

# Radiation Therapy Staffing Survey 2011

A Nationwide Survey of Registered Radiologic Technologists  
Conducted by the American Society of Radiologic Technologists

Reported April 2011



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## Executive Summary

The Radiation Therapy Staffing Survey 2011 was e-mailed on January 26, 2011, to 2,686 managers of U.S. radiation therapy facilities. At the close of the survey on March 23, 2011, a total of 531 completed questionnaires had been submitted resulting in a response rate of 19.8%.

With the finite population correction of an estimated 2,170 radiation therapy facilities in the United States, the sample size of 531 yields a margin of error for overall percentages of a maximum  $\pm 3.7\%$  (at the 95% confidence interval).

To keep the report at a minimal length, responses to open-ended questions were not included, but are available upon request.

### Staffing of the Facilities

Facilities reported their 2011 mean budgeted full-time employees (FTEs) as:

- Radiation therapy [7.4].
- Medical dosimetry [2.1].

The 2011 budgeted FTEs, along with vacant and recruiting figures, produce the estimated percent of unfilled positions as:

- Radiation therapy [3.1%].
- Medical dosimetry [4.9%].
- The New England geographic region had the highest overall mean vacancy rate at 13.9%, with the Mountain region having the lowest at 0.3%.

### Longitudinal Staffing Change in the Profession

- In 2004, the mean budgeted FTEs per facility for radiation therapy was 6.0. On average, facilities have since added 1.4 FT radiation therapists per facility.
- In 2004, the mean budgeted FTEs per facility for medical dosimetry was 1.6. On average, facilities have since added 0.5 FT medical dosimetrists per facility.
- The estimated percent of unfilled FTEs for radiation therapy has dropped from 7.9% in 2004 to 3.1% in 2011.
- The estimated percent of unfilled FTEs for medical dosimetry has dropped from 8.0% in 2004 to 4.9% in 2011.

### Facility Demographics

46.3% of the respondents indicated that their title was department/facility manager or director; 32% chose chief therapist; and 5% chose chief medical dosimetrist.

About 47% of the respondents indicated that their facilities are located in a community hospital; 35% in a freestanding clinic; 9% in a university medical center; 5% in a teaching facility; and 1% in a government hospital.

Facilities, on average have 2.22 linear accelerators, 2.27 therapists per linear accelerator and treat 52.01 patients per day.

The services provided at facilities were reported as:

- Radiation therapy [98.7%].
- IMRT [95.5%].
- Conformal radiation therapy delivery [90.9%].
- CT simulation [89.0%].
- Targeted radiation therapy [61.2%].
- Fractionated stereotactic therapy [53.2%].
- Pediatric therapy [22.2%].
- Whole-body irradiation [22.0%].
- Proton therapy [1.3%].

The number of services checked as being provided by a given facility ranged from zero to all 9 items.

- University medical centers have the most services with an average of 7.69 being offered.
- Freestanding clinics offer the fewest with a mean of 5.10 services.

### CT Simulation

Approximately 89% of respondents indicated that their facility has a CT device used for treatment simulation.

- Of these facilities, 84% of the respondents indicated that the simulator was located in the radiation therapy department.
- About 12% indicated that it was in the radiology department.

85.4% of the respondents chose radiation therapists as those who typically operate the simulator, followed by CT technologists at 18.5%.

About 47% indicated that the typical CT simulator operator received on-the-job training to perform treatments, with 33.9% indicating vendor training.

About 69% indicated that the CT device is never used for performing diagnostic CT exams on nontherapy patients during overflow periods.

## Executive Summary

### Calculation of Percent Vacancy Rates

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

**(mean number of vacant and recruiting FTEs per facility) / (mean number of budgeted FTEs per facility)**

For example, in radiation therapy the mean vacant and recruiting FTE positions is equal to 0.23 for 2011, when divided by the mean budgeted FTE of 7.4, this yields a percent of unfilled FTE positions of 3.1%.

Only facility/discipline combinations for which both the number of budgeted FTEs and the number of vacant and recruiting FTEs were reported were included in the calculation of vacancy rates.

## Staffing of the Facilities

9. For each of the following job titles, please provide the budgeted and vacant full-time employees (FTEs) for your organization in January 2010 and today. Please use decimals for fractional FTEs.

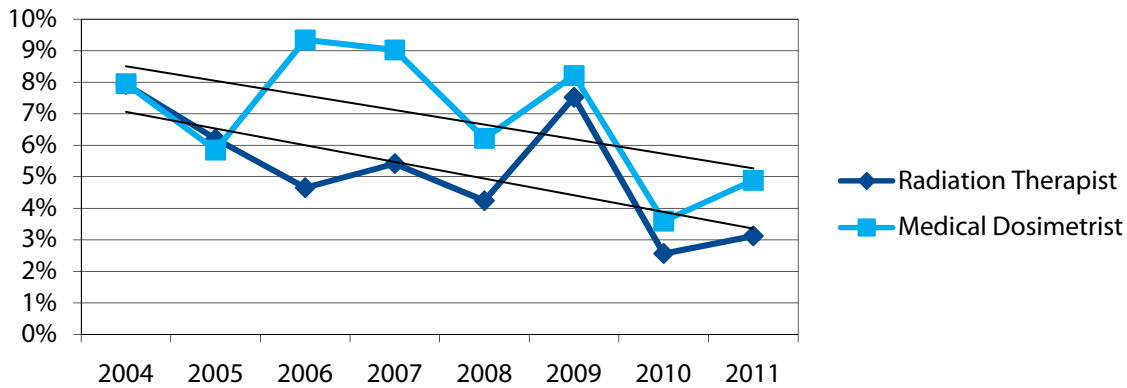
### Radiation Therapist

Year	N	Mean Budgeted FTEs per Facility	Mean Vacant and Recruiting FTEs per Facility	Estimated Percent Unfilled FTE Positions
2004	360	6.0	0.47	7.9%
2005	352	6.4	0.40	6.2%
2006	522	6.8	0.31	4.7%
2007	549	7.1	0.39	5.4%
2008	476	6.8	0.29	4.2%
2009	448	7.2	0.54	7.5%
<b>2010</b>	<b>484</b>	<b>7.2</b>	<b>0.19</b>	<b>2.6%</b>
<b>2011</b>	<b>460</b>	<b>7.4</b>	<b>0.23</b>	<b>3.1%</b>

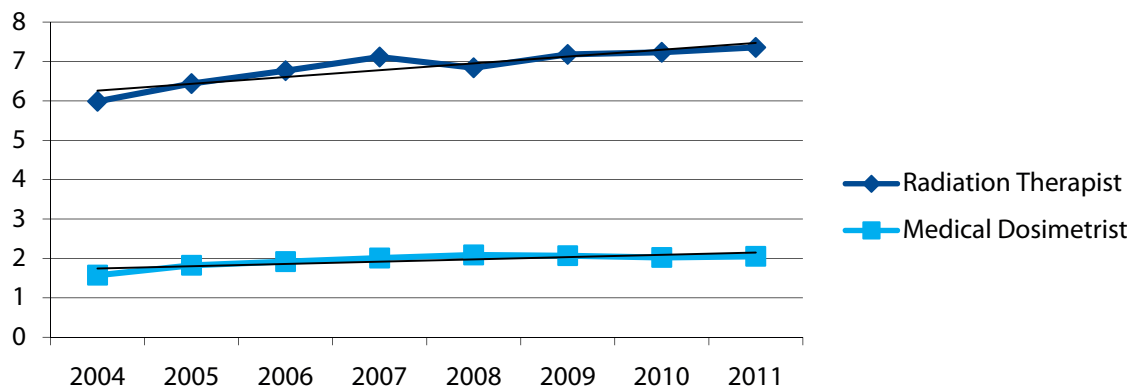
### Medical Dosimetrist

Year	N	Mean Budgeted FTEs per Facility	Mean Vacant and Recruiting FTEs per Facility	Estimated Percent Unfilled FTE Positions
2004	360	1.6	0.13	8.0%
2005	352	1.8	0.11	5.8%
2006	522	1.9	0.18	9.3%
2007	549	2.0	0.18	9.0%
2008	441	2.1	0.13	6.2%
2009	409	2.1	0.17	8.2%
<b>2010</b>	<b>432</b>	<b>2.0</b>	<b>0.07</b>	<b>3.6%</b>
<b>2011</b>	<b>411</b>	<b>2.1</b>	<b>0.10</b>	<b>4.9%</b>

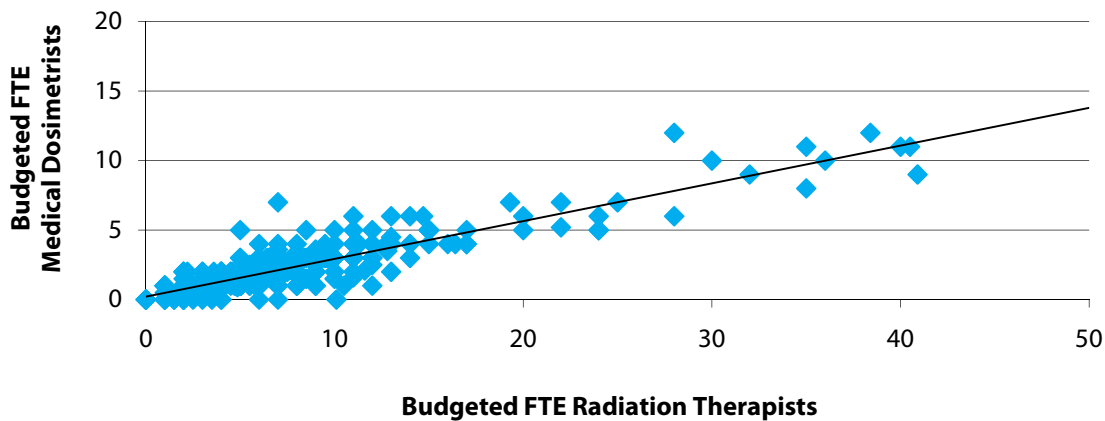
### Estimated Percent Unfilled FTE Positions



### Mean Budgeted FTEs per Facility



### Number of Budgeted FTE Radiation Therapists by Number of Budgeted FTE Medical Dosimetrists per Facility\*



$$y = 0.2717x + 0.2149$$

$$R^2 = 0.8056$$

\*3.5 radiation therapists for every 1 medical dosimetrist

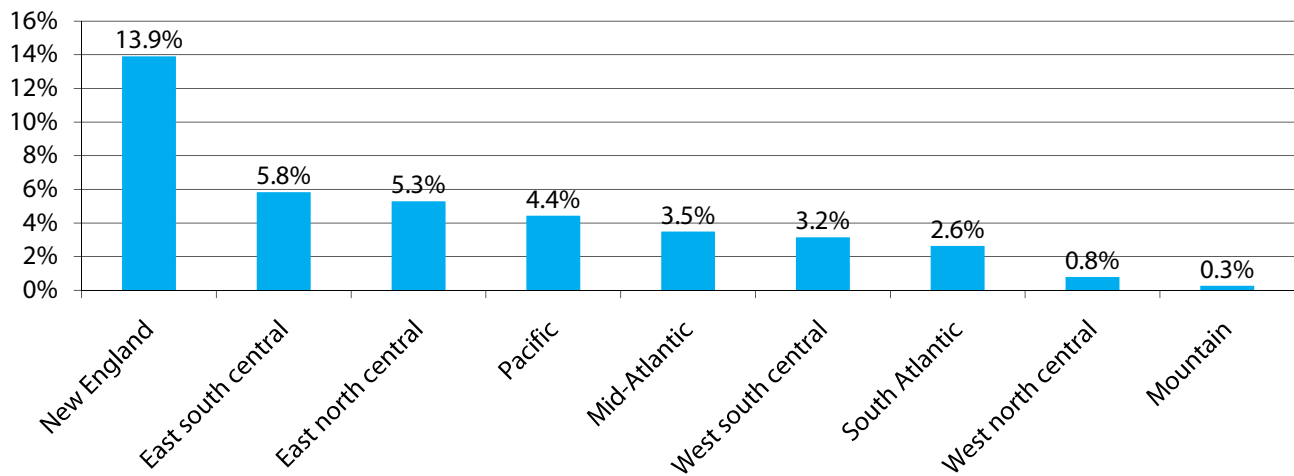
### 2011 Estimated Percent of Unfilled FTE Positions by Geographic Region <sup>a</sup>

Discipline	Statistic	New England	East South Central	East North Central	Pacific	Mid-Atlantic	West South Central	South Atlantic	West North Central	Mountain
Radiation Therapist	N	23	24	84	60	59	42	94	38	33
	%	<b>6.2%</b>	<b>6.3%</b>	<b>4.9%</b>	<b>5.4%</b>	<b>3.1%</b>	<b>1.6%</b>	<b>1.4%</b>	<b>0.5%</b>	<b>0.5%</b>
Medical Dosimetrist	N	20	23	77	53	53	32	86	35	29
	%	<b>22.8%</b>	<b>5.4%</b>	<b>5.8%</b>	<b>3.3%</b>	<b>3.9%</b>	<b>5.2%</b>	<b>3.9%</b>	<b>1.1%</b>	<b>0.0%</b>

Overall Mean	<b>13.9%</b>	<b>5.8%</b>	<b>5.3%</b>	<b>4.4%</b>	<b>3.5%</b>	<b>3.2%</b>	<b>2.6%</b>	<b>0.8%</b>	<b>0.3%</b>
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<sup>a</sup> New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut  
 East South Central: Kentucky, Tennessee, Mississippi and Alabama  
 East North Central: Wisconsin, Michigan, Illinois, Indiana and Ohio  
 Pacific: Alaska, Washington, Oregon, California and Hawaii  
 Mid-Atlantic: New York, Pennsylvania and New Jersey  
 West South Central: Oklahoma, Texas, Arkansas and Louisiana  
 South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina and Georgia  
 West North Central: Missouri, North Dakota, South Dakota, Nebraska, Kansas, Minnesota and Iowa  
 Mountain: Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona and New Mexico

### 2011 Overall Mean Estimated Percent of Unfilled FTE Positions by Geographic Region

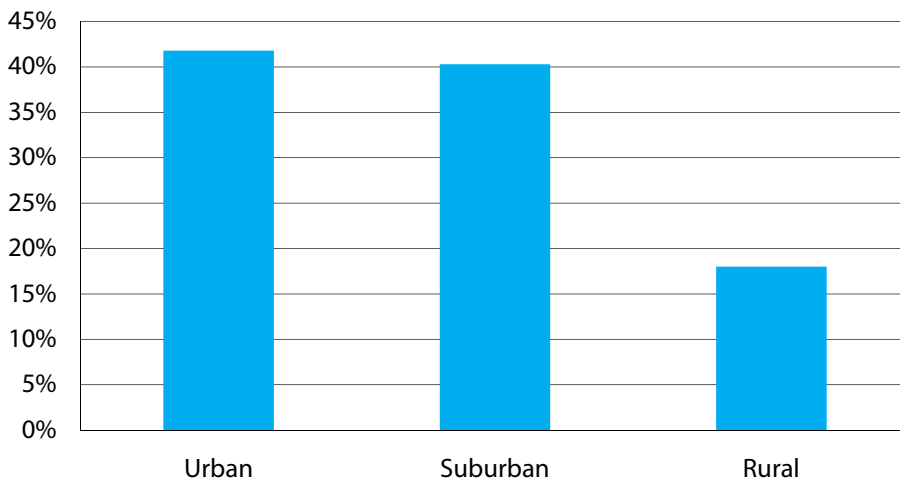


## Facility Demographics

### 1. Location

	Frequency	Valid Percent
Urban	221	41.8
Suburban	213	40.2
Rural	95	18.0
<b>Total</b>	<b>529</b>	<b>100.0</b>

### Location



### 2. State

State	N
AK	1
AL	4
AR	8
AZ	13
CA	45
CO	7
CT	9
DE	0
FL	34
GA	26

State	N
HI	1
IA	5
ID	3
IL	21
IN	18
KS	4
KY	8
LA	5
MA	11
MD/DC	11

State	N
ME	1
MI	20
MN	18
MO	7
MS	5
MT	3
NC	12
ND	3
NE	3
NH	5

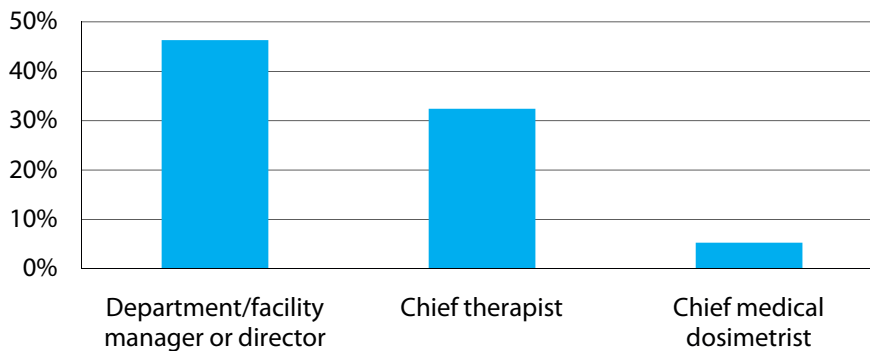
State	N
NJ	10
NM	4
NV	2
NY	29
OH	24
OK	6
OR	11
PA	32
RI	1
SC	7

State	N
SD	1
TN	10
TX	29
UT	4
VA	11
VT	0
WA	14
WI	11
WV	3
WY	4

### 3. Your title

	Frequency	Valid Percent
Department/facility manager or director	244	46.3
Chief therapist	171	32.4
Chief medical dosimetrist	28	5.2
Other	84	15.9
<b>Total</b>	<b>527</b>	<b>100.0</b>

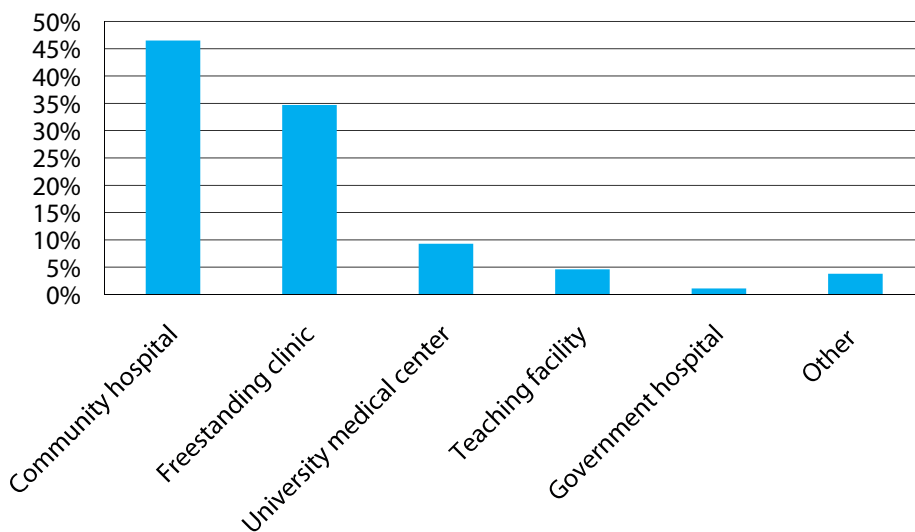
#### Your title



### 4. Type of facility

	Frequency	Valid Percent
Community hospital	245	46.5
Freestanding clinic	183	34.7
University medical center	49	9.3
Teaching facility	24	4.6
Government hospital	6	1.1
Other	20	3.8
<b>Total</b>	<b>527</b>	<b>100.0</b>

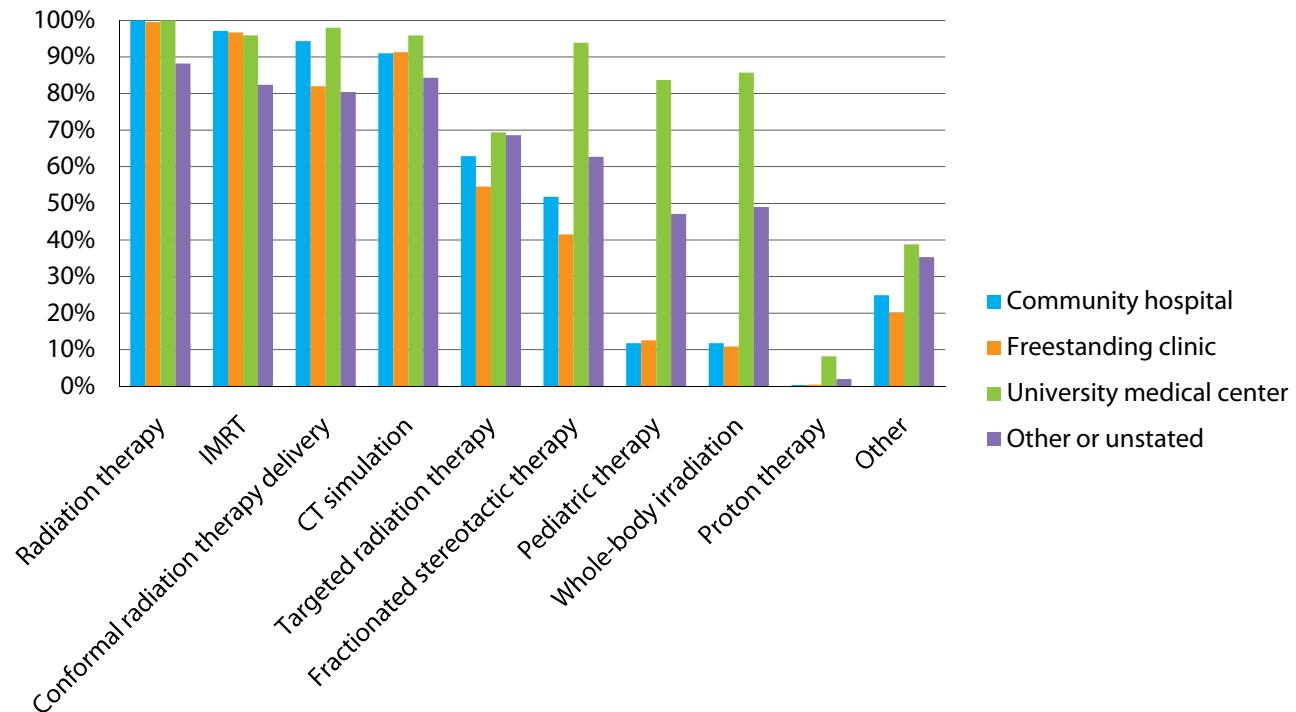
#### Type of facility



## 5. Radiation therapy services provided by your facility

		Community hospital	Freestanding clinic	University medical center	Other or unstated	Overall
Radiation therapy	Count	245	182	49	45	521
	%	100.0%	99.5%	100.0%	88.2%	98.7%
IMRT	Count	238	177	47	42	504
	%	97.1%	96.7%	95.9%	82.4%	95.5%
Conformal radiation therapy delivery	Count	231	150	48	41	470
	%	94.3%	82.0%	98.0%	80.4%	90.9%
CT simulation	Count	223	167	47	43	480
	%	91.0%	91.3%	95.9%	84.3%	89.0%
Targeted radiation therapy	Count	154	100	34	35	323
	%	62.9%	54.6%	69.4%	68.6%	61.2%
Fractionated stereotactic therapy	Count	127	76	46	32	281
	%	51.8%	41.5%	93.9%	62.7%	53.2%
Pediatric therapy	Count	29	23	41	24	117
	%	11.8%	12.6%	83.7%	47.1%	22.2%
Whole-body irradiation	Count	29	20	42	25	116
	%	11.8%	10.9%	85.7%	49.0%	22.0%
Proton therapy	Count	1	1	4	1	7
	%	.4%	.5%	8.2%	2.0%	1.3%
Other	Count	61	37	19	18	135
	%	24.9%	20.2%	38.8%	35.3%	25.6%

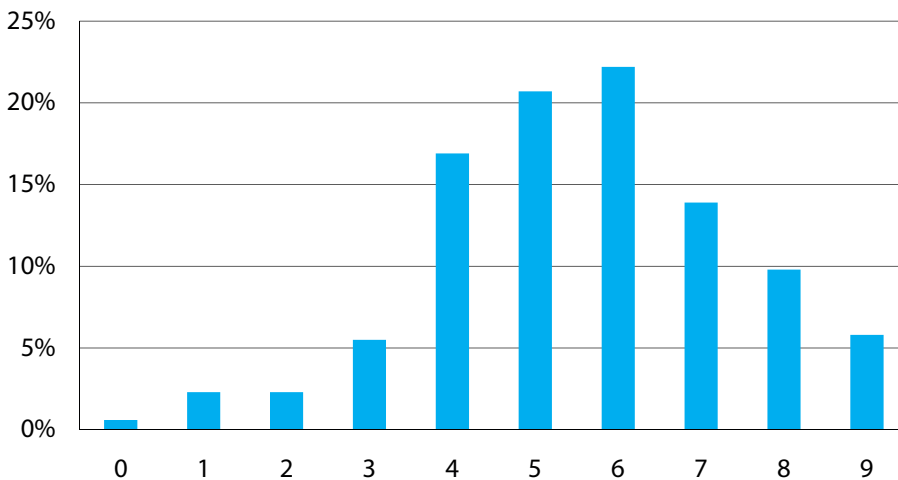
## Radiation therapy services provided by your facility



### Number of services provided by each facility

	Frequency	Valid Percent	Cumulative Percent
0	3	0.6	0.6
1	12	2.3	2.8
2	12	2.3	5.1
3	29	5.5	10.5
4	90	16.9	27.5
5	110	20.7	48.2
6	118	22.2	70.4
7	74	13.9	84.4
8	52	9.8	94.2
9	31	5.8	100.0
<b>Total</b>	<b>531</b>	<b>100.0</b>	
<b>Mean number of services</b>	<b>5.56 (SD=1.84)</b>		
Percentiles	5th=2.27, 25th=4.32, 50th=5.57, 75th=6.87, 95th=8.73		

### Number of services provided by each facility



### Mean number of services provided by each facility by facility type

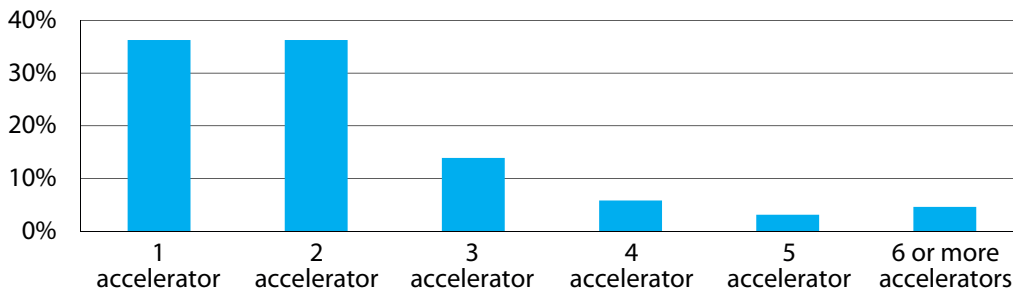
	N	Mean	Standard Deviation
Community hospital	245	5.46	1.410
Freestanding clinic	183	5.10	1.594
University medical center	49	7.69	1.517
Other or unstated	54	5.67	2.972

University medical centers provide significantly more services (mean of 7.69 of the 10 listed services) than do community hospitals and freestanding clinics (combined mean of 5.25 services),  $t(527) = 9.40, P < .001$ .

## 6. Number of linear accelerators used at your facility

	Frequency	Valid Percent	Cumulative Percent
1 accelerator	188	36.3	36.3
2 accelerators	188	36.3	72.6
3 accelerators	72	13.9	86.5
4 accelerators	30	5.8	92.3
5 accelerators	16	3.1	95.4
6 or more accelerators	24	4.6	100.0
<b>Total</b>	<b>518</b>	<b>100.0</b>	
<b>Mean number of linear accelerators</b>	<b>2.22 (SD=1.62)</b>		
Percentiles	5th=.24, 25th=1.16, 50th=1.86, 75th=2.81, 95th=5.45		

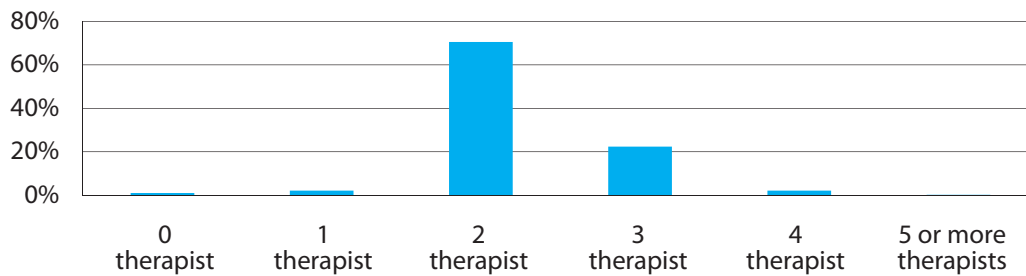
### Number of linear accelerators used at your facility



### 7. Number of therapists per linear accelerator during a given treatment session (Frequency table categories are rounded to the nearest therapist.)

	Frequency	Valid Percent	Cumulative Percent
0 therapists	5	1.0	1.0
1 therapist	11	2.1	3.1
2 therapists	365	70.5	73.6
3 therapists	116	22.4	95.9
4 therapists	11	2.1	98.1
5 or more therapists	10	1.9	100.0
<b>Total</b>	<b>518</b>	<b>100.0</b>	
<b>Mean number of therapists</b>	<b>2.27 (SD=.910)</b>		
Percentiles	5th=1.52, 25th=1.80, 50th=2.07, 75th=2.43, 95th=3.22		

### Number of therapists per linear accelerator during a given treatment session



### Number of therapists per linear accelerator during a given treatment session by region

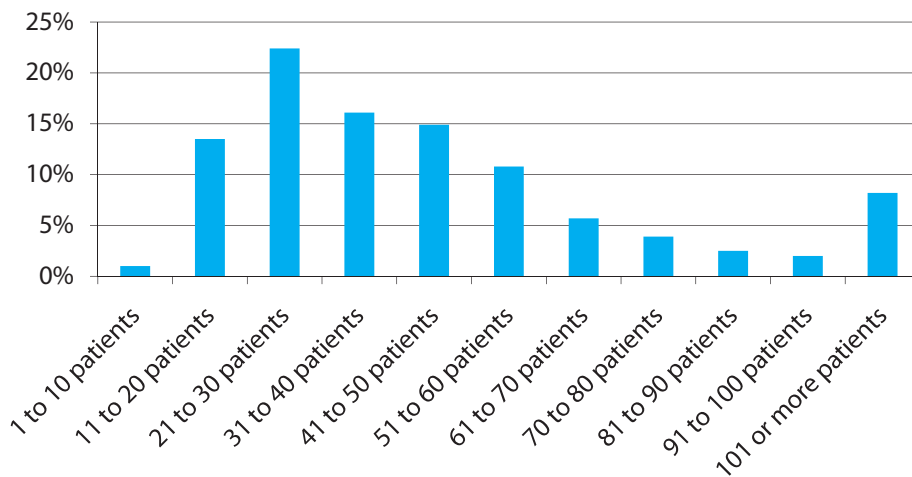
	Mean	N	Standard Deviation
New England	2.21	27	0.859
Middle Atlantic	2.20	69	0.783
East North Central	2.33	94	0.928
West North Central	2.12	39	0.334
South Atlantic	2.28	103	0.809
East South Central	2.09	27	0.538
West South Central	2.29	47	0.523
Mountain	2.21	38	0.553
Pacific	2.36	70	1.584

There were no statistically significant differences among the means,  $F(8,505) = .475$ ,  $p = .874$

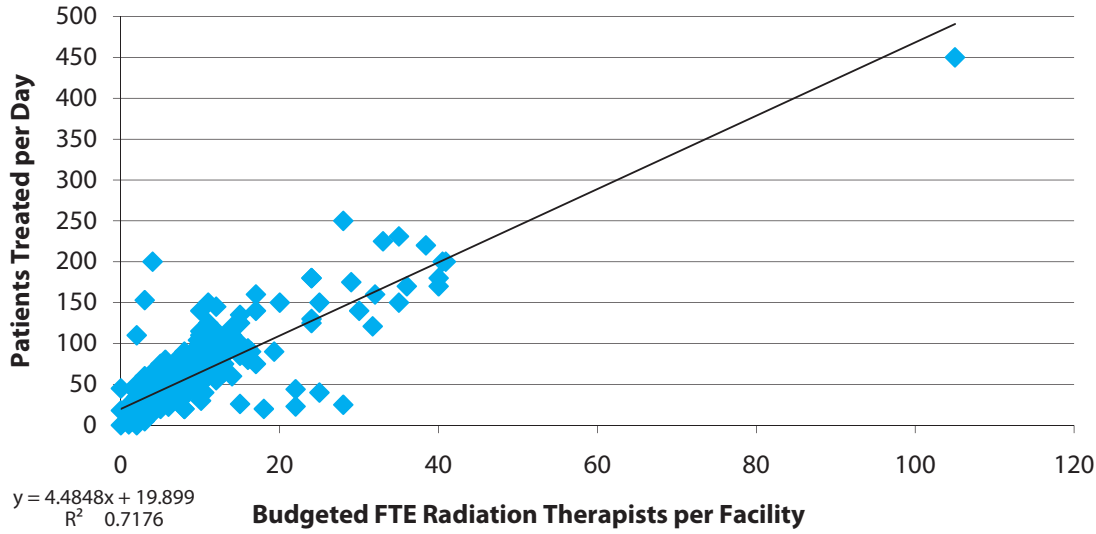
## 8. Number of patients receiving treatment per day

	Frequency	Valid Percent	Cumulative Percent
1 to 10 patients	5	1.0	1.0
11 to 20 patients	69	13.5	14.5
21 to 30 patients	114	22.4	36.9
31 to 40 patients	82	16.1	52.9
41 to 50 patients	76	14.9	67.8
51 to 60 patients	55	10.8	78.6
61 to 70 patients	24	4.7	83.3
71 to 80 patients	20	3.9	87.3
81 to 90 patients	13	2.5	89.8
91 to 100 patients	10	2.0	91.8
101 ore more patients	42	8.2	100.0
<b>Total</b>	<b>510</b>	<b>100.0</b>	
<b>Mean number of patients</b>	<b>52.01 (SD=43.70)</b>		
Percentiles	5th=15.03, 25th=25.53, 50th=40.10, 75th=60.58, 95th=144.63		

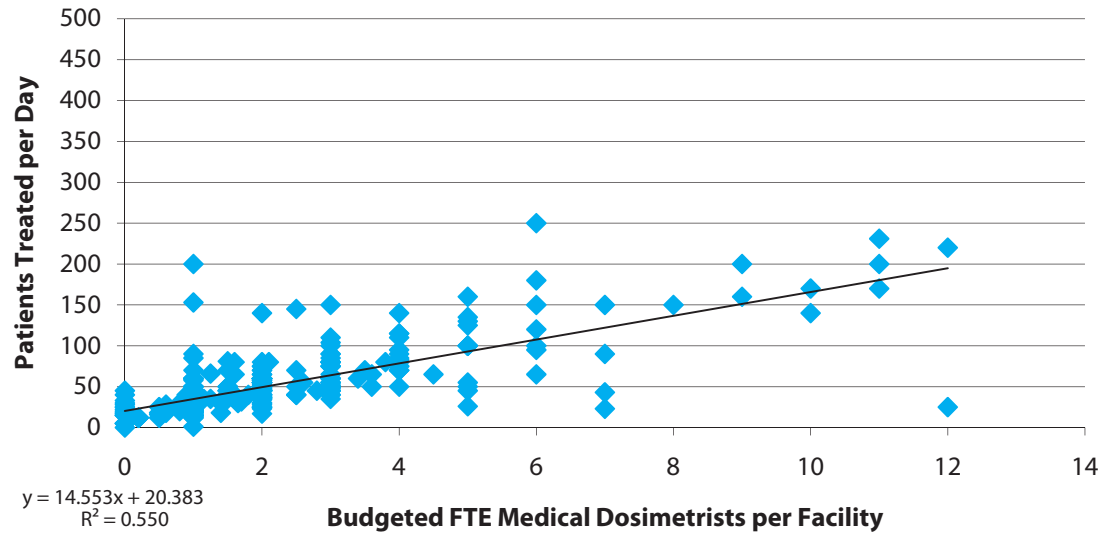
### Number of patients receiving treatment per day



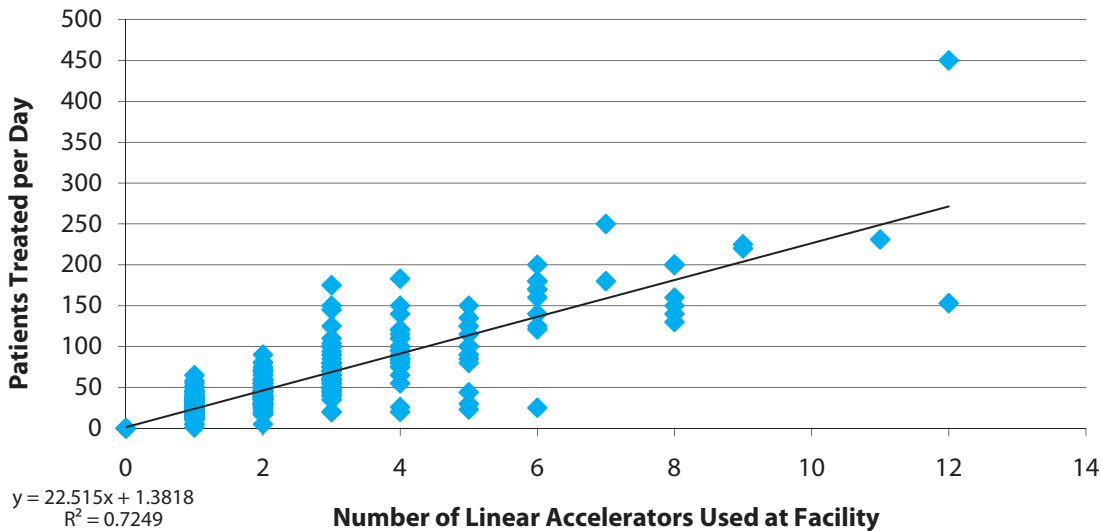
**Patients treated per day by budgeted FTE radiation therapists per facility**



**Patients treated per day by budgeted FTE medical dosimetrists per facility**



**Patients treated per day by number of linear accelerators used at your facility**

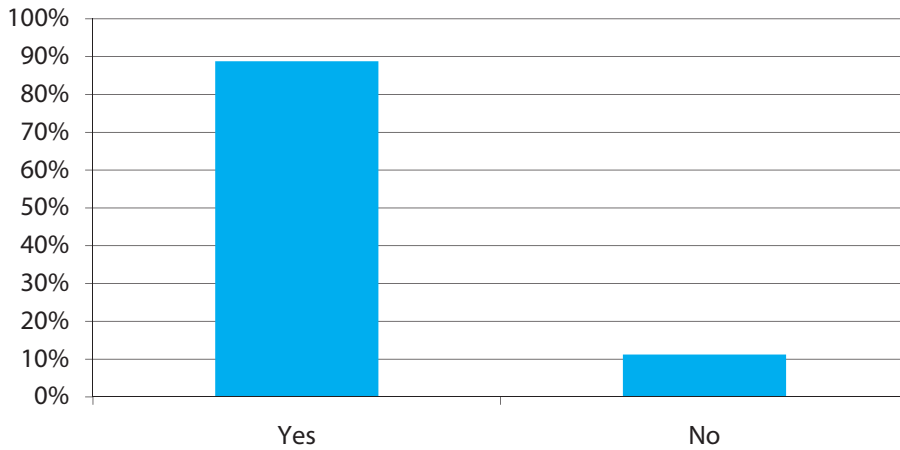


## CT Simulation

### 10. Does your facility have a treatment device used for CT simulation?

	Frequency	Valid Percent
Yes	460	88.8
No	58	11.2
<b>Total</b>	<b>518</b>	<b>100.0</b>

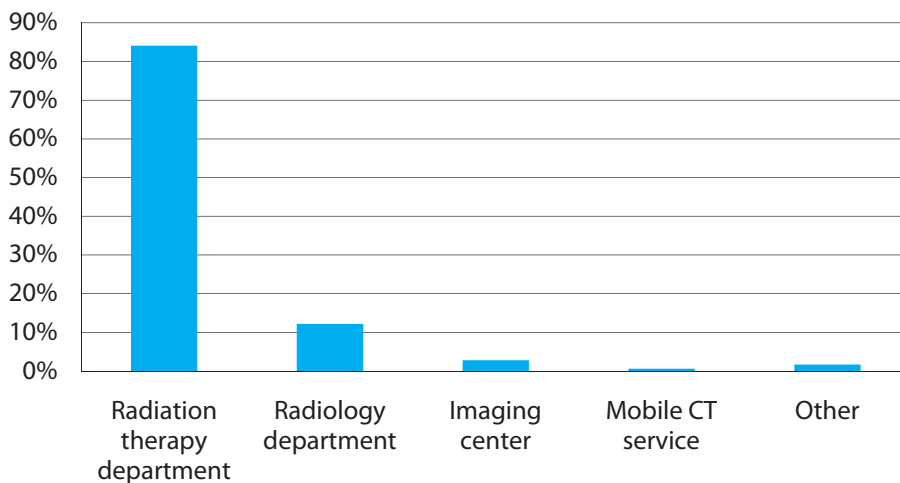
### Does your facility have a treatment device used for CT simulation?



### 11. If you answered "yes" to the question above, where is the CT simulator located?

	Frequency	Percent of Respondents
Radiation therapy department	392	84.1
Radiology department	57	12.2
Imaging center	13	2.8
Mobile CT service	3	0.6
Other	8	1.7
<b>Total</b>	<b>473</b>	<b>-</b>

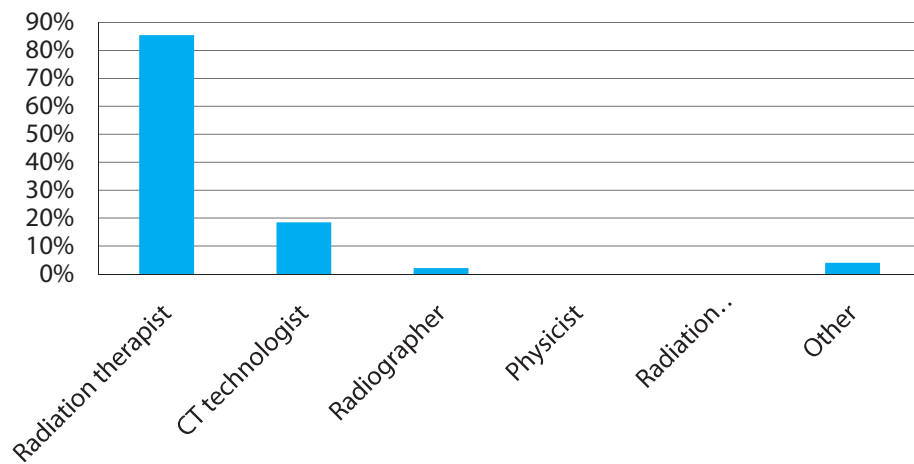
### Where is the CT simulator located?



## 12. Who typically operates the CT device to produce treatment simulations?

	Frequency	Percent of Respondents
Radiation therapist	402	85.4
CT technologist	87	18.5
Radiographer	10	2.1
Physicist	0	0
Radiation oncologist	0	0
Other	19	4.0
<b>Total</b>	<b>518</b>	<b>-</b>

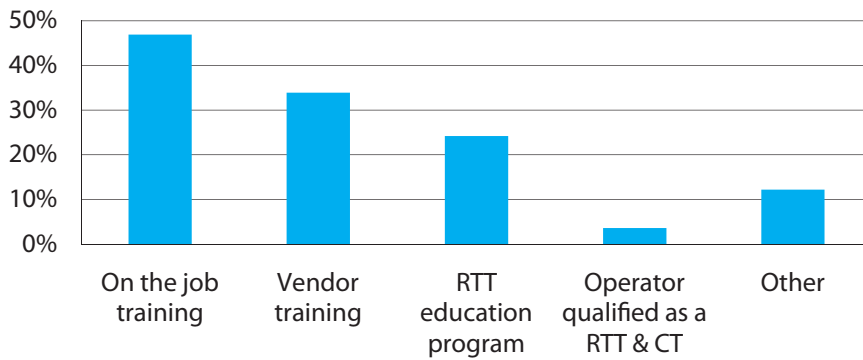
### Who typically operates the CT device to produce treatment simulations?



**13. How was the person(s) specified in question 12 trained to perform treatment simulations?  
(Coded from open-ended responses.)**

	Frequency	Percent of Respondents
On-the-job training	169	46.9
Vendor training	122	33.9
Radiation therapy education program	87	24.2
Operator qualified as a Radiation therapist and CT technologist	13	3.6
Other	44	12.2
<b>Total</b>	<b>435</b>	<b>-</b>

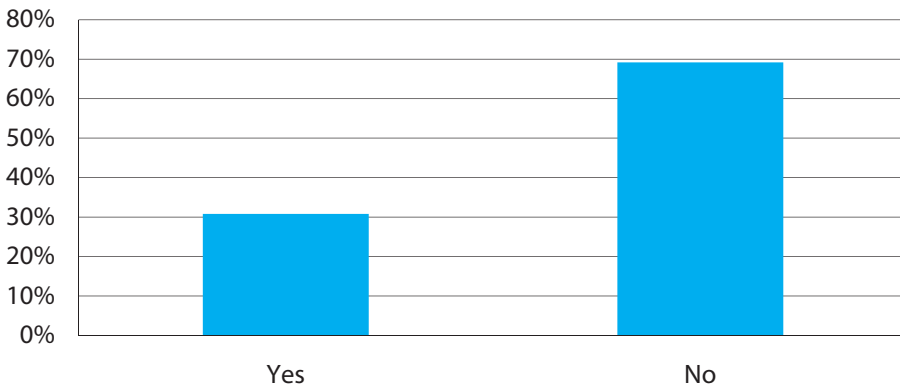
**How was the person(s) specified in question 12 trained to perform treatment simulations?  
(Coded from open-ended responses.)**



**14. Is the CT device ever used for performing diagnostic CT exams on nontherapy patients during overflow periods in diagnostic CT?**

	Frequency	Valid Percent
Yes	145	30.8
No	326	69.2
<b>Total</b>	<b>471</b>	<b>100.0</b>

**Is the CT device ever used for performing diagnostic CT exams on nontherapy patients during overflow periods in diagnostic CT?**



**15. If you answered "yes" to the question above, who performs those studies?**

	Frequency	Valid Percent
CT technologist	130	87.8
Radiation therapist	6	4.1
Radiographer	3	2.0
Other	9	6.1
<b>Total</b>	<b>148</b>	<b>100.0</b>

**If you answered "yes" to the question above, who performs those studies?**

