

California Respiratory Care Practitioner Workforce Study

**Conducted for the Respiratory Care Board of California
by the Institute for Social Research
at California State University, Sacramento**

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Chapter 1: Introduction

Study Background and Purpose

In April 2006, the Department of Consumer Affairs, Respiratory Care Board of California contracted with the Institute for Social Research (ISR) at the California State University, Sacramento to conduct a study to forecast the state's Respiratory Care Practitioner (RCP) workforce needs. The project involved conducting three surveys to gain a perspective on the current California RCP workforce and future workforce needs. The intent of these surveys was to collect information that, along with other demographic and economic data, could be used to develop a workforce supply model. The surveys also were designed to provide information to the Respiratory Care Board on issues relevant to its decision making regarding future RCP workforce needs.

The first of these surveys—the 2006 Respiratory Care Practitioner Survey—was administered to a sample of 3,000 California RCPs with active, clear licenses. The second survey, the 2007 Respiratory Care Practitioner Employer Survey, was distributed to a sample of 201 healthcare facilities, including general acute care hospitals, home medical device retailers, long-term care facilities, sub-acute care facilities and rehabilitation hospitals. The third survey, the 2007 Respiratory Care Educational Program Survey, was distributed to all California respiratory therapist educational programs.

Goals and Objectives

The overarching goal of the study was to provide information to the Respiratory Care Board on issues relevant to its decision making regarding future RCP workforce needs. To accomplish this goal, three major tasks were completed. First, surveys of three major stakeholder groups involved in the Respiratory Care workforce were completed and analyzed. These included surveys of Respiratory Care Practitioners, Respiratory Care Employers, and Respiratory Care Education programs. Second, a number of existing databases with information on the California population and relevant health care data were examined to provide a context and understanding of the environments in which the Respiratory Care profession currently operates and will operate in the future. Third, using the information collected in tasks one and two, a model was developed to forecast the future supply and demand for Respiratory Care professionals.

Study Organization

The study employed a multiple perspectives approach, collecting data on important issues from a variety of sources, and then synthesizing the results into a matrix containing key elements that impact those who work in the profession, those who employ respiratory care workers, and, in a broad sense, Californians who depend on this branch of health care. These elements then became the building blocks used to describe the profession and construct a model to forecast future workforce needs, supply and demand.

The study was initiated by a review of existing data, including the Respiratory Care Board's licensing database and other state health databases along with the findings from surveys conducted by the American Association of Respiratory Care. Early discussions by Expert Panels involving Respiratory Care Practitioners, (later by Educators and Employers) anchored the study by illuminating and correctly framing issues which were then transformed into survey questions. The first survey conducted was of licensed Respiratory Care Practitioners. Data received from this survey, augmented by other existing state health data, was later used to drive the design of the subsequent Employer and Educator surveys. With each of the surveys, follow up with some Expert Panel members was helpful in dealing with sampling issues and with interpretation of survey responses. The Respiratory Care Board and its staff similarly provided feedback and direction during the length of the study.

Once the surveys were completed, results were combined with demographic data from the California Department of Finance and the June 2006 Respiratory Care Board Licensing Database to fill out the important elements needed to create a model to forecast future workforce supply and demand.

Report Organization

This report is intended to provide a comprehensive source of information about the workforce study. Chapters 2 through 4 describe the methods and findings for each of the three surveys: Chapter 2 describes the practitioner survey, Chapter 3 describes the employer survey, and Chapter 4 describes the educator survey. Chapter 5 discusses key elements drawn from study findings which affect the respiratory care workforce. Chapter 6 describes the supply and demand models used to evaluate future workforce needs. Appendix tables provide descriptive responses for all survey items in the order they appear on the questionnaire forms. The appendix materials also include copies of the survey forms and accompanying correspondence.

Chapter 2: Respiratory Care Practitioner Survey

Major Goals

The RCP survey was designed to collect information about licensed RCPs in California. This included information regarding current workforce participation, job satisfaction, educational attainment and demographic characteristics. This information, along with other demographic and economic data, was used to develop a profile of the workforce and to create a workforce supply model. The survey was ultimately designed to provide information to the Board on issues relevant to its decision making regarding future RCP workforce needs.

Methodology

Sampling Design. The survey sample was drawn from a copy of the Board's licensing database containing information for all RCP licenses issued March 1, 1985 through June 6, 2006. This file contained 25,133 licensee records. Primary and renewal status fields were used to identify the sampling frame of 13,884 clear, active licenses. An Equal Probability of Selection Method (EPSEM) random sample of 3,000 cases was drawn from the sampling frame using SPSS Version 13.0. All clear, active licenses—including those with out of state addresses—were included in the sampling frame. Throughout this report, this group of RCPs with clear, active licenses will be referred to as active RCPs.

Table 2.1: Distribution of License-Status Categories*

	Number	Percent
Clear, active	13,884	55.2%
Temporarily suspended, denied or deficient	59	.2%
Delinquent	1,059	4.2%
Cancelled	8,606	34.2%
Inactive	771	3.1%
Revoked or surrendered	534	2.1%
Retired	98	.4%
Deceased	122	.5%
Total	25,133	100.0%

* Source: Licensing Database, June 2006, Respiratory Care Board of California

The anticipated response rate was one factor considered in choosing an appropriate sample size. Return rates for the American Association of Respiratory Care (AARC) 2000 and 2005 national surveys of respiratory therapists were 29% and 40% respectively. A sample of 3,000 California RCPs ensured that, with comparable response rates, the survey would produce results with approximately a 3% margin of error at the 95% confidence level.

Survey Development. An expert panel of nine RCPs from throughout the state was assembled in May 2006 to assist the ISR with the development of the survey instrument. Panel members were selected to provide perspectives from a wide spectrum of specialties and settings. The panel provided invaluable insight regarding important issues on which to focus and the correct framing of these issues. Based on recommendations from the expert panel and a review of the literature, a draft instrument was prepared and submitted to the Board and expert panel for review. In order to permit comparisons with national results, a number of questionnaire items were designed to be consistent with the 2005 AARC Human Resource Survey of Respiratory Therapists.

The draft survey was revised to reflect feedback from the Board and expert panel. The final survey is ten pages long and includes 55 questions. The first portion of the survey is made up of two different “branches”—one for those currently employed in respiratory care, and another for those not currently employed in respiratory care. Those currently employed in respiratory care were asked to provide a detailed description of the characteristics of their current respiratory care employment. Those not currently employed in respiratory care were asked to answer a shorter series of questions regarding the length of time they’d been away from the profession, the reasons for leaving respiratory care, and their intentions regarding future work in respiratory care. All respondents were asked to provide opinions about their most recent respiratory care position, describe their certification and education, and provide licensure and demographic information. A copy of the survey instrument is included in Appendix 1.

The survey was designed to accommodate the likelihood that a significant portion of the RCP workforce holds multiple respiratory care jobs. This possibility was suggested by a review of the 2005 AARC Human Resources Survey of Respiratory Therapists. While the AARC survey did not specifically ask respondents how many respiratory care jobs they were currently working, it did ask respondents working a second and/or third respiratory care job to indicate their hourly rate for these positions. It appears that approximately 25 percent of AARC respondents held more than one respiratory care position.¹ The distribution of multiple respiratory care positions in California appears to be very similar—22 percent of California RCPs reported working multiple respiratory care positions. Three levels of information were collected regarding respondents’ current respiratory care employment:

- The most general level of information. Respondents were asked for an overall description of their current respiratory care employment situation, including the number of respiratory care positions they currently hold, the average number of work hours per week, and the number of weeks per year they work in respiratory care.

¹ This percent was computed using summaries of the AARC Human Resources Survey of Respiratory Therapists questions regarding primary position hourly wage, second job hourly wage, and third job hourly wage. Respectively, the number of respondents for these three items were 2633, 605, and 63 (Figures 5-7). This suggests that 23 percent (605/2633) held a second respiratory care job, and two percent (63/2633) held a third respiratory care job.

- More specific information for up to three current respiratory care jobs. Respondents were asked to describe work setting, number of years with employer, and weekly hours and pay rates for their primary respiratory care position, and if applicable, for their second and third respiratory care jobs. Respondents were instructed to define their primary respiratory care position as the job where they spend the most time.
- The most detailed information for their primary respiratory care position. The most detailed information was limited to respondents' primary respiratory care position. Respondents were asked to describe many characteristics of their primary position, including their job title, time base, schedule, position requirements, assignments, distribution of time, use of protocols, workload management, and procedures performed.

Data Collection. Each RCP selected for inclusion in the sample received up to four mailings. In late July 2006, all 3,000 RCPs in the sample were mailed a letter from the Board President. The letter described the study and let participants know that they had been selected for inclusion in the sample and would be receiving a survey packet in the mail in about a week. A week later the initial survey mailing was sent out. This mailing included the survey form, a business reply envelope, and a cover letter from the Board President describing the study and emphasizing the importance of their participation. The survey form included a study identification number, so that responses could be monitored. In early August, those who had not returned their completed survey were mailed a reminder postcard. In late August, those who had not returned their completed survey were mailed a second survey mailing including an updated letter from the Board President. Copies of all data collection materials are included in Appendix 1.

The survey form included a toll free number for comments and questions about the study. The ISR received over 50 calls from RCPs regarding the survey. Some wanted to make sure they should fill out the survey even though they weren't working in respiratory care. Others needed clarification about how they should answer particular questions—those regarding hours and pay were particularly problematic. A number of RCPs called to convey their concerns regarding the pressures facing RCPs and the changing nature of healthcare.

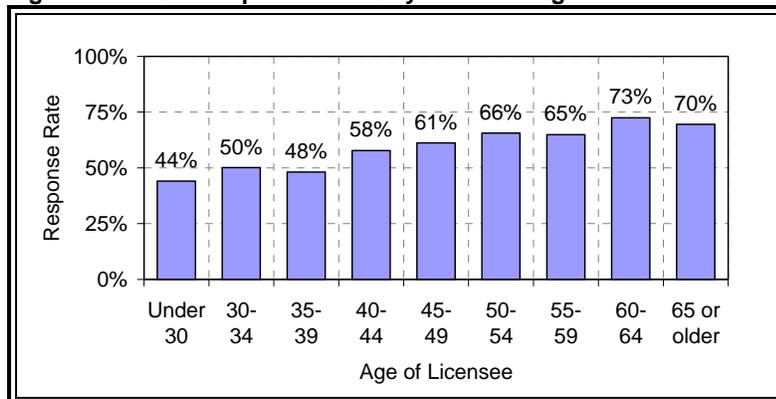
Response Rates. Completed questionnaires were received from 59% of the eligible RCPs to whom the survey was mailed. Of the 3000 surveys initially mailed, 75 were ineligible to participate—most because their mail was returned as undeliverable.

Table 2.2: Overall RCP Survey Response Rate

Surveys initially mailed	3,000
Ineligible records	73
Undeliverable	73
Deceased	2
Eligible licensees	2,925
Survey respondents	1,715
Response rate	59%

Representativeness of the Sample. Study identification numbers were used to match survey responses back to the licensing database in order to evaluate potential response bias. This analysis found a linear relationship between RCP age and response rates. Younger RCPs were less likely to complete and return their survey than were older RCPs. For example, the response rate for RCPs less than 30 years old was 44%; while the response rate for those 65 years of age and older was 70 percent (Figure 2.1 shows response rates by age group).

Figure 2.1: RCP Response Rates by Licensee Age



This pattern is typical for survey research in general, and also is common for surveys focusing on a specific professional group. Older RCPs have been in the profession longer and are likely to be more vested in the profession than those who are beginning or mid-way in their careers. Younger RCPs, particularly those who have young children at home, may have a harder time fitting the survey into their busy schedules.

Table 2.3: Number of Licensees, Response Rates and Percent Distribution by Age and Region

		Number				Re- sponse Rate	Percent Distribution			
		Pop- ulation	Sample				Pop- ulation	Sample	Respond- ents	
			Total	Ineligible	Eligible					Respond- ents
Age	Under 30	1,376	248	12	236	104	44%	9.9%	8.3%	6.1%
	30-34	1,590	345	14	331	166	50%	11.5%	11.5%	9.7%
	35-39	1,703	379	13	366	176	48%	12.3%	12.6%	10.3%
	40-44	1,966	398	12	386	223	58%	14.2%	13.3%	13.0%
	45-49	2,385	529	8	521	319	61%	17.2%	17.6%	18.6%
	50-54	2,383	493	10	483	317	66%	17.2%	16.4%	18.5%
	55-59	1,615	375	2	373	242	65%	11.6%	12.5%	14.1%
	60-64	621	163	3	160	116	73%	4.5%	5.4%	6.8%
	65 or older	243	70	1	69	48	70%	1.8%	2.3%	2.8%
	Unknown*	2	--	--	--	4	--	--	--	.2%
	Total	13,884	3,000	75	2,925	1,715	59%	100.0%	100.0%	100.0%
Region	Central California	1,501	333	8	325	184	57%	10.8%	11.1%	10.7%
	Greater Bay Area	2,234	495	12	483	304	63%	16.1%	16.5%	17.7%
	Northern California	1,189	233	7	226	139	62%	8.6%	7.8%	8.1%
	San Diego/Inland Empire	3,437	692	18	674	391	58%	24.8%	23.1%	22.8%
	Southern California	4,817	1,090	22	1,068	605	57%	34.7%	36.3%	35.3%
	Out-of-state	706	157	8	149	88	59%	5.1%	5.2%	5.1%
	Unknown†	--	--	--	--	4	--	--	--	.2%
		Total	13,884	3,000	75	2,925	1,715	59%	100.0%	100.0%

* Two license records are missing data of birth.

† Four surveys were returned with the identification numbers removed, which prevents responses from being linked to licensing records.

Approximately five percent of RCPs have mailing addresses outside California. If this group was less motivated to participate in the survey, it could potentially affect the accuracy of projections to the licensee population. Fortunately, the response rate for RCPs living out of state was virtually identical to that of those living in California. The analysis found no relationship between RCP residence outside California and response rates. In fact, although response rates varied somewhat by region—as shown in Table 2.3—the differences are not statistically significant (this was the case for both a simple Chi-Square test and for logistic regression including age and region).

Weighting for Age. In order to adjust for any potential response bias associated with the relationship between age and response rates, the survey data were weighted by age. Weighting the responses in this fashion reproduces the age distribution of the licensee population. This helps ensure that the responses of each age group are neither under- nor over-represented. Because the survey results were used to inform the supply and demand model for RCPs, it also seemed prudent to weight the survey results. Table 2.4 summarizes the process used to compute the values of the weighting variable.

Table 2.4: Age Distribution of Respiratory Care Practitioner Population of Valid Licensees, Sample and Survey Respondents

Age of Licensee*	Population		Sample		Unweighted Respondents		Respondents Weighted to Population Distribution		
	Number of cases	Percent	Number of cases	Percent	Number of cases	Percent	Weight	Number of cases	Percent
Under 30	1,130	8.1%	248	8.3%	104	6.1%	1.3462	140	8.2%
30-34	1,470	10.6%	345	11.5%	167	9.7%	1.0898	182	10.6%
35-39	1,723	12.4%	379	12.6%	176	10.3%	1.2102	213	12.4%
40-44	1,866	13.4%	398	13.3%	224	13.1%	1.0268	230	13.4%
45-49	2,343	16.9%	529	17.6%	320	18.7%	.9031	289	16.9%
50-54	2,408	17.3%	493	16.4%	318	18.5%	.9340	297	17.3%
55-59	1,851	13.3%	375	12.5%	242	14.1%	.9463	229	13.4%
60-64	767	5.5%	163	5.4%	116	6.8%	.8190	95	5.5%
65 or older	324	2.3%	70	2.3%	48	2.8%	.8333	40	2.3%
Total	13,882	100.0%	3,000	100.0%	1,715	100.0%	n/a	1,715	100.0%

* Source: Licensing database, Respiratory Care Board of California. Records for two licensees do not include data on date of birth.

Figures 2.2 and 2.3 illustrate the results of the weighting procedure by comparing the population age distribution to both the unweighted and weighted sample age distributions. The weighting procedure produces a sample age distribution that mirrors the population distribution. The findings presented in this chapter (as well as the summaries provided in Appendix 2) are based on weighted survey responses.

Figure 2.2: RCP Population and Unweighted Sample Age Distribution

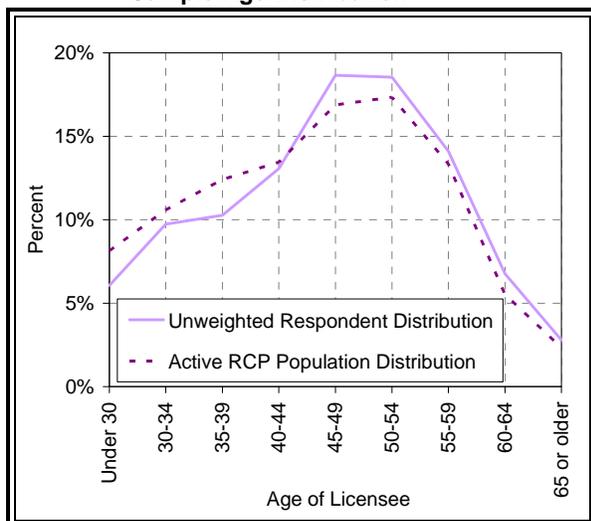
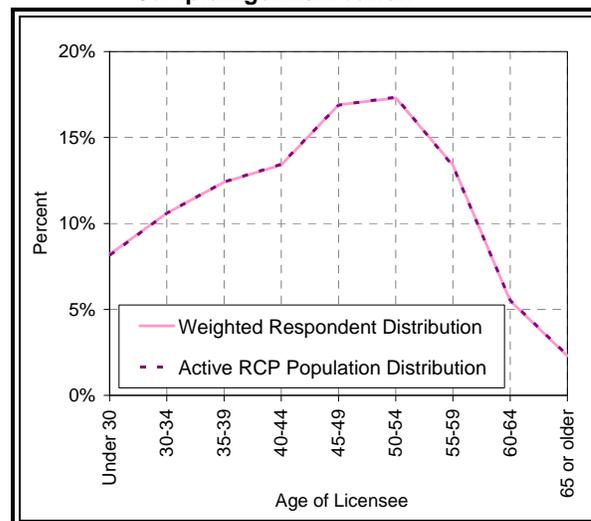


Figure 2.3: RCP Population and Weighted Sample Age Distribution



Precision of Estimates. Random selection of respondents, a sufficient sample size and high response rates all contribute to a sample's representativeness. The precision with which the RCP survey findings predict values for the RCP population is a function of the desired level of confidence and the number of cases generating a given sample value. With a 95% confidence interval—which means that 95 of a 100 random samples would produce values within the specified range—and approximately 1700 cases, ranges for the comparable respiratory care practitioner population would be within plus or minus 2.23% of the tabled values.

Table 2.5: Margin of Error for a Range of Sample Sizes

Sample Size	1,700	1,500	1,000	800	400	200
Margin of Error*	2.23%	2.39%	2.99%	3.36%	4.83%	6.88%

* With a 95% confidence interval, a 50% response distribution and a population of 13,844 licensees. With 1700 cases and a 99% confidence interval, the survey findings have a 3% margin of error.

Because of the detailed nature of the information collected for this survey, the number of cases varies depending on the particular question being described. For example, it was only appropriate to ask those currently employed in respiratory care to describe specific aspects of their respiratory care work, and only those not currently employed in respiratory care were asked about their reasons for not working in respiratory care. Furthermore, some questions only applied to respiratory therapists providing care in an inpatient setting; other items only applied to those employed in an acute care hospital. Because of this variation in the number of cases, it is useful to bear in mind that the precision of sample estimates decreases with sample size (see Table 2.5).

Data Editing. Completed surveys were analyzed for completeness and consistency, and when necessary, responses were edited for consistency. Some survey questions

required significant review in order to standardize responses into a format that would permit analysis. Because the survey form was not electronic (in contrast to the most recent AARC survey) and was self-administered, respondents were able to write in answer choices not initially included on the survey and explain situations not originally anticipated when the survey form was drafted. Some of the questions where this frequently happened deal with topics that have not been extensively studied previously—for example ventilator ratios—so this was not surprising. However, respondents' comments and descriptions regarding other topics, like work setting and pay rates—which might at first glance appear to be completely straightforward—revealed levels of complexity that the researchers weren't anticipating. Some of these more minor “wrinkles” are noted in Appendix 2. Other issues related to interpreting the survey results are described along with the findings.

Basic Data Considerations

In describing the RCP workforce, all licensees who returned a survey are included. However, within certain sections of the report, we highlight the sub-group of those not working in respiratory care or discuss comparisons between the working and non-working groups (comparisons between the working and non-working groups on all of the variables for which data was collected are provided in Appendix 2).

In the RCP survey, we have information on all of the active, “clear” licensees (these are RCPs with active, valid licenses) who returned a study questionnaire (n=1,715). However, within this group of responding licensees, two subgroups exist. The first of these groups is made up of those individuals who are currently working in the respiratory care profession. This group includes those working both full and part-time (n=1,548). The second group is comprised of a much smaller number (n=167) of individuals who are not currently working in respiratory care. Individuals in these two groups were distinguished by the answer they gave to the question, “Are you currently employed in respiratory care?”

Figure 2.4: Respiratory Care Employment

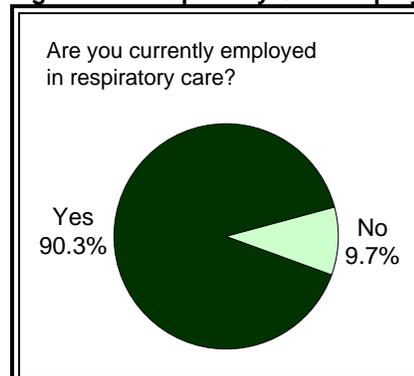


Figure 2.4 shows that 90.3 percent of the random sample of 1,715 RCPs reported being currently employed in respiratory care. The 95% confidence interval estimate for the

population is plus or minus 2.4 percent. So we estimate that between 87.9 and 92.7 percent of active RCPs are employed in respiratory care.

Finding out how many RCPs maintain an active, clear license but do not work in respiratory care was an important part of being able to accurately examine the supply of RCPs. It is common for profession-specific surveys of this nature to under-represent those not working in the profession. A number of factors can make them less likely to respond to the survey. The content is less salient for them than it is for those in the profession. They are also more likely to assume the survey doesn't apply to them. To counter this tendency, the importance of everyone's participation—including those who are retired, not presently working, working outside respiratory care, and working in respiratory care—was emphasized in the correspondence accompanying the survey mailings and in the introduction to the survey. Since we don't know how many of the total licensed population are working in respiratory care, we have no way to evaluate the representativeness of responses for the overall population of RCPs. Even with the added emphasis on their participation, it is possible that the response rate for those not working in respiratory care was lower than for those working in respiratory care. While this does not have significant implications for the descriptive findings (since most are restricted to one group or the other), it could be an important consideration for evaluating the adequacy of the supply of RCPs. The survey found that 9.7 percent of RCPs with active, clear licenses were currently not working in respiratory care. If this group was under-represented among respondents because their response rate was low, it could mean that the survey data understates the portion of licensees not working in the profession.

In reviewing the findings, the reader should keep certain data limitations in mind. First, this survey elicits perceptions from survey respondents. Such perceptions may or may not accurately reflect reality. For example, if a respondent says he/she is planning to leave respiratory care in the next five years, it does not necessarily mean that the individual will actually leave respiratory care in that time frame. Second, although the 59 percent response rate is quite satisfactory for a mail-out survey, and the total number of respondents is large enough to ensure a high level of confidence in the results, there is a possibility that those returning the survey are different than the general population of RCPs in ways that we are not able to detect. For example, those who put the time and effort into responding to the survey may be more vested in the future of the RCP profession than those who do not.

A Profile of the RCP Workforce

Who are the current RCPs?

A General Overview of the Workforce. Today’s RCPs are predominantly Caucasian (70%; see Table 2.6) and have an average age of 45.4 years (see Figure 2.5). Individuals of Hispanic or Latino origin comprise about 16 percent of the population, while this ethnic group makes up about 35 percent (American Community Survey, 2005) of the California population. Although females make up slightly more than half (54%) of the RCPs, the gender imbalance between females and males in the profession is not as sizeable as is found in some health care professions such as nursing, in which females make up about 91 to 92 percent of the workforce (Survey of Registered Nurses in California 2004; Bureau of Labor Statistics, Women in the Labor Force 2006).

Table 2.6: Ethnic and Racial Distribution of California Respiratory Care Practitioners and California Population

Race	Respiratory Care Practitioners		California Population*
	Percent	Number of cases	
American Indian or Alaskan Native	1.1%	17	.7%
Asian or Pacific Islander	19.7%	306	12.8%
Black or African American	6.1%	94	6.1%
White or Caucasian	70.4%	1,095	60.9%
Other race	--	--	16.4%
Two or more races	2.7%	42	3.1%
Total	100%	1,554	100%
Hispanic or Latino origin	16.0%	1,694	35.5%

* Source: 2005 American Community Survey

Figure 2.5: RCP Age Distribution

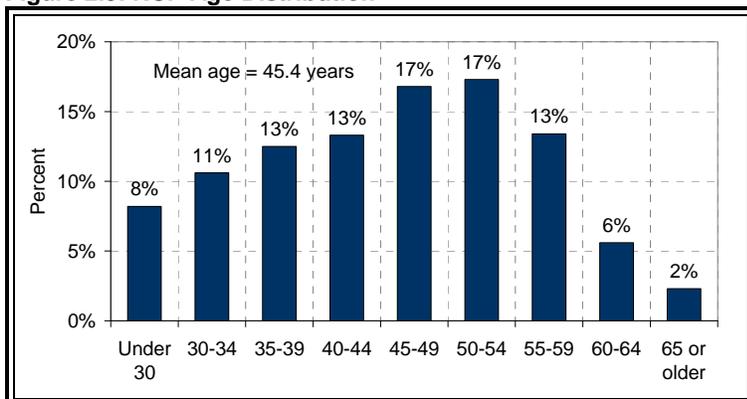


Figure 2.6: RCP Gender Distribution

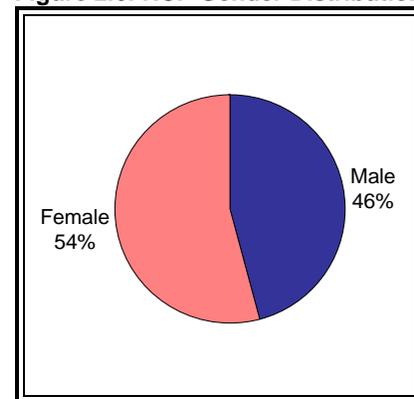


Figure 2.7: RCP Gender Percent Distribution by Year License Issued

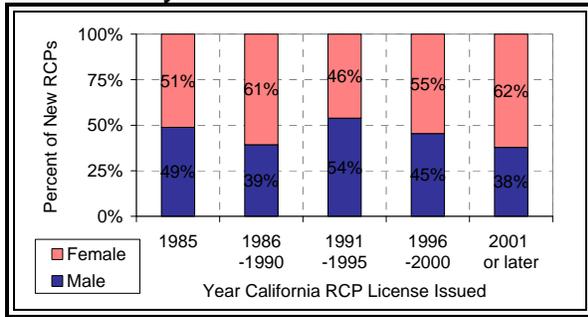


Figure 2.8: Number of RCP Respondents by Gender and Year Licensed

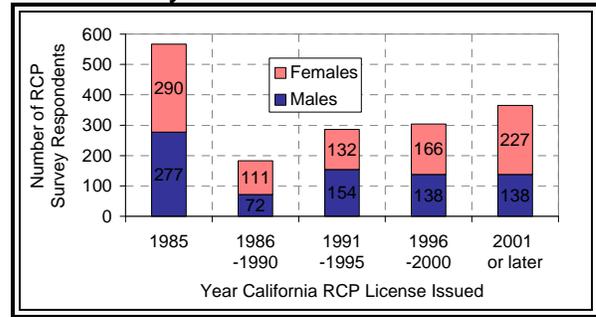
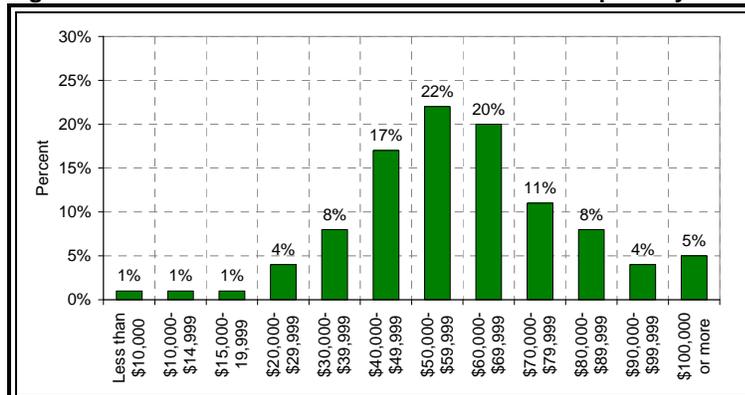


Figure 2.7 shows the gender distribution of respondents in relation to the year they were licensed. Forty-nine percent of respondents licensed in 1985 were male. During the next five years—from 1986 to 1990—the ratio of males to females drops, with males making up 39 percent of the new licensees. During the following five years—from 1991 to 1995—males outnumbered females among new RCPs. During the last ten years, there has been a decline in the percent of males among new licensees. It dropped to 45 percent during the period from 1996 to 2000 and then dropped to 38 percent during the period from 2001-2006. Focusing on the number of RCPs responding to the survey in each gender category and year category (Figure 2.8) suggests that during the last ten years, growth in the number of new licensees may be attributable to female RCPs, while the number of new male RCPs has remained flat. This may be a trend to consider for recruitment strategies.

Almost three-quarters (73%) of those currently working in respiratory care earned less than \$70,000 per year, with the single largest income group, slightly more than one-fifth (22%) of working RCPs, earning between \$50,000 and \$59,999 per year (see Figure 2.9). Respondents’ median income from respiratory care work for 2005 was \$58,660. This number is noticeably higher than the overall median income for California, which was estimated to be \$35,164 in 2005 (2005 American Community Survey, California population 25 years and over with earnings). Respondents’ median income was also higher than the estimated median annual wage of \$54,443 for California Respiratory Therapists (California Employment Development Department, Occupational Employment Statistics Survey, Third Quarter 2005).

Figure 2.9: Personal Annual Gross Income from Respiratory Care Work



The largest single percentage of those currently working in respiratory care obtained their licenses in 1985—when the RCP licensing requirement was implemented. The distribution of the number of years of employment in respiratory care mirrors this distribution closely. RCPs currently employed in respiratory care reported that they had been employed in respiratory care, on average, about 96 percent of the time since obtaining their license.

Figure 2.10: Year First Obtained California RCP License for RCPs Currently Working in Respiratory Care

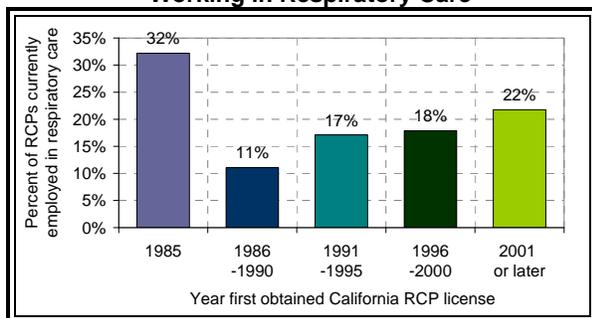
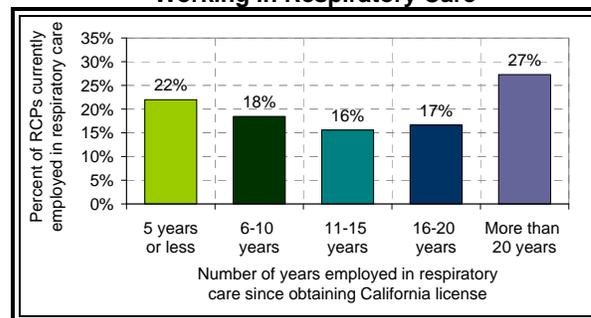
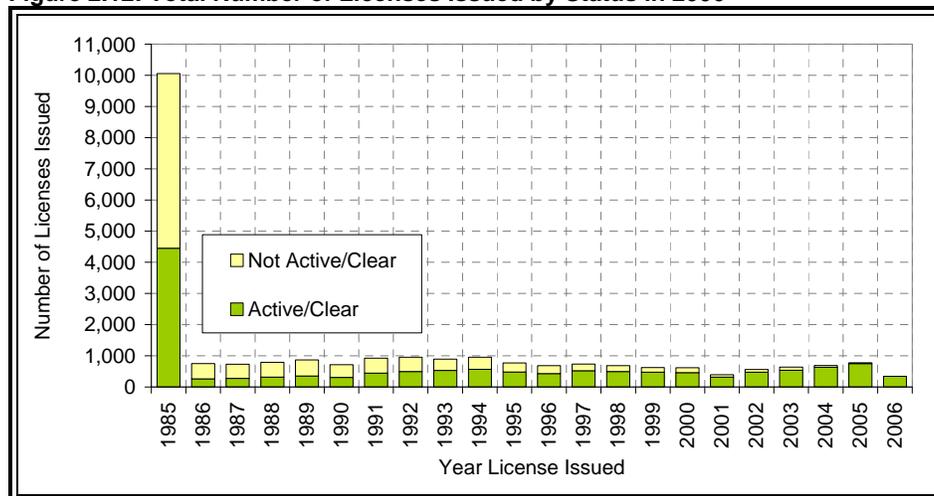


Figure 2.11: Years Employed in Respiratory Care for RCPs Currently Working in Respiratory Care



Of the initial group of RCPs licensed in 1985, 44 percent (4,447 individuals) still maintain current active licenses. Since 1985 and 1986, when there was a huge influx of individuals licensed, the volume of those getting their licenses in each of the successive years has remained nearly constant—ranging from a low of three percent to a high of eight percent of the previous year’s total workforce. There was an increase in the number of licensees entering the profession in 2005/2006. (Additional analysis of the patterns of entrances and exits from the RCP profession is provided Chapter 6.)

Figure 2.12: Total Number of Licenses Issued by Status in 2006



Grouping RCPs currently employed in respiratory care by the region in which they work shows that the southern California employs the largest number of RCPs (see Table 2.7 for a breakdown by region):

- The largest percent (38%) of RCPs work in the Southern California region.
 - This equates to about 4,742 individuals holding licenses.
- The Northern California region has the lowest percentage (8.5%) of the workforce.
 - This equates to approximately 1,062 individuals.

Table 2.7: Regional Estimates of the Number of Respiratory Care Practitioners Employed in Respiratory Care, 2006

	Survey respondents		Estimated number of RCPs currently working in respiratory care*	
	Percent	Number	Percent	Number
Northern California	8.5%	132	8.5%	1,062
Greater Bay Area	18.5%	287	18.5%	2,314
Central California	10.9%	168	10.9%	1,356
Southern California	37.9%	587	37.9%	4,742
San Diego/Inland Empire	19.8%	306	19.8%	2,472
Out of state	4.4%	68	4.4%	550
Total	100.0%	1,548	73.0%	12,496

* The total for this column was obtained by multiplying the number of valid licenses in June 2006 by the percent of survey respondents currently working in respiratory care ($13,844 \times .9026 = 12,496$). The regional distribution of survey respondents was then used to estimate the number of RCPs in each region who are currently employed in respiratory care.

Table 2.8 compares the distribution of the regions in which RCPs are working with the distribution of the California population. The distribution of RCPs and population are very closely matched, in fact they are nearly identical in three regions—Northern California, Central California, and Southern California. In the Bay Area, however, there is a slight deficit of RCPs. Twenty-one percent of the state's population lives in the Bay Area but 19 percent of the RCP workforce works in the region. The situation is reversed in the San Diego/Inland Empire region. Nineteen percent of the state's population lives in the region but it employs 21 percent of the RCP workforce.

Table 2.8: A Comparison of the Regional Workplace Distribution for RCPs Currently Employed in Respiratory Care with the Regional Distribution of California's Population

	RCPs Working in California		California Population*	
	Number	Percent	Number	Percent
Northern California	1,062	8.9%	3,284,502	8.8%
Greater Bay Area	2,314	19.4%	7,877,451	21.2%
Central California	1,356	11.4%	4,011,742	10.8%
Southern California	4,742	39.7%	14,829,816	39.9%
San Diego/Inland Empire	2,472	20.7%	7,191,729	19.3%
Total	11,946	100.0%	37,195,240	100.0%

* Source: State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 1/1/2006.

Table 2.9 provides a more sensitive measure of the number of RCPs relative to the corresponding regional population. California's RCP-to-population ratios are remarkably consistent across regions.

- The lowest ratio of RCPs to residents is seen in the Greater Bay Area—29.4 per 100,000
- Southern California has 32 RCPs per 100,000 residents
- Northern California has 32.3 RCPs per 100,000 residents
- Central California has 33.8 RCPs per 100,000 residents
- The San Diego/Inland Empire region has the highest ratio of RCPs to residents-- 34.4 per 100,000

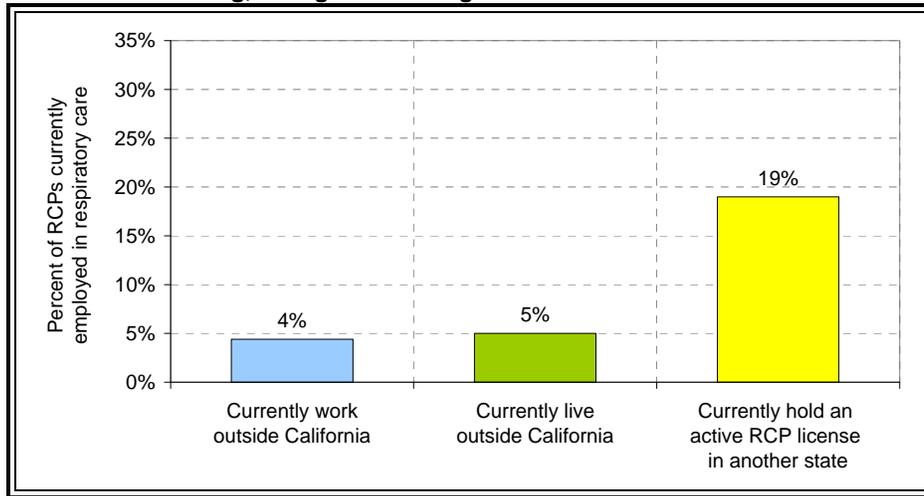
Table 2.9: Regional Estimates of the Number of Respiratory Care Practitioners Employed in Respiratory Care per 1000,000 Persons, 2006

	Estimated Number of RCPs Working in California	California Population*	Estimated Number of RCPs Working in California per 100,000 Persons
Northern California	1,062	3,284,502	32.3
Greater Bay Area	2,314	7,877,451	29.4
Central California	1,356	4,011,742	33.8
Southern California	4,742	14,829,816	32.0
San Diego/Inland Empire	2,472	7,191,729	34.4
Total	11,946	37,195,240	32.1

* Source: State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 1/1/2006.

Yet another facet in understanding the California RCP workforce comes from an exploration of the domiciles of California licensed RCPs and the location of their work. Of the respondents working in respiratory care, 19 percent indicated they also maintained licenses in other states, while 81 percent stated that they held only California licenses. Five percent of those working in respiratory care live outside California and four percent are currently working outside California.

Figure 2.13: Percent of RCPs Currently Employed in Respiratory Care Working, Living and Holding an RCP License in another State



Ninety-five percent of respondents working in respiratory care both work and live in California. Four percent work and live outside California. A small number of RCPs live in one state and work in another.

Figure 2.14: In-and Out-of-State Work and Residence for RCPs Currently Employed in Respiratory Care

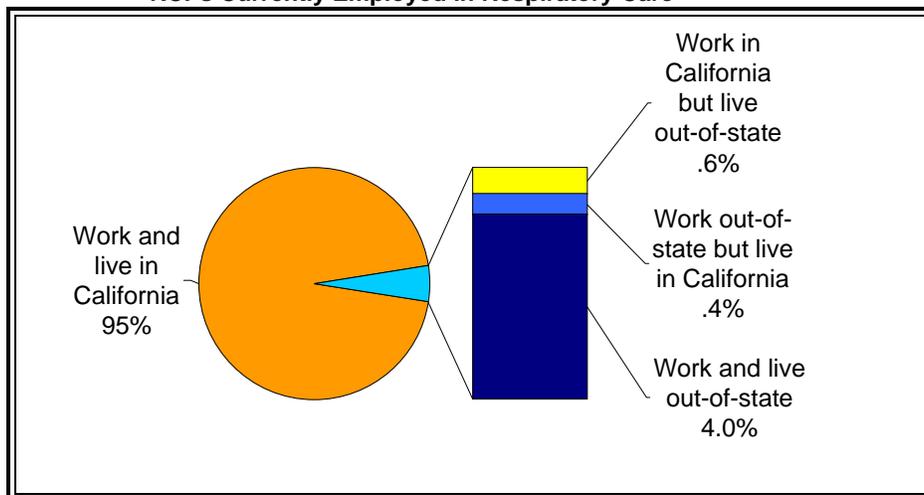


Table 2.10 puts these elements in the context of the total potential workforce (i.e., those with active licenses). In addition to the 9.7 percent not working in respiratory care, 3.9 percent of licensees were working outside California. This means that 13.6 percent of the potential workforce was not working in respiratory care in California.

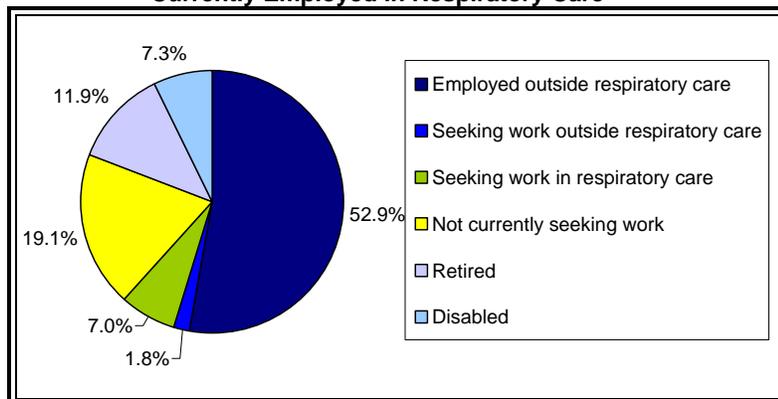
Table 2.10: Current Respiratory Care Employment Status, Location and Residence

			Respondent Percent Distribution	Estimated Licensed Population
Work in respiratory care	Work in California	Live in California	85.6%	11,857
		Live out-of-state	.7%	99
	Work out- of-state	Live in California	.4%	54
		Live out-of-state	3.5%	486
Do not work in respiratory care			9.7%	1,348
Total			100.0%	13,844

Extrapolating from the 9.7 percent of respondents not working in respiratory care to the total 2006 license base suggests that of the 13,884 active, clear licenses (i.e., the potential working pool), roughly 1,348 individuals are outside the current workforce. Of those outside:

- 52.9 percent have jobs outside respiratory care,
- 7.0 percent are seeking work within respiratory care,
- 1.8 percent are seeking work outside respiratory care,
- 19.1 percent are not seeking work,
- 11.9 percent are retired², and
- 7.3 percent are disabled.

Figure 2.15: Employment Situation for RCPs Not Currently Employed in Respiratory Care



² Note: This category includes only retirees who are maintaining an active license. Those who are officially classified in the retired status in the respiratory care licensing database were not included in the survey.

Figure 2.16: Overall Picture of Respiratory Care Employment Status, Including Location of Employment and Intentions Regarding Work in Respiratory Care for those Not Currently Employed in the Profession

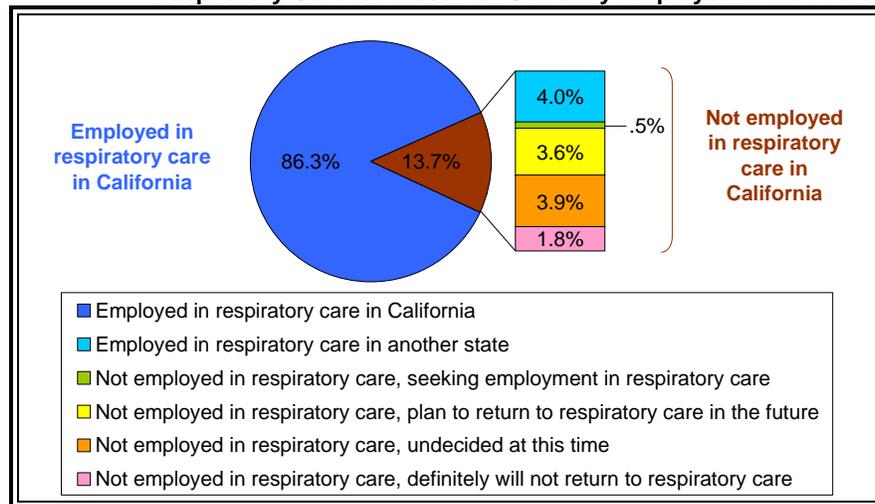


Table 2.11: Overall Picture of Respiratory Care Employment Status, Including Location of Employment and Intentions Regarding Work in Respiratory Care for those Not Currently Employed in the Profession

		Respondent Percent Distribution	Estimated Licensed Population
Currently employed in respiratory care	In California	86.3%	11,981
	In another state	4.0%	551
Currently not employed in respiratory care	Seeking employment in respiratory care	.5%	64
	Plan to return to respiratory care in the future	3.6%	493
	Undecided at this time regarding work in respiratory care	3.9%	546
	Definitely will not return to respiratory care	1.8%	249
Total		100.0%	13,884

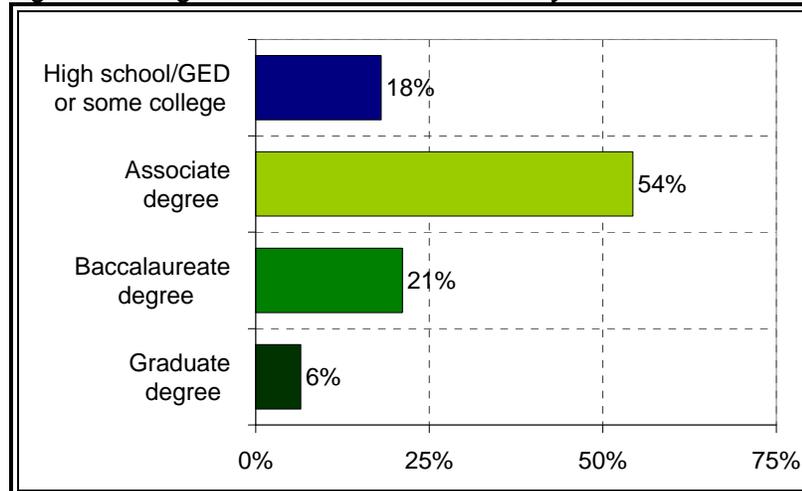
Key Finding

Under current conditions, the state effectively loses about 14 percent of its eligible workforce either because they are currently out of the workforce or because they work in another state. Within California, there are sizeable regional variations in the number of currently licensed RCPs, with the coastal population centers having many more in the profession. However, when “standardized” to the populations residing in those regions, the ratios of RCPs to population are remarkably similar. Finally, the age distribution of the RCP working population, coupled with the fact that such a large proportion of the workforce entered in the first two years of licensing suggests that a substantial portion of the workforce is likely to be leaving as this group “ages out” and enters retirement.

What does the educational background of current RCP licensees tell us?

Education of the Workforce. If we look at the education backgrounds of the current RCP workforce, we see that while slightly less than one-fifth have less than the two-year degree currently required, an even greater number have education preparation that exceeds the current requirements.

Figure 2.17: Highest Academic Level Attained by RCPs



- A little more than half (54%) of the RCPs responding to the survey had an Associate's Degree.
- Approximately 18 percent had some college or a high school education.
- About 21 percent had attained a Bachelor's degree.
- Six percent had completed a graduate degree at the Masters or Doctorate levels.
- About 23 percent of those responding indicated that they were currently pursuing a higher academic degree.

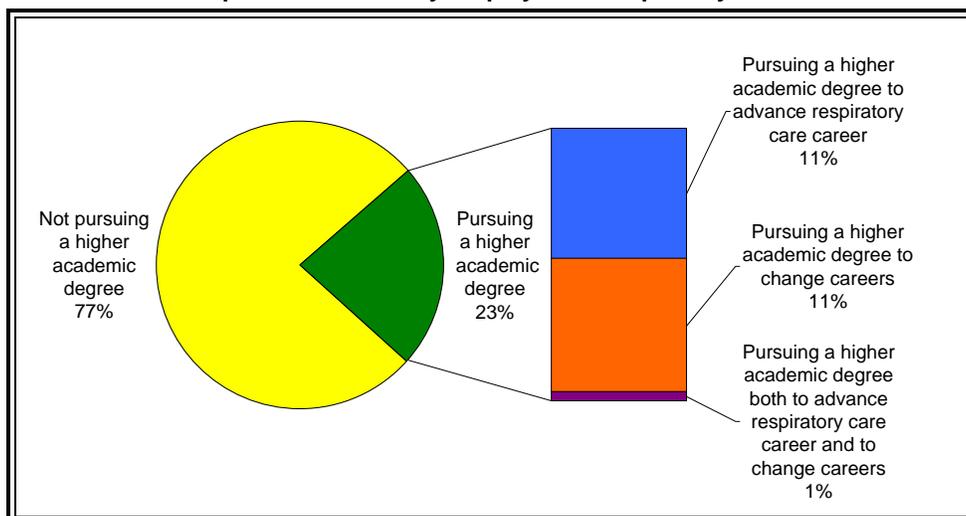
Due to the differential impact on the workforce between those working in respiratory care and those licensees not currently working in respiratory care, we decided to split the two groups for further analysis. As can be seen in Table 2.12, roughly 48 percent of those currently employed in respiratory care and pursuing a higher degree were doing so to advance their careers in respiratory care, while a nearly equal number were pursuing a higher degree to change careers. Ten percent noted they were doing it for both reasons (which may suggest they are open to whichever option provides them the best career opportunity).

Table 2.12: Reasons for Pursuing a Higher Academic Degree

	Currently employed in respiratory care		Not currently employed in respiratory care	
	Percent	Number of cases	Percent	Number of cases
Advance my respiratory care career	47.7%	163	23.3%	10
Change careers	49.4%	169	74.4%	32
Both (category added)	2.9%	10	2.3%	1
Total	100.0%	342	100.0%	43

Putting this into perspective, of the total licensees currently working in respiratory care, about 11 percent are pursuing a higher academic degree to move out of the respiratory care career path. An equal percentage stated that they are pursuing a more advanced degree to move ahead within the profession. While the pursuit of additional education to change careers does not imply that all 11 percent will be leaving respiratory care, it does suggest there is a significant group of RCPs currently working in respiratory care who are taking active measures with regard to a career change.

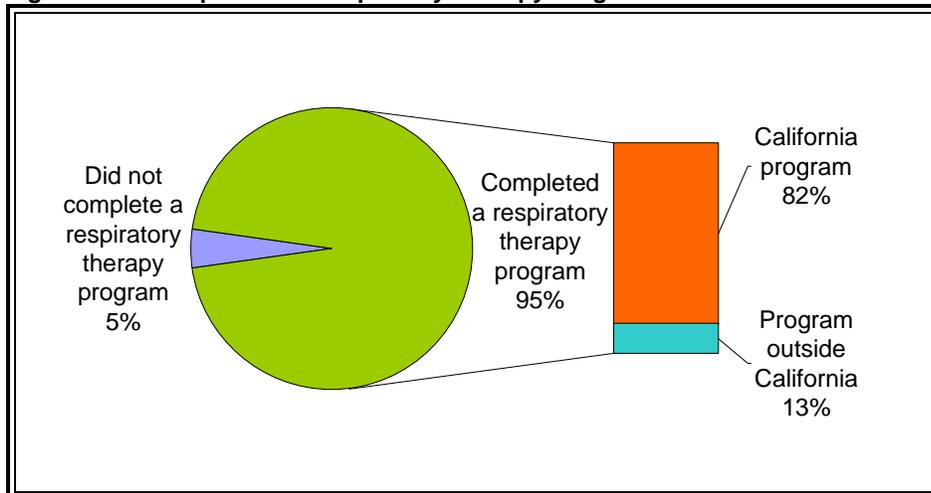
Figure 2.18: Reasons for Pursuing a Higher Academic Degree, for Respondents Currently Employed in Respiratory Care



Turning to the pursuit of education by those not currently working in respiratory care, we see about one-quarter (25.6%) of this group indicating they are pursuing a higher academic degree. Further, of this group of 43 individuals, ten (23.3%) indicate they are pursuing a higher academic degree to advance their respiratory care career, while 32 (74.4%) state they are pursuing education to change careers (one individual indicated that he/she was doing it for both reasons). With the exception of the one individual doing both, the latter finding suggests that a sizeable majority of those not currently working are pursuing education without any plans to return to respiratory care work.

About 95 percent of RCPs have completed a Respiratory Therapy education program, and about four out of five (82%) completed their Respiratory Therapy education in California.

Figure 2.19: Completion of Respiratory Therapy Program



When asked how well their education program prepared them, the overwhelming majority of RCPs said their education program prepared them “extremely well” (29%) or “well” (61%). By contrast, about 11 percent indicated that their education program had not adequately prepared them.

Figure 2.20: RCP Respondent Evaluation of Their Own Education Program

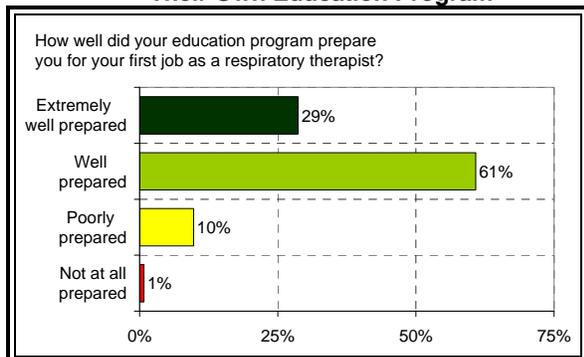
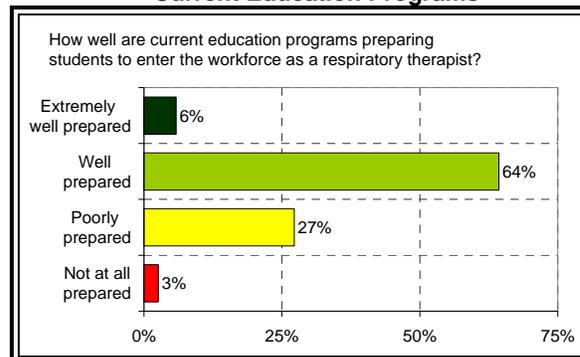


Figure 2.21: RCP Respondent Evaluation of Current Education Programs

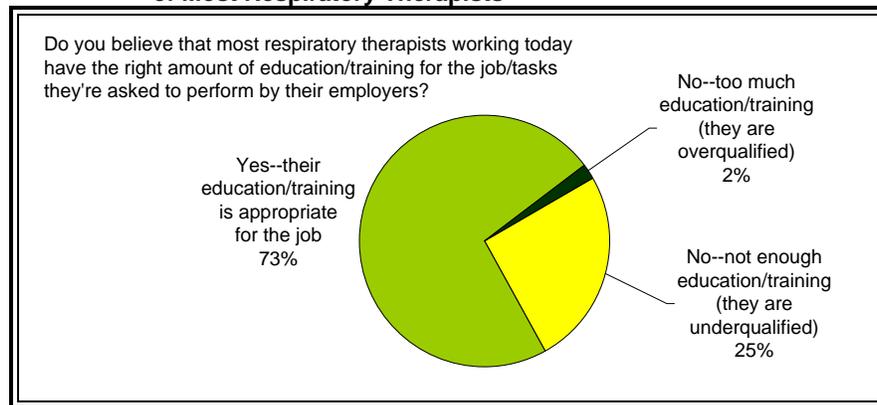


Interestingly, although strongly positive about their own educational preparation, RCPs were not as optimistic about how well current education programs were preparing students:

- Slightly more than 70 percent viewed current programs as preparing students as “extremely well” (5.8%) or “well” (64.3%),
- However, nearly 30 percent saw current programs as preparing students “poorly” (27.2%) or “not at all” (2.6%).

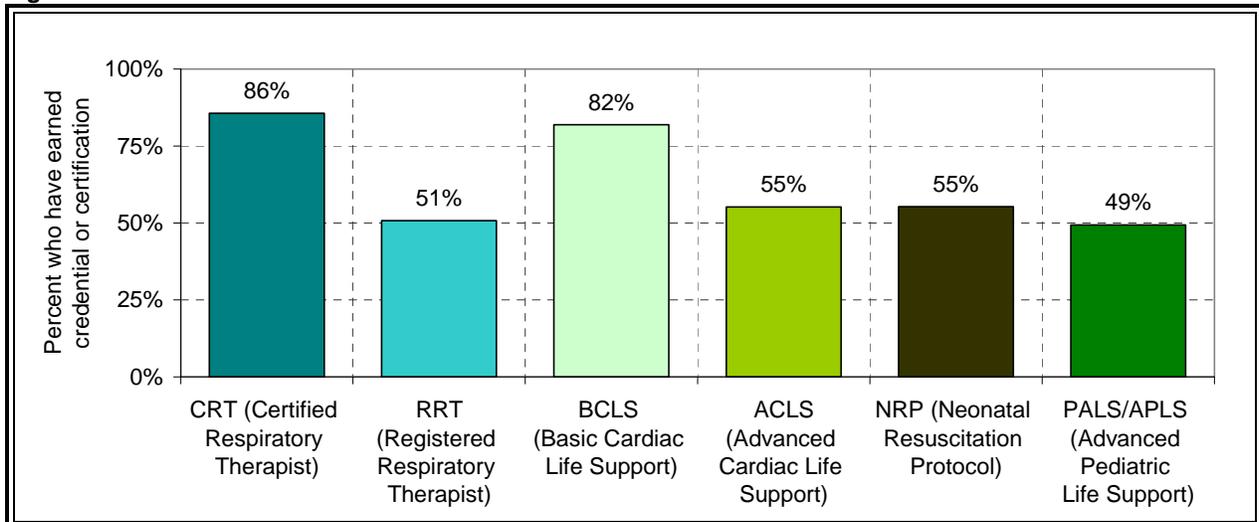
Reinforcing this somewhat negative view of the current educational preparation of RCPs, is the finding that slightly more than one-quarter (25.3%) of the respondents indicated that Respiratory Therapists did not have enough education/training (i.e., they are under qualified) in response to the question, “Do most Respiratory Therapists have the right amount of education/training of the respondents?” While it should be kept in mind that these are simply the perceptions of the RCP respondents and not necessarily the reality of the situation, the findings suggest that there is some concern among part of the RCP workforce about the level of preparation individuals are receiving for the job.

Figure 2.22: RCP Respondent Evaluation of Qualifications of Most Respiratory Therapists



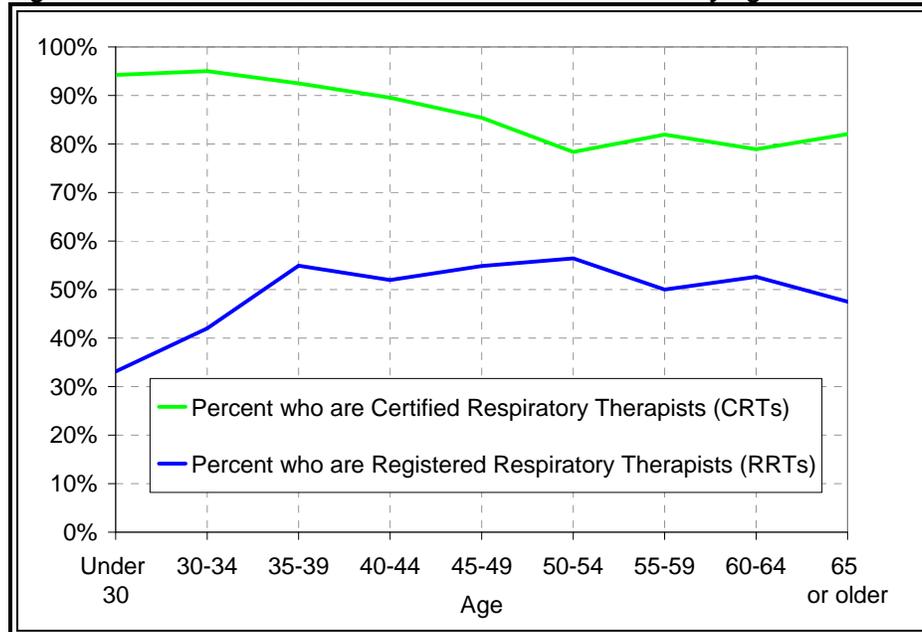
Credentials and Certifications. Respondents were asked to select the credentials and certifications they have earned from a list of 23 items. Two items of particular interest are the Certified Respiratory Therapist (CRT) and Registered Respiratory Therapist (RRT) credentials. Most RCPs (86%) have earned their CRT credential and just over half (51%) of all RCPs have earned their RRT credential.

Figure 2.23: Selected Credentials and Certifications Earned



The likelihood of having earned these credentials is related to RCP age, although the relationship is different for each. In general, the younger an RCP is, the more likely he/she is to have a CRT credential. More than nine out of ten RCPs under the age of 45 have their CRT. For the RRT credential the opposite is true, older RCPs are more likely to have their RRT than younger RCPs. Those between the ages of 35 and 54 are most likely to have their RRT credential.

Figure 2.24: Percent of RCPs with CRT and RRT Credentials by Age



Among the remaining items, four additional certifications are the clear leaders, being held by nearly half or more of all RCPs:

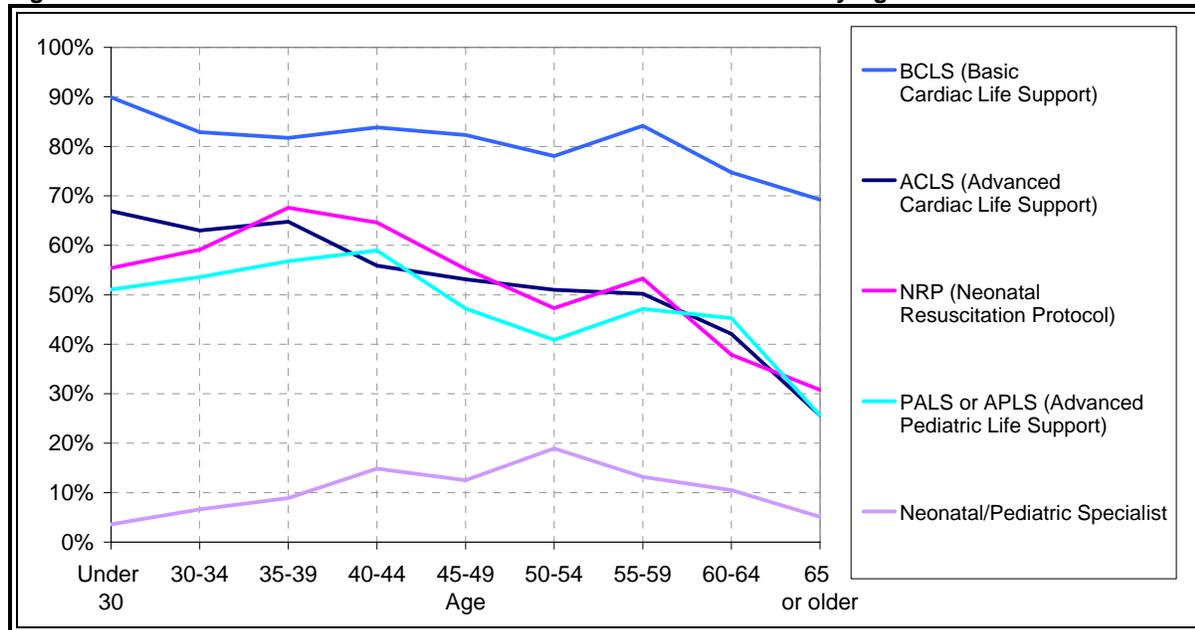
- 82 percent are certified in Basic Cardiac Life Support (BCLS)
- 55 percent are certified in Advanced Cardiac Life Support (ACLS)
- 55 percent are certified in Neonatal Resuscitation Protocol (NRP)
- 49 percent are certified in Advanced Pediatric Life Support (PALS or APLS)

A smaller group of RCPs—just 12 percent—have earned the Neonatal/Pediatric Specialist credential. There is a relationship between RCP age and the likelihood of earning these credentials and certifications. In general, younger RCPs are more likely to hold these certifications than older RCPs. The exception to this pattern is the Neonatal/Pediatric Care Specialist certification. This certification is more common among RCPs between the ages of 40 and 54.

In general there is little difference between the credentials and certifications held by those currently employed in respiratory care and those not currently employed in respiratory care. One interesting difference, however, is the fact that 12 percent of those not currently working in respiratory care are RNs, compared with just one percent

of those currently working in respiratory care. This underscores the frequency with which those who have left the profession (or are thinking of doing so) branch out into other health professions like nursing.

Figure 2.25: Percent of RCPs with Selected Certifications & Credentials by Age



It is also interesting to look at variations in credentialing and certification across work setting, job title and inpatient facility size, although the number of cases in many categories is very small, and should be interpreted with caution (See Tables 8-10).

- Nearly all RCPs working in accredited education programs have their RRT credential (95%).
- RCPs working in acute care hospitals are more likely to have their RRT credential (55%) than those in working in durable medical equipment, home care, long-term acute care, rehabilitation hospitals, sub-acute care or skilled nursing facilities (between 22 and 25%).
- RCPs who are Instructors, Educators, Directors, Managers, Supervisors and Clinical or Critical Care Specialists are also more likely to have their RRT credential than other RCPs.
- Three-fourths of Instructors and Educators have their RRT, and over half of Directors, Managers, Supervisors and Clinical or Critical Care Specialists have their RRT.
- RCPs in larger facilities are more likely to have their RRT credential than those in smaller facilities. More than two-thirds of RCPs in facilities with 400 or more beds have their RRT, compared with less than half of those (between 42 and 47%) working in facilities with fewer than 200 beds.

Table 2.13: Credentials and Certifications Earned by Work Setting

	Work Setting for Primary Respiratory Care Position							
	Acute care hospital	Durable medical equipment/home care	Long-term acute care/rehabilitation hospital/sub-acute care	Skilled nursing facility	Accredited education program	Manufacturer/distributor	Outpatient facility/physicians office	Other setting
CRT (Certified Respiratory Therapist)	86.5%	86.5%	89.7%	85.7%	89.5%	60.0%	78.6%	88.0%
RRT (Registered Respiratory Therapist)	54.5%	21.6%	24.7%	--	94.7%	100.0%	46.4%	44.0%
Neonatal/Pediatric Specialist	13.4%	8.1%	4.1%	--	21.1%	20.0%	10.7%	4.0%
CPFT (Certified Pulmonary Function Technologist)	5.1%	2.7%	4.1%	--	10.5%	--	14.3%	8.0%
RPFT (Registered Pulmonary Function Technologist)	1.8%	--	1.0%	--	5.3%	--	7.1%	4.0%
R.EEG.T (Registered EEG Technologist)	.2%	--	2.1%	--	--	--	--	--
R.EP.T (Registered Electrophysiology Technologist)	--	--	1.0%	--	--	--	--	--
RPSGT (Registered Polysomnographic Technologist)	.4%	--	1.0%	--	--	--	7.1%	8.0%
CHT (Certified Hyperbaric Technologist)	.3%	--	--	--	--	--	3.6%	--
AE-C (Certified Asthma Educator)	.7%	--	--	--	10.5%	--	10.7%	--
LVN (Licensed Vocational Nurse)	.9%	2.7%	2.1%	--	--	--	--	4.0%
RN (Registered Nurse)	1.1%	--	--	14.3%	--	--	--	8.0%
EMT (Emergency Medical Technician)	4.7%	5.4%	2.1%	28.6%	5.3%	--	--	12.0%
Paramedic	.5%	--	--	--	--	--	--	12.0%
CCT (Certified Cardiographic Technician)	.2%	--	1.0%	--	5.3%	--	--	--
CCM (Certified Case Manager)	--	--	--	--	--	--	3.6%	--
BCLS (Basic Cardiac Life Support)	84.6%	56.8%	74.2%	71.4%	94.7%	80.0%	78.6%	68.0%
ACLS (Advanced Cardiac Life Support)	55.6%	43.2%	45.4%	57.1%	73.7%	40.0%	64.3%	64.0%
PALS or APLS (Advanced Pediatric Life Support)	53.9%	29.7%	28.9%	57.1%	36.8%	80.0%	17.9%	36.0%
NRP (Neonatal Resuscitation Protocol)	61.1%	37.8%	22.7%	14.3%	63.2%	80.0%	21.4%	32.0%
BTLS (Basic Trauma Life Support)	4.7%	5.4%	5.2%	--	--	--	--	8.0%
S.T.A.B.L.E	6.7%	2.7%	1.0%	--	5.3%	--	3.6%	--
Other	5.8%	2.7%	4.1%	--	10.5%	--	10.7%	12.0%
Number of cases	1314	37	97	7	19	5	28	25

Table 2.14: Credentials and Certifications Earned by Job Title

	Job Title for Primary Respiratory Care Position									
	Director/ Manager	Super- visor	Clinical Specialist /Critical Care	General Staff Therapist	Sleep Diagnos- tic Tech- nologist	PFT Diagnos- tic Tech- nologist	Other Diagnos- tic Tech- nologist	Instructor/ Educator	Disease Manager/ Patient Educator	Other position
CRT (Certified Respiratory Therapist)	83.8%	79.1%	88.5%	89.1%	84.0%	79.6%	100.0%	78.0%	81.3%	79.2%
RRT (Registered Respiratory Therapist)	56.3%	61.7%	57.4%	45.8%	52.0%	50.0%	33.3%	75.6%	43.8%	50.0%
Neonatal/Pediatric Specialist	16.3%	13.0%	19.6%	8.5%	12.0%	5.6%	33.3%	12.2%	12.5%	16.7%
CPFT (Certified Pulmonary Function Technologist)	10.0%	6.1%	2.1%	3.1%	20.0%	31.5%	--	7.3%	6.3%	--
RPFT (Registered Pulmonary Function Technologist)	2.5%	3.5%	.5%	.5%	16.0%	14.8%	--	2.4%	6.3%	--
R.EEG.T (Registered EEG Technologist)	--	1.7%	--	.3%	--	--	33.3%	--	--	--
R.EP.T (Registered Electrophysiology Technologist)	--	--	.3%	--	--	--	--	--	--	--
RPSGT (Registered Polysomnographic Technologist)	2.5%	.9%	.5%	--	20.0%	--	--	--	--	--
CHT (Certified Hyperbaric Technologist)	1.3%	--	.3%	.3%	--	--	--	--	--	4.2%
AE-C (Certified Asthma Educator)	--	1.7%	.8%	.3%	--	3.7%	--	4.9%	12.5%	--
LVN (Licensed Vocational Nurse)	--	--	.8%	1.2%	--	1.9%	--	--	6.3%	4.2%
RN (Registered Nurse)	1.3%	1.7%	.5%	1.2%	8.0%	--	--	2.4%	6.3%	--
EMT (Emergency Medical Technician)	5.0%	7.8%	5.2%	4.9%	--	--	33.3%	2.4%	6.3%	4.2%
Paramedic	1.3%	1.7%	1.3%	.1%	--	--	--	--	--	4.2%
CCT (Certified Cardiographic Technician)	1.3%	--	.3%	.3%	--	--	--	--	--	--
CCM (Certified Case Manager)	--	--	--	--	--	--	--	--	6.3%	--
BCLS (Basic Cardiac Life Support)	80.0%	87.0%	85.4%	82.8%	72.0%	83.3%	100.0%	82.9%	100.0%	70.8%
ACLS (Advanced Cardiac Life Support)	60.0%	62.6%	54.8%	55.4%	44.0%	55.6%	66.7%	53.7%	81.3%	45.8%
PALS or APLS (Advanced Pediatric Life Support)	36.3%	56.5%	59.0%	50.1%	36.0%	51.9%	33.3%	34.1%	37.5%	50.0%
NRP (Neonatal Resuscitation Protocol)	47.5%	65.2%	65.3%	56.4%	16.0%	46.3%	100.0%	58.5%	37.5%	45.8%
BTLS (Basic Trauma Life Support)	8.8%	8.7%	5.2%	3.6%	4.0%	1.9%	--	--	6.3%	8.3%
S.T.A.B.L.E	7.5%	7.8%	9.1%	4.6%	--	9.3%	--	--	--	4.2%
Other	8.8%	10.4%	5.2%	4.9%	8.0%	7.4%	--	4.9%	6.3%	12.5%
Number of cases	80	115	383	780	25	54	3	41	16	24

Table 2.15: Credentials and Certifications Earned by Inpatient Facility Size

	Number of Beds in Inpatient Facility							
	Fewer than 50 beds	50-99 beds	100-199 beds	200-299 beds	300-399 beds	400-499 beds	500-599 beds	600 or more beds
CRT (Certified Respiratory Therapist)	78.7%	88.6%	88.3%	84.7%	89.3%	81.6%	83.3%	88.2%
RRT (Registered Respiratory Therapist)	46.8%	42.0%	44.9%	59.4%	53.4%	69.6%	73.8%	67.6%
Neonatal/Pediatric Specialist	10.6%	9.1%	8.4%	18.8%	16.0%	12.8%	16.7%	11.8%
CPFT (Certified Pulmonary Function Technologist)	10.6%	8.0%	6.9%	2.6%	6.0%	4.8%	4.8%	1.5%
RPFT (Registered Pulmonary Function Technologist)	2.1%	3.4%	2.9%	1.0%	1.8%	.8%	2.4%	1.5%
R.EEG.T (Registered EEG Technologist)	--	--	.4%	.3%	--	--	--	1.5%
R.EP.T (Registered Electrophysiology Technologist)	--	--	--	--	--	--	--	--
RPSGT (Registered Polysomnographic Technologist)	--	1.1%	.7%	.3%	.4%	--	--	--
CHT (Certified Hyperbaric Technologist)	--	--	--	--	.7%	--	2.4%	1.5%
AE-C (Certified Asthma Educator)	--	--	--	--	1.4%	1.6%	--	1.5%
LVN (Licensed Vocational Nurse)	--	1.1%	1.1%	.3%	1.1%	.8%	--	4.4%
RN (Registered Nurse)	--	1.1%	1.5%	1.6%	1.1%	1.6%	--	--
EMT (Emergency Medical Technician)	4.3%	1.1%	5.1%	4.5%	5.7%	5.6%	4.8%	5.9%
Paramedic	--	--	.7%	.6%	.7%	--	--	1.5%
CCT (Certified Cardiographic Technician)	--	--	.4%	--	.4%	--	--	--
CCM (Certified Case Manager)	--	--	--	--	--	--	--	--
BCLS (Basic Cardiac Life Support)	83.0%	84.1%	85.0%	83.4%	84.3%	87.2%	97.6%	77.9%
ACLS (Advanced Cardiac Life Support)	61.7%	65.9%	58.0%	49.5%	56.6%	56.8%	57.1%	47.1%
PALS or APLS (Advanced Pediatric Life Support)	61.7%	52.3%	58.8%	53.7%	48.8%	57.6%	47.6%	47.1%
NRP (Neonatal Resuscitation Protocol)	76.6%	65.9%	66.8%	60.1%	60.9%	57.6%	52.4%	41.2%
BTLS (Basic Trauma Life Support)	4.3%	5.7%	3.6%	3.8%	5.3%	8.8%	2.4%	4.4%
S.T.A.B.L.E	14.9%	3.4%	8.0%	6.7%	5.7%	8.0%	9.5%	2.9%
Other	--	3.4%	8.8%	6.7%	4.3%	4.0%	4.8%	4.4%
Number of cases	47	88	274	313	281	125	42	68

Key Findings

Eighty-two percent of RCPs have met or exceeded the current educational two-year degree requirement. A little more than one-half of the RCPs have earned an Associate degree and a sizeable portion have gone beyond this with Bachelor's degrees (21%) or even Master's or Doctoral degrees (6.5%). Further, about one-quarter (23%) of the currently working RCPs are pursuing more education; however, about half of these individuals are doing so to change career paths.

About 95 percent of current RCPs have completed a Respiratory Therapy education program and the overwhelming majority (83%) believe their education gave them good preparation for the work they do. Interestingly, however, about 30 percent believe current education programs are not preparing students well, and about one-quarter indicate that Respiratory Therapists are not getting the needed level of education and training.

Eighty-six percent of the RCPs have earned their CRT credential, and just over half have obtained the RRT credential. Generally, the older RCPs have earned the RRT while younger workers are most likely to hold the CRT credential. Larger facilities are more likely to have greater percentages of RRT credentials than small ones. Beyond the CRT and RRT credentials, the most popular certification areas were those dealing with cardiac life support (BCLS, ACLS), advanced pediatric life support (PALS, APLS), neonatal resuscitation (NRP), and neonatal/pediatric specialist. There was little difference between those working in respiratory care and those not, except those not working were about 12 times more likely to be RNs. This lends support to the notion that those leaving the profession may be moving into other health care professions.

A Picture of the RCP Workplace

Where are RCPs employed?

Employment Setting. As can be seen in Table 2.16, the vast majority (86%) of currently employed RCPs indicated they work in acute care hospital settings. However, additional analysis of the places where RCPs are assigned suggests that these workplaces may be health care complexes where part of the facility may be dedicated to sub-acute care (such as long-term care or rehabilitation) as well as typical acute care units such as ICU or neonatal. Indeed, it was difficult disentangling the responses regarding the work setting, particularly because of those individuals who selected two or three work settings for their primary respiratory care position. In other words, the notion that an RCP works in one place for his/her primary position, then works at another if he/she happens to hold a second job probably does not accurately portray the range of work settings. Rather, many individuals work at more than one distinctive work setting within a principal job.

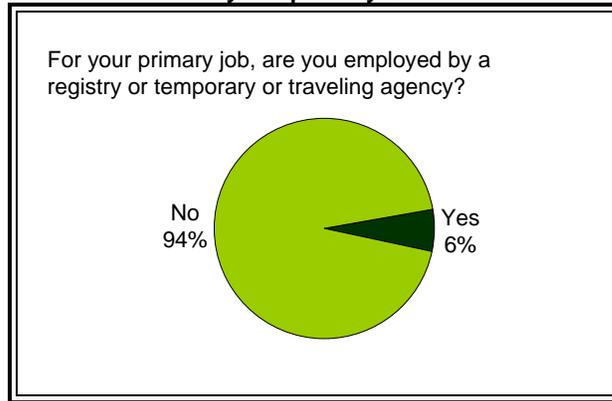
Table 2.16: Work Setting for Primary Respiratory Care Position

	Percent	Number of cases
Acute care hospital	86.1%	1,325
Durable medical equipment/home care	2.3%	36
Long-term acute care/rehabilitation hospital/sub-acute care	6.2%	96
Skilled nursing facility	.4%	7
Accredited education program	1.2%	19
Manufacturer/distributor	.3%	5
Outpatient facility/physicians office	1.8%	28
Other setting*	1.6%	25
Total	100.0%	1,540

* Includes Sleep Medicine, Transport, Research and Disaster Preparedness.

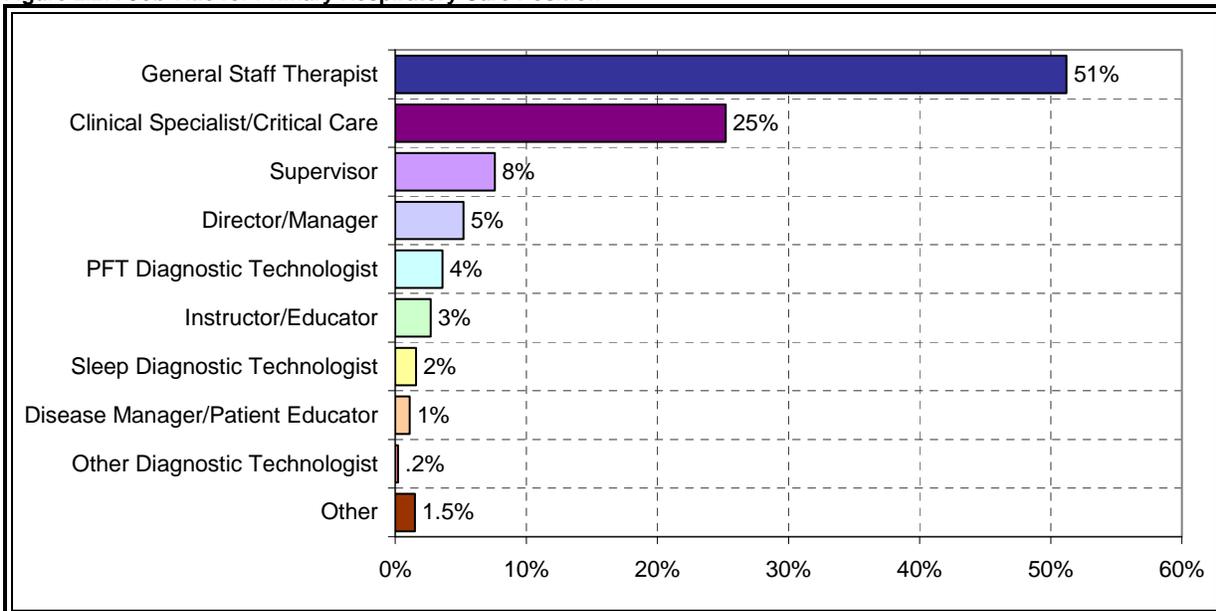
Registry/Agency Employment. Respondents were asked whether, for their primary position, they were employed by a registry or temporary or traveling agency. Six percent of respondents reported being employed by a registry or agency. Registry and agency employment is concentrated primarily in acute care hospitals: 6.6 percent of RCPs in acute care hospitals are registry or agency employees. Given the increasingly high-profile of registry and agency RCPs, this percentage was lower than expected. It is consistent, however, with findings from the acute care hospital employer survey—acute care hospital employers reported that eight percent of their FTEs were filled by registry or agency staff.

Figure 2.26: Registry/Agency Employment for Primary Respiratory Care Position



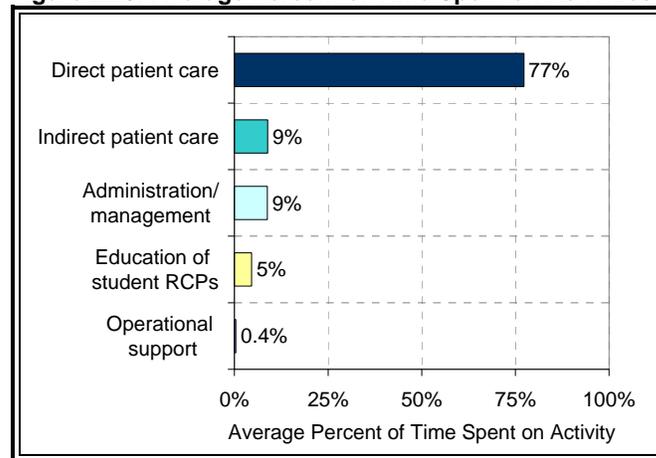
RCP Position Categories. Survey respondents were asked to select one of eight different categories (an “other” category was also provided) that best described the individual’s job title. Figure 2.27 shows the distribution of job titles for respondents’ primary respiratory care position. Most positions were clustered in four categories, with the largest group—51 percent—in the General Staff Therapist category. Twenty-five percent chose Clinical Specialist/Critical Care, eight percent selected Supervisor, and five percent selected Director/Manager.

Figure 2.27: Job Title for Primary Respiratory Care Position



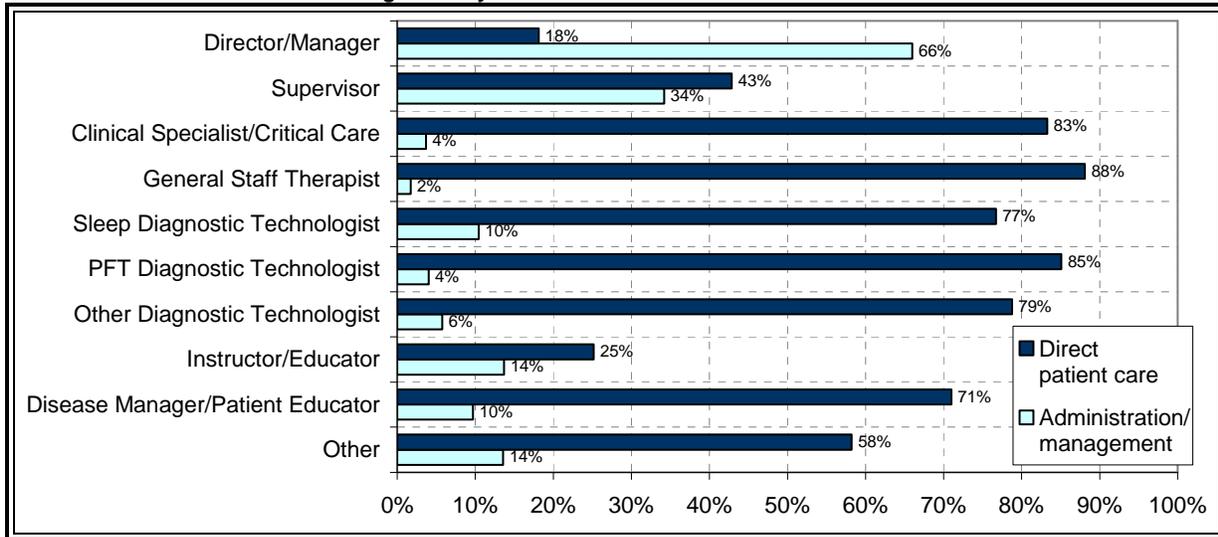
Distribution of Time across Activity Categories. Respondents were asked to describe, for their primary job, the approximate percentage of their time during a typical week spent on four categories of tasks (administration/management, direct patient care, indirect patient care, and education of student RCPs). Space was provided on the survey form for respondents to write-in other activities not included in these categories. These descriptions were reviewed, and when necessary, reallocated to the appropriate category (for example, meetings were included in administration/management, charting under direct patient care). An additional category was added to include the operational support activities described by respondents, such as troubleshooting computers, equipment maintenance and cleaning, and stocking supplies. Figure 2.28 shows that respondents reported spending by far most of their time (77%) on direct patient care. Nine percent of their time was spent on indirect patient care, and nine percent was spent on administrative and management activities. Five percent of their time was spent educating student RCPs. Five percent of their time was spent educating student RCPs. Five percent of their time was spent educating student RCPs. Five percent of their time was spent educating student RCPs.

Figure 2.28: Average Percent of Time Spent on Activities



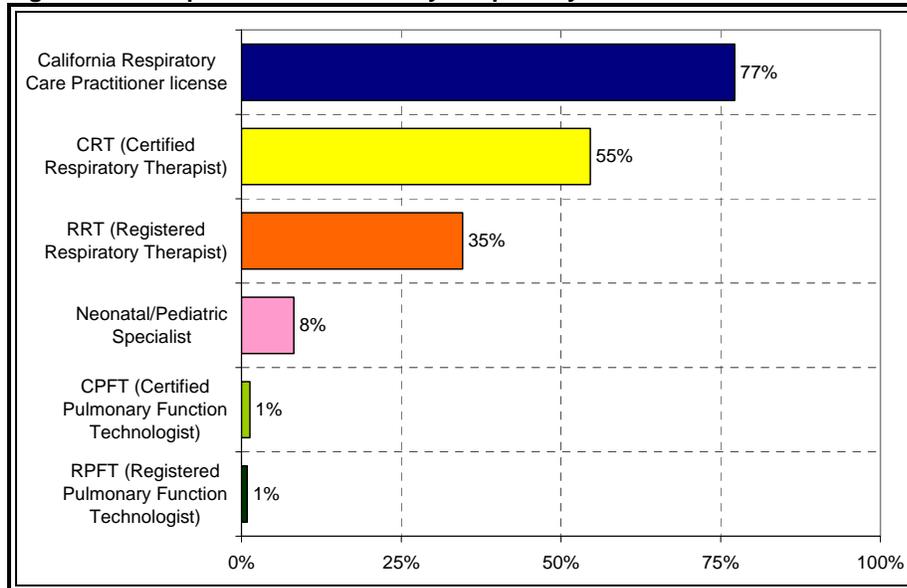
As would be expected, the distribution of time varies for RCPs in different positions. Directors and Managers spent most of their time on administration and management (66%) and relatively little on direct patient care (18%). Supervisors spent 43 percent of their time on direct patient care and 34 percent on administration and management. General Staff Therapists spent more of their time (88%) on direct patient care than any other position category.

Figure 2.29: Average Percent of Time Spent on Direct Patient Care and Administration/Management by Position



Job Requirements for Primary Respiratory Position. Respondents were asked to indicate the qualifications required for their primary job. Seventy-seven percent of respondents indicated that their position required a California RCP license.³ Fifty-five percent of respondents reported that the CRT was required for their job, and 35 percent of respondents said the RRT was required.

Figure 2.30: Requirements for Primary Respiratory Care Position



³ It should be noted that these responses describe survey information and in some cases may not reflect actual job requirements. The number of respondents who failed to report that their position required a California RCP license was puzzling. Analysis of these positions showed that many positions not requiring a California RCP license were located out of state, others were higher-level administrative positions, and still others were in manufacturing or distributing settings. However, even after taking these factors into account, it appears that some respondents' recollection of their position requirements was not entirely accurate.

Facility Size. Respondents whose primary work setting was an inpatient facility were asked to describe the number of beds in the facility. The distribution of facility size for RCP work setting varies depending on the type of facility. RCPs in acute care hospitals were much more likely to work in larger facilities than RCPs working in long-term acute care, rehabilitation hospitals, sub-acute care or skilled nursing facilities. Seventy percent of RCPs working in acute care hospitals were employed by facilities with between 100 and 400 beds. In contrast, 45 percent of RCPs working in long-term acute care, rehabilitation hospitals, sub-acute care or skilled nursing facilities were employed by facilities with fewer than 100 beds.

Figure 2.31: Number of Beds in Primary Work Setting by Facility Type

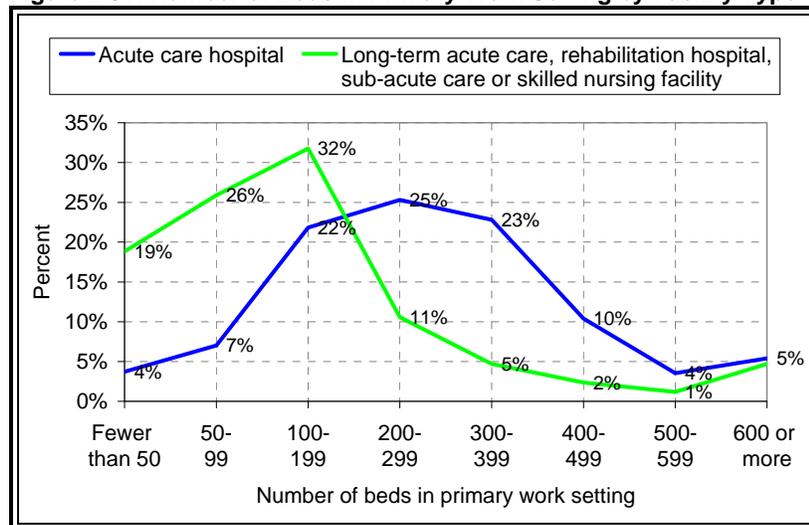
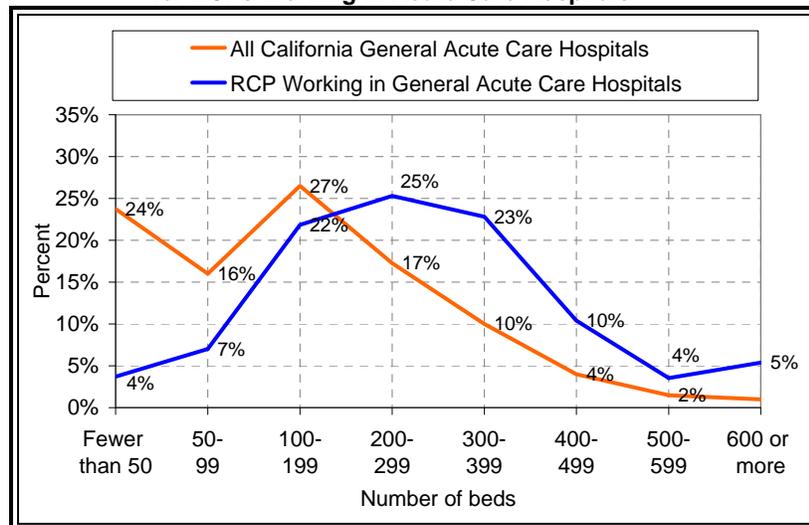


Figure 2.32: Comparison of the Distribution of the Number of Beds for All California General Acute Care Hospitals and for RCPs Working in Acute Care Hospitals*

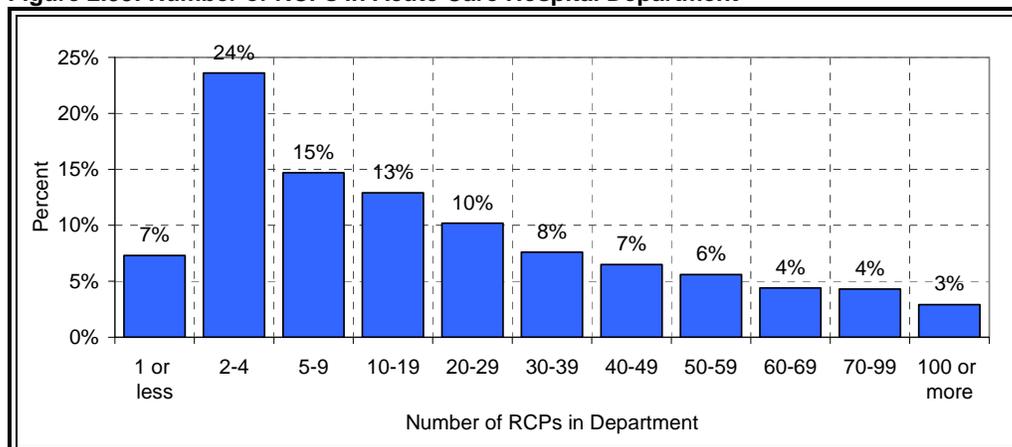


* Source: Office of Statewide Health Planning and Development (OSHPD) Healthcare Information Resource Center, State Utilization Data File of Hospitals for Calendar Year 2005. Distribution includes all 400 open hospitals.

Comparing the distribution of all acute care hospitals in California with the distribution for RCPs working in hospitals suggests that RCPs were disproportionately concentrated in hospitals with 200 or more beds. Figure 2.32 displays information for the State Utilization Data File of Hospitals for Calendar Year 2005 from the Office of Statewide Health Planning and Development (OSHPD) Healthcare Information Resource Center. Twenty-four percent of California's open hospitals in 2005 had fewer than 50 beds. In contrast, only four percent of RCPs worked in hospitals with fewer than 50 beds. The gap between hospitals and RCPs narrows as facility size increases to 100 to 199 beds, with more equal percentages of hospitals and RCPs working in hospitals (27% and 22% respectively). After that, the gap widens in the opposite direction, with a disproportionate number of RCPs working in hospitals with 200 to 399 beds.

Number of RCPs in Acute Care Hospital Department/Units. Respondents whose primary work setting was an acute care hospital were asked how many respiratory care practitioners were in the department or unit where they typically spend most of their time. Responses ranged from one to more than 100. Close to half of RCPs (46%) were in units with less than ten RCPs. The most common category, with almost one-fourth of respondents (24%), was units with between two and four RCPs.

Figure 2.33: Number of RCPs in Acute Care Hospital Department



The number of RCPs working in a department is related to some extent to the overall size of the hospital. RCPs working in hospitals with fewer than 100 beds rarely reported working in a department with more than 20 RCPs. And only among respondents working in the largest hospitals, with 500 beds or more, did a significant number report working in units with 70 or more RCPs. However, because the number of RCPs in a unit is so heavily influenced by the type of care provided in that unit, a significant number of respondents in large hospitals also reported working in units with between two and four RCPs. Unfortunately, because most respondents (74%) reported being assigned to multiple units, it is impractical to incorporate the type of unit into the analysis.

Table 2.17: Number of RCPs in Respondent's Acute Care Hospital Department/Unit by Facility Size

Number of RCPs in acute care hospitals department/unit	Number of beds in facility							
	Fewer than 50 beds	50-99 beds	100-199 beds	200-299 beds	300-399 beds	400-499 beds	500-599 beds	600 or more beds
1 or less	28.6%	8.2%	9.7%	7.3%	4.5%	5.0%	5.1%	1.6%
2-4	28.6%	32.9%	29.6%	20.3%	19.7%	19.8%	30.8%	11.1%
5-9	26.2%	22.4%	8.9%	15.0%	17.8%	14.9%	2.6%	15.9%
10-19	16.7%	20.0%	18.6%	9.8%	11.0%	6.6%	12.8%	7.9%
20-29	--	11.8%	16.2%	12.6%	4.9%	9.1%	5.1%	12.7%
30-39	--	2.4%	7.7%	9.1%	10.2%	7.4%	2.6%	3.2%
40-49	--	2.4%	2.4%	9.1%	9.5%	11.6%	5.1%	1.6%
50-59	--	--	2.8%	7.3%	6.8%	9.1%	5.1%	4.8%
60-69	--	--	2.8%	4.9%	9.1%	4.1%	7.7%	--
70-99	--	--	.4%	3.1%	6.1%	8.3%	20.5%	7.9%
100 or more	--	--	.8%	1.4%	.4%	4.1%	2.6%	33.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Number of cases	42	85	247	286	264	121	39	63

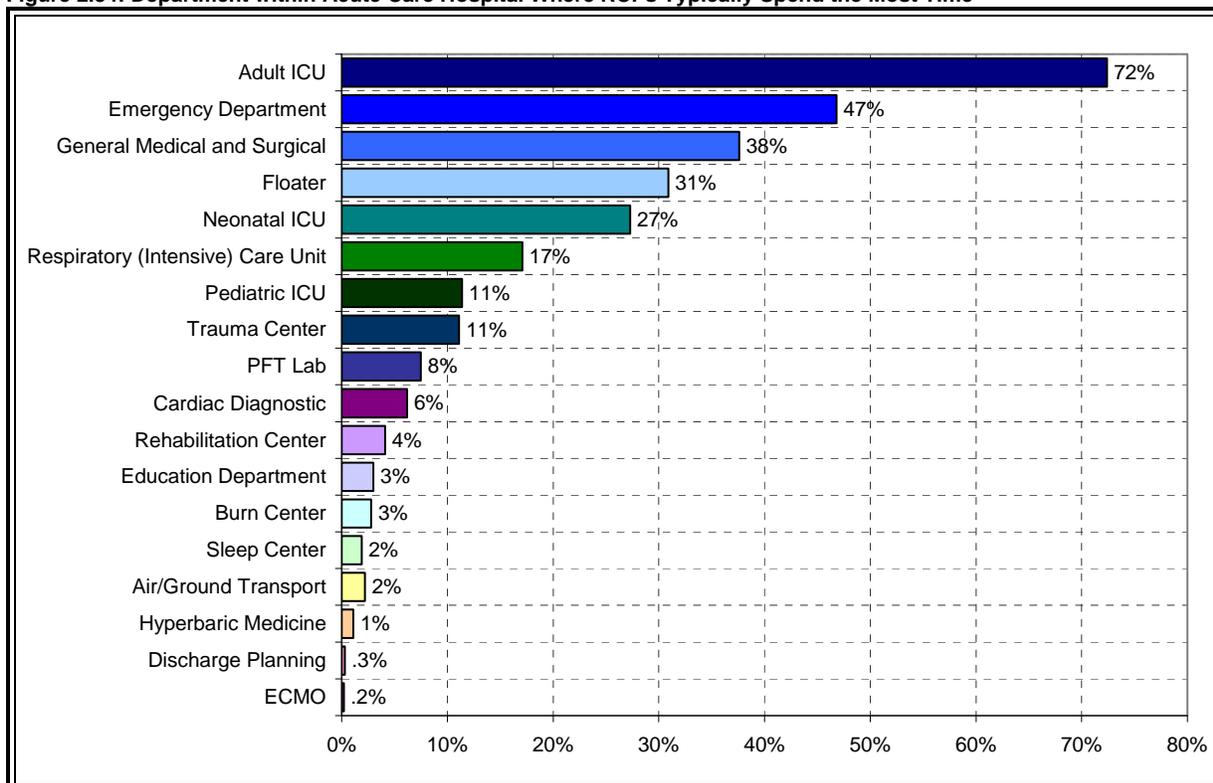
Facility Size and Positions. As shown in Table 2.18, there is surprisingly little difference among the various sized institutions with regard to the percentages of the various positions utilized. With the exception of small facilities (those with fewer than 50 beds), which appear to have a larger proportion of staff dedicated to Director or Manager positions (11%), most all facilities have between 75 and 85 percent of their staff positions committed to either Clinical Specialists/Critical Care or General Staff Therapist positions. In all facilities, the portion of General Staff Therapist positions usually runs 25 to 30 percent higher than the Clinical Specialists/Critical Care positions. Although, as the hospital facility grows larger, the portion of the staff identified as Clinical Specialists/Critical Care positions get larger. This is likely due to the greater specialization of units that occurs in the larger facilities. The notable exception to this in the survey data was the facilities that were 500 to 599 beds, which displayed a smaller portion of Clinical Specialists/Critical Care positions (23%) than all other sized facilities except the smallest sized facility group—facilities with less than 50 beds—which had a similarly sized portion of identified staff in this group.

Table 2.18: Job Title by Inpatient Facility Size

	Inpatient Facility Size							
	Fewer than 50 beds	50-99 beds	100-199 beds	200-299 beds	300-399 beds	400-499 beds	500-599 beds	600 or more beds
Director/Manager	10.6%	6.0%	4.5%	3.5%	2.1%	4.7%	2.3%	4.5%
Supervisor	4.3%	6.0%	8.2%	7.3%	8.1%	7.1%	11.6%	6.1%
Clinical Specialist/Critical Care	23.4%	23.8%	20.5%	26.7%	34.3%	32.3%	23.3%	45.5%
General Staff Therapist	48.9%	53.6%	57.1%	55.2%	50.2%	52.0%	60.5%	36.4%
Sleep Diagnostic Technologist	--	2.4%	1.5%	.3%	1.1%	--	--	1.5%
PFT Diagnostic Technologist	8.5%	4.8%	5.6%	3.2%	2.5%	.8%	--	1.5%
Other Diagnostic Technologist	--	1.2%	.4%	--	--	--	--	1.5%
Instructor/Educator	--	1.2%	1.5%	1.6%	1.1%	.8%	--	--
Disease Manager/Patient Educator	--	1.2%	--	1.3%	.7%	1.6%	--	--
Other	4.3%	--	.7%	1.0%	--	.8%	2.3%	3.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Number of cases	47	84	268	315	283	127	43	66

Acute Care Hospital Department/Unit Assignments. Respondents whose primary work setting was an acute care hospital were asked to indicate the type of department or unit where they typically spend most of their time. If respondents spent equal amounts of time in more than one type of department or unit, they were instructed to select more than one category. The Adult ICU was by far the most frequent assignment. Seventy-two percent of RCPs in acute care hospitals reported spending a significant portion of their time assigned to the Adult ICU. The Emergency Department was the next most common assignment, with 47 percent of respondents spending a significant part of their time there.

Figure 2.34: Department within Acute Care Hospital Where RCPs Typically Spend the Most Time



In addition to the eighteen units shown in Figure 2.34, space was also provided on the survey form for respondents to write-in other department or units where they were assigned. Eleven percent of respondents described assignments to other types of units. The most frequently mentioned were Labor and Delivery, Pediatric Unit, Bronchoscopy Lab, ABG Lab, Pulmonary Rehabilitation Department, and Sub-Acute Units.

Table 2.19 shows the number of departments or units where RCPs reported spending most of their time. Assignment to one or two departments or units was far less common than expected. Just 26 percent of RCPs working in acute care hospitals were assigned to one department or unit. Twenty percent were assigned to two units. This means that slightly over half (53%) of RCPs in acute care hospitals are assigned to three or more units. Since a distinct category was included for floaters (31% of respondents selected this assignment), this distribution actually understates to some degree the diversity of assignments for most RCPs in acute care hospitals.

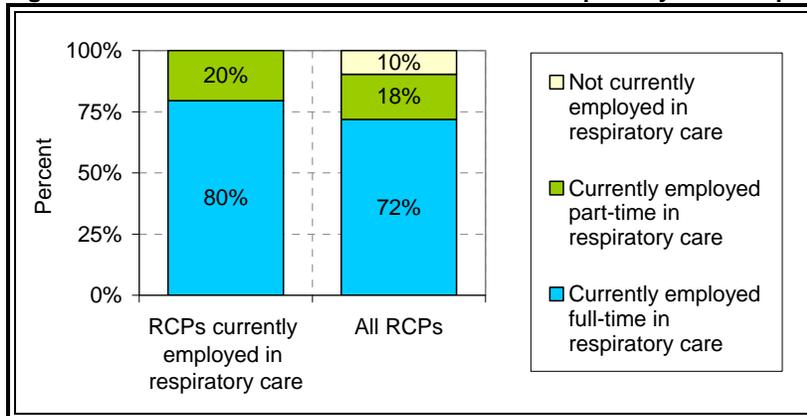
Table 2.19: Number of Acute Care Hospital Department/Units to which RCPs are Assigned

	Percent	Number of cases
One	26%	345
Two	20%	262
Three	20%	262
Four	16%	209
Five	10%	127
Six or more	9%	119
Total	100%	1,324

How do the hours and schedules affect the workforce?

Eighty percent of RCPs employed in respiratory care were working full-time; twenty percent were working part-time. In terms of the total potential workforce, 72 percent of licensees were employed full-time in respiratory care, 18 percent were employed part-time in respiratory care, and ten percent were not currently employed in respiratory care.

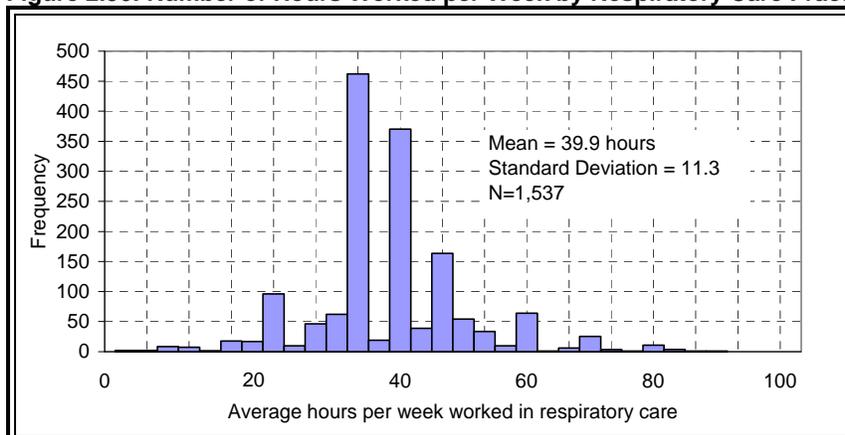
Figure 2.35: Distribution of Full- and Part-Time Respiratory Care Employment



The Interaction of Hours and Schedules. As with other health care professions, particularly in acute care settings, respiratory care must be provided on a continuous 24 hour, seven days per week basis. This means that RCPs work in a world of shifts and a world where weekends and holidays often are part of the normal work schedule. As displayed in Figure 2.36, there was a wide range of hours worked although the average number of hours worked per week was about 40.

- About 68 percent of those currently employed in respiratory care work between 28.5 hours and 51.1 hours per week
 - About one-third (33%) of the RCPs work within a range of 30 to 39 hours
 - Another one-third (33%) work 40 to 49 hours per week.

Figure 2.36: Number of Hours Worked per Week by Respiratory Care Practitioners



As would be expected, the number of jobs that the RCP holds affects the total number of hours he/she works in a week.

- For those holding one position (78% of those working) the average work week is about 38 hours,
- For those holding two positions (20% of those working) the average goes to about 46.5 hours per week,
- For those with three or more positions (a little more than 2% of those working) the average climbs to just under 51 hours per week.

Figure 2.37: Number of Respiratory Care Positions Currently Held

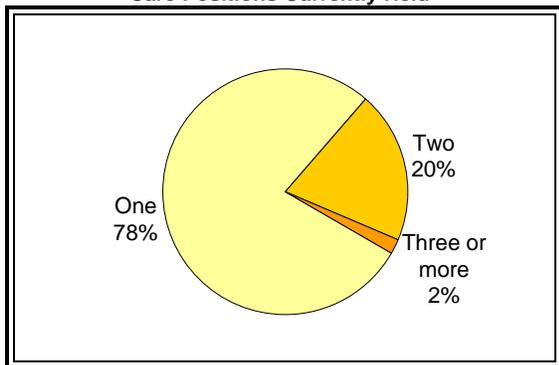


Figure 2.38: Mean Weekly Work Hours by Number of Respiratory Care Positions

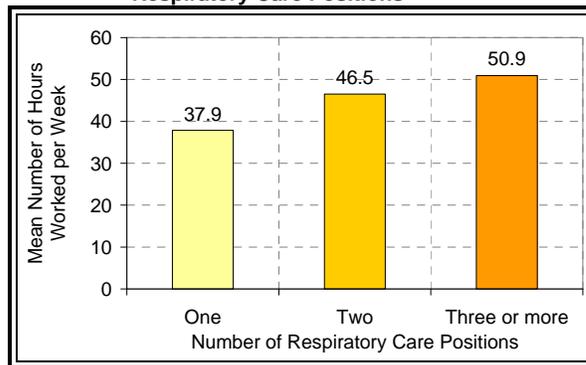
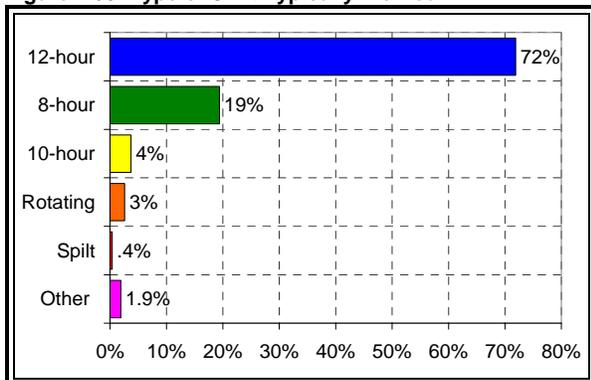


Figure 2.39: Type of Shift Typically Worked



Some interesting patterns emerged from a more in depth review of hours and schedules. The vast majority of those working in respiratory care (for all respiratory jobs) were working 12-hour shifts (72%). The second largest group of RCPs (19%) were working 8-hour shifts. A small percentage (4%) were working 10-hour shifts and another small group (3%) were on rotating shift schedules. The remaining group (.4%) of RCPs said they were on split shifts or on some other type of shift schedule (2%). When we look at the average number of hours worked by these shift groups, we see a statistically significant difference between the groups with regard to the number of average hours they work. As seen in Table 2.20, of those with identified shift patterns/lengths, individuals on rotating shifts worked, on average, the smallest number of hours per week (37.91) while those working 10-hour shifts worked the most (41.79).

The largest shift group, those working 12-hour shifts, worked a little more than forty hours (40.58) per week. Further, when we looked at the differences between RCPs who work as registry, temporary or traveler employees, and those who are regular employees, we saw no significant differences between the employee category and the number of hours worked (38.7 average hours per week for those working registry, temporary or traveler positions versus 40.0 for those working regular positions). It is worth noting that RCPs paid on an hourly basis (roughly 89.5% of the RCPs) work, on average, about 5.4 hours less per week than those RCPs (9.8% of the RCPs) paid a salary.

Table 2.20: Average Work Hours per Week by Type of Shift Typically Worked

	Mean	Standard Deviation	Number of cases
8-hour	37.91	11.32	294
10-hour	41.79	7.20	57
12-hour	40.58	10.98	1,101
Rotating (for example 8-hour/12-hour)	37.08	12.64	40
Spilt (for example 3-hour/4-hour)	40.56	19.08	7
Other shift	34.02	15.83	29
Total	39.90	11.20	1,529

Key Finding

Findings suggest that despite the 24-7 nature of respiratory care work and perceived staffing shortages, the majority of RCPs are not experiencing workweeks that differ substantially from the common standard of the 40-hour workweek. Moreover, there doesn't seem to be a significant difference in terms of the average hourly workweek between those who are in regular positions and those in registry, temporary, or traveler type positions.

Base, Differential and Overtime Hours and Rates. Respondents were asked to describe the number of hours they worked each week and their hourly pay rates in four different pay categories: base, differential, overtime, and on-call. They were asked to provide this information for each of their current respiratory care jobs. If they currently held more than three respiratory care positions, they were asked to provide information for the three respiratory care jobs where they spend the most time. Salaried employees were instructed to convert their salary to an hourly rate.

There are several factors that should be considered in evaluating the survey findings on hours and hourly pay by pay category. In general, this topic proved to be more complex than originally anticipated. A number of respondents called the toll-free study assistance line with questions on this section of the survey or wrote in notes describing the difficulty they were encountering in trying to describe their hours and rates. One respondent actually included part of his/her check stub along with the completed survey and wrote “if you can figure this out, congrats!” This respondent’s check stub included six different pay rates: a regular rate, three types of overtime, a weekend shift differential, and a lump sum payment for working an extra shift.

Another complicating factor was the use of “blended” rates for 10 and 12-hour shifts. Some employers use these blended rates instead of traditional base and overtime rates. Designed to simplify some of the problems described in the previous paragraph, this approach pays a single rate for an entire shift that is higher than the base rate, but lower than a straight overtime rate. Since the survey form did not provide respondents with directions on how to handle this situation, there is an unknown amount of measurement error in these items.

Consistent reporting of on-call hours also was problematic for the relatively small group of RCPs paid to be on-call (just under 6% of respondents reported being paid for on-call hours). The primary difficulty here is one of distinguishing pay and hours for *being on call* from working *after being called in*. In light of this, a decision was made to limit the evaluation of how hours are distributed across settings and pay rates to base, differential and overtime hours.

Given these qualifications, responses on this topic provide a rich source of data. Most widely available data on pay and hours in respiratory care (for example, from the Bureau of Labor Statistics and the California Employment Development Department) simply describe the number of positions in various sectors and the average pay rates for these positions, but do not include information about the number of hours or the relative impact of differential and overtime rates on overall pay within a profession.

Depending on the primary objective, different approaches can be used to evaluate the distribution of the respiratory care workforce across settings. Understanding these distinctions helps explain some of the differences between existing information about respiratory therapists, such as the AARC surveys and United States Bureau of Labor Statistics (BLS) and California Employment Development Division (EDD) labor force data. A fundamental component of each approach is the “units of analysis” used:

- People. When a survey of individuals (in this case members of the respiratory care profession) is conducted and results are described in terms of the distribution of respondents, or generalized to a population of licensees, people are the units of analysis. This study uses this approach in describing most of the RCP survey results. This was also the approach used in the *2005 AARC Human Resources Respiratory Therapist Survey*.
- Positions. This is the approach used by the BLS and the EDD. The methodology used by these agencies counts jobs, not people. The same person could have five jobs for five different firms and for the purposes of these agencies, this counts as five different jobs. This approach does not differentiate between full and part-time positions. If a position is counted on the payroll, it is counted as employment.⁴
- Hours or Full-Time Equivalents (FTEs). This is arguably the most detailed approach. It is frequently used when collecting information from employers (this was how information was collected for this study’s employer survey and for the *2005 AARC Human Resources Survey of Hospital Employers*). Because this approach counts the actual work hours required, it is not influenced by the number of hours being worked by an individual or the number of positions held by an individual. This approach seems particularly appropriate given that significant portions of the RCP workforce worked part-time in respiratory care (20%); held multiple positions in respiratory care (also 20%); and that second and third jobs were distributed across settings differently than primary positions (see Table 2.22).

⁴ The standardized classification system used by EDD and BLS to collect information on occupations defines the occupation of “Respiratory Therapist” more narrowly than the actual scope of the profession. Several work settings and position categories generally regarded to be part of the profession are clearly not included in the standardized occupational classification for respiratory therapists. They are therefore not included in the counts or projections for the occupational classification. These include “Managers of Respiratory Therapists”—they are be classified in different occupations, for example, Medical and Health Services Mangers. Similarly, positions with accredited education programs, and manufacturers or distributors are not classified as respiratory therapists. It is uncertain how other more specialized positions such as diagnostic technicians and patient educators would be classified. This means that EDD LMID data under-represent the actual number of positions in California which require an RCP license.

The following table summarizes distributions across work settings using the three units of analysis described above. The table shows that profiles based on the distribution of respondents' primary position and the distribution of all work hours (first and third columns) are nearly identical. The profile based on the distribution of positions is a little different, primarily due to the setting and hours for second and third jobs (they were more likely than primary positions to be in non-acute care hospital settings and they were more likely to be part-time jobs).

Table 2.21: Percent Distribution by Work Setting for Primary Position, All Positions, and All Work Hours

Percent Distribution for Different "Units of Analysis"			
	People: Respondents' Primary Position	Positions: All Positions Held by Respondents	Hours: All Hours Worked by Respondents
Acute care hospital	86.1%	81.6%	85.0%
Durable medical equipment/home care	2.3%	2.9%	2.4%
Long-term acute care/rehabilitation hospital/sub-acute care	6.2%	7.2%	6.8%
Skilled nursing facility	.4%	.7%	.5%
Accredited education program	1.2%	2.2%	1.4%
Manufacturer/distributor	.3%	.3%	.3%
Outpatient facility/physicians office	1.8%	2.4%	2.0%
Other setting	1.6%	2.6%	1.6%
Total	100.0%	100.0%	100.0%

Table 2.22 describes the people and position-based distributions and shows how column two of Table 2.21 was computed. The "people-based" distribution for respondents' primary position is very straight-forward, it's simply the percent of respondents indicating that their primary position is in a particular setting. The "position based" distribution results from summing the number of respondents across primary, second and third jobs. For example, adding the number of respondents with primary, second and third jobs in acute care hospitals (1325 + 212 + 12) we see that the survey respondents reported information on 1549 acute care hospital jobs. This represents 81.6 percent of the 1,897 jobs described by survey respondents.

Table 2.22: Number and Percent of Positions by Work Setting

	Number of Cases				Percent Distribution			
	Primary Position	Second Job	Third Job	Total	Primary Position*	Second Job	Third Job	Total†
Acute care hospital	1,325	212	12	1,549	86.1%	65.0%	36.8%	81.6%
Durable medical equipment/home care	36	14	6	55	2.3%	4.3%	17.8%	2.9%
Long-term acute care/rehabilitation hospital/sub-acute care	96	40	2	137	6.2%	12.2%	5.8%	7.2%
Skilled nursing facility	7	5	2	13	.4%	1.4%	5.9%	.7%
Accredited education program	19	20	2	41	1.2%	6.1%	5.9%	2.2%
Manufacturer/distributor	5	2		6	.3%	.5%	.0%	.3%
Outpatient facility/physicians office	28	17		45	1.8%	5.3%	.0%	2.4%
Other setting	25	17	9	50	1.6%	5.1%	27.8%	2.6%
Total	1,540	326	32	1,897	100.0%	100.0%	100.0%	100.0%

* This is the source for the "people" column included in the previous table.

† This is the source for the "position" column included in the previous table. Summing the number of jobs over respondents produces a count of the number of positions.

The information in Table 2.22 can also be used to compute employment estimates for the respiratory care profession. On average, each respondent employed in respiratory care was currently working 1.23 respiratory care jobs. Earlier in this chapter (Table 2.11) we estimated that 86.3 percent of RCPs with active, clear licenses were employed in respiratory care in California. Combining these two pieces of information—that there were 11,981 RCPs employed in respiratory care in California, and that each RCP, on average, held 1.23 respiratory care jobs—produces an estimated 14,737 respiratory care positions in California.

11,981*	Estimated number of RCPs with active/clear licenses employed in respiratory care in California, June 2006
1.23†	Average number of respiratory care positions held by each RCP currently working in respiratory care
14,737‡	Estimated number of respiratory care positions in California, 2006
10,390	California Employment Development Department Occupational Estimate of Employment for Respiratory Therapists in California for first quarter 2006
71%§	Estimated percent of RCP positions included in EDD estimate

* 86.3% of 13,844 active, clear RCPs licenses

† 1,897 positions / 1,540 respondents

‡ 11,981 RCPs x 1.23 jobs-per-RCP

§ 10,390 positions / 14,737 positions

The California Employment Development Department Occupational Estimate of Employment for Respiratory Therapists in California for first quarter 2006 is 10,390. This suggests that EDD estimates and projections (due to occupational classification

definitions discussed earlier) include approximately 71 percent of the “real-world” jobs held by RCPs in California.

Table 2.23 provides a detailed picture of work hours across settings and pay categories. The averages include hours (for up to three jobs) for all RCPs currently working in respiratory care who reported work hour information. More than one-quarter (27 percent) of all RCP workforce hours were paid at a shift differential and worked in an acute care hospital. Slightly over seven percent of all RCP workforce hours were overtime hours in an acute care hospital.

Table 2.23: Mean Number of Hours and Distribution of Hours by Pay Category and Setting

		Base	Differ- ential	Over- time	Total
Mean number of hours worked per week	Acute care hospital	20.21	10.86	2.96	34.04
	Durable medical equipment/home care	.92	.00	.02	.95
	Long-term acute care/rehabilitation hospital/sub-acute care	1.86	.70	.16	2.72
	Skilled nursing facility	.16	.03	.00	.20
	Accredited education program	.53	.01	.00	.54
	Manufacturer/distributor	.14	.00	.00	.14
	Outpatient facility/physicians office	.75	.04	.01	.80
	Other setting	.50	.10	.04	.65
	Total	25.08	11.75	3.20	40.03
Number of cases		1,481	1,481	1,481	1,481
Percent distribution of hours	Acute care hospital	50.50%	27.14%	7.40%	85.04%
	Durable medical equipment/home care	2.30%	.00%	.06%	2.37%
	Long-term acute care/rehabilitation hospital/sub-acute care	4.66%	1.75%	.39%	6.80%
	Skilled nursing facility	.41%	.08%	.01%	.50%
	Accredited education program	1.33%	.02%	.01%	1.35%
	Manufacturer/distributor	.34%	.00%	.00%	.34%
	Outpatient facility/ physicians office	1.86%	.10%	.03%	1.99%
	Other setting	1.26%	.26%	.10%	1.61%
	Total	62.66%	29.34%	7.99%	100.00%

Hourly Pay Rates. The average base pay rate for RCPs was \$30.09 per hour. This is almost three dollars an hour higher than the \$27.15 estimated mean hourly wage for Respiratory Therapists in California for first quarter 2006 prepared by the California Employment Development Department’s (EDD) Labor Market Information Division (LMID). The difference is likely due, in large part, to the occupational classification for “Respiratory Therapist” used by EDD.

<ul style="list-style-type: none"> • Just under 75% of respondents reported working some hours at a base pay rate 	<ul style="list-style-type: none"> • The average base pay rate was \$30.09 per hour
<ul style="list-style-type: none"> • Approximately 44% of respondents reported working hours with shift differentials 	<ul style="list-style-type: none"> • The average rate for hours with shift differentials was \$32.71 per hour
<ul style="list-style-type: none"> • Thirty-four percent of respondents reported working paid overtime hours 	<ul style="list-style-type: none"> • The average overtime rate was \$46.31 per hour
<ul style="list-style-type: none"> • Six percent of respondents reported working paid on-call hours 	<ul style="list-style-type: none"> • The average on-call rate was \$15.35 per hour

Base pay rates for RCPs with one year or less of experience were \$24.54. This is remarkably close to the average starting pay of \$24.64 reported by acute care hospital employers for a new Certified Respiratory Therapist without experience. A linear regression analysis found that RRT credentialing influenced the relationship between years of experience and pay (Adjusted R Square = .169, df= 1365). Starting hourly base pay rates for RCPs with the RRT credential were on average \$1.73 higher than rates for RCPs without the RRT credential, and the rate of increase in pay was greater for RCPs with the RRT credential than for those without the credential. Base pay rates for RCPs without the RRT credential increase an average of 22 cents an hour for every year of experience. Hourly base pay rates for RCPs with the RRT credential increase an average of 31 cents for every year of experience.

Figure 2.40: Predicted Hourly Base Pay Rates by Years in Respiratory Care and RRT Credentialing

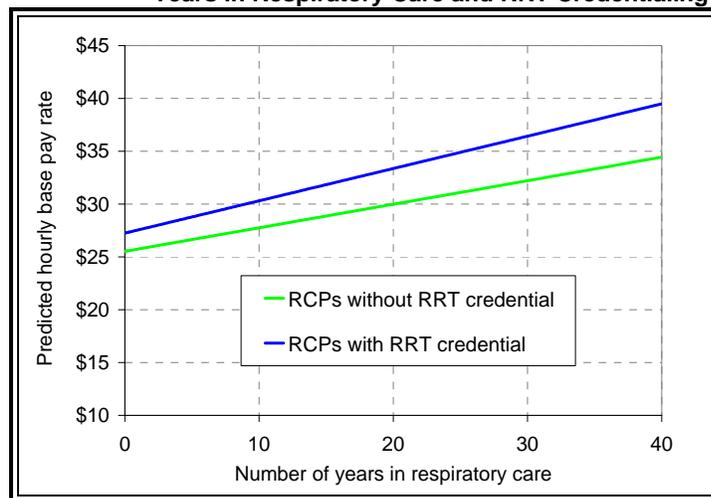


Table 2.24 shows the mean base pay rates across settings. Perhaps because of some of the problems discussed above, as well as because of the more confidential nature of financial information, fewer respondents provided information about pay rates than hours. This means that the number of cases for some categories is small and caution should be used in evaluating the averages for these categories. Base pay rates were surprisingly constant across settings. Base pay rates for RCPs working in long-term acute care, rehabilitation hospitals, sub-acute care and skilled nursing facilities were somewhat lower than other settings.

Table 2.24: Mean Base Pay Rates for Primary Position by Work Setting

	Mean Base Pay Rate	Number of cases
Manufacturer/distributor	\$37.15	4
Accredited education program	\$36.24	17
Other setting	\$34.13	19
Durable medical equipment/home care	\$31.73	32
Outpatient facility/physicians office	\$30.67	27
Acute care hospital	\$29.99	1,189
Long-term acute care/rehabilitation hospital/sub-acute care	\$28.52	87
Skilled nursing facility	\$28.25	6

Table 2.25 shows the mean base pay rates across work setting regions. Pay rates varied a great deal from one region to another. Rates were highest in the Greater Bay Area, where the average hourly base rate was \$37.04. Northern California had the next highest rate, with an average of \$30.90 an hour. Rates for the three remaining California regions were more tightly clustered. The average for the Southern California region was \$28.95, with \$28.12 in the San Diego/Inland Empire region, and \$27.97 in Central California. RCPs working out of state had the lowest rate of \$25.13 an hour.

Table 2.25: Mean Base Pay Rates for Primary Position by Work Setting Region

	Mean Base Pay Rate	Number of cases
Greater Bay Area	\$37.04	229
Northern California	\$30.90	104
Southern California	\$28.95	470
San Diego/Inland Empire	\$28.12	242
Central California	\$27.97	138
Out of state	\$25.13	54

Table 2.26 shows mean base, differential and overtime pay rates for acute care hospitals and long-term acute care, rehabilitation hospitals and sub-acute care facilities. Other work settings are not included in this table because the number of cases was too small to produce reliable measures. It appears that the shift differentials in long-term acute care, rehabilitation hospitals, and sub-acute care facilities were not as significant (about \$1.38 per hour) as they were for acute care hospitals (about \$2.82 per hour).

Table 2.26: Mean Hourly Pay Rates by Pay Category and Work Setting for Acute Care Hospitals and Long-Term Acute Care, Rehabilitation Hospitals and Sub-Acute Care Facilities

		Acute care hospital	Long-term acute care/rehabilitation hospital/sub-acute care
Mean Hourly Pay Rate	Base	\$29.99	\$28.52
	Differential	\$32.81	\$29.90
	Overtime	\$46.73	\$40.67
Number of cases	Base	1,189	87
	Differential	562	27
	Overtime	390	20

Key Findings

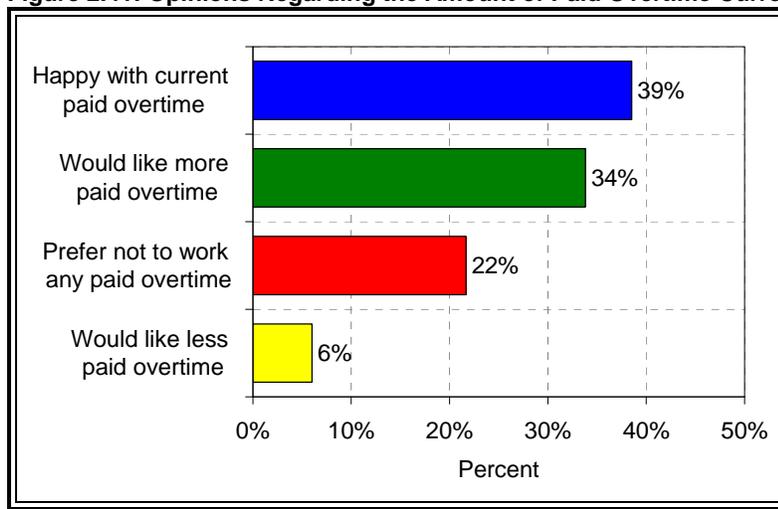
The average base pay rate for RCPs just starting out in the profession was \$24.54. Pay rates increased with experience, and the overall average base pay rate for all RCPs working in 2006 was \$30.09 per hour.

RCPs working for manufacturers or distributors had the highest average base pay (\$37.15 per hour), followed by those working for educational programs (\$36.24 per hour).

Base pay rates for RCPs working in long-term acute care, rehabilitation hospitals, sub-acute care and skilled nursing facilities were lower than other settings, with averages ranging from \$28.25 to \$28.52 an hour.

Satisfaction with Current Overtime Hours. Respondents were asked how they felt about the amount of paid overtime they were currently working. Twelve percent indicated they were not paid for working overtime. Of those who were paid for working overtime, most would like to maintain or increase their overtime hours. Thirty-eight percent are happy with the amount of overtime they were working and 34 percent would like to work more overtime. Some RCPs would like to decrease or do away altogether with their overtime hours. Twenty-two percent would prefer not to work any overtime and six percent would like to work less overtime.

Figure 2.41: Opinions Regarding the Amount of Paid Overtime Currently Working*



* For RCPs who were paid for working overtime

Delivery of Respiratory Care by Protocol. Respondents were asked whether they regularly delivered respiratory care by protocol for their primary position, and if so, how many protocols they routinely used.⁵ More than half (58%) reported that they regularly delivered respiratory care by protocol. The number of protocols routinely used varies, but most RCPs using protocols used more than one. Thirty-four percent of RCPs delivering respiratory care by protocol used two or three protocols. Twenty-seven percent used four or five protocols. Thirty-one percent used more than five protocols. Thirty-one percent used more than five protocols.

Figure 2.42: Percent Distribution for Delivery of Respiratory Care by Protocol

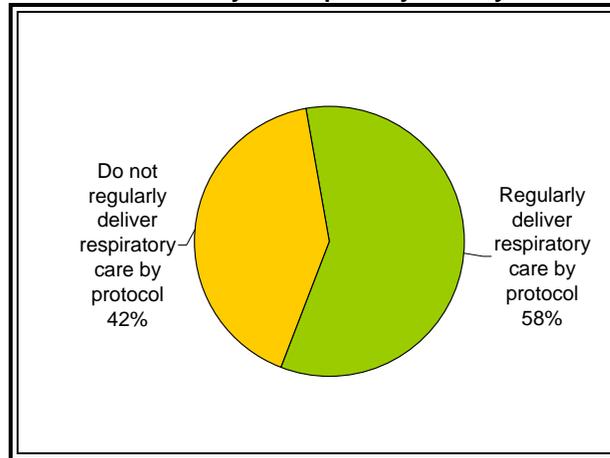
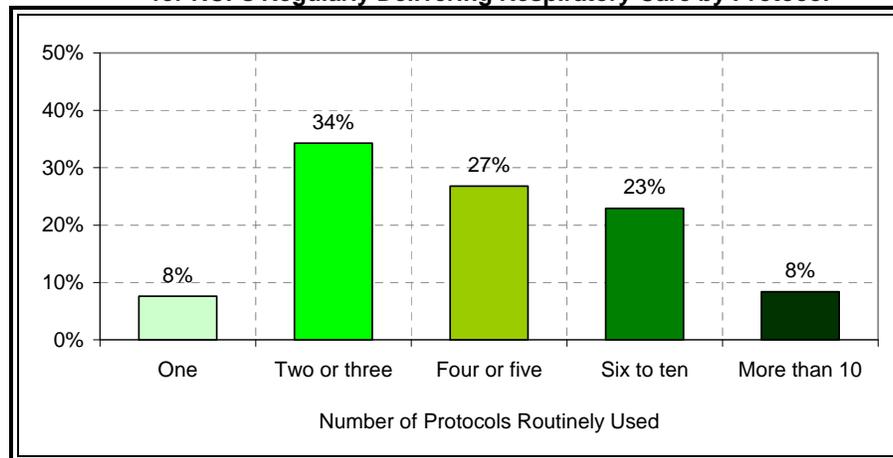


Figure 2.43: Number of Protocols Routinely Used, for RCPs Regularly Delivering Respiratory Care by Protocol



⁵ Based on feedback from the expert panel, the 2005 AARC Human Resources Survey of Respiratory Therapists question regarding delivery of respiratory care by protocol—which asked respondents whether they have ever delivered respiratory care by protocol—was modified. Ninety percent of AARC survey respondents indicated that they had delivered respiratory care by protocol at some time.

Use of protocols varied to some degree depending on work setting, position and facility size. Caution should be used due to the small sample sizes, but the findings suggest use of protocols may be more common in the home care setting and in long-term acute care, rehabilitation hospitals and sub-acute care facilities than in acute care hospitals. Clinical Specialists were somewhat more likely to use protocols than General Staff Therapists (63% and 59%, respectively). Delivery of respiratory care by protocol was more common in larger facilities. Slightly less than half of RCPs in facilities with fewer than 100 beds used protocols, compared with 60 to 70 percent of RCPs in larger facilities. It is interesting to note, however, the number of protocols used remains fairly constant across facility size.

Table 2.27: Use of Respiratory Care Protocols by Work Setting, Position and Facility Size

		For your primary job, do you regularly deliver respiratory care by protocol?			Percent Using Protocols	Average (Mean) Number of Protocols*	Number of cases
		Yes	No	Total			
Work setting	Acute care hospital	771	527	1,298	59%	5.7	588
	Durable medical equipment/home care	24	11	35	69%	10.1	18
	Long-term acute care/rehabilitation hospital/sub-acute care	59	32	91	65%	4.4	39
	Skilled nursing facility	2	5	7	29%	3.1	2
	Accredited education program	3	15	18	17%	5.6	2
	Manufacturer/distributor	0	5	5	0%	--	--
	Outpatient facility/physicians office	10	15	25	40%	6.6	7
	Other setting	9	13	22	41%	8.2	6
	Total	878	623	1,501	58%	5.8	661
Position	Director/Manager	39	38	77	51%	7.6	32
	Supervisor	66	44	110	60%	4.3	53
	Clinical Specialist/Critical Care	236	140	376	63%	6.3	181
	General Staff Therapist	453	315	768	59%	5.7	336
	Sleep Diagnostic Technologist	9	13	22	41%	5.5	6
	PFT Diagnostic Technologist	26	25	51	51%	4.8	20
	Other Diagnostic Technologist	1	2	3	33%	7.5	1
	Instructor/Educator	13	26	39	33%	3.7	9
	Disease Manager/Patient Educator	8	6	14	57%	12.3	7
	Other	14	9	23	61%	6.5	9
Total	865	618	1,483	58%	5.8	654	
Facility size	Fewer than 50 beds	28	34	62	45%	5.3	24
	50-99 beds	51	55	106	48%	4.1	37
	100-199 beds	158	136	294	54%	5.5	107
	200-299 beds	200	120	320	63%	6.3	156
	300-399 beds	187	101	288	65%	5.6	136
	400-499 beds	94	39	133	71%	5.6	82
	500-599 beds	27	18	45	60%	5.4	22
	600 or more beds	47	24	71	66%	6.6	36
	Total	844	583	1,427	59%	5.8	637

* For those using protocols.

Practices for Managing Workload: Concurrent Therapy and Triage. Respondents were asked whether they did concurrent therapy (initiate more than one treatment at a time) or routinely prioritized care (triage) in order to complete their workload for their primary position. The distribution of responses for the two practices are nearly identical. Sixty-four percent reported they did concurrent therapy in order to complete their workload and 65 percent reported that they routinely triaged in order to get their workload done. Evaluating both practices together (see Table 2.28) shows that a significant portion of RCPs—46 percent—report having to use both practices in order to complete their workload. Nearly forty percent used one practice or the other. The remaining twenty percent did not use either practice.

Figure 2.44: Use of Concurrent Therapy

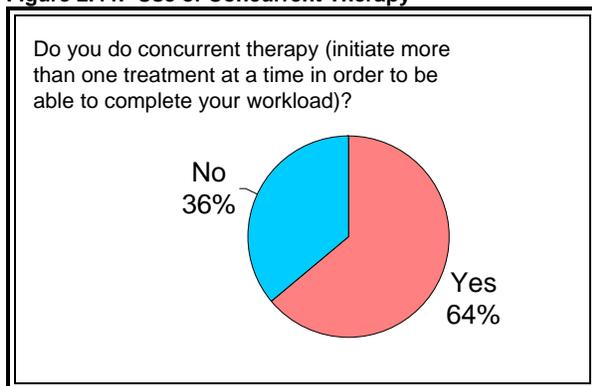


Figure 2.45: Use of Triage

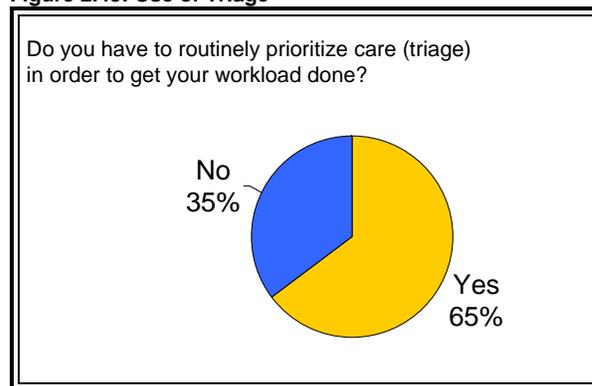


Table 2.28: Use of Concurrent Therapy and Triage to Manage Workload

	Percent	Number of cases
Use concurrent therapy and triage	46%	604
Use concurrent therapy only	19%	244
Use triage only	19%	243
Do not use either practice	17%	216
Total	100%	1,307

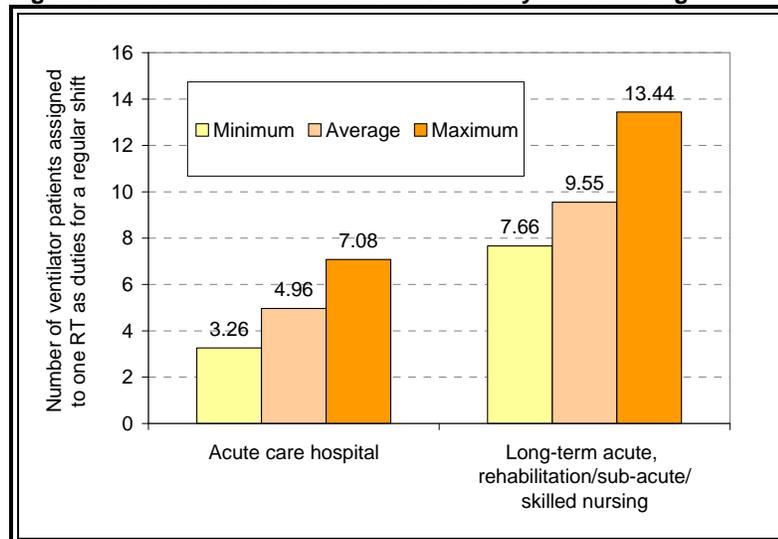
What is the ventilator assignments workload?

Respiratory Care Practitioner-to-Patient Ratios. Respondents were asked to describe the minimum, average, and maximum number of ventilator patients assigned to one respiratory therapist as duties for a regular shift. A wide range of ratios was reported, and respondents frequently indicated this question was difficult to answer because ratios vary considerably depending on patient acuity and staffing. Most RCPs working in an acute care hospital reported an average ratio between four and five ventilator patients. The average ratio was significantly higher—about ten ventilator patients per RCP—for those working in long-term acute care, rehabilitation hospitals, sub-acute-care and skilled nursing facilities.⁶

Thirteen percent of respondents working in acute care hospitals indicated they do not have a minimum ratio. For those with a minimum, it was usually between one and four patients. RCPs working in long-term acute care, rehabilitation hospitals, sub-acute-care, and skilled nursing facilities were much more likely to have a minimum ratio, and the minimums were significantly higher than in acute care hospitals. One-half of the RCPs in these settings reported minimum ratios of seven or more patients.

The maximum ratios for most RCPs working in acute care hospitals range from five to six patients, with an average of 7.08 patients. The maximum ratio for RCPs working in long-term acute care, rehabilitation hospitals, sub-acute-care and skilled nursing facilities was significantly higher (13.44 patients).

Figure 2.46: Mean Ventilator Patient Ratios by Work Setting



⁶ Because the majority of RCPs working in the less common work settings (home care, education, manufacturer/distributor, outpatient facility and other setting) indicated that this question was not applicable to their situation, the number of cases in these settings is too small to analyze reliably.

There was a linear relationship between acute care hospital size and patient to RCP ratios.⁷ Larger hospitals had significantly higher patient ratios than smaller hospitals. The mean for the “average” ratio in smaller hospitals (under 100 beds) was less than four patients, for medium-sized hospitals (100-399 beds) the average ratio was generally five patients, and for larger hospitals (400 beds or more) the average ratio was approximately six patients. The mean for maximum patient ratios followed a similar pattern. Maximums for smaller hospitals were between five and six patients, while for medium-sized hospitals the mean ratio was seven patients, and in the larger hospitals the maximum ratio was eight patients.

Figure 2.47: Mean Ventilator Patient Ratios by Acute Care Hospital Size



The department or unit within an acute care hospital where the respondent typically spends most of his/her time provides a rough indicator of patient acuity. Ratios across these units varied considerably. Average ratios were lowest for Sleep Centers and PFT Labs, with about four ventilator patients assigned to one RCP. Average ratios reported by RCPs working in General Medical and Surgical, Neonatal ICU, Adult ICU and Emergency Departments were generally between four and five patients. RCPs working primarily in Burn Centers and Cardiac Diagnostic units reported significantly higher average and maximum ratios than RCPs working in other types of units (these were the only units where a statistically significant difference was found).

While mean ratios provide an overall indicator of how many patients are being assigned to one RCP, it is also helpful to look at the distribution at various cut-off points (see Figures 2.49 and 2.50 and Tables 2.29-2.31).

⁷ There are not enough cases to permit analysis of the relationship between facility size and patient ratios in other settings.

- A majority of RCPs working in Burn Centers and Emergency Departments reported average ratios exceeding four patients.
- Almost half of RCPs working in Adult ICUs and Neonatal ICUs reported average ratios exceeding four patients (48% and 45% respectively).
- More than eight out of ten RCPs working in Neonatal ICUs, Adult ICUs, Burn Centers and Emergency Departments reported that the maximum number of patients assigned to one RCP was more than four.

Figure 2.48: Mean Ventilator Patient Ratios by Acute Care Hospital Department/Unit

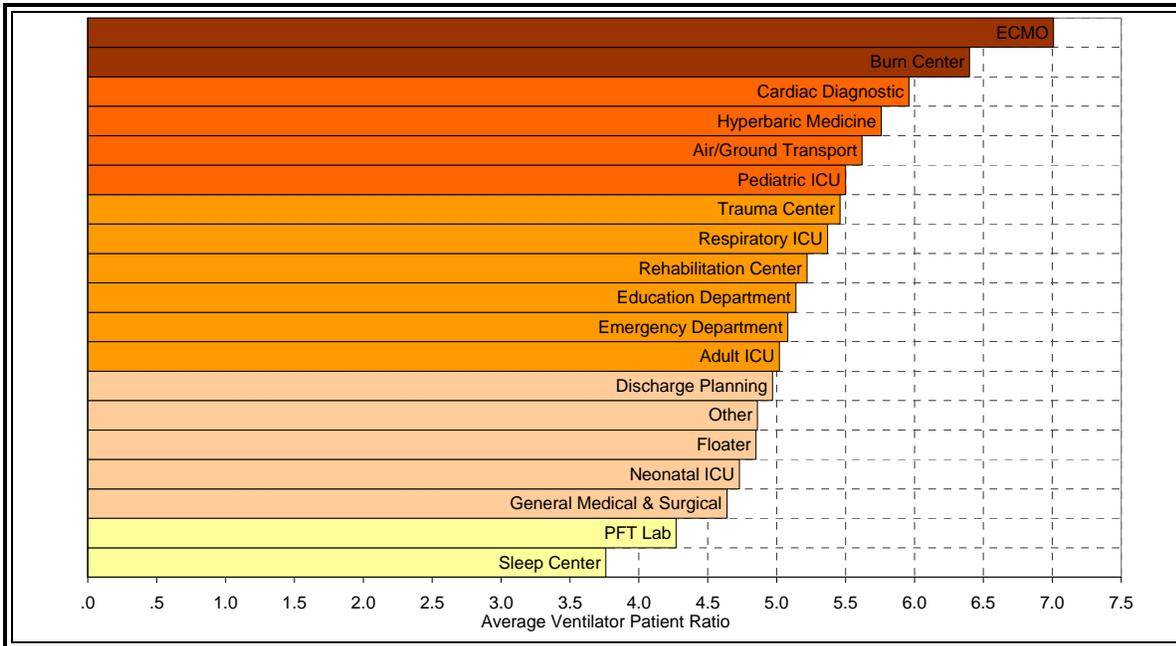


Figure 2.49: Percent of RCPs Reporting Average Ratios of More than Four Ventilator Patients to One RCP

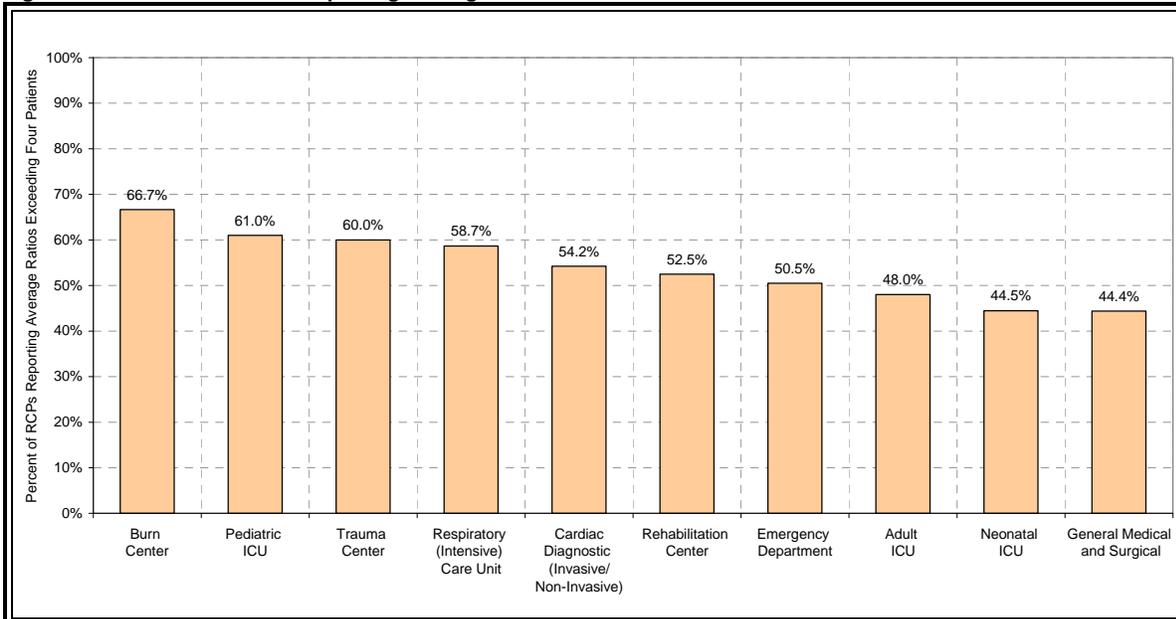
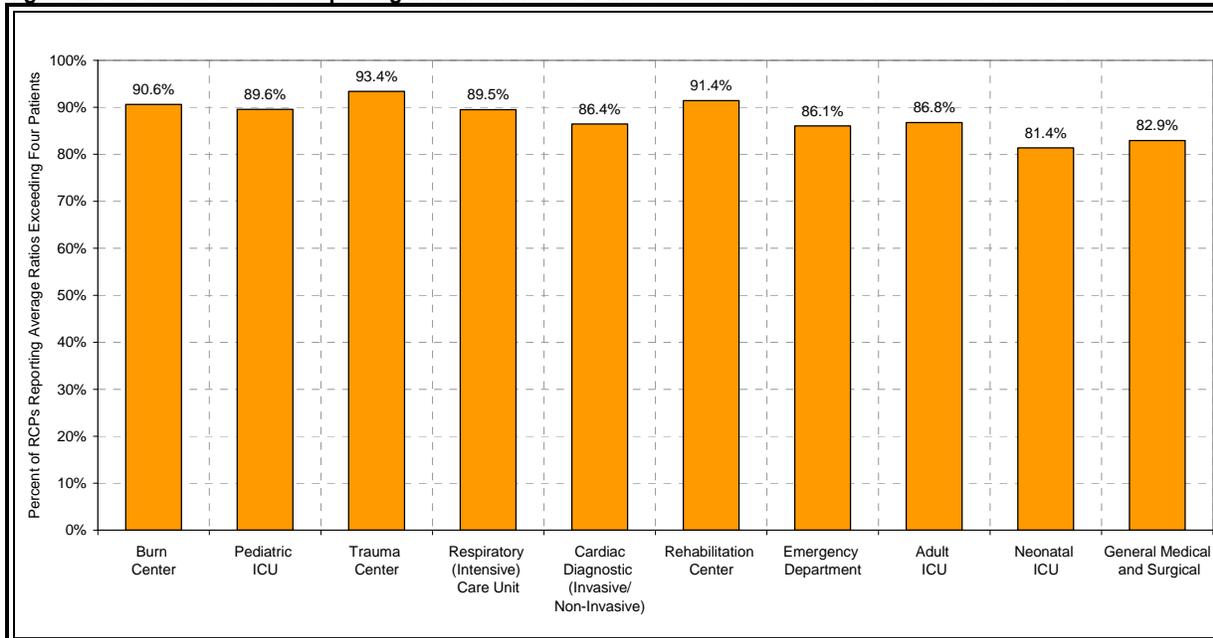


Figure 2.50: Percent of RCPs Reporting Maximum Ratios of More than Four Ventilator Patients to One RCP



Key Findings

RCPs described considerable variation in ventilator patient ratios depending on the type of facility in which they were working. Most RCPs working in an acute care hospital reported an average ratio between four and five ventilator patients. The average ratio was significantly higher—about ten ventilator patients per RCP—for those working in long-term acute care, rehabilitation hospitals, sub-acute-care and skilled nursing facilities.

Within the acute care hospital setting, RCPs working in larger hospitals described significantly higher ventilator patient ratios than smaller hospitals. The average ratio in smaller hospitals (under 100 beds) was less than four patients, for medium-sized hospitals (100-399 beds) the average ratio was generally five patients, and for larger hospitals (400 beds or more) the average ratio was approximately six patients.

RCPs working in Sleep Centers and PFT Labs described the lowest ratios, with about four ventilator patients assigned to one RCP. Average ratios reported by RCPs working in General Medical and Surgical, Neonatal ICU, Adult ICU and Emergency Departments were generally between four and five patients. RCPs working primarily in Burn Centers and Cardiac Diagnostic units reported significantly higher ratios than RCPs working in other types of units.

Table 2.29: Percent Distribution of Minimum Ventilator Patient-to-RCP Ratios by Work Setting, Job Title, Facility Size and Unit

		Minimum number of ventilator patients assigned to one RCP as duties for a regular shift						Number of cases	Mean	Number of cases
		0-2	3-4	5-6	7-10	11 or more	Total			
Work setting	Acute care hospital	46.1%	39.4%	10.9%	2.8%	.8%	100.0%	908	2.82	908
	Long-term acute/rehabilitation/sub-acute/skilled nursing	15.6%	14.1%	18.8%	31.3%	20.3%	100.0%	64	7.28	64
Facility size*	Fewer than 50 beds	95.7%	4.3%	.0%	.0%	.0%	100.0%	23	.69	23
	50-99 beds	78.2%	18.2%	3.6%	.0%	.0%	100.0%	55	1.52	55
	100-199 beds	56.4%	31.8%	7.8%	3.4%	.6%	100.0%	179	2.52	179
	200-299 beds	39.8%	42.7%	12.3%	3.8%	1.4%	100.0%	211	3.16	211
	300-399 beds	40.9%	46.3%	10.3%	2.5%	.0%	100.0%	203	2.87	203
	400-499 beds	36.9%	45.6%	15.5%	1.9%	.0%	100.0%	103	3.00	103
	500-599 beds	46.9%	37.5%	6.3%	3.1%	6.3%	100.0%	32	3.91	32
	600 or more beds	13.6%	70.5%	11.4%	4.5%	.0%	100.0%	44	3.66	44
Unit*	Adult ICU	44.7%	40.6%	10.7%	3.1%	.8%	100.0%	709	2.89	709
	Air/Ground Transport	26.3%	57.9%	10.5%	5.3%	.0%	100.0%	19	3.44	19
	Burn Center	34.5%	44.8%	13.8%	6.9%	.0%	100.0%	29	3.53	29
	Cardiac Diagnostic (Invasive/Non-Invasive)	40.0%	36.7%	18.3%	3.3%	1.7%	100.0%	60	3.46	60
	Discharge Planning	50.0%	50.0%	.0%	.0%	.0%	100.0%	2	2.47	2
	ECMO	.0%	50.0%	50.0%	.0%	.0%	100.0%	2	4.60	2
	Education Department	30.8%	50.0%	11.5%	7.7%	.0%	100.0%	26	3.25	26
	Emergency Department	47.4%	37.4%	11.1%	3.6%	.4%	100.0%	449	2.83	449
	Floater, go where needed, have multiple assignments	47.9%	39.6%	10.0%	2.5%	.0%	100.0%	280	2.61	280
	General Medical and Surgical	53.9%	32.6%	11.0%	2.2%	.3%	100.0%	362	2.42	362
	Hyperbaric Medicine	50.0%	20.0%	30.0%	.0%	.0%	100.0%	10	2.94	10
	Neonatal ICU	47.5%	39.1%	10.7%	2.7%	.0%	100.0%	261	2.61	261
	Pediatric ICU	37.3%	40.0%	17.3%	4.5%	.9%	100.0%	110	3.24	110
	PFT Lab	60.4%	26.4%	7.5%	5.7%	.0%	100.0%	53	2.28	53
	Rehabilitation Center	55.9%	26.5%	11.8%	.0%	5.9%	100.0%	34	2.93	34
	Respiratory (Intensive) Care Unit	36.5%	44.3%	16.2%	3.0%	.0%	100.0%	167	3.05	167
	Sleep Center	62.5%	25.0%	12.5%	.0%	.0%	100.0%	8	1.93	8
	Trauma Center	32.2%	45.2%	17.4%	5.2%	.0%	100.0%	115	3.26	115
	Other	50.5%	32.6%	10.5%	5.3%	1.1%	100.0%	95	2.84	95

* Restricted to acute care hospitals because the number of cases in other work settings is too small for analysis.

Table 2.30: Percent Distribution of Average Ventilator Patient-to-RCP Ratios by Work Setting, Job Title, Facility Size and Unit

		Average number of ventilator patients assigned to one RCP as duties for a regular shift						Number of cases	Mean	Number of cases
		0-2	3-4	5-6	7-10	11 or more	Total			
Work setting	Acute care hospital	6.6%	47.1%	35.3%	7.2%	3.7%	100.0%	1,016	4.96	1,016
	Long-term acute/rehabilitation/sub-acute/skilled nursing	2.7%	14.7%	14.7%	26.7%	41.3%	100.0%	75	9.55	75
Facility size*	Fewer than 50 beds	54.5%	36.4%	4.5%	.0%	4.5%	100.0%	22	3.07	22
	50-99 beds	30.0%	48.3%	15.0%	5.0%	1.7%	100.0%	60	3.63	60
	100-199 beds	9.7%	51.0%	30.1%	5.3%	3.9%	100.0%	206	4.78	206
	200-299 beds	2.1%	51.0%	37.0%	5.3%	4.5%	100.0%	243	4.97	243
	300-399 beds	2.6%	47.8%	38.6%	8.3%	2.6%	100.0%	228	4.95	228
	400-499 beds	.0%	46.3%	38.9%	9.3%	5.6%	100.0%	108	5.87	108
	500-599 beds	.0%	43.6%	38.5%	12.8%	5.1%	100.0%	39	6.12	39
	600 or more beds	.0%	20.0%	62.0%	16.0%	2.0%	100.0%	50	5.53	50
Unit*	Adult ICU	5.7%	46.3%	37.1%	7.2%	3.7%	100.0%	787	5.02	787
	Air/Ground Transport	4.5%	40.9%	50.0%	.0%	4.5%	100.0%	22	5.62	22
	Burn Center	.0%	33.3%	43.3%	16.7%	6.7%	100.0%	30	6.40	30
	Cardiac Diagnostic (Invasive/Non-Invasive)	6.8%	39.0%	37.3%	11.9%	5.1%	100.0%	59	5.96	59
	Discharge Planning	.0%	33.3%	66.7%	.0%	.0%	100.0%	3	4.97	3
	ECMO	.0%	.0%	50.0%	50.0%	.0%	100.0%	2	7.01	2
	Education Department	10.3%	31.0%	41.4%	13.8%	3.4%	100.0%	29	5.14	29
	Emergency Department	7.8%	41.6%	37.8%	8.2%	4.4%	100.0%	497	5.08	497
	Floater, go where needed, have multiple assignments	5.4%	44.6%	40.8%	7.0%	2.2%	100.0%	316	4.85	316
	General Medical and Surgical	9.4%	46.2%	34.3%	7.4%	2.8%	100.0%	394	4.64	394
	Hyperbaric Medicine	.0%	55.6%	33.3%	.0%	11.1%	100.0%	9	5.76	9
	Neonatal ICU	7.0%	48.5%	35.8%	6.0%	2.7%	100.0%	299	4.73	299
	Pediatric ICU	1.6%	37.4%	46.3%	8.9%	5.7%	100.0%	123	5.50	123
	PFT Lab	14.5%	49.1%	29.1%	.0%	7.3%	100.0%	55	4.27	55
	Rehabilitation Center	7.5%	40.0%	40.0%	5.0%	7.5%	100.0%	40	5.22	40
	Respiratory (Intensive) Care Unit	3.4%	38.0%	45.8%	9.5%	3.4%	100.0%	179	5.37	179
	Sleep Center	10.0%	70.0%	10.0%	10.0%	.0%	100.0%	10	3.76	10
	Trauma Center	3.8%	36.2%	45.4%	10.0%	4.6%	100.0%	130	5.46	130
	Other	14.6%	37.5%	35.4%	6.3%	6.3%	100.0%	96	4.86	96

* Restricted to acute care hospitals because the number of cases in other work settings is too small for analysis.

Table 2.31: Percent Distribution of Maximum Ventilator Patient-to-RCP Ratios by Work Setting, Job Title, Facility Size and Unit

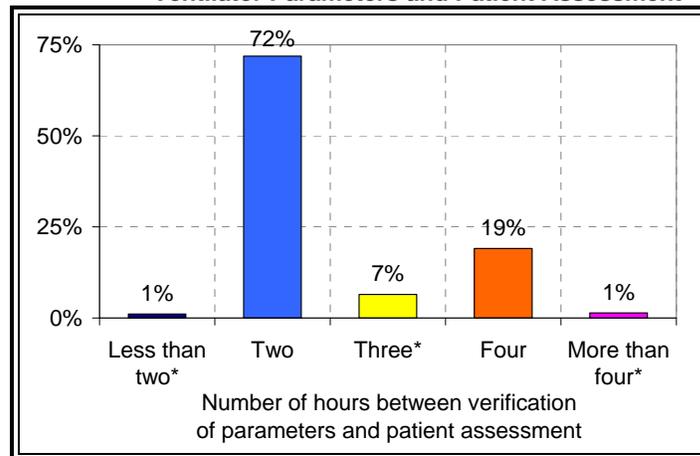
		Maximum number of ventilator patients assigned to one RCP as duties for a regular shift						Number of cases	Mean	Number of cases*
		0-2	3-4	5-6	7-10	11 or more	Total			
Work setting	Acute care hospital	.9%	14.1%	49.4%	23.0%	12.6%	100.0%	976	7.08	944
	Long-term acute/rehabilitation/sub-acute/skilled nursing	1.5%	2.9%	10.3%	25.0%	60.3%	100.0%	68	13.44	65
Facility size*	Fewer than 50 beds	21.7%	34.8%	34.8%	.0%	8.7%	100.0%	23	4.95	22
	50-99 beds	3.4%	28.8%	50.8%	11.9%	5.1%	100.0%	59	5.63	60
	100-199 beds	.0%	12.9%	49.5%	27.2%	10.4%	100.0%	202	7.02	194
	200-299 beds	.9%	10.6%	50.4%	24.8%	13.3%	100.0%	226	7.18	219
	300-399 beds	.0%	17.0%	50.4%	21.9%	10.7%	100.0%	224	6.82	216
	400-499 beds	.0%	5.0%	53.5%	18.8%	22.8%	100.0%	101	8.40	94
	500-599 beds	.0%	17.1%	42.9%	25.7%	14.3%	100.0%	35	8.33	31
	600 or more beds	.0%	5.9%	49.0%	31.4%	13.7%	100.0%	51	7.54	49
Unit†	Adult ICU	.6%	12.6%	50.1%	24.3%	12.5%	100.0%	771	7.12	745
	Air/Ground Transport	5.0%	10.0%	55.0%	30.0%	.0%	100.0%	20	6.06	20
	Burn Center	.0%	9.4%	25.0%	37.5%	28.1%	100.0%	32	8.93	30
	Cardiac Diagnostic (Invasive/Non-Invasive)	1.7%	11.9%	39.0%	27.1%	20.3%	100.0%	59	8.40	56
	Discharge Planning	.0%	.0%	50.0%	50.0%	.0%	100.0%	2	8.03	2
	ECMO	.0%	.0%	50.0%	.0%	50.0%	100.0%	2	8.41	2
	Education Department	3.3%	10.0%	43.3%	26.7%	16.7%	100.0%	30	6.84	27
	Emergency Department	1.0%	12.9%	46.1%	25.5%	14.5%	100.0%	495	7.22	476
	Floater, go where needed, have multiple assignments	1.7%	12.0%	48.7%	28.0%	9.7%	100.0%	300	6.91	291
	General Medical and Surgical	1.8%	15.2%	43.9%	26.9%	12.1%	100.0%	387	6.78	373
	Hyperbaric Medicine	.0%	14.3%	42.9%	28.6%	14.3%	100.0%	7	7.06	8
	Neonatal ICU	.0%	18.6%	49.1%	21.1%	11.1%	100.0%	279	6.96	271
	Pediatric ICU	.0%	10.4%	47.8%	25.2%	16.5%	100.0%	115	7.69	109
	PFT Lab	1.7%	13.6%	59.3%	16.9%	8.5%	100.0%	59	6.32	57
	Rehabilitation Center	.0%	8.6%	48.6%	25.7%	17.1%	100.0%	35	7.08	32
	Respiratory (Intensive) Care Unit	.0%	10.5%	48.6%	24.9%	16.0%	100.0%	181	7.29	170
	Sleep Center	.0%	20.0%	60.0%	20.0%	.0%	100.0%	10	5.44	10
	Trauma Center	.0%	6.6%	51.2%	26.4%	15.7%	100.0%	121	7.69	117
Other	4.3%	14.1%	44.6%	23.9%	13.0%	100.0%	92	6.91	91	

* The number of cases is slightly less for the mean than for the percentage distribution because cases with no maximum could not be included in computing the mean.

† Restricted to acute care hospitals because the number of cases in other work settings is too small for analysis.

Intervals for Verifying Ventilator Parameters and Patient Assessment. Respondents were asked how often they were responsible for verifying ventilator parameters and patient assessment for their primary job. The survey form included categories for every two hours and every four hours and allowed respondents to write-in another interval. The most commonly reported interval was every two hours. Seventy-two percent of RCPs were responsible for verifying ventilator parameters and patient assessment every two hours. Nineteen percent were responsible for verifying ventilator parameters and patient assessment every four hours. Very few RCPs reported an interval outside the two to four hour range.

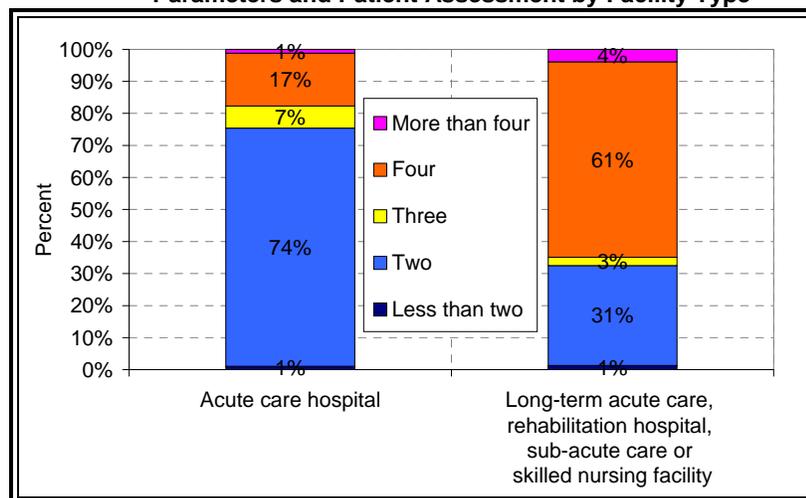
Figure 2.51: Number of Hours between Verifications of Ventilator Parameters and Patient Assessment



* Categories added based on write-in comments.

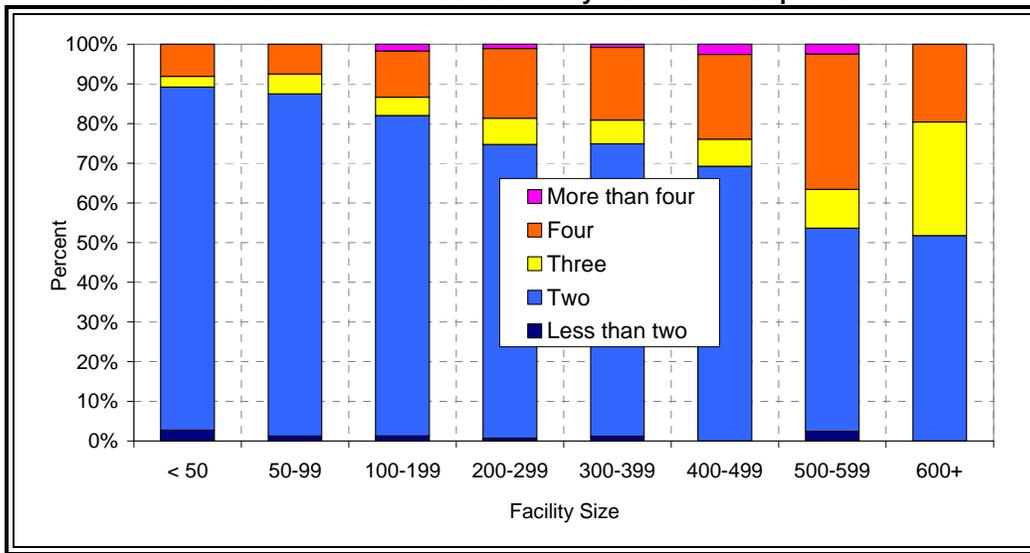
Respondents working in long-term acute care, rehabilitation hospitals, sub-acute care, and skilled nursing facilities reported longer intervals between verifications than those in acute care hospitals. More than two-thirds of respondents in the non-acute care hospital settings reported intervals of four hours or more.

Figure 2.52: Number of Hours between Verification of Ventilator Parameters and Patient Assessment by Facility Type



Responses suggest that the intervals between verifications increase with facility size. There were too few cases to include an analysis of long-term acute care, rehabilitation hospitals, sub-acute care, or skilled nursing facilities by size, so the analysis was limited to acute care hospitals. In smaller acute care hospitals, the number of hours between verifications was significantly shorter than in larger hospitals. Three and four hour intervals were more commonly used in hospitals with 200 or more beds.

Figure 2.53: Number of Hours between Verification of Ventilator Parameters and Patient Assessment by Acute Care Hospital Size



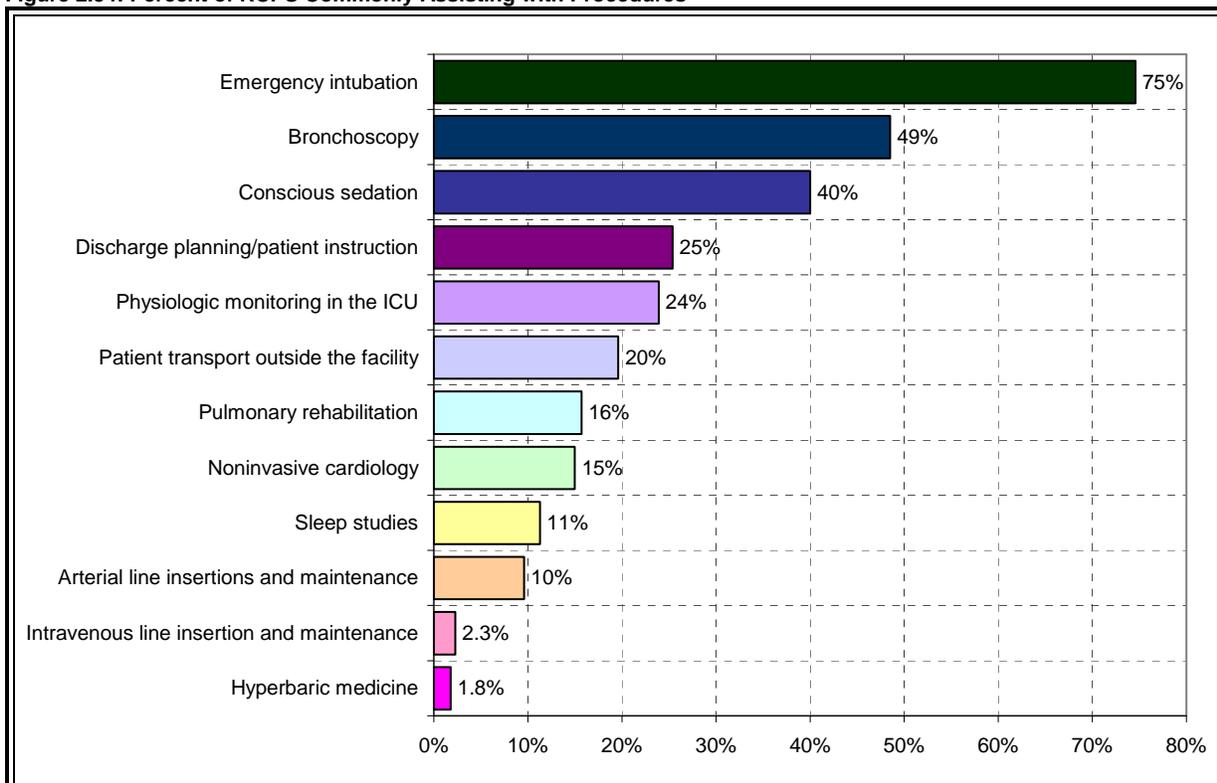
Key Findings

A majority of RCPs (72%) were responsible for verifying ventilator parameters and patient assessment every two hours. Nineteen percent reported a four hour interval.

While a two hour interval was the norm in acute care hospitals, RCPs working in long-term acute care, rehabilitation hospitals, sub-acute care, and skilled nursing facilities reported longer intervals between verifications than those in acute care hospitals. More than two-thirds of respondents in the non-acute care hospital settings reported intervals of four hours or more.

Medical Procedures in which RCPs Commonly Assist. The 2005 AARC Human Resources Survey of Respiratory Therapists included a list of 14 medical procedures and asked respondents to select those in which they assist. Based on feedback from the expert panel during the survey development phase, the list was modified slightly to reflect regional differences in the delivery of respiratory care. Figure 2.54 shows the percent of respondents who reported commonly assisting with each procedure for their primary job. Emergency intubation was by far the procedure for which the largest number of RCPs assist. Three-fourths of RCPs commonly assisted with emergency intubations. Just under half of respondents (49%) assist with bronchoscopies. Forty percent of respondents commonly assist with conscious sedation.

Figure 2.54: Percent of RCPs Commonly Assisting with Procedures

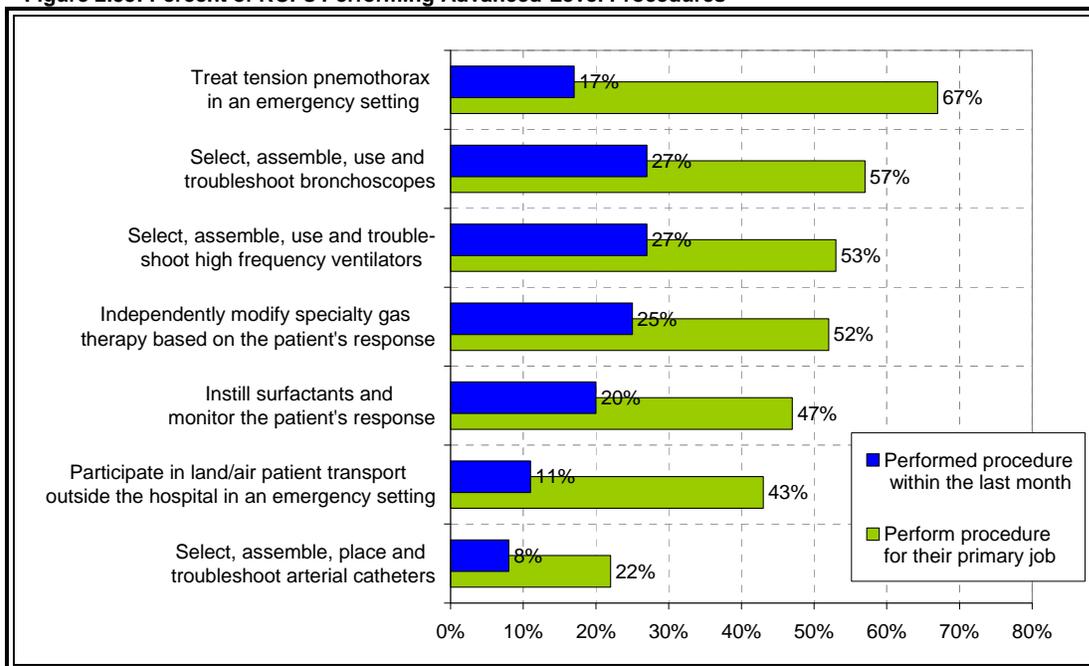


Key Finding

RCPs reported commonly assisting with a wide variety of medical procedures. Substantial numbers of RCPs reported assisting with three procedures in particular: emergency intubations (75%); bronchoscopies (49%); and conscious sedation (40%). Although not as widespread, it was not unusual for RCPs to report assisting with more specialized procedures such as sleep studies and arterial line insertions.

Advanced-Level Procedures. In order to identify a set of procedures associated with advanced-level practice, outlines for the RRT and CRT exams were compared and 31 procedures unique to the RRT exam were identified. During the survey development phase, the expert panel was asked to review and evaluate the level of practice for these 31 procedures. Based on their evaluation, seven procedures were selected as reliable indicators of advanced-level practice. The survey asked respondents to indicate when they last performed these procedures for their primary job. While there is a great deal of variation across procedures, responses show that they are performed by a significant number of RCPs.

Figure 2.55: Percent of RCPs Performing Advanced-Level Procedures



Treating tension pneumothorax in an emergency setting was the advanced-level procedure performed by the largest group of respondents. Two-thirds of respondents performed this procedure for their primary job. Perhaps in part because of setting differences, it was not the most regularly performed procedure; 17 percent of respondents had treated pneumothorax in an emergency setting within the last month. Three of the seven advanced-level procedures were performed in the last month by more than one quarter of RCPs and were performed by more than half of RCPs as part of their primary job. These procedures were

- Selecting, assembling, using, and troubleshooting bronchoscopes
- Selecting, assembling, using, and troubleshooting high frequency ventilators
- Independently modifying specialty gas therapy based on the patient's response

Nearly as many RCPs (47%) instill surfactants and monitor the patient's response. One in five performed this procedure within the past month. Selecting, assembling, placing, and troubleshooting arterial catheters was the least commonly performed advanced-level procedure. One out of five respondents performs the procedure for their primary job; eight percent had performed the procedure during the past month.

Job Satisfaction in Respiratory Care

A key factor in shaping a workforce are the “pulls” and “pushes” that attract individuals to an occupation, keep them in an occupation or make them want to leave the occupation. To address this dimension, several questions were included on the survey soliciting the respondents’ perspectives on things they liked and didn’t like about their job and reasons for thinking about leaving the profession (or reasons for leaving for those not currently in the profession).

How satisfied are RCPs with their Jobs?

Overall Job Satisfaction. The survey form included twelve factors related to job satisfaction. Respondents were asked to rate their level of satisfaction on each factor. Respondents also were asked to rate their overall level of satisfaction with their job. For several items, opinions varied significantly depending on whether respondents were currently working in respiratory care. Before examining these differences, let’s look at the overall opinions of those currently working in respiratory care. Two-thirds (66%) of RCPs said they were either very satisfied or satisfied with their job overall. Nine percent were dissatisfied with their job overall, and two percent said they were very dissatisfied. The remaining 23 percent were neutral—neither satisfied nor dissatisfied (see Figure 2.56 below).

**Figure 2.56: Overall Job Satisfaction for RCPs
Currently Employed in Respiratory Care**

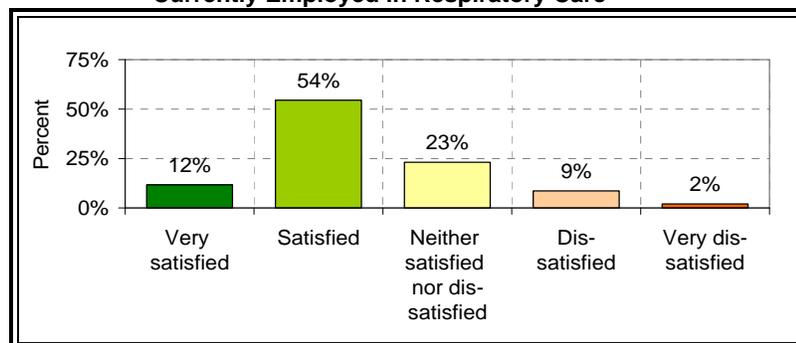


Figure 2.57 shows the distribution of responses for the six most positively rated aspects of respiratory care work. At least half of RCPs working in respiratory care were satisfied with these aspects of their jobs. The most positive ratings were assigned to RCPs’ relationships with their co-workers. More than four out of five RCPs (81%) were satisfied with this part of their job—26 percent said they were very satisfied and 55 percent said they were satisfied. A majority of RCPs also were satisfied with their work schedule, physical work environment, quality of patient care, quality of management from immediate supervisors, and benefits.

In contrast, Figure 2.58 shows aspects of their jobs that RCPs were less happy with. The distribution for all six of these items was quite similar; none of the six stands out as the single biggest problem. More than thirty percent of RCPs were dissatisfied with their opportunities for advancement, job-related stress, general administration,

workload, salary, and involvement in decisions. It should be noted that, even for these relatively less positive items, those who were satisfied still outnumbered those who were dissatisfied (although, in the case of job related stress and opportunities for advancement, not by a very large margin).

Satisfied	Dissatisfied
<ul style="list-style-type: none"> Relationships with co-workers Work schedule Physical work environment Quality of patient care Management from immediate supervisors Benefits 	<ul style="list-style-type: none"> Opportunities for advancement Job-related stress General administration Workload Salary Involvement in decisions

Figure 2.57: RCP Job Satisfaction Items with the Most Positive Ratings, for RCPs Currently Employed in Respiratory Care

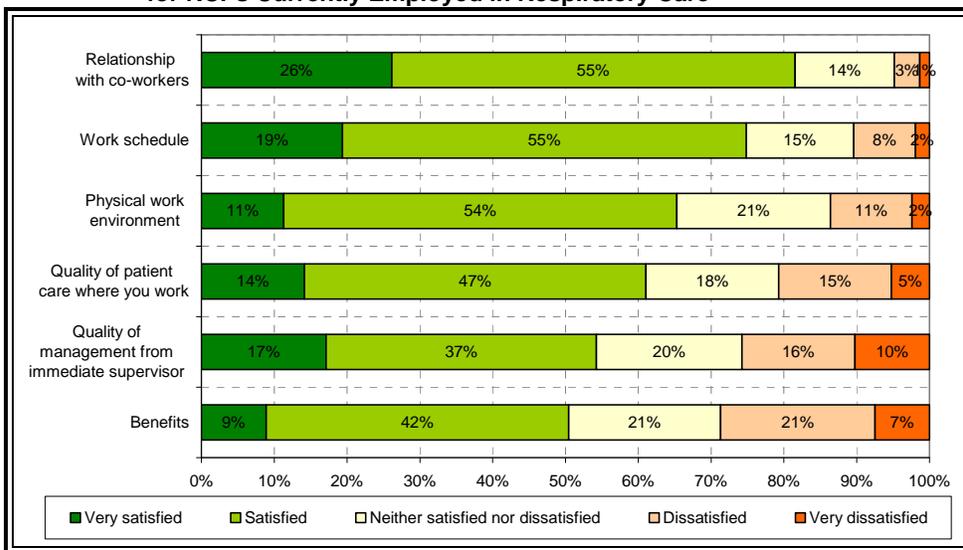
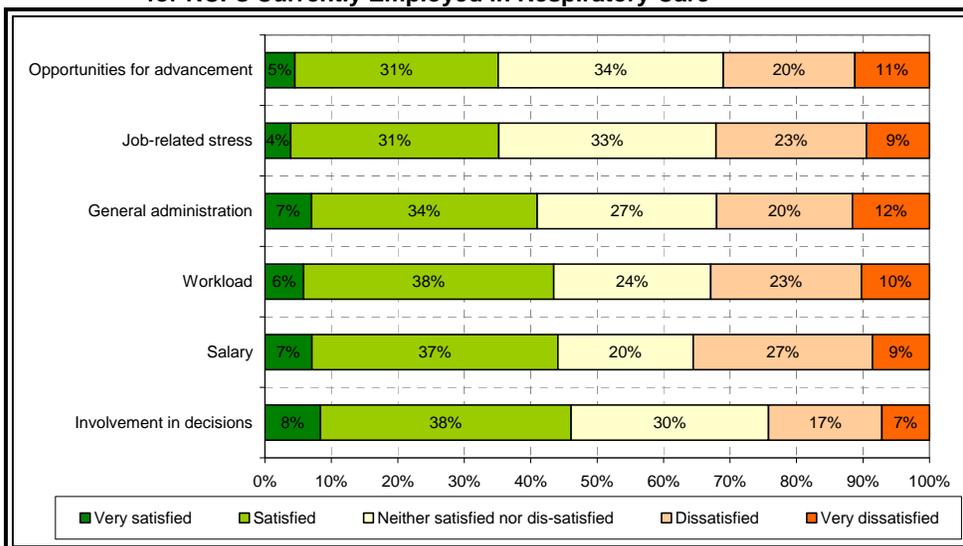


Figure 2.58: RCP Job Satisfaction Items with the Most Negative Ratings, for RCPs Currently Employed in Respiratory Care



Are workplace characteristics related to job satisfaction?

Variations in Job Satisfaction across Work Setting. RCPs working in three areas—durable medical equipment/home care, accredited education programs, and outpatient facility/physician offices—were significantly more satisfied with particular aspects of their jobs than RCPs working in other settings. Table 2.32 shows the percent of RCPs in each work setting who said they were either very satisfied or satisfied with aspects of their current job. RCPs working in an outpatient facility or physicians office were happier with their jobs than most other RCPs. Caution should be used since the number of RCPs working in this setting was small (between 27 and 28 respondents), but this group was more satisfied with their job overall, as well as with four facets of their work—including quality of care, general administration, involvement in decisions, and opportunities for advancement. RCPs working in the home care setting were more likely to say they were satisfied with their job overall, their workload, and involvement in decisions. RCPs working in educational programs were more satisfied with general facility administration and their involvement in decisions. It is interesting to note that RCPs in all three of these settings were more satisfied with their involvement in decisions than RCPs working in other settings.

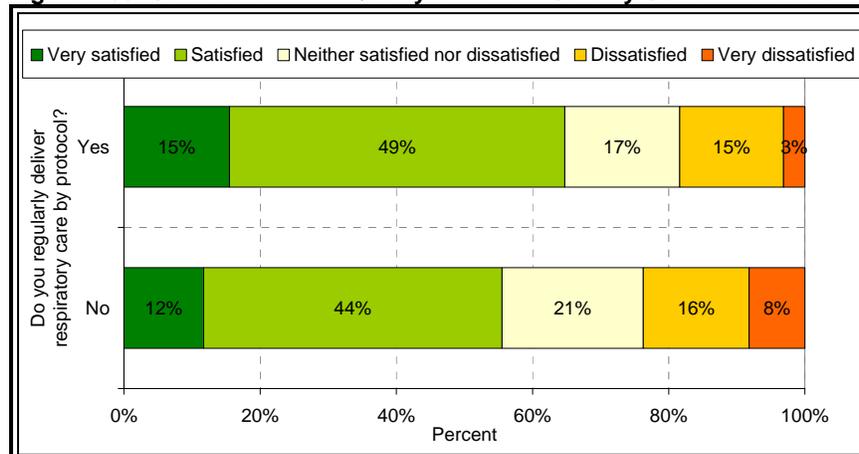
Table 2.32: Job Satisfaction by Current Work Setting

		Job Overall	Workload	Quality of patient care	General administration	Involvement in decisions	Opportunities for advancement
Percent very satisfied or satisfied	Acute care hospital	66%	42%	60%	40%	43%	33%
	Durable medical equipment/home care	83%	69%	75%	42%	67%	46%
	Long-term acute care, rehabilitation hospital, sub-acute care, skilled nursing facility	57%	38%	56%	38%	42%	30%
	Accredited education program	89%	44%	17%	67%	79%	50%
	Manufacturer/distributor	80%	40%	60%	60%	20%	40%
	Outpatient facility/physicians office	86%	59%	93%	63%	68%	64%
	Other setting	72%	60%	68%	42%	60%	29%
Number of cases	Acute care hospital	1,303	1,299	1,299	1,304	1,299	1,302
	Durable medical equipment/home care	36	36	36	36	36	35
	Long-term acute care, rehabilitation hospital, sub-acute care, skilled nursing facility	100	99	98	99	99	99
	Accredited education program	18	18	18	18	19	18
	Manufacturer/distributor	5	5	5	5	5	5
	Outpatient facility/physicians office	28	27	28	27	28	28
	Other setting	25	25	25	24	25	24

* "Boxed" percentages indicate work setting categories for which logistic regression analysis identified significantly higher levels of satisfaction ($p < .05$, with satisfaction variables collapsed to include "very satisfied" and "satisfied" categories).

Delivery of Respiratory Care by Protocol and Satisfaction with Quality of Patient Care. RCPs who reported routinely delivering respiratory care by protocol were significantly more satisfied with the quality of patient care where they worked. Sixty-five percent of RCPs who regularly used protocols were satisfied (includes very satisfied or satisfied response categories) with quality of patient care. In contrast, 54 percent of RCPs who did not regularly use protocols were satisfied with the quality of patient care.

Figure 2.59: Satisfaction with Quality of Patient Care by Use of Protocols



Workload Management Practices and Job Satisfaction. Two workload management techniques—concurrent therapy and routinely prioritizing care (or triage)—were related to overall job satisfaction and to satisfaction with three specific aspects of the job. RCPs who reported using either concurrent therapy or triage were significantly less satisfied and more dissatisfied with their job overall and with workload, quality of care, and involvement in decisions.

- Thirteen percent of RCPs who did concurrent therapy and 14 percent of those who triaged were dissatisfied (chose the “dissatisfied” or “very dissatisfied” category) with their job overall. In contrast, seven percent of those who did not do concurrent therapy and six percent of those who did not triage were dissatisfied with their job (see Figures 2.60 and 2.64).
- Twenty-six percent of RCPs who routinely prioritized care in order to manage their workload were dissatisfied with the quality of patient care where they worked (see Figure 2.66). Fewer RCPs who did not routinely triage—14 percent—were dissatisfied with the quality of patient care.
- The heavier demand placed on RCPs using these practices was reflected in satisfaction with their workload. Thirty-nine percent of those doing concurrent therapy and 44 percent of those doing triage were dissatisfied with their workload (Figure 2.61 and 2.65). RCPs who did not use these practices were less dissatisfied with their workload—24 percent of those who did not do concurrent therapy and 18 percent of those who did not triage were dissatisfied.

Figure 2.60: Satisfaction with Job Overall by Use of Concurrent Therapy

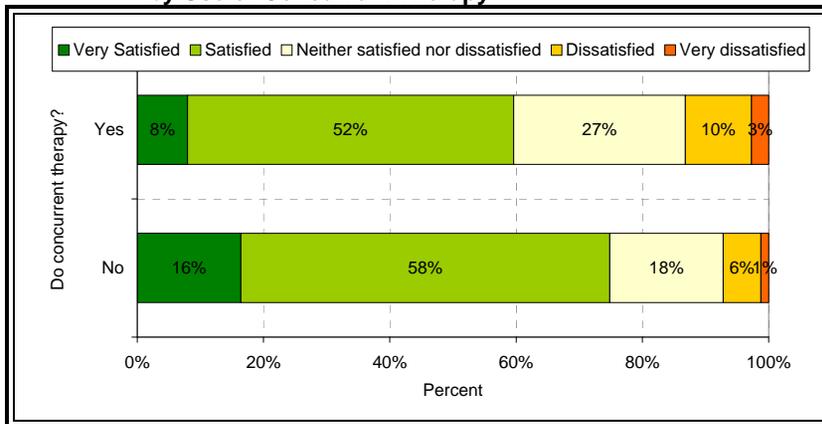


Figure 2.62: Satisfaction with Quality of Care by Use of Concurrent Therapy

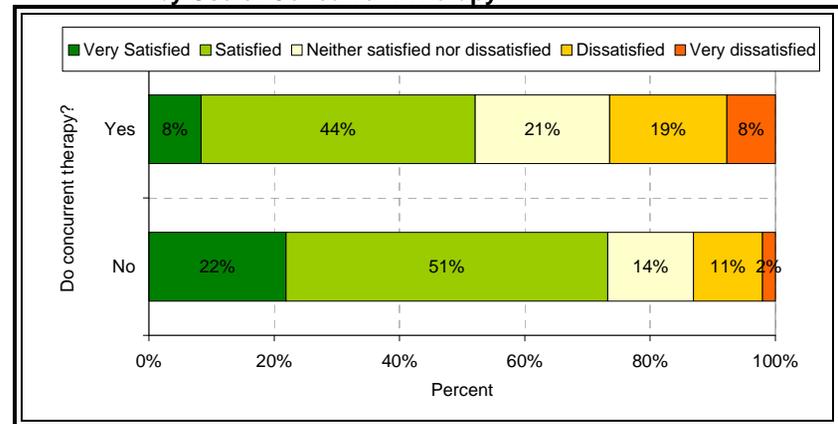


Figure 2.61: Satisfaction with Workload by Use of Concurrent Therapy

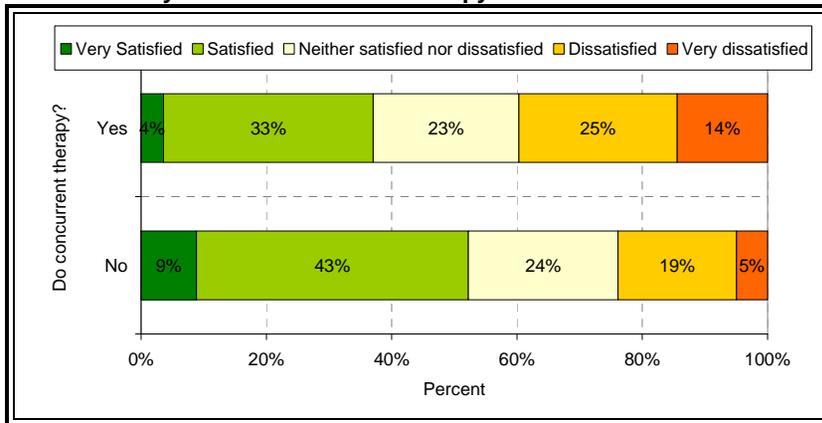


Figure 2.63: Satisfaction with Involvement in Decisions by Use of Concurrent Therapy

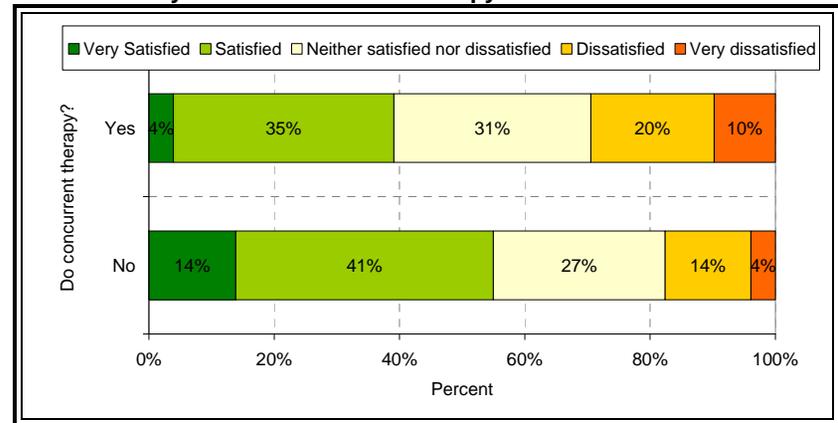


Figure 2.64: Satisfaction with Job Overall by Triage

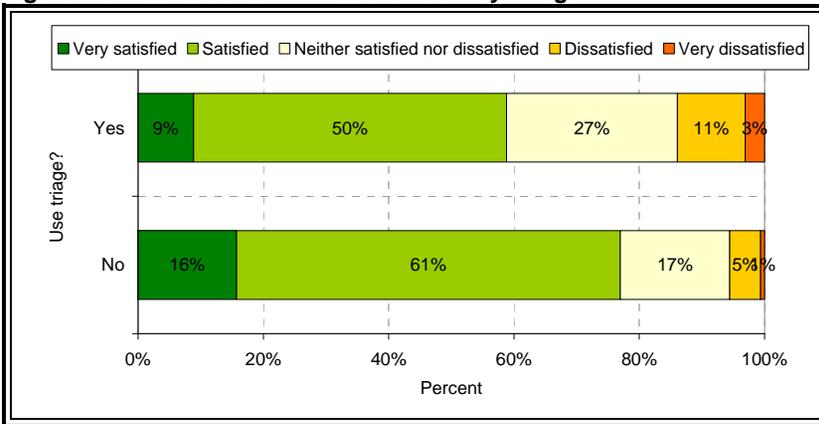


Figure 2.66: Satisfaction with Quality of Care by Triage

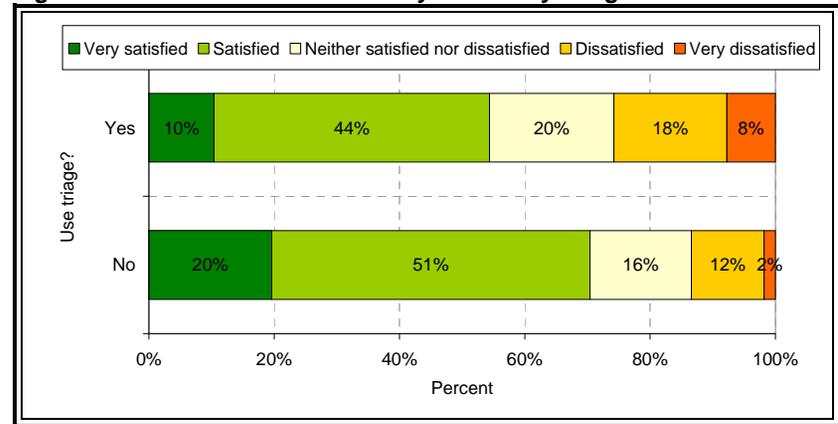


Figure 2.65: Satisfaction with Workload by Triage

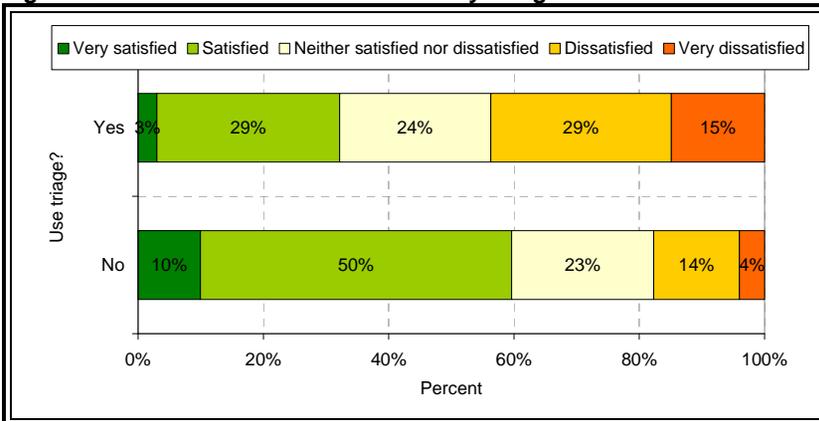
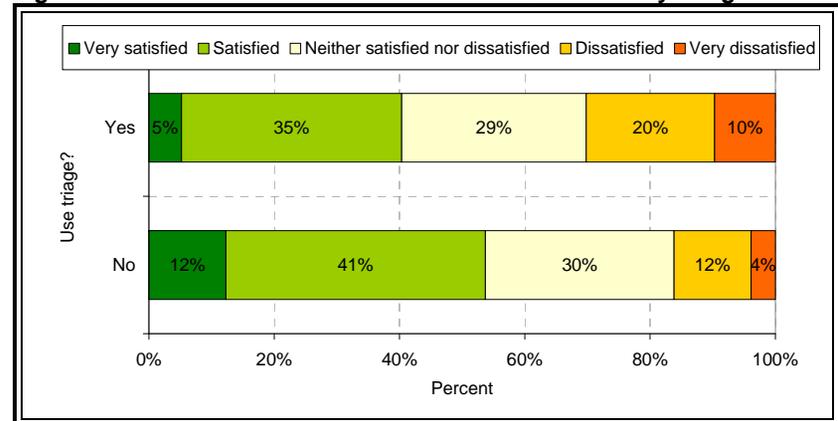


Figure 2.67: Satisfaction with Involvement in Decisions by Triage



Key Findings

Workplace policies—specifically, use of protocols, concurrent therapy, and triage—influenced how RCPs felt about their job and the quality of care they provided to patients.

Use of protocols was associated with higher levels of satisfaction with quality of patient care. Fifty-eight percent of RCPs reported routinely delivering respiratory care by protocol. These RCPs were significantly more satisfied with the quality of patient care. Forty-two percent of RCPs reported that they did not routinely deliver respiratory care by protocol. These RCPs were significantly less satisfied with the quality of patient care.

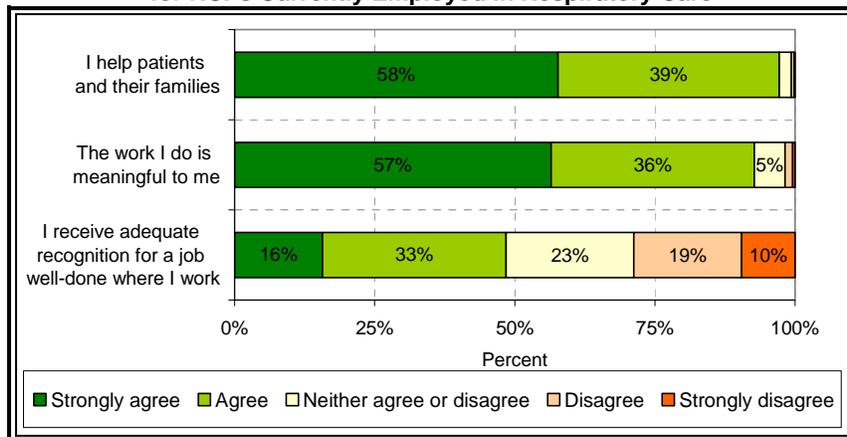
Use of concurrent therapy and triage was associated with lower levels of satisfaction with the quality of patient care. Additionally, use of both practices was also associated with lower levels of overall job satisfaction, satisfaction with workload, and involvement in decisions. This relationship is particularly important in light of the widespread use of both workload management practices—most RCPs (83%) reported routine use of one or both practices.

How rewarding is respiratory care?

Perceptions of Job Value and Recognition. The survey form included three statements designed to measure factors that make a health care job rewarding or unrewarding. Respondents were asked to rate their level of agreement with each statement for their most recent respiratory care work experience. Responses for two statements were overwhelmingly positive, but responses to the third statement were mixed. As levels of agreement for all three statements were very similar regardless of whether respondents were currently working in respiratory care, for simplicity's sake, the following discussion will focus on responses from those currently working in respiratory care.

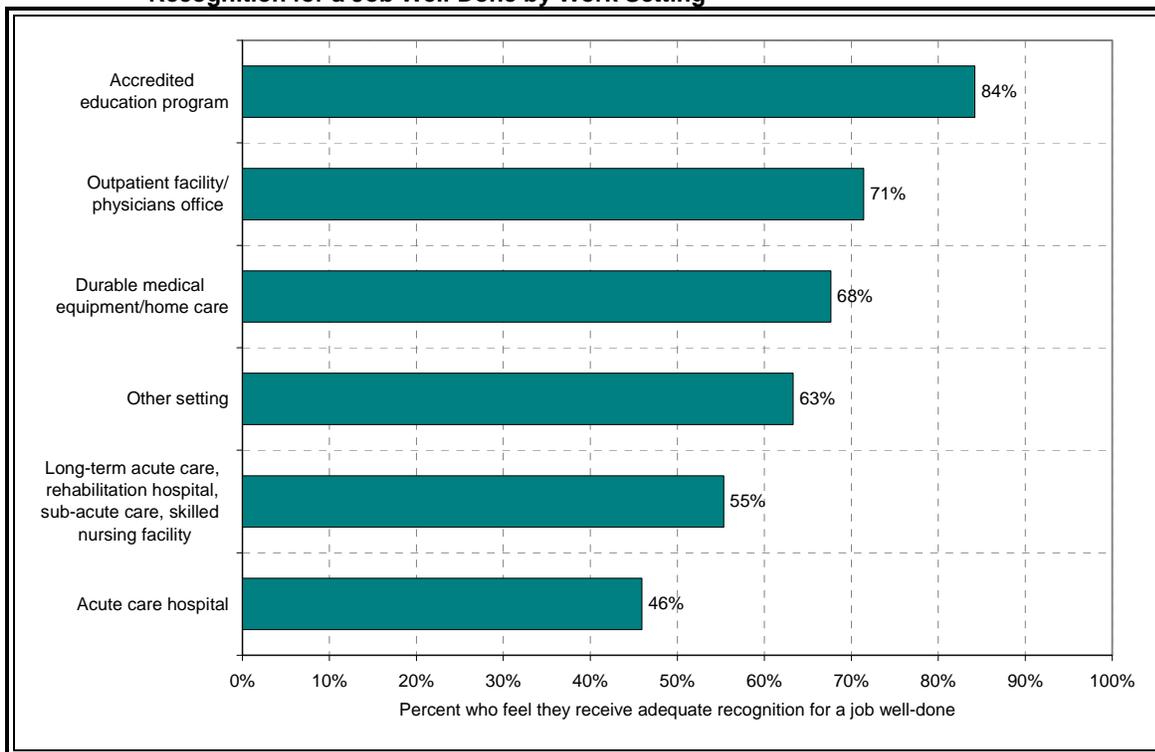
Virtually all RCPs agreed—and the majority *strongly* agreed—that they help patients and their families, and the work they do is meaningful. RCPs had mixed feelings about whether or not they receive adequate recognition for a job well-done. Just under half (49%) agreed that they receive adequate recognition, but 29 percent disagreed with this statement.

Figure 2.68: Level of Agreement with Statements about Most Recent Respiratory Care Work Experience, for RCPs Currently Employed in Respiratory Care



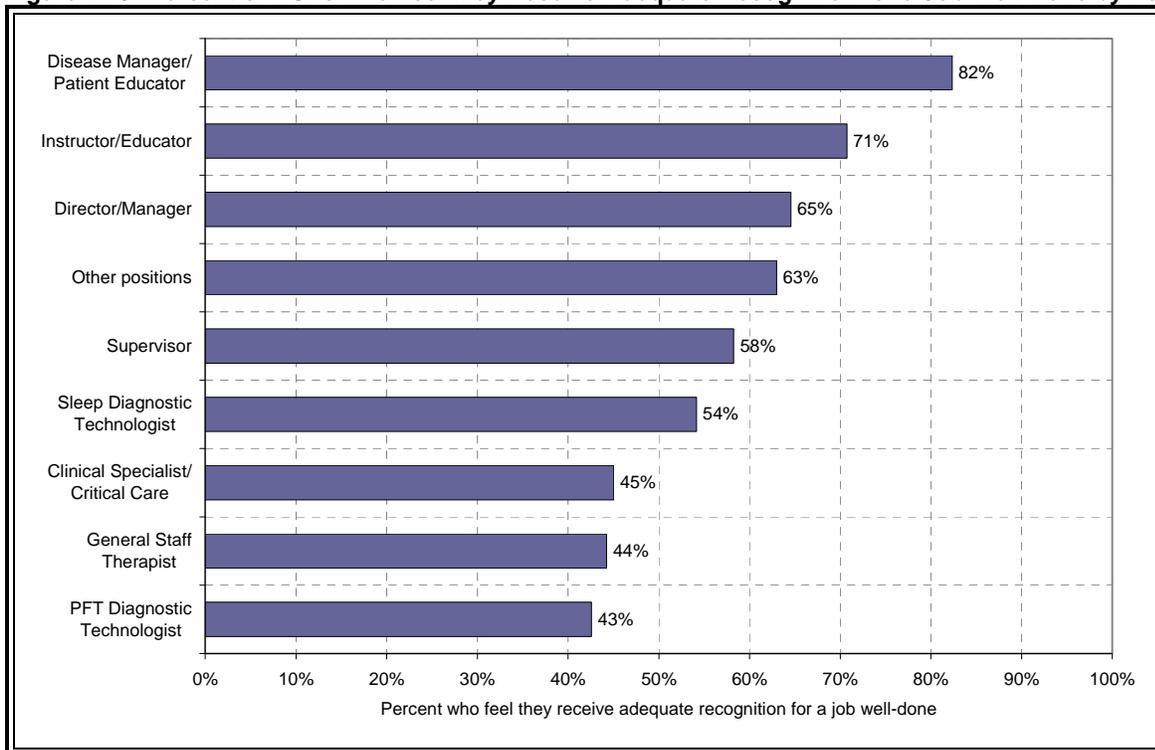
Feelings about recognition for a job well-done varied considerably across work settings and position categories. Figure 2.69 shows the percent of RCPs in each work setting who agreed or strongly agreed that they receive adequate recognition. RCPs working in accredited education programs, outpatient facilities or physician’s offices, and in home care were more likely to feel they received adequate recognition than RCPs working in other settings. RCPs working in education programs felt the best about this aspect of their job—84 percent of them agreed or strongly agreed that they received adequate recognition. Close to seventy percent of RCPs working in outpatient facilities or physician’s offices and home care felt they received adequate recognition (71% and 68% respectively). Figure 2.70 shows the percent of RCPs in each position category who agreed or strongly agreed that they receive adequate recognition. RCPs who indicated their position best fit in the Disease Manager/Patient Educator, Instructor/Educator, or Director/Manager categories were more likely than other RCPs to feel they received adequate recognition.

Figure 2.69: Percent of RCPs who Feel they Receive Adequate Recognition for a Job Well-Done by Work Setting



* Because the number of cases was small, categories for "Manufacturer/Distributor" and "Other" were combined for this distribution.

Figure 2.70: Percent of RCPs who Feel they Receive Adequate Recognition for a Job Well-Done by Position



* Because the number of cases was small, categories for "Other Diagnostic Technologist" and "Other" were combined for this distribution.

Employment outside Respiratory Care. Respondents currently employed in respiratory care were asked whether they currently held another job in a profession outside respiratory care. Twelve percent indicated that they currently had a job in another field. When asked to describe the reason they worked outside respiratory care, the largest group of respondents (39%) said they were dissatisfied with the salary available in respiratory care. Respondents could select more than one category, but none of the other reasons—including dissatisfaction with the profession, positions available, and benefits—were as significant a factor as salary. Respondents were also provided with an “other” category and asked to describe additional reasons for working in another field. Forty-five percent chose this category. They described a wide range of reasons for working another job outside respiratory care. The most common theme among these responses was enjoying their other work and the variety it provided.

Figure 2.71: Non-Respiratory Care Employment for RCPs Currently Employed in Respiratory Care

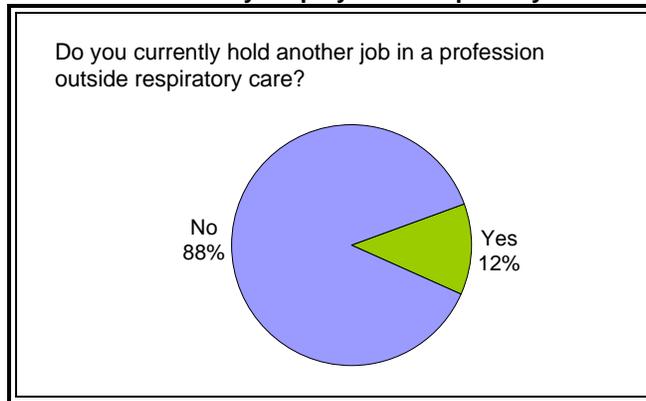
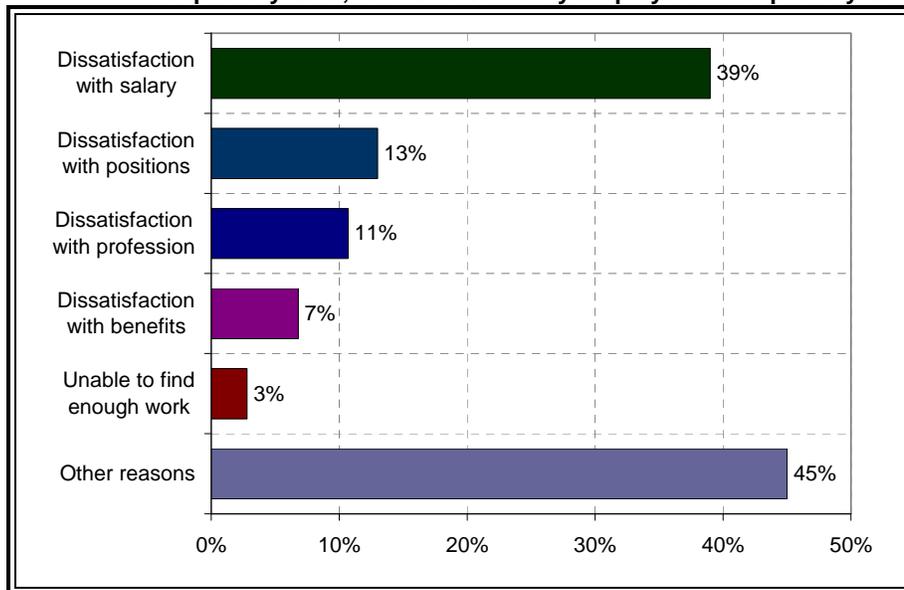


Figure 2.72: Reasons for Holding another Job in a Profession outside Respiratory Care, for RCPs Currently Employed in Respiratory Care



Why do people leave the respiratory care profession?

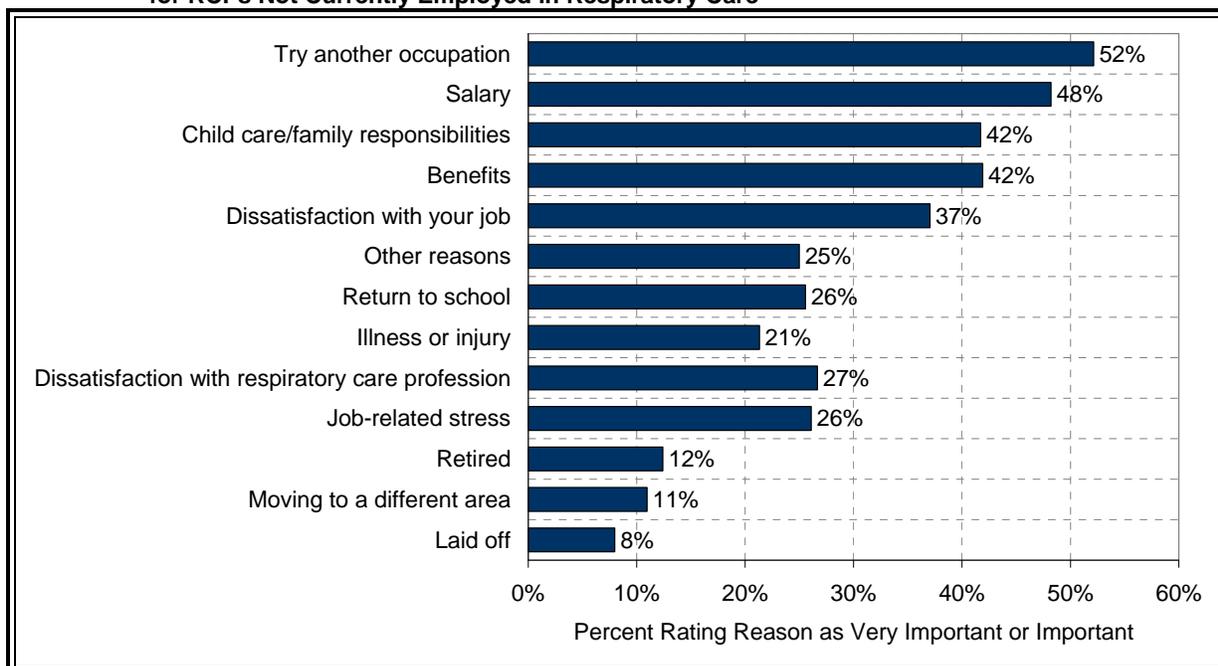
Views of Those Who Have Left Respiratory Care. One of the survey questions asked those individuals who have left respiratory care to rate the importance of nine factors in their decision to leave. Among the nine factors displayed in Figure 2.73, five factors stood out as predominate reasons (rated as Very Important or Important) why RCPs indicate they left the profession including:

- trying another occupation (52%),
- salary (48%),
- benefits (42%),
- child care/family responsibilities (42%), and
- job dissatisfaction (37%).

It is interesting that four of the five top reasons for leaving respiratory are directly related to the job itself, rather than external factors. In contrast, several factors seemed to have little impact on the decision to leave for a large majority of these RCPs. Among the factors having little impact were:

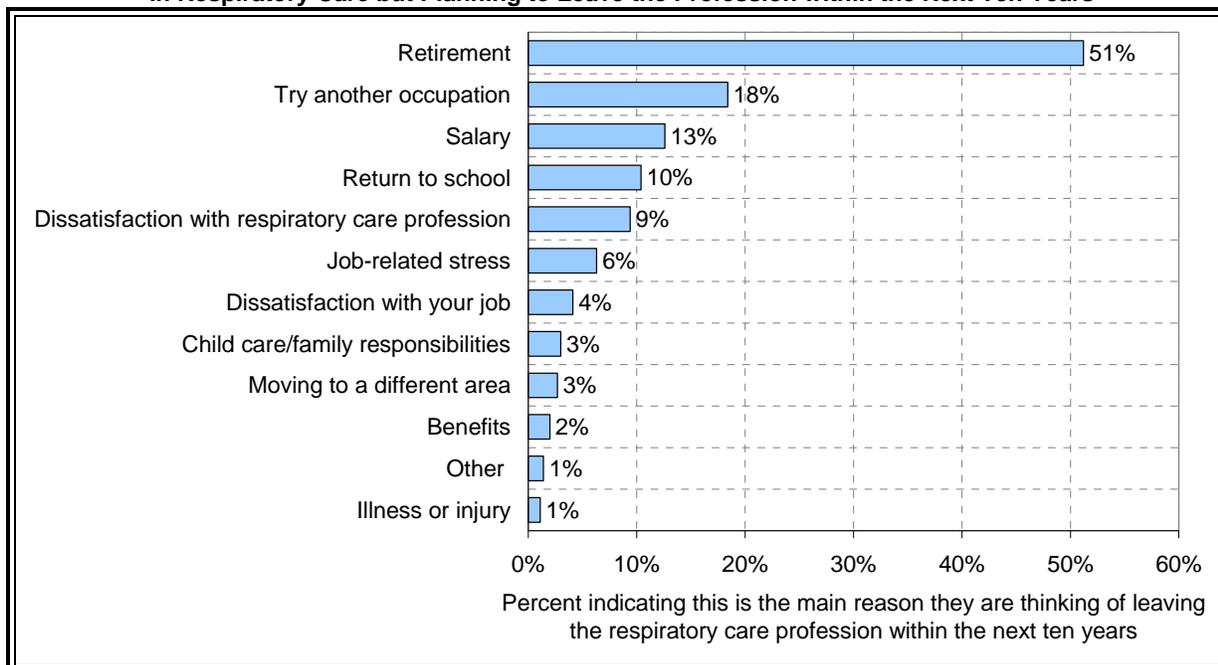
- retiring (12%)
- moving to a different area (11%), and
- being laid off (8%).

Figure 2.73: Importance of Factors in Decision to Leave Respiratory Care, for RCPs Not Currently Employed in Respiratory Care



Views of Those Still Working in Respiratory Care. A similar question⁸ was asked of RCPs who are still working, but who indicated that they were planning on leaving respiratory care within the next ten years. Within the top five reasons given by this group, only two, “trying another occupation” and “salary”, were the same as those indicated by RCPs who had already left respiratory care. Perhaps most striking and different than those already out of the workforce was the large percentage (51%) of RCPs who selected retirement as their motivation for leaving⁹ (see Figure 2.74). This was selected by 326 of the 637 RCPs who answered this question. Extrapolating to the larger population, this would suggest that of the current 12,496 active licensees who are currently working in respiratory care, about 2,981 are considering leaving for retirement in the next ten years. Additional analysis conducted on this finding indicates that if we isolate the group of individuals who indicate they plan to leave the profession in the next five years, the percentage leaving for retirement is 57.4%. Extrapolated to the current population of active RCPs, the number of RCPs leaving the profession in the next five years will be about 18 percent of the current workforce (2,212 individuals) and within that group, about 1,270 are considering retirement.

Figure 2.74: Main Reason for Thinking of Leaving Respiratory Care, for RCPs Currently Employed in Respiratory Care but Planning to Leave the Profession within the Next Ten Years



⁸ In this question, respondents were not asked to rank the importance, but rather to simply select the primary reason they were thinking about leaving respiratory care in the next ten years.

⁹ Again this is probably explained by the fact that the group we examined who were not currently in the respiratory care profession still retained active licenses, and many of those not in the workforce and retired have simply let their licenses expire or have gone into the group designated in the licensing database as retired. Thus, this group is “underestimated” in the licensee base.

Views of the Two Groups on Key Job Elements. One final comparison was made between those currently working in respiratory care and those not presently in the profession based on a survey question that asked both groups to rate various dimensions of their most recent respiratory care position.¹⁰ From this comparison, it was hoped that differences between those groups might help illuminate differences in “pushes” and “pulls” for staying in or leaving respiratory care. As seen in Table 2.33, the groups differed on a number of the dimensions related to their most recent respiratory care position. Among those differences, several stood out. Perhaps one of the most interesting was salary. Here 7.5 percent more of those not working in respiratory care were *satisfied* with their last respiratory care salary than those currently working in the profession. At the other end of the spectrum, 9.3 percent more of those currently working in respiratory care indicated more *dissatisfaction* with their salary. Statistical tests run on these findings indicate these are statistically significant differences ($\chi^2=3.461$, $p=.038$ (Fischer’s Exact Test for positive difference); $\chi^2=5.588$, $p=.01$ (Fischer’s Exact Test for negative difference)).

Table 2.33: Satisfaction with Most Recent Respiratory Care Position by Current Respiratory Care Employment Status

	Percent who are satisfied or very satisfied			Percent who are dissatisfied or very dissatisfied		
	Employed in RC	Not employed in RC	Difference	Employed in RC	Not employed in RC	Difference
Salary*	44.0%	51.5%	-7.5%	35.4%	26.1%	9.3%
Benefits	48.1%	47.2%	0.9%	27.3%	27.6%	-0.3%
Work schedule*	74.6%	56.6%	18.0%	10.3%	20.8%	-10.5%
Physical work environment*	65.2%	56.3%	8.9%	13.6%	13.8%	-0.2%
Job-related stress	34.9%	30.5%	4.4%	31.9%	35.4%	-3.5%
Workload	43.2%	37.5%	5.7%	32.7%	38.1%	-5.4%
Quality of patient care where you work	60.3%	54.7%	5.6%	20.4%	19.1%	1.3%
Relationship with co-workers*	81.4%	68.4%	13.0%	4.8%	13.3%	-8.5%
Quality of management from your immediate supervisor*	53.8%	47.5%	6.3%	25.5%	33.8%	-8.3%
General administration of the facility, organization or agency where you work	40.7%	38.2%	2.5%	31.8%	33.2%	-1.4%
Involvement in decisions*	45.0%	36.6%	8.4%	23.7%	26.7%	-3.0%
Opportunities for advancement	33.8%	30.1%	3.7%	30.0%	36.3%	-6.3%
Your job overall*	66.1%	56.3%	9.8%	10.6%	20.0%	-9.4%

* Significant relationships (Fischer’s Exact Test $p < .05$) are in boldface.

¹⁰ For the group not currently working in respiratory care, this would have been the last position they held while working in the profession.

In all the other areas in which there were statistically significant major differences, those currently working in respiratory care were significantly happier (in most cases, both more satisfied and less dissatisfied) than those not working in respiratory care. These areas are summarized below:

More Satisfied

- work schedules
- physical work environment
- relationships with coworkers
- involvement in decisions
- job overall

Less Dissatisfied

- work schedules
- physical work environment
- relationships with coworkers
- quality of management from immediate supervisor
- job overall

Key Finding

Results would suggest that while those not working in respiratory care say salary is an important factor in leaving the profession, they are actually more satisfied with the salary (in their last position) than those still in respiratory care. Conversely, there are a number of other job related factors on which the group now outside respiratory care has significantly more negative views, i.e., less satisfaction and more dissatisfaction.

A Future Perspective

One of the key factors in developing projections about the future of the RCP workforce is to consider the entrance and exit of individuals from that workforce. Several pieces of information from the RCP survey are available to provide insight into this area.

How long do current RCPs plan on working?

Two separate survey questions asked currently working RCPs about their perceptions about leaving the profession. The first of these two questions asked, “How many years do you intend to remain in the respiratory care profession?” The second asked, “How many years do you plan to keep your California Respiratory Care Practitioner license?” The first question was expected to elicit a slightly more conservative estimate of the time remaining in the profession, as an RCP might plan to maintain a license even though he/she might not plan on working in respiratory care. For example, as in the case of an individual who was planning on trying a different career, but wanted the license as a fallback position.

A significant number of those currently employed in respiratory care—47 percent—reported that they intend to leave the respiratory care profession within the next ten years. On average, those currently employed in respiratory care intend to remain in respiratory care an average of 14 years.

Figure 2.75: Number of Years RCPs Currently Employed in Respiratory Care Intend to Remain in the Respiratory Care Profession

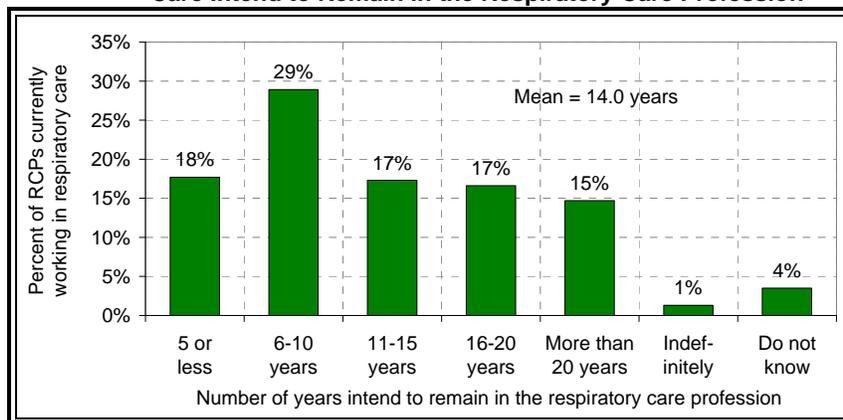


Figure 2.76 shows the distribution of the length of time RCPs employed in respiratory care intend to keep their California license active. They intend to keep their California license active slightly longer than they intend to remain in respiratory care—an average of 14.9 years.

Figure 2.76: Number of Years RCPs Currently Employed in Respiratory Care Intend to Keep their California RCP License Active

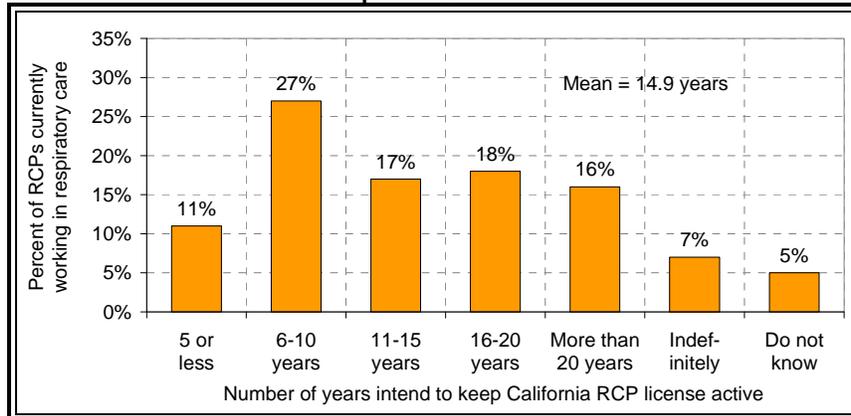
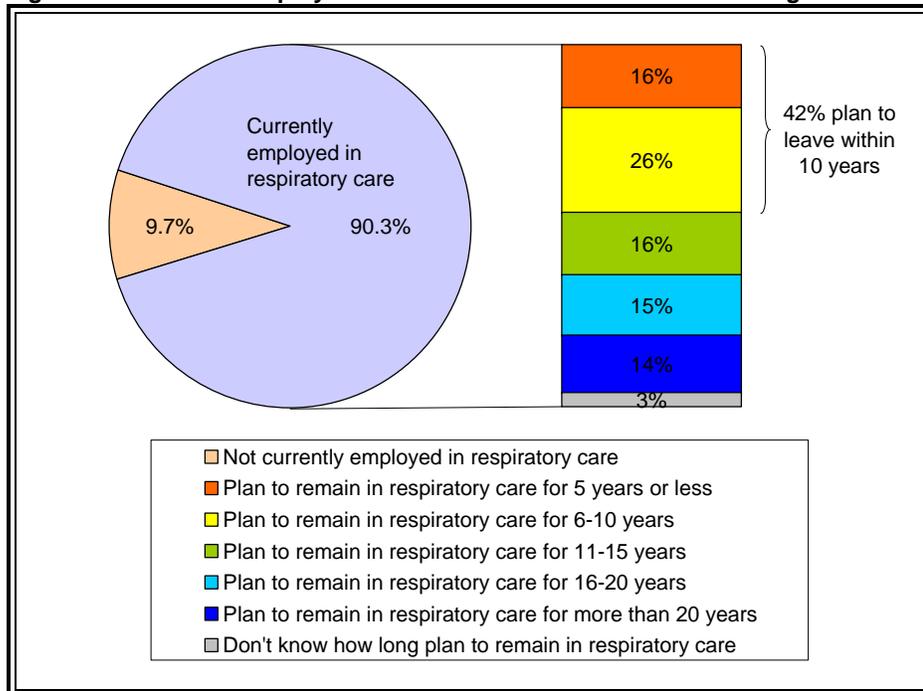


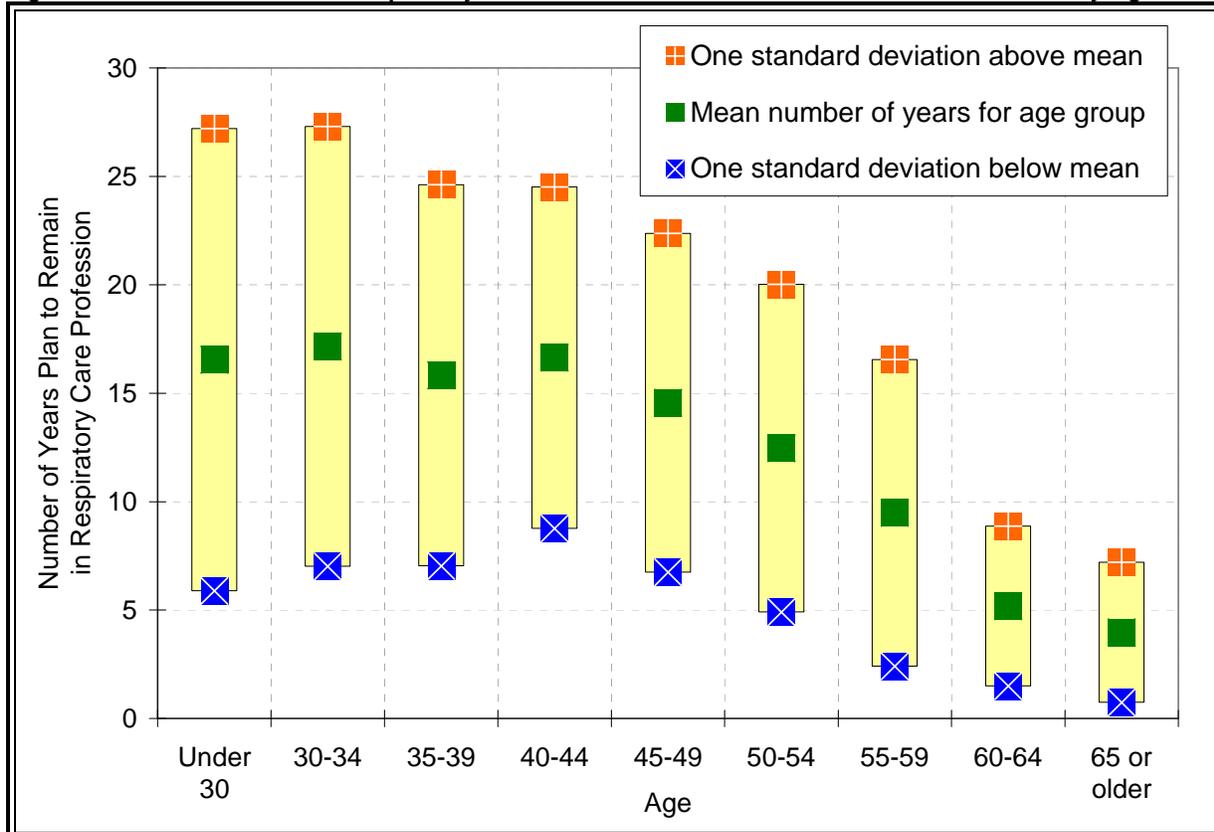
Figure 2.77 puts the intentions regarding remaining in the respiratory care profession in context for the potential workforce. Forty-two percent of all respondents indicated that they intend to leave respiratory care within the next ten years. Extrapolating to the 2006 license base suggests that of the 13,884 active, clear licenses (i.e., the potential working pool) 5,828 individuals intend to leave the profession during the next ten years. Thirty-nine percent of all respondents indicated that ten years from now, they do not intend to keep their California license active. Extrapolating to the same license base, 5,358 individual intend to move out of an active license status during the next ten years.

Figure 2.77: Current Employment Status and Intentions for Remaining in the Profession



The Relationship between Remaining in the Profession and Age. Those currently working in respiratory care and answering the question about how many years they intended to remain in respiratory care, on average (mean), plan to spend fourteen more years in the profession. However, as might be logically assumed, the years that RCPs think they will remain in the profession is determined, in part, by their age. For example, the youngest age category of respondents, those under 30, on average, estimate they will stay in the profession a little more than 16½ years, while the oldest age group, those over the age of 65 estimate they will be in the workforce a little less than 4 years (see Figure 2.78 for an overview of the distribution of time RCPs intend to remain in the profession by age category).

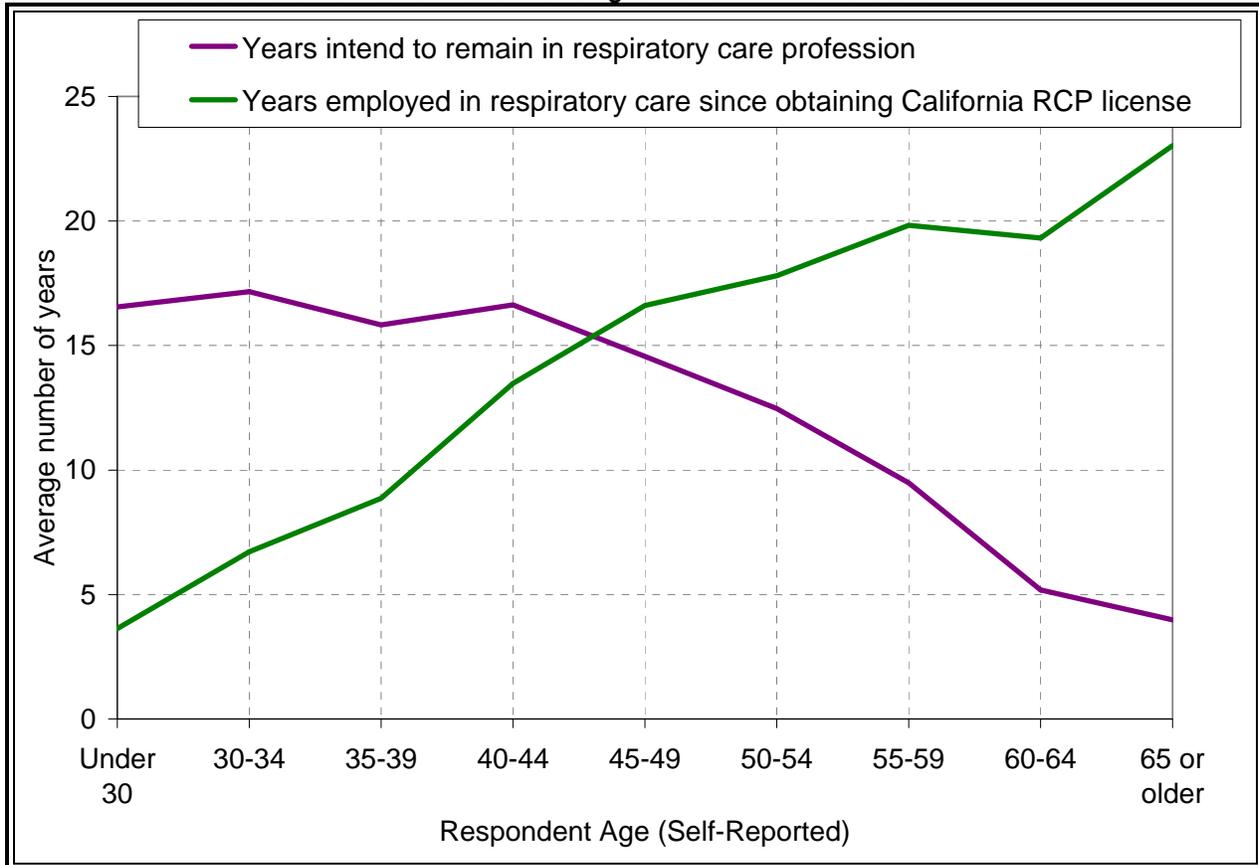
Figure 2.78: Number of Years Respiratory Care Practitioners Plan to Remain in the Profession by Age Group



Analysis of the differences between the nine age groups, confirms that age groups are statistically different (ANOVA, F ratio=26.71, sig.=.000) as to when they anticipate leaving the workforce. However, time in the work force is slightly more complex than it may first appear. First, there is considerable variation within the different age groups. For example, the under 30 group indicated that, on average, individuals would remain in the workforce about 16½ years. Yet, within that group, 68 percent fell between 5.9 years and 27.20 years in their estimates. Termed variance, this range suggests that there is a wide range of perceptions about how long this youngest group will continue in the profession. As we move into older age ranges, the variance of estimates grows smaller. However, in proportion to the average number of years RCPs plan to remain in the profession, there is less consensus among older workers. For example, as a group,

RCPs who are 65 and older, estimate they will remain in the workforce about 4 years more, however, they range in estimates from one-half year (.5) to 11 years, and again the range captured by 68 percent of the population (1 standard deviation) is between three-quarters (.74) of a year to 7.2 years.

Figure 2.79: Relationship between Age, Number of Years in Profession since Licensure and Number of Years Intending to Remain in the Profession



To provide a better perspective on the relationship between working in the profession and age, additional analysis was conducted to look at the relationship between the RCPs age, the amount of time they had been in the profession and their estimates of how much longer they would remain in the profession. Figure 2.79 vividly displays the relationship between the age of those working in respiratory care, the number of years they have been in the profession and the number of years they anticipate continuing to work. As displayed in the graph, there is a crossover point in the mid-forties when the time spent in the profession and the time they intend to spend working are approximately equal—13 to 14 years). In Figure 2.79, we can see from the distribution of RCPs by age that a fairly substantial and predictable drop in the years in which RCPs plan to work in the profession occurs once individuals reach their mid-forties.

Key Finding

To appreciate the impact of age on the future of the workforce, two factors should be kept in mind. First, the average (mean) age of the current RCP workforce is 45.4. Second, more than one-half (55%) of the RCPs surveyed were 45 or older and one-fourth of the RCPs surveyed were 54 or older. Essentially then, the combination of age and the time RCPs say they plan to remain in the profession suggests that the profession will lose a substantial proportion of working RCPs in the coming decade, and coupled with the fact that a large replacement group doesn't appear to be waiting in the wings, there could be a substantial impact on the size of the workforce. Coupled with this finding is the intuitive connection (confirmed by our analysis of certifications and credentials) that the workforce will lose not only workers, but will lose a disproportionate amount of its experienced workers with advanced skill sets.

Chapter 3: Respiratory Care Practitioner Employer Survey

Major Goals

The RCP employer surveys were designed to obtain information about the context in which respiratory care in California is provided. The objective was to focus on major RCP employers throughout the state.

Methodology

Sampling Design. Findings from the practitioner survey regarding the settings in which RCPs work were used to design the sample for the employer surveys. The RCP survey showed that acute care hospitals are the primary employers of RCPs in California. Eighty-five percent of all RCP hours were worked in acute care hospitals.

The State Utilization Data File of Hospitals for Calendar Year 2005 (from The Office of Statewide Health Planning and Development (OSHPD) Healthcare Information Resource Center) was used to define the sampling frame for the acute care employer survey. This file contains information for all general acute care hospitals in California. The file contains a great deal of information about each hospital, including a code describing the principal service provided by the hospital. In order to maximize the efficiency of the sample by including hospitals most likely to employ RCPs, 16 facilities whose principal service was psychiatric, chemical dependency or “other services” were dropped. As there were 400 open hospitals, this left 384 hospitals eligible for inclusion in the initial sampling frame (see Table 3.1 below).

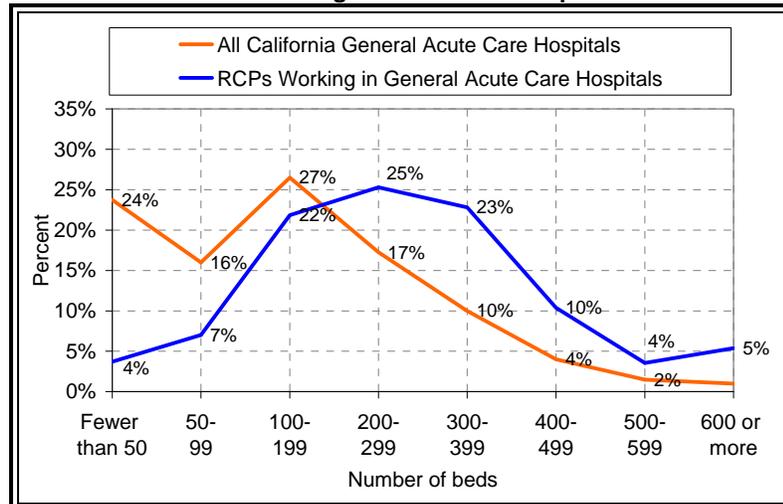
Table 3.1: Principal Service for All Open General Acute Care Hospitals, California 2005*

		Number of hospitals
Included in initial sampling frame (384 total)	General Medical/Surgical	349
	Long-Term Care (SN/IC)	16
	Physical Rehabilitation	8
	Developmentally Disabled	4
	Pediatric	7
Excluded from sampling frame (16 total)	Psychiatric	9
	Chemical Dependency (Alcohol/Drug)	1
	Other	6
Total		400

* Source: Office of Statewide Health Planning and Development (OSHPD) Healthcare Information Resource Center, State Utilization Data File of Hospitals for Calendar Year 2005. Distribution includes all 400 open hospitals.

Results from the RCP survey showed that RCP employment was concentrated in medium and larger hospitals (See Figure 3.1). Two thirds of RCPs were employed in hospitals with 200 or more beds. In contrast, one-third of California’s general acute care hospitals have 200 or more beds.

Figure 3.1: Comparison of the Distribution of the Number of Beds for All California General Acute Care Hospitals and for RCPs Working in Acute Care Hospitals*



* Source: Office of Statewide Health Planning and Development (OSHPD) Healthcare Information Resource Center, State Utilization Data File of Hospitals for Calendar Year 2005. Distribution includes all 400 open hospitals.

In order to create an acute care employer sample that would be more representative of the RCP workplace than a simple random sample, the sampling frame was stratified to include all teaching hospitals and designated trauma centers. An EPSEM random sample of 32 hospitals was drawn from the remaining 315 hospitals (See Table 3.2).

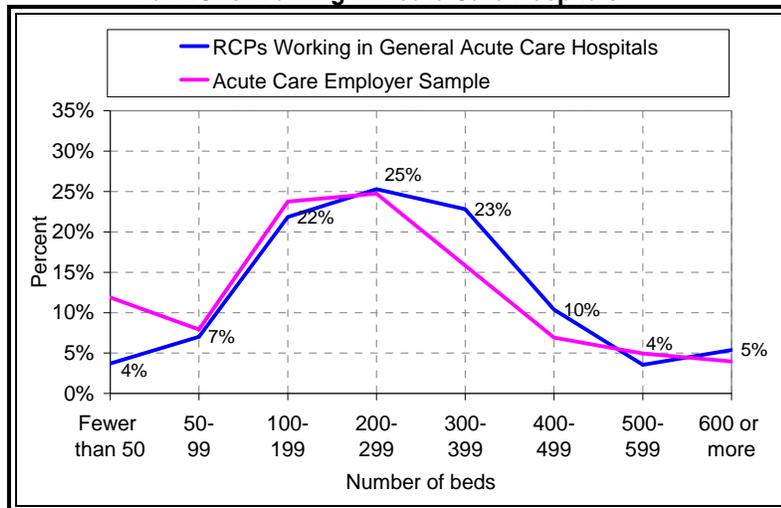
Table 3.2: Acute Care Employer Sample Selection Criteria

	Open Hospitals, Calendar Year 2005*	Sampling frame	Sample
Ineligible based on principal service provided	16	n/a	n/a
Teaching hospitals and trauma centers	15	15	15
Teaching hospitals	9	9	9
Designated trauma centers	45	45	45
Remaining hospitals	315	315	32
Total	400	384	101

* Source: Office of Statewide Health Planning and Development (OSHPD) Healthcare Information Resource Center, State Utilization Data File of Hospitals for Calendar Year 2005. Distribution includes all 400 open hospitals.

The resulting sample included a total of 101 hospitals. Figure 3.2 illustrates how the final sample distribution more closely approximates the distribution of RCP work setting.

Figure 3.2: Comparison of the Distribution of the Number of Beds for the Acute Care Employer Sample and for RCPs Working in Acute Care Hospitals



The RCP survey showed that 6.8 percent of all RCP hours were worked in long-term acute care hospitals, rehabilitation hospitals, and sub-acute care facilities. It was difficult to define a sampling frame for this employer category. OSHPD's Healthcare Information Resource Center maintains data on Long-Term Care Facilities (this was initially considered as a potential sampling frame). The problem was that Expert Panel members indicated most facilities in this category do not employ RCPs. For this reason, an alternative strategy was devised to identify potential RCP employers in this area. In order to avoid the impractical situation of contacting numerous facilities in order to reach one who employed RCPs, the research team began collecting data from acute care hospital survey respondents regarding the facilities to which they discharge patients requiring on-going respiratory care. We were surprised to find that acute care hospitals most often transfer patients requiring on-going respiratory care to *other general acute care hospitals*. Nearly all of the facilities that acute care hospitals reported discharging to were included in the acute care hospital sampling frame described earlier in this chapter. Several of the hospitals to which patients were discharged were included in the original acute care employer sample and participated in the survey. This means that the acute care employer survey findings describe a broader range of settings than was originally anticipated and include the perspectives of employers from long-term acute care hospitals, rehabilitation hospitals and sub-acute care facilities, as well as the perspectives of acute care employers. Further study would be necessary to properly investigate any differences in the practices and perspectives of employers in these different inpatient care settings.

The RCP survey showed that only 2.4 percent of all RCP hours were worked in durable medical equipment and home care settings. OSHPD's Healthcare Information Resource Center maintains data on Home Health Agencies and Hospices, and this was

initially evaluated as a potential sampling frame. However, Expert Panel members indicated that due to MediCare and Medicaid policies regarding respiratory services, most RCPs working in home care settings in California are employed by organizations licensed as Home Medical Device Retailers (HMDRs) by the California Department of Health Services (CDHS) Medical Device Safety Unit.

In January 2006, the CDHS Medical Device Safety Unit provided a list of all HMDRs and the commodities they provide. The list contained 643 HMDRs with current licenses to provide Respiratory Equipment/O₂ Supplies. The data did not include information on facility size, but the members of the study's Expert Panel indicated that RCP employment patterns for home care organizations are similar to those for acute care hospitals—larger facilities are more likely to employ RCPs. The California Association of Medical Product Suppliers (CAMPS) was identified as a subset of agencies that would be likely to include the largest HMDRs. CAMPS provided a copy of their membership list and it was cross-referenced with the HMDR commodity code list. As a proxy for stratification by facility size, separate EPSEM random samples were drawn within each CAMPS membership group. A random sample of 70 facilities was drawn from the 93 CAMPS membership facilities, and a random sample of 30 facilities was drawn from the 550 non-member facilities (See Table 3.3).

Table 3.3: Durable Medical Equipment/Home Care Employer Sample Selection Criteria

CAMPS membership	HMDRs licensed to provide respiratory equipment/supplies	Durable medical equipment/home care employer sample
Yes	93	30
No	550	70
Total	643	100

Survey Development. An Expert Panel of nine RCPs from throughout the state was assembled in January 2007 to assist the ISR with the development of the survey instruments for RCP employers and educational program directors. Panel members were selected to provide perspectives from a variety of work and program settings. Based on recommendations from the Expert Panel and a review of the literature, draft survey instruments for three employer categories—acute care employers, home care employers, and employers from “other” care settings (including long-term acute care, rehabilitation hospitals, sub-acute care, and skilled nursing facilities)—were prepared and submitted to the Board and Expert Panel for review.

The draft surveys were revised to reflect feedback from the Board and Expert Panel. The final surveys included between 34 and 35 questions, depending on the employer category. The surveys asked employers about their current respiratory care staffing situation as well as their anticipated patient and staffing trends in the next five years. The Expert Panel indicated that the ideal survey respondents—the people who would be able to provide the most accurate information about RCPs in their facility—were Respiratory Therapy Department Directors and Managers. In order to make the survey

process efficient and convenient for this group, data was collected via a web survey. After making initial phone calls to identify the appropriate respondent and obtain their contact information, potential respondents were sent an email containing a link to the survey and a unique password. Some respondents indicated that a hard-copy survey would be more convenient for them; they were faxed a copy of the survey form. The survey questions, along with responses to each item, are included in Appendix 4.

Response Rates. Of the 101 general acute care hospitals included in the sample, one was no longer operating and two indicated they did not employ RCPs. This reduced the number of eligible hospitals in the sample to 98. Completed surveys were obtained from 62 of these 98 hospitals—a response rate of 63 percent. Table 3.4 shows response rates by facility type as well as the distribution of participating hospitals.

Table 3.4: Response Rate for Acute Care Employer Survey by Facility Type

	Sample	Ineligible*	Eligible	Hospitals Completing Survey**	Response Rate
Teaching hospitals and trauma centers	15	0	15	8	53%
Teaching hospitals	9	0	9	6	67%
Designated trauma centers	45	2	43	31	72%
Remaining hospitals	32	1	31	17	55%
Total	101	3	98	62	63%

* One hospital was no longer operating. Two did not employ RCPs.

** One respondent provided information for two teaching hospitals.

Of the 100 HMDR facilities included in the sample, the research team was able to identify 61 facilities that employed RCPs. Completed surveys were obtained from 16 of these facilities—a response rate of 26 percent. Table 3.5 shows response rates by CAMPS membership. Twelve of the 16 surveys were completed by facilities who are CAMPS members. Table 3.5 also shows the percent of facilities reporting that they employed RCPs. If CAMPS membership was an effective proxy for size, then the findings suggest that larger DME/home care facilities were more likely to employ RCPs. Eighty-three percent of the 58 CAMPS member facilities screened for eligibility reported employing RCPs. In contrast, 52 percent of the 25 screened non-member facilities reported employing RCPs. The survey sample intentionally over-represented CAMPS facilities; weighting the survey results back to the actual distribution of CAMPS member facilities in the sampling frame produces an estimate that 56 percent of HMDRs licensed for respiratory equipment and/or supplies employed RCPs.¹¹

¹¹ The sampling frame for HMDRs licensed to provide respiratory equipment and/or supplies included 93 CAMPS members and 550 non-members. Applying the percentages of RCP employment from the screened sample (83% and 52% respectively) to each facility category produces an estimated 77 CAMPS facilities who employed RCPs and 286 non-CAMPS facilities who employed RCPs (363 total). This yields an overall estimate that approximately 56 percent of all HMDRs (363 / 643) employed RCPs.

Table 3.5: Response Rate and Employment of RCPs for Durable Medical Equipment/Home Care Employers by Sampling Category

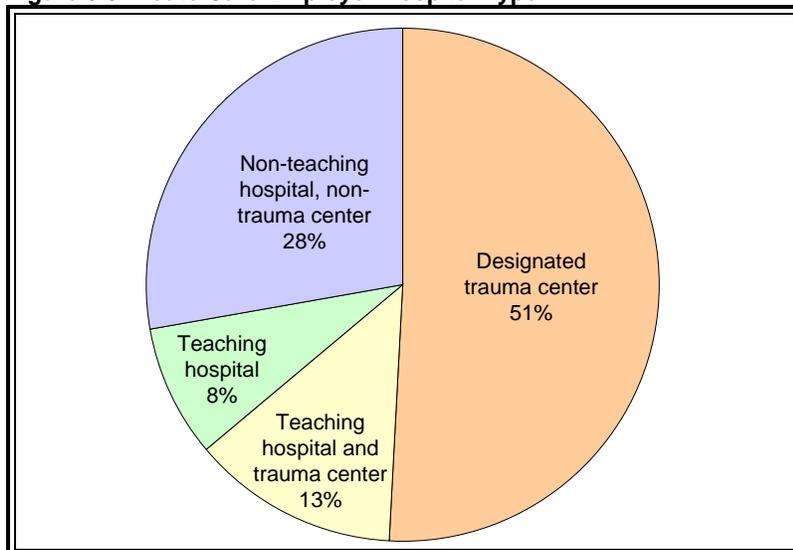
		CAMPS Member Facilities	Non- CAMPS Member Facilities	Total
Number of facilities in sample		70	30	100
Facility eligibility for inclusion in sample*	Unknown	10	5	15
	Ineligible	12	12	24
	Eligible	48	13	61
Number of eligible facilities completing survey		12	4	16
Response rate		25%	31%	26%
Employment of RCPs	Number of facilities where research team was able to determine whether facility employed RCPs	58	25	83
	Number of these facilities employing RCPs	48	13	61
	Percent of facilities employing RCPs	83%	52%	73%

* In some cases, the research team was unable to determine whether or not a facility employed RCPs—these are the facilities with unknown eligibility. Ineligible facilities included those who did not employ RCPs as well as facilities that were no longer open.

Analysis and Findings for Acute Care Employers

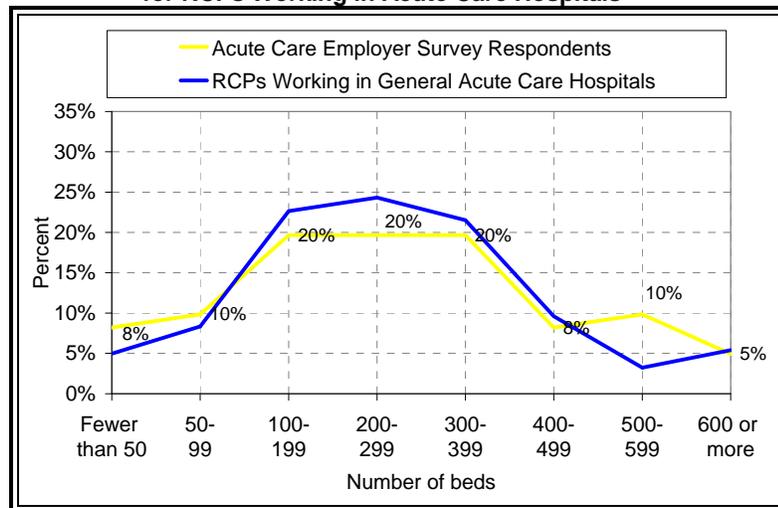
Facility Characteristics. As shown in Figure 3.3, fifty-one percent of the hospitals completing the acute care employer survey were designated trauma centers. The next largest category—hospitals that are neither teaching hospitals nor designated trauma centers—account for 28 percent of respondents. Thirteen percent are teaching hospitals and trauma centers, and eight percent are teaching hospitals.

Figure 3.3: Acute Care Employer Hospital Type



The acute care employer sampling design intentionally over-represented larger hospitals by focusing on teaching hospitals and trauma centers in order to more closely mirror the distribution of RCP work settings. As shown in Figure 3.4, which compares facility size for acute care employer respondents and RCP survey respondents, this approach was fairly successful. Hospital size varied widely, with teaching hospitals accounting for most of the larger facilities (eight of the nine hospitals with 500 or more beds are teaching hospitals).

Figure 3.4: Comparison of the Distribution of the Number of Beds for Acute Care Employer Survey Respondents and for RCPs Working in Acute Care Hospitals



Respondent Characteristics. Characteristics of the individuals completing the acute care employer survey indicate they were well qualified to provide information about RCPs in their facility. Most respondents (83%) were responsible for supervising all respiratory care staff in their facility. The remaining 17 percent either shared this duty or managed a portion of it. Two thirds described themselves as upper management and one-third categorized themselves as direct line supervisors (See Table 3.6).

Table 3.6: Acute Care Employer Respondent Responsibility for Supervising Respiratory Care Staff and Position Category

		Percent	Number of cases
Do you supervise all the respiratory care staff in your hospital?	Yes	83.3%	50
	No	16.7%	10
	Total	100.0%	60
Which of the following best describes your position type?	Human Resources	--	0
	Upper Management	66.7%	40
	Direct Line Supervisor	33.3%	20
	Total	100.0%	60

On average, respondents had worked for their facility for 15 years and had held their current position for just under six years (See Table 3.7). This suggests these individuals worked their way up to their current positions and that hiring for these positions tends to come from within the organization.

Table 3.7: Average Number of Years Acute Care Employer Respondents Have Worked for Current Employer and Held Current Position

	Mean	Median	Minimum	Maximum	Standard Deviation	Number of cases
How many years have you worked for your current employer?	15.01	15	0.50	35	10.56	61
How many years have you held this position with your current employer?	5.72	4	0.08	25	5.82	58

Ninety-five percent of the respondents were licensed RCPs. Of the three respondents who were not RCPs, one was an RN and the other two had their RRT credential. Sixty-four percent of respondents had earned their RRT credential. Sixty-two percent have an associate's degree, 43 percent have a bachelor's degree, and 18 percent have a master's degree (See Table 3.8).

Table 3.8: Acute Care Employer Respondent Licenses, Credentials, Certifications and Degrees

	Percent	Number of cases
Please indicate which of the following licenses, credentials, certifications, and degrees you have earned	California Respiratory Care Practitioner License	58
	CRT	46
	RRT	39
	Neonatal/Pediatric Specialist	12
	CPRT	10
	RPFT	5
	LVN	0
	RN	1
	Associate's degree	38
	Bachelor's degree	26
	Master's degree or higher	11

Current Respiratory Care Staffing. The average number of full-time equivalent (FTE) RCPs currently working at each facility was 40.4. Most (89%) of these FTEs are filled by permanent regular employees hired directly by the hospitals. Registry and traveler RCPs comprised a relatively small portion of staffing (See Table 3.9). RCPs identified as “registry” and “travelers” comprise only about 8.4 percent of the respondents' FTEs. Facilities using registry and traveler RCPs indicate they do so primarily to provide temporary staff until regular staff can be hired. Beyond temporary staffing until regular staff workers can be hired, the two other dominant uses of registry and travelers RCPs were to provide operational flexibility and cost savings. However, neither of these seemed to reflect an important reason for using these temporary workers. Over this past year, on average, about 10 percent of the FTE hours (perhaps as high as 20

percent if registry and travelers are excluded), needed for full staffing were vacant, implying that a shortage in RCPs in the workforce likely exists. The implications of this will be discussed further in Chapters 5 and 6.

Table 3.9: Present Respiratory Care Staffing for Acute Care Employers

	Mean Number of FTEs	Percent of FTEs at facility	Number of cases	Median	Minimum	Maximum
How many Respiratory Care Practitioner (RCP) FTEs does your facility currently have?	40.4	100.0%	61	36	1	103
How many of the total RCP FTEs are regular employees?	36.0	89.2%	61	32	1	98
How many of the total RCP FTEs are registry or travelers?	3.4	8.4%	61	0	0	43
How many of the total RCP FTEs are currently vacant?	4.1	10.2%	61	2	0	24
How many of the RCPs currently employed by your facility are RRTs?	22.6	N/A	59	18	0	78

Respondents were asked for general staff head count numbers. The facilities averaged 38.24 staff members at the beginning of the year and 39.4 at the end of the year—a general 3% growth in the amount of RCP staff over the past year. On average, facilities reported a loss of the 3.82 staff members per year (10% of their total staff). However, only 22 percent of those leaving employment were attributed to dismissals or terminations. The vast majority leaving employment did so through voluntary resignations which represented 78 percent of those who left employment. Stated differently, 90 percent of staff appear to have stayed with their employers in the past year (See Table 3.10).

Table 3.10: RCP Employment Transitions during the Past Year for Acute Care Employers

	Mean number of staff	Percent of total staff	Number of cases
Please fill out the following formula regarding the transition of RCPs in and out of employment with your facility in the past year	Total Staff Beginning of Year:	38.24	56
	+ New Hires:	4.43	56
	- Dismissals/Terminations:	0.84	56
	- Voluntary Resignations:	2.98	56
	= Total Staff End of Year:	39.40	56

Key Finding

It appears RCP employers are currently running a deficit in staffing of about 10 percent and are using traveler and registry RCPs to fill another 8.4 percent of their current FTE need. In the past year, acute care facilities lost about 10 percent of their RCPs (7.8% through voluntary attrition; 2.2% from terminations/dismissals) but they were able to increase their staff size about three percent during the year through new hires.

Employers were asked about placement of RCPs within their facility. A large proportion of these facilities (82%) used RCPs in the Adult ICU section of their operations. On average, the greatest number of RCPs also were assigned to this unit, with an average 8.27 RCPs placed there. The next most heavily staffed department within these facilities was the General Medical and Surgical location. Seventy-five (75%) of the respondents said they used RCPs in this department, and on average, 7.65 RCPs were assigned to this area. With the exception of ECMO, all of the designated service areas were staffed by RCPs by at least a small number of acute care facilities (See Table 3.11).

Table 3.11: RCP Department/Unit Assignments for Acute Care Employers

In your hospital, please indicate the types of departments/units where respiratory care staff are assigned and the number of respiratory care staff that are assigned to this department to cover all shifts in a 24-hour day. (Please use FTEs, with 1.0 FTE as full time)										
	Hospital Responses					Number of RCP Staff Assigned				
	N	Yes	(%)	No	(%)	N	Mean	Min	Max	SD
Adult ICU	61	50	(82%)	11	(18%)	49	8.27	0.2	40	9.76
ABG Lab	61	29	(48%)	32	(52%)	24	4.00	1.75	27	6.01
Air/Ground Transport	61	13	(21%)	48	(79%)	12	2.72	1	12	3.07
Burn Center	61	6	(10%)	55	(90%)	6	1.67	1	3	0.82
Cardiac Diagnostic	61	13	(21%)	48	(79%)	9	1.83	1	3	0.79
Discharge Planning	61	2	(3%)	59	(97%)	2	1.50	1	2	0.71
ECMO	61	0	(0%)	61	(100%)	0	0.00	0	0	0.00
Education Department	61	21	(34%)	40	(66%)	21	1.19	0.5	3	7.15
Emergency Department	61	46	(75%)	15	(25%)	42	3.50	0.5	40	7.11
General Medical and Surgical	61	46	(75%)	15	(25%)	42	7.65	1	44	9.99
Hyperbaric Medicine	61	4	(7%)	57	(93%)	2	2.00	1	3	1.41
Neonatal ICU	61	35	(57%)	26	(43%)	33	5.14	0.5	27	5.85
Pediatric ICU	61	17	(28%)	44	(72%)	13	5.76	0.5	22	5.93
Pediatric Unit	61	31	(51%)	30	(49%)	29	4.27	0.5	40	7.50
PFT Lab	61	42	(69%)	19	(31%)	40	1.52	0.5	5	1.00
Rehabilitation Center	61	14	(23%)	47	(77%)	14	1.24	0.5	3	0.67
Respiratory Care Unit	61	12	(20%)	49	(80%)	12	6.48	1	27	9.92
Sleep Center	61	9	(15%)	52	(85%)	8	2.75	1	5	1.58
Trauma Center	61	20	(33%)	41	(67%)	20	6.17	0.5	40	11.16
Other	61	9	(15%)	52	(85%)	7	2.19	1	4	1.30

Survey respondents reported that the vast majority of RCPs work in a floater assignment. Specifically, 52 percent said that the RCPs at their facility are strictly floaters. When these facilities are combined with those who said their RCPs do a combination of both floater and permanent assignments, it is revealed that 89.8% are staffed by either a combination of floaters and permanent assignments or exclusively staffed by floaters (See Table 3.12). Given this information, it is likely that RCPs entering the workforce should be prepared to work in a variety of staffing locations.

Table 3.12: Permanent Assignment of RCPs to Units for Acute Care Employers

		Percent	Number of cases
Referring to staffing departments and units, are your RCP FTEs listed in question 3 permanently assigned to the units?	Yes, they are permanent assignments (for example, solely assigned or unit based)	10.2%	6
	No, they are floaters	52.5%	31
	No, they are staffed with a combination of permanent assignments and floaters	37.3%	22
	Total	100.0%	59

Respondents were asked to describe the percentage of time that RCPs at their facility spent with each of five age groups. More than a third of RCP time is spent with patients over 65 years of age, and on average, 60.7% of total RCPs time is spent with individuals 45 years old and older (See Table 3.13). Given that the California Department of Finance estimates that this is the fastest growing portion of the California population, this has important implications for future demand for RCP services.

Table 3.13: Distribution of Acute Care RCP Time Across Patient Age Categories

		Mean	Median	Minimum	Maximum	Number of cases
Please provide an estimate of the percentage of time that your respiratory care staff spends with each of these patient age groups	Under 5 years of age	12.97	10	0	75	60
	5 to 17 years of age	8.45	5	0	50	60
	18 to 44 years of age	17.87	15	0	71	60
	45 to 64 years of age	24.98	25	0	75	60
	65 years of age and older	35.73	38	0	85	60

Key Findings

- In terms of the number of facilities staffing units with RCPs and the number of RCPs assigned to those units, the majority of RCP services are used in Adult ICUs and General Medical and Surgical Units. Respiratory Care Units also have a high number of staff members assigned, but only 20 percent of acute care facilities have these units. Conversely, about 75 percent of the facilities report staffing Emergency Rooms with RCPs, but the average number of RCP staff assigned to these units is low.
- Slightly more than one-half of staffing is accomplished solely through floaters, while only about 10 percent of staff assignments are permanent.
- Over one-third (36%) of respiratory care services are provided to individuals 65 and older, and about 60 percent of services are provided to patients 45 years old and older.

Centralization of Respiratory Care Departments. Almost all (93%) of the hospitals that participated in the survey still structure respiratory care in terms of a traditional centralized department (See Table 3.14). This organizational structure also was predominant in the AARC study. This indicates that most hospitals have a respiratory care department and that RCPs are then either assigned to departments and units or work as floaters. While the variety of settings that RCPs work in is varied, it is always the respiratory care department that is responsible for RCPs duties and standards.

Table 3.14: Centralization of Respiratory Care Departments for Acute Care Employers

Which of the following models best describes the current organization of respiratory care services in your facility?	Percent	Number of cases
<u>Model A:</u> Most closely resembles a traditional centralized department. An administrative leader and medical director(s) supervise the work of therapists assigned to the department, as well as establish and monitor respiratory care standards. Respiratory care services throughout the facility are generally provided by this department.	93.4%	57
<u>Model B:</u> Also a centralized department providing limited support for delivery of respiratory care services. Administrative leadership and medical direction responsibilities are the same as described in Model A. However, some therapists have been decentralized. The work of these decentralized therapists is primarily supervised by a manager of the unit in which they are assigned, although leaders of the respiratory care department may also share responsibility.	3.3%	2
<u>Model C:</u> Respiratory care services are totally decentralized in that they are not supported by a central department. Responsibility for establishing and monitoring respiratory care standards principally resides with leaders of units in which respiratory care services are provided. Respiratory care services may be provided by therapists and/or other caregivers.	3.3%	2
Total	100.0%	61

RCP Staff Overtime. Hospitals reported that RCPs worked an average (mean) of 213.9 hours of overtime each month. The median number of over time hours (82.5) is much lower than the mean. This difference stems from the concentration of overtime hours in larger facilities. On average, facilities with less than 100 beds used a third of the hours that facilities with 100 to 199 beds used. Also, the larger the facility, the more overtime hours it used. While the entries for 300 to 399 beds and 500 to 599 beds are smaller, increasing capacity from the 200 to 299 beds level to 400 to 499 beds was associated with a marked increase. If the averages seen in 300 to 399 beds and 500 to 599 beds facilities rows are excluded (Table 3.15), then a correlation between facility size and overtime use becomes clear. It should be noted that one facility's observation of 5,000 hours was dropped from this portion of the analysis because it was five times as large as the next closest observation.

Table 3.15: Average Monthly RCP Overtime Hours for Acute Care Employers

		Mean	Median	Min-imum	Max-imum	Number of cases
During the past year, what were the average monthly number of overtime hours reported by respiratory care staff?		213.9	82.5	3	1000	54
Facility size	Fewer than 50 beds	36.7	35	25	50	3
	50 to 99 beds	48.0	48	36	60	2
	100 to 199 beds	167.8	200	20	478	8
	200 to 299 beds	395.4	800	48	1000	7
	300 to 399 beds	248.6	275	20	773	11
	400 to 499 beds	473.8	398	300	800	4
	500 to 599 beds	261.8	100	24	600	5
	600 or more beds	600.0	600	400	800	2

Note: An entry of 5,000 hours was excluded from this distribution because it was an extreme outlier

Difficulty Hiring Qualified RCPs. Generally, respondents reported difficulty hiring RCPs during the past three year period, with nearly eight out of ten indicating hiring difficulties. Upon closer inspection of those who had problems, more than one-half (58%) of these were smaller facilities—under 300 beds and less. Seventy-seven percent of facilities with less than 400 beds reported problems in hiring (See Table 3.16). Given that 46 percent of respondents who reported hiring difficulties also reported needing five months or longer to bring new graduates up to speed (See Table 3.18), smaller facilities would seem to be particularly negatively impacted by staff turnover.

Table 3.16: Difficulty Hiring RCPs During Past Three Years for Acute Care Employers

		Percent	Number of cases
In the past 3 years, have you encountered difficulties in hiring qualified respiratory care practitioners?	Yes	78.7%	48
	No	21.3%	13
	Total	100.0%	61

Respondents who encountered hiring difficulties were asked to evaluate the importance of a range of potential contributing factors. Although respondents, on average, felt that their benefits were comparable to surrounding facilities, they felt their wages were slightly lower than surrounding facilities (Table 3.17). There was an even split on opinions of how California RCP wages compare to that of other states. While the responses for this question are fairly even in each category, half of the responses focused on the two extreme answers—Most Important and Not Important.

Table 3.17: Importance of Factors for Difficulty Hiring RCPs for Acute Care Employers

Please rate the following factors that have created hiring difficulties	Most Important		Somewhat Important				Not Important		N	Mean		
	5		4		3		2				1	
	N	(%)	N	(%)	N	(%)	N	(%)			N	(%)
There aren't enough Respiratory Care Practitioners in this area to fill available positions.	19	(40%)	14	(30%)	12	(26%)	1	(2%)	1	(2%)	47	4.04
There aren't enough qualified Respiratory Care Practitioners.	22	(46%)	12	(25%)	11	(23%)	1	(2%)	2	(4%)	48	4.06
There aren't enough Respiratory Care Practitioners being graduated from colleges where we hire.	13	(27%)	14	(29%)	11	(23%)	7	(15%)	3	(6%)	48	3.56
There aren't enough Respiratory Care Practitioners with the particular specialties/certifications we need.	15	(31%)	8	(17%)	11	(23%)	9	(19%)	5	(10%)	48	3.40
Our salaries are below those offered by facilities in the surrounding area.	13	(27%)	12	(25%)	15	(31%)	3	(6%)	5	(10%)	48	3.52
Our benefits are less than are those offered by facilities in the surrounding area.	5	(11%)	8	(17%)	8	(17%)	14	(30%)	12	(26%)	47	2.57
Respiratory Care Practitioners are leaving this area to go to other job markets in the state where salaries or benefits are better.	13	(27%)	8	(17%)	9	(19%)	7	(15%)	11	(23%)	48	3.10

Forty-one percent of respondents reported that their new graduate hires averaged less than three months of training to get them up to speed on basic skills. However, nearly six in ten (59%) said that it took three months or longer to bring new graduates up to speed, and within this group, 42 percent reported that it took five months or longer (See Table 3.18). Interestingly, of those who reported taking longer than 5 months to bring new graduates up to speed, 20 of 26 respondents (77%) also reported providing a formal clinical program (See Table 3.26).

Table 3.18: Entry Level RCP On-the-Job Training Time for Acute Care Employers

		Percent	Number of cases
On average, how much time does it currently take for a typical new graduate hired as an entry-level employee to come up to speed on basic skills?	Less than two weeks	1.6%	1
	Two weeks to a month	8.2%	5
	Between one and two months	9.8%	6
	Between two and three months	21.3%	13
	Between three and four months	13.1%	8
	Between four and five months	3.3%	2
	Between five and six months	23.0%	14
	More than six months	19.7%	12
	Total	100.0%	61

Key Finding

A sizeable majority (79%) of acute care facilities report difficulties in hiring in the past three years. The difficulty seems to center on a general shortage of RCPs, a lack of qualified applicants and/or applicants with particular specialties. Despite having hiring problems, the large majority (74%) of acute care facilities do not pay bonuses to attract applicants, and only about one-half (52%) pay differentials for RRTs.

Pay, Bonuses and Incentives. The average (mean) starting wage for facilities responding to the survey was \$24.64 (See Table 3.19). This average paralleled the RCP survey nicely, with only \$.10 difference between the two survey findings, which helps validate the amount as an accurate reflection of RCP entry pay. When evaluated relative to facility size, acute care hospitals that are 100 beds and larger seem to pay an average of \$3.00 per hour more than their smaller counterparts. Beyond that difference, the size of the hospital seems to have no impact on the starting wage for new RCPs.

Table 3.19: Acute Care Employer Average Starting Salary for New CRT

Approximately what is your starting salary for a new Certified Respiratory Therapist (without experience)?		Mean	Number of cases	Median	Minimum	Maximum	SD
Overall		\$24.64	58	\$23.49	\$15.00	\$36.68	\$4.62
Facility size	Fewer than 50 beds	\$21.50	5	\$21.00	\$15.00	\$26.50	\$4.85
	50 to 99 beds	\$21.46	4	\$21.42	\$20.00	\$23.00	\$1.27
	100 to 199 beds	\$25.71	12	\$26.45	\$20.37	\$32.00	\$4.18
	200 to 299 beds	\$24.17	12	\$23.20	\$18.50	\$32.00	\$4.07
	300 to 399 beds	\$26.49	11	\$26.00	\$20.00	\$36.68	\$5.36
	400 to 499 beds	\$23.12	5	\$25.90	\$19.79	\$26.80	\$5.51
	500 to 599 beds	\$24.75	6	\$26.24	\$15.00	\$28.00	\$5.36
	600 or more beds	\$27.31	3	\$26.93	\$22.00	\$33.00	\$5.51

Despite the fact that nearly eight out of ten (79%) respondents reported that they had experienced difficulties hiring qualified RCPs, only 26 percent of the acute care hospitals used hiring bonuses as a way to solve that problem. Of the hospitals that reported having hiring difficulties, only 13 (27%) of those facilities were offering hiring bonuses. Conversely, 3 of the 16 (19%) respondents that said they do offer hiring bonus also said that they did not have hiring difficulties (See Table 3.20). Essentially, these results suggest little relationship between whether or not an acute care facility had hiring difficulties and whether they paid a hiring bonus. Facilities paying a hiring bonus were asked the approximate amount. Amounts ranged from \$500 to \$5,000; the mean (average) was \$2,907.

Table 3.20: Acute Care Employer Use of Hiring Bonuses for New CRTs

Do you currently pay a hiring bonus for a new Certified Respiratory Therapist (without experience)?	Percent	Number of cases
Yes	26.2%	16
No	73.8%	45
Total	100.0%	61

A further illustration of the disconnect between hiring difficulties and salary was seen in the fact that 48 percent of the acute care hospitals were not paying a differential for RCPs who hold an RRT credential (See Table 3.21). Moreover, among the 52 percent of hospitals reporting a differential, it was fairly modest, averaging \$1.39 per hour. In terms of the additional income an RCP receives from RRT credentialing, an RCP with his/her RRT makes, on average, \$240.93 more per month or \$2,891 more per year. Thus, it would appear that in the current work environment, there is only a modest financial incentive for RCPs to pursue the RRT credential.

Table 3.21: Acute Care Employer Pay Differentials for the RRT Credential

Setting experience aside, do you pay a differential for staff members who are RRTs?	Percent	Number of cases
Yes	51.7%	31
No	48.3%	29
Total	100.0%	60

Interestingly, hospitals do appear to use other incentives to encourage RCPs to pursue additional education. Nine out of 10 hospitals reported using some sort of incentive for RCPs to further their education (See Table 3.22). Of those who offered an incentive, 82 percent used a tuition reimbursement or payment method to encourage RCPs to obtain additional training or education. Another common practice—used by 64 percent of hospitals using some type of incentive—was giving RCPs paid time to attend training or class sessions.

Table 3.22: Acute Care Employer Use of Training and Education Incentives

Which if any, of the following incentives does your facility offer respiratory care staff who want to pursue additional training or education? (Please check all that apply)	Percent	Number of cases
Tuition	87.3%	48
Paid time to attend	63.6%	35
Pay differentials once the program is successfully completed	21.8%	12
Other	5.5%	3
Total	n/a	55

Perspectives on Education and Training. It appears that a solid majority (62%) of the responding hospitals believe that RCPs working today have an appropriate amount of education and training (See Table 3.23). However, about 37 percent said they are under-qualified; that is, they do not have enough education and training. It is also interesting to note that none of the respondents said RCPs had too much training and education. No pattern emerged from an analysis of responses regarding education and training relative to facility size. Essentially the size of the facility does not affect perception of the workforce qualifications.

Table 3.23: Acute Care Employer Perceptions of the Qualifications of Working Respiratory Therapists

Do you believe most respiratory therapists working today have the right amount of education/training for the jobs/tasks they're asked to perform by their employers?	Percent	Number of cases
No, too much education/training (they are over-qualified)	--	0
Yes, their education/training is appropriate for the job	62.30%	38
No, not enough education/training (they are under-qualified)	37.70%	23
Total	100.00%	61

Respondents were asked to evaluate how well new RCPs were prepared to enter the workforce. Seven out of ten felt that new graduates were well prepared (See Table 3.24). They were also asked what percentage of the new entry level RCPs they hire have the necessary educational background: respondents said that on average, 72 percent of new entry level RCPs have the necessary educational background.

Table 3.24: Acute Care Employer Opinions Regarding Preparedness of New RCPs to Enter the Workforce

Upon graduating, how well prepared are new RCPs to enter the workforce?	Percent	Number of cases
Extremely well prepared	1.7%	1
Well prepared	70.0%	42
Poorly prepared	26.7%	16
Not at all prepared	1.7%	1
Total	100.0%	60

While the majority of respondents felt new RCPs were well trained, about half (52%) believe that only some of the educational programs prepared new RCPs for respiratory care work. Only 10 percent of respondents felt few of the programs prepared students to be RCPs and 90 percent felt that some to all of the programs prepared students to be RCPs (See Table 3.25). Given that most facilities felt some educational programs prepare students well and that most of the entering students did have the right training, the programs that did not prepare students well to enter the workforce appear not to be producing the bulk of new graduates.

Table 3.25: Acute Care Employer Perceptions of California Respiratory Care Education Programs

In your opinion, which of the following statements best describes how well California respiratory care education programs are preparing new entry level RCPs for work they are required to do?	Percent	Number of cases
All programs adequately prepare new entry level RCPs	1.7%	1
Most programs adequately prepare new entry level RCPs)	36.7%	22
Some programs adequately prepare new entry level RCPs	51.7%	31
Few programs adequately prepare new entry level RCPs	10.0%	6
None of the programs adequately prepare new entry level RCPs	--	0
Total	100.0%	60

As mentioned during the earlier discussion of the amount of time it takes for new hires to get up to speed, 77 percent of respondents reported having a formal agreement to provide a clinical experience program at their facility, with five percent reporting an informal arrangement (See Table 3.26). Taken together, this suggests that 81 percent of the respondents provided some sort of clinical education to students in respiratory therapy educational programs. While the sizes of facilities that provided clinical experience were evenly distributed across facility size categories, none of the facilities without clinical education programs were larger than 300 beds. All of the larger hospitals reported providing a clinical education program.

Table 3.26: Acute Care Employer Agreements with Educational Programs to Provide Clinical Experience

Do you have agreements with educational program(s) to provide a clinical experience program at your facility?	Percent	Number of cases
Yes, we have a formal agreement with set requirements	77.1%	47
Yes, but we use an informal arrangement based on individual student needs	4.9%	3
No, we do not provide a clinical experience program	18.0%	11
Total	100.0%	61

Key Finding

Slightly less than two-thirds (62%) of employers believe RCPs have the appropriate training for the job, with more than one-third stating they are under qualified. On the other hand, a sizeable majority (70%) believes RCPs are prepared to enter the workforce upon graduating from their educational program; yet there seems to be a perception of unevenness in the quality of the education, with negative views of the education provided by some of the respiratory care educational programs.

When asked about possible changes to the educational requirements of RCPs, the employers were very positive in supporting the idea that a standard curriculum should be set as well as the implementation of a 3-year time limit for RRT credentialing (See Table 3.27). However, as noted previously, about one-half of employers do not offer a pay differential for the RRT credential, and those who do pay a relatively modest average increase of \$1.39. Requiring that the RRT be the entry level credential for RCPs was also, on average, a supported idea to increase the quality of RCPs being produced, but was not met with the same enthusiasm as the other two possible changes.

Requiring a four-year degree to gain licensed status was not a supported approach to increasing the quality of RCPs being produced. It should be noted that 46.4% of respondents included their own thoughts on how to improve educational standards for RCPs in the future. Most of these responses described items that would be addressed if one of the previously stated changes were made. The most common response was the establishment of a standard for clinical hours or training in certain sectors of the hospital, which could be addressed through a standardized curriculum.

Table 3.27: Acute Care Employer Opinions About RCP Educational Requirements

	Yes (%)	No (%)	Total
Given your expectations for the Respiratory Care profession in the next five years, should the State establish a standard or model curriculum for respiratory care education programs?	48 (80.0%)	12 (20.0%)	60
Given your expectations for the Respiratory Care profession in the next five years, should progression to the RRT from the CRT be required within a designed timeframe such as 3 years?	40 (65.6%)	21 (34.4%)	61
Given your expectations for the Respiratory Care profession in the next five years, should the RRT be the entry level exam for licensure?	36 (59.0%)	25 (41.0%)	61
Given your expectations for the Respiratory Care profession in the next five years, should the entry level educational requirement for Respiratory Care Professionals be increased from the current 2-year degree to a 4-year (Bachelor's) degree?	18 (29.5%)	43 (70.5%)	61
Given your expectations for the Respiratory Care profession in the next five years, are there other education or training requirements that need to be changed?	26 (46.4%)	30 (53.6%)	56

Key Finding

A strong majority of RCP employers (80%) supported the idea that the State should establish a standard or model curriculum for respiratory care education programs. Nearly two-thirds of RCP employers (66%) supported the idea of requiring progression from the CRT to the RRT within a designated timeframe such as three years.

Difficulty Retaining Qualified RCPs. A little more than one-half (53%) of the facilities reported difficulty retaining qualified RCPs at their facilities (See Table 3.28). Of those encountering difficulty, salary was the most important reason identified (See Table 3.29). Relocating to a different location or taking a job closer to home was the second most important reason for loss of staff with most of the other listed reasons registering as only somewhat important. Respondents indicated that job related stress, trying another occupation, dissatisfaction with the profession, and retiring were not important reasons for leaving their facilities' employment.

Table 3.28: Difficulty Retaining Qualified RCPs for Acute Care Employers

In the past 3 years, have you encountered difficulties retaining qualified respiratory care practitioners?	Percent	Number of cases
Yes	52.5%	32
No	47.5%	29
Total	100.0%	61

Table 3.29: Importance of Factors for Difficulty Retaining RCPs, Acute Care Employers

Please rate the following factors that have been expressed to you by RCPs as the reason for leaving employment at your facility in the past 3 years	Most Important		Somewhat Important		Not Important		N Mean					
	5		4		3				2		1	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	Mean
Because of child care/family responsibilities	2	(7%)	7	(23%)	6	(20%)	5	(17%)	10	(33%)	30	2.53
Moving to a different area/taking job closer to home	7	(22%)	12	(38%)	7	(22%)	3	(9%)	3	(9%)	32	3.53
Because of job-related stress	3	(9%)	6	(19%)	5	(16%)	6	(19%)	12	(38%)	32	2.44
Due to illness or injury	1	(3%)	5	(16%)	11	(34%)	7	(22%)	8	(25%)	32	2.50
Salary	12	(38%)	7	(22%)	7	(22%)	3	(9%)	3	(9%)	32	3.69
Benefits	7	(22%)	1	(3%)	12	(38%)	5	(16%)	7	(22%)	32	2.88
Dissatisfaction with job	1	(3%)	7	(22%)	8	(25%)	8	(25%)	8	(25%)	32	2.53
Dissatisfaction with respiratory care profession	1	(3%)	5	(16%)	9	(28%)	8	(25%)	9	(28%)	32	2.41
Return to school	2	(6%)	4	(13%)	10	(31%)	7	(22%)	9	(28%)	32	2.47
Try another occupation	2	(6%)	1	(3%)	10	(31%)	10	(31%)	9	(28%)	32	2.28
Moving to another position in facility/organization	6	(19%)	4	(13%)	12	(38%)	3	(9%)	7	(22%)	32	2.97
Retired	0	(0%)	3	(9%)	9	(28%)	10	(31%)	10	(31%)	32	2.16
Other	3	(75%)	0	(0%)	0	(0%)	1	(25%)	0	(0%)	4	4.25

Terminations and Dismissals. A majority (73%) of the facilities indicated that they had terminated or dismissed an RCP during the previous year, but the average number of forced separations was fairly low. As shown in Table 3.30, only two percent of RCP staff turnover during the past year was due to involuntary separation. The leading reason for the termination or dismissal of an RCP was poor work habits which 75 percent of responding facilities identified as a reason for dismissal. About one-half of all facilities indicated they had dismissed individuals on these grounds during the prior year. About 36 percent of those dismissing RCPs said they did so due to violations of patient care protocol and another 36 percent of those reporting dismissals indicated that they were due to unacceptable knowledge of skill levels.

Table 3.30: Acute Care Employer RCP Terminations and Dismissals

		Percent	Number of cases
In the past 3 years, have you found it necessary to terminate or dismiss an RCP?	Yes	73.3%	44
	No	26.7%	16
	Total	100.0%	60
Please indicate which of the following have been reasons for termination or dismissal of RCPs in the past 3 years. (Please check all that apply)	Unacceptable work habits such as unexcused absenteeism, failure to complete assignments, poor interaction with staff or patients, etc.	75.0%	33
	Unacceptable levels of knowledge or skills	36.4%	16
	Violation of patient care protocols or hospital regulations	52.3%	23
	Total	n/a	44

Table 3.31: Mean Number of RCPs Dismissed by Reason for Dismissal, Acute Care Employers

	Mean	Number of cases
Number dismissed due to unacceptable work habits	2.26	31
Number dismissed due to unacceptable knowledge or skills	1.71	14
Number dismissed due to violation of patient care protocols or hospital regulations	1.91	23

* Two respondents indicating they had dismissed RCPs because of unacceptable work habits or unacceptable levels of knowledge or skills did not provide information on the number of RCPs dismissed for these reasons. This means the number of cases described in Table 3.31 is slightly lower than Table 3.30.

Key Finding

Although not as severe a problem as hiring, slightly more than one-half of the acute care employers indicated difficulties in retaining qualified RCPs during the previous 3-year period. Employers felt that salaries, benefits, employee relocations, or taking a job closer to home were the more important reasons for employees leaving.

Expectations for Future Facility Capacity. As may be expected with California's estimated population increases, 87 percent of the facilities answering the survey felt their facility's patient load would increase during the next five years (See Table 3.32). On average, those who predicted increasing patient loads felt it would increase by about 23 percent, or about 4.5% a year. Just under 10 percent of facilities believed the number of patients in their facilities would stay the same. The size and location of these particular hospitals did not suggest a reason why these facilities felt their patient loads would stay the same (See Table 3.33). Only two respondents indicated their patient loads would decrease, with one of these respondents explaining the reason was due to a planned closure of the hospital.

Table 3.32: Acute Care Employer Expectations for Future Facility Capacity

Overall, in the next five years, do you expect the number of patients in your facility to increase, decrease or remain the same?	Percent	Number of cases
We are expecting the number of patients in our facility to increase.	86.9%	53
We are expecting the number of patients in our facility to decrease.	3.3%	2
We are expecting the number of patients in our facility to remain about the same as we have currently.	9.8%	6
Total	100.0%	61

Table 3.33: Expected Percentage Increase or Decrease in Facility Capacity for Acute Care Employers

	Mean Percent Change	Number of cases
Please indicate the approximate percentage increase in patients that you are expecting to occur in the next 5 years	22.7	51
Please indicate the approximate percentage decrease in patients you are expecting to occur in the next 5 years	27.5	2

Expectations for Future RCP Staffing. Seventy-two percent of respondents were planning on increasing RCP staffing within the next five years, and nearly all (97%) of those predicting staff increases felt that their patient loads were increasing as well (See Tables 3.34 & 3.36). Somewhat surprisingly, 17 percent of those who believed patient loads would increase said they did not plan to increase staffing levels. Respondents saw increases in patient loads and increases in facility size as the two main drivers of the projected staffing increase.

In response to a question asking how much staffing would increase, respondents estimated about 17 percent in five years (See Table 3.35). This response was less than their projections for average patient increases. This suggests that RCP employers believe they can get more work out of their RCPs per patient or that the costs of additional staff can not be supported by the additional patients. Only two facilities said they were decreasing their RCP staff. These were the same two hospitals that projected patient decreases, and as stated before, one was a hospital that planned on closing.

Table 3.34: Acute Care Employer Expectations for Future RCP Staffing

Are you planning on increasing, decreasing or maintaining the current number of Respiratory Care staff at your facility within the next 5 years?	Percent	Number of cases
We are planning on increasing our current staff	72.1%	44
We are planning on decreasing our current staff	3.3%	2
We are planning on maintaining current respiratory care staffing levels	24.6%	15
Total	100.0%	61

Table 3.35: Expected Percentage Increase or Decrease in RCP Staffing for Acute Care Employers

	Mean Percent Change	Number of cases
Please indicate the approximate percentage increase in RCP staffing you are expecting to occur within the next 5 years	17.3	41
Please indicate the approximate percentage decrease in RCP staffing you are expecting to occur within the next 5 years	5.0	2

Table 3.36: Importance of Reasons for Increasing RCP Staffing, Acute Care Employers

How important is each of the following factors as to why you are planning on increasing the respiratory care staff in the next 5 years?	Most Important		Somewhat Important				Not Important		N	Mean		
	5		4		3		2				1	
	N	(%)	N	(%)	N	(%)	N	(%)			N	(%)
Our general patient load is increasing in this facility	27	(61%)	14	(32%)	2	(5%)	0	(0%)	1	(2%)	44	4.50
The need for respiratory services is increasing within the existing departments/units	23	(52%)	14	(32%)	5	(11%)	0	(0%)	2	(5%)	44	4.27
The facility is planning an expansion of its patient capacity	27	(61%)	7	(16%)	8	(18%)	2	(5%)	0	(0%)	44	4.34
The facility is planning on increasing the number of services or specialty departments/units	19	(43%)	11	(25%)	8	(18%)	5	(11%)	1	(2%)	44	3.95
The increasing use and/or sophistication of technology requires more respiratory care professionals	17	(39%)	10	(23%)	9	(20%)	5	(11%)	3	(7%)	44	3.75
Other	4	(100%)	0	(0%)	0	(0%)	0	(0%)	0	(0%)	4	5.00

Key Findings

- The overwhelming majority of acute care employers indicate they will need to increase their RCP staff in the next five years.
- Only three percent believe they will reduce staff in the next five years.
- A sizeable portion (62%) of acute care employers believe their current hiring difficulties will continue for the foreseeable future. The reasons for future hiring difficulties closely parallel reasons for current problems: a general lack of RCPs, a lack of qualified applicants, and a lack of applicants with the specialties needed. Additionally, employers indicate that salary competition with other employers in their area will be an important factor in making hiring a problem.

Expectations for Future Difficulties Hiring Qualified RCPs. Generally, most acute care hospitals (62%) felt they would have difficulty hiring new RCPs in the future. RCP employers felt these difficulties would result from a lack of supply of RCPs, whether qualified or unqualified (See Tables 3.37 & 3.38). (A more empirical study of this phenomenon is presented in Chapter 6.)

Table 3.37: Acute Care Employer Expectations for Future RCP Hiring

In the next 5 years, do you anticipate difficulties in hiring qualified Respiratory Care Practitioners?	Percent	Number of cases
Yes	61.7%	37
No	38.3%	23
Total	100.0%	60

Table 3.38: Importance of Factors for Future Hiring Difficulties, Acute Care Employers

Please rate the following reasons that you expect will create hiring difficulties	Most Important		Somewhat Important				Not Important		N	Mean		
	5		4		3		2				1	
	N	(%)	N	(%)	N	(%)	N	(%)			N	(%)
There aren't enough Respiratory Care Practitioners in this area to fill available positions	16	(42%)	14	(37%)	6	(16%)	2	(5%)	0	(0%)	38	4.16
There aren't enough qualified Respiratory Care Practitioners	17	(45%)	12	(32%)	4	(11%)	5	(13%)	0	(0%)	38	4.08
There aren't enough Respiratory Care Practitioners being graduated from colleges where we hire	10	(26%)	14	(37%)	9	(24%)	3	(8%)	2	(5%)	38	3.71
There aren't enough Respiratory Care Practitioners with the particular specialties/certifications we need	13	(34%)	8	(21%)	9	(24%)	6	(16%)	2	(5%)	38	3.63
Our salaries are below those offered by facilities in the surrounding area	13	(34%)	6	(16%)	15	(39%)	1	(3%)	3	(8%)	38	3.66
Our benefits are less than those offered by facilities in the surrounding area	7	(19%)	4	(11%)	12	(32%)	8	(22%)	6	(16%)	37	2.95
Respiratory Care Practitioners are leaving this area to go to other job markets in the state where salaries are better	7	(20%)	6	(17%)	11	(31%)	8	(23%)	3	(9%)	35	3.17

Analysis and Findings for Durable Medical Equipment/Home Care Employers

Respondent Characteristics. In most respects, the characteristics of durable medical equipment/home care employer respondents (who will be referred to as “home care” employers in the following discussion) were very similar to acute care employer respondents. Most home care employer respondents (87%) were responsible for supervising all respiratory care staff in their facility, and they were fairly evenly divided between upper management and direct line supervisors. Their educational attainment was also comparable to that of acute care employer respondents.

The managers and supervisors who completed the home care employer survey were less likely to be respiratory therapists than those who completed the acute care employer survey. About 40 percent of home care employer respondents were respiratory therapists, compared with 100 percent of the acute care employers. This was the only real difference between those responding to the two categories of employer surveys. Although home care employer respondents had, on average, less tenure with their current employers than acute care employer respondents—eight years vs. 15 years—the fact that respondents within both groups had held their current position for similar lengths of time (seven years for home care and six years for acute care) indicates that respondents had the experience necessary to provide an informed perspective on employing RCPs in the home care setting.

The current RCP staffing situations described by home care employers were very consistent with those from the acute care employers. There appear to be few differences between these two settings. Most of the differences between the two types of employers would be expected given the nature of services each provides. Although the home care employers completing the survey varied a great deal in terms of size (see Table 3.39), they are smaller than the acute care hospitals. Two-thirds serviced fewer than 200 respiratory patients in a typical month. Twenty percent were fairly large, servicing 400 or more respiratory patients per month.

Table 3.39: Number of Patients Serviced by Home Care Employers in a Typical Month

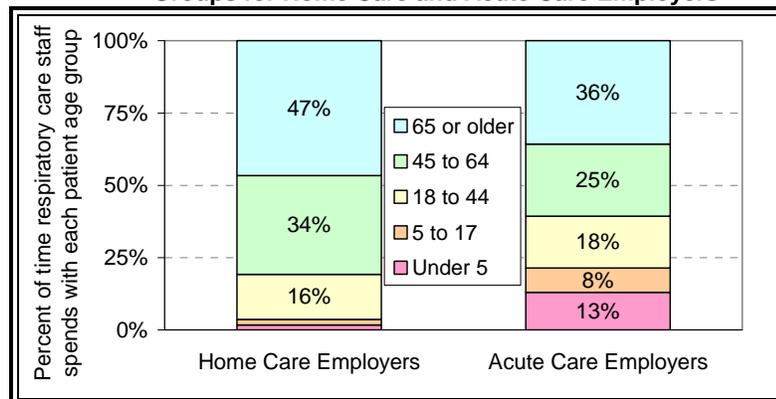
	How many patients does your facility service in a typical month?		How many patients with respiratory disorders does your facility service in a typical month?	
	Percent	Number of cases	Percent	Number of cases
1 to 99	26.7%	4	40.0%	6
100 to 199	20.0%	3	26.7%	4
200 to 299	13.3%	2	--%	0
300 to 399	20.0%	3	13.3%	2
400 to 499	--	0	6.7%	1
500 or more	20.0%	3	13.3%	2
Total	100.0%	15	100.0%	15

Current Respiratory Care Staffing. The average number of RCP FTEs for each home care employer was 1.8 (compared with about 40.4 for the acute care employers), but the percentage breakdowns in terms of regular employees, use of registry and travelers, and vacancies for the two types of employers were nearly identical. One notable difference in staffing was the use of overtime: home care employers reported more RCP overtime than acute care employers. Home care employers reported an average of 16.3 hours of overtime per RCP in a typical month while acute care employers reported an average of 5.3 hours. In terms of economies of scale, this makes sense, given that home care employers have fewer RCPs to fit into schedules and deal with scheduling conflicts than acute care employers.

	Home care employers	Acute care employers
Average RCP FTEs	1.8 FTEs	40.4 FTEs
Average monthly RCP overtime hours per RCP FTE	16.3 hours	5.3 hours

Age Distribution of Home Care RCP Patients. Not surprisingly, the ages of the patients that RCPs care for are distributed differently for home care employers than they are for acute care employers. Home care employers reported that their RCP time is heavily concentrated on caring for older patients (see Figure 3.5). Home care RCPs spent 47 percent of their time with patients 65 years of age or older and 34 percent of their time with patients between the ages of 45 and 64. Altogether, home care RCPs spent 81 percent of their time with patients 45 years of age and older. While a substantial portion of acute care RCP time was also spent with patients 45 and older—61 percent—there are clearly differences in the patient demographics of the two employer categories.

Figure 3.5: Distribution of RCP Time across Patient Age Groups for Home Care and Acute Care Employers



Key Finding

RCPs working in the home care setting spend significantly more of their time than RCPs working in acute care settings caring for patients 45 years of age and older. This has important implications since the “45 and older” category is California’s fastest growing age group.

Perspectives on RCP Qualifications. Although the starting salary reported by home care employers for a new CRT was lower than the amount reported by acute care employers (\$21.50 per hour and \$24.64 per hour, respectively) they indicated that, for the most part, they do not hire new graduates and hire only RCPs with acute care experience. This policy is very likely related to home care employers’ less favorable perception of how well prepared new RCPs are to enter the workforce. Four home care employers did not feel qualified to answer this question since they do not hire new graduates. Of the eleven employers responding, six (55%) said that new RCPs are poorly prepared to enter the workforce (in contrast, just 26% of acute care employers held the same opinion). Home care employers reported that, on average, about 46 percent of the new entry level RCPs they hire have the necessary educational background (this average was 73 percent for acute care employers).

Significantly fewer home care employers (19%) than acute care employers (82%) provided a clinical experience program. However employers in both settings did not differ in their evaluations of the qualifications of the workforce as a whole—only in their perceptions of new graduates.

	Home care employers	Acute care employers
Average starting salary for a new CRT	\$21.50	\$24.64
Percent who feel new RCPs are poorly prepared to enter the workforce	55%	26%
Percent of new entry-level RCPs hired with the necessary educational background	46%	73%
Percent providing a clinical experience program	18%	82%

Key Finding

Home care employers were less likely than acute care employers to feel new RCP graduates were prepared for the workforce. In fact, it was not uncommon for home care employers to make it a policy not to hire new graduates at all, and to only hire RCPs with acute care experience.

Opinions Regarding Possible Changes in RCP Education and Licensing. Nearly all home care employers (94%) believed the state should establish a model curriculum for respiratory care education programs and require a minimum number of clinical hours. There was very little consensus among home care employers regarding other possible changes to educational and licensing requirements. In general, they were less supportive than acute care employers of moving to a four-year degree, requiring the RRT within a designated timeframe, and making the RRT the entry level exam for licensure.

	Home care employers	Acute care employers
Entry-level requirements should be increased to a four-year degree	13%	30%
The state should establish a model curriculum for education programs	93%	80%
Progression to the RRT should be required within a designated timeframe	31%	66%
The RRT should be the entry level exam for licensure	33%	59%

Expectations for Growth during the Next Five Years. Home care employers are generally smaller than acute care employers, but their average expected growth rate in terms of patients over the next five years is more than twice that expected by acute care employers. Home care employers expected the number of patients their facilities service to grow by an average of 52 percent. The average for acute care employers was 28 percent.

This same pattern—to an even greater extent—was reported for expected growth of RCP staffing. The average expected increase in RCP staffing for home care employers was 66 percent, compared to a more modest 17 percent for acute care employers. Home care employers' expectations for rapid growth are likely major contributors to their anticipations for difficulties hiring qualified RCPs during the next five years. Two-thirds of home care employers anticipate difficulty hiring qualified RCPs. Significantly fewer acute care employers—38 percent—anticipated this would be a problem.

	Home care employers	Acute care employers
Expected percent increase in patients	52%	28%
Expected percent increase in RCP staffing	66%	17%
Percent of employers anticipating difficulties hiring qualified RCPs during the next five years	67%	38%

Key Finding

Home care employers' expectations for growth in RCP staffing over the next five years were more than double those of acute care employers. They also anticipate greater difficulty hiring qualified RCPs in the future. Both expectations are arguably related to the age distribution of the home care patient base. Home care employers are aware that the growth of the elderly population in California is expected to increase the prevalence of respiratory ailments and cardiopulmonary disease, which in turn will increase the demand for RCPs—particularly in the home care setting.

Chapter 4: Respiratory Care Educational Program Survey

Major Goals

The respiratory care educational program survey was designed to obtain information from program directors about their programs and the context in which they function. The objective was to gain an understanding of program director's perspectives on the current state of respiratory care education in California and their opinions about the future of respiratory care.

Methodology

Sampling Design. All California respiratory therapy educational programs were included in the sample.

Survey Development. An Expert Panel of nine RCPs from throughout the state was assembled in January 2007 to assist the ISR with the development of the survey instruments for RCP employers and educational program directors. Panel members were selected to provide perspectives from a variety of work and program settings. Based on recommendations from the Expert Panel and a review of the literature, a draft survey instrument was prepared and submitted to the Board and Expert Panel for review.

The draft survey was revised to reflect feedback from the Board and Expert Panel. The final survey included 45 questions. The survey asked program directors about their current program characteristics and expectations for the future, including changes in enrollment, faculty and demand for respiratory care. Data was collected via a web survey. After making initial phone calls to confirm email addresses, program directors were sent an email containing a link to the survey and a unique password. The survey questions, along with responses to each item, are included in Appendix 5.

Response Rates. Of the 30 programs included in the sample, one was no longer operating, reducing the number of eligible programs to 29. Completed surveys were obtained from 20 of these 29 programs—a response rate of 69 percent.

Analysis and Findings

Program Characteristics. Most of the respondents (65%) directed public community college programs. Six respondents (30%) directed programs in private two-year technical colleges, and one respondent directed a program housed within a private four-year university. Five programs (25%) were located in an educational institution with campuses outside California. Respondents were asked what year their program first started accepting students. In Table 4.1, the responses to this question have been collapsed into two categories. Fourteen of the 20 programs (70%) began before 1985.

The remaining six programs first started accepting students after 2000. Only four programs provided curriculum online, and the percentage of curriculum offered online for these programs was very low (between 1 and 5%).

Table 4.1: Educational Program Characteristics

		Percent	Number of cases
Please indicate the type of educational setting that best describes the institution in which your program is located	Public community college	65.0%	13
	Private two-year technical college/school	30.0%	6
	Private four-year college/university	5.0%	1
	Total	100.0%	20
Does the educational institution in which your program is located have campuses outside of California?	Yes	25.0%	5
	No	75.0%	15
	Total	100.0%	20
Please indicate the year your program first started accepting students	Prior to 1985	70.0%	14
	After 2000	30.0%	6
	Total	100.0%	20
Is your current program entry and/or advanced level?	Entry-level only	5.0%	1
	Advanced level only	85.0%	17
	Entry and advanced level	10.0%	2
	Total	100.0%	20

Respondent Characteristics. The educational leadership and experience levels of respondents indicate they were well qualified to provide information about their program and the respiratory care profession. All of the respondents were program directors; the length of time they'd held this position ranged from two years to over 30, with an overall average of 8.7 years. Respondents also had a great deal of experience in their profession, the average number of years they have worked in respiratory care was 23. All respondents had earned the RRT credential and all but one respondent was licensed as a California RCP. Eighteen of the 20 respondents (90%) had earned their bachelor's degree and over half (55%) had a master's degree or higher.

Table 4.2: Educational Program Respondent Years as Program Director and Years in Respiratory Care Profession

	Mean	Min-imum	Max-imum	Number of cases
Years in current position as program director	8.7	2	33	20
Year worked in respiratory care	23.2	4	40	20

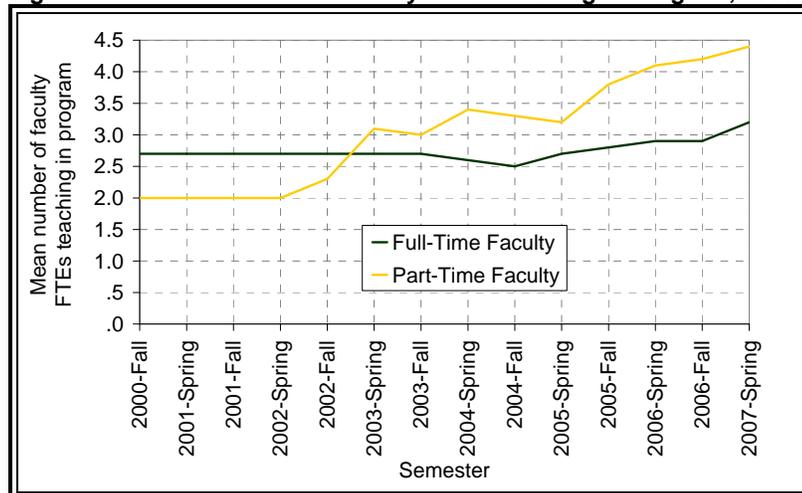
Table 4.3: Educational Program Respondent Licenses, Certifications, Credentials and Degrees

Please indicate which of the following licenses, credentials, certifications, and degrees you have earned	Percent	Number of cases
California Respiratory Care Practitioner License	95%	19
CRT	80%	16
RRT	100%	20
Neonatal/Pediatric Specialist	25%	5
CPFT	10%	2
RPFT	5%	1
RN	5%	1
Associate's degree	65%	13
Bachelor's degree	90%	18
Master's degree or higher	55%	11

Program Faculty. Respondents were asked to record the number of full- and part-time faculty FTEs teaching in their program since 2000. In Fall 2000, there was an average of 4.7 faculty FTEs in each program. Faculty positions were static until 2002, but since then, there has been consistent steady growth. By Spring 2007, the number of program faculty had climbed to an average of 7.6 FTEs—a growth rate of 61 percent.

Nearly all of this growth has been in new part-time positions. The average number of full-time faculty has remained quite constant over the last seven years. The average in Fall 2000 was 2.7; by Fall 2006 it had only increased to 2.9 (although there was a recent growth spurt in Spring 2007 to 3.2 full-time faculty). In contrast, average part-time faculty positions have more than doubled, increasing from 2.0 in Fall 2000 to 4.4 in Spring 2007. One program director, in responding to another survey question, expressed concern that the ratio of full-time to part-time faculty needs to be adjusted to be consistent with the state mandate for no more than 50% part-time to full-time faculty ratio.

Figure 4.1: Mean Number of Faculty FTEs Teaching in Program, 2000-2007



Student Admissions, Enrollments, and Graduations. Starting with the Fall 2000, respondents were asked to record the number of new admissions to their program at the beginning of each academic year, the number of students enrolled in their program at the end of the year, and the number graduating from their program. Information was collected separately for entry-level and advanced level programs. The six programs founded after 2000 were asked to provide information beginning with the semester they first accepted students. Since the surveys were completed in Spring 2007, data was not yet available for academic year 07/08 graduations.

Responses show that California respiratory care educational programs have grown substantially in size during the last seven years. Although there was a slight downturn for the first few years, since the 2002/03 academic year, there has been a steady increase in admissions and enrollment. In academic year 2000/01, an average of 28 new students were admitted to each advanced level program. By academic year 2007/08, the average had increased to 39.5. The increase was particularly steep for entry level programs, but since data was collected for just three entry-level programs, this may be a reflection of individual program patterns rather than an overall trend.

Attrition appears to be a significant factor for advanced level programs. During the past seven years, advanced level graduations averaged about 43 percent of admissions—less than half of the students admitted to the program graduated. In comparison, entry-level graduations averaged about 69 percent of admissions, (although again, with just three entry-level programs, this may reflect individual, rather than program-level, differences).

In part, because of this attrition, advanced-level graduations increased at a much lower rate than entry level-graduations. From 2001 to 2007, average advanced-level graduations increased by 1.6 students (from 14.6 to 16.2). During the same time period, average entry-level graduations increased by 37 students (from 16.5 to 47.5).

Figure 4.2: Average Annual Entry Level Program Admissions, Enrollments and Graduations, 2000-2007

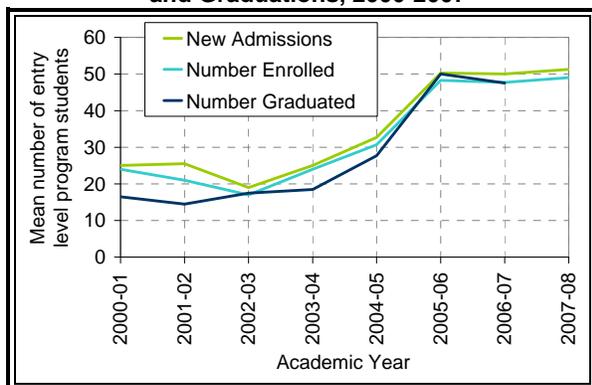
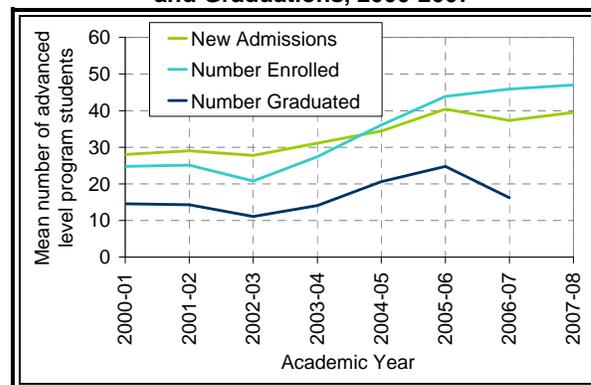
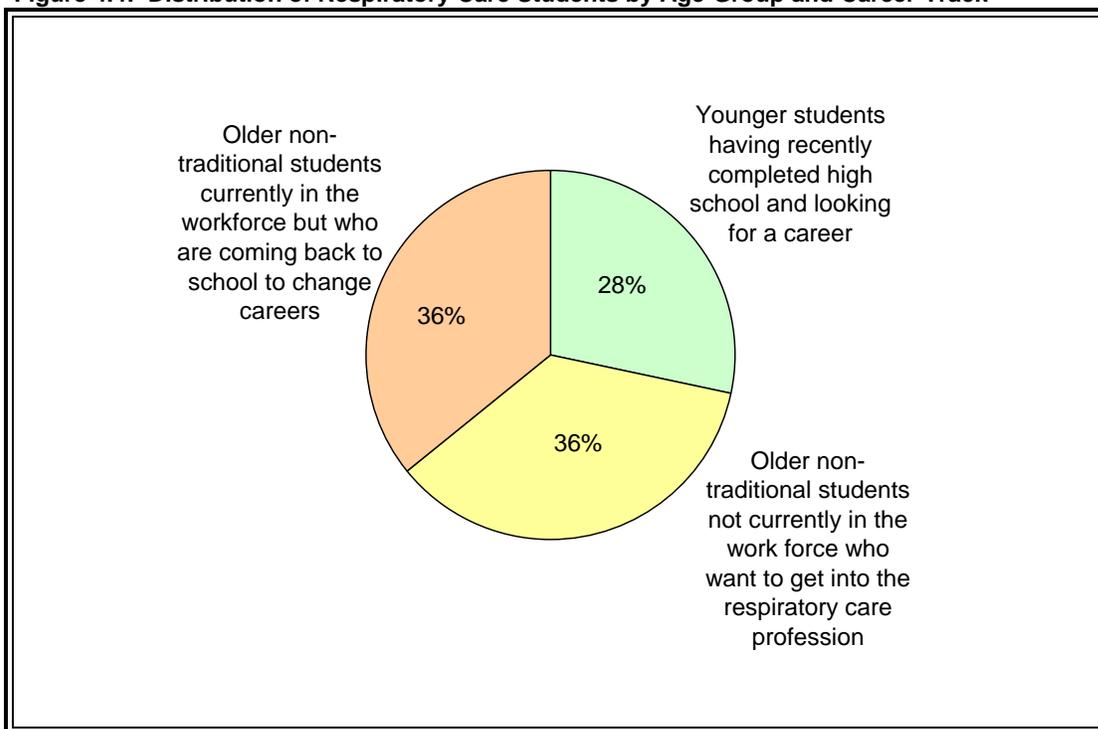


Figure 4.3: Average Annual Advanced Level Program Admissions, Enrollments and Graduations, 2000-2007



Characteristics of Students Entering Respiratory Care Educational Programs. Program directors were asked to categorize the percentage of students enrolled in their program during the past five years according to age group and career-track. They reported that students were fairly evenly divided into three groups. On average, across the programs, just 28 percent of students were described as younger students recently out of high school looking for a career. The remaining majority of students—72 percent—were older non-traditional students. This group was evenly split between those not currently in the workforce who want to enter the respiratory care profession and those who are going back to school in order to change careers.

Figure 4.4: Distribution of Respiratory Care Students by Age-Group and Career-Track



Respondents were also asked to describe the quality of students entering their program during the past five years. Sixty-one percent of the respondents answering this question felt the quality of students has improved (see Table 4.4). The remaining 39 percent felt the quality of the students has remained the same. None of the respondents indicated that the quality of students has declined.

Table 4.4: Quality of Students Entering Educational Program

In your experience during the past 5 years, which of the following best characterizes the quality of the students entering your program?	Percent	Number of cases
The quality of the students has improved	61%	11
The quality of the students has declined	--	0
The quality of the students has remained about the same	39%	7
Total	100%	18

Key Findings

- Although program enrollment has been growing steadily since 2002, student attrition between time of enrollment and graduation has resulted in only modest growth in the number of graduates produced by each program. This pattern has been particularly pronounced for advanced-level programs, which saw only 1.6 percent growth over the 7-year period.
- It is estimated by program directors that about 36 percent of students entering respiratory care programs are older non-traditional students coming back to school for a career change, and about 36 percent of students are older non-traditional students not currently in the workforce who want to get into respiratory care. While these individuals bring many positive qualities to the profession, they will have a shorter “career life” than students entering the profession at an earlier age.

Clinical Requirements. All respondents indicated that their programs have a formal clinical component. However, there were significant variations in terms of what this clinical component entailed. Table 4.5 describes the number of clinical hours required by each program (because entry-level program requirements were higher than a number of advanced-level programs, all program levels were included in the analysis). On average, the programs required 773 clinical hours. The most common range—required by six programs—was between 800 and 899 hours. The variations above and below these measures of central tendency were considerable. Seventeen percent of programs required less than 500 hours. The hours required by some programs (11%) were more than double that—they required 1200 clinical hours.

Table 4.5: Educational Program Clinical Hour Requirements

	Percent	Number of cases
Less than 500 hours	17%	3
500 to 799 hours	11%	2
800 to 899 hours	33%	6
900 to 999 hours	17%	3
1,000 to 1,199 hours	11%	2
1,200 hours	11%	2
Total	100%	18

In reviewing the data collected on clinical requirements, it is important to be aware of the approach the survey used to standardize the measurement of clinical time across programs. The need for standardization became evident during the survey development phase. The strategy adopted for the final survey form was to break the information down into two pieces. First respondents were asked how many clinical units were required for their program. Then they were asked how many clinical hours were required for each clinical unit. These two pieces of information were used to compute number of clinical hours. A great deal of variation was found in how programs structured the requirements. Some required fewer units, but with more hours per unit, while others required more units, but with fewer hours per unit.

Clinical Settings. Respondents were asked to describe the settings that provide clinical credit hours for their students. Nearly all of the programs reported clinical hours in teaching hospitals, but they also described a diverse group of additional settings (Table 4.6). Seventy-nine percent include clinical hours in sub-acute care facilities, long-term care facilities, or rehabilitation programs. A little over one-third of the programs include home care/durable medical equipment clinical hours. Clinical hours in stand alone diagnostic programs and stand alone sleep centers were each included by one-fourth of the programs.

Table 4.6: Educational Program Clinical Settings

Please select the type of settings that provide clinical credit hours for your students (select all that apply)	Percent	Number of cases	Percent	Number of cases
General acute care hospital	100.0%	3	94.7%	18
Acute care hospital that is a designated trauma center	100.0%	3	94.7%	18
Acute care hospital that is a teaching hospital	100.0%	3	94.7%	18
Sub-acute, long-term care or rehabilitation program	33.3%	1	78.9%	15
Stand alone hyperbaric medical program	--	0	5.3%	1
Stand alone diagnostic program (e.g., PFT lab)	33.3%	1	26.3%	5
Home care/durable medical equipment	66.7%	2	36.8%	7
Skilled nursing facility	66.7%	2	21.1%	4
Stand alone sleep center	33.3%	1	26.3%	5
Doctor's offices or clinic	--	0	15.8%	3
Other	--	0	21.1%	4
Total	N/A	3	N/A	19

Respondents also described a variety of additional settings, including rotations in acute care children's hospitals, long-term care children's hospitals, neuromuscular clinics, and cardiac catheterization labs, as well as perioperative and transport rotations. Some program directors indicated they plan to expand the range of settings, but to include the additional settings as electives, rather than requirements.

Accreditation. Program directors were asked a series of questions regarding the accreditation process and standards. In general, most respondents indicated that the current process and standards are appropriate. Eighty-five percent said the reaccreditation schedule was frequent enough to monitor program quality (Table 4.7). However, even several respondents who indicated the schedule was adequate added that the schedule should accommodate differences in program performance. As one respondent put it, "...if the program is competent the reaccreditation process is fine. If the program is poor, the reaccreditation time is too long." Other respondents indicated that a three-year interval was appropriate for initial accreditation, but because the profession changes rapidly, a ten-year cycle for continuing programs is too long. Several recommended a six year cycle, which would be consistent with the current community college accreditation cycle.

All respondents said the current reaccreditation standards appropriately address elements related to the quality of graduates. However, some program directors offered suggestions for modifications to these standards. The director from one program felt standards should be added in two areas. One standard should include feedback from both current and previous program graduates regarding the quality of instruction they received. A second standard would require more thorough interaction with clinical affiliates in order to assure that educational programs are overseeing students in an appropriate manner. Two program directors indicated that standards should be removed. One of these respondents emphasized the need for local, rather than national standards. The other indicated that finding and gaining cooperation from graduates six months after graduation is very difficult.

Table 4.7: Evaluation of Accreditation Process and Standards

		Percent			Number of cases		
		Yes	No	Total	Yes	No	Total
	Do you believe the current reaccreditation process schedule is frequent enough to monitor program quality?	85%	15%	100%	17	3	20
	Do you believe current accreditation site visits are comprehensive enough to monitor program quality?	90%	10%	100%	18	2	20
Initial accreditation standards*	Do you believe the current initial accreditation standards for respiratory care programs appropriately address the elements related to the quality of graduates?	94%	6%	100%	15	1	16
	Should any current initial accreditation standards be removed from the process?	13%	88%	100%	2	14	16
	Should any initial accreditation standards be added to the process?	25%	75%	100%	4	12	16
Current reaccreditation standards	Do you believe the current reaccreditation standards for respiratory care programs appropriately address the elements related to the quality of graduates?	100%	0%	100%	19	0	19
	Should any current reaccreditation standards be removed from the process?	10%	90%	100%	2	18	20
	Should any reaccreditation standards be added to the process?	5%	95%	100%	1	19	20

* The survey included an option for those who were not familiar with this part of the process. These responses are not included in this table.

Respondents were slightly more critical of the initial accreditation standards than they were of reaccreditation. One respondent said the current initial accreditation standards did not appropriately address the elements related to the quality of graduates. Two program directors felt standards should be removed. These were the same concerns expressed regarding reaccreditation and focused on the need for local, rather than national standards and the difficulty of finding and gaining cooperation from graduates six months after graduation. Four program directors believe initial accreditation standards should be added. They noted that new programs generally require a more detailed evaluation than established programs. Additional initial standards suggestions include:

- Require that on-site accreditation visits for new programs include visits to clinical sites. Meeting with representatives from clinical sites at school facilities was not always sufficient.
- Reinstate the minimum clinical hour component so that clinical hours are included at an appropriate level in new programs.
- Hold new programs to model standards, and only allow exceptions to these standards after the programs have established a satisfactory track record.
- Require the associate degree offered by private colleges to meet or exceed community college standards. This would solve the problem of some private college associate degrees not being accepted by many higher education systems.
- Require that a needs assessment of the community be conducted, including an evaluation of clinical training facility resources.

Key Findings

- Although program directors were generally comfortable with reaccreditation standards, they indicated that moving from a ten to a six-year cycle would be beneficial. Suggestions to adjust the frequency of reviews based on individual program performance were also included.
- While respondents generally approved of the accreditation standards, there were also a significant number of recommendations for improving initial accreditation standards. Many of the issues identified relate to clinical components and the need for greater uniformity and quality assurance.

Opinions about Educational and Licensing Requirements. Program directors were asked about their opinions regarding five possible modifications to current RCP education and licensing requirements. Their responses are summarized in Table 4.8. Support for three of the five modifications was strong:

- Nearly all program directors (90%) felt the state should require respiratory education programs to include a minimum number of clinical hours.
- Three-fourths of program directors said the RRT should be the entry-level exam for licensure.
- Seven out of ten program directors believe progression from the CRT to the RRT should be required within a designated timeframe.

Opinions regarding the two remaining possibilities were mixed, with a small majority favoring no change to the current requirements. Six out of ten directors said they did not believe entry level educational requirements should be increased to a four-year degree. Fifty-five percent said they did not believe the state should establish a standard or model curriculum for respiratory care education programs.

Table 4.8: Program Director Opinions about Educational Requirements

	Percent			Number of cases		
	Yes	No	Total	Yes	No	Total
Given your expectations for the respiratory care profession in the next 5 years, should the entry level educational requirement for Respiratory Care Practitioners be increased from the current 2-year degree to a 4-year (Bachelor's) degree?	40%	60%	100%	8	12	20
Given your expectations for the respiratory care profession in the next 5 years, should the State establish a standard or model curriculum for respiratory care education programs?	45%	55%	100%	9	11	20
Given your expectations for the respiratory care profession in the next 5 years, should the State require respiratory care education programs to include a minimum number of clinical hours?	90%	10%	100%	18	2	20
Given your expectations for the respiratory care profession in the next 5 years, should progression to RRT from CRT be required by the state within a designed timeframe such as 3 years?	70%	30%	100%	14	6	20
Given your expectations for the respiratory care profession in the next 5 years, should the RRT be the entry level exam for licensure?	75%	25%	100%	15	5	20
Given your expectations for the respiratory care profession in the next 5 years, are there other education or training requirements that need to be changed?	42%	58%	100%	8	11	19

A wide range of suggestions were made regarding changes for other education or training requirements. Some were requests for additions to the curriculum, including:

- Mandating certification in ACLS and RRP (in addition to BLS)
- Adding polysomnography services to the formal curriculum to accommodate the increase in this area
- Adding didactic and clinical smoking cessation/intervention to the curriculum

Several respondents focused on the importance of establishing clinical standards. This included the need for some schools to offer more clinical hours and more varied clinical experiences. Respondents also stressed the importance of requiring that the clinical component be provided by a clinical instructor (on site, choosing the patient experiences), rather than by a staff preceptor.

Two respondents described their preference for developing more four-year degree advanced practitioner programs to adequately address the body of respiratory therapy knowledge. One of these respondents described transitioning two-year programs to entry level and eventually requiring more extensive educational requirements for the advanced practitioner following their associate degree.

Key Findings

There was a divergence of opinions regarding possible changes in educational requirements for RCPs. A majority of programs did not support moving from a 2-year to a 4-year degree, nor establishing a mandated statewide curriculum. However, respondents offered strong support for:

- requiring a mandatory progression from CRT to RRT within three years of licensure and
- addressing the quantity and quality of the clinical component. In addition to requiring an adequate number of clinical hours, program directors stressed the importance of an on-site clinical instructor.

Feedback from Employers Regarding Graduates. The survey asked respondents to describe the kinds of complaints they hear from employers who hire their graduates—both in terms of their own graduates and graduates from other programs (see Table 4.9). In terms of graduates from other programs, all of the potential faults included on the survey appear to be problematic, to one degree or another, for employers, but three complaints were the most significant:

- Lack of knowledge of basic concepts of respiratory care (80%),
- Graduates have not been exposed to all of the technology that is currently available (75%), and
- Graduates don't have enough hands-on experience (70%).

Lack of exposure to all of the currently available technology was the most common complaint program directors reported hearing about graduates from their own programs. Other complaints respondents heard from employers about graduates included weak assessment skills, poor organizational skills, lack of time management skills, inability to complete a full workload, and unprofessional behavior. One area mentioned by several respondents was the importance of problem solving and critical thinking, particularly relating to the reason they are administering therapy, as opposed to just doing what an order says and not thinking about it.

Table 4.9: Educational Program Feedback from Employers about Program Graduates

	In your experience from discussions with employers who hire your graduates, which of the following are the complaints that you hear most often about students who graduate from:			
	Your program		Other programs	
	Percent	Number of cases	Percent	Number of cases
They lack basic skills (writing, math, reading, etc.)	5%	1	35%	7
They lack knowledge of basic concepts of respiratory care	15%	3	80%	16
They have not been exposed to all of the technology that is currently available	35%	7	75%	15
They don't have enough hands on (i.e., clinical) experience	20%	4	70%	14
They lack a good work ethic (punctuality, dependability, dedication, etc.)	20%	4	45%	9
They have unrealistic expectations of the work environment (pace of job, stress level, etc.)	20%	4	35%	7
They have unrealistic expectations of salary or benefits	5%	1	25%	5
Other	30%	6	25%	5
Total	N/A	20	N/A	20

Perceptions of Workforce Qualifications. Program directors were asked a series of questions about how well they feel California respiratory care education programs are preparing RCPs.

- Roughly two-thirds of program directors said that the education and training of most respiratory therapists is appropriate for the job. One-third of program directors said that most respiratory therapists working today are under-qualified (see Table 4.10).
- Respondents were asked to evaluate how well new RCPs were prepared to enter the workforce. Seventy-eight percent felt that new graduates were well prepared (See Table 4.11).
- The majority of program directors—65 percent—said that *most* educational programs adequately prepare new RCPs for respiratory care work (Table 4.12). Thirty-five percent said that *some* programs adequately prepare new entry level RCPs.

Table 4.10: Program Directors' Perceptions of the Qualifications of Working Respiratory Therapists

Do you believe most respiratory therapists working today have the right amount of education/training for the jobs/tasks they're asked to perform by their employers?	Percent	Number of cases
No, too much education/training (they are over-qualified)	--	0
Yes, their education/training is appropriate for the job	65%	13
No, not enough education/training (they are under-qualified)	35%	7
Total	100%	20

Table 4.11: Program Directors' Perceptions of the Preparedness of New RCPs to Enter the Workforce

Upon graduating, how well prepared are new RCPs to enter the workforce?	Percent	Number of cases
Extremely well prepared	--	0
Well prepared	78%	14
Poorly prepared	22%	4
Not at all prepared	--	0
Total	100%	18

Table 4.12: Program Directors' Perceptions of California Respiratory Care Education Programs

In your opinion, which of the following statements best describes how well California respiratory care education programs are preparing new entry level RCPs for work they are required to do?	Percent	Number of cases
All programs adequately prepare new entry level RCPs	--	0
Most programs adequately prepare new entry level RCPs)	65%	13
Some programs adequately prepare new entry level RCPs	35%	7
Few programs adequately prepare new entry level RCPs	--	0
None of the programs adequately prepare new entry level RCPs	--	0
Total	100%	20

Key Findings

A strong majority of educators indicated that graduating RCPs had the appropriate education and training for the job and were well prepared. Despite these generally positive views of the respiratory care graduates, educators questioned how well some education programs prepared students, with slightly more than two-thirds (68%) indicating that *most* programs prepare students adequately, but more than one-third (35%) maintaining that only *some* respiratory care education programs prepare students adequately.

Expectations for Program Growth. Program directors were asked whether they expected the number of students in their programs to increase, decrease, or remain the same over the next five years. One-half expected the number of students in their programs to increase, and one-half expected the number to remain the same. Those expecting an increase reported an average student increase of 24 percent above current enrollment. They were also asked a parallel question regarding their plans for increasing, decreasing, or maintaining the current number of faculty in their program. Sixty percent said they planned on increasing their faculty. The remaining programs all said they were planning on maintaining current faculty levels. The programs who were planning to increase faculty reported an average increase of 30 percent.

<ul style="list-style-type: none"> Percent of programs expecting the number of students in their program to increase during the next five years: 50% 	<ul style="list-style-type: none"> Average percentage increase in students expected for these programs: 24%
<ul style="list-style-type: none"> Percent of programs planning on increasing the number of faculty in their program over the next five years: 60% 	<ul style="list-style-type: none"> Average percentage increase in faculty planned for these programs: 30%

Respondents were asked to evaluate the importance of several factors for their expectations about the future capacity of their program.

- By far the most important factor for growth in the number of students was the increasing need for respiratory services. Eight out of ten respondents said this was the most important reason for an increase in the number of students in their programs (see Table 4.13). One program director attributed growth in enrollment at high quality programs to a decline in the quality of other programs.
- For programs that do not expect to increase their student numbers during the next five years, it appears that resources are the main restriction on growth. Nine out of ten programs said the available resources fit their current program

size (Table 4.14). The most significant limitation described was the number of students that area hospitals can accommodate.

- Responses from programs planning to increase faculty make it clear that the driving factor is the increasing need for respiratory services which, in turn, increases student enrollment. Nine out of ten programs said this was the most important reason for plans to increase the number of faculty teaching in their program (Table 4.15).

Table 4.13: Importance of Factors for Expected Student Increases

How important is each of the following factors as to why you are expecting the number of students in your program to increase in the next 5 years?	Most Important		Somewhat Important				Not Important		N	Mean		
	5		4		3		2				1	
	N	(%)	N	(%)	N	(%)	N	(%)			N	(%)
The general student enrollment is increasing in the program	1	(11%)	7	(78%)	1	(11%)	0	(0%)	0	(0%)	9	4.0
The need for respiratory services is increasing, creating a greater demand for our graduates	8	(80%)	1	(10%)	1	(10%)	0	(0%)	0	(0%)	10	4.7
The institution is planning a general expansion of its student body	2	(20%)	2	(20%)	3	(30%)	1	(10%)	2	(20%)	10	3.1
We have more current student demand for respiratory care courses than we can presently satisfy	3	(30%)	3	(30%)	2	(20%)	1	(10%)	1	(10%)	10	3.6
There are more resources available which allows us to expand the program	4	(40%)	3	(30%)	1	(10%)	0	(0%)	2	(20%)	10	3.7
Other	1	(33%)	1	(33%)	0	(0%)	0	(0%)	1	(33%)	3	3.3

Table 4.14: Importance of Factors for Maintaining Current Student Enrollment in Program

How important is each of the following factors as to why you are expecting the number of students in your program to stay the same in the next 5 years?	Most Important		Somewhat Important				Not Important		N	Mean		
	5		4		3		2				1	
	N	(%)	N	(%)	N	(%)	N	(%)			N	(%)
The general student enrollment is remaining static for this program	3	(30%)	3	(30%)	2	(20%)	2	(20%)	0	(0%)	10	3.7
The need for respiratory services is holding constant, so the demand for our graduates is holding steady	3	(30%)	1	(10%)	2	(20%)	3	(30%)	1	(10%)	10	3.2
The institution is planning to maintain the current size of its student body during the next 5 years	4	(40%)	1	(10%)	2	(20%)	0	(0%)	3	(30%)	10	3.3
Our current student demand for respiratory care courses is balanced with the number of courses we offer	4	(40%)	1	(10%)	2	(20%)	0	(0%)	3	(30%)	10	3.3
The available resources fit our current program size	9	(90%)	0	(0%)	1	(10%)	0	(0%)	0	(0%)	10	4.8
Other	1	(100%)	0	(0%)	0	(0%)	0	(0%)	0	(0%)	1	5.0

Table 4.15: Importance of Factors for Expected Faculty Increases

How important is each of the following factors as to why you are expecting to increase the number of faculty members in the next 5 years?	Most Important		Somewhat Important				Not Important		N	Mean		
	5		4		3		2				1	
	N	(%)	N	(%)	N	(%)	N	(%)			N	(%)
The general student enrollment is increasing in the program	9	(75%)	2	(17%)	1	(8%)	0	(0%)	0	(0%)	12	4.7
The need for respiratory services is increasing, creating a greater demand for our graduates	7	(64%)	3	(27%)	1	(9%)	0	(0%)	0	(0%)	11	4.6
The institution is planning a general expansion of its student body	3	(25%)	4	(33%)	4	(33%)	0	(0%)	1	(8%)	12	3.7
The program is planning on increasing the number of specialty courses/units available to students	3	(25%)	3	(25%)	3	(25%)	0	(0%)	3	(25%)	12	3.3
The increasing use and/or sophistication of technology requires more faculty	3	(25%)	3	(25%)	4	(33%)	0	(0%)	2	(17%)	12	3.4
Other	5	(83%)	0	(0%)	0	(0%)	0	(0%)	1	(17%)	6	4.3

Key Findings

- One-half of programs predicted growth in student enrollments of 24 percent. This growth is a direct product of the increasing need for respiratory care.
- The main restriction on program growth—cited as a limiting factor even for programs expecting to grow—appears to be the number of students that area hospitals can accommodate. When combined with program directors' emphasis on the importance of the clinical component, this restriction has important implications for the ability to meet future demand for RCPs.
- Taken together, this suggests that the nature of the relationship between the educational programs and hospitals may need to be re-evaluated. Several program directors felt that on-site clinical instructors (as opposed to staff preceptors) provide higher quality instruction and lessen demands on hospital staff. If the use of staff preceptors is widespread, and this is limiting hospital participation in clinical programs, increasing the use of on-site clinical instructors might be helpful.

Chapter 5: Elements Affecting the Future of the RCP Workforce

Separate surveys soliciting the perspectives of three key stakeholder groups, educators, RCPs and employers were conducted to collect information and perspectives about factors impacting the RCP workforce and influencing its future direction. One of the values of this approach is to provide multiple perspectives on issues that impact and are impacted by these stakeholder groups. This multiple perspectives approach permits a way not only to identify issues, but also to gauge the relative importance of these issues and ultimately to structure solutions to problems.¹² For example, if educators, RCPs and employers hold very different views about the need for additional educational requirements for the profession, before any strategy can be developed that addresses educational requirements, work must be done to reach a consensus on the problem. However, if all three groups hold similar views on the necessary education requirements for the profession, then the primary effort can focus on the development of requirements that meet the agreed upon standards.

Do stakeholders groups share common perceptions on important workforce issues?

Consensus and Disagreement. One of the overall positive findings of the study was the high level of agreement on most of the issues that the ISR was asked to investigate. This consensus appeared not only in terms of agreement as to whether an issue impacted the workforce, but the relative magnitude of that impact. For example, all three groups seemed to agree that RCPs have about the right amount of training and education to perform the tasks they're asked to do. In the remainder of this chapter, we consider the perspective of the key stakeholder groups on some of the prominent issues likely to impact the future of the workforce.

Perspectives on Important Issues

Are there enough RCPs?

The Adequacy of Current Staffing. Because there are no mandated staffing ratios for RCPs, it is difficult either to benchmark the profession in terms of present staffing levels or to project future needs. As a proxy, however, it is possible to use currently allocated FTEs as a marker against which vacancies can be assessed. Further, as will be detailed in Chapter 6, current staffing ratios can be determined in terms of RCPs per the California population base (e.g., number of RCPs per 100,000 Californians), and in terms of RCPs per specific patient groups (e.g., number of RCPs per patients aged 65 and older). Keeping this caveat in mind, information gathered from the surveys of RCPs, educators and employers all point to a current shortage of RCPs. For example, eight out of 10 employers (79%) stated that they had encountered difficulties in hiring qualified RCPs in the past three years. Further, a majority of employers indicated they expect hiring difficulties to continue into the future. As will be presented in Chapter 6,

¹² Cowles, E.L. and Sabath, M.J. (1996, September). Changes in the nature and perception of the long-term inmate population: Some implications for prison management. *Criminal Justice Review*.

the workforce model projections developed by the ISR suggest that the situation will continue to worsen considerably in the coming decades. As seen in the Employer data presented earlier (Chapter 3), employers indicated they are running about a 10.2 percent RCP vacancy rate. Additionally, they are filling about 8.4 percent of their FTE positions with temporary travelers or registry workers. The finding that 65% of employers indicate a primary reason for hiring temporary or registry workers is to provide a stopgap or temporary hire for a vacancy until they are able to recruit regular staff suggests that removal of these temporary employees from inclusion in calculations of unfilled positions may be warranted. If so, the true vacancy rate of regular RCPs may be running closer to 20 percent.

How can staff shortages be addressed?

The Use of Overtime to Create Supply. Beyond the use of registry and travelers, mechanisms to address the shortage likely include the regular use of overtime. Employers responding to the survey indicated an average (mean) monthly overtime of about 214 hours. Based on FTE staffing, this equates to slightly more than 5.4 hours of overtime per employee per month, a number somewhat less than 3.0 average hours of overtime per week derived from the results of the RCP survey for RCPs' primary position. However, beneath these generally apparently low amounts of overtime are some interesting factors. First, about 66 percent of RCPs indicated that they do not work any overtime in their primary position. This suggests that the remaining 34 percent probably put in considerable overtime, and categorized overtime hours seem to bear this out. While approximately 18 percent of RCPs maintained that they worked less than 10 hours of overtime a week, another 14 percent stated they worked 10 to 19 hours of overtime in a week. Further, two percent (1.7%) of the RCPs indicated they put in 20 or more hours of overtime per week. These numbers become more significant given that about 10 percent of RCPs indicated they were salaried (not likely to receive overtime), and the overtime hours provided were only for a primary position—roughly 23 percent of RCPs indicate they hold two or more respiratory care positions. Clearly, a pyramid exists with regard to overtime—a third of the RCPs are carrying the bulk of the overtime. Given this phenomenon, even with a modest growth rate in the profession, it is clear that overtime will not be a viable supply for the needed FTE resources to meet the growing future demand for respiratory care services.

The Retention Issues. Another factor impacting the supply of RCPs is employee retention. In the current and anticipated period of increased patient demand, growth in the profession has to include not only increases to accommodate the increased patient load, but also to replace workers leaving the workforce. The base of the respiratory care profession is the clinician or RCP who provides patient care (including supervisors who maintain direct patient care workloads in addition to administrative duties). Once employed, most of these individuals may leave their position along one of three primary avenues.

The largest pathway for departure is one over which the profession has little control—retirement. Unfortunately, as detailed in the Workforce Projection Model (Chapter 6)

this is an “exit” stream which will become increasingly significant in the coming decade. Although health, economic conditions, job satisfaction and similar factors may alter the timing of retirement, our model estimates that the “working life” of an RCP effectively ends at 70, based on general retirement data and the very small portion of RCPs with active licenses who are working at this age. Currently 58 percent of the workforce is age 45 years old or older and 32 percent are in the 51 to 65 year old range. In the RCP survey, about 51 percent of those indicating they planned to leave the profession in the next decade stated their main reason for leaving would be retirement. With a substantial portion of the current workforce moving into retirement within the next two decades, replacing this portion of the existing workforce will become a critical issue that will need to be addressed before growth strategies can realistically be developed.

The second avenue through which individuals leave the profession is voluntary separation. Acute care employers indicated that they lost about 7.8 percent of their workforce in the previous year through voluntary resignations, and slightly more than one-half assert they have experienced difficulties retaining staff during the past three years. Keeping in mind that home care employers employ a small portion of the total RCP workforce, we see even higher rates of voluntary separation, about 15.7 percent. Some of the RCPs who voluntarily leave employment go to another California respiratory care employer, so their separation is not a net loss to the State’s workforce, but many leave for other reasons. Within the three surveys, some consideration of voluntary separation was captured from three groups: active RCPs planning on leaving the workforce within 10 years, RCPs who already had left the workforce but retained their licenses, and employers who were asked to report on reasons for leaving that were reported by RCPs leaving within the past three years. Among the issues cited in their responses, salary emerged as important in all three perspectives. For the RCP group planning to leave the profession within 10 years, salary was less of a factor than it was for licensees who had left the profession and in terms of employers citing it as the reason they were given for employee departure. This may be due to a couple of factors. First, as noted above, over one-half of the RCPs planning to leave were planning to retire, whereas salary was only cited by 13 percent as an important reason they would be leaving. Obviously, salary wasn’t a driving issue for this group. Second, disenchantment with salary likely brings a more immediate response. Stated differently, individuals who are looking out through a 10-year time horizon probably aren’t saying, “I don’t like my salary, and I’ll be leaving the profession in five years because of it.” Even those with a strategic plan for salary improvement such as returning to school will probably cite school as a reason for leaving rather than an underlying salary issue. However, the importance of salary as an issue given by RCPs who had left the profession and by employers reflecting staff comments likely reflects a more immediate connection between salary dissatisfaction and resignation. Forty-eight percent (48%) of those having left the profession cited salary as a very important or important reason, and 60 percent of acute care employers reported they had been told by departing employees that salary was a very important or important reason for those individuals’ departure. The fact that only 44 percent of currently working RCPs stated they were satisfied or very satisfied with their salary suggests that salary will be an important

factor to address in managing RCP retention and maintaining staffing resources.

Beyond salary, the remaining top four of the five factors cited as most important (rated as important or very important reasons) for leaving by RCPs who had left the profession included trying another occupation (52%), benefits (41%) child care/family responsibilities (42%), and job dissatisfaction (37%). Interestingly, while employers similarly cited some of these as reasons (important or very important) they were given for resignations—benefits (25%) child care/family responsibilities (30%), and dissatisfaction with the job (25%)—these reasons were not as visible from the employers' perspective as they were for RCPs who were out of the occupation. These issues were even less apparent among current RCPs who said they planned to leave the profession within 10 years. For this group, only 18% said trying another occupation was a reason they were planning on leaving the profession. Much smaller percentages were cited for dissatisfaction with the job, child care/family responsibilities and benefits—4%, 3% and 3% respectively. It is likely that the contrasts between the RCPs who have already left the profession and those planning to leave the profession in the next 10 years point to underlying differences between these two groups that may be of importance in retention once salary has been considered. The overall “exit” rate (as measured by those dropping out of the license base) is about 4.1 percent, but as will be seen in Chapter 6, the exit rate—which generally hovers between three and four percent for younger working RCPs—begins to climb substantially for individuals once they reach at age 60. The importance given to retirement, trying another occupation, returning to school, etc., suggests differences between those acting upon a desire to leave the profession and those contemplating a departure in the next decade. These differences support the notion that differential strategies are appropriate in efforts to retain RCPs at different stages in their careers. For example, while perhaps common sense; these differences call for age-specific strategies for improving retention. Age differences become particularly relevant in light of the finding (discussed below) that educators are indicating that students currently in their education programs are predominately non-traditional older students returning to school.

A third avenue for RCPs to leave employment is through involuntary terminations or dismissals. This group represents a relatively small group of RCPs in the workforce pool. Information extracted from the acute care employer survey indicates that in the previous year employers terminated/dismissed about 2.2 percent of their employees (home care employers provided a somewhat higher termination rate of 7.7%). In terms of the reasons for dismissal, about three-quarters of the employers indicated they had dismissed RCPs for what might be termed “non-profession specific” reasons—unacceptable work habits, such as unexcused absenteeism, failure to complete assignments, poor interactions with staff or patients, etc. However, well over one-third (36%) indicated the “profession specific” reason of an unacceptable level of knowledge or skills, and one-half (52%) maintained that they had to terminate/dismiss employees for the “profession specific” reasons of violation of patient care protocols or hospital regulations.

Although the small percentage may seem insignificant in terms of total workforce impact, about 73 percent of acute care employers said they had to terminate/dismiss an RCP during the past 3-year period (a much smaller proportion of home care employers, 25%, said they had to terminate employees). Thus, for the major employer group—acute care facilities—it would appear that while termination/dismissal represents a small proportion of their workforce attrition, it is a widespread problem in terms of the number of employers it affects. As such, it has a noticeable impact on retention of the larger workforce.

Are the educational requirements for RCPs appropriate?

Adequacy of Current Education Requirements. As mentioned above in the illustration of the approach, there was a fairly high degree of consensus among the three groups as to whether RCPs had the right amount of education/training for the jobs/tasks they were asked to perform by their employers. About three-quarters (73%) of the RCPs themselves agreed that their education/training was appropriate, while a strong majority, albeit somewhat smaller percentage, of educators (65%) and employers (62%) agreed the education and training was appropriate. Moreover, when asked how well California respiratory care education programs were preparing new entry level RCPs for work, 64 percent of RCPs said students were being well-prepared, while about 70 percent of educators and employers thought they were well prepared. However, when employers and educators were asked to indicate how well education programs prepare *new entry level* RCPs, about 65 percent of educators said *most* programs adequately prepare *new entry level* RCPs, while 35 percent indicated *some* programs adequately prepare new RCPs. Employers were less charitable on this question, with only 37 percent saying *most* programs adequately prepare new entry level RCPs, 52 percent indicating *some* programs do, and 10 percent maintaining *few* adequate prepare new graduates. Thus, it would seem that the general issue is not one regarding whether the majority of graduating RCPs are qualified, but a question regarding whether some programs are doing an adequate job.

Given this apparent agreement that a portion of education programs are not meeting expectations regarding student preparation, answers to a question asking employers and educators whether the State should establish a standard or model curriculum for respiratory care education programs provided some insight into to a course of action to remedy the program. Educators were divided on the issue of a standardized curriculum, with a slight majority (55%) opposing such a step. On the other hand, employers seem to support the idea enthusiastically, with four out of five (80%) employers backing a standardized curriculum. Differences between the two groups may be explained by the notion that some educators are skeptical of externally imposed curriculum requirements (which they view as unwarranted control) for their programs. Further, a majority of educators opposed to a State mandated curriculum believed that the accreditation/reaccreditation process is sufficient to ensure program quality. Employers, however, have little vested interest in the education processes themselves and see State imposed standardization as a way of ensuring students from all institutions come to them educationally prepared. It is also interesting to note that while

educators are less supportive of a standardized curriculum, they strongly endorse (90% favor) the State requiring respiratory care programs to include a minimum number of clinical hours

Increasing Future Educational Requirements. Given the general satisfaction voiced about RCPs being well prepared, it was not entirely surprising that neither educators nor employers¹³ favored increasing the entry-level educational requirement for RCPs from the current 2-year to a 4-year degree. A solid majority of educators (60%) did not favor increasing the requirement to a 4-year degree. Coupled with the belief that they are producing qualified graduates, a possible reason that respiratory care programs do not favor moving to a 4-year degree is because respiratory care programs are almost exclusively located at 2-year institutions. If the requirements are increased, educators may believe that respiratory care programs will be moving to 4-year institutions. An even larger majority of employers (71%) opposed raising the requirement. For employers, who again generally see RCPs as well qualified, the increase in education requirements to a 4-year degree may be rooted in economic and hiring factors. Already facing hiring difficulties and aware of salary dissatisfaction among RCPs, employers may see an increase to a 4-year degree as: 1) fueling a reduction in the supply of future RCPs due to fewer individuals being willing to embark on a longer course of study to enter the profession, and 2) diverting the supply of RCPs into other professional fields, particularly those such as nursing, which would be equivalent in terms of educational requirements, but offer better salaries in California (at the present time). Providing some support to the employers' latter concerns, nearly one-quarter (23%) of the RCPs surveyed are pursuing a higher academic degree, and about one-half (49%) state they are doing so to change careers.

On survey questions asking about making the RRT the entry-level credential for the respiratory care profession, employers seemed divided, with slightly more than one-half (54%) opposing a higher entry level credential and slightly less than one-half (46%) favoring the increase. By contrast, three quarters (75%) of the educators favored increasing the credential requirement to the RRT. However, both groups—66 percent of the employers and 70 percent of the educators—supported the State requiring progression to RRT from the CRT within a designed timeframe such as three years.

Can the number of individuals graduating from respiratory care educational programs be increased?

New RCPs in the Educational Pipeline. Another alternative solution is to produce a greater supply of new RCPs entering the workforce pipeline. Responses show that California respiratory care educational programs have grown substantially in size during the last seven years. Although there was a slight downturn for the first few years, since the 2002/03 academic year, there has been a steady increase in admissions and enrollment. Information received from respiratory care educators suggests that the small number of entry level programs have grown significantly in terms of students in the last seven years (i.e., since 2000). There has been a significant increase in the

¹³ RCPs were not asked this question on their survey.

number of *new admissions* (a 13% per year gain), actual *enrollments* (a 13% per year growth rate) and in entry level *graduates* (a 23% percent per year jump). In academic year 2000/01, an average of 28 new students were admitted to each advanced level program. By academic year 2007/08, the average had increased to 39.5. However, attrition appears to be a significant factor for advanced level programs. During the past seven years, advanced level graduations averaged about 43 percent of admissions: less than half of the students admitted to the program graduated. In comparison, entry-level graduations averaged about 69 percent of admissions, (although again, with just three entry-level programs, this may reflect individual, rather than program-level, differences). In part because of this attrition, advanced-level graduations increased at a much lower rate than entry level-graduations. From 2001 to 2007, average advanced-level graduations increased by 1.6 students (from 14.6 to 16.2). During the same period, average entry-level graduations increased by 37 students (from 16.5 to 47.5).

Given the somewhat limited production of the advanced education programs of about 15 graduates on average per year, and the relatively small number of these education programs (30) in the State, it is clear that either the enrollment of individual programs will need to be increased significantly, or the number of RCP education programs will need to increase substantially if more RCPs are to be brought to the workforce through the education channel.

Chapter 6: Creating the Workforce Model

Major Goals

This chapter will discuss the portion of the RCP Workforce Study designed to project future supply and demand for Respiratory Care Practitioner license holders in California. The section consists of two parts: the Supply Model, which will provide estimates of future amounts of RCPs in the labor market, and the Demand Model, which will provide estimates of the future need for respiratory care services in California. By combining these models and their subsequent predictions, estimations can be made to forecast the need for use in future policy decisions.

Developing a Future Perspective

One of the key factors in developing projections about the future of the RCP workforce is to consider the entrance and exit of individuals from that workforce. Several pieces of information from the licensee database and from the RCP survey are available to provide insight into this area.

Is California's RCP Workforce growing or shrinking?

Creating a Simple System Model. Thinking of the RCP Workforce as a simple system model provides an early step in visualizing the trends impacting workforce size. It is relatively uncomplicated to look at the initial size of the workforce and then consider yearly "inflows", i.e., the number of new licensees each year, and "outflows", i.e., those leaving the licensee pool (See Figure 6.1). Using Table 6.1, if we start with the initial licensing year (1985), we see the creation of 42 percent of the size of the current workforce. The second year of licensing saw a substantial increase (about 74%) in the workforce. This brought the workforce to about 73 percent of its size at the time the study sample was drawn. Subsequently, as detailed in Table 6.1 (seen on next page), the changes in the workforce size have moderated to a constant level. New licensees have accounted for growth of about six percent per year on average over the preceding year. However, at the same time, the workforce has experienced an annual loss of approximately four percent of its size due to various forms of attrition. Taken together, the net impact of gains and losses on the workforce has been an average two percent growth during the past decade

Table 6.1: Summary of Respiratory Care Practitioner License Issue and Expiration Dates by Fiscal Year

	Valid licenses at beginning of year	New licenses issued during year	New licenses as a percent of valid licenses at beginning of year	Licenses expiring during year	Percent of valid licenses expiring during year	Net gain/loss from the beginning of year	Percent gain/loss from the beginning of year	Valid licenses at end of year	California Population*	Valid licenses per 100,000 population	
	FY 84/85	0	5,989	n/a	0	n/a		5,989	25,587,000	23.4	
	FY 85/86	5,989	4,442	74.2%	0	n/a	4,442	74.2%	10,431	26,113,000	39.9
	FY 86/87	10,431	730	7.0%	796	7.6%	-66	-0.6%	10,365	26,742,000	38.8
	FY 87/88	10,365	733	7.1%	123	1.2%	610	5.9%	10,975	27,388,000	40.1
	FY 88/89	10,975	870	7.9%	376	3.4%	494	4.5%	11,469	28,061,000	40.9
	FY 89/90	11,469	739	6.4%	605	5.3%	134	1.2%	11,603	28,771,000	40.3
	FY 90/91	11,603	809	7.0%	541	4.7%	268	2.3%	11,871	29,558,000	40.2
	FY 91/92	11,871	944	8.0%	551	4.6%	393	3.3%	12,264	30,143,000	40.7
	FY 92/93	12,264	981	8.0%	546	4.5%	435	3.5%	12,699	30,723,000	41.3
	FY 93/94	12,699	870	6.9%	588	4.6%	282	2.2%	12,981	31,150,000	41.7
	FY 94/95	12,981	815	6.3%	613	4.7%	202	1.6%	13,183	31,418,000	42.0
Dot-com years begin →	FY 95/96	13,183	747	5.7%	619	4.7%	128	1.0%	13,311	31,617,000	42.1
	FY 96/97	13,311	695	5.2%	608	4.6%	87	0.7%	13,398	31,837,000	42.1
	FY 97/98	13,398	704	5.3%	583	4.4%	121	0.9%	13,519	32,207,000	42.0
	FY 98/99	13,519	707	5.2%	630	4.7%	77	0.6%	13,596	32,657,000	41.6
	FY 99/00	13,596	635	4.7%	542	4.0%	93	0.7%	13,689	33,140,000	41.3
Associate degree requirement →	FY 00/01	13,689	457	3.3%	490	3.6%	-33	-0.2%	13,656	33,753,000	40.5
	FY 01/02	13,656	470	3.4%	524	3.8%	-54	-0.4%	13,602	34,441,561	39.5
	FY 02/03	13,602	638	4.7%	454	3.3%	184	1.4%	13,786	35,088,671	39.3
	FY 03/04	13,786	620	4.5%	418	3.0%	202	1.5%	13,988	35,691,472	39.2
	FY 04/05	13,988	730	5.2%	468	3.3%	262	1.9%	14,250	36,245,016	39.3
	FY 05/06	14,250	836	5.9%	512	3.6%	324	2.3%	14,574	36,728,196	39.7

* Data source: State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State.

Key Finding

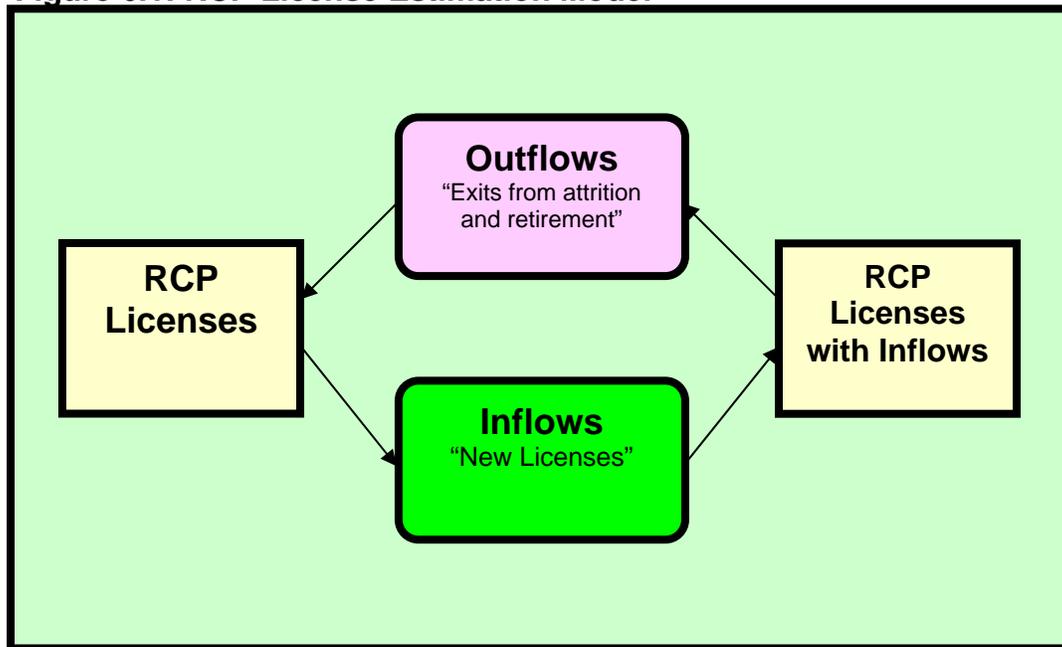
Once the initial influx of RCPs was licensed, the growth rate of the profession has fairly well matched the growth of the California population, even exceeding it during much of the 1990s. However, beginning at the turn of the 21st century, the State's growth rate began to outpace the growth of the profession.

How many RCPs will be available to fill California's respiratory care needs in the coming decades?

Key Elements of the Supply Model. While the exact number of RCPs currently employed in the workforce can be debated, the number of licensed individuals eligible to work in the labor market can be gauged very simply. Due to the unique requirements of this labor force needing to be licensed by the Respiratory Care Board of California in order to practice within the State, tracking the size and age demographic characteristics of the workforce as a whole becomes relatively easy. By using the Board's licensing database, the ISR is able to accurately describe and identify the RCP workforce's age characteristics for individuals currently holding a California respiratory care license. Secondly, by defining a model that relies on license projections (the only source of information that gives insights on the ages of those working in the field); this model can be easily adjusted to describe different market conditions if later deemed necessary.

We begin construction of the current supply (or pool) of eligible RCPs by including the number of licensed individuals in the database from a previous year. To this group, we add any individuals who have been newly licensed (**Inflows**), and then we subtract any individuals that lose or discontinue their licensed status (**Outflows**). As seen in Figure 6.1, the group of eligible individuals that can work in the respiratory field will always comprised of those who have a current valid license. This structure is similar to the one seen in the University of California, San Francisco (UCSF) study, *Forecasts of the Registered Nurse Workforce in California* (June 7, 2005), but will deviate in one small way which will be explained below.

Figure 6.1: RCP License Estimation Model



The ISR considered the **inflows** to be those individuals who gain a California license through any of the following mechanisms:

- 1) Individuals residing in California who graduate from a Board approved respiratory care school;
- 2) Individuals with respiratory care training or licenses from another state or country who obtain a California license; or
- 3) Individuals with non-active licenses who undergo a change in status of their license from expired to active (while rare, it would still be captured within the model).

Outflows are characterized as any individual (as reflected by their license status) who goes from an “active” status to an “expired”¹⁴ status or when an individual reaches a retirement age of 70¹⁵.

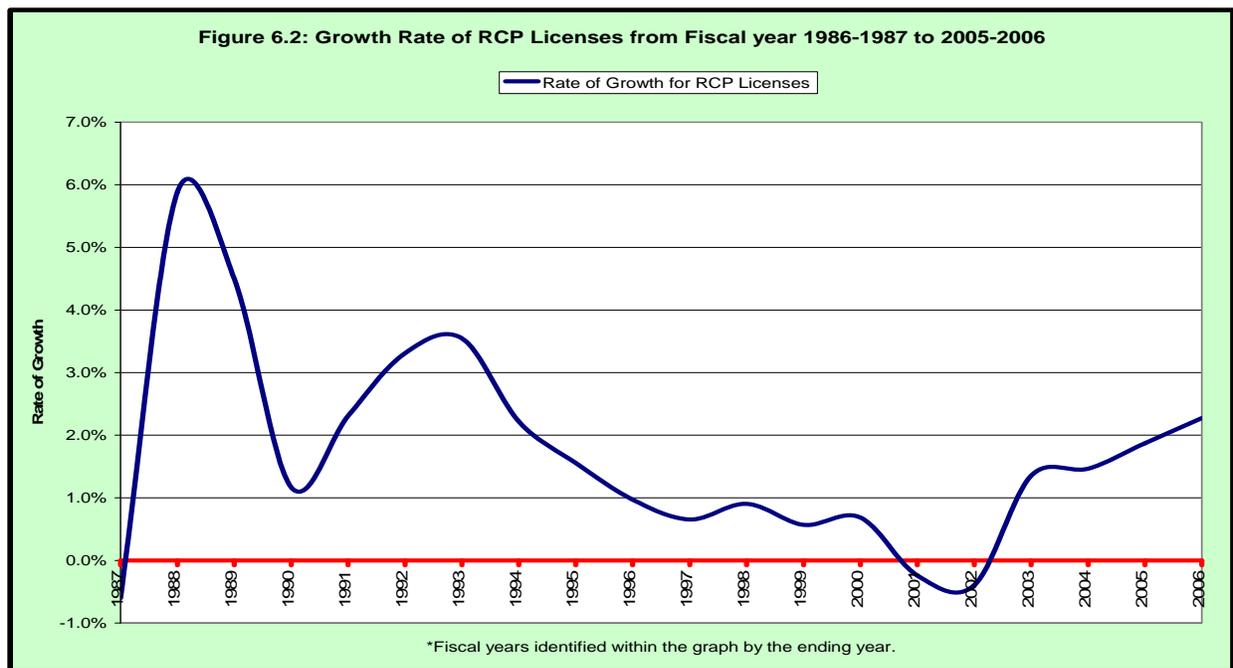
In the UCSF nurses study, another possible source of outflows would be the “migration out of California,” however, this would be conceptually wrong under normal economic supply model structures. Even though an RCP moving his/her residence out of California would limit his/her ability to practice in a California respiratory care facility, by keeping an active California Respiratory Care License he/she does have the possibility

¹⁴ “Expired” status is a condition by which the Respiratory Care Board of California considers the license non-usable.

¹⁵ The reason for the 70 years old retirement age is to be discussed later in the chapter in more detail. It is mainly a result of observed characteristic of those who have California Respiratory Care Licenses.

to return to the state and practice under the right conditions. Further, an individual might migrate from the state but continue working in California under several different scenarios. Since this potential for the individual to return is still possible, excluding him/her from any supply estimates could possibly bias the supply model by underestimating the number of future individuals holding licenses.

Creating Calculations Needed for the Supply Model. By using this framework and the Respiratory Care Board's licensing database, the total number of eligible workers in the RCP workforce can be determined for any period since 1985¹⁶. As seen in Figure 6.2, the number of licenses under this framework has grown at an average rate of 1.6% since fiscal year 1986-1987. Yet as shown in Figure 6.2, the largest rates of growth occur in the early years of the license's history. Since the 1999-2000 fiscal year, the average rate of growth for RCP licenses has cooled to an average of about .7 percent, with most of the growth occurring in the early portion of that period. If the negative growth rates seen during the fiscal years of 2001-2002 and 2002-2003 were a result of the recessions occurring during that time, and the later fiscal periods of 2003-2004 through 2005-2006 are a signal of things to come, an average growth rate of 1.46 percent would be a more accurate representation of future growth. This far exceeds the projected average growth in the population of California of 1.04 percent, as proposed by the California Department of Finance for the period of 2005 to 2030¹⁷.



¹⁶ The requirement for RCPs to have a California Respiratory Care License was enacted in 1985.

¹⁷ Information was obtained from the California Department of Finance Web Site under available "data files." Within this section of the web site projections for "Race / Ethnic Population with Age and Sex Detail, 2000-2050" can be found. The California file was the one which was utilized for this study.

However, all of these estimates ignore important age demographic characteristics within the active license population. Currently, 32 percent of the RCPs are in the 51 through 65 year old age bracket and will either be retired or be ready to retire within 15 years. This retirement assumption is supported by reviewing the current licensing data, which reveals only 1.5 percent of the current licenses in the database are held by individuals past the age of 65. Further, of the 216 licenses which are held by individuals older than 65, only 23 percent of these licensed RCPs are past the age of 70. By contrast, 43 percent of the licenses held by this 65 year old and older age group are possessed by individuals younger than the age of 68. Thus an assumption that the common social security benefits eligibility age is a reasonable cut off range at which individuals' age out of the workforce seems valid and was included in our forecasting model.

Creating Calculations Needed for the Supply Model: Inflows. While the current age sample of active licenses is a known quantity, the age characteristics of the inflows of these new license holders must also be determined. Based on the size and structure of the licensing database, we have used the fiscal year 1988-89 as the starting point to calculate averages and rates for two reasons. First, earlier years were deemed as misleading, due to the erratic differences between early years data caused by the high inflow of licenses at the point the licensing requirement was created. Second, using any set of later years would likely make the time interval too short for the purpose of accurate estimation (using short time periods can lead to results which do not characterize long term trends). Thus, the ISR chose to use the 1988-1989 to 2005-2006 fiscal years to create its base line growth rate for new licenses to be used in our model construction.

During fiscal years from 1988-1989 to 2005-2006, 13,271 new respiratory practitioner licenses were issued by the Respiratory Care Board of California. On average, 47 percent of those licenses were issued to individuals who were 30 years old and younger. Thirty-three percent (33%) of the licenses were issued to individuals between ages of 30 through 39, with the remaining 20 percent of new licenses being issued to individuals' aged 40 years old and older. By categorizing the age of the entering RCPs and creating *average proportions*¹⁸ for the ages of RCPs as they enter the licensed RCP pool, these entering groups of RCPs can be appropriately placed within the known age ranges of the license population. This allows the model to account for the fact that not all new licenses are issued to individuals across a range of ages. Based on the age characteristics seen in the Respiratory Care Board of California's licensing database, the ISR has created eleven different age categories to describe the workforce: Under 25, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, and 70 and older. The percentages of new RCPs entering the licensed pool under this structure are shown in Table 6.2:

¹⁸ The concept of using average proportions comes from that fact that new licenses are awarded to people of different age groups. By finding a trend in the ages of individuals that receive these licenses, the ISR can make assumptions on the ages of the people who will receive licenses in the future.

Table 6.2: Rate of Entry of New RCPs by Age Group

Under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
21.30%	25.70%	19.40%	14.00%	9.70%	5.90%	2.70%	1.00%	0.20%	0.10%

Per the ISR's analysis of the licensing database, less than .02% of new licenses were awarded to individuals 70 years and older; and therefore, this category is not included in the estimates of new licenses due to the extremely small number of individuals likely licensed at that age. Further the ISR model assumes that all licenses held by individuals 70 years and older are held by individuals who can no longer be counted on to be actively participating in the workforce.

Creating the Calculations Needed for the Supply Model: Outflows. To determine the rate by which licenses exit the population of RCPs in the workforce, the reported expiration dates contained in the Respiratory Care Board's licensing database were analyzed. While the database does have an "inactive" status for licenses that need additional requirements in order to practice, pin pointing specific dates for these "exits" is difficult. Further, the additional requirements needed to activate a license can be easily achieved within a year if labor market pressures are sufficient to warrant that change. Therefore, the reported expiration dates of licenses not renewed will serve as the exit points to mark an individual's leaving the workforce (supply). Summed over a year, then divided by the number of licenses at the beginning of the year provides a rate of exits for licenses for a specific year. When averaged over fiscal years 1988-89 to 2005-2006, an average exit rate of licenses is formed to represent RCPs leaving the license pool. These rates are listed below in Table 6.3:

Table 6.3: Rate of Exits by Age Categories

Under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
4.00%	4.70%	4.70%	3.60%	4.10%	2.90%	4.00%	3.60%	8.50%	11.80%

Again, at age 70, the ISR model will "retire" all licenses and remove them from the license pool. While the ISR acknowledges that individuals do keep licenses past the age of 70, currently only a half of a percent of the active licenses are held by individuals in this age group. In the future, labor market conditions may be such that these individuals could be enticed to work beyond the age of 70 years old, but to expect that these individuals will serve as reliable source of workforce participation is unrealistic.

Creating the Calculations Needed for the Supply Model: Future Estimates. To calculate the expected number of yearly future licenses, each new year of licenses will be calculated independently, meaning both the new yearly license total and the existing set of licenses will have their age component and exit component calculated separately. The two calculations are done separately so that the individual age categories and corresponding rates (both the rate by which licenses enter to the next age category and

the rate by which they leave the license pool) do not mix as the model steps through the various years, polluting the calculations of past or future yearly numbers of RCPs. This approach should increase the accuracy of the forecasts while still maintaining the mathematical structure of the model for use in comparing estimates.

To begin the calculations for future license numbers, the model first determines the number of future licenses for a specified year. The “new license” forecasts will be based upon a display of different growth rates based on assumptions about the numbers of licenses entering the workforce (discussed in more depth later in this chapter). Next, using the age rates described earlier to characterize the ages of new licenses, the model will then calculate the ages of each new license population from fiscal years 2007-08 to 2029-2030. As the percentage of new licenses will be divided into age categories (described earlier), the ISR model assumes the ages of those licenses are evenly spread within each of the individual age categories. For example, if 50 licenses were projected to be produced in the 35 through 39 age category, then the model assumes that 10 of those licenses would be held by individuals 35 years old, 10 by 36 year olds, 10 by 37 year olds, 10 by 38 year olds, and 10 by 39 year olds. This even spreading of the license is constant across each age group, and due to the 5-year span of the age categories, one-fifth of each age category will enter the next higher age group each year. This is the same technique used in the UCSF nurses study. The logic behind it is that if the licenses are distributed evenly across the age category, then as a group the holders of those licenses will age evenly based on the size of that category. To accurately estimate those in the Under 25 age category, we must account for licenses that are awarded to individuals of 19 years of age and under, even though this is a very small percentage of the license population. From the first year in the model base, only 116 of the 13,271 licenses were 19 year old or younger. This represents less than 0.9% of the new licenses awarded, and thus would be merged into the Under 25 category, which in turn, is aged under the “one fifth rule” to simplify the calculations.

Projected ages for both new and current licensees are calculated before incorporating any exit flows. This ensures that licensees are appropriately distributed across age groups.¹⁹ After this process is complete, the model will be used to calculate the number of exits from the eligible workforce for that year (i.e., licensed RCPs) by multiplying the previous year’s final license totals by the exit rates shown earlier. In the first year, the model will then calculate the final adjusted license total for that year by subtracting the exits calculated for that year from the estimates of licenses by age category. To further ensure accuracy, from time period two and on, the model takes the past exits into account and ages them under the “one fifth” rule. For example, if we know that in

¹⁹ Including exit flows before “aging” new licensees produces an error in the projections. To illustrate the error produced using this approach, if in a given year, 100 new licenses are awarded to RCPs between 25 and 29 years of age, and the calculations are done as a function of $100 \times .8 \times .953$ (where 100 is the number of licensees in the age group, .8 is the proportion of licensees remaining in the age group after removing the 20 percent who have aged out of the group, and .953 is the proportion of licensees remaining in the age group after removing the 4.7 percent who have exited the licensing pool), then after five years, the incorrect method shows 25.76 licensees still in the “25 to 29” group when, in fact, none of the original 100 licensees actually remain in the group. For example: $[100 \times .8 \times .953 = 76.24 \times .8 \times .953 = 58.13 \times .8 \times .953 = 44.31 \times .8 \times .953 = 33.79 \times .8 \times .953 = 25.76]$

period one, age category 25-29 has 100 licenses at the beginning of that period, then that period's exits will equal 4.7 (0.047 times 100) and the final adjusted total for that year will be 95.3. Because in period two, 20 licenses leave the 25-29 age range under the "one fifth" rule (remember that the model calculates ages in all time periods first) and 20 enter from the Under 25 group, 100 licenses are again in the 25 to 29 age group before exits are tallied. To calculate the final license number for period two, the model first takes into account the exits from the previous period. As the new 100-license number does not account for any exiting licenses in the past, it then takes the past year's exits and subtracts one-fifth of that number to find out how many of those exits should still be accounted for in this period. Next, the model will subtract that number (in this case is 4.7 times .8, equaling 3.76, which is the number to be subtracted) resulting in 100 minus 3.76 which is 96.34 licenses. Now since licenses also will exit in period two as well, the model calculates exits for this second time period based on this number (0.047 times 96.64 equaling 4.54) and subtracts it from the total resulting in a final number of licenses for period two of 92.1 licenses. After determining the license totals for each age group, the model then sums up the total licenses for the second period and for each new and existing license population, providing the estimate for that year. Given this model specification, two unknown factors are needed in order to predict future license totals; the number of new licenses for fiscal year 2007-2008 and the growth rate by which new licenses will grow into the future.

What will be the "Demand" for RCPs in the coming decades?

Key Elements of a Demand Model. In preliminary model construction, masked discharge data generated by the Office of Statewide Planning and Development (OSHPD) was examined as a means to determine the marginal demand²⁰ for respiratory care services given an increase in a population age demographic. By using this data we can develop estimates of how future increases in the California population would affect the number of respiratory care patients given a specific group of discharge types. After preliminary analysis using regression methods was completed, this approach to estimation was deemed inappropriate since the diagnostic codes could not be satisfactorily assigned to measure this effect. Secondly, regression modeling based purely on the number of discharges yielded results that were in sharp contrast to those suggested in theory and the RCP survey (i.e., estimates for the certain age categories indicated that a decrease in the number of discharges per year should occur when the number of residents within that category increased. Theory would suggest that more people, regardless of age, will always increase the number of patients that RCPs see). Further, most variables included in those initial models appeared as statistically insignificant.

In light of the inadequacy of normal regression techniques used to describe demand, the ISR used a combination of surveyed variables and raw population estimates to

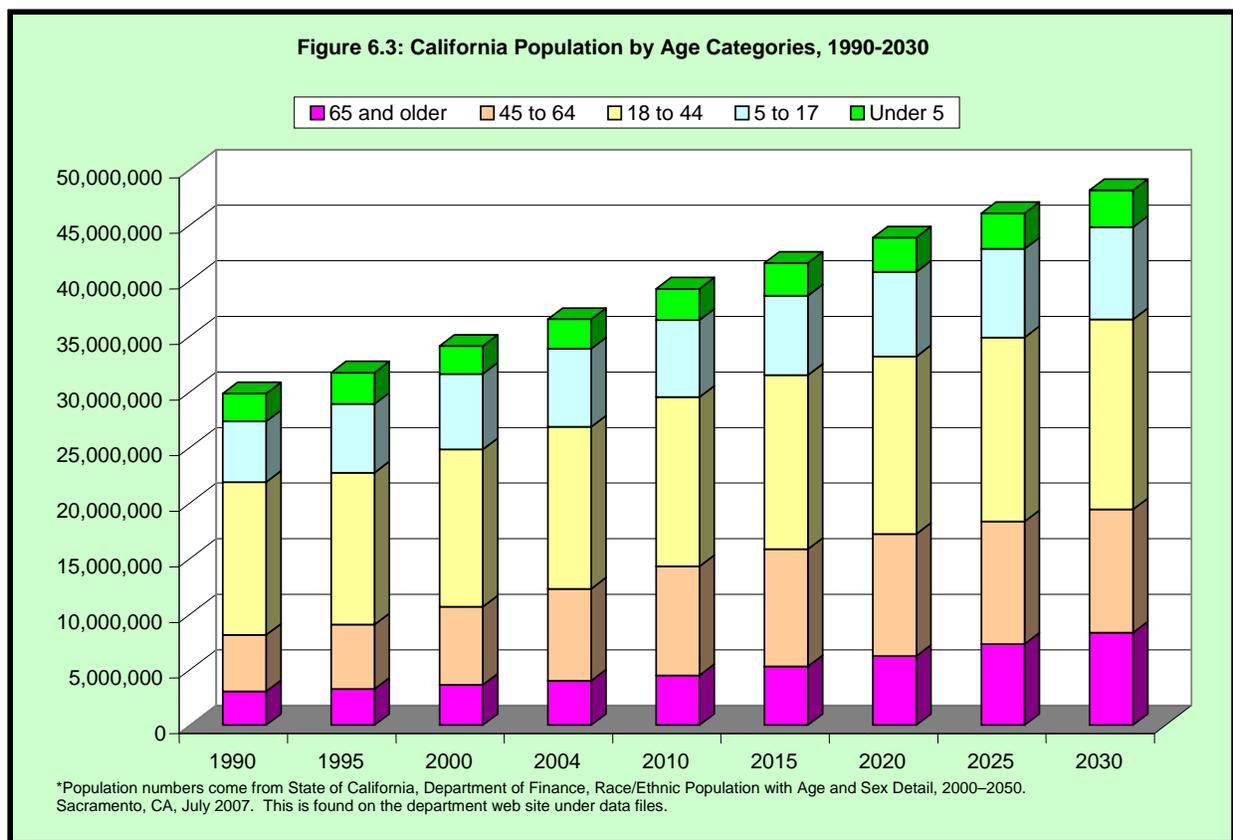
²⁰ Marginal demand is an economic term used to describe the increase in demand, given an increase in another factor. In this case, marginal demand for respiratory care services would be the increase in services needed given an increase in certain segments of the California population.

develop assumptions about the number of respiratory care licenses needed to provide current level of services in the future. By combining the known license quantity of 2007-2008 RCPs from the licensing database with the results from RCP Employer Survey question asking about the time spent with each age group, a fixed number of how many licenses are needed per an age category can be derived by year. Then by assuming future needs will be the same or similar to the current needs of each age group, these ratios can be assumed to remain the same within the model when estimating future demand based on changes in population.

Using this analytical framework, California Department of Finance population estimates will be used for the predicted age categories and total population numbers used to calculate the estimates of RCP licenses per 100,000 residents. These estimates can be found on the Department of Finance's web site and are projected to 2050; however, for this study we have elected to produce estimates only up to the year 2030. From 2007 to 2030, the Department of Finance predicts that California's population will increase at a yearly rate of approximately one percent. When the state's population was broken into age categories (in this case, Under 5, 5-17, 18-44, 45-64, and 65 and older), it was discovered that a major portion of this growth is fueled by the increased numbers of the "65 and older" segment of the population, which is predicted to increase at an average of 3.1 percent per year to 2030. Of the five groups, none of the three younger age category's yearly growth rates match the one percent yearly growth that the entire population is expected to exhibit, with the "Under 5" being the closest at .89 percent. The 45 to 64 age group is projected to slightly out pace the total projected average yearly rate by growing at a slightly larger rate of 1.1 percent per year.

Based on these changes in the predicted ages of Californian residents in the coming decades, it is easy to conclude that the respiratory care needs of that population will drastically change by 2030. When the stacked population estimates for the different age categories are plotted over time (seen in Figure 6.3), it is discovered that the two older age categories increase their share of the population greatly from 2010 to 2030. As seen in the ISR Employer Survey of Acute Care Hospitals, these two groups represent the largest users of RCP services within the California population. If, as shown in Figure 6.3, these segments of the population grow at faster rates than the other portions of the population, then the RCPs per 100,000 California residents' ratio will also need to increase. Thus, using basic RCPs per 100,000 California residents ratios would misrepresent California's needs in the future.

To provide more precise measures of how each age category utilizes RCPs, the RCP Employer Survey of Acute Care Hospitals will be utilized in order to provide information on the number of hours RCPs work and what percentage of time they spend with each of the age groups. Question 6 of the Respiratory Care Practitioner Employer Survey specifically asks each employer what percentage of time each RCP spends with the five age categories used in this study. If these proportions were held constant into the future, the ISR could estimate future demand for services by using this information as proxies for the demand for RCP services by age category. However, leaving these



estimates in their simple average form could bias the results of the model because the sample included not only different sized hospitals, but hospitals with different specialties (e.g., Children's Hospitals). To average the responses of specialty hospitals with the general acute care hospitals would not be appropriate, for although they represent a small portion of hospitals, information collected from the employer survey indicates that they are large employers of RCPs. To correct this problem, a "weighted average" will be used to generate the "percentage of time" spent by RCPs with each age group to estimate future demand. To do this, the ISR converted the FTE information gained in Question 1 of the Employer Survey to yearly hours worked by RCPs each facility. Then, by converting the monthly overtime hours worked in Question 5 of the employer survey into overtime hours for the year and combining that amount with budgeted FTE hours worked, we created an estimate of the total hours worked in the year by RCPs for each hospital.

Dividing the "total hours worked in a year" figure by the proportions identified in Question 6 of the Employer Survey, resulted in the approximate number of hours that each hospital uses providing respiratory care to each age category. By summing up each hospital's hours spent on providing care to each group, the total hours spent by the surveyed population for care in each age category is gained. Dividing those numbers by the surveyed hospitals' total hours worked by RCPs, provides weighted

rates for the time spent with each age group. The results of these weighted averages are displayed in Table 6.4:

Table 6.4: Percent of Time RCPs Spend with Patient Age Categories

Under 5	5 to 17	18 to 44	45 to 64	65 and older
17.16%	10.69%	19.53%	23.39%	29.22%

Once the proportion of time spent with different age populations is discovered, the current number of licenses can be separated into these proportions, in order to create a proxy of the current licenses used by each age group. This process is similar to thinking of the current license number as a total pool of resources to be used by the population and by separating that number into the proportions described above we are dedicating a specific number of licenses amounts to each age group. Then, taking that license usage number and dividing it by the current number of residents for a specific age group, we can identify a ratio of licenses used by age group. Assuming that this ratio represents the current level of care provided for each age group, by then holding this ratio constant in comparison to future population figures, estimates on the number of licenses demanded by each age category will be created that represent the demand for RCP services in the future. It should be noted that these figures assume that future demand preferences and usage will remain similar to that of the current economic environment. In no way would these figures capture any changes in the current structure or costs of the respiratory care field. These numbers should be looked at as figures that inform one of what should happen if current conditions hold into future. In conclusion, these numbers can then be compared with any of the supply model assumptions to calculate the differences in the number of licenses supplied and the number of licenses demanded by the respiratory care industry. As displayed in Table 6.5, the ratios for each age category were calculated as follows:

Table 6.5: The Current Ratio of RCP Licenses per 100,000 Persons by Age Category

Under 5	5 to 17	18 to 44	45 to 64	65 and older
92.4	22.3	19.2	37.6	102.0

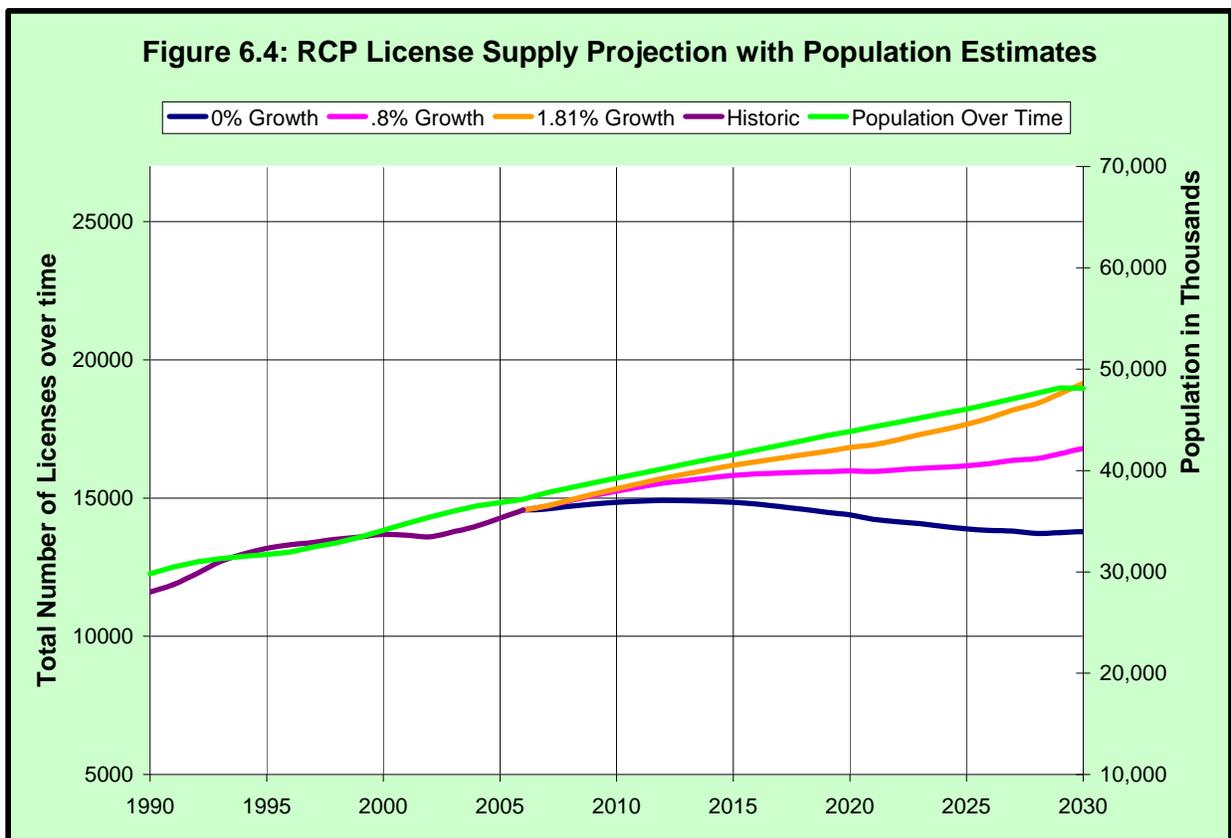
Forecasting the State's RCP Workforce Needs

How much growth will need to occur to meet the needs for future RCP services?

Mid-Range, Best Case and Worst Case Scenarios. Given the model specification, three growth rate scenarios were chosen to forecast the possible range of needs for RCP services. These estimations are referred to as a "mid-range," "worst case," and "best case" scenarios. The first growth rate scenario (mid-range) of new licenses and 2006-2007 new license estimates were chosen based on the historic growth of new licenses

based on previous years and calculated from a base of the 2005-2006 new license totals. Under this scenario, new licenses would grow at a rate of .8 percent, resulting in 843 (specifically 842.64) for the base fiscal year 2006-2007. The second scenario (worst case) was based on the assumption that no growth would occur in the new license population and the average number of new licenses for 2006-2007 will equal the number of new licenses averaged during the 1988-1989 to 2005-2006 fiscal years period. Using this worst case scenario, the growth rate of new licenses would be set at zero and the 2006-2007 base new license total would be 747. The third scenario (best case) used a growth rate representing what is needed to maintain current RCP licenses in proportion to total population levels. Under this best case scenario, a growth rate of 1.81 percent was used resulting in a base year 2007 new license estimate of 853 (853.2) new licenses.

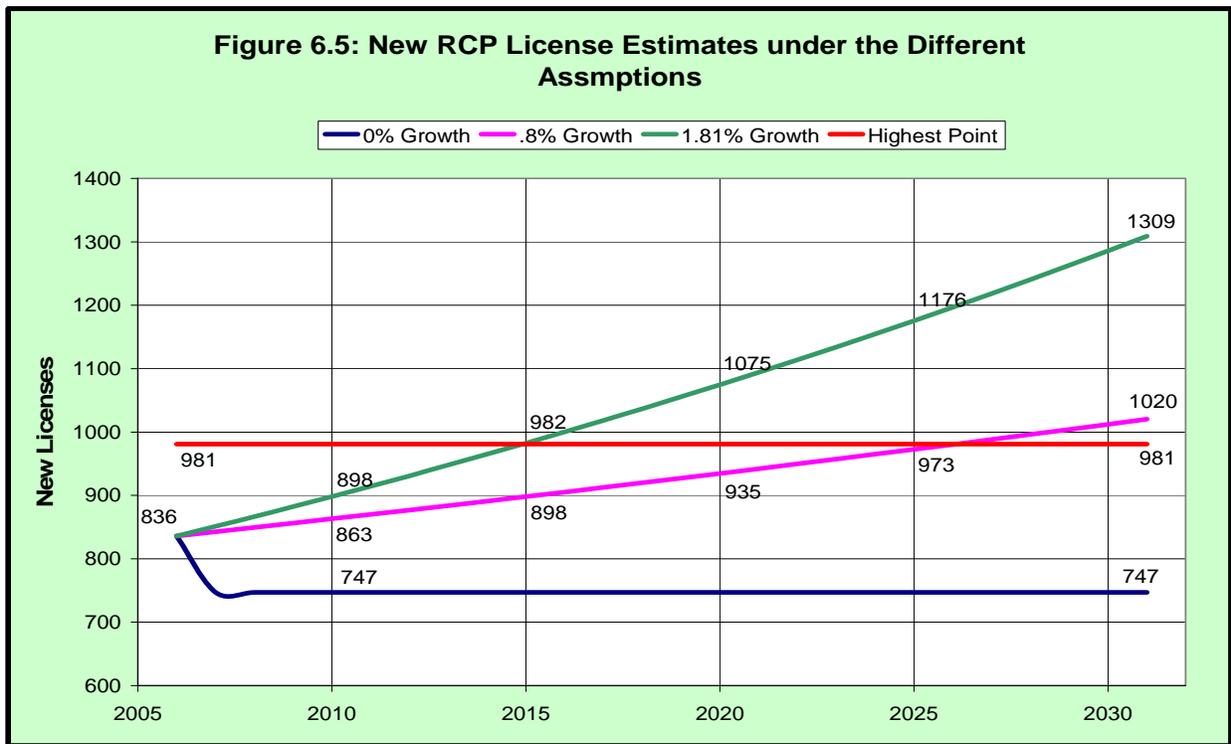
Using these scenarios, with their corresponding sets of assumptions, plotting the resulting estimates was a straightforward matter. As seen in Figure 6.4, projections for the different supply assumptions follow three different and distinct courses. As displayed in the graph, the growth in licenses under the 1.81 percent growth rate will



outpace the California population growth in the early years of the model’s estimation, then falls below the California population growth rate (represented by the green line), and finally by 2030 the estimate exceeds it. This dip in total licenses occurs under all

three scenarios and is caused by the current ages of license holder in the RCP workforce. In the 2006-2007 fiscal year, 58% of the current licenses are held by individual 45 years and older. As seen in Figure 6.4, in 10 to 20 years this segment of RCPs starts retiring (**Outflow**) from the RCP licensed population faster than the projected entering licenses within the model. This leads to a period of projected depressed supply, which is represented in the horizontal paths that these estimates follow during these years. In the case of the other two growth scenarios, license totals level off much faster and growth comes to a halt as this retiring phenomenon affects their projections.

Upon seeing these results, we can conclude that to fully meet the future needs of the California population, current licenses must grow at a rate of 1.81% a year. Yet, this is not easily achieved given the practical issues in obtaining the necessary new licenses needed to achieve that goal. As seen in Figure 6.5, growth of new licenses under that scenario would need to grow beyond the largest number of new licenses that has ever occurred since licensing was initiated (excluding the first two years). To further illustrate the point, in the fiscal year 1992-1993, 981 new licenses were issued to RCPs, the largest number of licenses to be issued for any year other than the first two years of the licensing requirement. With the 1.81% growth pattern, by 2015 the need for that number of new licenses total has already been exceeded, with 982 new licenses needed. Even more importantly between the years of 2010 to 2015, an average of 940



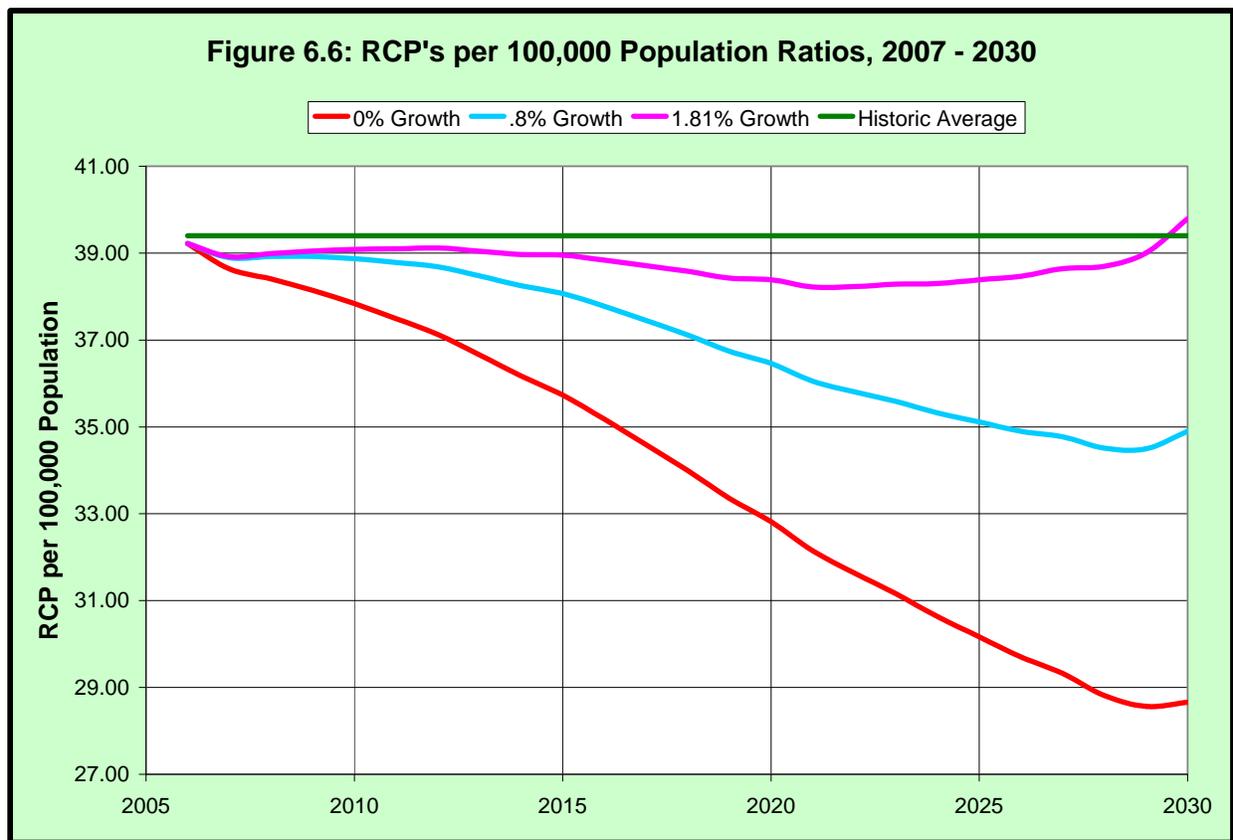
new licenses per year must be issued simply to replace exiting licenses. In the twenty years that the California Respiratory license requirement has been in effect, new license

totals have surpassed 900 only twice: once in fiscal year 1991-1992 (941) and in fiscal year 1992-1993 (981). Given this history, it can be easily assumed that achieving and sustaining such licensee growth would require tremendous effort, and to entice new people to get their California licenses to offset the aging license population will be a difficult undertaking.

The mid-range scenario with an average growth rate assumption of .8% represents the historical growth trend of the number of new RCP licenses exhibited during the fiscal years 1989-1990 to 2005-2006. The assumptions made under this scenario are much more modest, with the estimates of new licenses not passing the highest total of licenses seen to date until 2026. Under this scenario, new license levels would need to be sustained at totals greater than 836 (a number which represents the 2005-2006 new licensing starting point) throughout that 19 year period. Unfortunately, based on past observations, the longest, continuous time that 800 new licenses per year (or more) have ever been produced (after the initial two-year period) occurred in only one 5-year period (FY 1990-1991 to FY 1994-1995).

The third trend line scenario was produced as a conservative estimate showing the implication of what could happen if the historic average of new licenses was maintained into the future. Under this scenario, the historical average number is placed in the model, and no growth in the number of new licensees is considered.

Adding in Future Demand. Keeping in mind that the above scenarios offer only part of the picture regarding future workforce level, a more disturbing pattern emerges when the demand for respiratory care is added to the model. When these supply model assumptions are mapped with the demand model framework of RCP per 100,000 California residents, a more precise view emerges regarding the needs of the RCP profession and California population. Figure 6.6, displays the fact that current RCPs per 100,000 Californians levels are currently below the historic average. In Figure 6.6 the trend line produced under the 1.81% growth rate scenario stays relatively flat (reflected by the dip seen between years 2015 and 2030, which is less than one RCP per 100,000 resident difference), suggesting that it is keeping up with the projected growth in population. It only starts to rise until year 2025 and eventually passes the historic average by 2030. The other growth scenarios display more negative consequences. In 2015, under these scenarios "RCP per 100,000" levels will fall under the current standard, with the .8 percent growth pattern exhibiting a modest three percent decline falling to the 38.1 RCPs per 100,000 residents level. The average zero growth in new licenses scenario exhibits a more drastic change (a nine percent decline) falling to the level of 35.7 RCPs per 100,000 residents. By 2020 though, this downward change becomes even greater under both of the scenarios. For the .8 percent growth trend scenario, the level of RCPs per 100,000 residents falls to 36.7, marking a 7.6 percent decline in RCP levels needed to maintain the current level of care. Under the zero growth pattern, this change is even greater with the level of RCPs per 100,000 residents



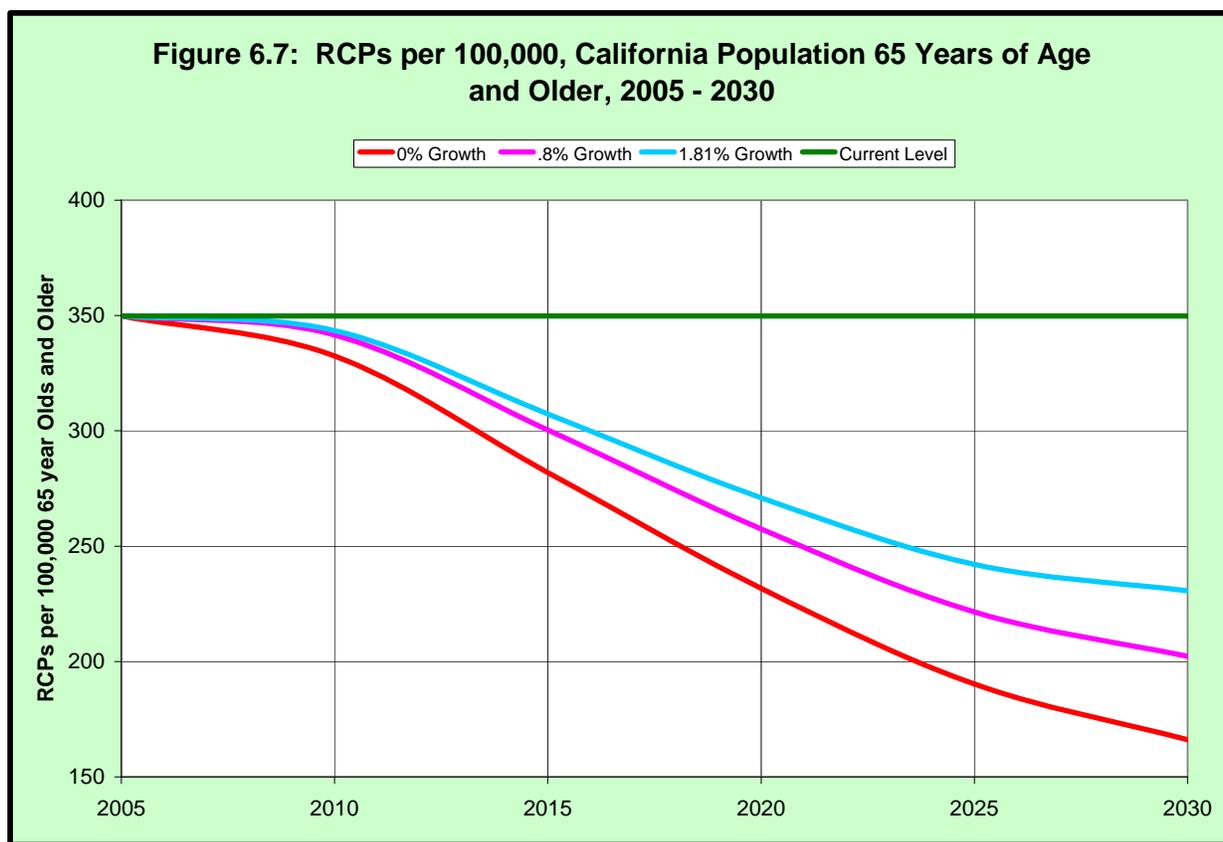
falling to 32.8, which is a 19.5 percent decline in the overall number of RCPs needed to care for respiratory care patients based at current levels.

From these results, we again conclude that to solve any shortfall in future demand, actions promoting the growth of new licenses to achieve a rate of growth of new licenses equaling 1.81 percent or more a year would be necessary. Yet, upon further analysis, we conclude this might still not meet all respiratory care demand needs. Once RCP totals are compared with the ISR age categories, the future demand picture becomes sharper. As seen previously in Figure 6.3, future population estimates for California predict a drastic change in the ages of Californian residents. By 2030, the 65 and older age bracket is projected to double, which seems to be a primary driver in fueling California's population growth into the future. Results from the ISR Employer Survey of Acute Care Hospitals²¹, indicate that RCPs spend their time among the population age groups at different rates: 17.16 percent of services are provided to those Under 5 years old, 10.65 percent is provided to those 5 through 17 years old, 19.53 percent to those 18 through 44 years old, 24.43 percent to those 45 through 64 years old, and 29.22 percent of services are provided to those with 65 years and older. Knowing that RCPs spend most of their time with the older age brackets, namely the 65 and older, leads to the conclusion that any reduction in the ratio between RCPs and that

²¹ Numbers to be shown here are in the "weighted average" form described earlier in the chapter.

demographic will mark a reduction in the ability to meet the demand of the total population.

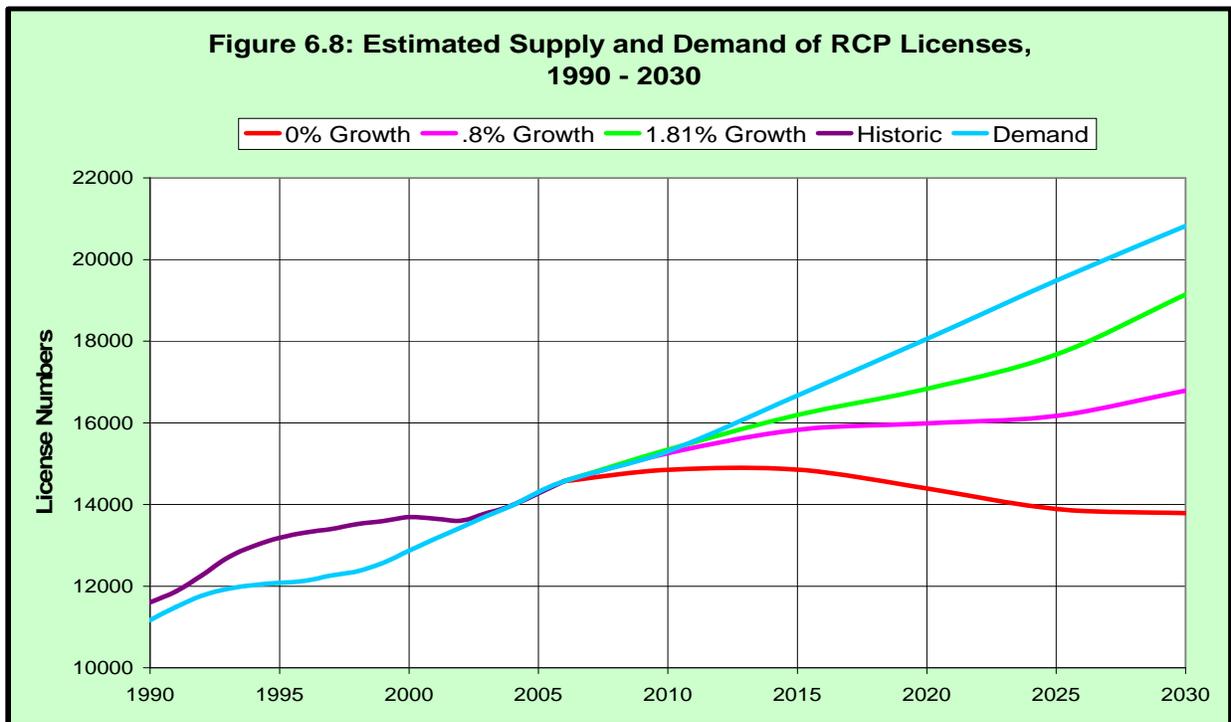
Under the 1.81 percent best case growth rate scenario, even though the RCPs per 100,000 residents levels stay relatively the same, the RCPs per 100,000 “65 years and older” residents levels drop drastically. As seen in Figure 6.7, under all the growth model assumptions, RCP numbers just do not keep pace with the rising numbers of 65



and older residents of California. Again, when looking at Figure 6.3, one can see that from years 2004 to 2030, the “65 and older” age group roughly doubles in size. Considering the finding that the majority of RCP time is spent with this age group, it appears unlikely the respiratory care needs of the future population will be met even under the most optimistic growth projections. Indeed, it is somewhat startling to realize that under the .8 mid-range percent growth rate “mid-range” scenario (again see Figure 6.6), levels of RCPs per the “65 and older” age group fall to a little more than one-half of what they are currently. While the 1.81 percent growth “best-case” scenario projection suggests a better job of slowing the fall of these ratios, its levels still fall to that of a 100 less RCPs per 100,000 than are currently found for this older age group.

Knowing the future age proportions of California residents in these various age ranges will change dramatically into the future (affecting the needs of the population as a

whole). The next step of analysis uses current license ratios per age category to estimate future total demand. These ratios (explained earlier in the demand model section of this chapter) represent the current usage of RCPs (licenses) by the different age categories within the California population. These ratios allowed the ISR to calculate a number of licenses that represent proxies for the current level of care being provided to the different future age groups. These totals are created by applying these ratios to the California Department of Finance’s estimates for future population totals. For example, in the 2006-2007 fiscal year, there are 14,574 RCP licenses active in California. When the time spent by RCPs with each age group ratios are applied to the license total, results show 2,501 licenses are needed for services to the Under 5 years old group, 1,558 licenses are needed for the 5 through 17 years olds, 2,847 for services to the 18 through 44 year olds, 3,409 for services to 45 through 64 year olds, and 4,258 licenses are needed to provide services to the 65 years and older age group. The next step of the calculations involves using the future estimated population figures (from the California Department of Finance) for each age group and applying the RCPs needed per age group ratios to these estimates. Using this modeling technique projects that in 2010, the RCPs (licenses) needed by the Under 5 year old group will be 2,598, 1,545 RCPs (licenses) will be required for the 5 through 17 year olds, 2,918 RCPs will be needed for 18 through 44 year olds, 3,683 RCPs will be needed for 45 through 64 year olds, and 4,556 will be required to provide the services for the 65 years and older age group. Summed together, an estimated grand 15,300 licenses will be needed by the population as a whole in the year 2010 based on these age category sensitive estimates.



In Figure 6.8, this demand format (details presented earlier) is plotted with all three of the supply model scenarios. Under this framework, license differences can be calculated under the different the supply model assumptions. As seen here, none of the supply model scenarios meet estimated demand needs of the population in the future. This shortfall in supply is caused by demand becoming a much stronger force in the market for RCP services because the 65 years and older age group becomes an increasing factor in the demand for respiratory care services. By 2015, which is 8 years into the future from this study, the demand for RCP services would require 16,665 licenses to meet current standards. Comparing this number with the different supply assumptions creates deficits under all the assumptions, with these 2015 deficits equaling: 472 licenses for the 1.81 percent assumption, 839 for the .8 percent assumption, and 1811 licenses for the average assumption. As one would expect these deficits grow as time moves forward, with the final calculations of deficits being shown in Table 6.6 which is listed below:

Year	2010	2015	2020	2025	2030
0% Growth	-449	-1,811	-3,666	-5,592	-7,035
.8% Growth	-43	-839	-2,067	-3,313	-4,033
1.81% Growth	40	-472	-1224	-1,806	-1,677

It should be noted that these license figures also assume that current employment percentages and employment status conditions currently seen are maintained into the future. Changes in the proportions of full-time and part-time workers, use of overtime, factors affecting entry or exits of individual eligible for the RCP workforce, and similar changes could all impact the projections presented here.

In summary, the ISR sees the potential for a “perfect storm” scenario driven by a constellation of factors that will create serious shortages of RCPs available to meet the needs of the California population in the coming decades. Key among the drivers of this perfect storm are the following factors: age distribution of the current RCP workforce suggesting a large group about to leave the workforce through retirement; indications that a significant portion of those in education programs about to enter the profession are comprised of older individuals returning to school which will result in shorter career spans for individuals entering the profession as new licensees; a growing California population and within California's growing population, a disproportionately larger number of 65 and older individuals who consume an especially large portion of available respiratory care services. First, the age distribution of the current RCP workforce suggests that like the American population in general, a large percentage off individuals will be leaving the workforce in the next decade, as the “baby boomer” generation reaches retirement age. Second, according to those directing respiratory care education programs (the entry point to the profession), a significant portion of students seen in current programs are older individuals returning to school to pursue respiratory care careers. Such individuals will have shorter career spans than students who

transition directly from high school. In the intermediate and longer term, this will result in a reduction of overall supply of RCPs available to the workforce. Third, California's population is growing. Just to meet the demands of this growing population, the number of new RCPs being licenses will have to grow at rates above historical averages, especially given the number of "exits" from the workforce that are likely. Fourth, while the California population growth will increase demand, the disproportionate growth of the 65 and older age group in the population will drive demand even higher than is suggested by the general increase in population because this group consumes a larger portion of respiratory cares services than other age categories except the very young. The combination of the disproportionately large growth of those 65 and over, coupled with their higher level of consumption of respiratory care services will result in an inability to meet current staff to patient ratios without mechanisms to significantly increase the growth rate of the profession.

Key Finding

The ISR sees the potential for a "perfect storm" scenario driven by a constellation of factors that will create serious shortages of RCPs available to meet the needs of the California population in the coming decades. Key drivers of this perfect storm are:

- the age distribution of the current RCP workforce suggesting a large group about to leave the workforce through retirement;
- indications that a significant portion of those in education programs about to enter the profession is comprised of older individuals returning to school which will result in shorter career spans for individuals entering the profession as new licensees;
- a growing California population and within California's growing population, a disproportionately larger number of 65 and older individuals who consume an especially large portion of available respiratory care services.

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