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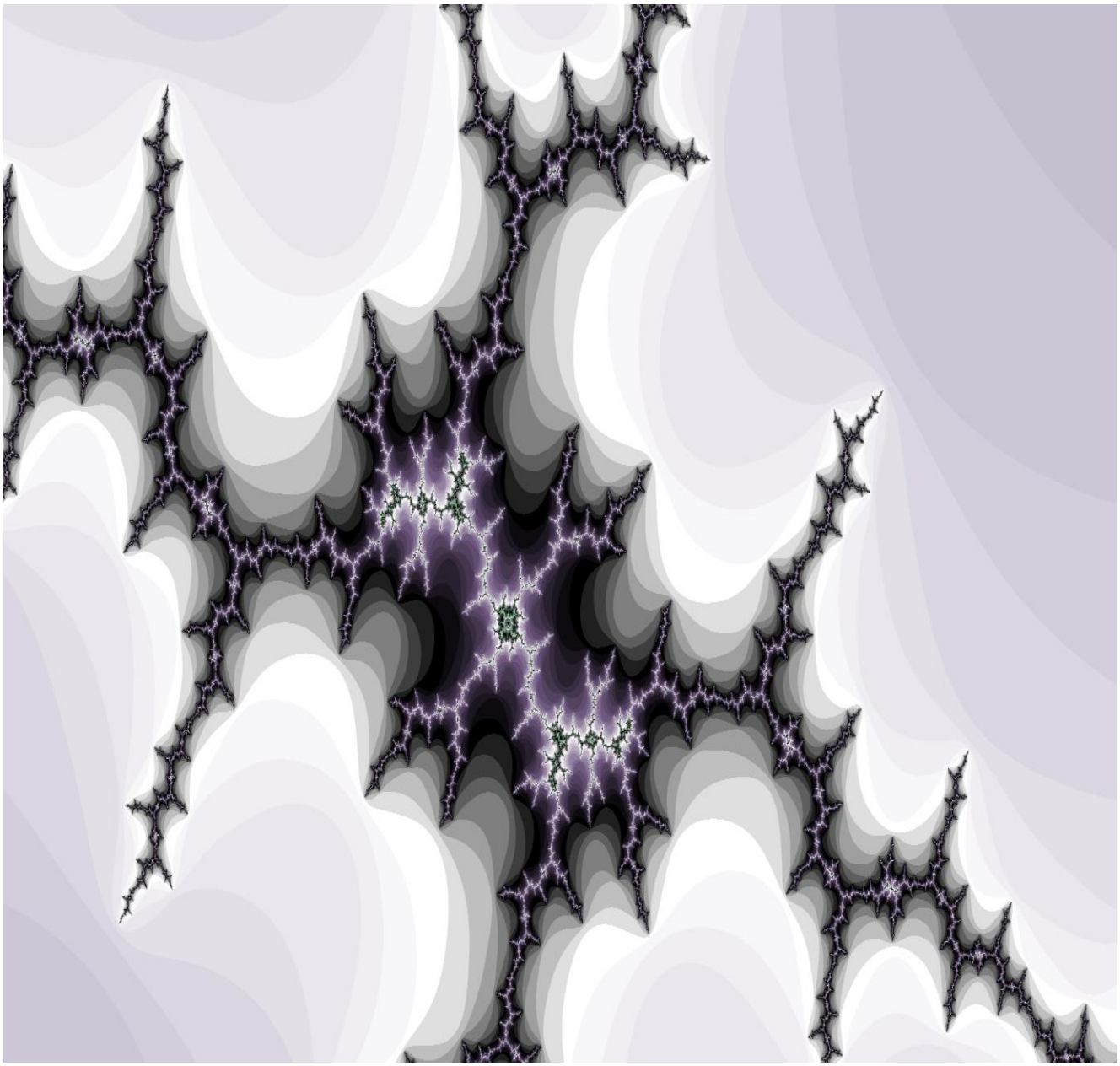
2023 Radiologic Sciences Workplace and Staffing Survey



asrt
American Society of Radiologic Technologists

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Executive Summary

Sample

The ASRT surveys managers of radiology departments across the United States on a biennial basis to determine the staffing levels of their facilities. In February 2023 an invitation to participate in the *2023 Radiologic Sciences Staffing and Workplace Survey* was sent via e-mail to 23,536 department managers. At the close of the survey in March 2023, a total of 490 responses had been received resulting in an overall response rate of 2.1%. At its widest, a sample size of 490 yields a margin of error of ± 4.4% (at the 95% confidence level.) Please note that none of the survey questions were required, resulting in different response totals for different questions. Questions that were offered based on responses to previous questions are noted below the table.

Staffing Analysis

Since the previous iteration of the survey conducted in 2021, there have been noticeable changes in staffing trends across imaging disciplines. Most respondents reported marginal to modest increases in the number of budgeted full-time equivalent (FTE) staff. More importantly, every imaging discipline reported unprecedented increases in their vacancy rates, with each reporting all-time highs since the inception of the survey in 2003.

The *2022 Radiation Therapy Staffing and Workplace Survey* conducted in Feb 2022 showed similar trends: the vacancy rate for radiation therapy was 10.7%, up more than 3 percentage points from 2020, and more than triple the percentage rate in 2018. The vacancy rate for dosimetry was 11.4%, up from two years prior, and more than four times the percentage rate in 2018.

Staffing Levels

Respondents were asked how many budgeted FTE positions there are at their facility for each major imaging discipline. The averages are:

- Radiography (11.9)
- Computed tomography (7.9)
- Cardiovascular interventional technology (6.8)
- Sonography (6.1)
- Magnetic resonance imaging (5.8)
- Mammography (5.2)
- Nuclear medicine technology (3.4)
- Bone densitometry (1.9)

Along with the number of budgeted FTEs in their department for each discipline, respondents are also asked to provide the number of FTE positions that are currently vacant and recruiting. The figures for mean budgeted FTEs and mean vacant and recruiting positions are used to derive an estimated percent of unfilled positions, or estimated vacancy rate, for each discipline. The estimated vacancy rates in 2023 are:

- Radiography (18.1%)
- Computed tomography (17.7%)
- Cardiovascular interventional technology (18.6%)
- Sonography (16.7%)
- Magnetic resonance imaging (16.2%)
- Mammography (13.6%)
- Nuclear medicine technology (14.5%)
- Bone densitometry (6.9%)

Estimated mean vacancy rates for each discipline were also cross tabulated by region, along with an estimated overall mean vacancy rate for the region.

- The East-South Central region reported the highest overall vacancy rate at 19.5%, followed closely by the West-North Central region at 19.0%.
- The lowest vacancy rates reported are in New England (14.7%) and the South Atlantic (12.9%).

Longitudinal Tracking of Staffing Levels

The ASRT has been tracking staffing levels in terms of mean budgeted FTEs and estimated vacancy rates since 2003, providing two decades of data including the 2023 survey. The 2023 survey saw many disciplines hit all-time highs for both number of budgeted FTEs and vacancy rate.

- Radiography (R):
  - The number of budgeted FTEs crept up slowly from 10.1 in 2003 to 10.7 in 2007, before beginning a decline down to 8.4 in 2015; since then, the number of budgeted FTEs has gradually increased again, reaching a new peak of 11.9 in 2023.
  - Vacancy rates have followed a similar pattern, falling from 10.3% in 2003 to just 1.7% in 2013, before rebounding to 8.5% in 2019, declining back to 6.2% in 2021, and reaching an all-time high of 18.1% in 2023.
- Computed Tomography (CT):
  - The number of budgeted FTEs grew steadily from 3.4 in 2003 to 5.6 in 2011; after a minor correction down to 5.4 in 2013, steady growth resumed, culminating in an average of 7.9 budgeted FTEs in 2023.
  - The vacancy rate in CT went from 8.5% in 2003 down to a low of 2.0% in 2011 before beginning an upward trajectory to 10.1% in 2019, followed by a brief correction to 8.7%, before reaching an all-time high of 17.7% in 2023.
- Cardiovascular Interventional Technology (CVIT):
  - The number of budgeted FTEs has been more volatile than many other disciplines, rising consistently from 0.9 in 2003 to 6.9 in 2011, then falling to 4.9 in 2013. In 2021, there were an average of 7.4 budgeted FTEs in CVIT per department, declining to 6.8 in 2023.
  - The vacancy rate in CVIT declined from 14.6% in 2003 to a low of 3.4% in 2011, rebounding to 5.2% in 2013, and then declining again to 4.1% in 2015. In 2021, the vacancy rate was 7.1%, and it hit an all-time high of 18.6% in 2023, the highest vacancy rate for any discipline.
- Sonography:
  - The number of budgeted FTEs in sonography has shown a largely consistent growth pattern, starting at 2.6 in 2003, increasing gradually to 4.4 in 2013, dropping slightly to 4.3 in 2015, and then growing gradually again to an all-time high of 6.1 in 2023.
  - Vacancy rates in sonography declined gradually from 11.7% in 2003 to 2.6% in 2013, before rebounding to 5.1% in 2015. Since then, the vacancy rate has trended upward, despite dips, reaching an all-time high of 16.7% in 2023.
- Magnetic Resonance (MR) Imaging:
  - Budgeted FTEs per department increased gradually from 1.7 in 2003 to 4.1 in 2011 before dipping to 3.4 in 2013 and then remaining steady at 4.1 from 2015 to 2019; growth resumed in 2021, culminating in an all-time high of 5.8 in 2023.
  - The vacancy rate in MR slipped gradually from 9.0% in 2003 to 2.5% in 2011 before climbing—with a brief dip in 2017—back to 8.7% in 2019 and 2021, and then to an all-time high of 16.2% in 2023.
- Mammography (M):
  - The number of budgeted FTEs increased steadily from 2.1 in 2003 to 4.1 in 2011, before dipping back to 3.5 in 2013, rebounding to 4.1 in 2015, dipping again to 3.6 in 2019, resuming growth in 2021, and reaching an all-time high of 5.2 in 2023.
  - The vacancy rate fell consistently from 7.2% in 2003 to 1.4% in 2013, before increasing gradually to 5.6% in 2019 and reaching an all-time high of 13.6% in 2023.
- Nuclear Medicine Technology (NMT):
  - The number of budgeted FTEs increased from 1.8 in 2003 to 3.1 in 2011, remaining just below or a little above 3.0 ever since, before reaching 3.4 in 2023.
  - The vacancy rate fell consistently from 10.9% in 2003 to 1.3% in 2013; since then, unsteady growth has resumed, culminating in an all-time high of 14.5% in 2023.
- Bone Densitometry (BD) (tracked since 2013):
  - The number of budgeted FTEs has remained close to 2.0 since bone densitometry has been tracked, going from 1.7 in 2013 to 1.9 in 2015, and back down to 1.7 in 2017; there

were 1.9 budgeted positions in bone densitometry in 2023.
    - The vacancy rate was 1.8% in 2013, bottoming out at 1.0% in 2015, and increasing consistently since, reaching an all-time high of 6.9% in 2023.

Facility Demographics

A majority of respondents (53.0%) work at hospitals; another 13.7% work at imaging centers, and 9.6% work in physician's offices.

There are an average of 328.8 beds in the hospitals in which respondents work.

Of the respondents who answered the question, 95.4% work in a facility that is open 24 hours a day, 7 days a week. Only 259 of the 490 responding to the survey answered the question. For the few respondents who answered that their facility was not open 24/7, their facility is open for an average of 49.8 hours per week.

A plurality of respondents (39.7%) work at a facility in a suburban setting; 38.7% work in an urban area, and 21.6% work in a rural area.

There were respondents from every state except Montana, Nevada, and South Dakota.

A plurality of respondents (21.3%) are from the South Atlantic region; another 14.0% are from the Pacific region. The regions with the fewest respondents are East-South Central (5.8%) and New England (4.4%).

Change and Turnover

A majority of respondents (53.2%) report no change in the number of technologist positions in their department; 27.0% report an increase, and 19.8% report a decrease.

Facilities that eliminated positions have eliminated an average of 1.5 positions; those that added positions have added an average of 3.1 positions.

A sizable majority of respondents (73.9%) reported that there has been turnover in their department over the last year. The average department with turnover saw 4.3 technologists leave for various reasons:

- 1.1 to another profession
- 0.9 for family or personal reasons
- 0.6 to retirement

Facilities also reported losing staff to other facilities and higher-paying opportunities within the profession.

Methodology

Data Reliability

Numeric responses were examined for logically impossible or implausible values of individual variables and for internally inconsistent responses to sets of variables. Box and whisker plots were computed for numeric variables to detect any potential outliers. Any numeric value greater than the 99th percentile was considered an extreme outlier. These values were removed from the computation of descriptive and frequency statistics.

Bootstrapped confidence intervals (at the 95% confidence level) were computed to estimate population parameters. Specifically, 100,000 bootstrap samples with replacement were computed for each numeric variable prior to the removal of outliers. The survey sample means for each numeric variable (without outliers) were then compared to the confidence intervals derived from the bootstrapping. The sample mean for each numeric variable fell within the corresponding bootstrapped confidence interval.

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)

Glossary

The following statistical results are referenced using a common set of acronyms and symbols for brevity:

N
The number of responses at each interval or category.

Total
The sum of responses.

Valid Percent
The percentage of responses [(N) ÷ (Total)].

Cumulative Percent
The summed valid percent occurring at each subsequent interval or category.

Mean
The arithmetic average.

SD
The standard deviation.

95% Confidence Interval
The probability that the population mean falls between the confidence interval's lower and upper bound values.

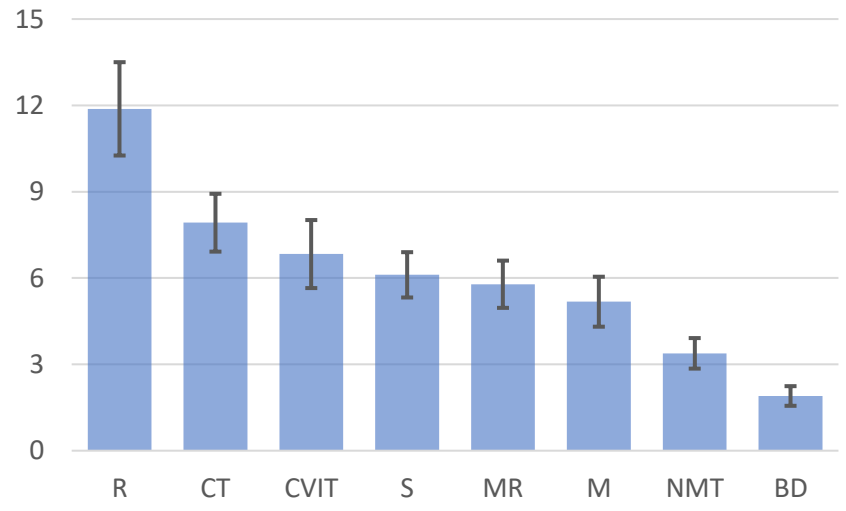
Staffing Levels

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

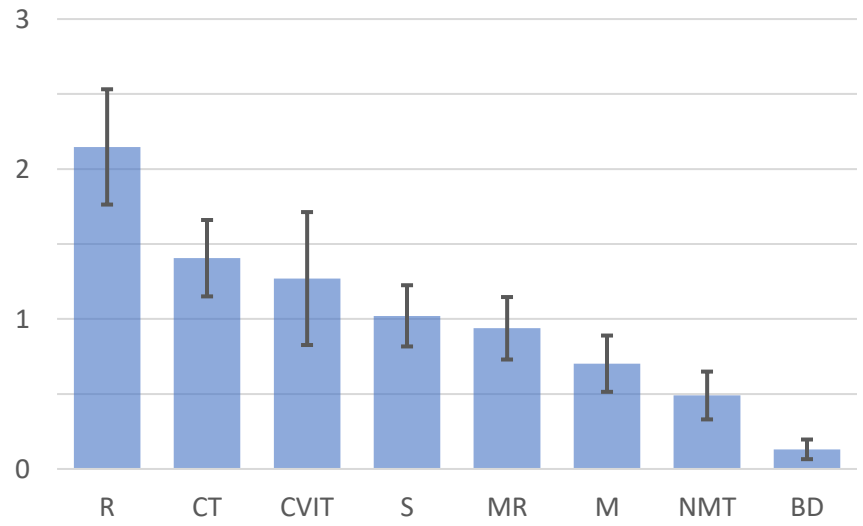
		Budgeted FTEs			Vacant and Recruiting FTEs			
Discipline	N	Mean	*SD*	95% Confidence Interval	Mean	*SD*	95% Confidence Interval	Estimated Percent Vacant FTE Positions
R	319	**11.9**	14.8	± 1.6	**2.1**	3.50	± 0.38	18.1%
CT	239	**7.9**	7.92	± 1.0	**1.4**	2.01	± 0.25	17.7%
CVIT	75	**6.8**	5.22	± 1.2	**1.3**	1.96	± 0.44	18.6%
S	214	**6.1**	5.88	± 0.79	**1.0**	1.52	± 0.20	16.7%
MR	216	**5.8**	6.15	± 0.82	**0.9**	1.56	± 0.21	16.2%
M	178	**5.2**	5.91	± 0.87	**0.7**	1.28	± 0.19	13.6%
NMT	132	**3.4**	3.11	± 0.53	**0.5**	0.93	± 0.16	14.5%
BD	107	**1.9**	1.80	± 0.34	**0.1**	0.35	± 0.07	6.9%

Note. Table is sorted descending by Mean Budgeted FTEs.

Mean Budgeted FTEs



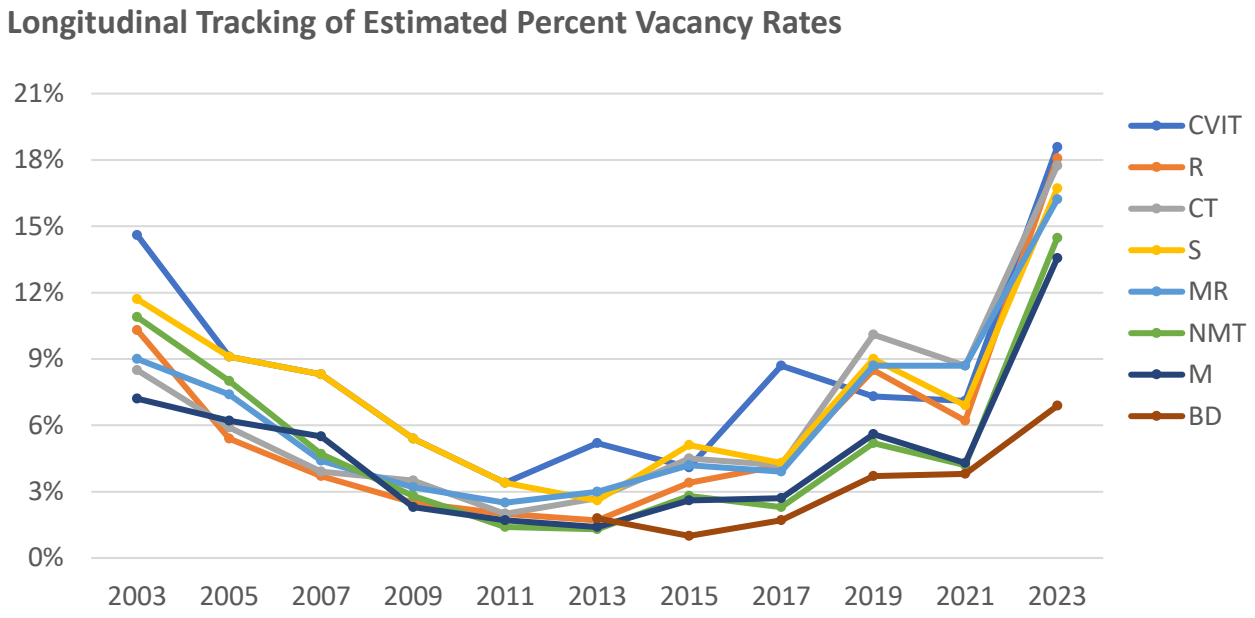
Mean Vacant and Recruiting FTEs



Longitudinal Tracking of Estimated Percent Vacancy Rates

	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021	2023
CVIT	14.6%	9.1%	8.3%	5.4%	3.4%	5.2%	4.1%	8.7%	7.3%	7.1%	**18.6%**
R	10.3%	5.4%	3.7%	2.5%	2.0%	1.7%	3.4%	4.2%	8.5%	6.2%	**18.1%**
CT	8.5%	5.9%	3.9%	3.5%	2.0%	2.7%	4.5%	4.2%	10.1%	8.7%	**17.7%**
S	11.7%	9.1%	8.3%	5.4%	3.4%	2.6%	5.1%	4.3%	9.0%	6.9%	**16.7%**
MR	9.0%	7.4%	4.4%	3.2%	2.5%	3.0%	4.2%	3.9%	8.7%	8.7%	**16.2%**
NMT	10.9%	8.0%	4.7%	2.8%	1.4%	1.3%	2.8%	2.3%	5.2%	4.2%	**14.5%**
M	7.2%	6.2%	5.5%	2.3%	1.7%	1.4%	2.6%	2.7%	5.6%	4.3%	**13.6%**
BD						1.8%	1.0%	1.7%	3.7%	3.8%	**6.9%**

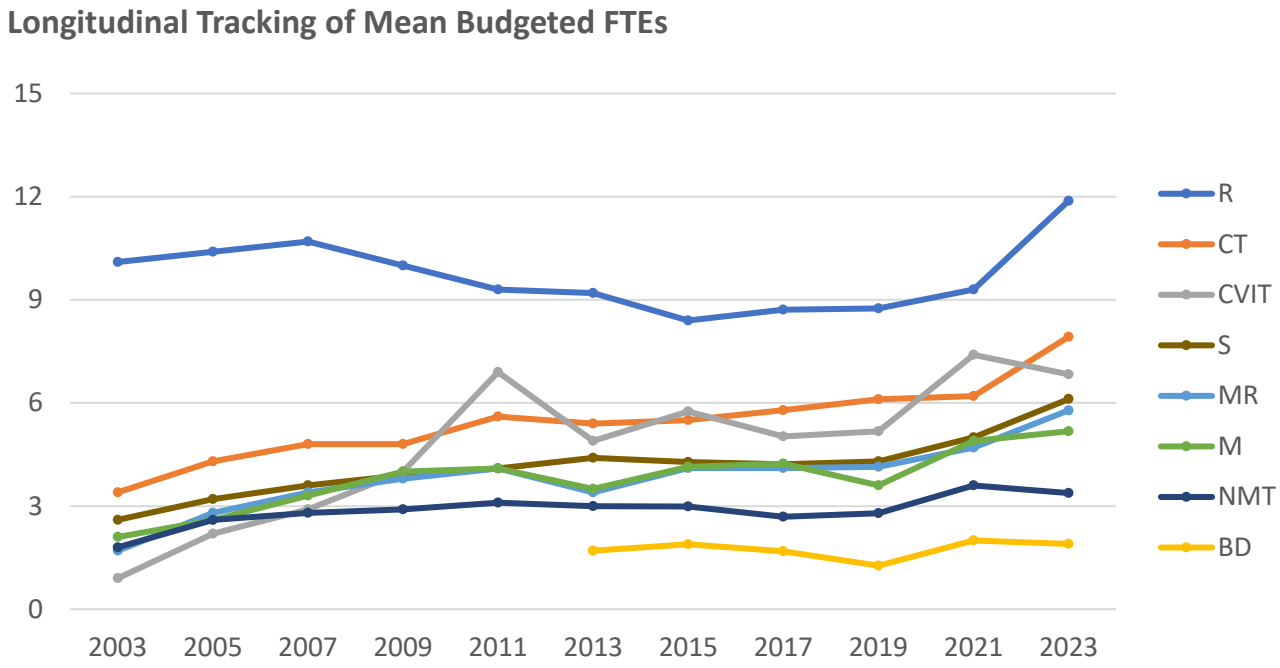
Note. Table is sorted descending by 2023.



Longitudinal Tracking of Mean Budgeted FTEs

	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021	2023
R	10.1	10.4	10.7	10.0	9.3	9.2	8.4	8.7	8.7	9.3	**11.9**
CT	3.4	4.3	4.8	4.8	5.6	5.4	5.5	5.8	6.1	6.2	**7.9**
CVIT	0.9	2.2	2.9	4.0	6.9	4.9	5.8	5.0	5.2	7.4	**6.8**
S	2.6	3.2	3.6	3.9	4.1	4.4	4.3	4.2	4.3	5.0	**6.1**
MR	1.7	2.8	3.4	3.8	4.1	3.4	4.1	4.1	4.1	4.7	**5.8**
M	2.1	2.6	3.3	4.0	4.1	3.5	4.1	4.2	3.6	4.9	**5.2**
NMT	1.8	2.6	2.8	2.9	3.1	3.0	3.0	2.7	2.8	3.6	**3.4**
BD						1.7	1.9	1.7	1.3	2.0	**1.9**

Note. Table is sorted descending by 2023.

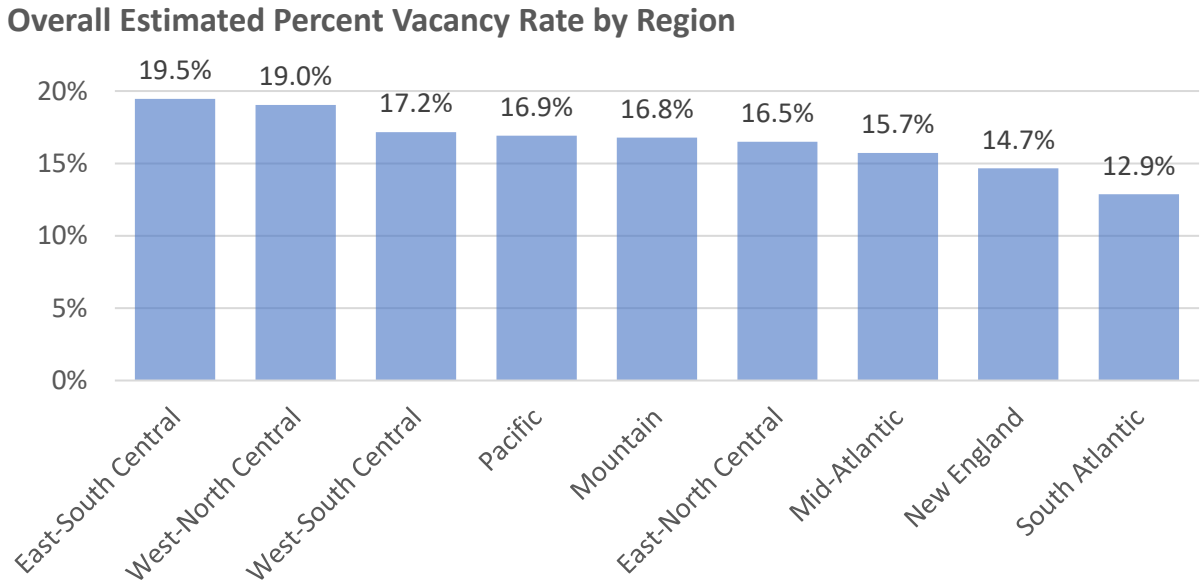


Estimated Percent Vacancy Rate by Region[a]

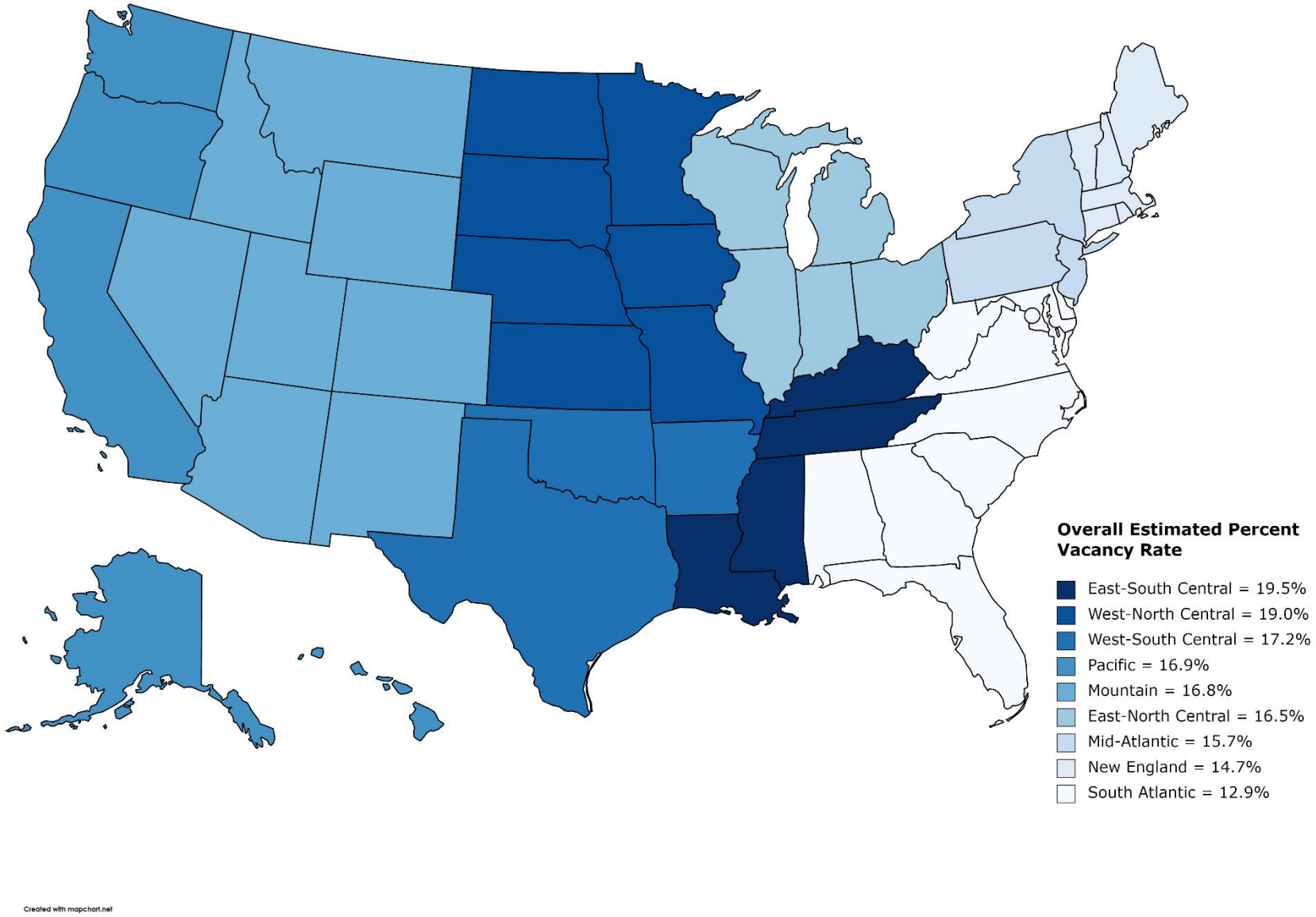
Discipline	Statistic	East-South Central	West-North Central	West-South Central	Pacific	Mountain	East-North Central	Mid-Atlantic	New England	South Atlantic
R	%	26.9%	29.4%	20.1%	15.2%	19.5%	18.9%	14.0%	18.4%	14.7%
	N	19	35	37	44	30	35	30	16	68
CT	%	20.7%	16.6%	18.4%	19.3%	17.5%	16.1%	21.7%	14.4%	14.5%
	N	15	23	28	36	21	24	23	9	56
MR	%	21.8%	21.0%	19.7%	18.1%	19.2%	16.8%	11.1%	11.4%	13.4%
	N	14	19	21	33	19	27	21	10	50
S	%	7.9%	15.9%	14.9%	18.0%	27.7%	20.9%	16.4%	17.8%	12.8%
	N	12	17	20	35	20	24	19	10	52
M	%	7.7%	14.3%	13.3%	16.6%	10.8%	14.0%	16.3%	12.9%	11.8%
	N	8	17	11	30	16	26	19	9	38
NMT	%	10.2%	7.9%	17.1%	20.9%	13.2%	16.3%	19.8%	15.0%	9.8%
	N	10	7	18	19	13	12	12	6	33
BD	%	40.0%	8.8%	3.3%	4.0%	0.0%	11.8%	5.6%	10.0%	3.7%
	N	3	7	10	17	7	19	10	5	25
CVIT	%	31.4%	7.2%	20.3%	24.0%	0.0%	12.7%	20.7%	5.2%	19.8%
	N	6	5	10	10	6	8	8	2	18
Overall		**19.5%**	**19.0%**	**17.2%**	**16.9%**	**16.8%**	**16.5%**	**15.7%**	**14.7%**	**12.9%**

Note. Table is sorted by Overall.

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



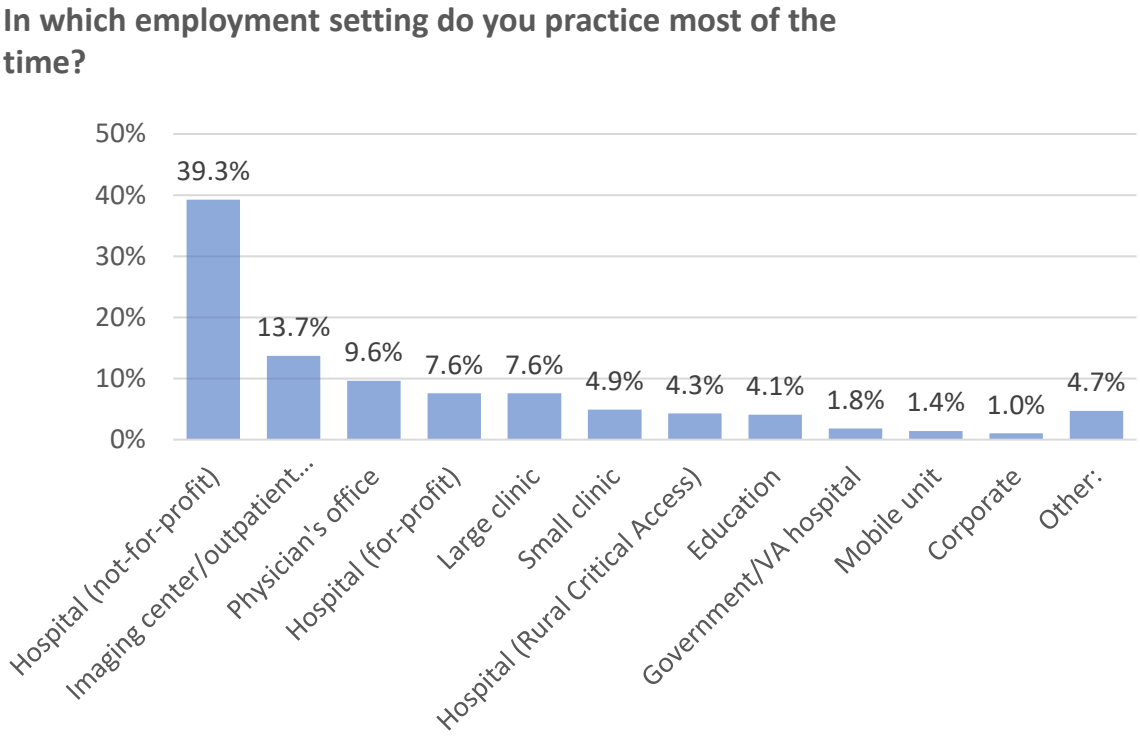
Overall Estimated Percent Vacancy Rate by Region



Facility Demographics

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

	N	Valid Percent
Hospital (not-for-profit)	192	39.3%
Imaging center/outpatient imaging facility	67	13.7%
Physician's office	47	9.6%
Hospital (for-profit)	37	7.6%
Large clinic	37	7.6%
Small clinic	24	4.9%
Hospital (Rural Critical Access)	21	4.3%
Education	20	4.1%
Government/VA hospital	9	1.8%
Mobile unit	7	1.4%
Corporate	5	1.0%
Other:	23	4.7%
Total	**489**	**100.0%**



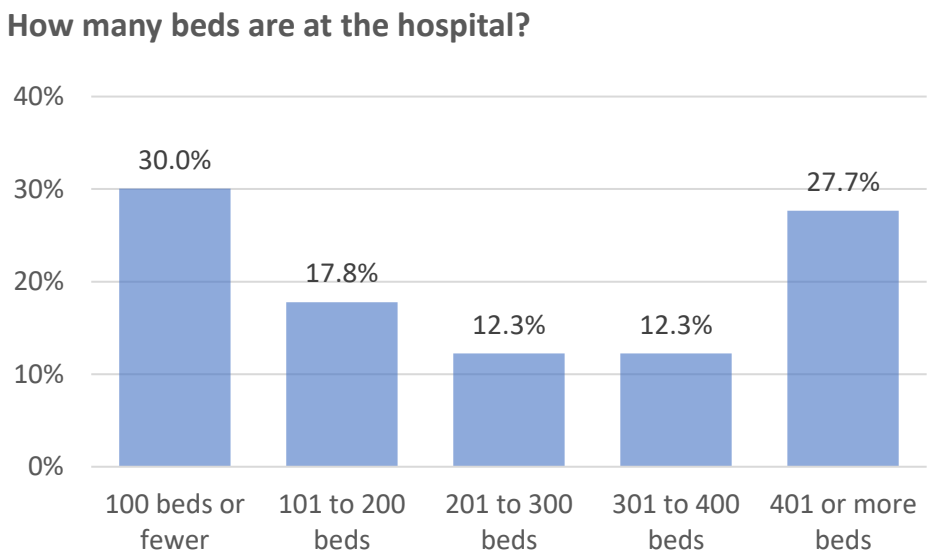
How many beds are at the hospital?

	N	Valid Percent	Cumulative Percent
100 beds or fewer	76	30.0%	30.0%
101 to 200 beds	45	17.8%	47.8%
201 to 300 beds	31	12.3%	60.1%
301 to 400 beds	31	12.3%	72.3%
401 or more beds	70	27.7%	100.0%
Total	**253**	**100.0%**	

Note. Only respondents who answered that they work in a hospital received this question.

Descriptive Statistics

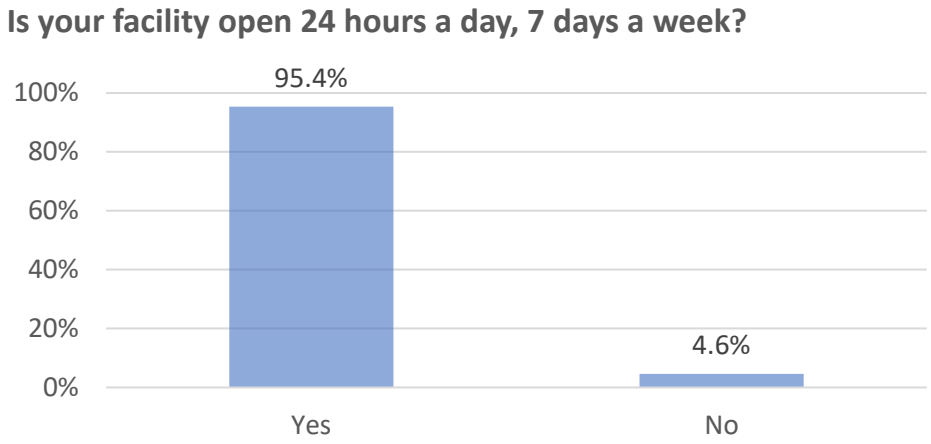
Mean	**329** (*SD* = 485)
Percentiles	5^{th} = 15; 25^{th} = 99; 50^{th} = 225; 75^{th} = 450; 95^{th} = 820



Is your facility open 24 hours a day, 7 days a week?

	N	Valid Percent
Yes	247	95.4%
No	12	4.6%
Total	**259**	**100.0%**

Note. Only respondents who answered that they work in a hospital received this question.

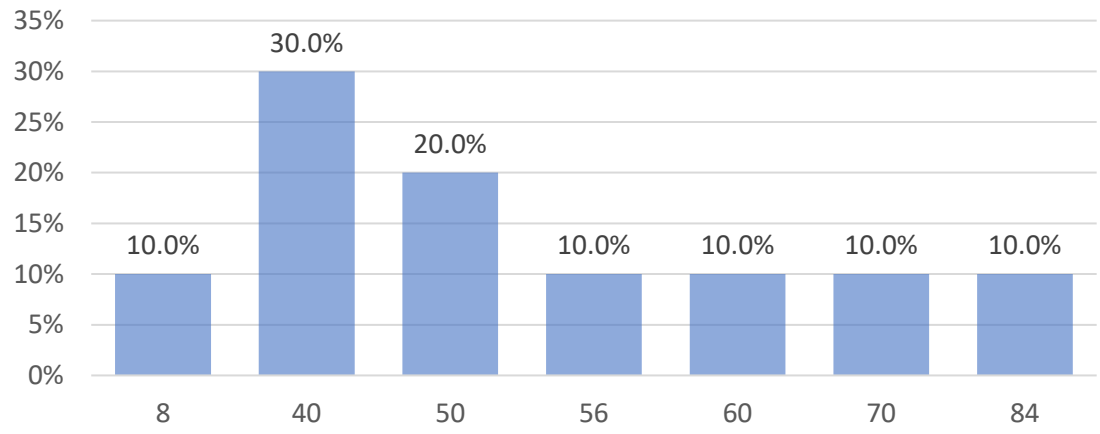


If "No", how many hours per week is your facility open?

	N	Valid Percent	Cumulative Percent
8	1	10.0%	10.0%
40	3	30.0%	40.0%
50	2	20.0%	60.0%
56	1	10.0%	70.0%
60	1	10.0%	80.0%
70	1	10.0%	90.0%
84	1	10.0%	100.0%
Total	**10**	**100.0%**	

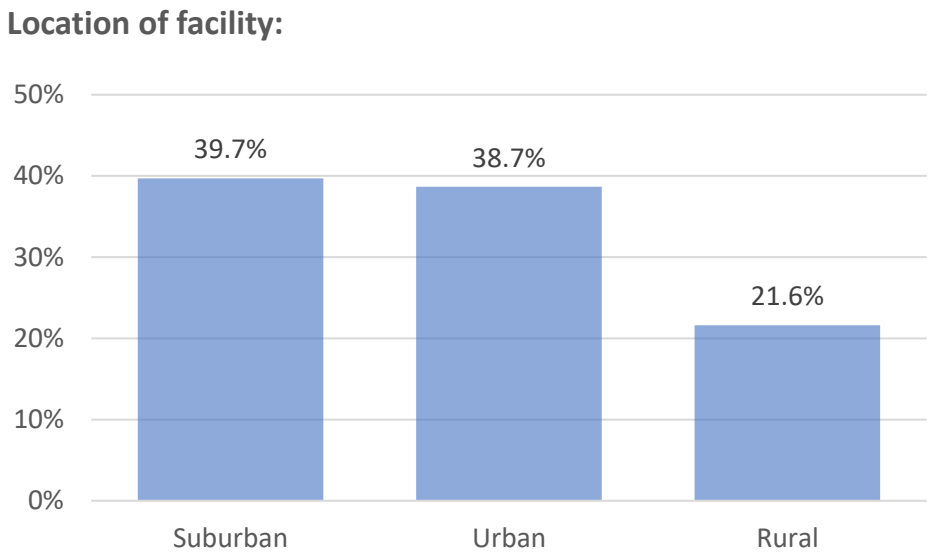
Descriptive Statistics

Mean	**49.8** (*SD* = 20.4)
Percentiles	5^{th} = 8; 25^{th} = 40; 50^{th} = 50; 75^{th} = 63; 95^{th} = Undefined



Location of facility:

	N	Valid Percent
Suburban	193	39.7%
Urban	188	38.7%
Rural	105	21.6%
Total	**486**	**100.0%**



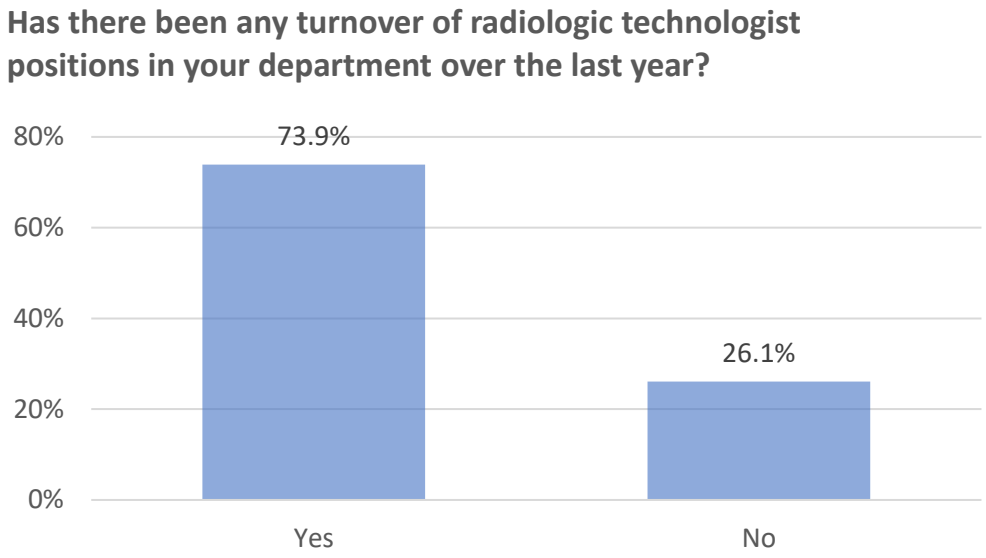
In what state is your facility located?

State	N	State	N	State	N	State	N	State	N
AK	3	HI	3	ME	2	NJ	11	SD	0
AL	6	IA	5	MI	13	NM	7	TN	10
AR	7	ID	3	MN	21	NV	0	TX	29
AZ	9	IL	8	MO	10	NY	20	UT	5
CA	42	IN	16	MS	5	OH	17	VA	11
CO	13	KS	4	MT	0	OK	13	VT	2
CT	6	KY	7	NC	20	OR	6	WA	13
DE	1	LA	9	ND	4	PA	18	WI	10
FL	31	MA	5	NE	5	RI	3	WV	3
GA	13	MD/DC	17	NH	3	SC	6	WY	5

Personnel Demographics

Has there been any turnover of radiologic technologist positions in your department over the last year?

	N	Valid Percent
Yes	357	73.9%
No	126	26.1%
Total	**483**	**100.0%**

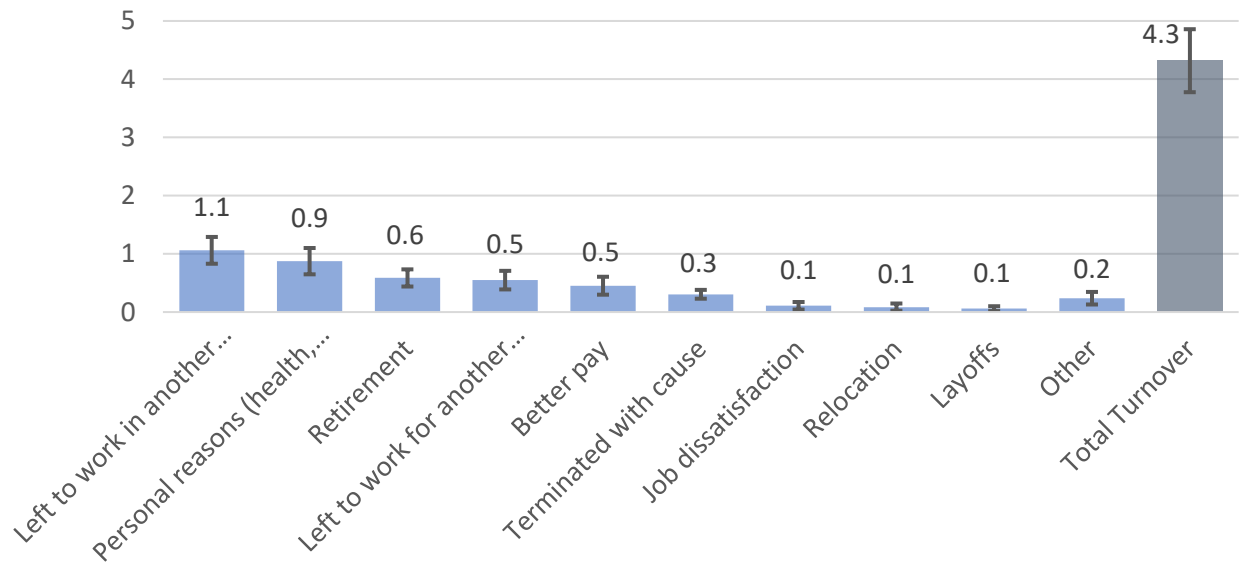


Last year, how many full-time equivalent (FTE) radiologic technologists in your department left for any of the following reasons?

	N	Mean	*SD*	95% Confidence Interval
Left to work in another profession	132	1.1	2.2	± 0.23
Personal reasons (health, family, continuing education, etc.)	138	0.9	2.2	± 0.23
Retirement	104	0.6	1.4	± 0.15
Left to work for another employer*	69	0.5	1.5	± 0.16
Better pay*	44	0.5	1.5	± 0.15
Terminated with cause	71	0.3	0.7	± 0.08
Job dissatisfaction*	16	0.1	0.6	± 0.06
Relocation*	14	0.1	0.6	± 0.06
Layoffs	11	0.1	0.4	± 0.04
Other	31	0.2	1.0	± 0.11
Total Turnover	**326**	**4.3**	**5.2**	± 0.54

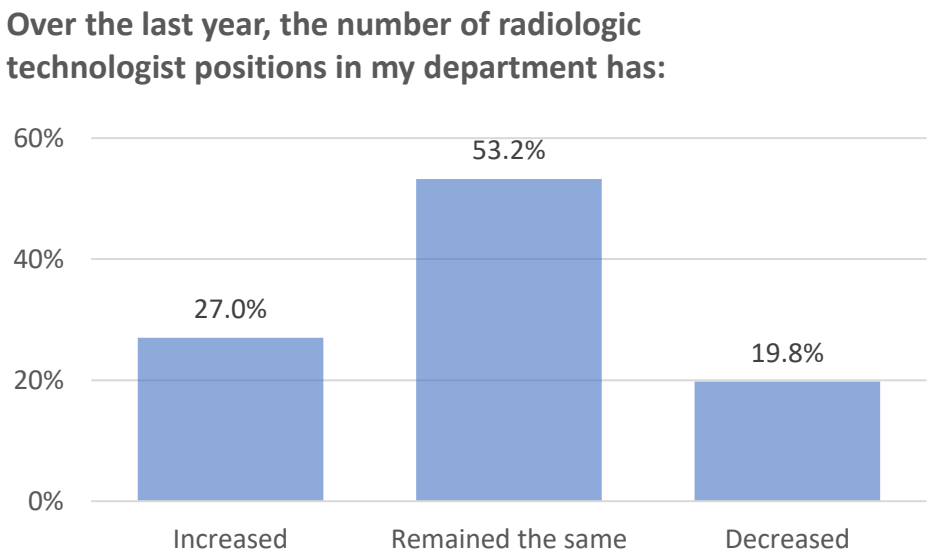
*Coded from "Other".

Note. Only respondents who indicated that their department had experienced turnover received this question, [N = 357].



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

	N	Valid Percent
Increased	130	27.0%
Remained the same	256	53.2%
Decreased	95	19.8%
Total	**481**	**100.0%**



How many radiologic technologist positions were eliminated/added over the last year?

	N	Mean	*SD*	95% Confidence Interval
Added	118	**3.1**	4.2	± 0.76
Eliminated	81	**1.5**	2.1	± 0.46

Note. Only respondents who answered that the number of positions in their department increased or decreased received this question.