



American Society of
Radiologic Technologists

**RADIATION THERAPY
STAFFING SURVEY
2009**

**A Nationwide Survey of Radiation Therapy Facility Managers and Directors
Conducted by
The American Society of Radiologic Technologists**

Reported May 2009

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EXECUTIVE SUMMARY

An e-mailed invitation with reference to an online link to the Radiation Therapy Staffing Survey was sent in February 2009 to each of the 1,969 American Registry of Radiologic Technologists registrants who listed a managerial job title and who identified radiation therapy as their primary sphere of employment and for whom an e-mail address could be found. This included those in the SK&A database who did not match ARRT registrants, along with 612 Society for Radiation Oncology Administrators and American Society for Radiation Oncology members for whom an e-mail address could be found. The survey was made available to the general public via the ASRT Web site. The total for those receiving an invitation to the survey was 2,581.

Respondents and Their Facilities

- About 45% of the respondents chose “Department/Facility Manager or Director” as closest to their job titles, with another 35% choosing “Chief Therapist” and 3%, “Chief Dosimetrist.”
- About 47% of the respondents indicated that their facilities are located in a community hospital; 34% in a free-standing clinic; 9.1% in a university medical center; 3.8% in a teaching facility and 1.3% in a government hospital.
- Almost all (98%) of the facilities provide radiation therapy; 87% provide CT simulation, 90% provide conformal radiation therapy delivery and 95% provide IMRT; 56% provide targeted radiation therapy; 38%, fractionated stereotactic therapy; and about 20% each, whole-body irradiation and pediatric therapy. Only 1.1% of these facilities currently provide proton therapy. The number of services checked as being provided by a given facility ranged from zero to all 9 of the 9 items on the non-exhaustive checklist, with a mean of 5.18, median of 5.06 and mode (24% of the facilities) of 5.
- University medical centers provide significantly more services (mean of 7.63 of the 9 listed services) than do community hospitals and freestanding clinics (combined mean of 4.92 services). This was especially true of pediatric radiation therapy (provided by 89.6% of the university medical centers in our sample versus 11.3% of community hospitals and the same percent of freestanding clinics) and whole-body irradiation (85.4% vs. 10.1% and 9.6%).
- About 21.1% of the respondents consider their facilities to be in rural locations; 39.1% suburban; and 39.8% urban.

Staffing of the Facilities

- The typical (median) facility reported having a 2009 budget that provided for 4.97 FTE radiation therapists, 1.57 medical dosimetrists, 1.17 medical physicists, 1.94 radiation oncologists, 1.94 nurses, 2.55 administrative staff, .91 ancillary staff and almost no physician assistants.
- It is estimated that 7.6% of all FTEs budgeted for radiation therapists are currently vacant and recruiting, 8.2% of dosimetrist positions, 12.1% of medical physicist positions, 9.2% of radiation oncologist positions, 7.1% of nursing positions, 6.1% of ancillary staff positions and 10.2% of administrative staff FTEs in U.S. radiology facilities are unfilled.
- Considering facilities with nonzero budgeted FTEs for a given specialist in both 2008 and 2009, the change in individual-facility vacancy rate was statistically nonsignificant (at the .05 level) for all eight listed specialists — i.e., the data are insufficient to tell us whether in the population of all radiation therapy facilities the mean individual-facility vacancy rate increased or decreased from 2008 to 2009 for any of these specialist positions; however, for our *sample* of facilities all 8 specialties experienced an increase in vacancy rate from 2008 to 2009.
- University medical centers provide significantly more services (mean of 7.63 of the 9 listed services) than do community hospitals and freestanding clinics (combined mean of 4.92 services), $t_{385} = 9.957$, $P < .001$.

Recruitment and Retention of Staff

- When asked whether recruiting for each specialty in 2009 has been more difficult, less difficult or equally as difficult as it had been in 2008, from 47% to 74% of the respondents (across the named specialties) who ventured a judgment chose “same.”
- The percentage reporting that more effort has been expended in 2009 than in 2008 was substantially higher than those reporting the reverse for radiation therapists (44.3% “More difficult” vs. 8.5% “Less difficult”), physician assistants (19% vs. 6.9%), nurses (22.4% vs. 11.9%), ancillary staff (36.9% vs. 5.9%)

and administrative staff (36.9% vs. 5.9%), while predominant opinion (among those who perceived a difference) was that recruiting for medical physicists (11.6% vs. 29.9%) and radiation oncologists (11.7% vs. 29.1%) has become substantially less difficult.

- About 59% of the respondents reported a decrease in budgeted FTEs for one or more of the specialties in which their facilities provide service. Of those who indicated a decrease, 34.0% checked "Patient demand declined" and 56.3% checked "Overall department or facility budget declined, forcing downsizing."
- About 87% of the respondents reported an increase in budgeted FTEs for one or more of the specialties in which their facilities provide service. Of those, 48% checked "Patient demand increased," 18% checked "Overall department or facility budget increased, making it possible to add FTEs."
- A majority (52% to 67%) of the respondents feel that average length of employment and employee turnover rate have remained about the same since January 2008 for radiation therapists, dosimetrists, physicists and radiation oncologists.
- Only 18% indicated that they've experienced consequences of a work force shortage at their facility. Of the 97 who indicated this, 13% and 16% responded that their facility has experienced increased patient wait times for procedures, and a reduction in the number of staff assigned to each treatment unit, respectively.
- About 18% of the respondents accepted the invitation to "clarify any of your previous responses or add comments regarding your perception of the potential supply of radiation therapy professionals."

CT and Treatment Simulation

- About 89% indicated that their facility does have a CT device used for treatment simulation. Of these facilities, 81% of the respondents indicated that the simulator was located in the radiation therapy department. About 15% indicated that it was in the radiology department.
- About 84% of the respondents chose radiation therapists as those who typically operate the simulator, followed by CT technologists at 24%. About 53% indicated that the OJT was the person(s) who trained to perform CT treatment simulations.
- About 61% indicated that the CT device is never used for performing diagnostic CT exams on non-therapy patients during overflow periods.
- About 87% of the time CT technologists perform studies in which the CT device is used for for performing diagnostic CT exams on non-therapy patients during overflow periods.
- About 33% use cassette-based digital imaging receptors for port filming.

INTRODUCTION

Background

ASRT's 2005 and 2007 *Radiation Therapy Staffing Survey* provided a snapshot of this supply/demand balance, as well as providing information about what directors and managers believed to be the reasons behind unfilled vacancies. The 2009 *Radiation Therapy Staffing Survey* updates the findings of the 2007 survey and provides the first opportunity to compare radiation therapy staffing trends across a fairly long interval.

Sample Design

An invitation to participate in the *Radiation Therapy Staffing Survey* was sent via e-mail to 2,581 managers within the radiation therapy profession.

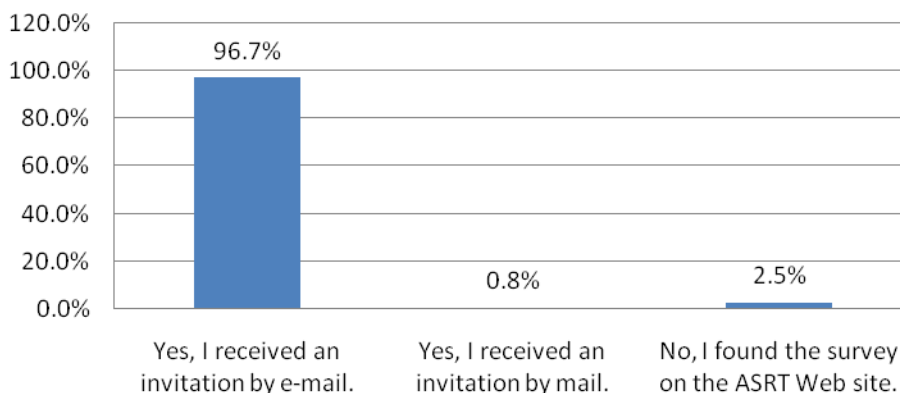
Response Rates

1. Did you receive an invitation asking you to take this survey?

Response	Frequency	Percent	Valid Percent
Yes, I received an invitation by e-mail.	506	95.3%	96.7%
No, I found the survey on the ASRT Web site.	13	2.4%	2.5%
Yes, I received an invitation by mail.*	4	.8%	.8%
Total	523	98.5%	100.0%
Missing	8	1.5%	
Total	531	100.0%	

*The original intent was to provide an invitation by mail. However, invitations were only sent by e-mail and posted on the ASRT Web site. More than likely, these four respondents must have either received the e-mail, found out about the survey through the ASRT Web site or received the survey link from a colleague.

Did you receive an invitation asking you to take this survey?



Margin of Error

The sample size of 531 returns yields a margin of error for overall percentages (width of the 95% confidence interval for the population percentage) of a maximum plus or minus 4%.

For percentages computed on subsets of respondents, the margin of error increases as the square root of the size of the subset. Thus, the margin of error for percentages based on a subset of 100 respondents would be plus or minus 10% or less, and for a subset of 30 respondents plus or minus 18% or less. (The "or less" comes from the

fact that the margin of error for percentages is greatest for percentages in the 40% to 60% range and is less than one-half as wide for percentages below 5% or above 95%.)

Definition of Statistics

The statistics reported in the question summaries include:

- **Frequency:** The number of responses given for each variable.
- **Percent:** The number of responses for each variable divided by the total number of usable surveys, including missing values.
- **Valid Percent:** The number of responses for each variable divided by the total number of usable surveys, excluding missing values.
- **Missing:** The number of respondents who either did not answer the question or who gave an unusable response.
- **Mean:** The arithmetic average, i.e., the sum of the values of all observations divided by the number of observations.
- **Median:** The value above and below which one-half of the observations fall, the 50th percentile. Usually, because of rounding, no number precisely satisfying the definition of the median exists. In such cases, linear interpolation is used to estimate what the median in the population of unrounded scores would be.
- **Mode:** The figure that more respondents report than any other figure.
- **Standard deviation:** The square root of the average squared difference between each score in the set and the mean score. Subsets of respondents who have nearly identical responses on a given variable will have a near-zero standard deviation, while subsets of respondents with very different responses will have a high standard deviation. The major reason for using this relatively complex measure of variation is its close relationship to percentiles. For most sets of scores about 95% of the individual scores will fall within 2 standard deviations of the mean, and the mean of the set of scores will have a 95% chance of falling within 2 “standard errors” of the corresponding population mean, where the standard error is simply the standard deviation divided by the square root of the number of scores in the set.
- **T:** Sample statistic whose value is used to test the **null hypothesis** that the difference between two means we observed in our sample is due entirely to chance fluctuation around corresponding means that do *not* differ from one another in the population to which we wish to generalize our results (in this case, all ARRT-registered R.T.s). The larger the absolute value of t , the more implausible the null hypothesis is and thus the more confident we can be that the direction of the difference observed in our sample matches the directions of the corresponding population difference. Because differences based on large samples more closely approximate the differences in the population from which they were sampled, t has a **degree of freedom parameter** [usually listed in parentheses immediately after the t , as in “ $t(571)$ ”] associated with it.
- **p-value:** The probability that a t as large as or even larger in absolute value than the one we observed in our sample would occur in random sampling from a population in which the null hypothesis of a zero population difference is true. If this value is smaller than some pre-selected value (often .05, but in the present report usually .01) called the **alpha level** (or just “level”) of the test, we proceed to discuss the observed sample difference as though it is representative of (perfectly matches) the corresponding population difference.

Calculating Percent Vacancy Rates

With some exceptions, the individual-facility vacancy rate for a particular specialty at a given facility was computed as the number of FTEs reported as budgeted for that specialty, divided into the number of FTEs for that specialty reported to be “vacant and recruiting.” The major exception to this calculation arose when the number of budgeted FTEs was zero. In that case the individual-facility vacancy rate was assigned a missing-value code and did not enter into the calculation of descriptive statistics for that specialty’s vacancy rates. The zero value for budgeted FTE was, however, retained in calculation of descriptive statistics, with the result that the N on which descriptive statistics for budgeted FTE and vacant-and-recruiting FTE were based was always larger than the N on which the “percent vacant and recruiting” statistic was based.

Another major exception was the case where a nonzero budgeted FTE was entered, but the space for vacant-and-recruiting FTE was left blank. We treated the “missing” vacant-and-recruiting FTE as zero in all subsequent calculations.

The estimated percent of unfilled positions for a given specialty within the population of radiation therapy facilities is defined as:

$$\frac{(\text{total \# of FTEs vacant and recruiting})}{(\text{total \# of FTEs budgeted}) \text{ for that specialty}}$$

which equals:

$$\frac{(\text{mean \# of vacant-and-recruiting FTEs per facility}) \times (\text{total \# of facilities})}{(\text{mean \# of budgeted FTEs per facility}) \times (\text{total \# of facilities})}$$

The total number of facilities that offer a given specialty is unknown, but drops out of the above equation, which thereby reduces to:

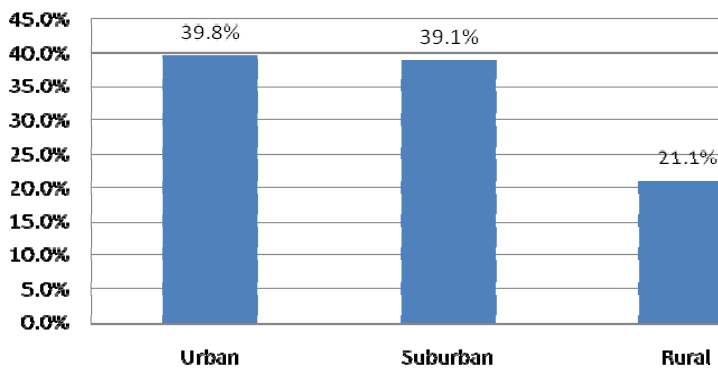
$$\frac{(\text{mean \# of vacant-and-recruiting FTEs per facility})}{(\text{mean \# of budgeted FTEs per facility})}$$

FACILITY DEMOGRAPHICS

2. Location:

	Frequency	Percent	Valid Percent
Urban	210	39.5%	39.8%
Suburban	206	38.8%	39.1%
Rural	111	20.9%	21.1%
Total	527	99.2%	100.0%
Missing	4	.8%	
Total	531	100.0%	

Location:

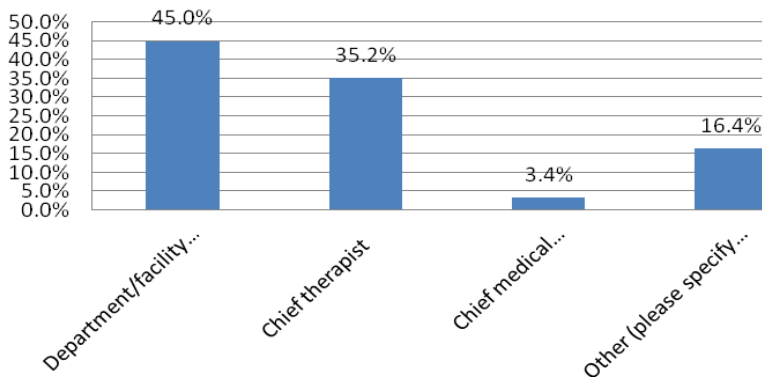


3. State: Located in Appendix A

4. Your title:

Response	Frequency	Percent	Valid Percent
Department/facility manager or director	238	44.8%	45.0%
Chief therapist	186	35.0%	35.2%
Chief medical dosimetrist	18	3.4%	3.4%
Other	87	16.4%	16.4%
Total	529	99.6%	100.0%
Missing	2	.4%	
Total	531	100.0%	

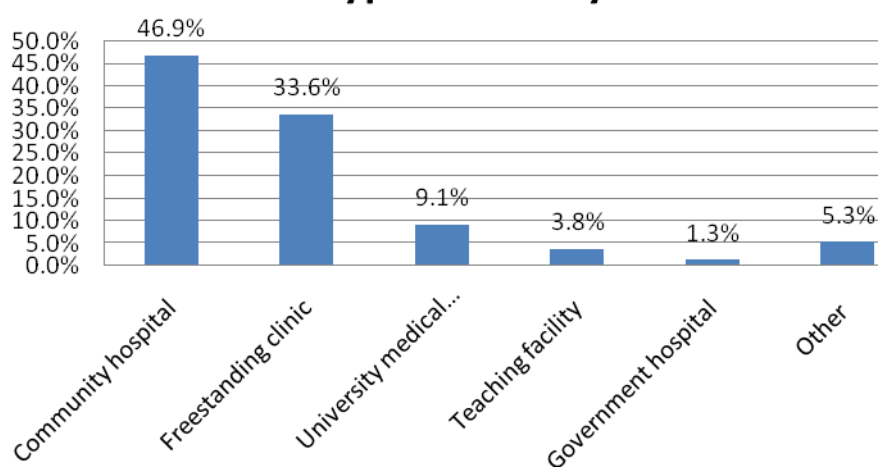
Your title:



5. Type of facility:

	Frequency	Percent	Valid Percent
Community hospital	247	46.5%	46.9%
Freestanding clinic	177	33.3%	33.6%
University medical center	48	9.0%	9.1%
Teaching facility	20	3.8%	3.8%
Government hospital	7	1.3%	1.3%
Other	28	5.3%	5.3%
Total	527	99.2%	100.0%
Missing	4	.8%	
Total	531	100.0%	

Type of facility

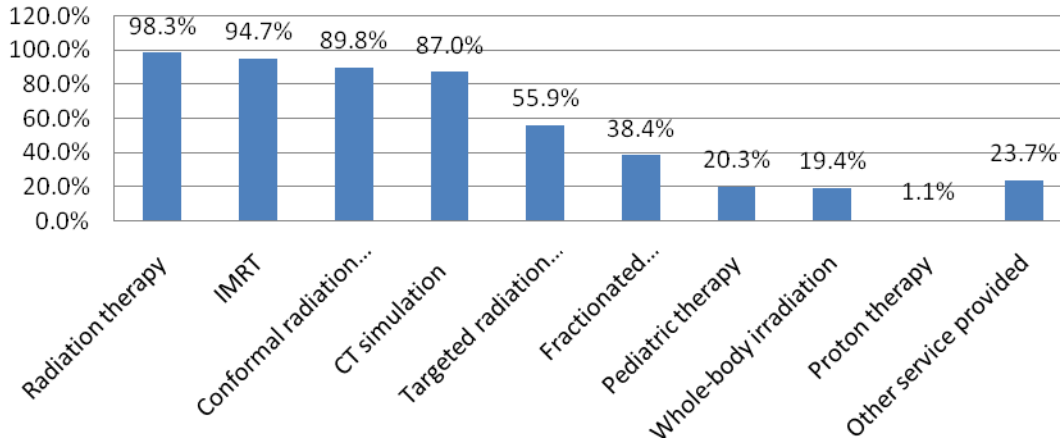


6. Radiation therapy services provided by your facility. Please check all that apply.

Service	Number of Facilities that Provide this Service	Percent of Facilities*
Radiation therapy	522	98.3%
IMRT	503	94.7%
Conformal radiation therapy delivery	477	89.8%
CT simulation	462	87.0%
Targeted radiation therapy	297	55.9%
Fractionated stereotactic therapy	204	38.4%
Pediatric therapy	108	20.3%
Whole-body irradiation	103	19.4%
Proton therapy	6	1.1%
Other service provided	126	23.7%
Total services	2808	528.8*
Total facilities	531	

*Percents add to more than 100% because most facilities provide more than one service.

Radiation therapy services provided by your facility.

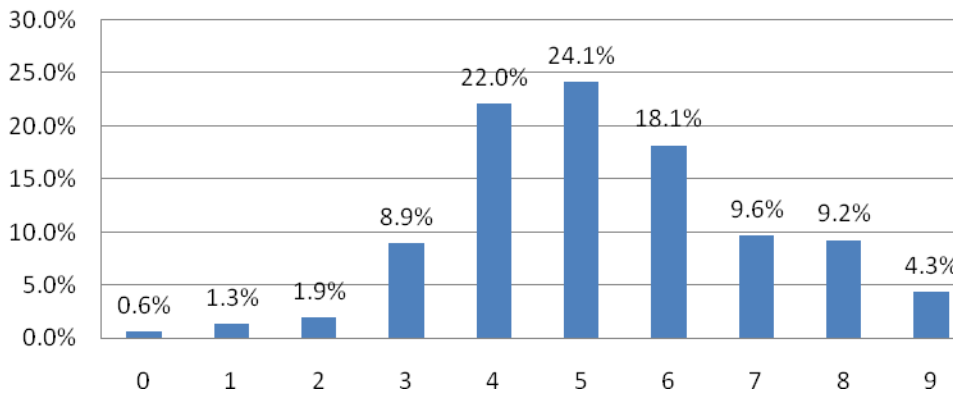


Number of Services Provided by Each Facility

	Frequency	Percent	Valid Percent
0	3	.6%	.6%
1	7	1.3%	1.3%
2	10	1.9%	1.9%
3	47	8.9%	8.9%
4	117	22.0%	22.0%
5	128	24.1%	24.1%
6	96	18.1%	18.1%
7	51	9.6%	9.6%
8	49	9.2%	9.2%
9	23	4.3%	4.3%
Total	531	100.0%	100.0%

Mean = 5.18 services; Median = 5.06.

Number of Services Provided by Each Facility



Number of Services Provided by Various Types of Radiation Therapy Facility

Type of facility	N	Mean	Std. Deviation	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
Community hospital	181	5.03	1.44	4.82	5.25	.00	9.00
Freestanding clinic	131	4.77	1.36	4.54	5.01	1.00	9.00
University medical center	35	7.63	1.59	7.08	8.18	3.00	9.00
Other or unstated	42	5.31	2.21	4.62	5.99	.00	9.00
Total	389	5.20	1.72	5.03	5.37	.00	9.00

University medical centers provide significantly more services (mean of 7.63 of the 9 listed services) than do community hospitals and freestanding clinics (combined mean of 4.92 services), $t_{385} = 9.957$, $P < .001$.

Types of Services Provided by Various Types of Radiation Therapy Facility

Service*	Community hospital		Freestanding clinic		University medical center		Other or unstated		Significant differences among facility types
	Count	%	Count	%	Count	%	Count	%	
Radiation therapy	246	99.6	176	99.4	47	97.9	53	89.8	Oth < other 3
IMRT	237	96.0	170	96.0	46	95.8	50	84.7	Oth < other 3
Conformal	227	91.9	153	86.4	47	97.9	50	84.7	FC < CH, UMC
CT Simuln	221	89.5	147	83.1	46	95.8	48	81.4	FC < CH, UMC
Targeted	139	56.3	81	45.8	42	87.5	35	59.3	UMC > CH > FC
Fractionated	81	32.8	50	28.2	42	87.5	31	52.5	UMC > CH, FC
Pediatric	28	11.3	20	11.3	43	89.6	17	28.8	UMC > CH, FC
Whole-body	25	10.1	17	9.6	41	85.4	20	33.9	UMC > CH, FC
Proton	1	0.4	1	0.6	2	4.2	2	3.4	None**
Other	65	26.3	33	18.6	14	29.2	14	23.7	None
Total	247		177		48		59		

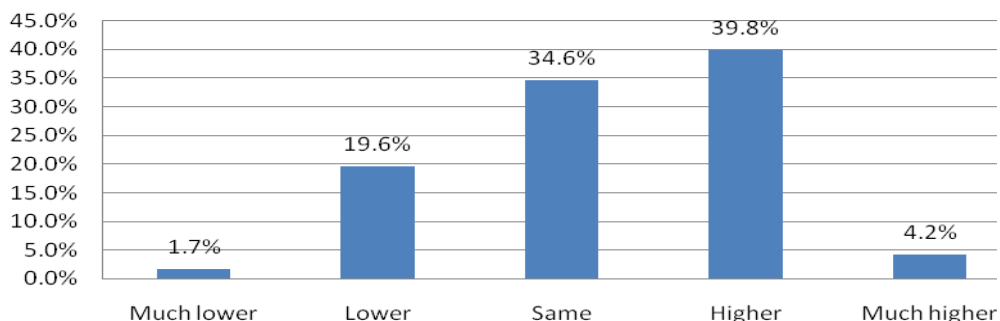
*The most common combination of services (86, or 16.2% of all facilities) was CT simulation, radiation therapy, IMRT and conformal radiation therapy delivery, followed by those four services plus targeted radiation therapy (73 = 14% of facilities) and those five services plus fractionated stereotactic therapy (41 = 7.7%). See appendix B for a complete list of the patterns of services provided at the facilities.

** $P = .054$ by Fisher's Exact Test for UMC vs. CH, FC.

7a. Over the year 2008, how did the number of new patients compare to 2007?

	Frequency	Percent	Valid Percent	Cumulative Percent
Much lower	9	1.7%	1.7%	1.7%
Lower	102	19.2%	19.6%	21.3%
Same	180	33.9%	34.6%	56.0%
Higher	207	39.0%	39.8%	95.8%
Much higher	22	4.1%	4.2%	100.0%
Total	520	97.9%	100.0%	
Missing	11	2.1%		
Total	531	100.0%		

Over the year 2008, how did the number of new patients compare to 2007?



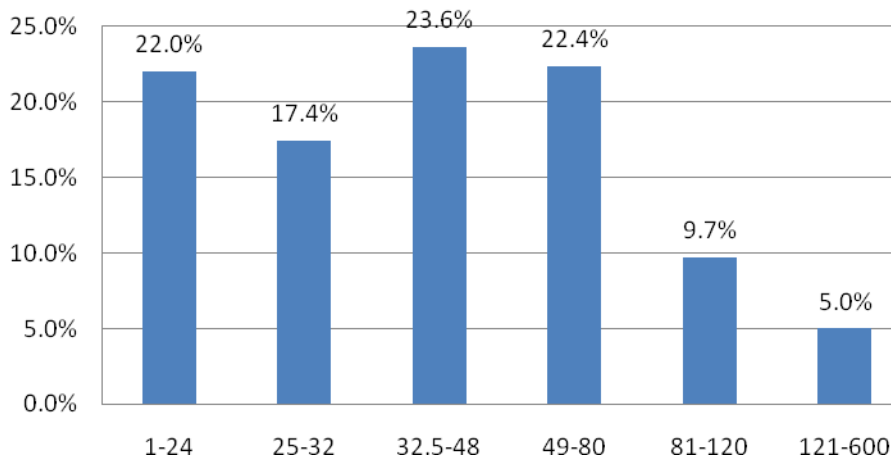
7b. Patients treated per day (at your facility):

Number of Patients per day	N	Valid Percent	Cumulative Percent
1-24	114	22.0%	22.0%
25-32	90	17.4%	39.4%
32.5-48	122	23.6%	63.0%
49-80	116	22.4%	85.3%
81-120	50	9.7%	95.0%
121-600 ^a	26	5.0%	100.0%
Total Valid	518	100.0%	
Missing ^b	13		
Total	531		

^a The facility reporting 600pts/day also reported 98 and 101 RTTs budgeted for 2008 and 2009.

^b Responses treated as missing include two facilities reporting an implausibly high 162 and 204 pts per day per treatment team and one facility reporting treating 450 pts per day with no information on number of RTTs on staff.

Patients treated per day



7c. Number of therapists per treatment machine during a given treatment session

	# of RTTs per Test machine	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	12	2.3%	2.4%	2.4%
	1.50	16	3.0%	3.1%	5.5%
	2.00	332	62.5%	65.2%	70.7%
	2.50	63	11.9%	12.4%	83.1%
	2.60	1	.2%	.2%	83.3%
	2.70	1	.2%	.2%	83.5%
	2.75	1	.2%	.2%	83.7%
	2.80	1	.2%	.2%	83.9%
	3.00	73	13.7%	14.3%	98.2%
	3.75	1	.2%	.2%	98.4%
	4.00	6	1.1%	1.2%	99.6%
	5.00	2	.4%	.4%	100.0%
	Total	509	95.9%	100.0%	
Missing	Implausibly high number (>= 10)	5	.9%		
	System	17	3.2%		
	Total	22	4.1%		
Total		531	100.0%		

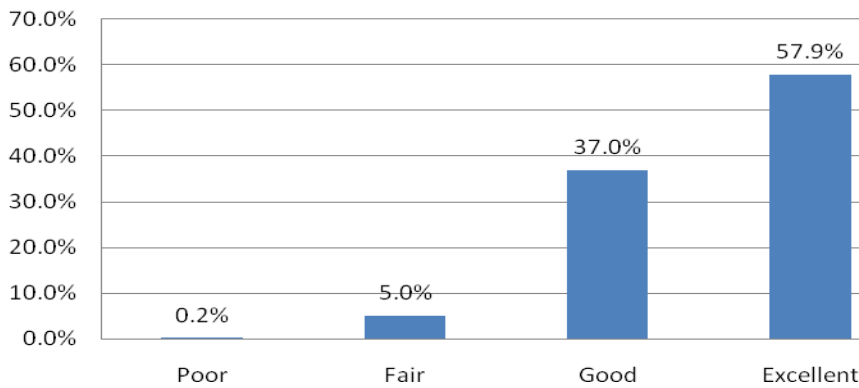
Descriptive Statistics for Patients Treated Per Day and RTTs per Machine

		Patients treated per day -- corrected for outliers	# RTTs per treatment session, corrected for outliers
N	Valid	518	509
	Missing	13	22
Mean		51.74	2.21
Median		39.22	2.15
Mode		40.00	2.00
Std. Deviation		47.71	.51
Minimum		1.00	1.00
Maximum		600.00	5.00

8. Reliability of treatment machines:

	Frequency	Percent	Valid Percent	Cumulative Percent
Poor	1	.2%	.2%	.2%
Fair	26	4.9%	5.0%	5.2%
Good	193	36.3%	37.0%	42.1%
Excellent	302	56.9%	57.9%	100.0%
Total	522	98.3%	100.0%	
Missing	9	1.7%		
Total	531	100.0%		

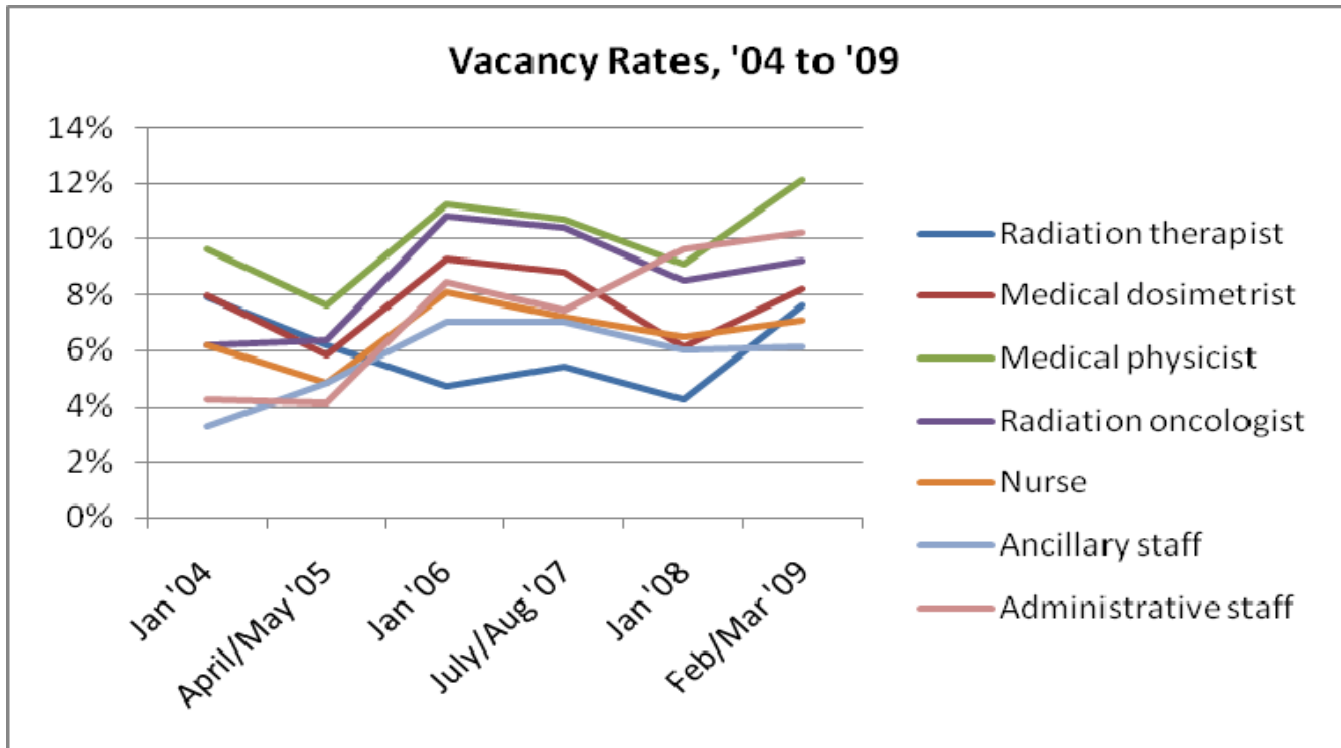
Reliability of treatment machines:



Staffing of the Facility

Percent Vacant and Recruiting, 2008 and 2009

9. For each of the following specialists needed to provide radiation therapy, please provide the budgeted and vacant FTEs for your organization in January 2008 and today. (Leave blank the rows for any specialists who do not work in your facility's radiation therapy suite.)



Radiation Therapist:

		Budgeted FTE 2008	FTE vacant and recruiting ^b 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	476	476	474	448	448	444
	Missing	55	55	57	83	83	87
Mean		6.84	.29	4.25	7.18	.54	6.18
Median ¹		4.93	.01	.19	4.97	.04	.41
Mode		3.00	.00	.00	3.00	.00	.00
Std. Deviation ²		7.45	1.38	16.97	7.93	2.28	20.13
Minimum		.00	.00	.00	.00	.00	.00
Maximum		98.00	16.00	100.00	101.00	27.00	100.00
Percent zeroes		0.4%	89.1%	89.0%	0.9%	83.0%	82.9%
Vacancy rate		2008:	4.25%		2009:	7.6%	

¹ Calculated from grouped data.

² Standard deviations are greater than the means when the distribution is positively skewed. For instance, with radiation therapy, this is caused by the maximum being 98, which has an enormous impact on the standard deviation, since it's more than 90 units above the mean of 6.84 FTEs. Among the consequences are that the median is a better measure of the "typical" number of FTEs allocated. The mean is still the crucial variable for computing nationwide vacancy rate, since that 98-FTE facility is indeed contributing all those jobs to the pool of positions available.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

Medical Dosimetrist

		Budgeted FTE 2008	FTE vacant and recruiting ^b 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	441	441	422	409	409	393
	Missing	90	90	109	122	122	138
Mean		2.09	.13	5.25	2.07	.17	7.21
Median ³		1.43	.017	.46	1.57	.06	1.48
Mode		1.00	.00	.00	1.00	.00	.00
Std. Deviation		2.51	.62	20.50	1.79	.74	23.89
Minimum		.00	.00	.00	.00	.00	.00
Maximum		40.00	9.00	100.00	12.00	10.00	100.00
Percent zeroes		4.3%	92.3%	91.9%	3.9%	89.7%	89.3%
Vacancy rate		2008:	6.1%		2009:	8.2%	

Radiation Oncologist

		Budgeted FTE 2008	FTE vacant and recruiting ^b 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	425	425	419	390	390	380
	Missing	106	106	112	141	141	151
Mean		2.70	.25	8.16	2.69	.25	8.03
Median ⁴		1.88	.07	1.31	1.94	.08	1.32
Mode		1.00	.00	.00	1.00	.00	.00
Std. Deviation		3.63	1.07	24.86	2.62	.88	23.67
Minimum		.00	.00	.00	.00	.00	.00
Maximum		56.00	15.00	100.00	16.99	7.20	100.00
Percent zeroes		1.4%	87.5%	87.4%	2.6%	86.7%	86.3%
Vacancy rate		2008:	8.5%		2009:	9.2%	

Medical Physicist

		Budgeted FTE 2008	FTE vacant and recruiting 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	430	430	427	402	402	397
	Missing	101	101	104	129	129	134
Mean		2.16	.20	8.48	2.11	.26	9.17
Median ⁵		1.15	.02	1.37	1.17	.03	1.00
Mode		1.00	.00	.00	1.00	.00	.00
Std. Deviation		3.13	.82	26.37	2.15	.97	26.57
Minimum		.00	.00	.00	.00	.00	.00
Maximum		52.00	11.00	100.00	15.00	12.00	100.00
Percent zeroes		0.7%	89.1%	89.0%	1.2%	87.1%	86.9%
Vacancy rate		2008:	9.1%		2009:	12.1%	

³ Calculated from grouped data.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

⁴ Calculated from grouped data.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

⁵ Calculated from grouped data.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

Physician Assistant

		Budgeted FTE 2008	FTE vacant and recruiting ^b 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	257	257	33	239	239	37
	Missing	274	274	498	292	292	494
Mean		.20	.01	6.06	.18	.03	16.22
Median ⁶		.09	.01	6.06	.11	.02	16.22
Mode		.00	.00	.00	.00	.00	.00
Std. Deviation		1.02	.09	24.23	.45	.19	37.37
Minimum		.00	.00	.00	.00	.00	.00
Maximum		15.00	1.00	100.00	3.00	2.00	100.00
Percent zeroes		87.2%	99.2%	93.9%	84.5%	97.5%	83.8%
Vacancy rate		2008:	3.8%		2009:	15.8%	

Nurse

		Budgeted FTE 2008	FTE vacant and recruiting ^b 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	439	439	422	412	412	395
	Missing	92	92	109	119	119	136
Mean		2.29	.15	6.46	2.28	.16	6.50
Median ⁷		1.88	.05	.99	1.94	.04	1.43
Mode		1.00	.00	.00	1.00	.00	.00
Std. Deviation		2.31	.64	23.03	1.90	.68	23.33
Minimum		.00	.00	.00	.00	.00	.00
Maximum		30.00	6.00	100.00	13.00	6.00	100.00
Percent zeroes		3.9%	91.3%	91.0%	4.1%	91.3%	90.9%
Vacancy rate		2008:	6.5%		2009:	7.1%	

Ancillary Staff

		Budgeted FTE 2008	FTE vacant and recruiting ^b 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	309	309	189	285	285	174
	Missing	222	222	342	246	246	357
Mean		1.03	.062	5.64	1.04	.06	5.36
Median ⁸		.90	.018	4.10	.91	.04	2.02
Mode		.00	.00	.00	.00	.00	.00
Std. Deviation		1.55	.367	22.89	1.58	.37	22.31
Minimum		.00	.00	.00	.00	.00	.00
Maximum		19.00	4.00	100.00	19.00	4.00	100.00
Percent zeroes		38.8%	96.4%	94.2%	38.9%	96.5%	94.3%
Vacancy rate		2008:	6.0%		2009:	6.1%	

⁶ Calculated from grouped data.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

⁷ Calculated from grouped data.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

⁸ Calculated from grouped data.

Administrative Staff

		Budgeted FTE ^b 2008	FTE vacant and recruiting 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	433	433	423	403	403	392
	Missing	98	98	108	128	128	139
Mean		3.48	.34	7.28	3.57	.39	7.58
Median ⁹		2.51	.02	.61	2.55	.07	.77
Mode		2.00	.00	.00	2.00	.00	.00
Std. Deviation		3.27	1.54	24.40	3.50	1.75	24.56
Minimum		.00	.00	.00	.00	.00	.00
Maximum		22.00	20.00	100.00	24.00	24.00	100.00
Percent zeroes		2.3%	88.9%	88.7%	2.7%	88.1%	87.8%
Vacancy rate		2008:	9.6%		2009:	10.2%	

Other Position(s)

		Budgeted FTE ^b 2008	FTE vacant and recruiting 2008	Percent vacant and recruiting 2008	Budgeted FTE 2009	FTE vacant and recruiting 2009	Percent vacant and recruiting 2009
N	Valid	110	110	85	103	103	79
	Missing	421	421	446	428	428	452
Mean		1.23	.07	3.73	1.30	.11	6.74
Median ¹⁰		.99	.05	2.03	1.01	.04	2.47
Mode		1.00	.00	.00	1.00	.00	.00
Std. Deviation		1.49	.38	16.74	1.60	.44	23.01
Minimum		.00	.00	.00	.00	.00	.00
Maximum		9.00	3.00	100.00	9.00	3.00	100.00
Percent zeroes		22.6%	95.5%	94.1%	23.3%	92.2%	89.9%
Vacancy rate		2008:	5.9%		2009:	8.2%	

Considering facilities with nonzero budgeted FTEs for a given specialist in both 2008 and 2009, the change in individual-facility vacancy rate was statistically nonsignificant (at the .05 level) for all eight listed specialists, i.e., the data are insufficient to tell us whether in the population of all radiation therapy facilities the mean individual-facility vacancy rate increased or decreased from 2008 to 2009 for any of these specialist positions. However, for our *sample* of facilities, all eight specialties experienced an increase in vacancy rate from 2008 to 2009.

⁹ Calculated from grouped data.

^b Based on facilities that also reported budgeted FTEs. Omits facilities reporting more vacant than budgeted FTEs.

¹⁰ Calculated from grouped data.

^b Based on facilities that also reported vacant-and-recruiting FTEs. Omits facilities reporting more vacant than budgeted FTEs.

Recruitment and Retention

10. Describe how the recruitment effort for each specialty so far in 2009 compares with the effort expended during the fiscal year that included January 2008.

		Radiation Therapist			Medical Dosimetrist		
		Frequency	Percent	Valid Percent	Frequency	Percent	Valid Percent
Valid	Less difficult	26	4.9%	8.5%	30	5.6%	14.2%
	Same	145	27.3%	47.2%	136	25.6%	64.2%
	More difficult	136	25.6%	44.3%	46	8.7%	21.7%
Missing	Don't Know	161	30.3%		240	45.2%	
	System	63	11.9%		79	14.9%	
Total		531	100.0%	100.0%	531	100.0%	100.0%

		Medical Physicist			Radiation Oncologist		
		Frequency	Percent	Valid Percent	Frequency	Percent	Valid Percent
Valid	Less difficult	67	12.6%	29.9%	57	10.7%	29.1%
	Same	131	24.7%	58.5%	116	21.8%	59.2%
	More difficult	26	4.9%	11.6%	23	4.3%	11.7%
Missing	Don't Know	227	42.7%		253	47.6%	
	System	80	15.1%		82	15.4%	
Total		531	100.0%	100.0%	531	100.0	100.0

		Physician Assistant			Nurse		
		Frequency	Percent	Valid Percent	Frequency	Percent	Valid Percent
Valid	Less difficult	4	.8%	6.9%	24	4.5%	11.9%
	Same	43	8.1%	74.1%	132	24.9%	65.7%
	More difficult	11	2.1%	19.0%	45	8.5%	22.4%
Missing	Don't Know	351	66.1%		241	45.4%	
	System	122	23.0%		89	16.8%	
Total		531	100.0%	100.0%	531	100.0%	100.05

		Ancillary Staff			Administrative Staff		
		Frequency	Percent	Valid Percent	Frequency	Percent	Valid Percent
Valid	Less difficult	2	.4%	1.6%	13	2.4%	5.9%
	Same	81	15.3%	65.3%	127	23.9%	57.2%
	More difficult	41	7.7%	33.1%	82	15.4%	36.9%
Missing	Don't Know	0	.0%		219	41.2%	
	System	407	76.6%		90	16.9%	
Total		531	100.0%	100.0%	531	100.0%	100.0%

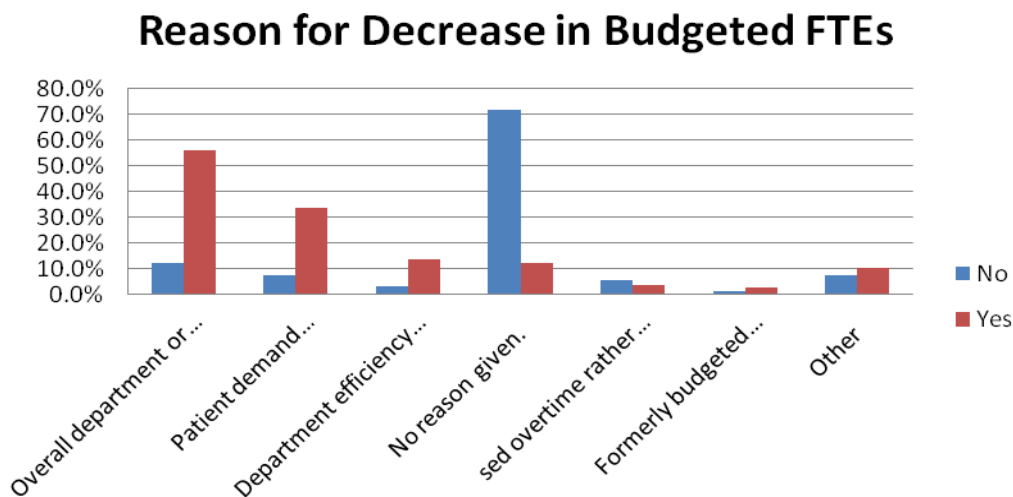
		Other		
		Frequency	Percent	Valid Percent
Valid	More difficult	9	1.7%	20.9%
	Same	27	5.1%	62.8%
	Less difficult	7	1.3%	16.3%
Missing	Don't know	183	34.5%	
	System	305	57.4%	
Total		531	100.0%	100.0%

From 47% to 74% of the respondents chose "Same." The percentage reporting that more effort has been expended in 2009 than in 2008 was substantially higher than those reporting the reverse for radiation therapists (44.3% "More difficult" vs. 8.5% "Less difficult"), physician assistants (19% vs. 6.9%), nurses (22.4% vs. 11.9%), ancillary staff (36.9% vs. 5.9%) and administrative staff (36.9% vs. 5.9%), while predominant opinion (among those who perceived a difference) was that recruiting for medical physicists (11.6% vs. 29.9%) and radiation oncologists (11.7% vs. 29.1%) has become substantially less difficult.

11. If budgeted FTEs in any of these specialties have decreased since January 2008, what do you believe is the reason for this decrease?

Reason for Decrease in Budgeted FTEs	Did FTEs for any specialty decrease?			Total
	One or both FTEs not reported	No*	Yes	
No reason given.	43 48.9%	244 71.8%	13 12.6%	300 56.5%
Patient demand declined.	9 10.2%	25 7.4%	35 34.0%	69 13.0%
Overall department or facility budget declined, forcing downsizing.	19 21.6%	42 12.4%	58 56.3%	119 22.4%
Formerly budgeted FTEs were so difficult to fill they were dropped from the budget.	3 3.4%	4 1.2%	3 2.9%	10 1.9%
Department efficiency increased, so number of FTEs required to handle the workload declined.	6 6.8%	11 3.2%	14 13.6%	31 5.8%
Used overtime rather than hire additional staff.	13 14.8%	19 5.6%	4 3.9%	36 6.8%
Other	9 10.2%	26 7.6%	11 10.7%	46 8.7%
Total respondents who gave 1 or more reasons	45	96	90	231
Total respondents	88	340	103	531

*Many respondents checked one or more reasons for a decline in budgeted FTEs, even though the FTEs they reported did not indicate a decrease had occurred for any specialty or they had not reported any FTEs for one or both of January 2008 or February/March 2009. These managers and directors probably interpreted the question as a more general one of what they perceived would cause decreases in FTEs, when and if such decreases occur. The percentage of respondents mentioning different reasons is therefore reported separately for each subgroup in the following table.

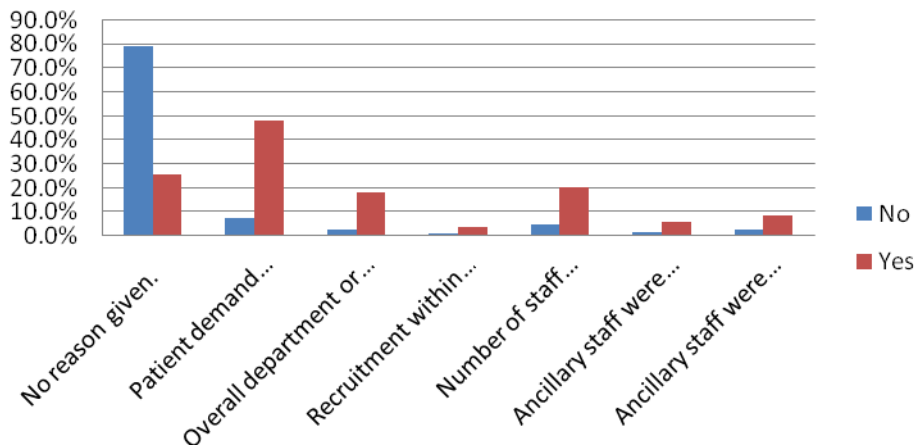


12. If budgeted FTEs in any of these specialties have increased since January 2008, what do you believe is the reason for this increase?

Reason for Increase in Budgeted FTEs	Did FTEs for any specialty increase?			Total
	One or both FTEs not reported	No *	Yes	
No reason given.	51 58.0%	242 79.1%	35 25.5%	328 61.8%
Patient demand increase.	18 20.5%	23 7.5%	66 48.2%	107 20.2%
Overall department or facility budget increase making it possible to add FTEs.	4 4.5%	8 2.6%	25 18.2%	37 7.0%
Recruitment within these specialties became easier, making adding FTEs feasible.	2 2.3%	3 1.0%	5 3.6%	10 1.9%
Number of staff needed for each treatment machine increased.	9 10.2%	14 4.6%	28 20.4%	51 9.6%
Ancillary staff were added to free up therapist/dosimetrist/physicist time and thereby increase patient throughput or quality care.	1 1.1%	5 1.6%	8 5.8%	14 2.6%
Administrative staff were added to free up therapist / dosimetrist /physicist time and thereby increase patient throughput or quality care.	4 4.5%	9 2.9%	12 8.8%	25 4.7%
Other	10 11.4%	21 6.9%	27 19.7%	58 10.9%
Total respondents who gave 1 or more reasons	37	64	102	203
Total respondents	88	306	137	531

*Many respondents checked one or more reasons for an increase in budgeted FTEs, even though the FTEs they reported did not indicate a decrease had occurred for any specialty or they had not reported any FTEs for one or both of January 2008 or February/March 2009. These managers and directors probably interpreted the question as a more general one of what they perceived would cause decreases in FTEs, when and if such decreases occur. The percentage of respondents mentioning different reasons is therefore reported separately for each subgroup in the following table.

Reason for Increase in Budgeted FTEs

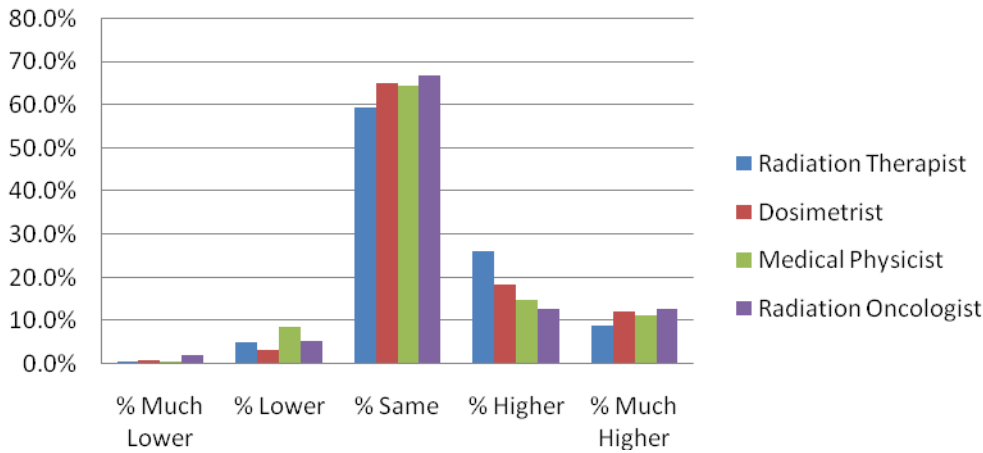


13. For each specialty, how have the following staffing indicators changed since January 2008? (-2 = Much lower to 2 = Much higher)

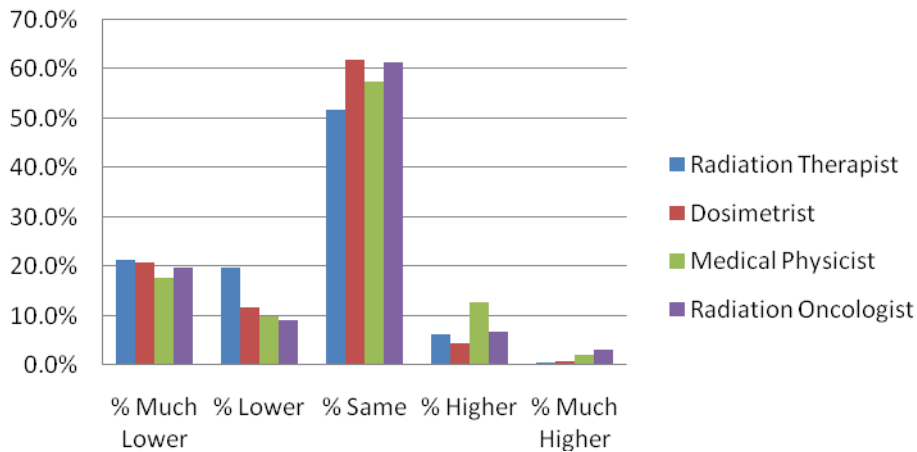
Statistic	Radiation Therapist		Dosimetrist		Medical Physicist		Radiation Oncologist	
	Tenure ^a	Turnover	Tenure	Turnover	Tenure	Turnover	Tenure	Turnover
Valid N	456	366	410	316	413	328	402	323
N missing	75	165	121	215	118	203	129	208
Mean	.37	-.55	.37	-.47	.27	-.28	.29	-.36
Median	.34	-.48	.31	-.37	.21	-.19	.23	-.27
Std. Deviation	.74	.91	.78	.90	.80	.97	.83	.98
% Much Lower	.7%	21.3%	1.0%	20.9%	.7%	17.7%	2.0%	19.8%
% Lower	5.0%	19.9%	3.4%	11.7%	8.7%	9.8%	5.5%	9.0%
% Same	59.4%	51.9%	65.1%	62.0%	64.4%	57.6%	66.9%	61.3%
% Higher	26.1%	6.3%	18.3%	4.4%	14.8%	12.8%	12.9%	6.85
% Much Higher	8.8%	.5%	12.2%	.9%	11.4%	2.1%	12.7%	3.1%

^a Average length of employment.

Tenure



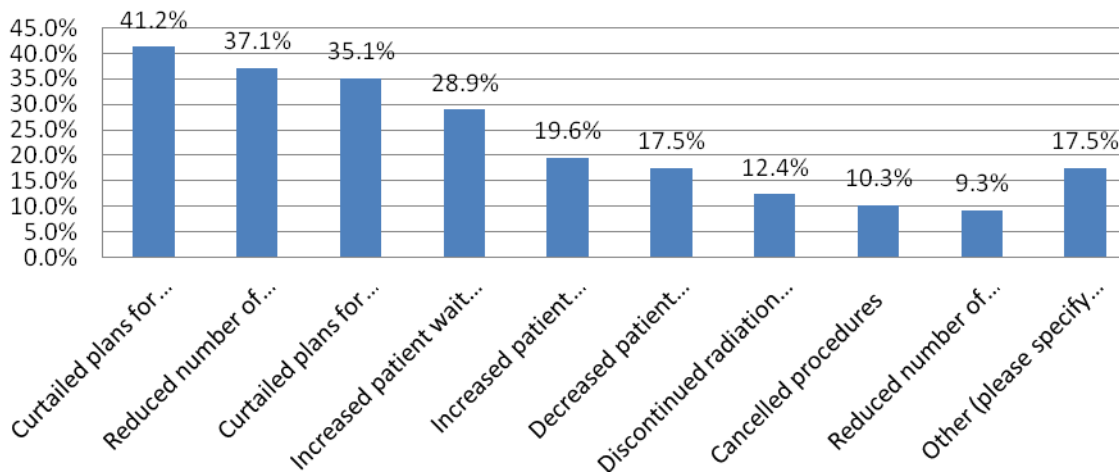
Turnover



14. If your facility is experiencing a work force shortage, check all the consequences of the shortage for your facility.

Consequence	Responses		Percent of Cases
	N	Percent	
Curtailed plans for acquiring new technology.	40	18.0%	41.2%
Reduced number of staff assigned to each treatment unit.	36	16.2%	37.1%
Curtailed plans for facility expansion.	34	15.3%	35.1%
Increased patient wait times for procedures.	28	12.6%	28.9%
Increased patient complaints.	19	8.6%	19.6%
Decreased patient satisfaction.	17	7.7%	17.5%
Discontinued radiation therapy education program.	12	5.4%	12.4%
Cancelled procedures.	10	4.5%	10.3%
Reduced number of staffed treatment units.	9	4.1%	9.3%
Other (please specify below)	17	7.7%	17.5%
Total responses	222	100.0%	228.9%
Total respondents who listed 1 or more consequences			97 (18.3%)
Checked "Not applicable. My facility is not experiencing a work force shortage."			213 (40.1%)
Checked none of the above			221 (41.6%)
Total			531

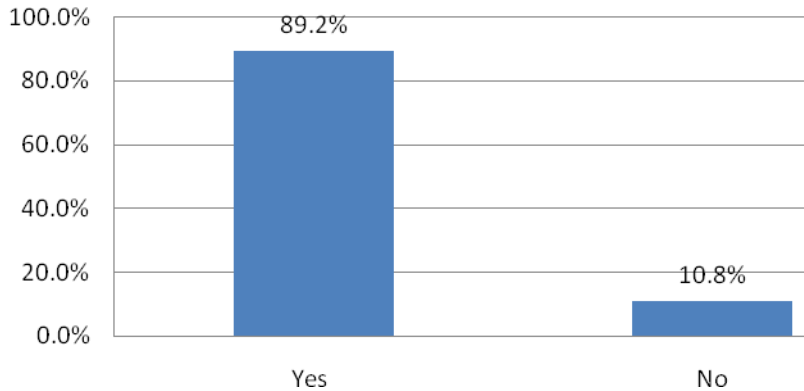
Check all the consequences of the shortage for your facility



15a. Does your facility have a treatment device used for CT simulation?

	Frequency	Percent	Valid Percent
Yes	455	85.7%	89.2%
No	55	10.4%	10.8%
Total	510	96.0%	100.0%
Missing	21	4.0%	
Total	531	100.0%	

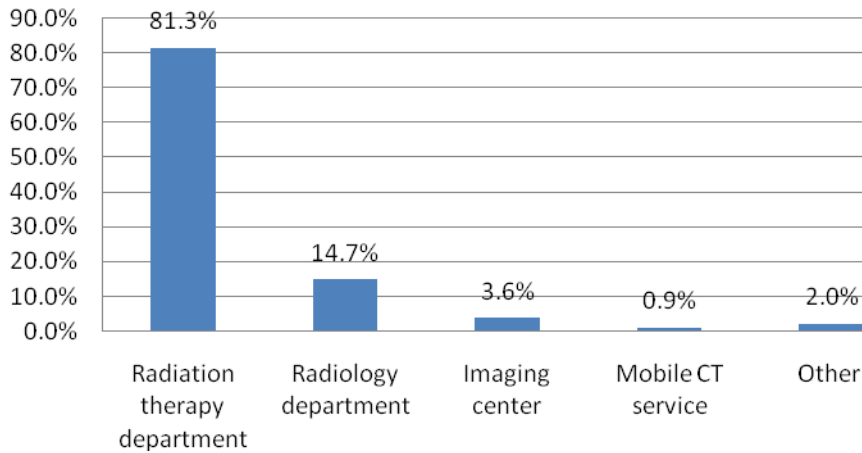
Does your facility have a treatment device used for CT simulation?



15b. If you answered "yes" to question 15, where is the CT simulator located?

Location	Responses		Percent of cases
	N	Percent	
Radiation therapy department	366	79.4%	81.3%
Radiology department	66	14.3%	14.7%
Imaging center	16	3.5%	3.6%
Mobile CT service	4	0.9%	0.9%
Other	9	2.0%	2.0%
Total responses	461	100.0%	102.4%
Checked one or more of above			450 (84.7%)
"Yes" to 15a, but checked none of above			5 (.9%)
"No" to 15a			76 (14.3%)
Total			531

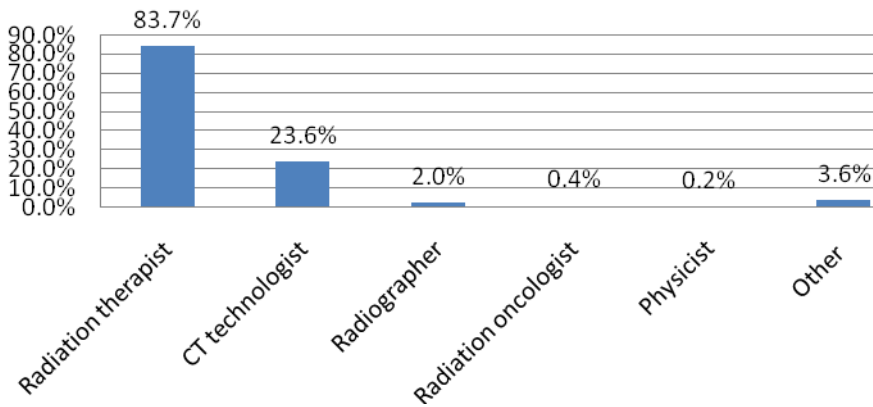
Where is the CT simulator located?



15c. Who typically operates the CT device to produce treatment simulations?

Operator of CT simulation device	Responses		Percent of cases
	N	Percent	
Radiation therapist	376	73.7%	83.7%
CT technologist	106	20.8%	23.6%
Radiographer	9	1.8%	2.0%
Radiation oncologist	2	0.4%	0.4%
Physicist	1	0.2%	0.2%
Other	16	3.1%	3.6%
Total responses		100.0%	113.6%
Checked one or more of above			449 (84.6%)
"Yes" to 15a, but checked none of above			6 (1.1%)
"No" to 15a			76 (14.3%)
Total			531

Who typically operates the CT device to produce treatment simulations?

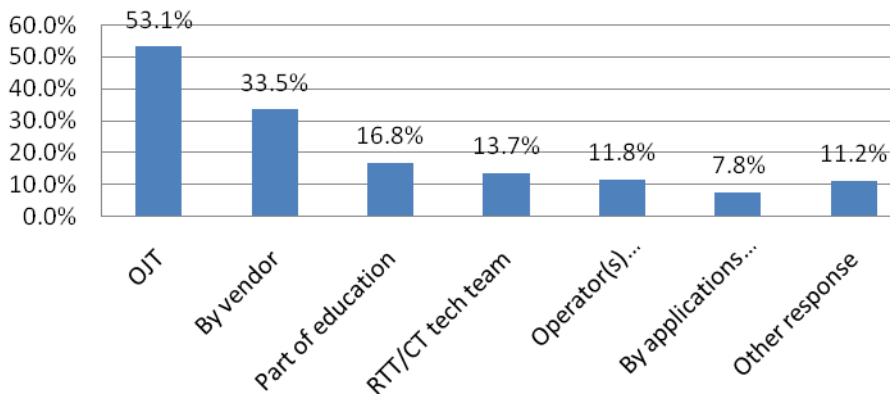


**15d. How was the person(s) specified in question 15c trained to perform treatment simulations?
Coded^a**

How was operator trained?	Responses		Percent of respondents who cited this method
	N	%	
OJT	171	35.9%	53.1%
By vendor	108	22.7%	33.5%
Part of education	54	11.3%	16.8%
RTT/CT tech team	44	9.2%	13.7%
Operator(s) qualified in both RTT, CTT or radiogr	38	8.0%	11.8%
By applications specialist (in-house or provided by vendor)	25	5.3%	7.8%
Other response	36	7.6%	11.2%
Total responses	476	100.0%	147.8%
Total respondents	322	60.6%	
Missing	209	39.4%	
Total	531	100.00%	

^a Actual responses located in Appendix A

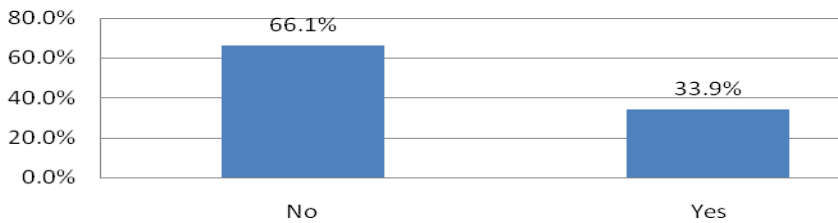
How was the person trained to perform treatment simulations?



16. Is the CT device ever used for performing diagnostic CT exams on non-therapy patients during overflow periods in diagnostic CT?

	Frequency	Percent	Valid Percent
No	304	57.3%	66.1%
Yes	156	29.4%	33.9%
Total	460	86.6%	100.0%
Missing	71	13.4%	
Total	531	100.0%	

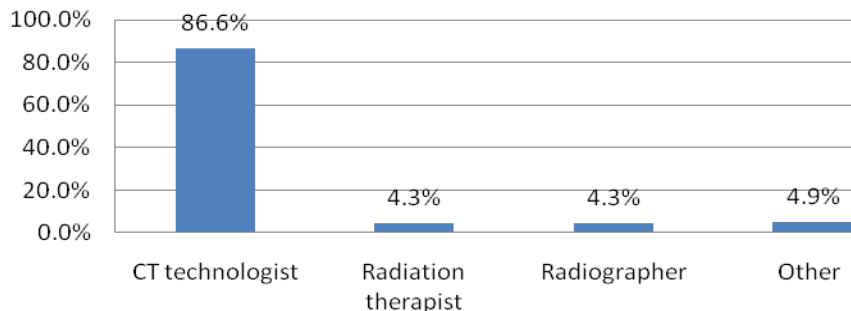
Is the CT device ever used for performing diagnostic CT exams on non-therapy patients during overflow periods in diagnostic CT?



17. If you answered “yes” to the question above, who performs those studies?

	Frequency	Percent	Valid Percent
CT technologist	142	26.7%	86.6%
Radiation therapist	7	1.3%	4.3%
Radiographer	7	1.3%	4.3%
Other	8	1.5%	4.9%
Total	164	30.9%	100.0%
Missing	367	69.1%	
Total	531	100.0%	

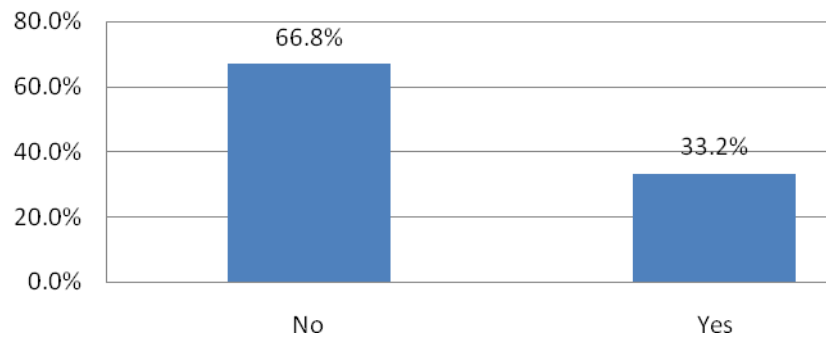
If you answered “yes” to the question above, who performs those studies?



18. Do therapists in your department use cassette-based digital imaging receptors for port filming?

	Frequency	Percent	Valid Percent
No	340	64.0%	66.8%
Yes	169	31.8%	33.2%
Total	509	95.9%	100.0%
Missing	22	4.1%	
Total	531	100.0%	

Do therapists in your department use cassette-based digital imaging receptors for port filming?



APPENDIX A: VERBATIM RESPONSES

State:

(Two-letter abbreviation)

State	Frequency	Percent	Valid Percent	Cumulative %
AK	1	0.2	0.2	0.2
AL	9	1.7	1.7	1.9
AR	6	1.1	1.1	3.1
AZ	16	3.0	3.1	6.1
CA	40	7.5	7.6	13.7
CO	9	1.7	1.7	15.5
CT	3	0.6	0.6	16.0
DC	1	0.2	0.2	16.2
DE	2	0.4	0.4	16.6
FL	31	5.8	5.9	22.5
GA	13	2.4	2.5	25.0
HI	1	0.2	0.2	25.2
IA	8	1.5	1.5	26.7
ID	4	0.8	0.8	27.5
IL	21	4.0	4.0	31.5
IN	16	3.0	3.1	34.5
KS	7	1.3	1.3	35.9
KY	11	2.1	2.1	38.0
LA	8	1.5	1.5	39.5
MA	14	2.6	2.7	42.2
MD	8	1.5	1.5	43.7
ME	2	0.4	0.4	44.1
MI	22	4.1	4.2	48.3
MN	11	2.1	2.1	50.4
MO	10	1.9	1.9	52.3
MS	2	0.4	0.4	52.7
MT	3	0.6	0.6	53.2
NC	21	4.0	4.0	57.3
ND	5	0.9	1.0	58.2
NE	3	0.6	0.6	58.8
NH	2	0.4	0.4	59.2
NJ	13	2.4	2.5	61.6
NM	1	0.2	0.2	61.8
NV	3	0.6	0.6	62.4
NY	32	6.0	6.1	68.5
OH	21	4.0	4.0	72.5
OK	2	0.4	0.4	72.9
ON	2	0.4	0.4	73.3
OR	9	1.7	1.7	75.0
PA	31	5.8	5.9	80.9
RI	2	0.4	0.4	81.3
SC	7	1.3	1.3	82.6
SD	2	0.4	0.4	83.0
SK	1	0.2	0.2	83.2
TN	8	1.5	1.5	84.7
TX	28	5.3	5.3	90.1
UT	4	0.8	0.8	90.8
VA	15	2.8	2.9	93.7
WA	14	2.6	2.7	96.4
WI	11	2.1	2.1	98.5
WV	5	0.9	1.0	99.4
WY	3	0.6	0.6	100.0

Total valid	524	98.7	100.0	
Missing*	7	1.3		
Total	531	100		

*Includes one probable-typo response of "NZ"; no invitation to participate sent to a New Zealand address.

The District of Columbia and all but one of the U.S. state (VT), as well as two Canadian provinces (ON, SK) were represented.

6. Radiation therapy services provided by your facility.

If you chose "Other" in the above question please, specify that other radiation therapy service here:

Response	Frequency	Percent
Blank	383	72.1
'Stereotatic' should be 'stereotactic'	1	.2
Accuboot and Mammosite	1	.2
and many more	1	.2
Brachy	4	.8
Brachy HDR and LDR, TSI	1	.2
Brachytherapy	8	1.5
BRACHYTHERAPY	1	.2
Brachytherapy (seeds and HDR)	1	.2
brachytherapy and superficial (orthovoltage) radiation therapy	1	.2
Brachytherapy HDR & LDR	1	.2
Brachytherapy HDR and Seeds	1	.2
brachytherapy, HDR and LDR	1	.2
Brachytherapy, hyperthermia, and IGRT.	1	.2
Brachytherapy, IGRT, SRS Robotic, SRT Robotic,	1	.2
BRACHYTHERAPY, SEED IMPLANTS, PARTIAL BREAST RADIATION(MAMMOSITES), HDR IMPLANTS	1	.2
Brachytherapy, Stereotactic Radiosurgery	1	.2
BrachyTherapy: Prostate Seed Implants; Radiopharmaceutical therapies including Iodine 131 and Zevelyn	1	.2
Brachytherapy: Tandem&Ovoid, Vaginal Cuff, Surface Plaque, Mammosite, Contoura, AccuBoostProstate Fiducial marker placementPET/CT Simulation & diagnostic PET	1	.2
Breast and prostate brachytherapy, Respiratory gating	1	.2
Community College	1	.2
Cone Beam CT IGRT	1	.2
CT SIM BEING INSTALLED NOW	1	.2
CyberKnife	2	.4
Cyberknife, brachytherapy, mammosite	1	.2
e'	1	.2
Gamma Knife	2	.4
Gamma Knife Hyperthermia HDR	1	.2
GAMMA KNIFE, HDR, MAMMOSITES	1	.2
Gamma Knife HDR	1	.2
Gated, IGRT,HDR and we will be implementing stereotactic within the next 3-6 months.	1	.2
HDR	20	3.4
HDR and LDR	2	.4
HDR and LDR brachytherapy treatment.	1	.2
HDR BOTH LDR AND HDR	1	.2
HDR brachytherapyradiopharmaceutical infusion	1	.2
HDR, Gammaknife	1	.2
HDR, gyn and mammosite,PROSTATE SEED IMPLANTSacculoc, igrt, gating SRS frame and frameless	1	.2
HDR, LDR	3	.6
HDR, LDR, Brachytherapy	1	.2
HDR, LDR, electron	1	.2
HDR, LDR, IGRT, Gating	1	.2

HDR, LDR, Superficial	1	.2
HDR, LDR. Mammosite	1	.2
HDR, MAMMOSITE	1	.2
HDR, PET/CT simulation, MR simulation	1	.2
HDR; radioactive implants	1	.2
HDR;Prostate seed implants; SRS/SRT; Respiratory Gating	1	.2
HDRmammositeIGRTCBCT	1	.2
High Dose Rate Brachytherapy	1	.2
High Dose Rate BrachytherapyIntraoperative RadiotherapyRespiratory Gaiting	1	.2
I am in an community college radiation therapy	1	.2
IGRT - Imaged Guided Radiotherapy	1	.2
IGRT utilizing seed localization software	1	.2
IGRT with Calypso; Brachytherapy; SAVI;	1	.2
IGRT, CBCT, Stereoscopic Imaging	1	.2
IGRT, HDR, Prostate Brachytherapy	1	.2
IGRT, Prostate brachytherapy	1	.2
IGRT, ZMAT(Targeted therapy)	1	.2
IGRT/RapidArc	1	.2
IGRTRapid Arc	1	.2
Image guided Radiation Therapy (IGRT)	10	1.9
Image guided radiation therapy, HDR, seed implants	1	.2
IMRT, IGRT, CT FOR TREATMENT PLANNING AND DIAGNOSTIC SERVICES, MAMMOSITE	1	.2
Instructing the students	1	.2
IORT & BRACHYTHERAPY	1	.2
July we will begin VMAT Arc therapy, STBI	1	.2
L	1	.2
LDR Brachytherapy for Prostate Cancer	1	.2
LDR Brachytherapy of Prostate	1	.2
limited brachytherapy	1	.2
Low Dose rate Prostate seed implants	1	.2
mammosite	1	.2
mammosite (HDR) and liver brachytherapy	1	.2
mammosite, brachytherapy	1	.2
MammositeProstate Seed Implant	1	.2
MRI Simulation, GK, Brachytherapy	1	.2
neutron therapys	1	.2
non-fractionated stereotactic therapymammositeCalypsoExact track	1	.2
OBI/CBCT, Exacrac capabilities on Novalis TX.	1	.2
Prostate Brachy Therapy, CBCT, OBI	1	.2
Prostate Brachytherapy	1	.2
Prostate Implant	1	.2
Prostate Seed Brachytherapy	1	.2
Prostate Seed Implant performed at a hospital within our hospital system. Over 100 per year.HDR treatments with Neclotron. Mostly Breast HDR with mammosite or contura balloons. Over 100 patients done annually.	1	.2
RapidArc	1	.2
RapidArc will be added within next 2 months, IGRT, Brachytherapy	1	.2
Respiratory Gaiting, Body Array	1	.2
Respiratory gating	1	.2
SBRT, Resp Gating, SRS, SIRT, Zevalin, Samerium, HDR	1	.2
see above (Currently not working actively in radiation oncology)	1	.2
SRS AND SRB	1	.2
SRS Brain and SBRT	1	.2
Stereotactic, Radioimmunotherapy, Brachytherapy LDR and HDR	1	.2
Superficial	3	.6
superficial kv	1	.2
Superficial Radiation Therapy	1	.2
suprafacial and electron therapy	1	.2
Tomotherapy	3	.6
Tomotherapy, brachytherapy	1	.2
TomoTherapy; SRS	1	.2
TomoTherapy Brachytherapy (HDR) PhotoDynamic Therapy	1	.2

xoft	1	.2
Total	531	100.0

9. For each of the following specialists needed to provide radiation therapy services, please provide the budgeted and vacant FTEs for your organization in January 2008 and today. Leave rows blank for any specialists who do not work in your facility's radiation therapy suite. Please use decimals for fractional FTEs.

If you chose "Other" in the above question, please specify that other specialty budgeted for here:

Response	Frequency	Percent
Blank	420	79.1
0.5 Operations Manager 0.5 Administrative Director	1	.2
0.5 Radiation Oncology Supervisor and 0.5 Cancer Center Director	1	.2
1- MRI Tech 1- Nuclear Med Tech 1- Sr. Radiation Therapist 1- Nurse Manager 1- Nuero Oncology Coordinator 1- SRS Coordinators 1- Clinical Manager 1- Sr. Radiation Oncology Engineer	1	.2
1 CT tech and 1 MA	1	.2
1 manager	1	.2
1 PART-TIME RT.T M-W-F & AS NEEDED	1	.2
1 tumor registrar 1 director rtt,cmd	1	.2
1.0 FTE - IS Specialist 1.0 FTE - physicist resident in 2 yr program 1.0 FTE - Nursing Assistant 1.0 FTE - Radiation therapy supervisor (over RTTs and daily concerns.) 1.0 FTE - Clinic ManagerDietitian and SW are available as needed within the hospital for consultation.	1	.2
2 PCT	1	.2
Administrator	1	.2
Aide	1	.2
Ancillary-We share a dietician, social worker, exercise physiologist, physical therapist, and genetic counselor with our medical oncology department.Nursing-We also share our nurse practitioner with medical oncology.	1	.2
Billing Secretary	1	.2
Cancer Data Mgt Coordinator and Certified Tumor Registrar	1	.2
Cancer registrar	2	.4
Chemo infusion/ RN 1FTE	1	.2
Chief Operating Officer	1	.2
Chief radiation therapist/manager	1	.2
Clinic Assistant (CNA)	1	.2
Clinical coordinator/ pt. educator	1	.2
Clinical manager is also a radiation therapist who fills in on the machine for the .5 FTE and also for PTO and sick days of other therapists. The .5 FTE is the Director of Oncology who is .5 in radiation and .5 in medical oncology.	1	.2
CLINICAL RESEARCH COORDINATOR	1	.2
Clinical Supervisor	1	.2
CNA that also does blood lab work, helps with charts, vitals, etc.	1	.2
Contract medical physicist 20/25 hours per week	1	.2
CT Tech	3	.6
CT technologist	1	.2
CT/Xray technologists for simulations and diagnostic work	1	.2
CyberKnife coordinator	1	.2
Department Director -I'm an RTT, however am not included with the therapists for treatment considerations and FTE's.	1	.2
Department Manager	2	.4
Director	1	.2
Dosimetry and Physicist are a contract service no FTEs.Ancillary services are part of the hospital and are used as needed no FTEs budgeted for Ancillary services provided.	1	.2
Engineer	1	.2
Financial Counselor	1	.2
I am the office manager and a radiation therapist that does treat patients when 1 of the 3 therapists are off. I have not included myself in the above data. I also work the front	1	.2

desk, post billing charges or fill-in as a nurse when needed/staff is off.		
I have no info on budgets	1	.2
IT specialist coding specialist	1	.2
IT, billing and block room positions	1	.2
Lead Radiation Therapy technician	1	.2
LPN/therapy assistant/mould room tech	1	.2
MA	2	.4
MA (the heart of the center)	1	.2
manager-administrator, works also as therapist and simulator tech and dosimetrist when needed.	1	.2
manager	1	.2
Manager	1	.2
Marketing manager	1	.2
medical assistant-1	1	.2
Medical assistant	4	.8
Medical Assistants	1	.2
My role is Administrative Director (MBA, RTT). However, I do help on the machine and in a medical dosimetry role when needed.	1	.2
NP - nurse practitioner, IS Specialist, Medical Physics Resident,	1	.2
Nurse Navigator for Breast patients only.	1	.2
Nursing Assistant	1	.2
On-staff billing personal	1	.2
One therapists works 4 days a week.	1	.2
OTHER PHYSICIST TRAINEE. OUR PHYSICISTS ARE CONTRACT NOT VA EMPLOYEES, CURRENTLY TRYING TO RECRUIT	1	.2
Pastoral Counselor	1	.2
patient care technicians for nursing assistance	1	.2
patient transporter/ mold room	1	.2
per diem 2 therapist positions for time off and vacations	1	.2
per diem therapists	1	.2
PET/CT (CT & Nuclear Medicine technologists)	1	.2
Physic's assistant/block cutter	1	.2
Please note that this is a comprehensive cancer center with ancillary and administrative staff who are shared by several depts (med onc, rad onc, hyperbaric, wound care,pharmacy, lab, etc) under the comprehensive cancer center umbrella. None of the FTE's for these positions are budgeted in the Rad Onc FTE budget, but the resources are available to our patients.	1	.2
PT TRANSPORT/MOLD ROOM TECHNICIAN	1	.2
Radiation Oncologist, dosimetrist and physicist are contracted services for our hospital. There are currently 2.5 Radiation oncologists, 2 dosimetrists, and 2 PhD Physicists who are at our site full-time.	1	.2
Radiation Oncologists and physics/dosimetry are contracted	1	.2
Radiation Oncologists not employees of hospital. 2 full time independent Radiation Oncologists at site.	1	.2
Radiation Oncology Techs	1	.2
Radiation therapist PT	1	.2
Radiation Therapy Aid: provides transportation / block cutting / other duties as assigned NOTE: DOES NOT WORK ON MACHINE	1	.2
Radiation Therapy Aide	1	.2
Radiation Therapy Assistant	1	.2
Radiation Therapy Assistant/Transporter	1	.2
Radiation Therapy has dietary and social workers that are shared with other specialities. Therefore, I have a .3 social worker and a .2 dietitian.	1	.2
Radiation Oncology Counselor	1	.2
RN data manager	1	.2
senior volunteers that work in the library, a cancer center greeter and assist in projects and help the office staff.We also have 3 PRN radiation therapists that help cover for illness and vacations.	1	.2
Simulation Therapist	1	.2
Simultion/brachytherapy technologist	1	.2
SITE MANAGER/ CHIEF THERAPIST	1	.2
social worker	1	.2
supervisor of oncology	1	.2

Technical Aide	1	.2
Technical College instructing students	1	.2
THE NURSING STAFF INCLUDES ONE MEDICAL ASSISTANT/SECRETARY AND THE BILLING STAFF INCLUDES THE RECEPTIONIST AND PATIENT FINANCIAL COUNSELOR	1	.2
Therapist Assistant	1	.2
This is a sample of one of the facilities that we manage. We have 4 brand new centers that we are recruiting for now.	1	.2
This is for one of our sites, Quincy, MA	1	.2
This is the average # for each position at each of the three centers of operation.	1	.2
This would be a question for our Chief Therapist	1	.2
transportation assistants	1	.2
Tumor Registrar	2	.4
Tumor Registry	2	.4
Tumor Registry, Transcription, Breast Care Facilitators/Genetics, Outreach Coordinator, Healing Care Nurse	1	.2
We also have 1.5 nursing assistants, 3 engineers, 1 machinist and 1 physics assistant	1	.2
We also have a part time physicist who is budgeted at 0.4; she works two days/week.	1	.2
WE HAVE 2 ON-SITE MEDICAL EQUIPMENT ENGINEERS	1	.2
We have a therapy assistant. The RNs each work four days.	1	.2
what is a FTE?	1	.2
Total	531	100.0

15b. If you chose "Other" in the above question, please specify that other location of the CT simulator.

Response	Frequency	Percent
Blank	516	97.2
1 of 5 has inhouse our other 4 must use hospital	1	.2
Adjoining Hospital	1	.2
CT is located across the street in a hospital that we do not own.	1	.2
CT Located at the main hospital. We are freestanding building located about 1/2 mile from the main hospital but are a department of the hospital so are not considered freestanding.	1	.2
Getting our own CT Sim for the department in March of 1009	1	.2
Have an additional PET/CT scanner in the hospital that is staffed by radiology staff.	1	.2
Hospital based CT scanner	1	.2
In-house CT.	1	.2
In our other center about 10 miles away	1	.2
Outside Imaging Center utilized for CT Tx Planning	1	.2
This is a radiology and radiation oncology freestanding center. The Siemens Volume Zoom that is located on the imaging side is also utilized for treatment planning CT without a problem.	1	.2
we are in the process of putting our own ct sim in the department and for now we send our pts to an imaging center with our dosimetrist	1	.2
We did not have enough room in the department so the CT Simulator was put in the old medical imaging CT suite one floor above the Radiation Therapy clinic.	1	.2
we have two CT/Simulators available to us dedicated Phillips large bore CT/Sim in radiation onc department shared Pet/CT64 slice/Sim in radiology that is available to us by appointment	1	.2
WE USE THE CT AT ADVANCE RADIOLOGY(PRIVATE) LOCATED IN THE COMMUNITY HOSPITAL WE ARE ADJACENT TO.	1	.2
Total	531	100.0

15c. If you chose "Other" in the above question, please specify that other person who operates the CT device.

Response	Frequency	Percent
Blank	509	95.9
CT tech along with a therapist	1	.2
CT techs run the CT unit and therapy staff perform the patient setup/simulation	1	.2
Dosimetrist	2	.4
Dosimetrist always present for each simulation	1	.2
dosimetrist and manager and therapists	1	.2
Dosimetrist does the sims also	1	.2
Dosimetrist of therapist	1	.2

dosimetrist,director	1	.2
Our dosimetrist helps the ct technologist	1	.2
Our therapist will be trained to use the CT sim when we our is installed	1	.2
Patients accompanied by dosimetrist to the CT department for reproducibility of simulation position, immediately following conventional simulation.	1	.2
Pet/CT is operated by a Nuclear Medicine Technologist and a Radiation Therapist	1	.2
PET/CT unit utilizes 1- Nuclear Med Tech and RTT's are radiographers...educated by taking the CT crosstrainer/competencie...annual inservice education	1	.2
Radiation therapist or dosimetrist	1	.2
Radiation Therapist set up patient for CT and the radiographer runs the machine based on our protocols.	1	.2
THE PRIMARY THERAPIST 2 OF 5 THAT WORK IN SIM HAVE GOTTEN CERIFIED IN CT	1	.2
The radiation therapist works together with the CT technologist for the treatment planning data set. The rad onc is usually present also to mark a scar, assess the immobilization, insert tubes, etc.	1	.2
The Radiation Therapist works with the CT technologist to produce the treatment simulation	1	.2
THE RT.T ONLY SETS THE PATIENT UP IN TREATMENT POSITION & PLACES THE B.B.'S ON OUR SET-UP MARKS. THE CT TECH PERFORMS THE EXAM.	1	.2
The sim tech is a radiographer and thersapist.	1	.2
We have 2 4-D CT simulators at this site. One is staffed by a CT tech and the other by an RTT.	1	.2
Total	531	100.0

15d. How was the person(s) specified in question 15c trained to perform treatment simulations?

Response	Frequency	Percent
Respondents who cited on-the-job training		
1-Training from the company2-Staff trained other staff3-one therapist has CT license	1	.6
1.)CT simulation procedures are written so that the protocols can be followed. As new equipment and procedures are added, the information is written up and placed in the CT notebook.2.) On the job training with experienced Therapists.	1	.6
3 radiation therapists had previous CT experience. These thereapists received applications from Philips and Medrad. For those therapists with no CT background they trained under the RTT(CT) therapists. Spent some time in CT Radiology and completed an IV module then were checked off by RN	1	.6
A day and a half of training by another therapist who worked on the same unit.	1	.6
a Radiation Therapist and a Dosimetrist trained the CT Tech. Another Radiation Therapist trained the Radiation Therapist. (Mandatory rotation for all Radiation Therapists so they've each learned from each other)	1	.6
All of the the therapists that do CT/SIM are also x-ray certified. On the job training and school training.	1	.6
All PET/CT staff are trained by the Chief Radiation Therapist and the dosimetrists	1	.6
all radiaton therapist trained to use CT/Simsome trained many years ago as diag techssome trained by vendor when equipment installedothers trained by staff when hirednew grad trained in therapy school	1	.6
APPLICATION TRAINING FRON THE VENDER AND YEARS OF SIM EXPERIENCE IN CONVENTIOAL SIMULATOR FOR THE PEOPLE THAT HAVE DONE SIM THE LONGEST NEWER STAFF WORKS WITH AN EXPERIENCE PERSON FOR 9-12 BEFORE BEING ALLOWED TO WORK ALONE IF STAFFING REQUIRES IT	1	.6
Applications specialist and OJT	1	.6
Applications specialist came from the Vendor and the rest is learn as you go	1	.6
Applications training from vendor, on the job training in department	1	.6
applications training, peer-to-peer training	1	.6
Applications training, xray tech background, on the job training	1	.6
Applications when we got the scanner, plus some help from the CT staff in our Radiology Department.	1	.6
approved schooling/training, competency evaluation	1	.6
As part of baccaulaureate degree education program (14 month internship), followed by OJT of 3 months.	1	.6
By a radiographer	1	.6
By a therapist who was sent out to be trained by the Ct manufacturer.	1	.6

Response	Frequency	Percent
By an experienced Radiation Therapist for any years. RTT's still assist with simulations.	1	.6
By applications when CT was bought then new staff is trained by previous trained staff	1	.6
By Chief RTT and experienced RTT's	1	.6
by CT radiologic technologist	1	.6
by CT/Radiation Therapist	1	.6
By physicist	1	.6
by the Chief Radiation Therapist	1	.6
By the company who put in the CT and by our physicist.	1	.6
BY WORKING WITH THE THERAPISTS TO UNDERSTAND THE NEED FOR ACCURATE POSTIONING	1	.6
Certified RTT training program nationally accredited by ARRT for therapy. Previous experience plus ongoing applications training with the CT simulation equipment and software.	1	.6
Completed general training during education and completed institutional specific training during orientation period.	1	.6
cross training and in service from vendor	1	.6
CT Sim vendor training and physicist	1	.6
CT Tech formal training, radiation therapist OJT	1	.6
CT training and on the job training	1	.6
Departmental training for the Radiation Therapist. The therapist rotate through the SIM.	1	.6
dosimetry and another radiation therapist	1	.6
DURING OUR TRANSITION TIME , MY THERAPISTS CROSSTRAINED IN THE CT DEPT.AT THE HOSPITAL. WE ALSO HAD OFFSITE AND ONSITE TRAINING FROM THE VENDOR THE CT WAS PURCHASED THROUGH.	1	.6
During their schoolor onthe job.	1	.6
During therapy school, and by chief therapist, dosimetrists, and radiation oncologists	1	.6
educational degree; on-the-job	1	.6
either through formal training program or OJT	1	.6
Employees employed when equipment was installed received training from the company. all subsequent training is provided by current employees.	1	.6
Experienced CT technologists learned from experienced therapists, dosimetrists, and physicists	1	.6
Formal training	1	.6
Former CT Technologist, now Radiation Therapist. On the job training, experienced therapist.	1	.6
GE applications and Radiography CT department staff.	1	.6
had OJT with certified CT technologist	1	.6
Hands on with the help of an applications specialist and also a certified CT technologists for the operation of the machine. Training for doing simulations was with the help of dosimetry, physics and the chief therapist also after proving themselves as a skilled RTT on the treatment machine.	1	.6
I am a RTT and learned about the CT machine on the job.	1	.6
In house - One RTT now certified in CT as of Nov. 08	1	.6
in house	1	.6
In house	1	.6
in house training	2	1.2
manufacturer and on-the-job training	1	.6
many years of experience (40+)and trained many years ago.	1	.6
Most as part of their curriculum while others on the job training	1	.6
OFF SITE BY MANUFACTURER INITIALLY THEN ON THE JOB BY CURRENT STAFF.	1	.6
OJT - I was not here when the staff was trained and they have indicated they would like more training in this area. I can arrange for them to do a CT course and a sectional anatomy course inhouse as I have taught sectional anatomy before.	1	.6
OJT	6	3.5
OJT and factory inservice for equipment; educational program knowledge for patient set up	1	.6
OJT by Lead Therapist	1	.6
OJT, One of the therapy techs is also a ct tech	1	.6
on-job training	1	.6

Response	Frequency	Percent
On and off-site specific training provided by equipment vendor. Also guidance from hospital's Medical Imaging staff.	1	.6
On job training	1	.6
on job training with ct tech	1	.6
on site	1	.6
On site by manager who trained at GE training facility.	1	.6
ON site training	1	.6
ON SITE TRAINING	2	1.2
On site training by myself. I was trained at the GE training center.	1	.6
on the job	5	2.9
On the job	7	4.1
ON the job	1	.6
ON THE JOB	1	.6
On the job and through Philips on site and off site training.	1	.6
On the job by CT radiographers	1	.6
On the job by the chief therapist.	1	.6
On the job or school	1	.6
on the job training	2	1.2
On the job training	7	4.1
On the job training + vendor training	1	.6
On the job training by other more experienced therapist. Also, had some input from a registerd CT tech.	1	.6
On the job training by trained personnel	1	.6
on the job training from therapists who were originally trained by a vendor application's specialist. Dept Mrg is a registered Xray, Radiation Therapist, MRI, and CT technologists who also works PRN doing MRI and CT too.	1	.6
On the job training only.	1	.6
On the job training or had previously worked in CT prior to being a radiation therapist	1	.6
On the job training with CT tech from hospital and training from manufacturer.	1	.6
On the job training, applications training during install	1	.6
On the job training.	2	1.2
On the job.	3	1.8
On the job..... :)	1	.6
Other qualified therapists and on-the-job training.	1	.6
OTJ	2	1.2
OTJ has RT background	1	.6
Previous education and/or experience and on the job training as needed	1	.6
Previous experience and then trained by the company that installed the CT simulator.	1	.6
Radiation therapy education program and additional on the job training	1	.6
radiation Therapy Program or OJT	1	.6
RT Program, OTJ, Work with a CT technician	1	.6
RT staff trained	1	.6
School and ojt	1	.6
School and OJT	1	.6
School and on the job	1	.6
Schooling and OJT	1	.6
schooling and training on site	1	.6
Schooling, OTJT, cont. ed from manufac.	1	.6
She was taught by the radiation therapist and the therapist is on CT sims when needed.	1	.6
SIM THERAPIST IS RT(T) and RT(R), able to train fellow staff.	1	.6
Some are CT certified with their therapy certifiacion, the others are trained on the job.	1	.6
Started out as CT Technologist with on the job training and then went to Radiation Therapy School	1	.6
THERAPIST-VENDOR TRAININGCT TECHNOLOGIST-ON JOB TRAINING	1	.6
Therapy school and OJT	1	.6
Therapy School and OJT	1	.6
Therapy school, CT applications training by vendor, On the job	1	.6
They were trained by other therapists that know how to use it.	1	.6
They were trained in their therapy school program and by the chief therapist.	1	.6
This person was trained by CT Radiology staff and therapist already trained in CT	1	.6
trained by a CT tech from the Radiology Dept	1	.6

Response	Frequency	Percent
trained by apps training and CT Technologist.	1	.6
Trained by Ct simulator company as well as other CT Techs	1	.6
Trained by CT Tech./already an x-ray tech. as well as radiation therapist. Utilized CT crosstrainer study module as well.	1	.6
trained by CT technologist	1	.6
Trained by Dosimetrist, Therapist and MD	1	.6
Trained by Dosimetrists and Therapist	1	.6
Trained by manufacturer as well as radiology dept CT staff	1	.6
TRAINED BY THE CT TECH FROM RADIOLOGY AND BY THE VENDOR	1	.6
TRAINED ON SITE	1	.6
Trained on the job	1	.6
trainers from CT unit came and assisted in the operations otherwise we were going to CT at hospital to perform sims	1	.6
Training by vendors and by radiation therapist who also have background in CT	1	.6
Two of the three people are trained and registered as X-ray/CT technologists and one one is a radiation therapist. The two that are CT trained trained the third who was not CT trained.	1	.6
Two super users were trained by the manufacturer's application specialists. Subsequent training of personnel is through the super users.	1	.6
Vendor and diagnostic CT staff provided training	1	.6
Vendor and new graduate therapists who were previously CT technologists	1	.6
Vendor and OTJ	1	.6
Vendor plus help from Diagnostic CT Technologists.	1	.6
Vendor training for machine usage and training with CT staff to start IV's.	1	.6
Vendor training plus previous experience at another centre	1	.6
Vendor training; radiology support	1	.6
We have a certified CT technologist that is also a register RTT. She does procedures and competencies partnering with the hospital diagnostic radiology department. Any competencies that are required in diagnostic CT that apply to us, are required by our department also. All training is done on site.	1	.6
We have one RTT who is now licensed at a CT tech. All others are trained for one month prior to release on their own.	1	.6
WERE TRAINED BY FELLOW RADIATION THERPIST AND HAD APPLICATIONS TRAINING BY THE EQUIPMENT MANUFACTURER	1	.6
Total who cited OJT	171	100.0
Respondents who cited vendor training		
1-Training from the company2-Staff trained other staff3-one therapist has CT license	1	.9
3 radiation therapists had previous CT experience. These thereapists received applications from Philips and Medrad. For those therapists with no CT background they trained under the RTT(CT) therapists. Spent some time in CT Radiology and completed an IV module then were checked off by RN	1	.9
all are RTT's and had training with the manufacturer	1	.9
all of the therapists have x-ray background and were trained by vendor	1	.9
all radiaton therapist trained to use CT/Simsome trained many years ago as diag techsome trained by vendor when equipment installedothers trained by staff when hirednew grad trained in therapy school	1	.9
all therapists were trained through the vendor	1	.9
APPLICATION TRAINING FRON THE VENDER AND YEARS OF SIM EXPERIENCE IN CONVENTIOAL SIMULATOR FOR THE PEOPLE THAT HAVE DONE SIM THE LONGEST NEWER STAFF WORKS WITH AN EXPERIENCE PERSON FOR 9-12 BEFORE BEING ALLOWED TO WORK ALONE IF STAFFING REQUIRES IT	1	.9
applications from manufacturer	1	.9
Applications specialist came from the Vendor and the rest is learn as you go	1	.9
Applications specialist from Vendor	1	.9
Applications thru vender	1	.9
Applications training from vendor, on the job training in department	1	.9
Applications when we got the scanner, plus some help from the CT staff in our Radiology Department.	1	.9
Attended vendor offsite and onsite training.	1	.9
By a therapist who was sent out to be trained by the Ct manufacturer.	1	.9
By applications when CT was bought then new staff is trained by previous trained staff	1	.9
By observing at another facility; by apps specialist provided by the manufacturer.	1	.9

Response	Frequency	Percent
By the company plus all RT,T's are certified RT,R's who had CT training	1	.9
By the company who put in the CT and by our physicist.	1	.9
By the GE representatives.	1	.9
by the vendor	1	.9
By the Vendor training specialist	1	.9
BY VENDOR OF SCANNER	1	.9
company trained after initial install	1	.9
cross training and in service from vendor	1	.9
CT Sim vendor training and physicist	1	.9
DURING OUR TRANSITION TIME , MY THERAPISTS CROSSTRAINED IN THE CT DEPT.AT THE HOSPITAL. WE ALSO HAD OFFSITE AND ONSITE TRAINING FROM THE VENDOR THE CT WAS PURCHASED THROUGH.	1	.9
Employees employed when equipment was installed received training from the company. all subsequent training is provided by current employees.	1	.9
Experienced CT technologists learned from experienced therapists, dosimetrists, and physicists	1	.9
For operations of the CT and Simulation software - Application specialists from the vendor	1	.9
GE & Varian	1	.9
Ge Application specialist on site	1	.9
GE applications and Radiography CT department staff.	1	.9
GE has training courses. Additionally, 2 of our therapists are also board in CT.	1	.9
INITIAL TRAINING FROM COMPANY	1	.9
Lead CT?Sim therapist was trained by the vendor.	1	.9
manufacturer's training rep	1	.9
Manufacturer	1	.9
manufacturer and on-the-job training	1	.9
Manufacturer applications specialist training.	1	.9
Manufacturer of Ct trained therapists and 1 therapist was a diagnostic CT tech.	1	.9
MANUFACTURER ON SITE TRAINING	1	.9
Manufacturer/Applications Training	1	.9
Off site and onsite training from vendor, Radiation therapist has 9 years CT sim experience, 17 years as therapist, 19 years as radiographer. The radiographer has 13 years experience as a sim tech in our department.	1	.9
OFF SITE BY MANUFACTURER INITIALLY THEN ON THE JOB BY CURRENT STAFF.	1	.9
offsite and onsite training via the equipment vendor.	1	.9
OJT and factory inservice for equipment; educational program knowledge for patient set up	1	.9
On-site training	1	.9
On-site training by manufacturer	1	.9
On-site training provided by CT technologist (transferred hours to Rad Onc cost center) and by vendor provided trainer (with CEUs).	1	.9
On and off-site specific training provided by equipment vendor. Also guidance from hospital's Medical Imaging staff.	1	.9
On site by manager who trained at GE training facility.	1	.9
On site training by the company.	1	.9
On site training by myself. I was trained at the GE training center.	1	.9
On site training with GE	1	.9
On the job and through Philips on site and off site training.	1	.9
On the job training + vendor training	1	.9
on the job training from therapists who were originally trained by a vendor application's specialist. Dept Mrg is a registered Xray, Radiation Therapist, MRI, and CT technologists who also works PRN doing MRI and CT too.	1	.9
On the job training with CT tech from hospital and training from manufacturer.	1	.9
On the job training, applications training during install	1	.9
Onsite training by vendor	1	.9
Past conventional simulator experience and vendor training on-site.	1	.9
Previous experience and then trained by the company that installed the CT simulator.	1	.9
Radiation therapist are dual certified and also had additional training from the vendor	1	.9
RTT's trained by GE	1	.9
Schooling, OTJT, cont. ed from manufac.	1	.9

Response	Frequency	Percent
Sent 4 of our radiation therapists to offsite vendor training - 1 week per therapist. Had on site training and follow up training. All are experienced therapists for both treatments and simulation.	1	.9
The Radiation Therapist and CT Technologist work together. A Physicist has been assigned as primary oversight for the CT Sim patients. The vendor also supplied a training course.	1	.9
THERAPIST-VENDOR TRAININGCT TECHNOLOGIST-ON JOB TRAINING	1	.9
Therapists were trained by the company selling the equipment	1	.9
Therapy school, CT applications training by vendor, On the job	1	.9
They were trained by Philips.	1	.9
Through the manufacturer	1	.9
Through the vendor.	1	.9
Trained by a GE CT trainer.	1	.9
Trained by CT manufacturer during installation	1	.9
Trained by Ct simulator company as well as other CT Techs	1	.9
Trained by manufacturer as well as radiology dept CT staff	1	.9
Trained by the applications specialist upon installation.	1	.9
Trained by the company that provided the equipment	1	.9
TRAINED BY THE CT TECH FROM RADIOLOGY AND BY THE VENDOR	1	.9
trained when CT sims was acquired	1	.9
Training by CT company upon acquiring equipment	1	.9
Training by the vendor from whom we purchased CT simulator.	1	.9
Training by vendors and by radiation therapist who also have background in CT	1	.9
TRAINING FROM MANUFACTURER	1	.9
Training included in purchase price.	1	.9
Training upon installation from vendor	1	.9
Two super users were trained by the manufacturer's application specialists. Subsequent training of personnel is through the super users.	1	.9
Vendor and diagnostic CT staff provided training	1	.9
Vendor and Institution training at Training and Development Center in Bloomington Indiana	1	.9
Vendor and new graduate therapists who were previously CT technologists	1	.9
Vendor and OTJ	1	.9
Vendor off site and on site training.	1	.9
Vendor plus help from Diagnostic CT Technologists.	1	.9
Vendor provided training	1	.9
Vendor supplied training of equipment operation	1	.9
VENDOR TRAINED	1	.9
Vendor training	1	.9
Vendor training for CT simulation	1	.9
Vendor training for machine usage and training with CT staff to start IV's.	1	.9
Vendor training off site plus on site training	1	.9
Vendor training plus previous experience at another centre	1	.9
Vendor training, competency	1	.9
Vendor training, on-line CT basic courses	1	.9
Vendor training, visits/training at other centers using the technology, formal CT courses/certification	1	.9
Vendor training; radiology support	1	.9
WERE TRAINED BY FELLOW RADIATION THERAPIST AND HAD APPLICATIONS TRAINING BY THE EQUIPMENT MANUFACTURER	1	.9
Total who cited vendor training	108	100.0
Respondents who said simulation training was part of operator's education		
All of the the therapists that do CT/SIM are also x-ray certified. On the job training and school training.	1	1.9
all radiation therapist trained to use CT/SIMsome trained many years ago as diag techssome trained by vendor when equipment installedothers trained by staff when hirednew grad trained in therapy school	1	1.9
An approved RTT training program	1	1.9
approved schooling/training, competency evaluation	1	1.9
As part of baccalaureate degree education program (14 month internship), followed by OJT of 3 months.	1	1.9
CERTIFICATION	1	1.9

Response	Frequency	Percent
Certified by ARRT (R) (CT) (T)	1	1.9
Certified RTT training program nationally accredited by ARRT for therapy. Previous experience plus ongoing applications training with the CT simulation equipment and software.	1	1.9
Completed general training during education and completed institutional specific training during orientation period.	1	1.9
Credentialed in CT	1	1.9
CT training and on the job training	1	1.9
DURING OUR TRANSITION TIME , MY THERAPISTS CROSSTRAINED IN THE CT DEPT.AT THE HOSPITAL. WE ALSO HAD OFFSITE AND ONSITE TRAINING FROM THE VENDOR THE CT WAS PURCHASED THROUGH.	1	1.9
During their school or on the job.	1	1.9
During therapy school, and by chief therapist, dosimetrists, and radiation oncologists	1	1.9
educational degree; on-the-job	1	1.9
either through formal training program or OJT	1	1.9
Employees employed when equipment was installed received training from the company. all subsequent training is provided by current employees.	1	1.9
For operations of the CT and Simulation software - Application specialists from the vendor	1	1.9
Formal training	1	1.9
hold bachelor's degree in therapy	1	1.9
in RTT school	1	1.9
In school	2	3.7
Most as part of their curriculum while others on the job training	1	1.9
OJT and factory inservice for equipment; educational program knowledge for patient set up	1	1.9
On the job or school	1	1.9
Part of Radiation Therapy Program	1	1.9
Previous education and/or experience and on the job training as needed	1	1.9
Rad Therapy school	1	1.9
Radiation therapy education program and additional on the job training	1	1.9
radiation Therapy Program or OJT	1	1.9
Radiation Therapy Program.	1	1.9
Radiation therapy school	1	1.9
Received training as part of thier RTT education	1	1.9
RT Program, OTJ, Work with a CT technician	1	1.9
RTT license	1	1.9
RTT program	1	1.9
RTT school	1	1.9
School and ojt	1	1.9
School and OJT	1	1.9
School and on the job	1	1.9
Schooling and OJT	1	1.9
schooling and training on site	1	1.9
Schooling, offsite and onsite training	1	1.9
Schooling, OTJT, cont. ed from manufac.	1	1.9
Sent 4 of our radiation therapists to offsite vendor training - 1 week per therapist. Had on site training and follow up training. All are experienced therapists for both treatments and simulation.	1	1.9
Started out as CT Technologist with on the job training and then went to Radiation Therapy School	1	1.9
Therapy school and OJT	1	1.9
Therapy School and OJT	1	1.9
Therapy school, CT applications training by vendor, On the job	1	1.9
Therapy training	1	1.9
They were trained in their therapy school program and by the chief therapist.	1	1.9
Took a CT course as part of Radiation Therapy curriculum. Also trained on the job by an RT(R).	1	1.9
Trained in Radiation Therapy school	1	1.9
Total who said part of education	54	100.0
Respondents who said simulations performed by RTT/CT tech or radiogr team		
A radiation therapist is present , sets the patient up, gives the CT tech the appropriate	1	2.3

Response	Frequency	Percent
parameters. The CT tech runs the machine console and administers any needed contrast		
a therapist is always present	1	2.3
All of the the therapists that do CT/SIM are also x-ray certified. On the job training and school training.	1	2.3
Assisted by a therapist	1	2.3
By an experienced Radiation Therapist for any years. RTT's still assist with simulations.	1	2.3
CT tech just runs scanner, therapists position and tell them where to scan and at what cuts	1	2.3
CT Tech runs CT, Radiation Therapist performs treatment sim	1	2.3
CT tech works with the Radiation therapist to perform the sims	1	2.3
educational degree; on-the-job	1	2.3
either through formal training program or OJT	1	2.3
Experienced CT technologists learned from experienced therapists, dosimetrists, and physicists	1	2.3
Formal training	1	2.3
one has ct training and the other has rad therapy training	1	2.3
Our Ct-tech was taught simulation by a radiation therapist and the radiation therapist was taught CT by the CT tech	1	2.3
Radiation therapist guided the CT tech on what we needed scanned.	1	2.3
Radiation Therapist aligns patient, CT technologist scans patient to therapists specifications.	1	2.3
Radiation therapist sets up patient and ct tech runs scanner based on protocol we worked out.	1	2.3
Radiation therapist sets up pt on CT table and ct tech runs the scan.	1	2.3
Radiation Therapist their to direct the CT sim.	1	2.3
Radiation therapists are present during RTP scans.	1	2.3
Radiation Therapy staff is present at procedure	1	2.3
RT Program, OTJ, Work with a CT technician	1	2.3
Schooling, offsite and onsite training	1	2.3
Schooling, OTJT, cont. ed from manufac.	1	2.3
Set up localization performed by therapist, actual CT operation by CT Tech. Great relationship with CT staff, who have shadowed for a day in radiation therapy to understand what we need the planning CT for and also the physicist in very involved in the data/collection peice.	1	2.3
SETUPS DONE BY THERPS BUT MACHINE RUN BY CT TECH	1	2.3
SIM THERAPIST IS RT(T) and RT(R), able to train fellow staff.	1	2.3
Some are CT certified with their therapy certification, the others are trained on the job.	1	2.3
team effort to include diagnostic and radiation oncology personnel	1	2.3
The CT tech and the Radiation therapist work together on hte sims.	1	2.3
The CT technologist was trained and works side by side with the therapist.	1	2.3
The Radiation Therapist and CT Technologist work together. A Physicist has been assigned as primary oversite for the CT Sim patients. The vendor also supplied a training course.	1	2.3
The Radiation Therapist goes to the CT department and positions patient and tells the CT tech what to scan.	1	2.3
The Radiation Therapist sets up the Pt on the CT scanner and the CT technician runs the CT.	1	2.3
The radiation therapist or dosimetrist is present with the CT technologist during the CT simulation	1	2.3
Therapist and CT Tech work together.	1	2.3
THERAPIST ASSISTS WITH CT SET UP	1	2.3
THERE IS ALWAYS A THERAPIST PRESENT WHEN A CT SIM IS BEING DONE.	1	2.3
They Are Accompanied With A Radiation Therapist Who Does Everything But Run The CT Simulator.	1	2.3
They are supervised by a radiation therapist for each case	1	2.3
trainers from CT unit came and assisted in the operations otherwise we were going to CT at hospital to perform sims	1	2.3
We have one radiation therapist who works with CT tech for each ct simulation	1	2.3
worked with theapists for positioning and immobilization device construction	1	2.3
Working directly with the RT	1	2.3

Response	Frequency	Percent
Total who said simulations performed by RTT/CT tech team	44	100.0
Respondents who indicated that operator(s) is(are) dually trained in rad ther, CT or radiogr		
1-Training from the company2-Staff trained other staff3-one therapist has CT license	1	2.6
3 radiation therapists had previous CT experience. These therapists received applications from Philips and Medrad. For those therapists with no CT background they trained under the RTT(CT) therapists. Spent some time in CT Radiology and completed an IV module then were checked off by RN	1	2.6
all of the therapists have x-ray background and were trained by vendor	1	2.6
All Radiation Therapist are also Registered Radiographers.	1	2.6
all radiaton therapist trained to use CT/Simsome trained many years ago as diag techssome trained by vendor when equipment installedothers trained by staff when hirednew grad trained in therapy school	1	2.6
All the therapist are certified in x-ray also. RTT (T)	1	2.6
Applications training, xray tech background, on the job training	1	2.6
ARRT certified in (CT) (R) (T)	1	2.6
As a Radiation Therapists with additional CT certification in CT	1	2.6
By the company plus all RT,T's are certified RT,R's who had CT training	1	2.6
Certified by ARRT (R) (CT) (T)	1	2.6
CT Tech formal training, radiation therapist OJT	1	2.6
DURING OUR TRANSITION TIME , MY THERAPISTS CROSSTRAINED IN THE CT DEPT.AT THE HOSPITAL. WE ALSO HAD OFFSITE AND ONSITE TRAINING FROM THE VENDOR THE CT WAS PURCHASED THROUGH.	1	2.6
Employees employed when equipment was installed received training from the company. all subsequent training is provided by current employees.	1	2.6
For operations of the CT and Simulation software - Application specialists from the vendor	1	2.6
Former CT Technologist, now Radiation Therapist. On the job training, experienced therapist.	1	2.6
Fromtheir CT Background	1	2.6
GE has training courses. Additionally, 2 of our therapists are also board in CT.	1	2.6
In house - One RTT now certified in CT as of Nov. 08	1	2.6
Manufacturer of Ct trained therapists and 1 therapist was a diagnostic CT tech.	1	2.6
Off site and onsite training from vendor, Radiation therapist has 9 years CT sim experience, 17 years as therapist, 19 years as radiographer. The radiographer has 13 years experience as a sim tech in our department.	1	2.6
OJT, One of the therapy techs is also a ct tech	1	2.6
on the job training from therapists who were originally trained by a vendor application's specialist. Dept Mrg is a registered Xray, Radiation Therapist, MRI, and CT technologists who also works PRN doing MRI and CT too.	1	2.6
On the job training or had previously worked in CT prior to being a radiation therapist	1	2.6
OTJ has RT background	1	2.6
Previous education and/or experience and on the job training as needed	1	2.6
Previous experience and then trained by the company that installed the CT simulator.	1	2.6
Rad, Therapist's former CT techs	1	2.6
Radiation Therapist and Diagnostic Therapist also	1	2.6
Radiation therapist are dual certified and also had additional training from the vendor	1	2.6
Registered CT Tech	1	2.6
Sent 4 of our radiation therapists to offsite vendor training - 1 week per therapist. Had on site training and follow up training. All are experienced therapists for both treatments and simulation.	1	2.6
Started out as CT Technologist with on the job training and then went to Radiation Therapy School	1	2.6
two employees had ct training in previous employment	1	2.6
was an RT and worked in CT	1	2.6
We have a certified CT technologist that is also a register RTT. She does procedures and compentencies partnering with the hospital diagnositic radiology department. Any compentencies that are required in diagnostic CT that apply to us, are required by our department also. All training is done on site.	1	2.6
We have one RTT who is now licensed at a CT tech. All others are trained for one month prior to release on their own.	1	2.6
x-ray background and by clinical applicationist	1	2.6

Response	Frequency	Percent
Total who said operator(s) is(are) dually certified/qualified	38	100.0
Respondents who cited application specialist(s)		
Application specialist	1	4.0
Application specialist came in 10-07 when new CT was bought.	1	4.0
applications from manufacturer	1	4.0
Applications specialist and OJT	1	4.0
Applications specialist came from the Vendor and the rest is learn as you go	1	4.0
Applications specialist from Vendor	1	4.0
Applications trainer	1	4.0
By observing at another facility; by apps specialist provided by the manufacturer.	1	4.0
By the Vendor training specialist	1	4.0
CT application specialist	1	4.0
educational degree; on-the-job	1	4.0
either through formal training program or OJT	1	4.0
For operations of the CT and Simulation software - Application specialists from the vendor	1	4.0
Formal training	1	4.0
Ge Application specialist on site	1	4.0
Hands on with the help of an applications specialist and also a certified CT technologists for the operation of the machine. Training for doing simulations was with the help of dosimetry, physics and the chief therapist also after proving themselves as a skilled RTT on the treatment machine.	1	4.0
Manufacturer applications specialist training.	1	4.0
on the job training from therapists who were originally trained by a vendor application's specialist. Dept Mrg is a registered Xray, Radiation Therapist, MRI, and CT technologists who also works PRN doing MRI and CT too.	1	4.0
Radiation Therapist trained to use CT by application specialist. CT sim procedures established by therapy dept. CT technologist just operates CT. No pt. contact for RT sim positioning.	1	4.0
Schooling, offsite and onsite training	1	4.0
Schooling, OTJT, cont. ed from manufac.	1	4.0
The applications specialist	1	4.0
trained by apps training and CT Technologist.	1	4.0
Trained by the applications specialist upon installation.	1	4.0
x-ray background and by clinical applicationist	1	4.0
Total who cited application specialist(s)	25	100.0
Respondents who gave another kind of response		
1.)CT simulation procedures are written so that the protocols can be followed. As new equipment and procedures are added, the information is written up and placed in the CT notebook.2.) On the job training with experienced Therapists.	1	2.8
2	1	2.8
5	2	5.6
6	1	2.8
all trained certified therapists	1	2.8
Application specialist	1	2.8
Application specialist came in 10-07 when new CT was bought.	1	2.8
applications training for all radiation therapy staff	1	2.8
applications training, peer-to-peer training	1	2.8
Applications training, xray tech background, on the job training	1	2.8
approved schooling/training, competency evaluation	1	2.8
By observing at another facility; by apps specialist provided by the manufacturer.	1	2.8
Clinical apps	1	2.8
For operations of the CT and Simulation software - Application specialists from the vendor	1	2.8
I dont know	1	2.8
Manufacturer/Applications Training	1	2.8
many years of experience (40+)and trained many years ago.	1	2.8
Only therapist perform simulations	1	2.8
OTC	1	2.8
Part of therapy duties	1	2.8
Past conventional simulator experience and vendor training on-site.	1	2.8
Radiation Therapist trained to use CT by application specialist. CT sim procedures	1	2.8

Response	Frequency	Percent
established by therapy dept.CT technologist just operates CT. No pt. contact for RT sim positioning.		
RTT's are trained in the simulation process.	1	2.8
RTT FROM RADIATION ATTENDS CT SIM IN RADIOLOGY	1	2.8
Schooling, offsite and onsite training	1	2.8
Sent to school off-site	1	2.8
technical application training	1	2.8
The radiation Therapist is trained to do Simulations	1	2.8
THEY ARE NOT, HOWEVER WE HAVE A THERAPIST ONSITE WHEN ANY OF OUR CT SIMS ARE BEING PERFORMED TO ENSURE PROPER POSITIONING AND CAPABILITY WHEN TRANSFERED TO TREATMENT	1	2.8
Trained by CT Tech./already an x-ray tech. as well as radiation therapist. Utilized CT crosstrainer study module as well.	1	2.8
Vendor training, competency	1	2.8
Vendor training, on-line CT basic courses	1	2.8
Vendor training, visits/training at other centers using the technology, formal CT courses/certification	1	2.8
We do not employ them, so we do not know their training.	1	2.8
yes	1	2.8
Total responses coded as "Other"	36	100.0
Total who answered the question	322	60.6%
Total who didn't	209	39.4%
Total	531	100.0%

17. If you chose "Other" ..., please specify the person who operates the CT device.

Response	Frequency	Percent
Blank	518	97.6
All of the the therapists that do CT/SIM are also x-ray certified. On the job training and school training.	1	.2
also manager	1	.2
An RTT or RVT nurse can perform a non-RT CT scan	1	.2
CT simulator is own by the hospital and we contract them for our CTs.	1	.2
Mistake - Didn't mean to answer 17	1	.2
N/A	2	.4
Pet CT tech	1	.2
The Radiation Therapist is also a x-ray tech with background training in diagnostic CT.	1	.2
WE ARE CURRENTLY LOOKING INTO THE NEED FOR A CT/SIM IN OUR DEPARTMENT.THIS IS A COST ISSUE AS WELL AS A CONTRACTUAL ISSUE FOR US.	1	.2
We have a PET/CT located in our facility. When not doing CT simulations, a nuclear medicine technologist performs the PET/CTs.	1	.2
When we our CT unit is operable all therapist will be trained to do CT Sims	1	.2
with the doctor present	1	.2
Total	531	100.0

19. Use the box below to clarify any of your previous responses or add comments regarding your perception of the potential supply of radiation therapy professionals.

Responses	Frequency	Percent
Blank	434	81.7
# 18. above - the three sites use Varian electronic portal imaging devices for either stereoscopic image localization or CBCT cone-beam CT images with OBI format.	1	.2
#1* - we have a PI system that we use primarily but can use cassettes if need be or for backup	1	.2
13D. RADIATION ONCOLOGIST RETIRED THIS YEAR REQUIRING RECRUITMENT OF ANOTHER M.D.	1	.2
15a. Ongoing plans to replace conventional simulator with CT simulator in very near future (2-3 months). 15c. Simulations will continue to be performed by the therapists.16. CT simulator will be available for bariatric diagnostic scans and as	1	.2

back-up for diagnostic department, as needed.17. Any diagnostic scans will be performed by a CT tech.18. Digital portal imaging used for 90% of port films.		
18. Only occasionally as we have an epid device for digital images. Only when the field size is too large to use the device do we do regular xrays	1	.2
18. We are using cassettes for simulation films.	1	.2
3 linear accelerators - 2 have portal imaging and one could not be "retro-fit" for portal imaging so the "old fashioned" radiographic film in a cassette and run by a chemical processor is needed to view the images.	1	.2
Boston area has an abundance of RTT's.	1	.2
can do cassette if indicated but rarely used any more	1	.2
Currently I believe there are more therapists then jobs. But our department has been very solid with the same therapist team for almost 5 years. (8 fte therapists)	1	.2
Currently, I feel the market has an adequate supply	1	.2
Currently, we have a shortage of experienced therapists in our area. We have been forced to hire a number of therapists right out of school. Which has made me very nervous with all the new equipment and technology that we have to learn in our new dept. Training everyone properly is always a challenge.	1	.2
Extreme over abundance of therapist. Two of the three therapist working part-time in this department, because full time jobs are not available.	1	.2
For # 18, we used to have the Kodak system (cassette based) which we are currently trying to sell. Now we have an On Board Imager that we use for 2D and 3D CBCT treatments.	1	.2
For Question 18 we use OBI for all our imaging.	1	.2
I am a manager in rural Kentucky and had never received resumes from new students coming out of school. 4-5 years ago trying to fill 2 positions was so difficult that we had 2 temps and hired local radiographers and paid their way through school. Now I know of 2 local therapists who cannot find work in the area and I get calls and resumes from other therapists looking for work. The pendulum has definitely swung the other way.	1	.2
i am sorry but what is a treatment device on a CT sim?? Was this survey created by someone who works in Radiation Therapy?	1	.2
I am unable to respond to most of your questions since I work in a teaching facility.	1	.2
I believe the market was saturated with radiation therapists who now can't find jobs.	1	.2
I believe there will always be a need for radiation therapy professionals - many of us are getting to the retirement age and newer students are being trained on newer technologies and advances in cancer treatments.	1	.2
I do not work at a radiation treatment type hospital	1	.2
I had a recruiter call me today, 3/3/09, looking for jobs for her candidates. The recruiter stated that there are not many hiring and "to keep your day job"Thanks	1	.2
I have closed two off site facilities since June of 2008. There were 5 FTEs and 2 PTEs dismissed. Since January 2009, I have 2 FTE positions frozen due to the economic situation. These employees are out on long term leave and are expected to return in a month.	1	.2
I regularly have therapist openings. New grads seem to be consistently scrambling for jobs. Experienced therapists in the Midwest don't seem to job hop like therapists in New England do.	1	.2
I think Radiation Therapist Factories like Washburn University are literally flooding the market with individuals that may be qualified to pass a written exam but clinically there is no comparison to the hospital based programs that seem to be getting forced out of existence.It's also hurting our marketability and ultimately our salary. At least in Pa.	1	.2
If our volume increases then we will be looking for another radiation therapist. If not, then we will make do with what we have.	1	.2
In East Tennessee-we are full. I would really like to see Chattanooga State Technical College limit anymore East TN students unless they are relocating to another area. Our market is flooded. There will be 4 more students graduating in August with no chance for even PRN employment in Therapy. We had a major hospital system-Baptist Hospital-merge with St. Mary's to form a new entity called Mercy Health. Mercy will be closing one of the therapy centers which is going to potentially leave a few therapists either under or unemployed. The same is true for radiology technologists in this area. The flooding is driving wages down because there is such a surplus of radiologic technologists-many are either unemployed or underemployed yet we have schools continuing to advertise and promote the need-no one bothers to say the need is in more rural areas or in other states. Rarely does anyone choose to move out of this area if they were born here based on what I have seen over the past 20	1	.2

yrs.		
In Michigan we are constantly being contacted by radiation therapist seeking employment or placement agencies.	1	.2
in our area radiation therapists seem to be plentiful for the time being.	1	.2
In our area, there are more therapist than job openings. We have never experienced a shortage of therapists, but find it hard to recruit oncology nurses.	1	.2
In our market (Long Island, NY) there seems to be too many therapists, however this seems to be cyclical and happens every 4-5 years.	1	.2
In Regards to #18...we have a Electronic Portal Imaging Device.Thanks for the opportunity to do this survey.	1	.2
In the state of Ohio, per Ohio Department of Health, only Radiation Therapists can do CT Simulations, and only Radiographers can do diagnostic CT's. I think the "on-line" programs for Radiation Therapy are taking too many students. We had an excellent student in their program last year, and she is unable to find a job as a Therapist.	1	.2
It appears that more RTT's are available in our area. Medical dosimetrists are still hard to find.	1	.2
Kodak CR system - digital system	1	.2
Less likely to need temporary locums services	1	.2
market is getting saturated; however, some of the new students available are not prepared to do "critical thinking" treatment.They cannot think outside the box, making one question whether there is a clear understanding of basic knowledge of setups.	1	.2
Massachusetts is in a surplus for RTT's with less available jobs.	1	.2
My perception is that the supply of experienced therapists is dwindling either due to them leaving the profession or not being as mobile as before.	1	.2
Need to use film and processor on 1 older machine.	1	.2
not for port filming but yes for ExacTrac IGRT images	1	.2
On our older machine.	1	.2
only occasionally on non IGRT machines	1	.2
Only when portal vision is not working. The portal vision works 99% of the time.	1	.2
Our physician is not employed by our facility. The department manager is also the dosimetrist. The physics group is contracted.	1	.2
OUR PT LOAD HAS DROPPED BUT WE HAVE NOT DOWNSIZED OUR STAFF AT ALL	1	.2
portal imaging	1	.2
Question #16 - We only do Diagnostic CT on our PET/CT patients if requested by referring physician	1	.2
Question 15a was confusing. We have a CT Simulator but not a treatment machine used for a CT Simulator. I am not sure what treatment machine can be used for a CT Simulator. The CT Sim is in our department, a Radiation Therapist operates the CT Sim, training conducted by the vendor and we do not use it for diagnostic studies.	1	.2
Radiation Oncology continues to evolve to a place where therapist are much more responsible for the "diagnostic viewing" of images. This has created an additional training for "older" therapist who were trained to view films. Shifting and localization is from a CT based system and training needs to reflect this. Image based treatment what is best for the patient, at this time, and training therapist to meet the standards can be challenging. To try and minimize turnover having an affiliation with a community college has been amazing. You sponsor or "pick" you candidate and you can "home grow" your therapist. Helps with retention and teamness.	1	.2
Radiation Therapy professional supply is cyclic. Currently, there are more RTT's than positions.	1	.2
RADIATION THERAPY STUDENTS GRADUATING LAST YEAR IN GEORGIA WERE HAVING A HARD TIME FINDING A JOB IN GEORGIA	1	.2
Re: #18 we use 'on board imaging"	1	.2
Right now in our market there is an ample supply of therapists.	1	.2
Right now Therapy depts in the area are cutting jobs due to current economic climate	1	.2
Right now we do not have a shortage of radiation therapy professionals. However due to the ages of the therapists and no schools in the area I can anticipate a shortage in the next 5 years.	1	.2
Still difficult to recruit good therapists. Quality varies by educational program. Many RT's in the profession that shouldn't be but due to lack of qualified applicants, it is difficult to raise the standard of expectations. We often only get one applicant for one position. It would be nice to interview 3 - 4 individuals and choose the best one as opposed to the only one.	1	.2
Supply is currently higher than demand for therapists which will in turn decrease	1	.2

salaries. Therapy schools should be encouraged to decrease the number of students accepted for several years to increase the demand for therapists.		
The department opened in November 2009 with effectively onemachine but patient demand was so high a secondmachine was commissioned 1 year early and staffed accordingly. A physicist has been our biggest recruitment issue, preventing us from performing as much MRT or developing stereo, etc.	1	.2
The NYC area has an over abundance of licensed radiation therapists however many are incompetent. Unfortunately when the market needed qualified therapists individuals interested only in the better than average wages were allowed to enroll in local therapy schools. Hence we now have an over abundance of less than professional therapists.	1	.2
The physics staff is from a contracted physics group. They are not our employees.	1	.2
The RTT program we were affiliated with closed last year. We feel it is appropriate to open a school to continue to supply therapists for those approaching retirement age and meet the demand of the growing number of new centers. We have not experienced a shortage in the area because of the school...we consider ourselves lucky.	1	.2
The supply in Cincinnati is out there. There are plenty of those needing jobs here. The demand is down because of companies and hospitals cutting their budgets. It's unfortunate because my staff is overworked, underpaid, and understaffed. For the number of patients treated in the facilities I manage, we need more than 2 Therapists per facility. I can't even let people take a vacation without being short at both facilities. If I let one person off, then the other Therapist working must perform treatments and CT's alone unless I am available to help. Unfortunately, this doesn't always work out.	1	.2
The supply may be there because of the increased ability to get academic certificates on-line. However, the QUALITY of these graduates has diminished in comparison to hands-on practical trainingcenters. A guy may be able to read a how-to book about "changing a tire", but actually changing it becomes a problem. NO CRITICAL THINKING SKILLS!!	1	.2
Therapists use portal vision.	1	.2
There are too many RT's being graduated in an already over saturated market. These RT programs should realize that their new grads are having to leave town in order to find full time employment. New York has too many RT programs and not enough oppotunities in our area.I know this all too well because I run a temporary RT service as well as being an RT myself and I have seen the changes and predicted this current over flow of RTs.	1	.2
There does not seem to be a demand of Radiation Therapists. There are too many schools many which are substandard in the teaching methods, therefore supply outweighs demand. Quality people will be produced only when supply decreases	1	.2
There seem to be therapists available looking for jobs - they need to be willing to move and not stay where they are trained since typically the markets are saturated in areas where therapists are trained but - we have an aging society that will need more treatment, and an aging workforce that might like to ease back on working fulltime which would also make room for others.	1	.2
There should NOT be typographical errors in something like this!	1	.2
These are used when the EPID goes down and to film lateral head and neck compensators from whole body irradiation procedures.	1	.2
Treatment units are equipped with portal vision	1	.2
Way too many physician groups, like Urologists, are buying thier own LINACS and treating patients. Here in Houston, Radiation Therapy has been reduced to "Doc in the Box" availability. Cherry picking of patients now rampant. RT(T)'s ARE HIRED RIGHT OUT OF SCHOOL AT LOW PAY WITH NO BENEFITS TO STAFF THESE FACILITIES. Not enough Rad Onc's to cover the demand, but too many RTT's available.	1	.2
We are a clinical site to VUMC Radiation Therapy students in Nashville. They put the school on hiatus last year due to the Master's Degree requirement for the director of the program. Currently there is a surplus of therapists but I can see this changing quickly due to the school closing. I think the JRCERT needs to really review it's requirements for this position and how feasible this is in our profession to meet these requirements for a program director.	1	.2
We are a new start up dept which opened April 28, 2008	1	.2
We have portal vision on our treatment machines.	1	.2
We have a very stable dept.	1	.2
We have always been fortunate with staff retention. However, I have received several	1	.2

calls from locum tenens now looking for full time work because the temp market is drying up. This leads me to believe that the supply of radiation therapists is growing. This could be just our market.		
We have been actively recruiting within our local community for students to a radiation therapy school in the nearest urban area. We choose people with roots in the community looking for a career change or enhancement and then pay for their tuition while maintaining our center as a clinical site for the school. Since developing this in the year 2000, we have not had a shortage or called an agency for temps - AT ALL! We are now applying to be a CAMPEMP site for the development of our own physicists.	1	.2
We have CR for one unit; OBI, KV-KV, conebeam CT for the Novalis TX; and TomoTherapy IGRT	1	.2
We have electronic portal imaging we use, the digital cassette is used for QA & in the event the EPI is not working	1	.2
WE HAVE HAD THE SAME STAFF FOR OVER 10 YEARS.	1	.2
We have OBI	1	.2
We have on board portal imaging (epid and lview) on our machines.the simulator uses cassetts with film that has to go through a processor to get developed	1	.2
We have one treatment machine with old fashioned port films/cassettes.The other machine has portal imaging and cone beam CT.	1	.2
we have regular port films on one accelergater and portal imaging on the other.	1	.2
We have stereoscopic guidance (IGRT) utilizing OBI, CBCT, as well as traditional and digital port filming.	1	.2
We have very low turnover in all positions, We work very hard at retention and hiring quality people in the first place.	1	.2
We staff one larger department at our main hospital, and also provide all services for a satelite facility at a smaller hospital, except for the therapist and nurse. Both of these departments are under one health care organization.	1	.2
We still use film and cassettes for taking our portal verifications.	1	.2
We use an EPID	1	.2
We use film and processor at our cancer center for port filming.	1	.2
we use portal vision primarily, but use digital cassettes as back-up when p.v. is down	1	.2
We use the CT scanner at all three of our locations in Radiology and just ethernet it over to our treatment planning computer. In short, we do the virtual simulation on the planning computer and make any adjustments in another simulation prior to treatment. Immobilization devices and an orthogonal pair are done on our traditional simulator before the Radiation Therapists takes them over to CT to assist the Radiology Tech.	1	.2
we use third party physics and treatment planning. How many community hospitals use this service vs. hospital employed planning team?	1	.2
WE WILL HAVE ISSUES AT OUR SITE BECAUSE WE DO NOT HAVE CT/SIM ON SITE AS WELL AS STILL USING STANDARD PORT FILM METHODS.RECENT GRADS MAY SEE THIS AS A STEP BACK. WE ARE GROWING & MOVING INTO THE CURRENT TREATMENTS EX: IMRT,HDR,GATING ETC. WE ARE FORTUNATE TO BE FULLY STAFFED AT THIS TIME.	1	.2
WILL BE STRARTING TO USE SHORTLY	1	.2
You're missing one: Radiation Therapy Manager or Administrator. There is a shortage of experienced management personel in the field. In today's complicated radiation therapy environment it takes specific know how of the radiation therapy landscape in order to successfully manage it.	1	.2
Total	531	100.0

APPENDIX B: PATTERNS OF SERVICES PROVIDED

Pattern*	Frequency	Percent	Valid Percent	Cumulative Percent
0000000000	3	.6	.6	.6
0000000001	2	.4	.4	.9
0000010000	1	.2	.2	1.1
0010000000	1	.2	.2	1.3
0100000000	3	.6	.6	1.9
0100000001	1	.2	.2	2.1
0100000100	3	.6	.6	2.6
0110000000	4	.8	.8	3.4
0110000100	20	3.8	3.8	7.2
0110000101	5	.9	.9	8.1
0110001100	4	.8	.8	8.9
0110010100	9	1.7	1.7	10.5
0110011000	1	.2	.2	10.7
0110011100	6	1.1	1.1	11.9
0110011101	2	.4	.4	12.2
0110100000	1	.2	.2	12.4
0110111100	1	.2	.2	12.6
0111010100	1	.2	.2	12.8
0111111100	1	.2	.2	13.0
1000111000	1	.2	.2	13.2
1000111110	1	.2	.2	13.4
1100000000	2	.4	.4	13.7
1100000100	4	.8	.8	14.5
1100010001	1	.2	.2	14.7
1100010100	1	.2	.2	14.9
1100011101	1	.2	.2	15.1
1100110110	1	.2	.2	15.3
1100111100	1	.2	.2	15.4
1101000000	1	.2	.2	15.6
1101111100	1	.2	.2	15.8
1110000000	21	4.0	4.0	19.8
1110000001	3	.6	.6	20.3
1110000100	86	16.2	16.2	36.5
1110000101	24	4.5	4.5	41.1
1110001100	18	3.4	3.4	44.4
1110001101	6	1.1	1.1	45.6
1110010000	4	.8	.8	46.3
1110010100	73	13.7	13.7	60.1
1110010101	20	3.8	3.8	63.8
1110011100	41	7.7	7.7	71.6
1110011101	22	4.1	4.1	75.7
1110011110	1	.2	.2	75.9
1110100100	5	.9	.9	76.8
1110100101	1	.2	.2	77.0
1110101100	2	.4	.4	77.4
1110110100	5	.9	.9	78.3
1110110101	3	.6	.6	78.9
1110111000	1	.2	.2	79.1

1110111100	7	1.3	1.3	80.4
1110111101	5	.9	.9	81.4
1111000000	2	.4	.4	81.7
1111000100	1	.2	.2	81.9
1111000101	1	.2	.2	82.1
1111001100	1	.2	.2	82.3
1111010100	9	1.7	1.7	84.0
1111010101	1	.2	.2	84.2
1111011000	1	.2	.2	84.4
1111011100	8	1.5	1.5	85.9
1111011101	4	.8	.8	86.6
1111100100	1	.2	.2	86.8
1111101100	5	.9	.9	87.8
1111101101	2	.4	.4	88.1
1111101110	1	.2	.2	88.3
1111110100	2	.4	.4	88.7
1111110101	1	.2	.2	88.9
1111111100	36	6.8	6.8	95.7
1111111101	21	4.0	4.0	99.6
1111111110	2	.4	.4	100.0
Total	531	100.0	100.0	

*First digit = 1 if CT simulation provided; second digit = 1 if radiation therapy provided, etc. in the same order as the rows in the first table for question 6.

The most common combination of services (86, or 16.2% of all facilities) was CT simulation, radiation therapy, IMRT and conformal radiation therapy delivery, followed by those four services plus targeted radiation therapy (73 = 14% of facilities) and those five services plus fractionated stereotactic therapy (41 = 7.7%).

APPENDIX C: COVER NOTE AND ONLINE QUESTIONNAIRE

Dear Radiation Therapy Facility Manager,

The American Society of Radiologic Technologists is requesting your help with evaluating the current staffing levels for radiation therapists and other specialists needed to provide radiation therapy. If you received this e-mail by accident, we apologize and ask that you please forward it to the person who can provide the information requested.

The *Radiation Therapy Staffing Survey 2009* will be the third in a series of staffing surveys designed to provide a longitudinal examination of changes in vacancy rates within radiation therapy facilities. This information will be shared with the radiation therapy community via a report posted on the ASRT Web site, www.asrt.org. The report's accuracy depends on your willingness to share your facility's staffing data and your views on staffing issues.

With the cooperation and consent of the American Registry of Radiologic Technologists, this invitation is being sent to those who hold managerial titles and designate radiation therapy as their primary sphere of employment. Please submit only one response for the department or facility you manage.

You will be asked for your current and January 2008 budgeted full-time employees (FTEs), as well as the number of budgeted FTEs that are vacant. You may find it useful to have those figures on hand before starting the questionnaire. **By participating in the survey, you will have the opportunity to enter your name in a drawing to win one of three \$100 American Express gift cards.**

To participate in this survey, please click on the following link:

<http://asrt.checkboxonline.com/RTTstaffing2009.aspx>.

If you have any questions, please contact ASRT's Director of Research, John Culbertson, at jculbertson@asrt.org.

If you would like to review the results from the *Radiation Therapy Staffing Survey 2007*, please click on the following link: <https://www.asrt.org/media/pdf/research/RTTStaffingSurveyReportFinal.pdf>.

Thanks for your help with this important survey.

Sincerely,

Myke Kudlas

Myke Kudlas
Vice President of Education and Research

Radiation Therapy Staffing Survey, 2009

1. Did you receive an invitation asking you to take this survey?

- Yes, I received an invitation by e-mail.
- Yes, I received an invitation by mail.
- No, I found the survey on the ASRT Web site.

Facility Demographics

2. Location:

- Urban
- Suburban
- Rural

3. State:

(Two-letter abbreviation)

4. Your title:

- Department/facility manager or director
- Chief therapist
- Chief medical dosimetrists
- Other (please specify below)

If you chose "Other" in the above question please specify that other title here:

5. Type of facility:

- Community hospital
- Government hospital
- University medical center
- Freestanding clinic
- Teaching facility
- Other (please specify below)

If you chose "Other" in the above question please specify that other facility here:

6. Radiation therapy services provided by your facility.

Please check all that apply.

- CT simulation
- Radiation Therapy
- IMRT
- Whole-body irradiation

- Pediatric therapy
- Targeted radiation therapy
- Fractionated stereotactic therapy
- Conformal radiation therapy delivery
- Proton therapy
- Other (please specify below)

If you chose "Other" in the above question please specify that other radiation therapy service here:

7a. Over the year 2008, how did the number of new patients compare to 2007?

- Much higher
- Higher
- Same
- Lower
- Much lower

7b. Patients treated per day:

7c. Number of therapists per treatment machine during a given treatment session:

8. Reliability of treatment machines:

- Excellent
- Good
- Fair
- Poor

Staffing

9. For each of the following specialists needed to provide radiation therapy services, please provide the budgeted and vacant FTEs for your organization in January 2008 and today. Leave rows blank for any specialists who do not work in your facility's radiation therapy suite. Please use decimals for fractional FTEs.

	Data not available	As of 1/1/2008 budgeted FTEs	As of 1/1/2008 vacant and recruiting	2009 (current) budgeted FTEs	2009 (current) vacant and recruiting
Radiation therapist	<input type="checkbox"/>				
Medical dosimetrist	<input type="checkbox"/>				
Radiation oncologist	<input type="checkbox"/>				

Medical physicist	<input type="checkbox"/>				
Physician assistant	<input type="checkbox"/>				
Nurse (RN, LPN, nurse practitioner)	<input type="checkbox"/>				
Ancillary Staff (dietitian, social worker)	<input type="checkbox"/>				
Administrative staff (clerical and billing staff)	<input type="checkbox"/>				
Other (please specify below)	<input type="checkbox"/>				

If you chose "Other" in the above question please specify that other specialty budgeted for here:

10. Describe how the recruitment effort for each specialty so far in 2009 compares with the effort expended during the fiscal year that included January 2008.

	More difficult	Same	Less difficult	Do not know
Radiation therapist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical dosimetrists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiation oncologist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical physicist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physician assistant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse (RN, LPN, nurse practitioner)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ancillary Staff (dietitian, social worker)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administrative staff (clerical and billing staff)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify below)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you chose "Other" in the above question please specify that other specialty here:

11. If budgeted FTEs in any of these specialties have decreased since January 2008, what do you believe is the reason for this decrease?

Please check all that apply.

- Patient demand decline
- Overall department or facility budget decline, forcing downsizing
- Formerly budgeted FTEs were so difficult to fill they were dropped from the budget
- Department efficiency increased, so number of FTEs required to handle the workload declined
- Used overtime rather than hire additional staff
- Other (please specify below)

If you chose "Other" in the above question please specify that other reason budgeted

FTEs have declined:

12. If budgeted FTEs in any of these specialties have increased since January 2008, what do you believe is the reason for this increase?

Please check all that apply.

- Patient demand increase
- Overall department or facility budget increase making it possible to add FTEs
- Recruitment within these specialties became easier, making adding FTEs feasible
- Number of staff needed for each treatment machine increased
- Ancillary staff (dietitian, social worker) were added to free up therapist/dosimetrist/physicist time and thereby increase patient throughput or quality care
- Administrative staff (clerical, billing staff) were added to free up therapist/dosimetrist/physicist time and thereby increase patient throughput or quality care
- Other (please specify below)

If you chose "Other" in the above question please specify that other reason budgeted FTEs have increased:

Recruitment and Retention

13. For each specialty, how have the following staffing indicators changed since January 2008?

a. Radiation therapist

	Much lower	Lower	Same	Higher	Much higher	Not applicable
Employee's average length of employment at your facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turnover rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b. Medical dosimetrist

	Much lower	Lower	Same	Higher	Much higher	Not applicable
Employee's average length of employment at your facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turnover rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c. Medical physicist

	Much lower	Lower	Same	Higher	Much higher	Not applicable
Employee's average length of employment at your facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Turnover rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Radiation oncologist						
	Much lower	Lower	Same	Higher	Much higher	Not applicable
Employee's average length of employment at your facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turnover rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. If your facility is experiencing a work force shortage, check all the consequences of the shortage for your facility.

- Patient demand increase
- Overall department or facility budget increase making it possible to add FTEs
- Recruitment within these specialties became easier, making adding FTEs feasible
- Number of staff needed for each treatment machine increased
- Ancillary staff (dietitian, social worker) were added to free up therapist/dosimetrist/physicist time and thereby increase patient throughput or quality care
- Administrative staff (clerical, billing staff) were added to free up therapist/dosimetrist/physicist time and thereby increase patient throughput or quality care
- Other (please specify below)
- Number of staff needed for each treatment machine increased
- Increased patient complaints
- Other (please specify below)
- Not applicable. My facility is not experiencing a work force shortage.

If you chose "Other" in the above question please specify that other consequence of shortage:

15a. Does your facility have a treatment device used for CT simulation?

- No (Please skip to question 18)
- Yes

15b. If you answered "yes" to question 15, where is the CT simulator located?

- Radiation therapy department
- Radiology department
- Imaging center
- Mobile CT service
- Other (Please specify below.)

If you chose "Other" in the above question please specify that other location of the CT simulator.

15d. How was the person(s) specified in question 15c trained to perform treatment simulations?

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

- Yes
- No

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

- Radiation therapist
- CT technologist
- Radiographer
- Physicist
- Radiation oncologist
- Other (Please specify below.)

If you chose "Other" in the above question please specify the person who operates the CT device.

18. Do therapists in your department use cassette-based digital imaging receptors for port filming?

- Yes
- No

19. Use the box below to clarify any of your previous responses or add comments regarding your perception of the potential supply of radiation therapy professionals.