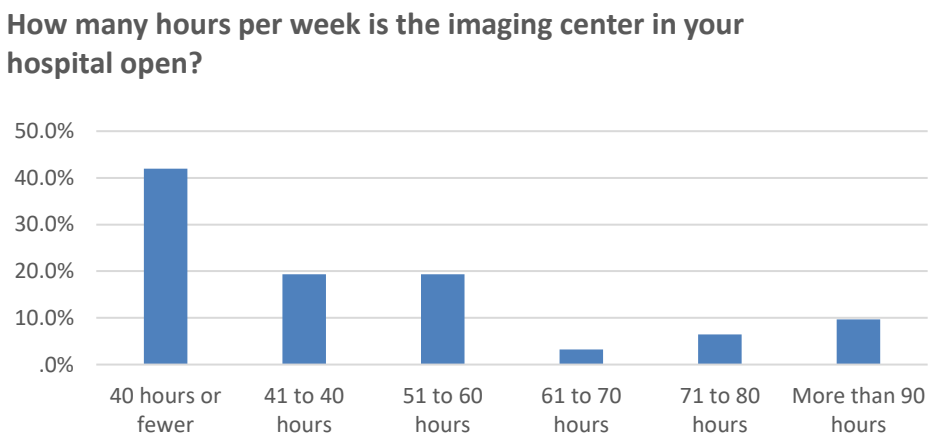
Is the imaging center in your hospital open 24 hours a day, 7 days a week?

	N	Valid Percent
Yes	473	93.8%
No	31	6.2%
Total	**504**	**100.0%**



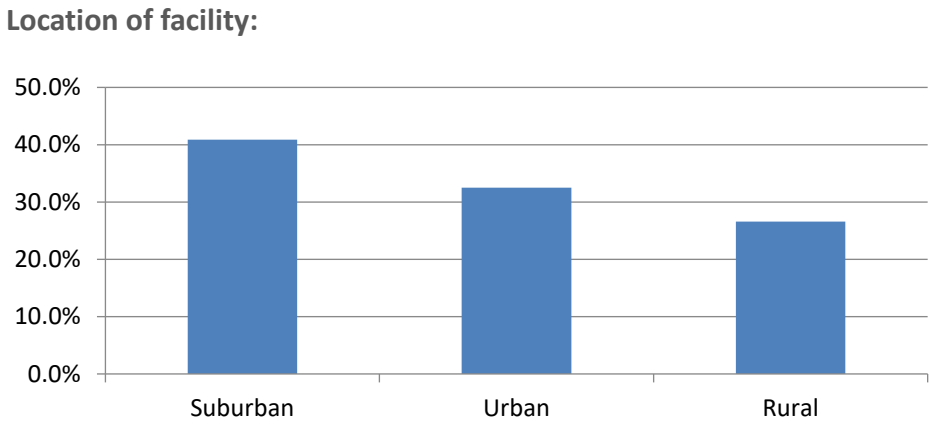
If the imaging center in your hospital is not open 24 hours, 7 days per week, how many hours per week is it open?

	N	Valid Percent	Cumulative Percent
40 hours or fewer	13	41.9%	41.9%
41 to 40 hours	6	19.4%	61.3%
51 to 60 hours	6	19.4%	80.6%
61 to 70 hours	1	3.2%	83.9%
71 to 80 hours	2	6.5%	90.3%
More than 90 hours	3	9.7%	100.0%
Total	31	100.0%	
Mean	**50.6 (*SD*=24.9)**		
Percentiles	5th=5.3, 25th=40.0, 50th=45.0, 75th=60.0, 95th=105.4		



Location of facility:

	N	Valid Percent
Suburban	385	40.9%
Urban	306	32.5%
Rural	251	26.6%
Total	**942**	**100.0%**



In what state is your facility located?

State	N
AK	2
AL	11
AR	17
AZ	15
CA	65
CO	23
CT	9
DE	3
FL	49
GA	29

State	N
HI	6
IA	13
ID	4
IL	32
IN	28
KS	13
KY	14
LA	19
MA	27
MD/DC	12

State	N
ME	7
MI	30
MN	27
MO	16
MS	15
MT	4
NC	34
ND	8
NE	7
NH	9

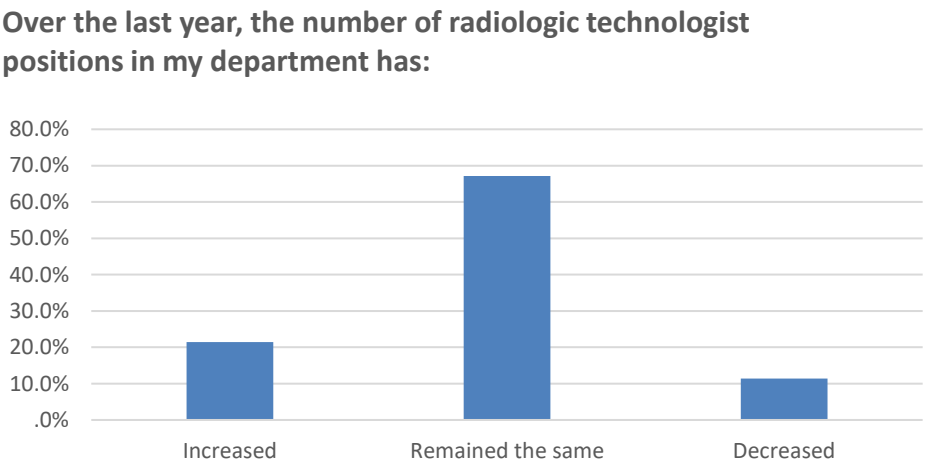
State	N
NJ	25
NM	4
NV	5
NY	50
OH	32
OK	11
OR	17
PA	47
RI	3
SC	15

State	N
SD	6
TN	27
TX	44
UT	7
VA	24
VT	2
WA	19
WI	25
WV	7
WY	6

Personnel Demographics

Over the last year, the number of radiologic technologist positions in my department has:

	N	Valid Percent
Increased	203	21.4%
Remained the same	636	67.2%
Decreased	108	11.4%
Total	**947**	**100.0%**



Does your department offer sign-on bonuses for new hires?

	N	Valid Percent
Yes	56	5.9%
No	891	94.1%
Total	**947**	**100.0%**
Mean Amount of Bonus	**$2,500 (*SD*=$1,958)**	
Percentiles	5th=$300, 25th=$1,000, 50th=$2,000, 75th=$3,500, 95th=$7,250