POLICIES TOWARD CONTINUING EDUCATION FOR RADIOLOGIC TECHNOLOGISTS

A Nationwide Survey of Radiologic Technologists' Managers/Supervisors/Directors
Conducted by
The American Society of Radiologic Technologists

Reported July 2006

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Survey of Policies Toward Continuing Education for R.T.s

Executive Summary

About 6,000 managers/supervisors/directors of facilities that employ R.T.s (including radiation therapists) were invited (by letter or e-mail) to participate in the ASRT's survey of managers with respect to continuing education for radiologic technologists. This final report is based on the 914 substantially complete questionnaires received by May 22, 2006 from respondents who indicated that they supervise R.T.s or radiation therapists or (in nine cases) whose job titles suggested that they could be expected to be familiar with facility and institutional policies regarding CE for R.T.s even though they might not directly supervise R.T.s

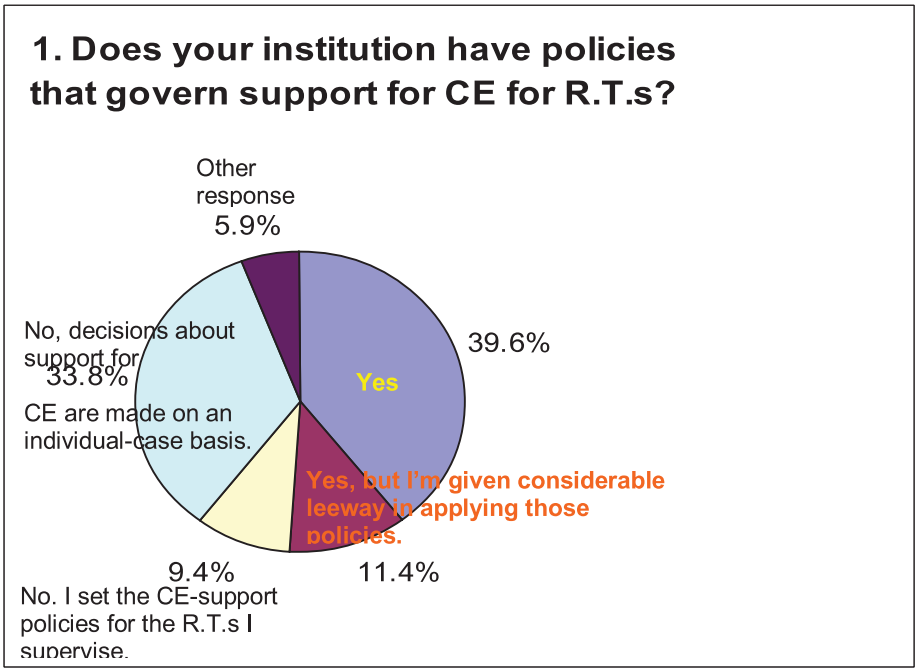
Composition of Sample

About half of the respondents supervise 11 or more R.T.s (defined as "imaging technologists and/or radiation therapists"); and about a quarter supervise more than 25 R.T.s. Fewer than 1% had never worked as a radiologic technologist or radiation therapist. Median years of work experience as an R.T. was 22.2; with respondents supervising R.T.s for a median of 10.4 years. A quarter of them held a bachelor's degree; and 10%, a master's or doctorate. A majority (56.5%) are ASRT members; with 2%, members of ASRT's management chapter; 17%, AHRA members; and 1%, members of SROA. The median age of the respondents was approximately 49 (year of birth 1957). Around 65 percent of the respondents were female, with approximately 35% male.

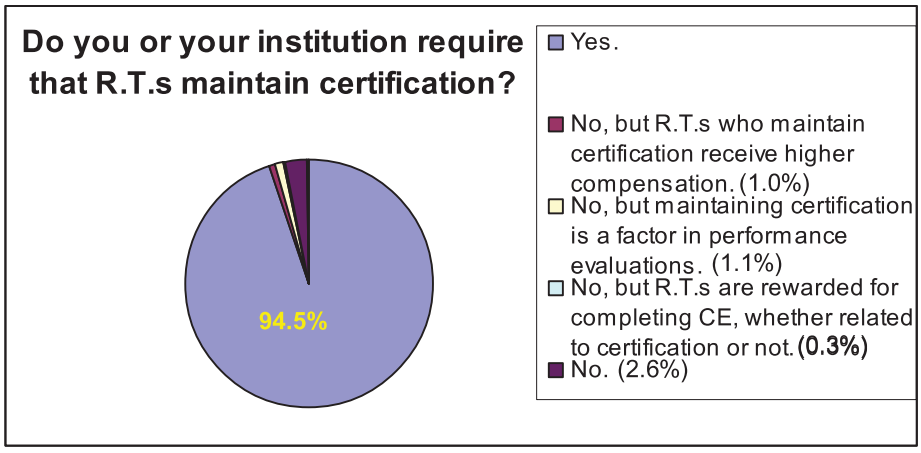
The facilities these managers supervise were located predominantly (62%) in hospitals or university medical centers, 15% free-standing clinics, 8% private physician practices and 5% teaching institutions. The "average" (median) hospital had about 192 beds. About two-fifths of the facilities were in urban locations, with about three-tenths located in suburban and rural areas. D.C. and all 50 states were represented, along with one Canadian province (New Brunswick). About three-fourths of the respondents supervise radiographers; 58%, CT technologists; 53%, sonographers; 49%, mammographers; 44%, MR technologists; 38%, nuclear medicine technologists; 19% quality management; 18%, CVIT technologists; and 9%, radiation therapists.

Continuing Education Policies

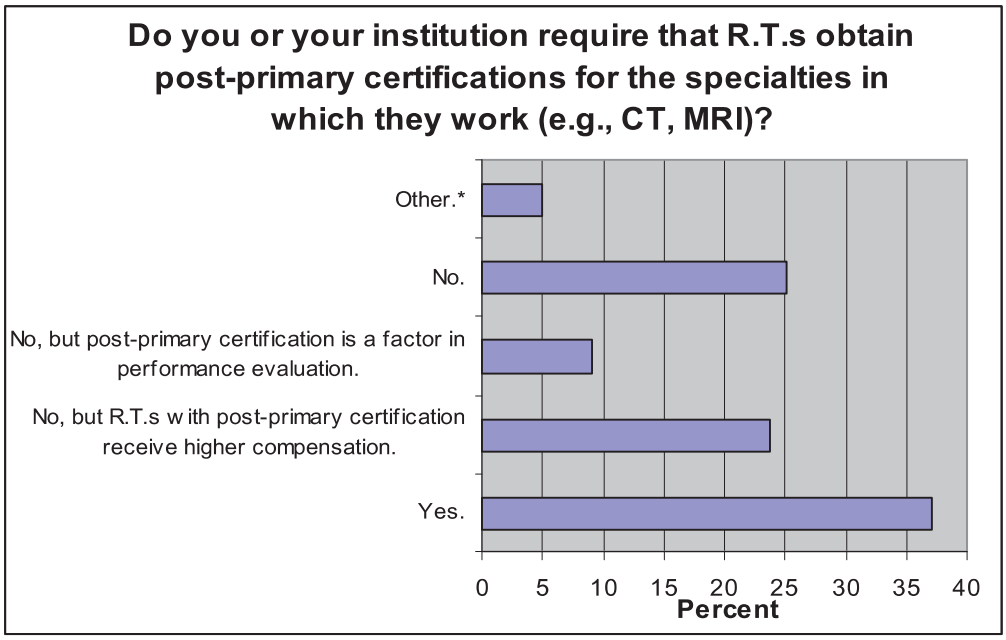
About half of the respondents (50.9%) indicated that their institutions "have policies that govern support for continuing education for R.T.s," although about a quarter of that slight majority (11.4% of the total sample) added that they are "given considerable leeway in applying those policies." Another 9% indicated that they set CE support policies for the R.T.s they supervise, while a third (34%) stated that "decisions about support for CE are made on an individual-case basis."



Almost 95% of all facilities require that R.T.s maintain certification, while another 2% reward maintenance of certification through higher compensation or by making it a factor in performance evaluations. All other CE policies and levels of support vary greatly from facility to facility.

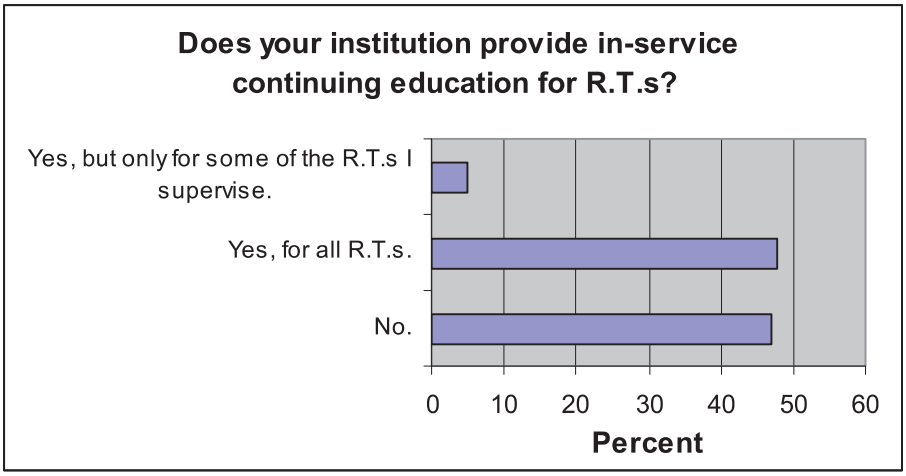


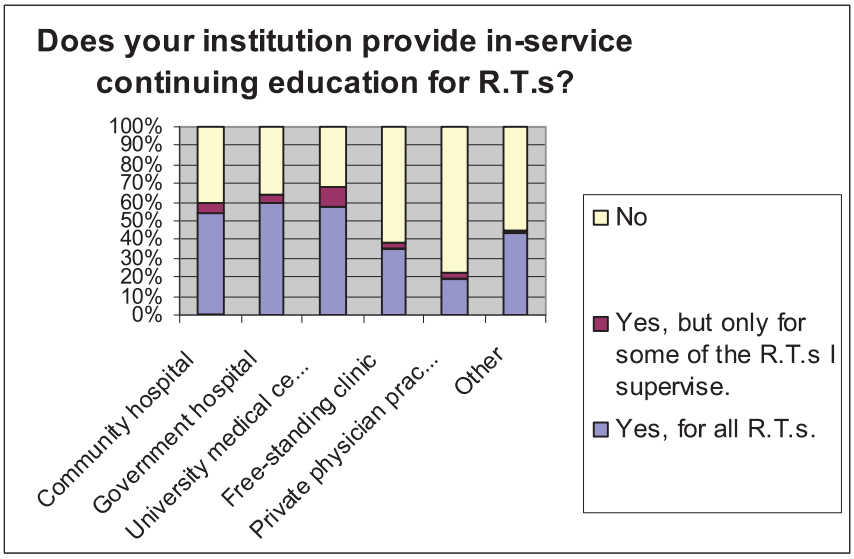
Only 37% of the institutions where these managers' facilities are located require that R.T.s obtain post-primary certifications for the specialties in which they work; a quarter neither pay more to R.T.s who obtain relevant post-primary certification nor consider it a factor in performance evaluations.



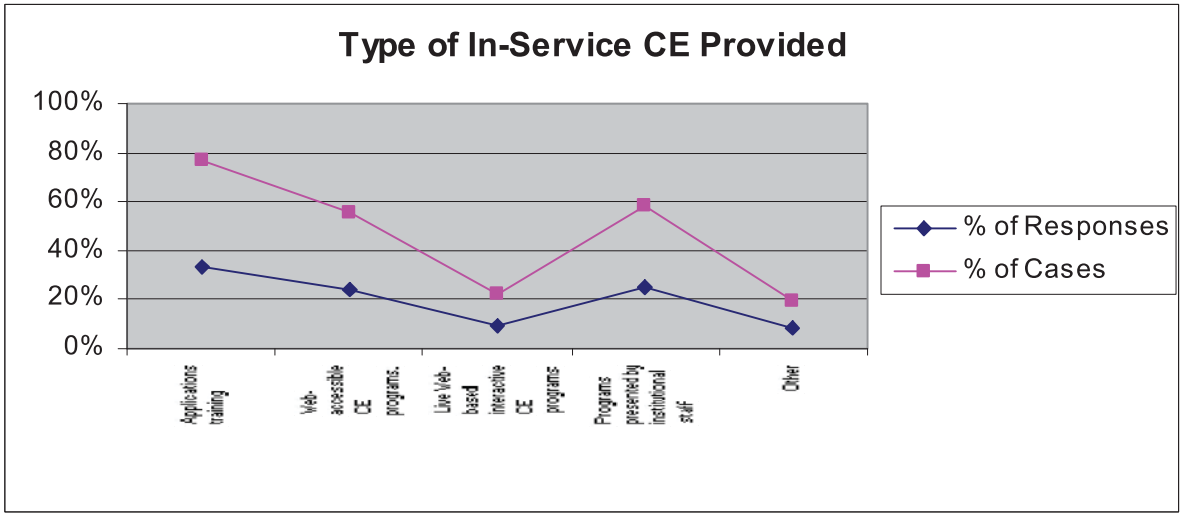
In-Service Continuing Education

Slightly more than half (53%) of the institutions provide in-service continuing education for R.T.s., although about 10% of the institutions that do, provide it only for some of the R.T.s they supervise. As with many other forms of support for CE, private physician practices (23%) and free-standing clinics (38%) were least likely to provide in-service CE.

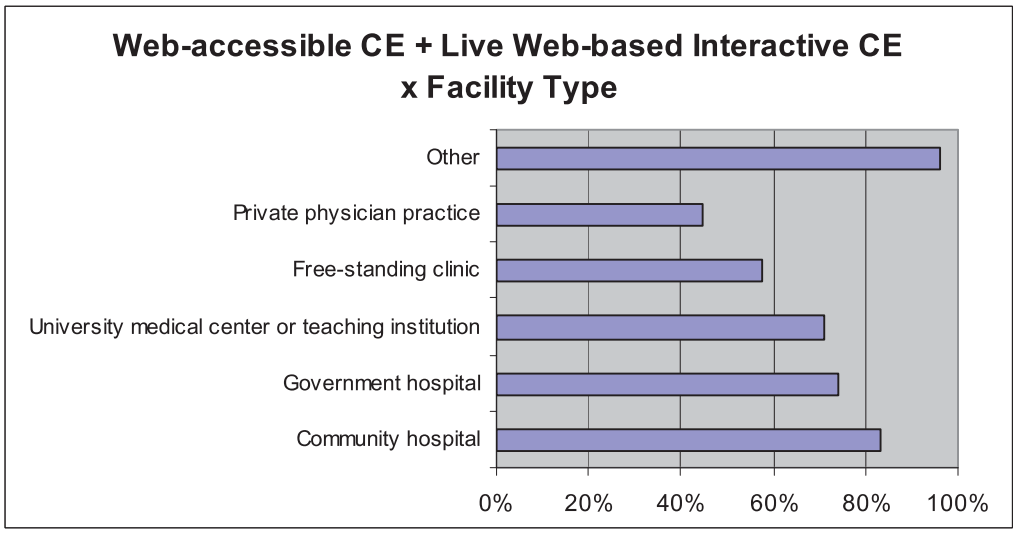




When provided, in-service CE most often took the form of applications training (77% of facilities), Web-based CE programs (78%, including 22% live and interactive) and programs presented by institutional staff (58%).

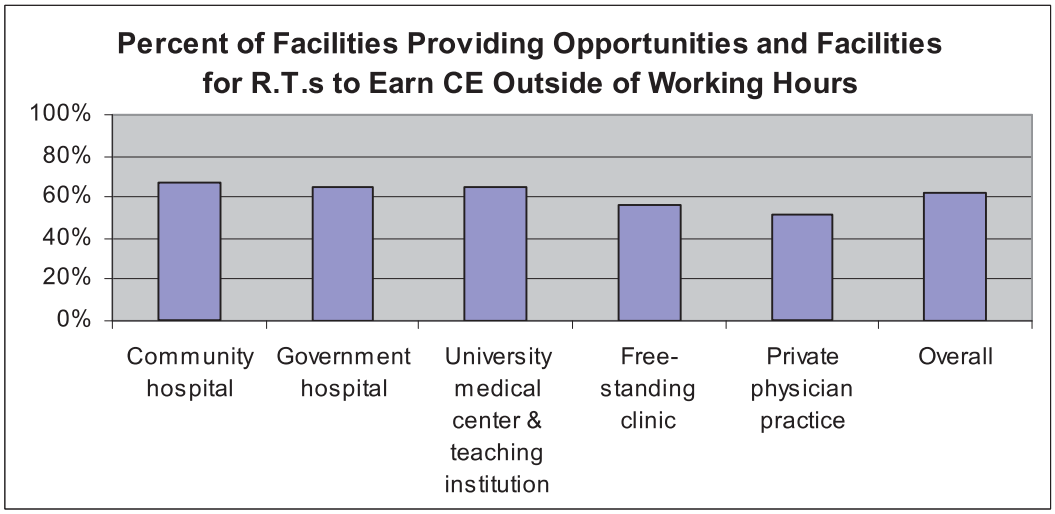


Private physician practices and free-standing clinics were least likely (54%) to employ Web-based CE.



Median amount budgeted for in-service CE (by institutions or facilities within them that provided in-service CE) was about $279 per FTE R.T. per year. However,this figure varied across facilities, from 11 cents to $15,000, with the few extremely high amounts raising the mean (what each facility's budget would be if the money were distributed equally across facilities) to $945.

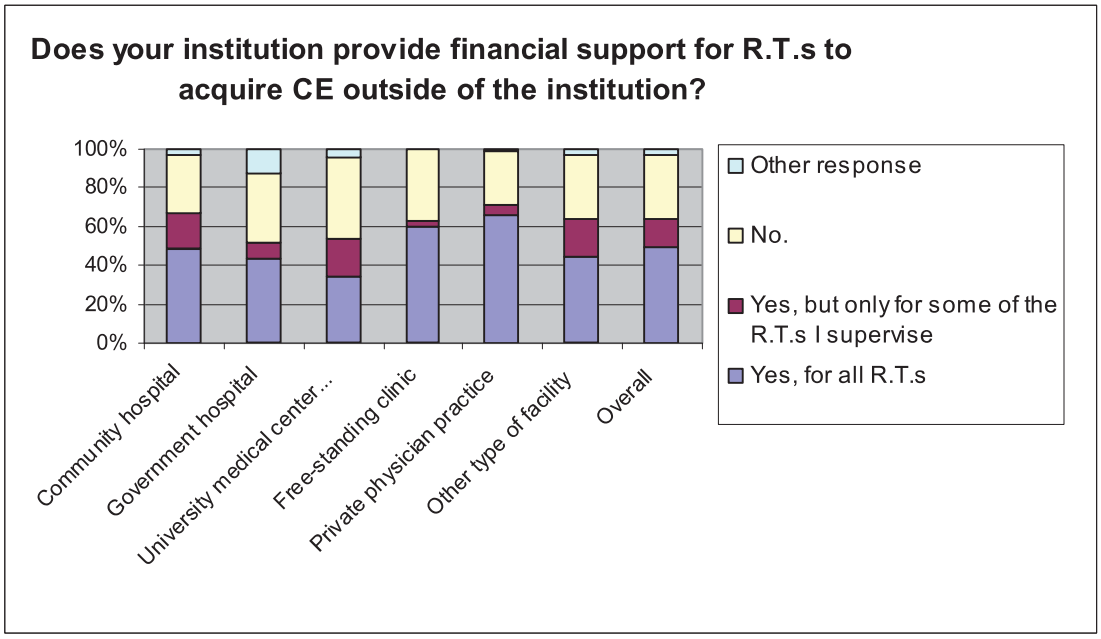
About 62% of the institutions provide opportunities and facilities for R.T.s to earn CE outside of working hours, while approximately 38% do not offer such opportunities. Furthermore, free-standing clinics and private physician practices were significantly less likely (55%) than hospitals and academic facilities (66%) to provide technologists with opportunities for after- (or before-) hours continuing education.



The median amount of time allowed for professional development or CE during the workweek was .76 hours/week. Mean amount of time (1.70 hours/week) R.T.s are allowed for professional development during work hours did not differ significantly among the various types of facilities.

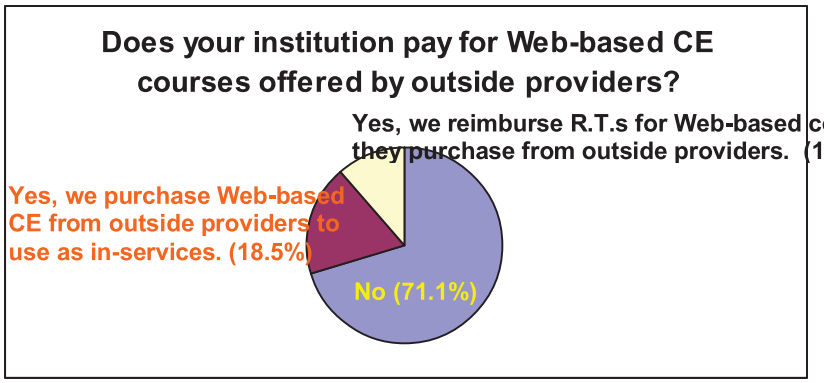
Continuing Education Outside of the Institution

When asked if their institution provided financial support for R.T.s to acquire CE outside of the institution, 33% responded "No." About 50% responded, "Yes, for all R.T.s" and 15% responded "Yes, but only for some of the R.T.s I supervise." Of those who said "Yes" or "Yes, but," 47% specified the locations and courses that are reimbursed, while 44.5% allow any course approved for CE credit.

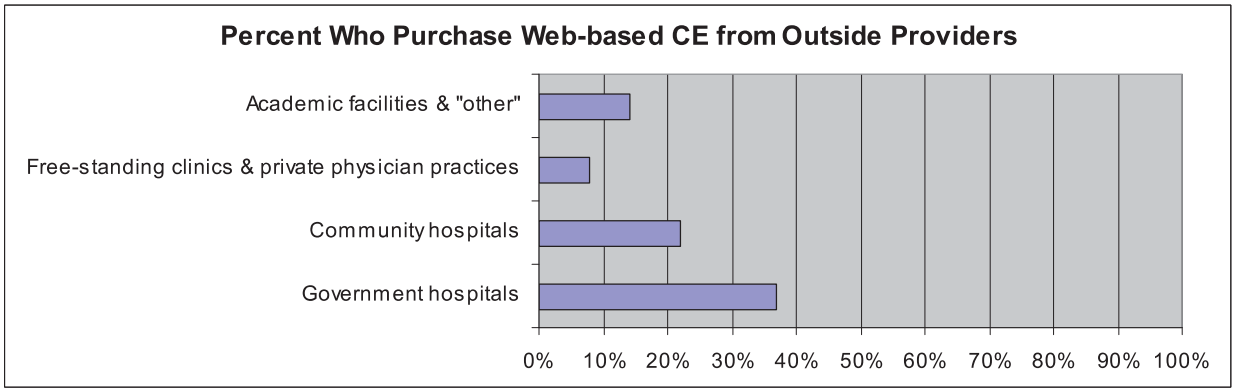


The likelihood of supporting external CE varied substantially and statistically significantly across facility types, as did the percentage of facilities whose institutions specify locations and courses. About a third of academic facilities, 43% to 48% of hospitals, and 60% to 66% of free-standing clinics and private physician practices provide financial support for external CE to all their R.T.s. Community hospitals and academic institutions are significantly more likely (19%) than are the other three types of facility to restrict such support to only a subset of their R.T.s. Only about a sixth of private physician practices are "picky" about the locations and courses for which they reimburse R.T.s, as compared to 42% of government hospitals and free-standing clinics, 53% of community hospitals and two-thirds of facilities in academic institutions.

Around 71% of the managers do *not* pay for Web-based CE courses offered by outside providers.



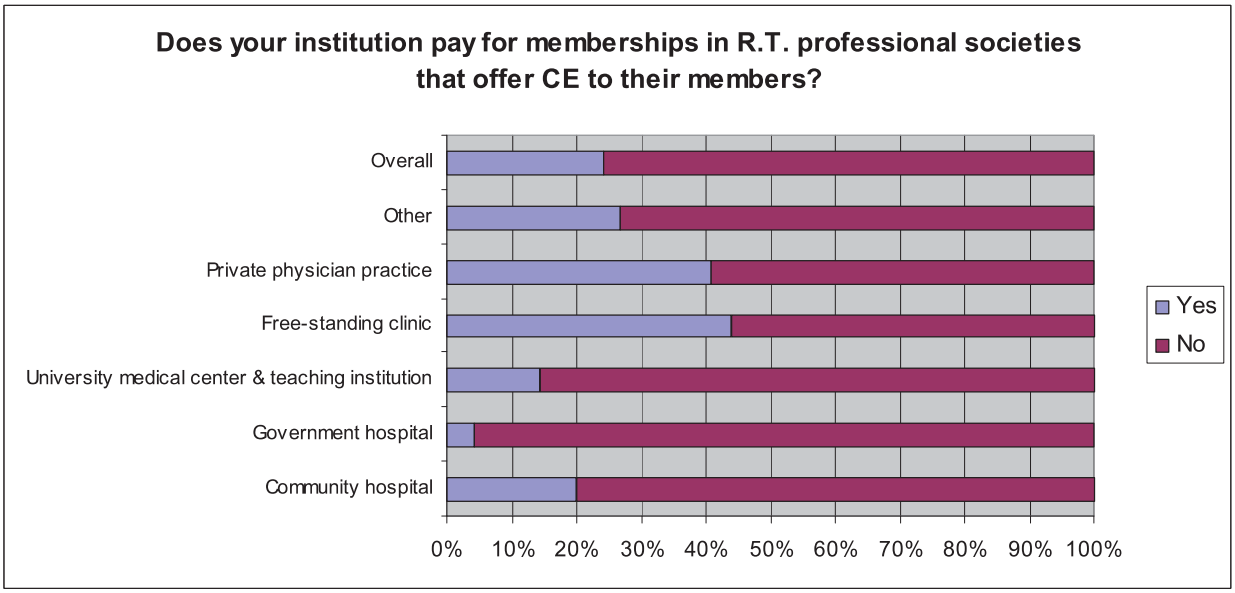
The percentage of managers reporting that their institutions use or reimburse for Web-based CE from outside providers (29%) did not differ significantly across institution type. However, hospitals were significantly more likely (23%), and free-standing clinics and private physician practices were significantly less likely (8%), than the overall average to purchase Web-based CE from outside providers. Moreover, government hospitals were significantly more likely (37%) than community hospitals (22%) to do so.



The median dollar amount for web-based CE was $300. As with the other dollar amounts, variance was high, with a maximum budget of $3,000 and a mean (among facilities with a nonzero budget for Web-based CE) of $563.89.

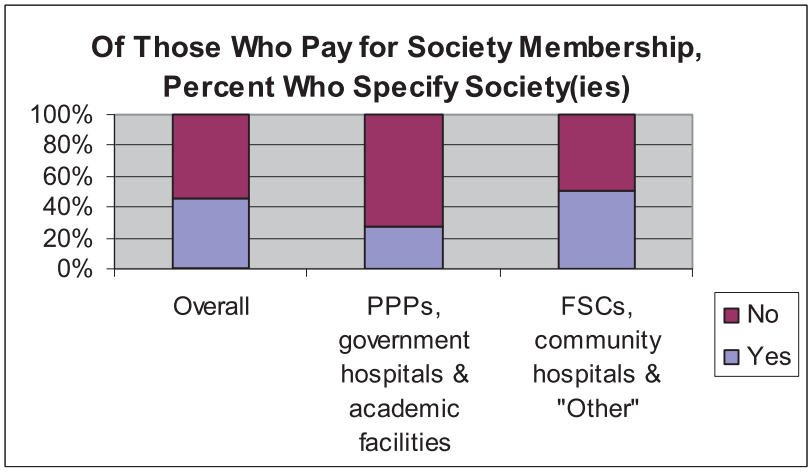
Continuing Education via Professional Societies, Conferences

Only about a quarter of these managers' institutions pay for memberships in R.T. professional societies that offer CE to their members. However, this percentage is considerably lower (4%) for government hospitals and in academic settings (14.5%) and substantially higher in free-standing clinics (44%) and private physician practices (41%).



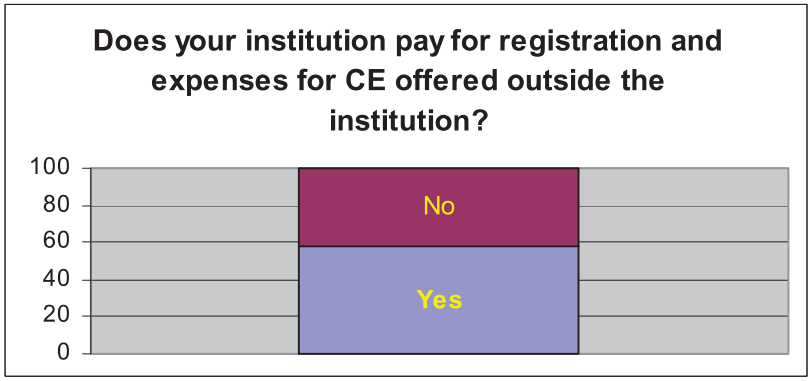
About half (47%) of the institutions that pay for R.T.s' membership in CE-providing societies specify which societies that reimbursement applies to. However, this percentage was

significantly lower (27%) among private physician practices, government hospitals and facilities in academic institutions.

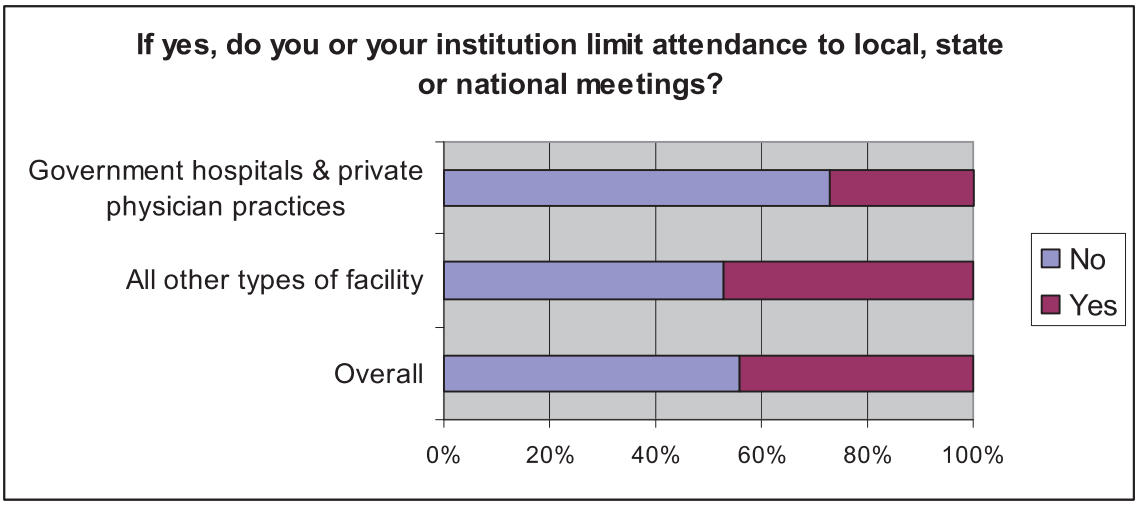


The median dollar amount that managers budget for membership dues per FTE per year was $118.75. Variance was high, with budgeted amounts as low as $25 and as high as $3,000, yielding a mean of $288.68. Among managers who budget a nonzero dollar amount for membership dues, a slight majority (56%) budget an amount equal to or greater than ASRT's current annual dues. No statistically significant differences showed among the various types of institution in the amount budgeted for professional-society dues (given that a nonzero amount was budgeted).

About 58% answered "Yes," they pay for registration and expenses for CE offered outside the institution.

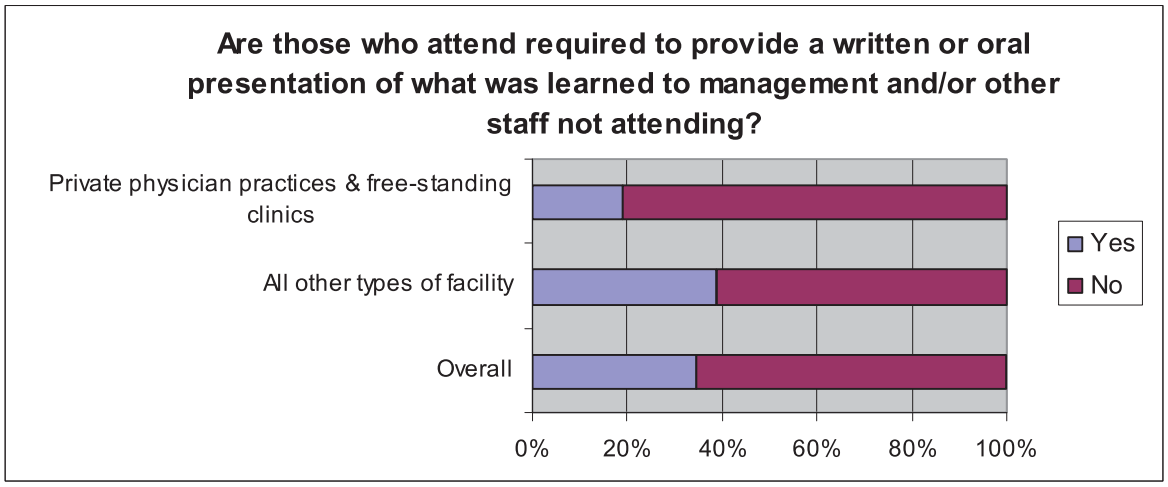


A slight majority (56%) of the institutions that reimburse external CE put no restrictions on the types of meetings where reimbursed CE may be obtained. However, government hospitals and private physician practices were even more likely (73%) to leave the choice of level of meeting (local vs. state vs. national) to the R.T.



Among those facilities for which distance from the worksite determined reimbursement for conference attendance, the median radius of the "reimbursable zone" was 146.2 miles. One facility reimbursed for conferences up to 1,000 miles away; with the mean radius 210.1 miles. The median dollar amount that managers budgeted for external CE meetings per FTE per year was $465.00. Variance was also high with this figure, with one facility budgeting $9,000 and a mean budget of $1,036.09. The distribution did not differ significantly across types of institution.

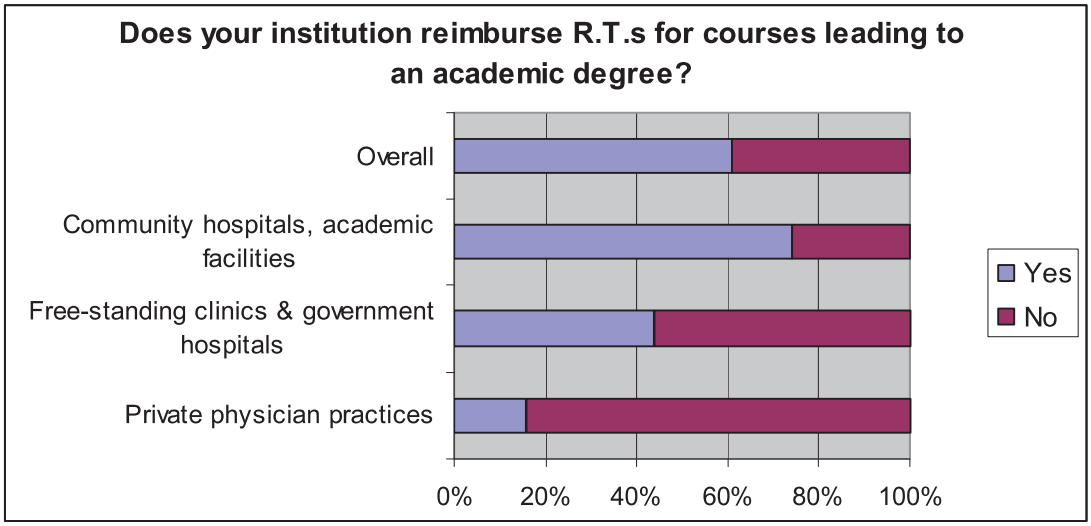
About a third (34%) of the managers indicated that a post-conference presentation is required. This percentage was significantly lower (19%) in private physician practices and free-standing clinics.



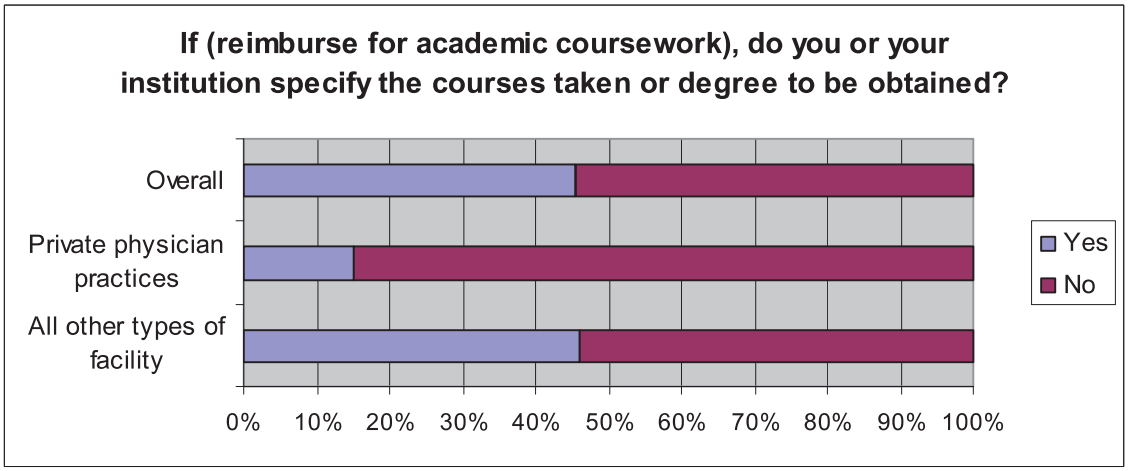
Support for Work toward Academic Degrees

About 61% of the managers indicated that their institutions reimburse R.T.s for courses leading to an academic degree. Of this percentage, 46% of the institutions specify the courses taken or degree to be obtained. The median dollar amount was $1,830.77 for tuition reimbursement. Private physician practices are much less likely (16%) to reimburse R.T.s for courses leading to an academic degree than are free-standing clinics and government hospitals (44%), which are in

turn substantially less likely to do so than are community hospitals and facilities in academic institutions (74%).



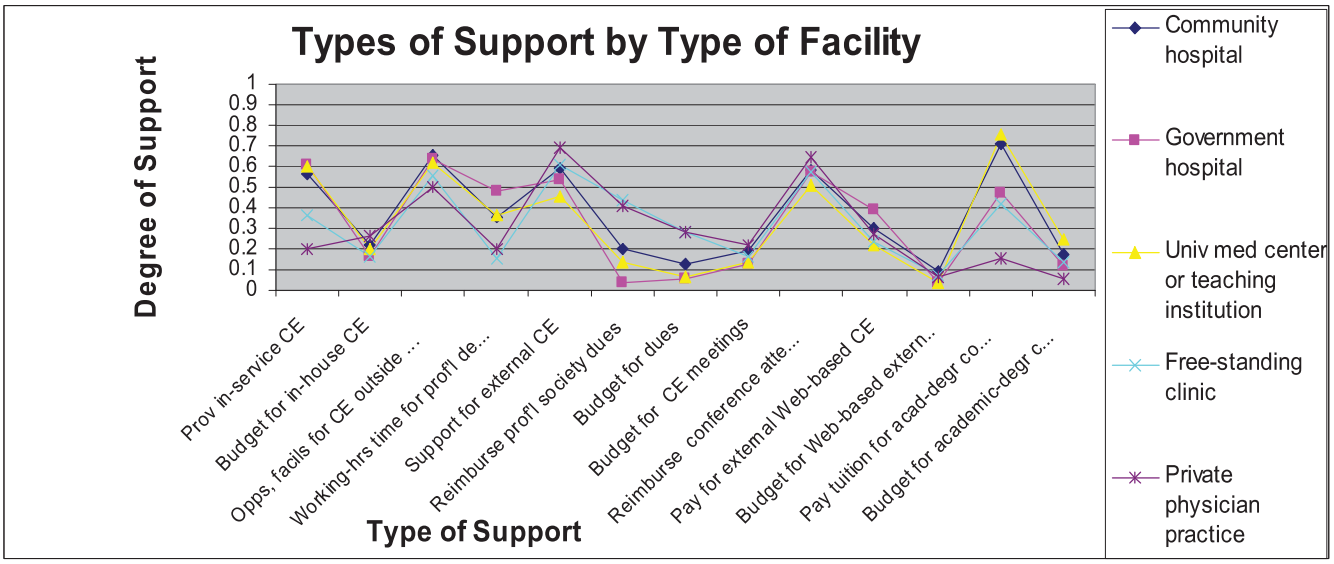
On the other hand, the private physician practices that do reimburse for academic course work were considerably less likely (2/13 = 15%) than other types of facilities (46%) to specify courses or degrees.



Overall Support as a Function of Facility and Manager Characteristics

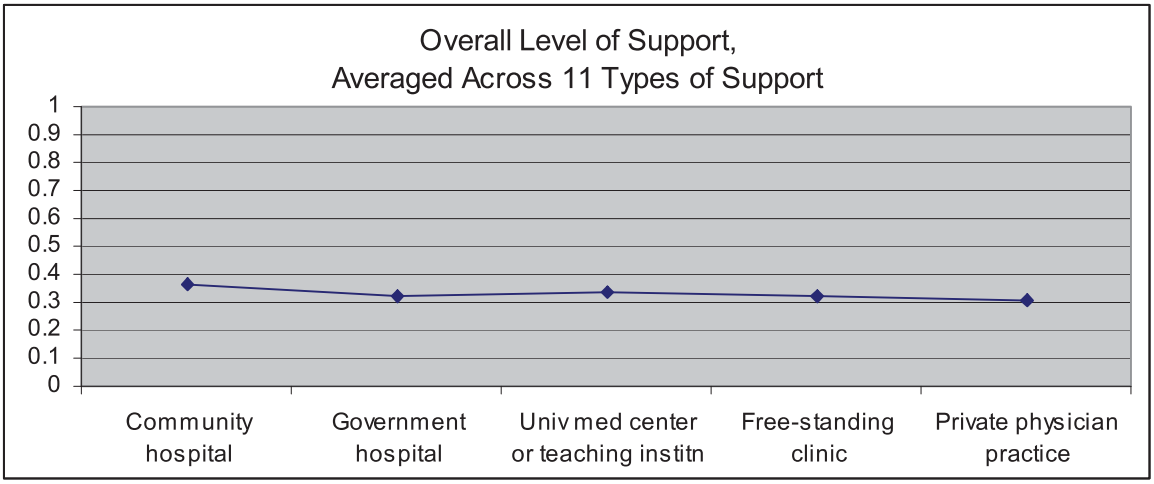
An index of overall support for continuing education was computed by first constructing indices ranging from 0 to 1.0 for each of 13 types of support for CE, then taking the simple average of those 13 indices.

Differences among the various types of facilities were examined question-by-question earlier. However, the differences among facility types in the *pattern* of support can be more clearly seen by examining the means of the 13 individual support measures simultaneously:



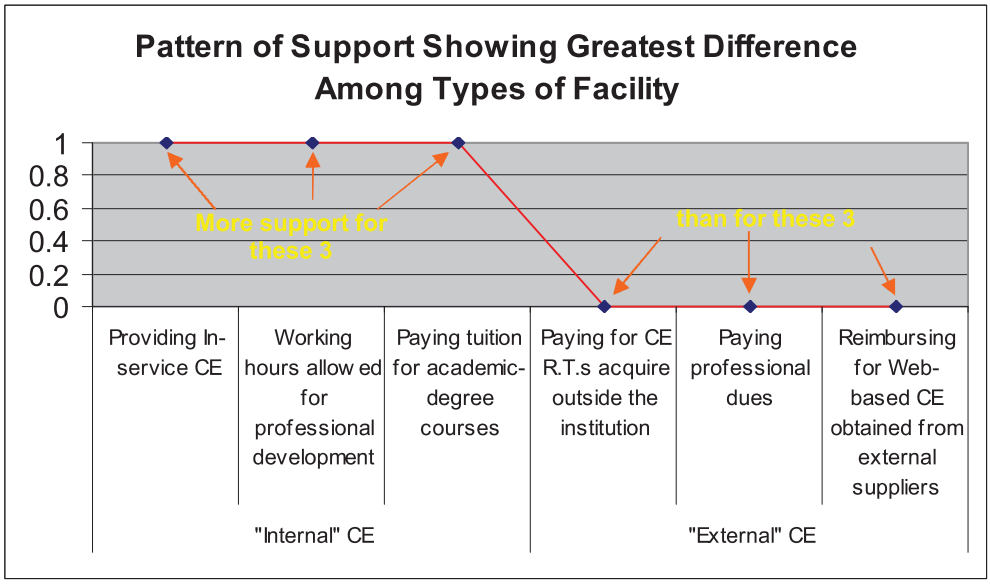
The simple average of the 13 zero-to-1.0 indices of support correlates very highly (Pearson's correlation coefficient = .996) with the first principal component (PC) of all 13 scores – i.e., it is close to the linear combination of the 13 indices that accounts for more of the variation across facilities in scores on the indices than any other combination. However, this first PC accounted for only about a quarter of the differences among facilities in levels of support provided across the 13 types of support.

In terms of overall support, averaged across all 13 indices, community hospitals had a significantly higher mean (.37) than did the other four specific types of facility (.30 to .32). None of the differences among the other four facility types was statistically significant at the .05 level, although private physician practices had the lowest sample mean level of support (.30).

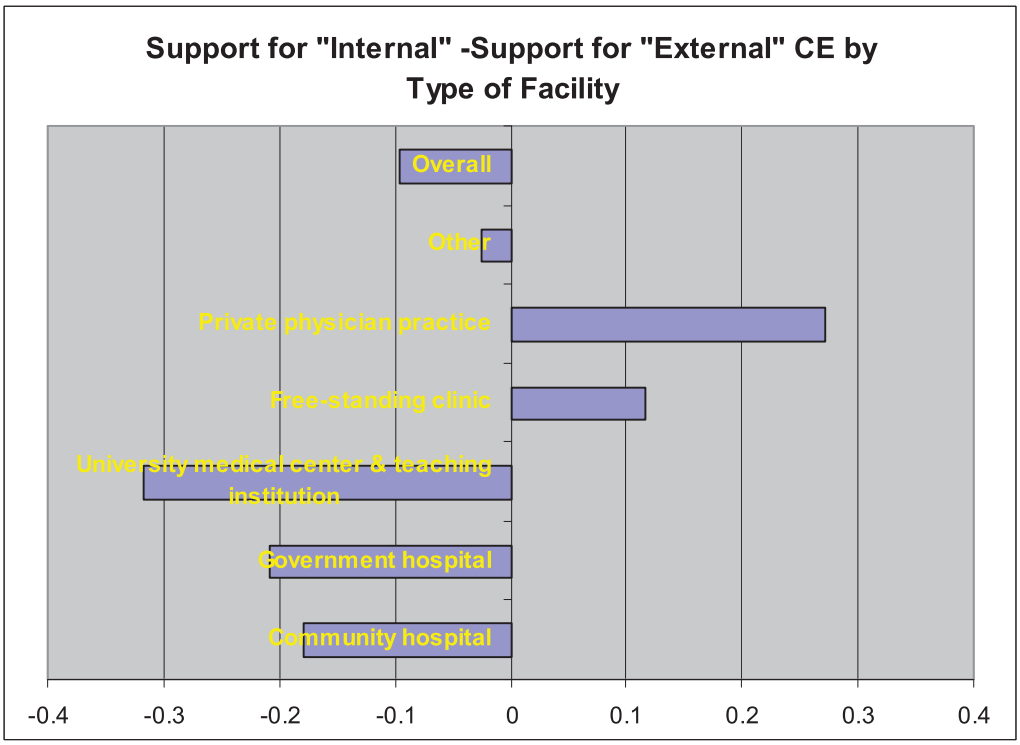


In terms of accounting specifically for differences among the five facility types, a multivariate analysis of variance (MANOVA) indicated a tendency to provide more support for "internal" rather than "external" CE. (Support for internal CE was defined as providing in-service CE; providing time during working hours for professional development and paying tuition for academic-degree courses. Support for external CE was defined as financial support for R.T.s to

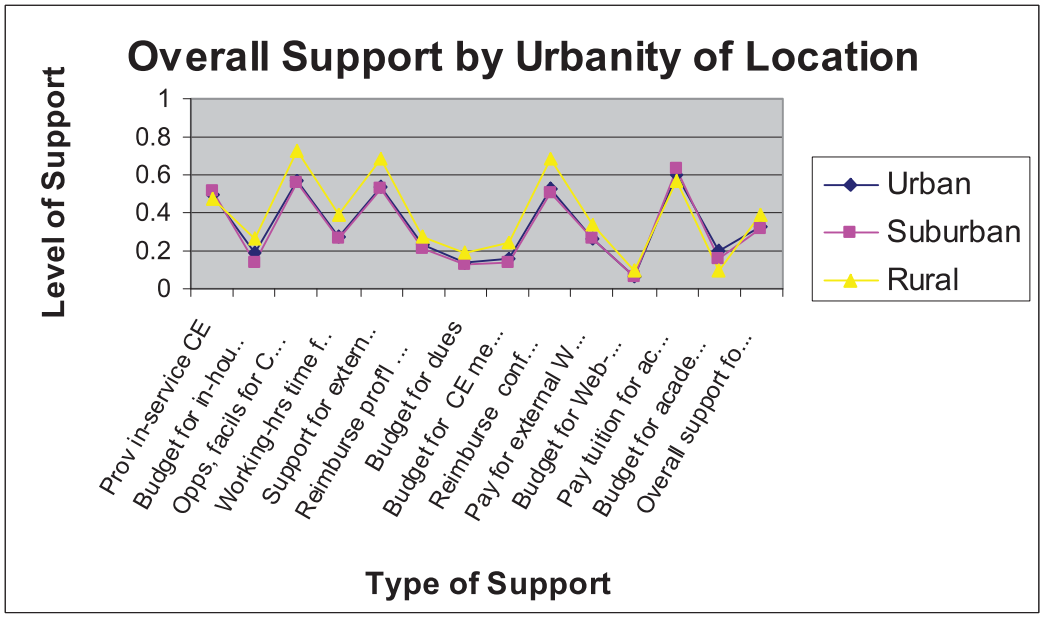
acquire CE outside of the institution, paying dues for membership in professional societies that offer CE and providing and reimbursing for Web-based CE from external suppliers.)



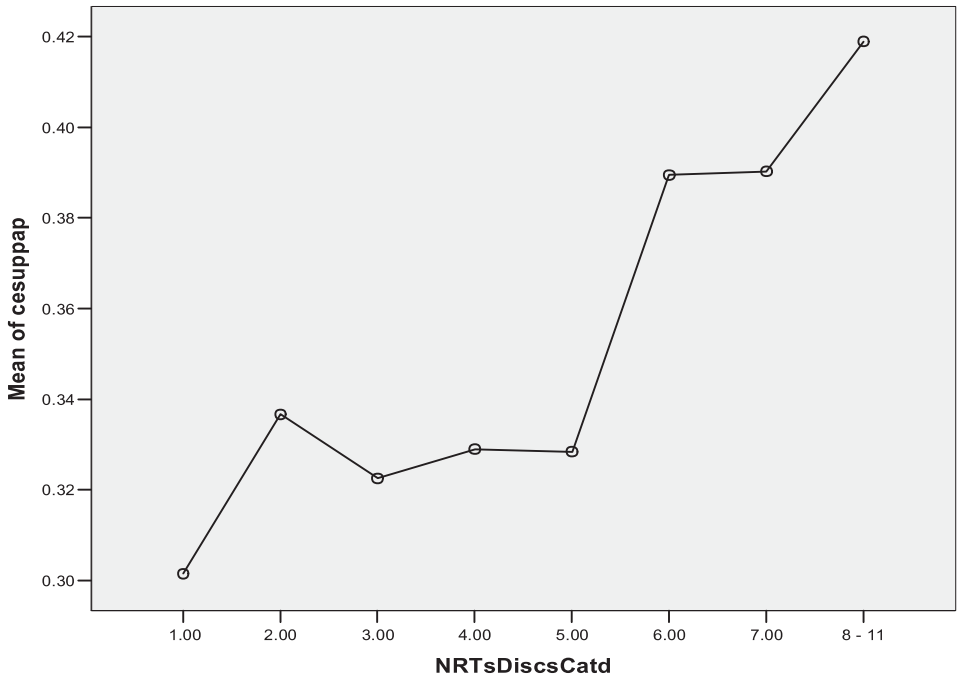
With respect to "internal" vs. "external" support, both types of hospital and academic-based facilities reported significantly higher mean support for in-services, academic degree tuition and time during working hours for professional development than they did for acquiring CE outside the institution and providing or reimbursing for externally-supplied Web-based CE. The reverse pattern was true for free-standing clinics and private physician practices. Further, academic facilities had a significantly higher excess of support for internal over external CE (tuition reimbursement being more clearly "internal" for them than for the other facilities) than did the two types of hospitals. And private physician practices had a greater excess of external over internal support than did free-standing clinics, F with 1 and 798 = 9.480, P = .002.



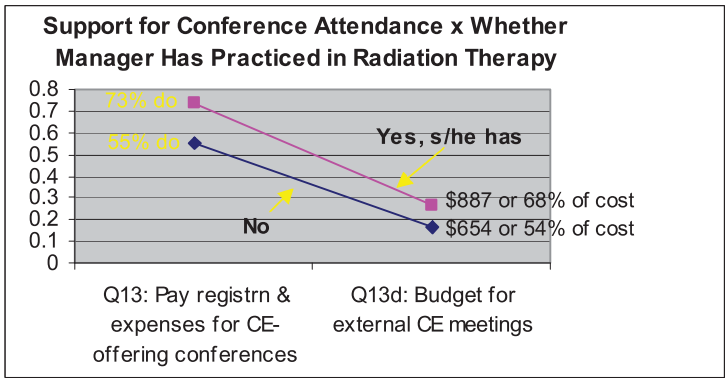
For overall support and for almost all the individual support measures, the means for urban and suburban facilities were quite similar. Rural facilities, however, had significantly higher means than urban and suburban facilities on seven of the support measures (and were significantly lower only with respect to amount budgeted for academic-degree tuition). On the overall index of support for R.T. CE, rural facilities had a higher mean (.39) than urban (.33) and suburban (.315) facilities.

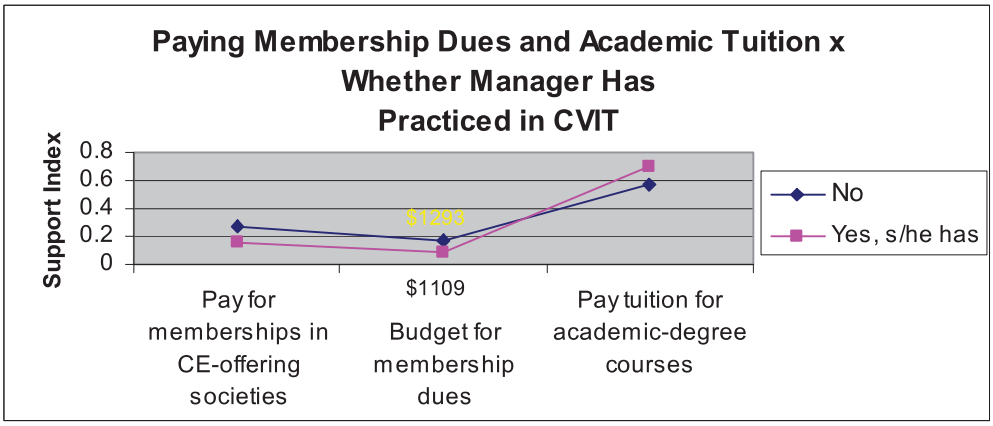


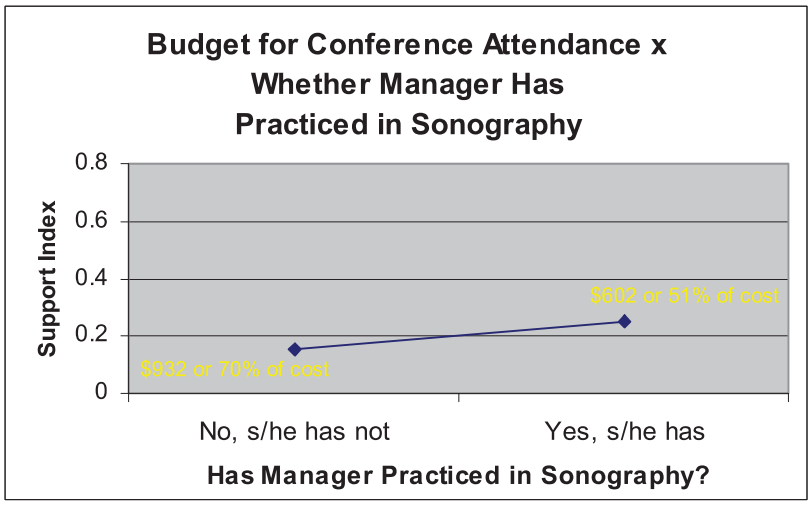
As the number of disciplines and specialties practiced by the R.T.s a manager supervises increases, so does the overall support index, with this linear trend accounting for 74% of the variation among the eight means.



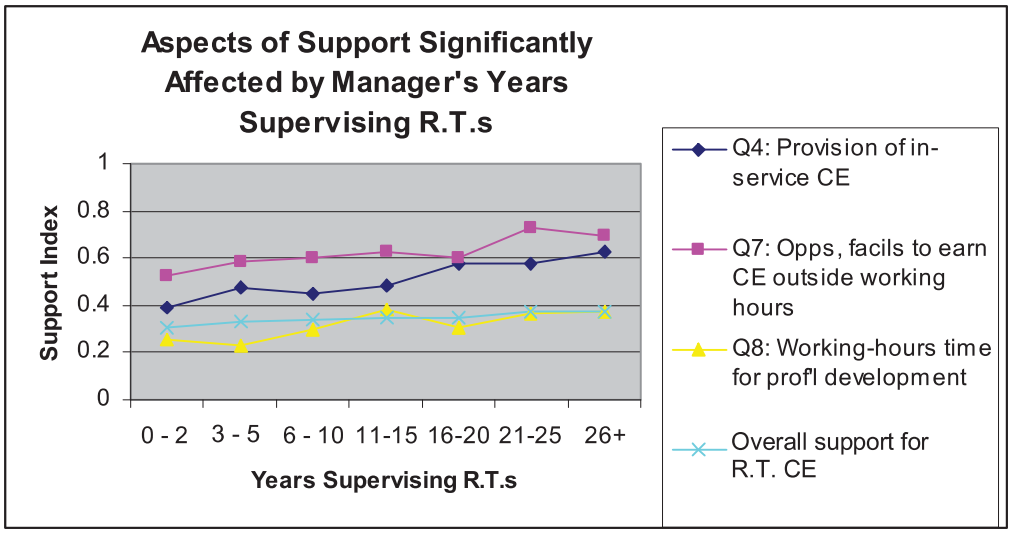
The total number of radiologic science disciplines in which the manager has practiced was not significantly related to mean level of overall support for R.T.s' continuing education. However, a few statistically significant relationships existed between whether the manager has practiced a specific specialty and individual support measures. Managers who have practiced in radiation therapy are statistically significantly above average in their support of attendance at CE-offering conferences. And managers who have practiced in cardiovascular/interventional radiography are significantly *less* supportive of membership in professional societies, but *more* likely than those who have not practiced in CVIT to pay tuition for academic-degree course work. And managers who have practiced in sonography tend to budget more for attendance at CE-offering conferences.





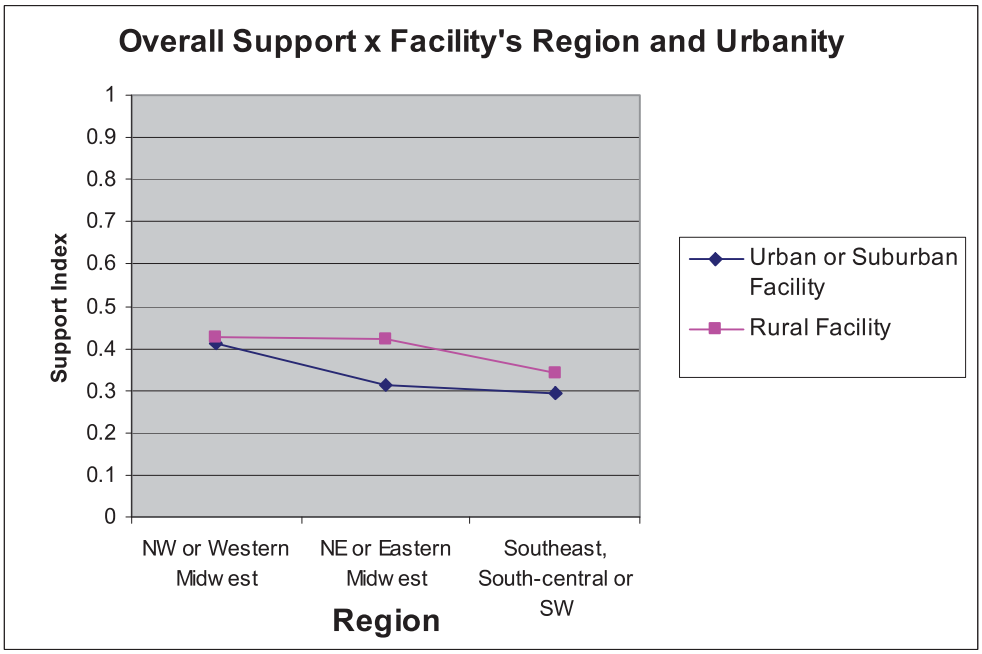


None of the correlations between the years a manager has practiced in the radiologic sciences and overall support or the individual support measures was statistically significant at the .01 level. However, both overall support and three of the individual measures (provision of in-service CE, opportunities and facilities to earn CE outside working hours and the amount of time permitted for during-hours professional development) correlated significantly with years the manager had supervised R.T.s. In all four cases, the amount of support for CE reported by the manager was higher for facilities whose managers had supervised R.T.s longer.



Combinations of Facility and Manager Characteristics as Predictors of Overall Support

A multiple regression analysis of all the characteristics of a given facility and its manager as joint predictors of the degree of overall support for R.T.s' continuing education indicated that 10.4% of the variation from facility to facility in degree of support can be accounted for by the optimal combination of the 48 predictors. Much of this predictability (6.4% of variation accounted for) was retained by considering only two aspects of the facility: whether the facility is located in a rural as opposed to an urban or suburban area and in which of three broad regions of the United States it is located. Support was highest in the Northwest and in the more westerly states of the Midwest; intermediate in the Northeast and in the more easterly states (Michigan, Ohio, Indiana and Illinois) of the Midwest; and lowest in the Southwest, South-central and Southeast.) Support was higher in rural areas than in suburban or urban locales – though this difference was significantly greater in the Northeast and in the eastern Midwest than in the rest of the country.



Overarching Themes

Three themes seem to recur in these results:

- *A great variability exists across facilities regarding policies toward and levels of support for continuing education for medical imaging technologists and radiation therapists.*
  As indicated in the next bullet, each type of support for continuing education is provided by a substantial proportion of facilities, but not provided by also substantial proportions. And the amount budgeted per FTE R.T. for any given type of continuing education varies from zero to thousands of dollars per year.

- *The absolute level of support for R.T. CE is quite low at many facilities.*
  Only about half of the institutions where R.T.s work provide in-service CE, with about a third failing to provide facilities and opportunities to earn CE outside of working hours. The same proportion provide no financial support for CE earned outside of the institution and only about a quarter pay for membership in CE-providing professional societies.

- *Level of support for particular sources of R.T. CE is often considerably different for private physician practices and free-standing clinics than for other types of facilities.*
  Private physician practices and free-standing clinics are less likely than other types of facilities to provide in-service CE, to provide opportunities and facilities to earn CE outside of working hours or to pay for courses leading toward academic degrees. On the other hand, they are more likely to pay for memberships in CE-providing professional societies and to provide financial support for external CE to all their R.T.s. They also tend to be less restrictive about the locations and courses for which they reimburse R.T.s, including the types of professional meetings where reimbursed CE may be obtained. And they are less likely to require that R.T.s who are reimbursed for conference attendance give a post-attendance presentation to co-workers.

Methodology

About 6,000 managers/supervisors/directors of facilities employing R.T.s (including radiation therapists) were invited (by letter or e-mail) to participate in the ASRT's "Managers' Survey: CE for Radiologic Technologists". Four thousand of the invitations went to a random sample of ARRT registrants who listed managerial job titles, while 2,000 went to a random sample from a near-census of all managers/directors of hospital-based radiology facilities (and a few radiation therapy facilities) that was rented from SK&A. Postal invitees were given the option to return a completed hard-copy questionnaire or respond online. E-mail invitees had only the online option. In mid-April, a second wave of postal invitations went to all directors/managers whose e-mailed invitations had "bounced," and a reminder e-mail note was sent to all e-mail invitees whose invitations had gotten through.

This final report is based on the 920 completed questionnaires received (498 of them online) by May 22, 2006, (a return rate of about 15%). Six respondents indicated that they did not supervise any R.T.s and, as requested, did not answer any of the other questions on the questionnaire. These six were deleted from further analyses, leaving a final sample size of 914 respondents.

Detailed Results for Individual Questions

Preliminary (Screening) Question:

How many radiologic technologists (medical imaging technologists and/or radiation therapists) do you supervise?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	More than 25	224	24.3	24.4	24.4
	11 to 25	227	24.7	24.8	49.2
	6 to 10	181	19.7	19.8	69.0
	1 to 5	268	29.1	29.3	98.3
	None	15	1.6	1.6	99.9
	Total	915	99.4	99.9	
Missing	System	5	.5		
Total		920	99.9		

The instructions accompanying this question specified, **If you check "None," please pass this questionnaire on to an R.T. manager.** Indeed, six of the 15 who checked "none" answered no further questions. These six were omitted from further analyses to avoid confusing omission of responses to a given question with blanket omission of responses to any of the questions. Of the nine who did respond to some of the other questions, five of the15 indicated a job title of "chief technologist/therapist" and thus should be aware of institutional policies toward CE for R.T.s, even though they might not directly supervise R.T.s. Two checked "senior/lead technologist/therapist" and two "supervisor/manager." Individuals with those titles can be expected to be familiar with facility and institutional policies toward CE for R.T.s even though they might not directly supervise R.T.s. All nine were thus retained in the sample.

There were also five respondents who didn't answer the preliminary question regarding the number of R.T.s they supervise. However, two of the five listed a job title of "supervisor/manager," one was a "senior/lead technologist/therapist" and the other two didn't indicate their job titles but did state that they had been supervising R.T.s for 10 and 14 years each. All five of these supervisors/managers were retained in the sample.

Consequently, 914 questionnaires were included in the analyses described below.

Policies and Levels of Support

1. **Does your institution have policies that govern support for continuing education for R.T.s?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	355	38.8	39.6	39.6
	Yes, but I'm given considerable leeway in applying those policies.	102	11.2	11.4	51
	No, I set the CE-support policies for the R.T.s I supervise	84	9.2	9.4	60.4

	No, decisions about support for CE are made on an individual-case basis	303	33.2	33.8	94.2
	Other*	53	5.8	5.9	100.1
	Total	897	98.2	100.1	
Missing	System	17	1.9		
Total		914	100.1		

*See Appendix B for a list of these "Other" responses.

There were substantial differences among types of institution in the extent of the supervisor's/manager's responsibility for setting CE policies:

1. Does your institution have policies that govern support for continuing education for R.T.s?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Government hospital	University medical center or teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	171	23	33	64	40	20	351
	% within type of institution	34.9%	46.9%	45.8%	48.5%	54.1%	34.5%	40.1%
Yes, but I'm given considerable leeway in applying those policies	Count	60	10	3	11	9	6	99
	% within type of institution	12.2%	20.4%	4.2%	8.3%	12.2%	10.3%	11.3%
No, I set the CE support policies for the R.T.s I supervise	Count	56	3	9	4	5	5	82
	% within type of institution	11.4%	6.1%	12.5%	3.0%	6.8%	8.6%	9.4%
No, decisions about support for CE are made on an individual-case basis	Count	173	12	21	49	19	17	291
	% within type of institution	35.3%	24.5%	29.2%	37.1%	25.7%	29.3%	33.3%
Other	Count	30	1	6	4	1	10	52
	% within type of institution	6.1%	2.0%	8.3%	3.0%	1.4%	17.2%	5.9%
Total	Count	490	49	72	132	74	58	875
	% within type of institution	99,9%	99.9%	100.0%	99.9%	100.2%	99.9%	100.0 %
Mean degree of supervisor responsibility[a]		0.300	0.222	0.233	0.120	0.176	0.258	0.247

[a] Scoring "Yes" = 0; "Yes, but …" = .5; "No, I set …" = 1 and ignoring all other responses.

The overall chi-square (χ^2) for the relationship between facility type and locus of responsibility for determining policy toward CE was 52.12 with 20 degrees of freedom (*df*), $P < .001$. In particular, the mean degree of supervisor responsibility (scoring "Yes" = 0, "Yes, but …" = .5 and "No, I set …" = 1) for setting CE policy was significantly higher (.300) in community hospitals than in the four other specific types of facility ($F(1,526) = 10.673$, $P = .001$). They did not differ significantly among themselves in this respect ($F(3,210) = 1.482$, $P = .220$).

2. Do you or your institution require that R.T.s maintain certification?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	862	94.3	94.5	94.5
	No, but R.T.s who maintain certification receive higher compensation	9	1.0	1.0	95.5
	No, but maintaining certification is a factor in performance evaluations	10	1.1	1.1	96.6
	No, but R.T.s are rewarded for completing CE, whether related to certification or not	3	.3	.3	96.9
	No	24	2.6	2.6	99.5
	Other*	4	.4	.4	99.9
	Total	912	99.7	99.9	
Missing	System	2	.2		
Total		914	99.9		

*See Appendix B for a list of these "Other" responses.

With the exception of the "Other" category, 87% of which were reported to require maintenance of certification, this percentage did not differ substantially as a function of type of institution, varying only from 92% to 98% "Yes" responses.

3. Do you or your institution require that R.T.s obtain post-primary certifications for the specialties in which they work (e.g., CT, MRI)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	335	36.7	37.1	37.1
	No, but R.T.s with post-primary certification receive higher compensation	215	23.5	23.8	61.0
	No, but post-primary certification is a factor in performance evaluation	81	8.9	9.0	70.0
	No	226	24.7	25.1	95.0
	Other*	45	4.9	5.0	100.0
	Total	902	98.7	100.0	
Missing	System	12	1.3		
Total		914	100.0		

*See Appendix B for a list of these "Other" responses.

There were substantial differences in the percentages of institutions of different types that require and/or reward post-primary certification:

3. Do you or your institution require that R.T.s obtain post-primary certifications for the specialties in which they work (e.g., CT, MRI)?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center or teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	170	11	34	59	27	25	326
	% within type of institution	34.4%	22.9%	46.6%	44.7%	36.5%	42.4%	37.0%

	No, but R.T.s with post-primary certification receive higher compensation	Count	148	5	9	23	15	5	205
		% within type of institution	30.0%	10.4%	12.3%	17.4%	20.3%	8.5%	23.3%
	No, but post-primary certification is a factor in performance evaluations	Count	48	6	11	7	4	5	81
		% within type of institution	9.7%	12.5%	15.1%	5.3%	5.4%	8.5%	9.2%
	No	Count	111	24	13	37	23	16	224
		% within type of institution	22.5%	50.0%	17.8%	28.0%	31.1%	27.1%	25.5%
	Other*	Count	17	2	6	6	5	8	44
		% within type of institution	3.4%	4.2%	8.2%	4.5%	6.8%	13.6%	5.0%
Total		Count	494	48	73	132	74	59	880
		% within type of institution	100.0%	100.0%	100.0%	99.9%	100.1%	100.1%	100.0%

*See Appendix B for a list of these "Other" responses.

In particular, the percentage of facilities that neither require nor reward post-primary certification was exactly half (50.0%) of government hospitals but only around a quarter of community hospitals, free-standing clinics and private physician practices (22.5% to31.1%), and about a sixth (18%) of facilities housed within educational institutions. (The difference between government hospitals and the other four specific types of facilities in this respect was statistically significant – $\chi^2 = 16.396$ with 1 *df*, $P < .001$. But the difference between educationally-sited facilities and the other three types was not – $\chi^2 = 1.560$ with 1 *df*, $P = .212$.)

4. Does your institution provide in-service continuing education for R.T.s?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	424	46.4	47.1	47.1
	Yes, for all R.T.s	431	47.2	47.8	94.9
	Yes, but only for some of the R.T.s I supervise. (Please specify the criteria for your R.T.s to qualify for in-service CE.)*	46	5.0	5.1	100.0
	Total	901	98.6	100.0	
Missing	System	13	1.4		
Total		914	100.0		

*See Appendix B for a list of the criteria that were specified.

Different types of facility differed substantially in the percentage they provided in-service CE.

4. Does your institution provide in-service continuing education for R.T.s?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center or teaching institution	Free-standing clinic	Private physician practice	Other	Total
No	Count	199	18	22	82	58	32	411
	% within type of institution	40.2%	36.7%	31.4%	62.1%	77.3%	55.2%	46.8%
Yes, for all R.T.s	Count	270	29	40	46	14	25	424
	% within type of institution	54.5%	59.2%	57.1%	34.8%	18.7%	43.1%	48.2%
Yes, but only for some of the R.T.s I supervise (Please specify)	Count	26	2	8	4	3	1	44
	% within type of institution	5.3%	4.1%	11.4%	3.0%	4.0%	1.7%	5.0%
Total	Count	495	49	70	132	75	58	879
		100.0%	100.0%	99.9%	99.9%	100.0%	100.0%	100.0%

Only about a quarter of private physician practices and about a third of free-standing clinics provide in-service CE, while 60% to 69% of hospitals and academic facilities (university medical centers and teaching institutions) do so; χ^2 for this difference = 51.336 with 1 *df*, $P < .001$.

5. If the answer to question 4 is yes, which of the following do you use?

Type of in-service CE	Responses		Percent of Cases
	N	Percent	
Applications training	382	33.1%	77.0%
Web-accessible CE programs	278	24.1%	56.0%
Live Web-based interactive CE programs	109	9.4%	22.0%
Programs presented by institutional staff	287	24.9%	57.9%
Other*	98	8.5%	19.8%
Total	1154	100.0%	232.7%

*See Appendix B for a list of these "Other" responses.
Note: 496 respondents checked one or more types of in-service CE provided by their institution.

Among institutions that provide in-service CE, the percentage that do so via applications training did not differ substantially as a function of institution type. However, the percentage of facilities employing Web-based in-service CE (whether live and interactive or merely Web-accessible) was substantially lower (51%) among private physician practices and free-standing clinics than for hospitals and academic settings (73% to 82%).

Type of in-service CE		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center or teaching institution	Free-standing clinic	Private physician practice	Other	
Applications training	Count	240	19	42	40	13	20	374
	% within Q16	78.4%	61.3%	80.8%	76.9%	72.2%	74.1%	77.0%
Web-accessible CE programs	Count	175	21	26	22	7	20	271
	% within Q16	57.2%	67.7%	50.0%	42.3%	38.9%	74.1%	55.8%
Live Web-based interactive CE programs	Count	79	2	11	8	1	6	107
	% within Q16	25.8%	6.5%	21.2%	15.4%	5.6%	22.2%	22.0%
Programs presented by institutional staff	Count	172	15	41	31	7	16	282
	% within Q16	56.2%	48.4%	78.8%	59.6%	38.9%	59.3%	58.0%
Other*	Count	62	8	9	10	4	5	98
	% within Q16	20.3%	25.8%	17.3%	19.2%	22.2%	18.5%	20.2%
Total Respondents	Count	306	31	52	52	18	27	486

Percentages and totals are based on respondents.
*See Appendix B for a list of these "Other" responses.

A significantly smaller percentage (61%) of government hospitals than of the other four types of facilities (78%) employ applications training, $\chi^2 = 4.724$ with 1 *df*, $P < .05$. A significantly higher percentage (26 %) of community hospitals and a significantly lower percentage (6.5%) of government hospitals than the other three specific types (16%) make use of live Web-based interactive CE programs, χ^2 for community hospitals vs. the other types = 7.775 with 1 *df*, $P < .01$ and for government hospitals vs. other facilities = 4.685 with 1 *df*, $P < .05$. And academic-based facilities were significantly more likely (79%) than the other four types (55%) to use programs presented by institutional staff for in-services, $\chi^2 = 10.506$ with 1 *df*, $P < .01$.

6. How much do you budget for in-house CE per FTE per year? $_____

We may have been imprecise in phrasing this question, as 67 respondents who indicated that their institutions do not provide in-service continuing education nevertheless listed a non-zero amount that they budget for in-house CE. Conversely, 119 of the 477 respondents who indicated that their institutions *do* provide in-service CE listed zero as the amount they budget for in-house CE, and another 207 left question six blank. It seems likely that the 67 managers who budget non-zero amounts for in-house CE not provided by their institutions are telling us implicitly that in-service continuing education is a *departmental* (not institutional) responsibility. It also seems likely that the opposite message (in-house CE is an item in the institutional budget, not in my department's budget) is being conveyed by the 119 managers in the second group and by most of the 207 managers whose institutions provide in-service CE but who left the question on the amount budgeted blank.

Focusing on respondents who reported budgeting a nonzero amount for in-house CE yields the following distributions for those who did or did not report that their institutions provide in-service continuing education:

Amount budgeted for in-house CE x Does institution provide in-service CE?

Amount budgeted for in-house CE		Does institution provide in-service CE?		Total
		No[a]	Yes	
$.01 to $50	Count	3	13	16
	%	4.5%	8.6%	7.3%
$50.01 to $100	Count	7	36	43
	%	10.4%	23.8%	19.7%
$100.01 to $200	Count	9	29	38
	%	13.4%	19.2%	17.4%
$200.01 to $500	Count	20	30	50
	%	29.9%	19.9%	22.9%
$500.01 to $1,000	Count	11	19	30
	%	16.4%	12.6%	13.8%
$1,000.01 to $2,500	Count	11	12	23
	%	16.4%	7.9%	10.6%
➢ $2,500	Count	6	12	18
	%	9.0%	7.9%	8.3%
Total	Count	67	151	218
		100.0%	99.9%	100.0%

[a]We surmise that these are amounts that the facility manager, rather than "the institution," budgets for in-house CE.

The difference between these two distributions was not statistically significant at even the .05 level. (I.e., there was no reliable difference between the amount budgeted for in-house CE among facilities where it is an item in the institutional budget vs. those where it is an item in the departmental budget.) Therefore, an examination of differences across types of facilities ignores this locus-of-budgeting difference, as does the following set of descriptive statistics for the overall distribution of nonzero amounts budgeted for in-service CE:

Descriptive Statistics, Nonzero Amount Budgeted for In-service CE

Mean	944.5704
Median	278.5714
Standard deviation	1,899.59
Minimum	.11
Maximum	1,5000.00
5th Percentile	45.9000
95th percentile	4,014.2857

Overall, among facilities that budget for in-house continuing education, the amount is highly variable and extremely positively skewed, ranging from 11 cents to $15,000 per FTE per year. There are no obvious discontinuities in the distribution that would lead us to consider the highest amounts outliers or typos — e.g., the 14 highest amounts are $3,500, four reports of $4,000, three of $5,000, $8,000, four reports of $10,000 and $15,000. But the extreme skewness does present challenges to the meaningfulness of the mean as a measure of central tendency and to

tests of statistical significance. We therefore compared facility types with respect to the percentage of facilities of that type that were above the overall median for all facility types.

Percent of Facilities Budgeting Above-Overall-Median Amount for In-service CE

Is amount budgeted for in-service CE above overall median?		Type of Facility						Total
		Community hospital	Government hospital	Univ med center or teaching institution	Free-standing clinic	Private physician practice	Other	
No	Count	73	1	8	6	6	3	97
	% within Type of facility	53.3%	11.1%	44.4%	24.0%	25.0%	60.0%	44.5%
Yes	Count	64	8	10	19	18	2	121
	% within Type of facility	46.7%	88.9%	55.6%	76.0%	75.0%	40.0%	55.5%
Total	Count	137	9	18	25	24	5	218
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

More than three-fourths (75% to 89%) of government hospitals, free-standing clinics and private physician practices budgeted above-median amounts (i.e., more than $279) per FTE per annum for in-service CE. That compares to only about half of community hospitals (47%) and academic-based facilities (56%) that had that ample of a budget. The χ^2 for the difference between these two subgroups of facility types = 15.247 with 1 *df*, $P < .001$.

7. Do you or your institution provide opportunities and facilities for R.T.s to earn CE outside of working hours?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	558	61.1	62.3	62.3
	No	338	37.0	37.7	100.0
	Total	896	98.0	100.0	
Missing	System	18	2.0		
Total		914	100.0		

As shown in the following table, free-standing clinics and private physician practices were significantly less likely (55%) than hospitals and academic facilities (66%) to provide R.Ts with opportunities for after- (or before-) hours continuing education, $\chi^2 = 9.227$ with 1 *df*, $P < .01$.

7. Do you or your institution provide opportunities and facilities for R.T.s to earn CE outside of working hours?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center & teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	328	31	45	74	38	32	548
	% within type of institution	66.8%	64.6%	65.2%	56.5%	51.4%	53.3%	62.8%

	No	Count	163	17	24	57	36	28	325
		% within type of institution	33.2%	35.4%	34.8%	43.5%	48.6%	46.7%	37.2%
Total		Count	491	48	69	131	74	60	873
		% within type of institution	100%	100%	100%	100%	100%	100%	100%

8. How much time during working hours is your staff allowed for professional development or continuing education? (Hours per week)

Hours per Week for Professional Development or CE During Working Hours		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	285	31.2	44.7	44.7
	.1 to.50 hours/week	29	3.2	4.6	49.3
	.51 to 1.00 hours/week	158	17.3	24.8	74.1
	1.1 to 5 hours/week	133	14.6	20.9	95.0
	5.1 to 20 hours/week	23	2.5	3.6	98.6
	20.1 to 40 hours/week	9	1.0	1.4	100.0
	Total	637	69.8	100.0	
Missing	System	277	30.2		
Total		914	100.0		

Descriptive Statistics

	Mean	1.7041
	Median	.7611
	Standard deviation	4.72672
	Minimum	.00
	Maximum	40.00
	5th Percentile	.007
	95th percentile	5.8826

The mean amount of time R.T.s are allowed for professional development during work hours did not differ significantly among the various types of facilities.

9. Would you or your institution be interested in incorporating additional CE programs into in-service offerings?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	272	29.8	30.5	30.5
	Maybe	390	42.7	43.7	74.2
	No	103	11.3	11.5	85.8
	I don't know	127	13.9	14.2	100.0
	Total	892	97.6	100.0	
Missing	System	22	2.4		
Total		914	100.0		

Interest in incorporating additional CE into in-service offerings was lower among government facilities and private physician facilities than among community hospitals and free-standing clinics, which were in turn less interested than academic-based facilities (F with 1 & 739 df = 23.281, $P < .001$ for the former difference and 6.807, $P < .01$ for the latter difference).

16. In what type of institution is the facility where you supervise R.T.s located? X
9. Would you or your institution be interested in incorporating additional CE programs into in-service offerings?

16. In what type of institution is the facility where you supervise R.T.s located?		9. Would you or your institution be interested in incorporating additional CE programs into in-service offerings?					
		Yes	Maybe	No	I don't know	Total	Mean[a]
Community hospital	Count	153	238	32	66	489	.6430
	% within type of institution	31.3%	48.7%	6.5%	13.5%	100.0%	
Government hospital	Count	10	23	12	3	48	.4778
	% within type of institution	20.8%	47.9%	25.0%	6.3%	100.0%	
University medical center or teaching institution	Count	33	23	4	9	69	.7417
	% within type of institution	47.8%	33.3%	5.8%	13.0%	99.9%	
Free-standing clinic	Count	41	46	19	26	132	.6038
	% within type of institution	31.1%	34.8%	14.4%	19.7%	100.0%	
Private physician practice	Count	12	28	22	11	73	. 4194
	% within type of institution	16.4%	38.4%	30.1%	15.1%	100.0%	
Other	Count	16	22	11	10	59	.5510
	% within type of institution	27.1%	37.3%	18.6%	16.9%	99.9%	
Total	Count	265	380	100	125	870	.6107
	%	30.5%	43.7%	11.5%	14.4%	100.1%	

[a]Scoring interest as "Yes" = 1, "Maybe" = .5, "No" = 0 and omitting "Don't know" and missing responses.

10. Does your institution provide financial support for R.T.s to acquire CE outside of the institution?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	298	32.6	33.0	33.0
	Yes, for all R.T.s	443	48.5	49.0	82.0
	Yes, but only for some of the R.T.s I supervise	134	14.7	14.8	96.8
	Other*	29	3.2	3.2	100.0
	Total	904	99.0	100.0	
Missing	System	10	1.1		
Total		914	100.1		

*See Appendix B for a listing of these "Other" responses.

The likelihood of supporting external CE varied substantially and statistically significantly across facility types.

16. In what type of institution is the facility where you supervise R.T.s located? X
10. Does your institution provide financial support for R.T.s to acquire CE outside of the institution?

16. In what type of institution is the facility where you supervise R.T.s located?		10. Does your institution provide financial support for R.T.s to acquire CE outside of the institution?				Total
		No	Yes, for all R.T.s	Yes, but only for some of the R.T.s I supervise	Other	
Community hospital	Count	147	238	92	17	494
	% within type of institution	29.8%	48.2%	18.6%	3.4%	100.0%
Government hospital	Count	18	21	4	6	49
	% within type of institution	36.7%	42.9%	8.2%	12.2%	100.0%
University medical center or teaching institution	Count	31	25	14	3	73
	% within type of institution	42.5%	34.2%	19.2%	4.1%	100.0%
Free-standing clinic	Count	48	78	5	0	131
	% within type of institution	36.6%	59.5%	3.8%	.0%	99.9%
Private physician practice	Count	21	50	4	1	76
	% within type of institution	27.6%	65.8%	5.3%	1.3%	100.0%
Other	Count	19	26	12	2	59
	% within type of institution	32.2%	44.1%	20.3%	3.4%	100.0%
Total	Count	284	438	131	29	882
	% within type of institution	32.2%	49.7%	14.9%	3.3%	100.1%

About a third of academic facilities, 60% to 66% of free-standing clinics and private physician practices, and 43% to 48% of hospitals provide financial support for external CE to all their R.T.s. (The χ^2 for hospitals vs. academic facilities = 4.686 with 1 *df*, $P < .05$, while χ^2 for hospitals vs. FSCs and PPPs = 11.994 with 1 *df*, $P < .001$.)

Community hospitals and academic institutions are significantly more likely (19%) than are the other three types of facilities to restrict such support to only a subset of their R.T.s, $\chi^2 = 28.632$ with 1 *df*, $P < .001$.

11. If the answer to question 10 is yes, do you or your institution specify the locations and courses that will be reimbursed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	284	31.1	47.0	47.0
	No, any course approved for CE credit is acceptable	269	29.4	44.5	91.6
	Other*	51	5.6	8.4	100.0
	Total	604	66.1	100.0	
Missing	System	310	33.9		
Total		914	100.0		

*See Appendix B for a listing of these "Other" responses.

The percentage of facilities whose institutions specify locations and courses differed substantially and significantly across types of institution:

11. If the answer to question 10 is yes, do you or your institution specify the locations and courses that will be reimbursed?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center & teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	182	11	26	37	9	14	279
	% within type of institution	53.2%	35.5%	66.7%	41.6%	16.7%	35.0%	46.9%
No, any course approved for CE credit is acceptable.	Count	132	19	11	46	37	21	266
	% within type of institution	38.6%	61.3%	28.2%	51.7%	68.5%	52.5%	44.7%
Other	Count	28	1	2	6	8	5	50
	% within type of institution	8.2%	3.2%	5.1%	6.7%	14.8%	12.5%	8.4%
Total	Count	342	31	39	89	54	40	595
	% within	100%	100%	100%	100%	100%	100%	100%

Only about a sixth of private physician practices are "picky" about the locations and courses that they reimburse R.T.s for, as compared to 40% of government hospitals and free-standing clinics, 53% of community hospitals and two-thirds of facilities in academic institutions.

Scoring a "Yes" response as 1.0 for "pickiness" and "No" or "Other" as 0.0, PPPs were significantly less picky than government hospitals and FSCs (F with 1 & 589 $df = 6.885$, $P < .01$), who were in turn significantly less picky than community hospitals and academic institutions (F with 1 & 589 $df = 10.778$, $P < .001$).

12. Does your institution pay for memberships in R.T. professional societies that offer CE to their members?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	219	24.0	24.3	24.3
	No	681	74.5	75.7	100.0
	Total	900	98.5	100.0	
Missing	System	14	1.5		
Total		914	100.0		

Only about a quarter of these managers' institutions do so. However, this percentage is considerably lower (4%) for government hospitals and in academic settings (14.5%), and substantially higher in free-standing clinics (44%) and private physician practices (41%). (*F* with 1 and 873 *df* for the difference between each of these four means and the overall mean across all types of facility ranged from 5.410, $P < .05$ to 28.891, $P < .001$.)

12a. Does your institution pay for memberships in R.T. professional societies that offer CE to their members?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center & teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	99	2	10	58	31	16	216
	% within type of institution	20.1%	4.1%	14.5%	43.9%	40.8%	26.7%	24.6%
No	Count	394	47	59	74	45	44	663
	% within type of institution	79.9%	95.9%	85.5%	56.1%	59.2%	73.3%	75.4%
Total	Count	493	49	69	132	76	60	879
	% within type of institution	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

12b. If the answer is yes, do you or your institution specify the societies?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	113	12.4	45.9	45.9
	No	133	14.6	54.1	100.0
	Total	246	27.0	100.0	
Missing	System	668	73.0		
Total		914	100.0		

About half (47%) of the institutions that pay for R.T.s' memberships in CE-providing societies specify which societies that reimbursement applies to. However, this percentage was significantly lower (27%) among private physician practices, government hospitals and facilities in academic institutions; *F* with 1 & 237 *df* = 11.902, $P < .001$.

12b. If the answer is yes, do you or your institution specify the societies?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Community hospital	Government hospital	University medical center & teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	60	0	4	31	8	9	112
	% within type of institution	51.3%	.0%	26.7%	53.4%	23.5%	60.0%	46.1%
No	Count	57	4	11	27	26	6	131
	% within type of institution	48.7%	100.0%	73.3%	46.6%	76.5%	40.0%	53.9%
Total	Count	117	4	15	58	34	15	243
		100.0%	100.0%	100.0%	100.0%	100.0%	100%	100%

12c. How much do you budget for membership dues per FTE per year? $_____ or _____% of the R.T.'s cost.

Among managers who budget a nonzero dollar amount for membership dues, about half (55%) budget an amount equal to or greater than ASRT's current annual dues.

Dollars/FTE budgeted for prof society dues	Frequency	Valid Percent	Cumulative Percent
$25 - $84	14	13.1	13.1
$85 - $104	33	30.8	43.9
$105 - $199	22	20.6	64.5
$200 - $499	18	16.8	81.3
$500 - $999	12	11.2	92.5
$1,000 - $3,000	8	7.5	100.0
Total	107	100.0	

Descriptive Statistics for Dollar Amount

12c. How much do you budget for membership dues per FTE per year? — Dollars

N	Valid	107
	Missing	0
Mean		286.6822
Median[a]		118.7500
Mode		100.00
Std. Deviation		433.47376
Minimum		25.00
Maximum		3,000.00
Percentiles[a]	5	36.1667
	95	1,130.0000

[a] Calculated from grouped data.

Note: Six of the 107 respondents indicated that their institutions do *not* reimburse professional dues. With this small of a sample, the difference between the managers whose institutions do versus do not reimburse professional dues with respect to the percent who budget as much as or more than current ASRT dues (54% among "dos" versus 83% of those who budget for dues at the departmental level) was not statistically significant.

12c. How much do you budget for membership dues per FTE per year?
___ Percent of R.T.'s cost

	Frequency	Percent	Valid Percent	Cumulative Percent
50.00	2	3.6	3.6	3.6
100.00	53	96.4	96.4	100.0
Total	55	100.0	100.0	

Only two managers (of those who budgeted a nonzero percent) reported budgeting less than 100% (in both cases, 50%) of their R.T.s' membership-dues cost.

There were no statistically significant differences among the various types of institutions in the amount budgeted for professional-society dues (given that a nonzero amount was budgeted for dues).

13. Does your institution pay for registration and expenses for CE offered outside the institution?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	519	56.8	57.8	57.8
	No	379	41.5	42.2	100.0
	Total	898	98.3	100.0	
Missing	System	16	1.7		
Total		914	100.0		

This percentage varied (nonsignificantly) only from 52% to 65% among the five types of institutions.

13b. If the answer is yes, do you or your institution limit attendance to local, state or national meetings?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	291	31.8	56.0	56.0
	Yes, only attendance at the following types of meetings is reimbursed	229	25.1	44.0	100.0
	Total	520	56.9	100.0	
Missing	System	394	43.1		
Total		914	100.0		

A slight majority (56%) of the institutions that reimburse external CE put no restrictions on the types of meetings where reimbursed CE may be obtained. However, government hospitals and private physician practices were even more likely (73%) to leave their R.T.s' choice of meeting (local vs. state vs. national) unfettered; $\chi^2 = 10.914$ with 1 *df*, $P < .001$.

13b. If the answer to 13a is yes, do you or your institution limit attendance to local, state or national meetings? X Type of facility

13b. If the answer to 13a is yes, do you or your institution limit attendance to local, state or national meetings?		Type of facility, combining university med center with teaching institution						Total
		Community hospital	Govern-ment hospital	Univ med center or teaching institution	Free-standing clinic	Private physician practice	Other	
No	Count	156	20	17	39	34	19	285
	% within Type of facility	51.8%	64.5%	50.0%	54.9%	79.1%	61.3%	55.8%
Yes, only attendance at the following types of meetings is reimbursed	Count	145	11	17	32	9	12	226
	% within Type of facility	48.2%	35.5%	50.0%	45.1%	20.9%	38.7%	44.2%
Total	Count	301	31	34	71	43	31	511
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0 %	100.0 %

13c. Yes, only attendance at the following types of meetings is reimbursable (check all that apply):

Types of Meeting Reimbursed	Responses		Percent of Cases
	N	Percent	
None checked as reimbursable	10	---	2.0%
Local meetings	191	38.4%	73.2%
State meetings	168	33.7%	64.4%
National meetings, regardless of location	59	11.8%	22.6%
National meetings, if held within ___ miles of our facility	32	6.4%	12.3%
Other*	48	9.6%	18.4%
Total	498	99.9%	190.9%

*See Appendix B for a list of these "Other" responses.

Note: Omits responses checked by managers who said their institution doesn't restrict type of meeting, but includes types of meeting checked by managers who didn't answer question 13b. Thus responses checked (or not) by a total of 271 managers are tallied in this table.

The only aspect of these percentages that differed substantially or was statistically significant as a function of type of institution was that academic facilities were much more likely (69%) than the other types of facilities (21%) to reimburse R.T.s for attendance at national meetings, regardless of location; $\chi^2 = 18.243$ with 1 *df*, $P < .001$.

National meetings, if held within ___ miles of our facility – radius of reimbursable zone specified.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50.00	2	6.7	8.3	8.3
	90.00	2	6.7	8.3	16.7
	100.00	1	3.3	4.2	20.8
	200.00	8	26.7	33.3	54.2
	250.00	5	16.7	20.8	75.0
	300.00	1	3.3	4.2	79.2
	500.00	1	3.3	4.2	83.3
	1,000.00	1	3.3	4.2	100.0
	Total	22	70.0	100.0	
Missing	System	8	25.0		
Total		30	100.0		

Descriptive Statistics on Radius of Reimbursable Zone

13c. National Meetings __ miles within our facility.

N	Valid	24
	Missing	8
Mean		210.0833
Median[a]		146.1538
Mode		100.00
Std. Deviation		222.27694
Skewness		2.280
Std. Error of Skewness		.472
Minimum		1.00
Maximum		1,000.00
Percentiles[a]	5	5.9000
	95	825.0000

[a] Calculated from grouped data.

13d. How much do you budget for external CE meetings per FTE per year?

Nonzero dollars budgeted for external CE per FTE per year		Frequency	Valid Percent	Cumulative Percent
	$0.11 to $50	9	5.6	5.6
	$51 to $100	17	10.4	16.0
	$101 to $200	24	14.9	30.9
	$201 to $500	42	25.9	56.8
	$501 to $1,000	25	15.4	72.2
	$1,001 to $2,000	24	14.8	87.0
	$2,001 to $5,000	16	9.9	96.9
	$5,001 to $9,000	5	3.1	100.0
	Total	162	100.0	

Note: Highest 5 budgeted amounts were $6,000, $7,200, $8,000 and $9,000.

Descriptive statistics

13d. (Dollars) How much do you budget for external CE meetings per FTE per year?

N	Valid	187
	Missing	0
Mean		1,036.0885
Median[a]		465.0000
Mode		500.00
Std. Deviation		1,470.06027
Skewness		2.764
Std. Error of Skewness		.178
Minimum		.11
Maximum		9,000.00
Percentiles[a]	5	62.3333
	95	3,906.6667

[a] Calculated from grouped data.

This distribution did not differ significantly across types of institution.

13d. (Percent) How much do you budget for external CE meetings per FTE per year?

Percent of R.T.'s cost	Frequency	Valid Percent	Cumulative Percent
30.00	1	4.3	4.3
40.00	1	4.3	8.6
50.00	2	8.7	17.3
75.00	3	13.0	30.3
100.00	16	69.6	99.9
Total	23	99.9	

13e. Are those who attend required to provide a written or oral presentation of what was learned to management and/or other staff not attending?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	200	21.9	34.4	34.4
	No	381	41.7	65.6	100.0
	Total	581	63.6	100.0	
Missing	System	333	36.4		
Total		914	100.0		

About a third (34%) of the managers who answered this question indicated that a post-attendance presentation is required. This percentage was significantly lower (19%) in private physician practices and free-standing clinics, $\chi^2 = 20.429$ with 1 *df*, $P < .001$.

14. Does your institution pay for Web-based CE courses offered by outside providers? (Check all that apply.)

Does your institution pay for Web-based CE courses offered by outside providers	Responses		Percent of Cases
	N	Percent	
No	626	70.3%	71.1%
Yes, we purchase Web-based CE from outside providers to use as in-services	163	18.3%	18.5%
Yes, we reimburse R.T.s for Web-based courses they purchase from outside providers	102	11.4%	11.6%
Total	891	100.0%	101.2%

Note: A total of 881 managers answered this question.

The percentage of managers reporting that their institutions do employ or reimburse for Web-based CE from outside providers (29%) did not differ significantly across type of institution. However, hospitals were significantly more likely (23%) and free-standing clinics and private physician practices were significantly less likely (8%) than the overall average to purchase Web-based CE from outside providers (all four chi-square values > 7.8, $P < .01$). Moreover, government hospitals were significantly more likely (37%) than community hospitals (22%) to do so; $\chi^2 = 4.911$ with 1 *df*, $P < .05$.

14b. If R.T.s are reimbursed for Web-based courses, do you or your institution specify the courses that will be reimbursed?

Do you or your institution specify the courses that will be reimbursed?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	93	10.2	30.9	30.9
	No	208	22.8	69.1	100.0
	Total	301	33.0	100.0	
Missing	System	613	67.1		
Total		914	100.1		

There were no statistically significant differences across types of institutions in whether or not they specify the (type of) courses that will be reimbursed.

14c. How much do you budget for Web-based, externally provided courses per FTE per year? $_____ or _____% of the R.T.'s cost.

14c. -- Dollars

	Frequency	Percent	Valid Percent	Cumulative Percent
50.00	2	11.1	11.1	11.1
100.00	2	11.1	11.1	22.2
200.00	2	11.1	11.1	33.3
250.00	2	11.1	11.1	44.4
300.00	2	11.1	11.1	55.5
350.00	1	5.6	5.6	61.1

	500.00	3	16.7	16.7	77.8
	1,000.00	2	11.1	11.1	88.9
	1,500.00	1	5.6	5.6	94.5
	3,000.00	1	5.6	5.6	100.1
	Total	18	100.1	100.1	

Descriptive statistics – dollars budgeted for Web-based, externally provided CE.

N	Valid	18
	Missing	0
Mean		563.8889
Median[a]		300.0000
Mode		500.00
Std. Deviation		719.84589
Skewness		2.620
Std. Error of Skewness		.536
Minimum		50.00
Maximum		3,000.00

[a] Calculated from grouped data.

Not surprisingly, given the small number of facilities that budgeted any amount for Web-based, externally provided courses (e.g., only one government hospital, one academic facility and three private physician practices), the dollar amount allocated did not differ significantly across type of facility.

14c. How much do you budget for Web-based, externally provided courses per FTE per year? – Percent of R.T.'s cost.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15.00	1	9.1	9.1	9.1
	50.00	2	18.2	18.2	27.3
	66.00	1	9.1	9.1	36.4
	75.00	1	9.1	9.1	45.5
	100.00	6	54.5	54.5	100.0
	Total	11	100.0	100.0	

15. Does your institution reimburse R.T.s for courses leading to an academic degree?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	540	59.1	61.4	61.4
	No	339	37.1	38.6	100.0
	Total	879	96.2	100.0	
Missing	System	35	3.8		
Total		914	100.0		

15a. Does your institution reimburse R.T.s for courses leading to an academic degree?		16. In what type of institution is the facility where you supervise R.T.s located?						Total
		Com-munity hospital	Govern-ment hospital	University medical center & teaching institution	Free-standing clinic	Private physician practice	Other	
Yes	Count	355	23	55	56	12	33	534
	% within type of institution	73.3%	47.9%	77.5%	43.1%	16.0%	56.9%	61.7%
No	Count	129	25	16	74	63	25	332
	% within type of institution	26.7%	52.1%	22.5%	56.9%	84.0%	43.1%	38.3%
Total	Count	484	48	71	130	75	58	866
	% within type of institution	100%	100%	100%	100%	100%	100%	100%

Private physician practices are much less likely (16%) to reimburse R.T.s for courses leading to an academic degree than are free-standing clinics and government hospitals (44%), which are in turn substantially less likely to do so than are community hospitals and facilities in academic institutions (74%). $\chi^2 = 18.456$ with 1 *df* for the first-cited difference and 52.786 for the second difference, $P < .001$ in both cases.

15b. If the answer is yes, do you or your institution specify the courses taken or degree to be obtained?

Specify courses or degree?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	245	26.8	45.6	45.6
	No, any course from an accredited institution applied toward any degree is acceptable	228	24.9	42.5	88.1
	Other*	64	7.0	11.9	100.0
	Total	537	58.8	100.0	
Missing	System	377	41.2		
Total		914	100.0		

*See Appendix B for a list of these "Other" responses.

Private physician practices were considerably less likely (2/13 = 15%) than other types of facilities (46%) to specify courses or degrees, $\chi^2 = 4.982$ with 1 *df*, $P < .05$.

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15c. How much do you budget per FTE for academic-degree tuition per year? $_____ or _____% of the R.T.'s cost.

		Frequency	Valid Percent	Cumulative Percent
Valid	$.60 to $500	18	13.7	13.7
	$501 to $1000	23	17.6	31.3
	$1,001 to $1,999	23	17.6	48.9
	$2,000	25	19.1	67.9
	$2001 - $4000	26	19.8	87.8

	$4001 - $10,000	16	12.2	100.0
	Total	131	100.0	

Note: 12 highest responses are nine $5,000's, one $8,000 and two $10,000's.

Descriptive Statistics

N	Valid	151
	Missing	0
Mean		2,079.4214
Median[a]		1,830.7692
Mode		2,000.00
Std. Deviation		1,701.7296
Skewness		2.145
Std. Error of Skewness		.212
Minimum		.60
Maximum		10,000.00
Percentiles	5	201.6667
	95	4,998.0000

[a] Calculated from grouped data.

Neither the mean amount budgeted nor the percentage of facilities whose academic-degree-tuition budgets were above the overall median differed significantly as a function of type of facility.

15c. How much do you budget per FTE for academic-degree tuition per year? — Percent

Percent of R.T.s' costs reimbursed		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6.00	1	1.4	1.4	1.4
	10.00	1	1.4	1.4	2.8
	15.00	1	1.4	1.4	4.2
	20.00	1	1.4	1.4	5.6
	25.00	3	4.2	4.2	9.8
	30.00	1	1.4	1.4	11.2
	40.00	1	1.4	1.4	12.6
	50.00	11	15.5	15.5	28.1
	60.00	1	1.4	1.4	29.5
	66.00	3	4.2	4.2	33.7
	70.00	3	4.2	4.2	37.9
	75.00	9	12.7	12.7	50.6
	80.00	12	16.9	16.9	67.5
	85.00	1	1.4	1.4	68.9
	90.00	1	1.4	1.4	70.3
	100.00	21	29.6	29.6	99.9
	Total	71	99.9	99.9	

Descriptive Statistics

N	Valid	71
	Missing	0
Mean		72.1690
Median[a]		76.9048
Mode		100.00
Std. Deviation		25.90090
Skewness		-.793
Std. Error of Skewness		.285
Minimum		6.00
Maximum		100.00

[a] Calculated from grouped data.

Differences among facility types in mean percent budgeted for academic-degree tuition were not statistically significant.

Institutional Profile

16. In what type of institution is the facility where you supervise R.T.s located?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Community hospital	499	54.6	56.1	56.1
	Government hospital	49	5.4	5.5	61.6
	University medical center	32	3.5	3.6	65.2
	Free-standing clinic	133	14.6	14.9	80.1
	Teaching institution	41	4.5	4.6	84.7
	Private physician practice	76	8.3	8.5	93.2
	Other*	60	6.6	6.7	99.9
	Total	890	97.5	99.9	
Missing	System	24	2.6		
Total		914	100.1		

*See Appendix B for a list of these "Other" responses.

Due to their low sample sizes and likely similarity in CE policies, university medical centers and teaching institutions were combined when examining differences among types of institutions.

17. If your facility serves inpatients, how many beds are available? (Select one only.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fewer than 50 beds	155	17.0	23.1	23.1
	50 to 99 beds	69	7.5	10.3	33.4
	100 to 299 beds	240	26.3	35.8	69.2
	300 to 499 beds	123	13.5	18.3	87.5
	500 or more beds	84	9.2	12.5	100.0
	Total	671	73.5	100.0	
Missing	System	99	10.8		

	N/A.	144	15.8		
Total		914	100.1		

18. How would you describe your facility's location?

Urbanity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	337	36.9	38.1	38.1
	Suburban	282	30.9	31.9	70.0
	Rural	266	29.1	30.1	100.1
	Total	885	96.9	100.1	
Missing	System	29	3.2		
Total		914	100.1		

18b. State

		Frequency	Percent	Valid Percent
	AK	2	.2	0.2
	AL	16	1.8	1.8
	AR	12	1.3	1.4
	AZ	22	2.4	2.5
	CA	57	6.2	6.6
	CO	11	1.2	1.3
	CT	12	1.3	1.4
	DC	1	.1	0.1
	DE	3	.3	0.3
	FL	43	4.7	5.0
	GA	21	2.3	2.4
	HI	2	.2	0.2
	IA	24	2.6	2.8
	ID	2	.2	0.2
	IL	30	3.3	3.5
	IN	22	2.4	2.5
	KS	17	1.9	2.0
	KY	8	.9	0.9
	LA	8	.9	0.9
	MA	28	3.1	3.2
	MD	8	.9	0.9
	ME	13	1.4	1.5
	MI	33	3.6	3.8
	MN	21	2.3	2.4
	MO	21	2.3	2.4
	MS	13	1.4	1.5

	MT	7	.8	0.8
	NC	23	2.5	2.6
	ND	4	.4	0.5
	NE	22	2.4	2.5
	NH	1	.1	0.1
	NJ	15	1.6	1.7
	NM	8	.9	0.9
	NV	2	.2	0.2
	NY	51	5.6	5.9
	OH	39	4.3	4.5
	OK	22	2.4	2.5
	OR	11	1.2	1.3
	PA	37	4.0	4.3
	RI	5	.5	0.6
	SC	12	1.3	1.4
	SD	9	1.0	1.0
	TN	21	2.3	2.4
	TX	48	5.3	5.5
	UT	7	.8	0.8
	VA	17	1.9	2.0
	VT	3	.3	0.3
	WA	17	1.9	2.0
	WI	29	3.2	3.3
	WV	7	.8	0.8
	NB	1	.1	0.1
	Total Valid	868	95.0	99.7
	Blank	46	5.0	
	Total	914	100.0	

The District of Columbia, all 50 of the U.S. states except Wyoming, and the Canadian province of New Brunswick were represented in our sample of managers.

19. In which disciplines/specialties do the R.T.s you supervise work? (Check all that apply.)

		Responses		Percent of Cases
	Discipline/Specialty	N	Percent	
	Radiography	672	19.7%	74.4%
	Radiation therapy	74	2.2%	8.2%
	Nuclear medicine	340	10.0%	37.7%
	Mammography	444	13.0%	49.2%
	Cardiovascular-interventional technology	166	4.9%	18.4%
	Computed tomography	523	15.3%	57.9%

	Magnetic resonance imaging	394	11.6%	43.6%
	Quality management	171	5.0%	18.9%
	Sonography	477	14.0%	52.8%
	Medical dosimetry	73	2.1%	8.1%
	Other*	76	2.2%	8.4%
Total		3,410	100.0%	377.6%

*See Appendix B for a list of these other specialties.

Manager's Professional Profile

20. In which disciplines or imaging specialties have you worked? (Check all that apply.)

Discipline/Specialty		Responses N	Responses Percent	Percent of Cases
	Radiography	826	31.0%	91.9%
	Radiation therapy	83	3.1%	9.2%
	Nuclear medicine	152	5.7%	16.9%
	Mammography	325	12.2%	36.2%
	Cardiovascular-interventional technology	184	6.9%	20.5%
	Computed tomography	425	16.0%	47.3%
	Magnetic resonance imaging	191	7.2%	21.2%
	Quality management	221	8.3%	24.6%
	Sonography	170	6.4%	18.9%
	Medical dosimetry	40	1.5%	4.4%
	None. I have never worked as an R.T.	7	.3%	.8%
	Other.*	40	1.5%	4.4%
Total		2,664	100.1%	296.3%

*See Appendix B for a list of these other specialties.

21. How many years (not necessarily consecutive and not necessarily currently) have you worked in one or more of the disciplines or specialties you checked in question 20 (other than "None")? _____ years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 to 5	26	3.4	3.5	3.5
	6 to 11	89	11.4	11.9	15.4
	11 to 15	120	15.4	16.1	31.5
	16 to 20	106	13.6	14.2	45.7
	21 to 25	123	15.8	16.5	62.2
	26 to 30	147	18.9	19.7	81.9
	31 to 40	121	15.5	16.2	98.1
	41 to 48	14	1.8	1.9	100.0
	Total	746	95.8	100.0	
Missing	System	33	4.2		
Total		779	100.0		

Descriptive Statistics

N		Mean	Median[a]	Std. Deviation	Minimum	Maximum	Percentiles			
Valid	Missing						5	25	75	95
884	30	22.181	22.622	9.8536	.0	48.0	6.820	14.284	29.723	38.527

[a] Calculated from grouped data.

22. For how many years (not necessarily consecutive) have you supervised R.T.s?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 to 5	211	27.1	28.8	28.8
	6 to 10	177	22.7	24.1	52.9
	11 to 15	125	16.1	17.1	70.0
	16 to 20	92	11.8	12.5	82.5
	21 to 30	101	13.0	13.8	96.3
	31 to 40	24	3.1	3.3	99.6
	41 to 43	3	.4	.4	100.0
	Total	733	94.2	100.0	
Missing	System	46	5.9		
Total		779	100.1		

Descriptive Statistics

N		Mean	Median[a]	Std. Deviation	Minimum	Maximum	Percentiles[a]			
Valid	Missing						5	25	75	95
874	40	12.525	10.417	9.0241	.0	43.0	1.499	5.070	18.481	29.946

[a] Calculated from grouped data.

23. Which of the following best describes your current position?

Job Description/Title		Responses		Percent of Cases
		N	Percent	
	Supervisor/manager	515	55.1%	57.3%
	Administrator	150	16.0%	16.7%
	Senior/lead technologist/therapist	94	10.1%	10.5%
	Chief technologist/therapist	101	10.8%	11.2%
	Chief of imaging (or radiation therapy)	33	3.5%	3.7%
	Other*	42	4.5%	4.7%
Total		935	100.0%	104.1%

*See Appendix B for a list of the other job descriptions/titles.
Note: 756 managers checked one or more job descriptions.

24. Are you a member of any professional societies? (Check all that apply.)

Professional societies to which you belong*	Responses N	Responses Percent	Percent of Managers Who Cited One or More Societies	Percent of Managers Who Responded to Survey
None checked	267	---	---	28.5%
AMA	5	.5%	.8%	.5%
ASRT	516	55.1%	78.8%	56.5%
ASRT Management Chapter	19	2.0%	2.9%	2.1%
AHRA	154	16.5%	23.5%	16.8%
RBMA	6	.6%	.9%	6.6%
SROA	9	1.0%	1.4%	1.0%
Other*	131	14.0%	20.0%	14.3%
Other = ARRT	20	2.1%	3.1%	2.1%
Other = State or local RT soc	36	3.8%	5.5%	3.9%
Other = SDMS	18	1.9%	2.7%	2.0%
Other = SMRT	10	1.1%	1.5%	1.1%
Other = SNM	12	1.3%	1.8%	1.3%
Total	936	99.9%	142.9%	

See Appendix B for a list of the "other" societies cited.
Note: 647 managers cited one or more society memberships.

25. Do you hold professional certification (e.g., an ARRT, NMTCB or MDCB certificate) relevant to your current position?

		Frequency	Percent	Valid Percent
Valid	Yes.	790	86.4	88.2
	No.	106	11.6	11.8
	Total	896	98.0	100.0
Missing	System	18	2.0	
Total		914	100.0	

26. Year of birth _____

Birth year, 5-year ranges

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1935 to 1941	13	1.4	1.5	1.5
	1942 to 1946	60	6.6	6.8	8.3
	1947 to 1951	147	16.1	16.6	24.9
	1952 to 1956	208	22.8	23.5	48.4
	1957 to 1961	144	15.8	16.3	64.7

	1962 to 1966	131	14.3	14.8	79.5
	1967 to 1971	118	12.9	13.3	92.8
	1972 to 1976	46	5.0	5.2	98.0
	1977 to 1982	17	1.9	1.9	99.9
	Total	884	96.8	99.9	
Missing	-9.00	30	3.3		
Total		914	100.1		

Descriptive Statistics

N		Mean	Median[a]	Std. Deviation	Minimum	Maximum	Percentiles[a]			
Valid	Missing						5	25	75	95
884	30	1,958.12	1,956.97	8.88	1,935.00	1,982.00	1,944.31	1,951.57	1,964.57	1,973.79

[a] Calculated from grouped data.

27. Gender

		Frequency	Percent	Valid Percent
Valid	Female	571	62.5	64.5
	Male	314	34.4	35.5
	Total	885	96.9	100.0
Missing	System	29	3.2	
Total		914	100.1	

28. Highest level of education you've attained:

		Responses		Percent of Cases
		N	Percent	
Highest level(s) of education checked	High school + certificate	277	30.8%	31.3%
	Associate degree	304	33.8%	34.3%
	Bachelor's degree	225	25.0%	25.4%
	Master's degree (including MBA)	79	8.8%	8.9%
	M.D. or other medical doctorate	3	.3%	.3%
	Ph.D. or other non-medical doctorate	3	.3%	.3%
	Other*	8	.9%	.9%
Total		899	99.9%	101.4%

*See Appendix B for a list of the "Other" levels of education.

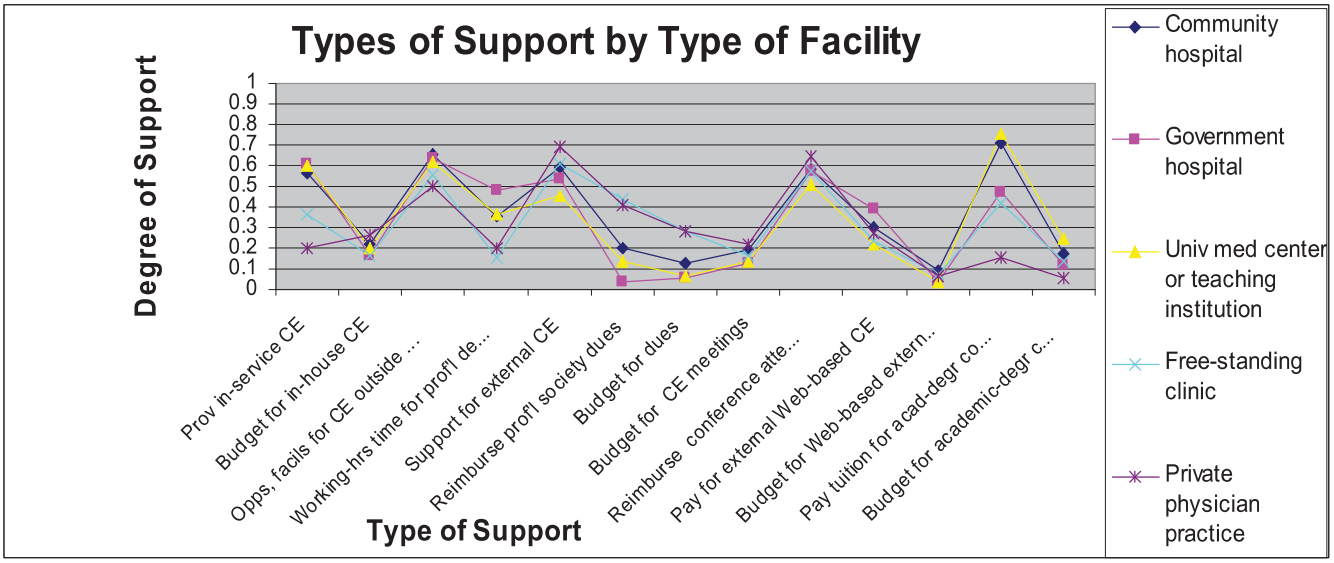
Relationship Between Support and Facility Characteristics

Defining Support

We assessed 13 indicators of support to more readily compare the support levels for CE across the various types, and to facilitate construction of an overall index of the extent to which a given facility supports CE for their R.T.s.. The indicators include provision of in-service CE; amount budgeted for in-house CE; providing opportunities and facilities to earn CE outside working hours; working-hour time for professional development; financial support for external CE; paying for memberships in CE-offering societies; amount budgeted for membership dues; paying for conference registration and expenses; amount budgeted for these external CE-offering meetings; paying for Web-based CE offered by outside providers; the amount budgeted for Web-based external CE; paying tuition for academic-degree courses; and the amount budgeted for tuition. Each of these indices had a minimum value of zero and a maximum value of 1.0, with Yes-No questions being scored 1 for "Yes," that type of support is provided, 0.5 for "Maybe" or "For some but not all of our R.T.s," and 0 for "No." The amounts budgeted for various types of support were scored 0 if not provided, or assigned an index value approximately equal to a facility's percentile within the overall distribution of amount budgeted – e.g., an index score of .3 for a facility at the 30th percentile. An index of overall support was computed as the simple average of the 13 individual indices (or of the 12 indices that could be scored, for those respondents who gave an "Other" response to question 10 (provision of financial support for R.T.s to obtain CE outside of the facility).

Differences among Facility Types in Patterns of Support

Differences among the various types of facilities were examined question-by-question earlier. However, the differences among facility types in the *pattern* of support can be more clearly seen by examining the means on the 13 individual support measures simultaneously:



At least two patterns of support are of interest in examining differences among facilities. First, how do the facility types differ in overall level of support, averaged across the 13 different types

of support for R.T. CE? The simple average of the 13 zero-to-1.0 indices of support correlates very highly (Pearson's correlation coefficient = .996) with the first principal component of all 13 scores. In other words, it is being close to that linear combination of the 13 indices that accounts for more of the variation in scores across facilities on the indices than any other combination.

However, the first principal component accounts for only 24.5% of the total between-facility variation, and the principal component analysis suggests that at least two, and perhaps four orthogonal dimensions, underlie these ratings. In terms of accounting specifically for differences among the five facility types, a multivariate analysis of variance (MANOVA) indicated that the score pattern of the 13 support indices that most clearly differentiated among the five specific types of facilities was a tendency to provide more support for "internal" CE (providing in-service CE, providing time during working hours for professional development and paying tuition for academic-degree courses) than for "external" CE (providing financial support for R.T.s to acquire CE outside of the institution, paying dues for membership in professional societies that offer CE and providing or reimbursing for Web-based CE from external suppliers).

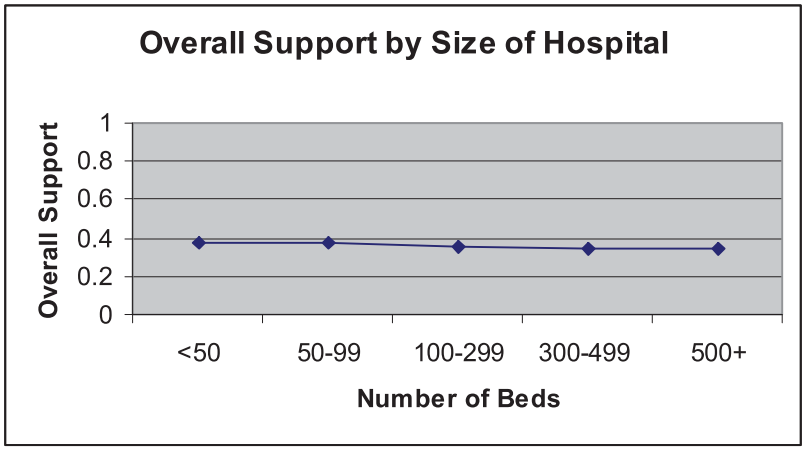
Type of facility	Statistic	Overall support for R.T. CE	Support for "external" vs. "internal" CE
Community hospital	Mean	.3665	.1791
	N	499	482
	Std. Deviation	.19294	.35904
Government hospital	Mean	.3231	.2074
	N	49	43
	Std. Deviation	.17386	.30090
University medical center or teaching institution	Mean	.3333	.3165
	N	73	70
	Std. Deviation	.19064	.34536
Free-standing clinic	Mean	.3205	-.1161
	N	133	133
	Std. Deviation	.20613	.36058
Private physician practice	Mean	.3037	-.2724
	N	76	75
	Std. Deviation	.20809	.31764
Other	Mean	.2858	.0251
	N	60	58
	Std. Deviation	.21065	.35636
Total	Mean	.3437	.0964
	N	890	861
	Std. Deviation	.19775	.38823
Overall $F(4,N\text{-}5)$ for differences among specific facility types		3.062, $P = .016$	47.322, $P < .001$
Statistically significant differences among means		Community hosp vs. other 4 types*	Each of the 5 types vs. overall mean***

*$P < .05$; ***$P < .001$

In terms of overall support, averaged across all 13 indices, community hospitals had a more significant mean (.37) than did the other four specific types of facilities (.30 to .32), $F = 10.388$ with 1 and 825 *df*, $P < .001$. None of the differences among the other four facility types was statistically significant at the .05 level, although private physician practices had the lowest sample mean level of support (.30).

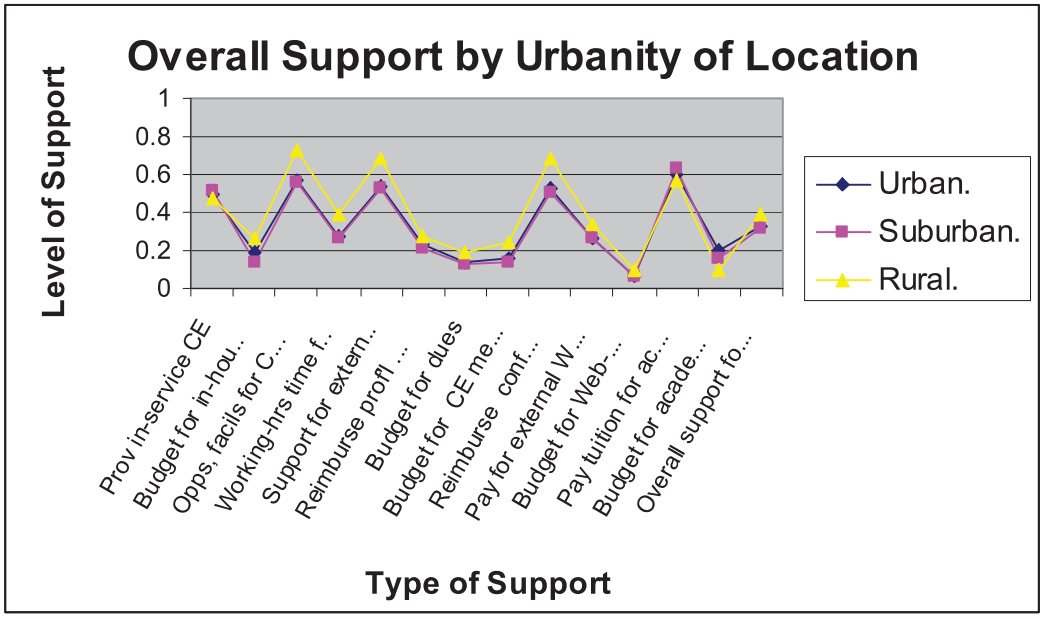
With respect to "internal" versus "external" support, both types of hospital and academic-based facilities reported significantly higher mean support for in-services, academic-degree tuition and time during working hours for professional development than they did for acquiring CE outside the institution and providing or reimbursing for externally-supplied Web-based CE. The reverse pattern was true for free-standing clinics and private physician practices. (All five *F*s were 10.311 or larger, $P \leq .001$.) Further, academic facilities had a significantly higher excess of support for internal over external CE (tuition reimbursement being more clearly "internal" for them than for the other facilities) than did the two types of hospital, F with 1 & 798 = 5.968, $P = .015$. And private physician practices had a greater excess of external over internal support than did free-standing clinics, F with 1 & 798 = 9.480, $P = .002$.

Patterns of Support as a Function of Hospital Size



As indicated in the above graph, mean score on the overall index of support declined monotonically as size of hospital (as measured by number of beds) increased. However, this decline was not statistically significant. Nor was the overall F for differences among the five levels of hospital size statistically significant for any single support measure. Moreover, a MANOVA on differences in pattern of mean scores as a function of hospital size did not yield statistical significance.

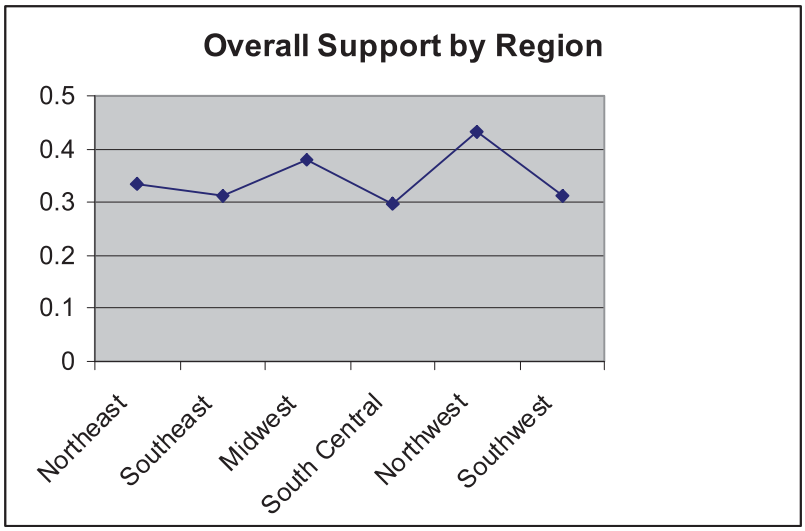
Patterns of Support as a Function of Rural vs. Suburban vs. Urban Facility Location



For overall support, and for almost all the individual support measures, the means for urban and suburban were quite similar. Indeed, the amount budgeted for in-house CE ($F_{1,882} = 3.869$, $P = .050$) was the only individual support measure on which urban and suburban facilities differed significantly at the .05 level, and these two groups did not differ significantly on the overall support measure. However, rural facilities had significantly higher means than urban and suburban facilities on seven of the support measures. (The seven were: in-house CE budget, providing opportunities and facilities to earn CE outside of working hours, amount of working-hours time allotted to professional development, professional society dues budget, reimbursing conference attendance, the amount budgeted for conference attendance and the amount budgeted for Web-based CE provided by external suppliers.) Rural facilities had lower means than urban and suburban facilities only on whether they provide in-house CE (a nonsignificant difference) and on the amount budgeted for academic-degree tuition ($P < .001$). Not surprisingly, the pattern of having higher means on the seven earlier-named support measures than on the two latter-named measures was the combination that maximally discriminated between rural and the other two locations, yielding an $F_{1,882} = 53.905$, $P < .001$. On the overall index of support for R.T. CE rural facilities had a higher mean (.39) than did urban (.33) and suburban (.315) facilities, $F_{1,882} = 21.003$, $P < .001$.

Differences among Workplace States in Patterns of Support

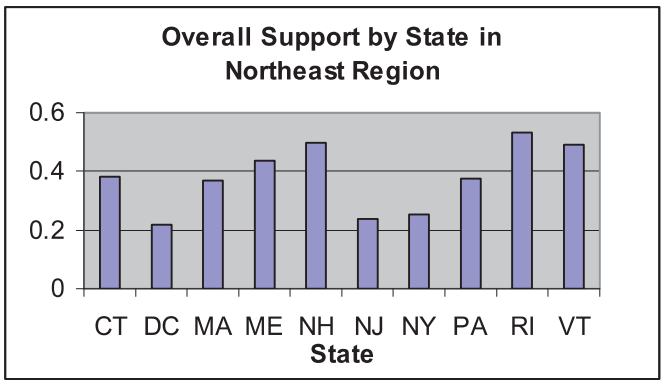
There were significant differences in overall support and in the pattern of that support from state to state.

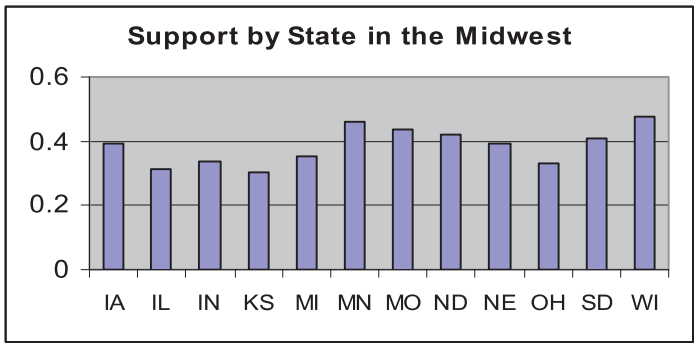


Note: Regions were defined as follows:

Northeast: Maine, Vt., N.H., Mass., R.I., Conn., N.J., Pa. and N.Y. (nine states) + D.C.
Southeast: W.Va., Del., Md., Va., Tenn., N.C., Miss., Ala., Ga.,S.C. and Fla. (12 states)
Midwest: Mich., Ohio, Ind., Ill. Wis., Minn., Iowa, Mo., N.D., S.D., Neb. and Kan. (12 states)
South-Central: Okla., Ark., La. and Texas (four states)
Northwest: Mont., Wyo., Colo., Idaho, Utah, Wash., Ore. and Alaska (eight states)
Southwest: Ariz., Nev., Calif., Hawaii and N.M. (five states)

The principal difference among regions in mean overall support for continuing education was between the Midwest and Northwest regions (mean support = .388) and the remaining four regions (Northeast, Southeast, South Central and Southwest with a mean = .317), $F_{1,861} = 29.594$, $P < .001$, accounting for 87% of the differences among these six means.





However, there were statistically significant differences in overall support among the individual states within the Northeast and Midwest regions.

The major difference among states in the Northeast was between D.C., N.Y. and N.J. (mean overall support = .249) and the New England States plus Pa. (mean = .395), $F_{1,156} = 6.360$, $P = .013$. (However, there was only one respondent from a D.C. facility. If we omit DC and test the difference between N.J. and N.Y. versus New England + Pa., the F rises to 15.936, $P < .001$, and accounts for 64% of the variation among these 10 means.)

The major difference among states in the Midwest was between the support provided in Iowa, Minn., Mo., N.D., Neb., S.D. and Wis. (mean = .432) versus that provided in Ill., Ind., Kan., Mich. and Ohio (mean = .330), $F_{1,259} = 14.356$, $P < .001$, accounting for 57% of the variation among these 12 means.

Differences among regions in particular modes of support for R.T. continuing education were as follows:

Types of Support for R.T. CE x Region

Region	Statistic	Q4: Provision of in-service CE	Q6: Budgeted for in-house CE	Q7: Opps, facils to earn CE outside working hours	Q8: Working-hours time for prof develop-ment	Q10: Financial support for external CE	Q12: Pay for member-ships in CE-offering societies	Q12c: Budget for member-ship dues
Northeast	Mean	.5271	.1988	.5602	.2651	.5409	.2651	.1855
	N	166	166	166	166	159	166	166
	Std. Deviation	.48697	.36660	.49786	.37993	.45343	.44270	.36651
Southeast	Mean	.4688	.1964	.6094	.3285	.5214	.1667	.1130
	N	192	192	192	192	187	192	192
	Std. Deviation	.49507	.35769	.48917	.39694	.45445	.37365	.29774
Midwest	Mean	.5387	.2111	.6605	.3380	.5985	.2841	.1913
	N	271	271	271	271	259	271	271
	Std. Deviation	.48627	.36154	.47441	.40585	.45212	.45183	.36844
South Central	Mean	.5167	.1211	.6000	.3339	.5112	.1667	.0778
	N	90	90	90	90	89	90	90
	Std. Deviation	.49972	.29925	.49264	.41721	.46452	.37477	.25236
Northwest	Mean	.4649	.3018	.6667	.3561	.7679	.3860	.2175
	N	57	57	57	57	56	57	57
	Std. Deviation	.48051	.41068	.47559	.40445	.35630	.49115	.36643
Southwest	Mean	.3956	.1879	.5934	.2245	.7045	.2198	.1081
	N	91	91	91	91	88	91	91
	Std. Deviation	.46258	.35327	.49392	.38241	.43967	.41639	.29566
Total	Mean	.4994	.1994	.6175	.3113	.5840	.2419	.1539
	N	868	868	868	868	839	868	868
	Std. Deviation	.48774	.35908	.48628	.39873	.45216	.42850	.33729
Regions sign'ly different from overall mean (*P*<.01)		None	None	None	None	None	SE, NW	None

Types of Support for R.T. CE x Region (continued)

Region	Statistic	Q13d: Budget for external CE meetings	Q13: Pay registrn & expenses for CEoffering conferences	Q14: Pay for Web-based CE offered by outside providers	Q14c: Budget for Web-based external CE	Q15: Pay tuition for academic-degree courses	Q15c: Budget for academic-degree courses
Northeast	Mean	.1682	.5120	.2470	.0951	.6145	.1928
	N	166	166	166	166	166	166
	Std. Deviation	.32845	.50137	.43256	.28348	.48820	.35362
Southeast	Mean	.1222	.5260	.2604	.0652	.5573	.1108
	N	192	192	192	192	192	192
	Std. Deviation	.29755	.50063	.44001	.23676	.49801	.28887
Midwest	Mean	.2027	.6125	.3063	.0939	.7122	.1840
	N	271	271	271	271	271	271
	Std. Deviation	.34471	.48807	.46180	.27523	.45359	.33262
South Central	Mean	.1123	.5556	.2778	.0374	.4889	.0810
	N	90	90	90	90	90	90
	Std. Deviation	.27330	.49969	.45041	.17736	.50268	.24129
Northwest	Mean	.3467	.8421	.4561	.1349	.5614	.1449
	N	57	57	57	57	57	57
	Std. Deviation	.41008	.36788	.50250	.33731	.50063	.31229
Southwest	Mean	.1603	.5385	.2637	.0441	.5165	.1399
	N	91	91	91	91	91	91
	Std. Deviation	.31776	.50128	.44310	.18819	.50250	.32328
Total	Mean	.1749	.5760	.2869	.0793	.6048	.1514
	N	868	868	868	868	868	868
	Std. Deviation	.33176	.49447	.45256	.25723	.48917	.31835
Regions sign'ly different from overall mean(P <.01)		SE, NW	NW	NW	None	MW	None

Facilities in the Southeast region were significantly below the all-regions average in their likelihood of paying professional society dues and in the amount they budget for attendance at conferences where CE credits are available. The Northwest region was significantly above the overall average in likelihood of paying professional society dues in the likelihood of paying conference attendance expenses, in the amount budgeted for conference attendance and in the likelihood of reimbursing R.T.s for Web-based CE they obtain from external suppliers. Finally, the Midwest region was significantly more likely than other regions to pay tuition for academic-degree courses.

The Midwest was the only region within which individual states differed significantly in the pattern of their support for CE (i.e., in which types of support were provided).

Differences among states within the Midwest region in pattern of support were as follows:

Type of Support x State within Midwest Region

18b. State	Statistic	Q4: Provision of in-service CE	Q6: Budgeted for in-house CE	Q7: Opps, facils to earn CE outside working hours	Q8: Working-hours time for professional development	Q10: Financial support for external CE	Q12: Pay for member-ships in CE-offering societies	Q12c: Budget for member-ship dues
IA	Mean	.5625	.2833	.7083	.3865	.6667	.1667	.0833
	N	24	24	24	24	21	24	24
	Std. Deviation	.49591	.38382	.46431	.40993	.45644	.38069	.23297
IL	Mean	.5833	.1617	.5000	.3083	.4655	.1667	.1490
	N	30	30	30	30	29	30	30
	Std. Deviation	.49276	.30560	.50855	.38976	.46158	.37905	.34208
IN	Mean	.6818	.1227	.5455	.2568	.3684	.3636	.1982
	N	22	22	22	22	19	22	22
	Std. Deviation	.45107	.27200	.50965	.38708	.43596	.49237	.37870
KS	Mean	.4118	.1353	.6471	.3529	.3824	.1765	.1118
	N	17	17	17	17	17	17	17
	Std. Deviation	.50730	.30195	.49259	.43998	.48507	.39295	.31600
MI	Mean	.5606	.2545	.5758	.2955	.6406	.1818	.1048
	N	33	33	33	33	32	33	33
	Std. Deviation	.49620	.39536	.50189	.38107	.46201	.39167	.29064
MN	Mean	.5714	.3286	.8095	.3357	.5952	.4762	.3005
	N	21	21	21	21	21	21	21
	Std. Deviation	.48181	.43605	.40237	.39973	.46419	.51177	.44058
MO	Mean	.4048	.1571	.7143	.4845	.6429	.3810	.3414
	N	21	21	21	21	21	21	21
	Std. Deviation	.49038	.33552	.46291	.44325	.39188	.49761	.44953
ND	Mean	.5000	.3375	.7500	.6125	.7500	.0000	.0000
	N	4	4	4	4	4	4	4
	Std. Deviation	.57735	.40285	.50000	.41105	.28868	.00000	.00000
NE	Mean	.5000	.3364	.5909	.2977	.8095	.4091	.2364
	N	22	22	22	22	21	22	22
	Std. Deviation	.51177	.41923	.50324	.41274	.37001	.50324	.40020
OH	Mean	.4487	.1385	.6410	.2038	.5541	.2308	.1931
	N	39	39	39	39	37	39	39
	Std. Deviation	.48388	.33136	.48597	.33977	.46821	.42683	.38727
SD	Mean	.3333	.1111	.7778	.5667	.7778	.4444	.3333
	N	9	9	9	9	9	9	9
	Std. Deviation	.50000	.33333	.44096	.42793	.44096	.52705	.50000
WI	Mean	.7069	.2345	.8621	.4276	.7143	.3793	.2221
	N	29	29	29	29	28	29	29
	Std. Deviation	.43337	.39122	.35093	.45382	.41786	.49380	.37316
Total	Mean	.5387	.2111	.6605	.3380	.5985	.2841	.1913
	N	271	271	271	271	259	271	271
	Std. Deviation	.48627	.36154	.47441	.40585	.45212	.45183	.36844
States significantly different from overall mean($P<.01$)		None	None	None	OH	None	None	None
Eastern versus Western MW		ns	ns	WMW > EMW	WMW > EMW	WMW > EMW	ns	ns

Type of Support x State within Midwest Region (continued)

18b. State	Statistic	Q13: Pay registrn & expenses for CE offering confer-ences	Q13d: Budget for external CE meetings	Q14: Pay for Web-based CE offered by outside providers	Q14c: Budget for Web-based external CE	Q15: Pay tuition for academic-degree courses	Q15c: Budget for academic-degree courses
IA	Mean	.7083	.3021	.3333	.0250	.7083	.1854
	N	24	24	24	24	24	24
	Std. Deviation	.46431	.39619	.48154	.12247	.46431	.31240
IL	Mean	.5667	.1280	.2333	.0987	.6000	.1347
	N	30	30	30	30	30	30
	Std. Deviation	.50401	.30054	.43018	.30112	.49827	.31571
IN	Mean	.5455	.1864	.3182	.0386	.6818	.0545
	N	22	22	22	22	22	22
	Std. Deviation	.50965	.33490	.47673	.18122	.47673	.17922
KS	Mean	.5882	.1282	.1765	.1000	.6471	.0706
	N	17	17	17	17	17	17
	Std. Deviation	.50730	.29756	.39295	.28229	.49259	.20238
MI	Mean	.6061	.1436	.2424	.0548	.7273	.2042
	N	33	33	33	33	33	33
	Std. Deviation	.49620	.28974	.43519	.21972	.45227	.32907
MN	Mean	.6667	.2410	.4762	.0476	.8095	.3419
	N	21	21	21	21	21	21
	Std. Deviation	.48305	.36416	.51177	.21822	.40237	.44678
MO	Mean	.5238	.2500	.3810	.1624	.8571	.3619
	N	21	21	21	21	21	21
	Std. Deviation	.51177	.37877	.49761	.35003	.35857	.42052
ND	Mean	1.0000	.5525	.2500	.2125	.5000	.0000
	N	4	4	4	4	4	4
	Std. Deviation	.00000	.42937	.50000	.42500	.57735	.00000
NE	Mean	.7273	.2905	.3182	.0773	.5000	.0227
	N	22	22	22	22	22	22
	Std. Deviation	.45584	.40576	.47673	.25011	.51177	.10660
OH	Mean	.4872	.0374	.3590	.0710	.7949	.1603
	N	39	39	39	39	39	39
	Std. Deviation	.50637	.17449	.48597	.24968	.40907	.31739
SD	Mean	.7778	.3400	.2222	.1889	.4444	.0000
	N	9	9	9	9	9	9
	Std. Deviation	.44096	.42282	.44096	.37481	.52705	.00000
WI	Mean	.6552	.3238	.2759	.2107	.8621	.3690
	N	29	29	29	29	29	29
	Std. Deviation	.48373	.38999	.45486	.39105	.35093	.39899
Total	Mean	.6125	.2027	.3063	.0939	.7122	.1840
	N	271	271	271	271	271	271
	Std. Deviation	.48807	.34471	.46180	.27523	.45359	.33262
States significantly different from overall mean(P<.01)			OH				MN, MO, WI
Eastern vs Western MW			WMW > EMW				

The only individual states that differed significantly ($P < .01$) from the overall Midwest average were Ohio (significantly less time provided for professional development during working hours and significantly less budgeted in support of attendance at CE-offering conferences) and

Minnesota, Missouri and Wisconsin (each of which were significantly above average in amount budgeted for academic-degree coursework). In addition, the more easterly Midwestern states (Ill., Ind., Mich. and Ohio) provided significantly less support (on average) than did the other eight Midwestern states with respect to providing opportunities and facilities for after-work CE, amount of working-hours time allowed for professional development, financial support for external CE and amount budgeted in support of attendance at professional meetings.

Patterns of Support as a Function of Disciplines/Specialties Supervised

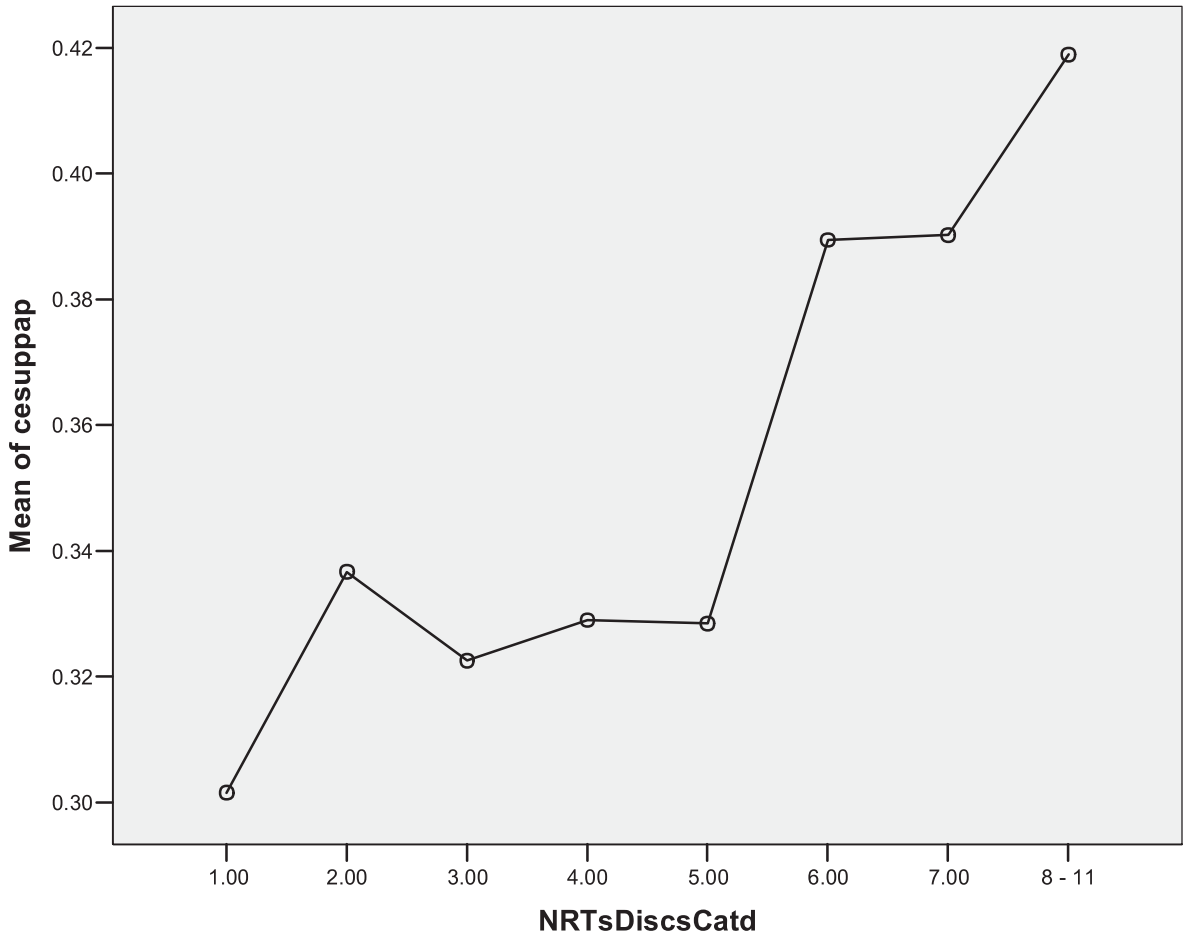
Mean Level of Support x Whether or Not R.T.s' Managers Supervise Practice of Each Discipline/Specialty

Discipline	Do R.T.s You Supervise Practice In This Discipline?	Q4: Provision of in-service CE	Q6: Budgeted for in-house CE	Q7: Opps, facils to earn CE outside working hours	Q8: Working hours time for prof develop-ment	Q10: Financial support for external CE	Q12: Pay for member-ships in CE-offering societies	Q12c: Budget for member-ship dues
Radiogr	No (231)	.4892	.1732	.5844	.2605	.6049	.2900	.1714
	P [a]	.726	.218	.275	.030	.342	.045	.336
	Yes (672)	.5022	.2068	.6250	.3262	.5715	.2247	.1467
Rad Therapy	No (829)	.4970	.1987	.6092	.3065	.5761	.2364	.1455
	P	.694	.887	.261	.463	.380	.242	.025
	Yes (74)	.5203	.1926	.6757	.3419	.6250	.2973	.2369
Nuc Med	No (563)	.4432	.1831	.5897	.2669	.5725	.2700	.1734
	P	**.000**	.103	.048	**.000**	.523	**.010**	.019
	Yes (340)	.5912	.2232	.6559	.3796	.5927	.1941	.1193
Mammo	No (459)	.4662	.1728	.5730	.2816	.5506	.2571	.1605
	P	.041	.030	**.009**	.033	.050	.264	.499
	Yes (444)	.5327	.2245	.6577	.3381	.6107	.2252	.1453
CVIT	No (737)	.4579	.1902	.6052	.2939	.5874	.2673	.1728
	P	**.000**	.154	.219	.014	.312	**.000**	**.000**
	Yes (166)	.6807	.2340	.6566	.3782	.5472	.1265	.0655
CT	No (380)	.4000	.1530	.5605	.2643	.5476	.2658	.1719
	P	**.000**	**.001**	**.004**	**.004**	.070	.145	.151
	Yes (523)	.5707	.2311	.6539	.3421	.6038	.2237	.1393
MRI	No (509)	.4352	.1667	.5894	.2914	.5612	.2338	.1570
	P	**.000**	**.003**	.077	.123	.165	.543	.686
	Yes (394)	.5812	.2390	.6472	.3326	.6042	.2513	.1479
QM	No (732)	.4740	.1837	.6025	.2763	.5862	.2623	.1668
	P	**.002**	.012	.121	**.000**	.414	**.002**	.011
	Yes (171)	.6053	.2602	.6667	.4510	.5542	.1520	.0942
Sonogr	No (426)	.4542	.1722	.5728	.2716	.5484	.2700	.1743
	P	**.009**	.039	.015	**.007**	.051	.058	.072
	Yes (477)	.5388	.2215	.6520	.3431	.6085	.2159	.1340
Med Dosim	No (830)	.4880	.1951	.6108	.3085	.5759	.2434	.1539
	P	.023	.380	.433	.832	.351	.644	.786
	Yes (73)	.6233	.2336	.6575	.3188	.6286	.2192	.1427
Other	No (827)	.4964	.1968	.6070	.3026	.5788	.2394	.1493
	P	.609	.692	.122	.091	.774	.644	.277
	Yes (76)	.5263	.2138	.6974	.3832	.5946	.2632	.1933

Mean Level of Support x
Whether or Not R.T.s' Managers Supervise Practice of Each Discipline/Specialty (continued)

Discipline	Do the R.T.s You Supervise Practice In This Discipline?	Q13d: Budget for external CE meetings	Q13: Pay registrn & expenses for CE-offering confer-ences	Q14: Pay for Web-based CE offered by outside providers	Q14c: Budget for Web-based external CE	Q15: Pay tuition for academ degree courses	Q15c: Budget for academic-degree courses	Overall support for RT CE
Radiogr	No	.1776	.6104	.2554	.0703	.5974	.1512	.3409
	P [a]	.801	.178	.255	.626	.986	.963	.933
	Yes	.1712	.5595	.2946	.0797	.5967	.1523	.3422
Rad Therapy	No	.1614	.5573	.2919	.0774	.5838	.1468	.3370
	P	**.000**	**.002**	.103	.977	**.007**	.097	.012
	Yes	.3011	.7432	.2027	.0765	.7432	.2112	.3968
Nuc Med	No	.1634	.5648	.2647	.0743	.5329	.1279	.3244
	P	.267	.548	.087	.649	**.000**	**.003**	**.001**
	Yes	.1886	.5853	.3176	.0823	.7029	.1920	.3707
Mammo	No	.1503	.5359	.2331	.0556	.5556	.1314	.3167
	P	.037	.024	**.000**	.009	**.010**	.049	**.000**
	Yes	.1962	.6104	.3378	.0997	.6396	.1734	.3679
CVIT	No	.1716	.5739	.2673	.0761	.5550	.1387	.3346
	P	.810	.857	.015	.764	**.000**	**.008**	.019
	Yes	.1784	.5663	.3614	.0827	.7831	.2111	.3743
CT	No	.1560	.5447	.2105	.0611	.5184	.1287	.3058
	P	.191	.150	**.000**	.103	**.000**	.062	**.000**
	Yes	.1851	.5927	.3384	.0891	.6539	.1690	.3681
MRI	No	.1626	.5481	.2279	.0733	.5265	.1205	.3141
	P	.288	.092	**.000**	.597	**.000**	.001	**.000**
	Yes	.1861	.6041	.3579	.0824	.6878	.1929	.3777
QM	No	.1679	.5765	.2678	.0708	.5820	.1441	.3348
	P	.353	.619	.020	.110	.059	.121	.026
	Yes	.1940	.5556	.3567	.1053	.6608	.1862	.3721
Sonogr	No	.5399	.2324	.0647	.5376	.1292	.3161	.5399
	P	.033	.061	**.001**	.160	**.001**	.042	**.000**
	Yes	.6017	.3312	.0885	.6499	.1725	.3649	.6017
Med Dosim	N	.1716	.5663	.2843	.0790	.5892	.1459	.3388
	P	.689	.199	.952	.503	.110	.052	.118
	Yes	.1877	.6438	.2877	.0582	.6849	.2216	.3765
Other	No	.1681	.5659	.2830	.0738	.5913	.1514	.3381
	P	.152	.184	.716	.178	.258	.841	.062
	Yes	.2247	.6447	.3026	.1149	.6579	.1591	.3823

As the number of disciplines and specialties practiced by the R.T.s a manager supervises increases, so does the overall-support index; $F_{1,895} = 27.167$, $P < .001$, with this linear trend accounting for 74% of the variation among the eight means.



Relationship Between Support and Manager's Demographics

Support as f(Disciplines In Which Manager Has Practiced)

The total number of radiologic science disciplines or specialties in which a manager has practiced was not significantly related to mean level of overall support for R.T.s' continuing education.

In terms of individual support measures and individual disciplines in which managers have or have not practiced, only six of the 156 relationships between support level and whether or not the facility was managed by someone who had practiced in that discipline were statistically significant at the .01 level:

Support x Whether Manager Has Practiced in Radiation Therapy

Has Manager Practiced in Radiation Therapy?	Statistic	Q13d: Budget for external CE meetings	Q13: Pay registrn & expenses for CE-offering conferences
Nope	Mean	.1629	.5527
	N	816	816
Yes, Mgr has	Mean	.2687	.7349

practiced in this discipline	N	83	83
P for significance of difference		.005	.001

Support x Whether Manager Has Practiced in CVIT

Has Manager Practiced in CVIT?	Statistic	Q12: Pay for memberships in CE-offering societies	Q12c: Budget for membership dues	Q15: Pay tuition for academic-degree courses
Nope	Mean	.2643	.1703	.5678
	N	715	715	715
Yes, Mgr has practiced in this discipline	Mean	.1522	.0809	.7065
	N	184	184	184
P for significance of difference		.001	.001	.001

Support x Whether Manager Has Practiced in Sonography

Has Manager Practiced in Sonography?	Statistic	Q13d: Budget for external CE meetings
Nope	Mean	.1548
	N	729
Yes, Mgr has practiced in this discipline	Mean	.2494
	N	170
P for significance of difference		.001

Managers who have practiced in radiation therapy are statistically significantly more supportive of attendance at CE-offering conferences; managers who have practiced in cardiovascular/interventional radiography are significantly *less* supportive of membership in professional societies, but *more* likely to pay tuition for academic-degree coursework; and managers who have practiced in sonography tend to budget more for attendance at CE-offering conferences.

Support as f(Years in Radiologic Sciences, Years Supervising R.T.s)

None of the correlations between years the manager has practiced in the radiologic sciences and either overall support or the individual support measures was statistically significant at the .01 level. However, both overall support and three of the individual measures (provision of in-service CE, provision of opportunities and facilities to earn CE outside working hours and the amount of time permitted for during hours professional development) correlated significantly with years the manager had supervised R.T.s and/or radiation therapists. In all four cases, the amount of support for CE reported by the manager was higher for facilities whose managers had supervised R.T.s longer.

Support as f(Manager's Certification, Age and Gender)

Overall-support index was not significantly predicted by any of these three variables. The tendency for male managers to be more likely (68%) to report that their facilities pay academic degree tuition than female managers was the only one of the 39 correlations between the three demographic variables and the 13 individual support measures that was significant at the .01 level: (58%), $\chi^2 = 9.090$ with 1 *df*, $P = .003$.

Support as f(Manager's Membership in Professional Societies)

The only individual society whose members differed significantly from managers who are not members of that society (at even the .05 level) with respect to overall support of CE for R.T.s was AHRA. AHRA members' facilities had a mean overall level of support of .422 vs. .323 for facilities in which non-AHRA members' workplaces were located; $F_{1,912} = 33.415$, $P < .001$.

A multiple regression analysis (MRA) predicting overall support from membership or not in the 11 societies other than AHRA was not statistically significant. Nor did adding these 11 other societies to AHRA membership (for a total of 12 predictors) significantly add to the ability to predict overall support provided by AHRA membership; which, however, accounts for only 3.5% of the variation from facility to facility in overall support.

A multivariate analysis of variance (MANOVA) employing AHRA membership or not and ASRT membership or not as independent variables (factors) and the 12 support measures as dependent variables yielded a statistically significant main effect for AHRA membership but a statistically nonsignificant main effect for ASRT membership and a statistically nonsignificant interaction. (I.e., overall we can't reject the hypothesis that the difference between facilities managed by AHRA members and those whose managers are not AHRA members is unaffected by whether or not the manager is an ASRT member.) The only individual support measure that showed a statistically significant interaction between AHRA membership and ASRT membership at the .01 level was whether or not R.T.s' dues in professional societies are reimbursed. AHRA-member managers are about as likely to reimburse their R.T.s' professional-society dues if they are also ASRT members (19.8%) as if they are not (22.6%). However, managers who are not AHRA members reimburse their R.T.s' professional-society dues at a considerably higher rate if the manager belongs to ASRT (32.9%) than if they belong to neither organization (14.8%), $F_{1,881}$ for a difference between the two $= 7.408$, $P = .007$.

Differences among facilities managed by AHRA members and those whose managers do not belong to AHRA, with respect to individual support measures, were as follows:

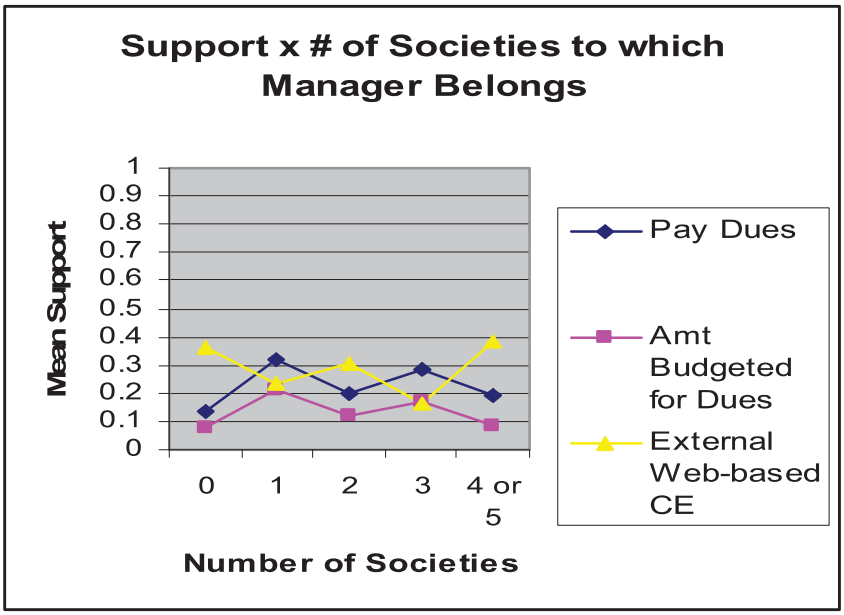
AHRA member?	Statistic	Q4: Provision of in-service CE	Q6: Budgeted for in-house CE	Q7: Opps, facils to earn CE outside working hours	Q8: Working-hours time for pro develop-ment	Q10: Financial support for external CE	Q12: Pay for member-ships in CE-offering societies	Q12c: Budget for member-ship dues
No	Mean	.4539	.1820	.5829	.2923	.5658	.2474	.1595
	N	760	760	760	760	737	760	760
	Std. Deviation	.48683	.34946	.49341	.39757	.46195	.43177	.34506
	Grouped Median	.4190	.1521	.5829	.2698	.6043	.2474	.0604
Yes	Mean	.7078	.2705	.7468	.3888	.6284	.2013	.1161

	N	154	154	154	154	148	154	154
	Std. Deviation	.43424	.38955	.43629	.39088	.41289	.40228	.28653
	Grouped Median	.7783	.2673	.7468	.4540	.6696	.2013	.0479
Difference	Mean	0.2539	0.0885	0.1639	0.0965	0.0626	-0.0461	-0.0434
	$F_{1,912}$	34.299	7.007	12.264	7.758	2.340	1.153	1.830
	P-value	< .001	.008	< .001	.005	.126	.283	.176

AHRA member?	Statistic	Q13d: Budget for external CE meetings	Q13: Pay registrn & expenses for CE-offering conferences	Q14: Pay for Web-based CE offered by outside providers	Q14c: Budget for Web-based external CE	Q15: Pay tuition for academicd egree courses	Q15c: Budget for academicdeg ree courses
No	Mean	.1636	.5447	.2566	.0755	.5461	.1311
	N	760	760	760	760	760	760
	Std. Deviation	.32415	.49832	.43703	.25406	.49820	.29915
	Grouped Median	.0992	.5447	.2566	.0406	.5461	.0544
Yes	Mean	.2151	.6818	.4026	.0805	.8117	.2448
	N	154	154	154	154	154	154
	Std. Deviation	.35351	.46729	.49202	.24822	.39224	.38689
	Grouped Median	.1473	.6818	.4026	.0638	.8117	.2035
Difference (Yes – No)	Mean	0.0515	0.1371	0.146	0.005	0.2656	0.1137
	$F_{1,N1+N2-2}$	3.649	8.231	13.341	.207	37.303	17.829
	P-value	.056	.004	< .001	.650	< .001	< .001

Managers who were AHRA members provided significantly higher mean levels of support for their R.T.s continuing education in terms of providing and budgeting for in-house CE, providing opportunities and facilities to earn CE outside working hours, the amount of work-hour time that can be devoted to professional development, reimbursing for attendance at CE offering conferences, paying for Web-based CE offered by outside providers and both the likelihood of reimbursing for and the amount budgeted for academic degree coursework.

The number of societies to which the manager belongs (which can serve as an index of professional involvement) did not correlate statistically significantly with overall support, but does have a statistically significant effect on three of the individual support measures ($P < .001$ in each case):



However, in each of these three cases, the relationship is decidedly nonlinear and difficult to characterize. The likelihood of paying society membership dues and the amount budgeted for such dues reimbursement appear to be higher for facilities whose managers belong to an odd number of societies than for facilities whose managers belong to an even number of societies ($F_{1,909} = 7.322$ and 8.403, $P < .01$ in each case), while the reverse is true for the likelihood of paying for Web-based CE provided by external suppliers ($F_{1,909} = 9.885$, $P = .002$). Further, in all three cases, managers who belong to a single professional society preside over facilities that provide significantly different levels of support than those whose managers belong to no professional society ($F_{1,909}$ from 13.366 to 31.506, $P < .001$ in each case). However, for none of the three support measures was the trend in support simply linear increasing or linear decreasing as the number of memberships increased from one to four or five; i.e., the linear-trend contrast for nonzero memberships was statistically non-significant.

Support x Manager's Job Title (Position in Management Hierarchy)

Four of the individual support measures and the overall index of support were significantly ($P < .01$) affected by the manager's job title:

		Q4: Provides in-service CE		Q6: Budgets for in-house CE		Q8: Work-hours time for professional development		Q15: Pays tuition for academic-degree courses		Overall Index of Support for Continuing Education for R.T.s	
Job Title	N	Mean	Std. Dev'n	Mean	Std. Dev'n	Mean	Std. Dev'n	Mean	Std. Dev'n	Mean	Std. Dev'n
Senior or lead technol or therapist	82	.4268	.47869	.1293	.29239	.2662	.39155	.5854	.49569	.3094	.18071
Chief tech or therapist	92	.3533	.47774	.1353	.31181	.2019	.35719	.4674	.50167	.2956	.21386
Supervisor or manager	504	.4821	.48912	.1889	.35933	.2836	.39130	.5873	.49281	.3316	.19070

Chief of imaging or radiation therapy	33	.5758	.48608	.2455	.38413	.3629	.41251	.6061	.49620	.3840	.23048
Administrator	150	.6633	.45057	.3010	.39712	.4272	.40120	.7267	.44716	.4078	.20061
Total	861	.4983	.48734	.1992	.35990	.3013	.39494	.5993	.49032	.3409	.19837
$F_{4,856}$ for differences among means		7.335, $P < .001$		4.823, $P = .001$		6.018, $P < .001$		4.355, $P = .002$		6.831, $P < .001$	
$F_{1,856}$ for linear trend (treating Senior, Chief as at same level)		22.582,$P < .001$		15.508, $P < .001$		17.165, $P < .001$		9.653, $P = .002$		21.781, $P < .001$	

The direction of the difference between "Senior/Lead Technologist or Therapist" and "Chief Technologist or Therapist" was not consistent across these five indices, and it was in no case statistically significant. However, for all five indices, the mean level of support increased as the manager's job title went from senior, lead or chief technologist/therapist to supervisor, or manager to chief of imaging, or radiation therapy to administrator.

Support vs. Educational Level of Manager

Since there were only six managers holding doctoral degrees. They were combined with master's degree holders into a single "master's or doctoral" category for all these analyses.

Providing in-services, paying academic-degree tuition, the amount budgeted for academic-degree tuition and the overall index of support for CE varied significantly as a function of educational level:

		Q4: Provides in-service CE		Q15: Pays tuition for academic-degree courses		Q15c: Budgets for academic-degree courses		Overall Index of Support for Continuing Education for R.T.s	
Highest Level of Education	N	Mean	Std. Dev'n	Mean	Std. Dev'n	Mean	Std. Dev'n	Mean	Std. Dev'n
High school + Certificate	270	.4815	.49121	.5222	.50043	.0923	.25889	.3301	.19289
Associate	304	.4457	.48357	.5526	.49804	.1301	.29408	.3156	.19456
Baccalaureate	224	.5714	.48455	.6652	.47298	.2143	.36753	.3827	.20190
Master's or Doctoral Degree	85	.5824	.47464	.8000	.40237	.2711	.39626	.3679	.19449
Total	883	.5017	.48766	.5957	.49103	.1535	.32072	.3421	.19756
$F_{3,879}$ for differences among means		3.828, $P = .010$		9.459, $P < .001$		10.642, $P < .001$		5.891, $P = .001$	
$F_{1,879}$ for linear trend (treating Senior,Chief as same level)									

Facilities with managers whose highest level of education was high school plus certificate did not differ significantly from facilities managed by associate-degree holders on any of these measures. Nor was whether a manager held a master's or doctoral degree associated with significantly higher support than holding a bachelor's degree. But on all four indices, facilities managed by a manager with a baccalaureate or higher degree provided higher mean support than

facilities managed by associate-degree or certificate-only managers, $F_{1,879}$ from 9.388 to 29.888, $P \leq .002$ in each case.

Profile of Facilities Most Supportive (Overall) of Continuing Education for R.T.s

Two multiple regression analyses (MRAs) were conducted to determine the linear combinations of facility characteristics and of both facility and manager characteristics that were most predictive of overall level of support for R.T. CE. These MRAs were based on the 721 respondents who answered all of the facility characteristic and manager characteristic questions and had a score on overall level of support.

The MRA that employed only facility characteristics as predictors yielded a multiple R^2 of .127 (which indicates that 13% of the variation among facilities in overall level of support for R.T. CE is accounted for by knowing the facilities' scores on the 26 predictor variables[1]) and an estimated population squared multiple R of .093. The only individual predictors with regression coefficients that were statistically significant (i.e., that contributed to predicting support for CE over and above the level of predictability provided by the other predictors) were whether the facility is located in a rural area (versus a suburban or urban locale), whether the facility is located in the Northwest or in one of the more westerly states of the Midwest (versus being located in the Southwest, South Central or Southeast region), and whether or not the R.T.s supervised by the manager practice in radiography.

Examining the various combinations of these three factors via a factorial ANOVA led to statistically significant main effects for urbanity ($F_{1,838} = 10.11$, $P = .002$) and region ($F_{2,838} = 7.48$, $P = .001$), a nonsignificant effect of whether or not the R.T.s practice radiography and non-significant two- and three-way interactions among these factors. The three factors combined accounted for 6.5% of the variation in overall support from facility to facility. Mean levels of support for the various combinations of urbanity and region were as follows:

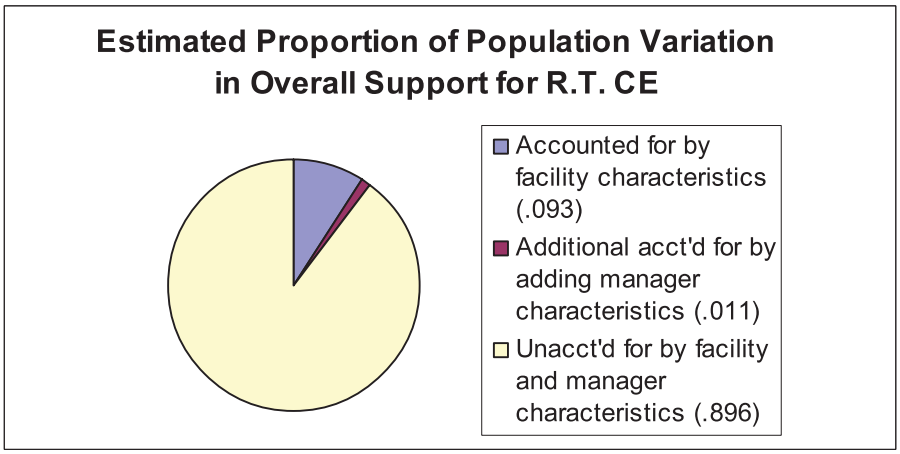
Region	Urbanity of Facility's Locale	
	Urban or Suburban	Rural
NW or Western Midwest	.413	.427
NE or Eastern Midwest	.315	.422
SE, South-Central or SW	.296	.341

The tendency for rural areas to provide higher mean overall support was significantly greater in the Northeast and eastern Midwest than in the rest of the country; $F_{1,846} = 5.58$, $P = .018$. Urbanity and region account jointly for 6.4% of the variation across facilities in overall level of support.

Combining all 48 predictors (both facility and manager characteristics) yields a sample R^2 of .164 and an estimated population R^2 of .104 – only slightly but statistically significantly higher

[1] Each nominal variable with more than two levels is represented in the regression equation by a set of category membership variables, with the number of variables in that set being the number of categories minus 1.

than the .093 provided by considering facility characteristics alone. However, none of the manager's characteristics individually made a significant contribution to predicting overall support in this combined equation.



Appendix A

Cover Letter and Questionnaire

ASRT Logo

February 2006

Dear Manager, Director or Supervisor of Radiologic Technologists,

The American Society of Radiologic Technologists is collecting information to optimize continuing education opportunities for radiologic technologists. Specifically, the ASRT is investigating access to CE in the workplace, the use of the Internet to complete CE activities, the role CE plays in evaluation and compensation, and the types of CE opportunities that employers support financially and in the workplace schedule.

This type of information is best provided by you and your colleagues who manage, direct and/or supervise radiologic technologists. We therefore hope you will find the time to respond to our Managers' Survey Concerning CE for Radiologic Technologists. We encourage you to respond within the next three weeks and to complete the questionnaire online at www.asrt.org/managersonCE.
However, we have included a hardcopy of the questionnaire that you may complete and return in the enclosed, postage-paid reply envelope, if that is a more convenient route.

While our primary motivation in gathering these data is to guide ASRT's efforts in providing continuing education opportunities, we also will make the results available to the radiologic science community as a whole by posting them on ASRT's Web site.

Your responses will remain confidential. Only summary statistics that do not identify you or your facility will appear in the report of the results.

Thank you very much for taking the time to help guide the future of continuing education for radiologic technologists.

Greg Morrison, CAE
Executive Vice President and Chief Knowledge Officer

Managers' Survey: CE for Radiologic Technologists

How many radiologic technologists (imaging technologists and/or radiation therapists) do you supervise?

□ More than 25.
□ 11-25.
□ 6-10.
□ 1-5.
□ None. **(If you check "None," please pass this questionnaire on to an R.T. manager.)**

1. Does your institution have policies that govern support for continuing education for R.T.s?
   □ Yes.
   □ Yes, but I'm given considerable leeway in applying those policies.
   □ No; I set the CE-support policies for the R.T.s I supervise.
   □ No; decisions about support for CE are made on an individual-case basis.
   □ Other (please explain). _____
   _____

2. Do you or your institution require that R.T.s maintain certification?
   □ Yes.
   □ No, but R.T.s who maintain certification receive higher compensation.
   □ No, but maintaining certification is a factor in performance evaluations.
   □ No, but R.T.s are rewarded for completing CE, whether related to certification or not.
   □ No.
   □ Other (please explain). _____

3. Do you or your institution require that R.T.s obtain post-primary certifications for the specialties in which they work (e.g., CT, MRI)?
   □ Yes.
   □ No, but R.T.s with post-primary certification receive higher compensation.
   □ No, but post-primary certification is a factor in performance evaluations.
   □ No.
   □ Other (please explain). _____
   _____

4. Does your institution provide in-service continuing education for R.T.s?
   □ Yes, for all R.T.s.
   □ Yes, but only for some of the R.T.s I supervise. (Please specify the criteria for your R.T.s to qualify for in-service CE.) _____
   _____
   □ No.

5. If the answer to question 4 is yes, which of the following do you use?
   □ Applications training.
   □ Web-accessible CE programs.
   □ Live Web-based interactive CE programs.

□ Programs presented by institutional staff.
□ Other (please specify). _____
_____)

6. How much do you budget for in-house CE per FTE per year? $_____

7. Do you or your institution provide opportunities and facilities for R.T.s to earn CE outside of working hours?
□ Yes.
□ No.

8. How much time during working hours is your staff allowed for professional development or continuing education?
____ hours per week

9. Would you or your institution be interested in incorporating additional CE programs into in-service offerings?
□ Yes.
□ Maybe.
□ No.
□ I don't know.

10. Does your institution provide financial support for R.T.s to acquire CE outside of the institution?
□ Yes, for all R.T.s.
□ Yes, but only for some of the R.T.s I supervise. (Please specify the criteria for your R.T.s to qualify for external CE.) _____
_____
□ No.
□ Other (please explain). _____
_____

11. If the answer to question 10 is yes, do you or your institution specify the locations and courses that will be reimbursed?
□ Yes.
□ No; any course approved for CE credit is acceptable.
□ Other (please explain). _____
_____

12. Does your institution pay for memberships in R.T. professional societies that offer CE to their members?
□ Yes.
□ No.

If the answer is yes, do you or your institution specify the societies?
□ Yes.
□ No.

How much do you budget for membership dues per FTE per year?
$_____ or _____% of the R.T.'s cost.

13. Does your institution pay for registration and expenses for CE offered outside the institution?
□ Yes.
□ No.

If the answer is yes, do you or your institution limit attendance to local, state or national meetings?
□ No. (Skip to question 14.)
□ Yes; only attendance at the following types of meetings is reimbursable (check all that apply):
□ Local meetings.
□ State meetings.
□ National meetings, if held within ___ miles of our facility.
□ National meetings, regardless of location.
□ Other (please specify). _____

How much do you budget for external CE meetings per FTE per year? $_____

Are those who attend required to provide a written or oral presentation of what was learned to management and/or other staff not attending?
□ Yes.
□ No.

14. Does your institution pay for Web-based CE courses offered by outside providers? (Check all that apply.)
□ No.
□ Yes; we purchase Web-based CE from outside providers to use as in-services.
□ Yes; we reimburse R.T.s for Web-based courses they purchase from outside providers.

If R.T.s are reimbursed for Web-based courses, do you or your institution specify the courses that will be reimbursed?
□ Yes.
□ No.

How much do you budget for Web-based, externally provided courses per FTE per year? $_____ or _____% of the R.T.'s cost.

15. Does your institution reimburse R.T.s for courses leading to an academic degree?
□ Yes.
□ No.

If the answer is yes, do you or your institution specify the courses taken or degree to be obtained?
□ Yes.

□ No; any course from an accredited institution applied toward any degree is acceptable.
□ Other (please explain). _____
_____

How much do you budget per FTE for academic-degree tuition per year?
$_____ or _____% of the R.T.'s cost.

Your Institutional Profile

16. In what type of institution is the facility where you supervise R.T.s located?
□ Community hospital. □ Government hospital. □ University medical center.
□ Free-standing clinic. □ Teaching institution. □ Private physician practice.
□ Other. (Please specify: _____)

17. If your facility serves inpatients, how many beds are available? (Select one only.)
□ Fewer than 50 beds.
□ 50-99 beds.
□ 100-299 beds.
□ 300-499 beds.
□ 500 or more beds.
□ N/A.

18. How would you describe your facility's location?
□ Urban. □ Suburban. □ Rural.
State (two-letter abbreviation): _____

19. In which disciplines/specialties do the R.T.s you supervise work? (Check all that apply.)
□ Radiography.
□ Nuclear medicine.
□ Cardiovascular-interventional technology.
□ Magnetic resonance imaging.
□ Sonography.
□ Radiation therapy.
□ Mammography.
□ Computed tomography.
□ Quality management.
□ Medical dosimetry.
□ Other (please specify). _____

Your Professional Profile

We would appreciate your sharing some information about your professional profile. Your responses will be used in statistical analyses of overall relationships and will not be used to identify you or your facility. You may skip any questions you prefer not to answer.

20. In which imaging/therapy specialties have you worked? (Check all that apply.)
□ Radiography.
□ Nuclear medicine.
□ Cardiovascular-interventional radiography.
□ Magnetic resonance imaging.
□ Sonography.
□ Radiation therapy.
□ Mammography.
□ Computed tomography.
□ Quality management.
□ Medical dosimetry.
□ Other (please specify). _____
□ None. I have never worked as a radiologic technologist or radiation therapist.

21. For how many years (not necessarily consecutive and not necessarily currently) have you worked in one or more of the specialties you checked in question 20 (other than "None")?
_____ years

22. For how many years (not necessarily consecutive) have you supervised R.T.s?
_____ years

23. Which of the following best describes your current position?
□ Supervisor/manager. □ Administrator.
□ Senior/lead technologist/therapist. □ Chief technologist/therapist.
□ Chief of imaging (or radiation therapy) services.
□ Other (please specify). _____

24. Are you a member of any professional societies? (Check all that apply.)
□ AMA. □ ASRT. □ ASRT's Management Chapter.
□ AHRA. □ RBMA. □ SROA.
□ Other (please specify). _____

25. Do you hold professional certification (e.g., an ARRT, NMTCB or MDCB certificate) relevant to your current position?
□ Yes.
□ No.

26. Year of birth _____

27. Gender: □ Male □ Female

28. Highest level of education you've attained:
□ High school + certificate. □ Associate degree.
□ Bachelor's degree. □ Master's degree (including MBA).
□ M.D. or other medical doctorate. □ Ph.D. or other non-medical doctorate.
□ Other (please specify). _____

Thank you for participating in this survey!

If you have any questions or concerns about this survey, please contact John Culbertson, ASRT research manager, at jculbertson@asrt.org or 800-444-2778, Ext. 1297.

Appendix B: “Other” Responses

1. Other

	Response	Frequency	Percent
	BLANK.	769	84.1
	$500 per year per tech for education to maintain CEs two education days per year. Not available until you have worked with the company one year. You can combine last year if not used with this year and next year if you want total six days, and $1,500 if you leave. You have to pay back the education $$ used from the future. Staff can use their education $$ for professional organizations.	1	.1
	$5,000 for FTE for further education paid by employer.	1	.1
	? We have courses for R.T.s. Send people out, bring experts in, etc. to support their education.	1	.1
	12 per year required.	1	.1
	Administration does not like to pay for CE.	1	.1
	All technologists must have 20 education hours yearly, for the hospital. The hospital does provide some education.	1	.1
	ALL techs are responsible for their own CEs.	1	.1
	All techs have the ability to obtain their required CEUs and then can get anything over this if they want.	1	.1
	ARRT and IEMA licenses are required per job descriptions. These two institutions require CEs so subsequently so do we.	1	.1
	ASRT membership paid for, annual conferences paid for on an as-needed basis.	1	.1
	Both by Job Description, Policy and now in UFCW1001 labor agreement: R.T.s are required to maintain their Registration via CE. If they do not, they receive a 30-day notice of termination.	1	.1
	CE is budgeted for each fiscal year. I can request outside budget if necessary.	1	.1
	CE is offered when possible. Responsibility remains with the technologists to obtain their CE.	1	.1
	CE monies are available on a case by case basis and approval is through a committee headed by the HR vice president. No monies are available for required CE credits to maintain cert. in specialty.	1	.1
	CE support if for specific job training. Otherwise, CE is the responsibility of individual.	1	.1
	CEs are reviewed on a quarterly basis. Technologists are notified on the number dropping and their need to obtain additional credits. My particular sphere is strictly mammography. We provide the ARRT membership to all technologists and expect them to obtain as many as possible of their credits through the test in each edition. We find that the mammo credits are difficult to get with the journal only, so we use outside seminars as needed. We would like to see more mammography CEs in the journal	1	.1
	Continuing ed. is responsibility of individual, although hospital does often approve CEs once per month.	1	.1
	Continuing education is expected. Information is posted. Limited financial allotment is in each year's budget.	1	.1
	Continuing education is required as mandated by ARRT. All licensure is to be current to remain employed within our health care institution. However, my institution DOES NOT reimburse for continuing education.	1	.1
	Depends on necessity, cost and content.	1	.1
	Done according to how much money was approved on the budget. I decide how that money is to be used.	1	.1
	Each full R.T. has an account for continuing education for the year of $1,000, and part time has $500 annually.	1	.1
	Each individual is given a $50 CE reimbursement annually, if you request it. If you fail to give proof of attendance to a CE meeting or ASRT enrollment for a particular year, you forfeit the money that year. If it is a particular meeting our employer wants us to attend, they cover all costs.	1	.1
	Each R.T. is responsible for own ceu's	1	.1
	Each tech is responsible for obtaining their own CEs.	1	.1
	Each tech is responsible for their CEUs.	1	.1
	Each technologist gets $500 per year toward CE.	1	.1
	Each technologist is provided with an ASRT (or professional organization of their choice) annual membership to be used for CEUs. Some also attend meetings pertinent to their specialty, i.e. mammography, MRI, bone density or sonography.	1	.1

	Each technologist is responsible for maintaining CE for the ARRT. If they fail to meet ARRT requirements, they will lose their job.	1	.1
	Educational time to attend seminars is available.	1	.1
	Employees are reimbursed for continuing education in various amounts per year depending on number of hours worked. The continuing education must be directly related to their job.	1	.1
	Every tech is required to keep up with their licensure requirements. They may maintain their CEs any way that it is convenient for them.	1	.1
	Everyone is responsible for getting their own CE credits and maintaining their credentials.	1	.1
	GE TIPS and we schedule educational in-services for new product information.	1	.1
	Have No computer access.	1	.1
	Here at NRMC, we have a policy in place that all technologists are to be registered or registry eligible — Missouri being a no-licensure state. Therefore, we are required to follow the ARRT guidelines for CE.	1	.1
	Hospital has classes online for mandatory courses, and provides nurse CE. R.T. should be able to use these classes for CE.	1	.1
	Hospital has its own educational requirements to meet JCAHO, and R.T.s meet the requirements of ARRT	1	.1
	I am given control to set up CMEs in any fashion I want.	1	.1
	I am the only R.T. here. Alaska allows unregistered techs to take x-rays. There is no state licensure. I follow the ARRT and ARDMS rules on CE.	1	.1
	I am the radiologist at St. Anne Mercy Hospital. I rarely govern the rad. tech. students or direct their learning responsibilities.	1	.1
	I work with outside vendors as well as our own CME Specialist.	1	.1
	If we are not compliant with our CE credits, then of course we cannot work with a license.	1	.1
	Individuals are required to obtain their own continuing education for their required field.	1	.1
	It certainly is not a policy to provide CE credits, but out company does make an effort to provide approx two seminars per year for a total of eight CEUs and pays our technologists' membership in the ASRT	1	.1
	It has to be with a university. or I can take it out of my operational budget under education.	1	.1
	It is hospital policy that each individual is responsible for maintaining CEUs for his/her certification(s). On occasion, if there is a course given that will benefit the hospital, administration may consider supporting expenses for staff to attend.	1	.1
	It is up to the individual technologists to maintain their credits.	1	.1
	It is up to the individual to make sure that he/she meets the requirements.	1	.1
	Meeting money is budgeted and then pulled out into a pool. I have to justify each R.T.(T)attendance with signoff by the COO.	1	.1
	My institution pays for any conferences techs want to attend, and they also pay for tech to subscribe to ASRT.	1	.1
	My per.	1	.1
	My way for my techs to make sure they get their CEs is to pay their dues for ASRT. I like the fact that if they get their credits through you, it is reported to ARRT and they don't have to worry about trying to keep up with the paperwork.	1	.1
	National support through the Federal VA for online education; other education is a local determination.	1	.1
	New management. No discussions about paid CE.	1	.1
	NO budget for CE. Techs mostly maintain their own.	1	.1
	No hospital-wide policy. Maintaining license is a condition of employment and the responsibility of individual technologists.	1	.1
	No policy, but classes are offered through the year.	1	.1
	NO support provided.	1	.1
	No, we provide many credits and in-services for the technologists. It is their responsibility to comply.	1	.1
	No, CE is the sole responsibility of the R.T. per ARRT guidelines.	1	.1
	Only R.T. departmental in-services are issued. No monetary support given for CE by institution.	1	.1
	Our company pays for the membership to the ASRT, where each technologist has the capability to complete the CE. Our company also provides two conferences per year that provide a minimum of eight CE credits.	1	.1
	Our corporation sees that many opportunities exist for nursing, but not for Radiology.	1	.1