The Role of Respiratory Care Practitioners in a Changing Healthcare System: Emerging Areas of Clinical Practice

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Abstract

Objective: **To evaluate shifts in respiratory care practice in the context of changing healthcare system and market dynamics.**

Study Design: **Telephone survey, structured interview, and case studies.**

Methods: **We conducted a telephone survey of 471 respiratory care practitioners (RCPs), drawn from the membership database of the American Association for Respiratory Care. We also interviewed 10 employers of RCPs and conducted 2 in-depth case studies to supplement our survey results. We used several statistical techniques to analyze our data, including calculation of population-weighted descriptive statistics and multivariate regression models.**

Results: **Changes in the healthcare system have prompted RCPs to broaden their practice settings, skills, and responsibilities. Respiratory care practitioners are taking part in managed care-related activities, such as cost control and disease management. We found that the need for certain skills and responsibilities varies by practice setting. In our interviews, employers considered RCPs cost effective providers for certain services.**

Conclusions: **The practice of respiratory care is evolving to meet the changing needs of the healthcare system. A key challenge is to ensure appropriate growth and development of the respiratory care profession, as well as the delivery of appropriate services under new care management settings and processes.**

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Costs associated with respiratory diseases account for nearly 8% of the total costs of illness in the United States, at an estimated $91 billion in 1993.[1] Respiratory diseases affect people of all ages, from infants to the elderly, and include some of the leading causes of limitation of activity, bed disability days, and mortality. The aging of the population and increases in the prevalence of certain respiratory diseases, such as asthma, warrant careful inspection of the delivery of respiratory care services in the face of recent developments in the healthcare system.

Respiratory care practitioners (RCPs), including both respiratory therapists and respiratory therapy technicians, work to evaluate, treat, and care for patients with breathing disorders. Respiratory care practitioners traditionally have been based in the inpatient setting, providing complex respiratory therapy to critically ill patients. The growth of managed care, combined with other changes in the healthcare system, such as new healthcare legislation, have profoundly affected the allied health professions. Cost, utilization, and quality pressures have

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converged to create a dynamic new environment for allied health professionals. As a result, these healthcare providers, including RCPs, are finding it necessary to rapidly adapt their practice of medicine to the forces shaping healthcare today.

The purpose of our study was to evaluate and document shifts in respiratory care practice in the context of the changing healthcare system and market dynamics. Cost and quality pressures, in conjunction with advances in technology, have led to the treatment of patients with complex respiratory problems in less expensive alternative (ie, nonhospital) settings.[2] In recent years, RCPs have witnessed a diversification of the respiratory care profession as increasing numbers of RCPs have had to find work outside the traditional hospital setting.[3]

The shifts in practice setting occurring in the respiratory care profession have led to broader skills and responsibilities for RCPs than in the past. Some of the main employers of RCPs include not only hospitals but also home health organizations, nursing homes, and subacute care facilities. Managed care organizations are also beginning to employ RCPs. Each setting has different requirements for the skills and responsibilities of their RCPs. Regardless of setting, however, managed care is making significant inroads into the practice of respiratory care, as seen in some of the more managed care-oriented tasks and skills that RCPs are being required to learn and handle.

··· METHODS ···

Our study consisted of a telephone survey of RCPs, respiratory care clinical supervisors, and respiratory care administrative supervisors, supplemented by structured interviews of employers of RCPs and case studies of new respiratory care delivery systems. The purpose of the survey was to document the changing environment for RCP skills. Although not the main focus of the study, the interviews and case studies supplemented the survey results by allowing us to analyze the attitudes of individual employers of RCPs regarding the value of RCPs, necessary skill sets, and the structure of alternative delivery systems.

To develop the survey instrument, we relied heavily on background information obtained from an extensive literature review and informal interviews with experts in the respiratory care field. We developed 3 overlapping surveys for RCPs, clinical supervisors, and administrative supervisors. Content areas covered by the survey included practice characteristics, roles and responsibilities of RCPs, cost effectiveness of outcomes generated by RCPs, and use and source of guidelines for respiratory care. The survey instrument is included as an appendix.

The survey sample was drawn from the membership database of the American Association for Respiratory Care. The sample included RCPs and supervisors, identified based on their job responsibility classification in the membership database. The sample also included members working in 1 of 3 practice settings: hospital, long-term care, and home health, as designated in the database. The database contained 20,734 records appropriate for inclusion in the study. These records were classified according to 1 of 6 categories: 2 position categories (RCP or supervisor) by 3 setting categories (hospital, long-term care, and home health). We also classified supervisors by whether they held a clinical supervisory or an administrative supervisory position, thus establishing 9 distinct subgroups (3 position categories by 3 setting categories).

We then used a quota sampling strategy (commonly used method to ensure that a sample represents a diverse range of respondents) for filling each of the 9 sample cells.[4] First, we established equal-sized targets, or quotas, for the number of completed surveys in each of the 9 cells. These targets were based on statistical power calculations designed to ensure an adequate number of respondents in each cell, including those groups that were less well represented in the database, to make meaningful comparisons among the various cells. (The statistical power level used for these calculations was 85%, a level well within the range of typical survey research analyses.) Members were drawn at random from the 6 categories described above, which, in combination with the clinical/administrative supervisor screening question, enabled efficient random selection until the targets for each cell were met.

Because our targets were equal for each of the 9 cells, we had to weight our analytic results to reflect the actual representation of each of the 9 categories of respondents in the full population. Standard sampling weights based on the 6 categories that were available from the database were applied to the individual responses. Sampling weights are the inverse of the probability that a given respondent is selected. All results presented here are population weighted to ensure they are generalizable to the full population.

The survey was administered between March 31 and April 6, 1997 by professional telephone inter-

viewers using computer-assisted telephone interviewing technology. Before conducting the survey, we distributed a presurvey announcement to all participants to inform them of the purpose of the survey and the timeframe for implementation.

Statistical Analysis

We used various statistical techniques to analyze the data. Population-weighted descriptive statistics were calculated (means, standard deviations, tabulations, and proportions) for all questions on the survey. Multivariate statistical analyses were used to explore relationships between questions and to compare responses to key questions among the principal subgroups of respondents (based on position and setting). The principal analytic technique used to compare subgroup responses was multiple regression modeling. The list of control variables used in each model (except when the control variable was actually being examined as the dependent variable) included the respondent's education level, number of years of experience in the respiratory care profession, proportion of services at the respondent's employer paid for under managed care, and whether during the past 5 years the respondent's employer had experienced an increase in the number of patients it served, a case mix with increasingly sicker patients, or an increase in the complexity of services it offered.

For continuous response variables the primary analysis method was population-weighted least squares regression. For dichotomous dependent variables, we used population-weighted logistic regression, which models the sample-wide probability of the discrete yes/no choice (eg, are RCPs cost effective?) as predicted by the explanatory variables. Polychotomous dependent variables were converted into dichotomous variables based on the main variable level of interest and were modeled with logistic regression. Subgroup comparisons from the weighted least squares models present the difference in units of the dependent variable among the subgroups; subgroup comparisons from the logistic regression models are based on odds ratios.[5,6]

We performed standard regression diagnostics to ensure we were using appropriate model specifications for the data collected. The diagnostics included goodness-of-fit tests, residual and outlier analysis, and multicollinearity assessment (variance inflation factors). These diagnostics indicated that the basic model specifications were sound and that our study data met the underlying methodologic assumptions of regression modeling. We performed all statistical analyses using STATA®, release 5.0.[7]

To supplement our findings from the telephone survey, we conducted 10 structured interviews of employers of RCPs and 2 in-depth case studies of organizations employing innovative delivery systems for providing respiratory care services.[8] The purpose of the interviews and case studies was to supplement the survey with perspectives from employers of RCPs on desirable respiratory care skill sets and the relative advantages and disadvantages of RCPs versus alternative providers. The results presented here are those from the survey analysis; findings from the structured interviews and case studies are reviewed in our discussion.

··· RESULTS ···

We surveyed 471 RCPs, clinical supervisors, and administrative supervisors. Descriptive statistics for the survey respondents are presented in Table 1. Generally, we found some statistically significant differences in responses by position and type of institution but not by educational background or years in the profession.

Roles and Responsibilities

To evaluate the duties and responsibilities of RCPs and how those duties have changed over time, each survey participant was asked whether each of 11 different duties was: (1) not a duty of RCPs; (2) a new duty of RCPs, added in the past 5 years; (3) a former duty, but eliminated in the past 5 years; or (4) an ongoing or constant duty of RCPs. We found that new duties for RCPs (those added in the past 5 years) broadly related to disease state management and treatment. For example, designing and evaluating patient treatment plans and implementing guidelines have become new duties for RCPs over the past 5 years according to 35% and 37% of survey respondents, respectively. In addition to taking on new responsibilities, RCPs also hold a broad range of positions, as shown in Figure 1.

Diverse types of organizations employ RCPs in different ways. Respiratory care practitioners are at least 5 times more likely to be employed as administrative supervisors or department heads in nursing homes than in hospitals ($P = 0.007$) and are 5 times more likely to be employed as administrative supervisors in nursing homes than in rehabilitation facilities ($P = 0.016$). Respiratory care practitioners in nursing homes ($P = 0.015$) and home health organizations ($P = 0.006$) are 4 to 5 times more likely to be

Table 1. Characteristics of Survey Respondents (n = 471)

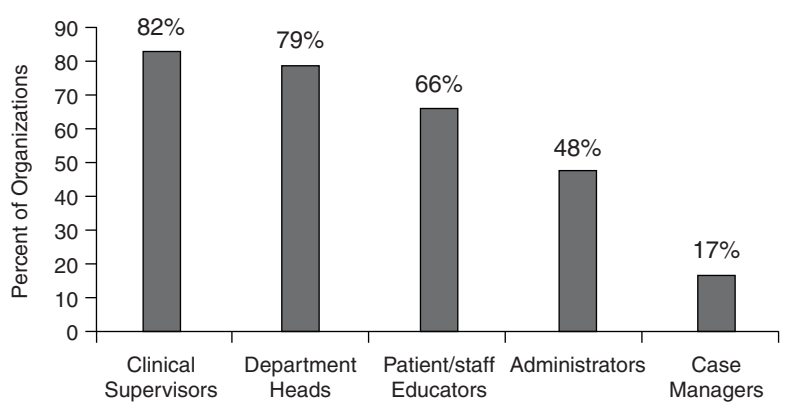
Position	Percent (weighted)	Type of Institution	Percent (weighted)
Respiratory care practitioner	51	Hospital	83
Clinical supervisor	26	Subacute setting	6
Administrative supervisor	23	Nursing home	3
		Rehabilitation facility	2
		Home health/Durable medical equipment supplier	5
Educational Background	**Percent (weighted)**	**Years in Profession**	**Percent (Weighted)**
HIgh school or GED	2	< 10 years	28
Some college	15	10–19 years	39
Associate's degree	55	20+ years	33
Bachelor's degree	24		
Master's degree	4	**Years in Profession**	**Average (Weighted)**
Doctoral degree	1	Entire sample	15

employed as case managers than are RCPs working in hospitals.

Despite taking on a number of new duties and holding a range of positions, based on the population-weighted responses, almost half of survey participants (45%) reported that RCPs' duties have become more specialized during the past 5 years, particularly in settings in which the complexity of services provided has increased. However, almost one fifth of survey respondents reported that RCPs' duties have become more generalized.

The diversification of respiratory care practice is further illustrated by survey results on the importance of various skills across practice settings. The perceived importance of specific skills overall as well as differences in the importance of various skills across practice settings is shown in Table 2. Overall, professionals in the respiratory care field consider the most important skills for RCPs to be related to specialized clinical knowledge, patient assessment, knowledge of guidelines and protocols, and disease management. Respondents from rehabilitation facilities placed greater emphasis on disease management and patient education skills, including knowledge of respiratory care guidelines and protocols, patient education skills, respiratory care case management, and knowledge of quality assurance and quality improvement processes. In contrast, respondents from nursing homes placed significantly less importance on several of these areas, including patient education

Figure 1. Positions held by Survey Respondents*



*Note that percentages do not add up to 100% because respondents could indicate more than one choice.

skills, case management, and knowledge of quality assurance and improvement processes.

Perceived Value and Cost-Effectiveness

Although RCPs are among the most highly trained healthcare professionals to deliver respiratory care services, some organizations employ other types of healthcare professionals, such as registered nurses, to deliver respiratory care services. Several survey questions were designed to evaluate the relative competitiveness of RCPs as respiratory care providers by examining the reasons RCPs are used for respiratory care and respondents' attitudes regarding the cost effectiveness of these professionals.

As the best representatives of RCP employers, administrative supervisors who responded to the survey were asked to rate on a scale from 1 to 10 (where 1 was not important and 10 was very important) 7 different factors in terms of their importance in their organizations' decisions to use RCPs to deliver respiratory care services. Overall, participants reported that RCPs' clinical skills were the most important reason their organization decided to use RCPs to provide respiratory care services, rated 9.38 by administrators on the 10-point scale. Outcomes and quality of care and specialization were also important, rated 8.62 and 8.28, respectively. The cost effectiveness of RCPs was ranked as

Table 2. Perceived Importance of Various Skills Across Practice Settings*

	Overall Rating	Hospital [ref.]	Subacute Care Facility	Nursing Home	Rehabilitation Facility	Home Health Facility
Knowledge of respiratory care theories and procedures	9.28	9.33	9.54	8.21	9.5	8.78
Respiratory care patient assessment skills	9.62	9.61	9.84	9.35	9.85	9.49
Knowledge of respiratory care guidelines and protocols	9.15	9.20	9.26	8.41	9.66†	8.24
Knowledge of pharmacology	8.99	9.11	8.68	8.09†	8.89	8.19
Organizational and time management skills	8.97	9.02	9.31	8.2	9.1	8.15†
Patient education skills	8.99	9.01	9.17	8.22†	9.74†	8.52
Understanding of disease management	9.14	9.17	9.01	9.02	8.56	9.26
Respiratory care technology skills	8.87	8.97	8.6	7.78	9.13	8.11†
Respiratory care case management	7.78	7.79	8.16	6.46†	8.86†	7.69
Knowledge of quality assurance and improvement processes	7.79	7.75	8.27	6.88†	9.03†	7.95
Ability to interpret research	6.68	6.55	7.61†	5.84	7.83	7.57
Knowledge of cost-containment strategies for respiratory care	7.56	7.55	7.54	7.23	8.69†	7.64
Knowledge of reimbursement	5.96	5.76	6.55	5.84	8.62†	7.33†

*1 = not important, 10 = very important.
†P =0.05, compared with hospital.

the fourth most important reason RCPs were hired to provide respiratory care services, rated 8.18.

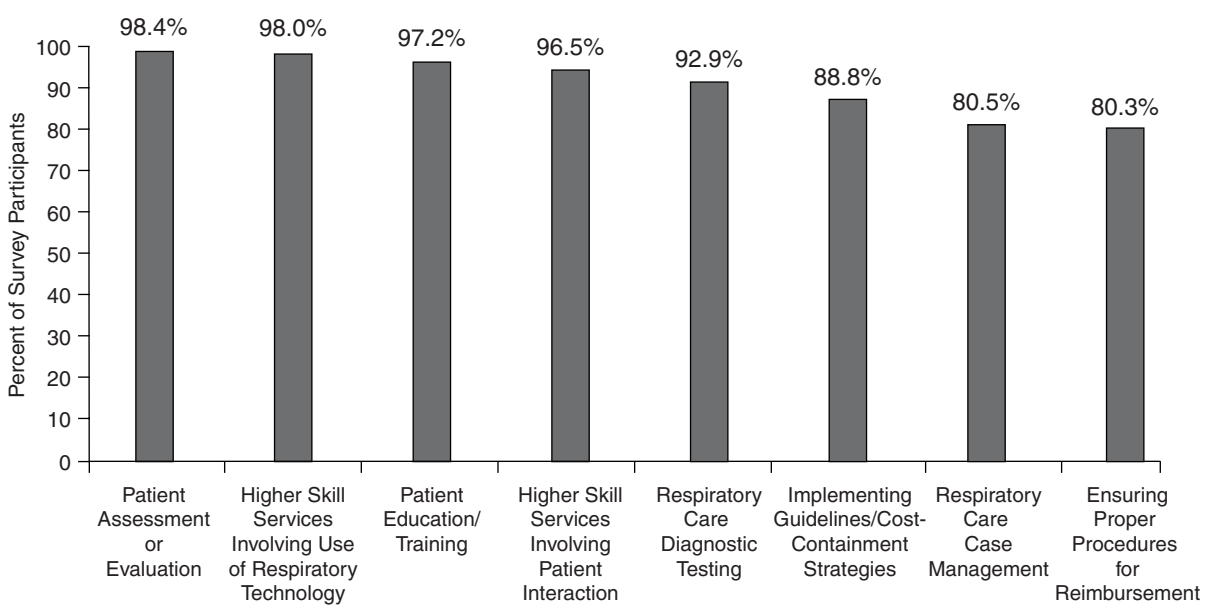
In the subgroup analysis, we found that reasons for hiring RCPs vary by setting. For example, specialization was considered a more important reason for hiring RCPs by administrative supervisors in subacute settings than by those in nursing homes ($P < 0.001$), rehabilitation facilities ($P = 0.042$), or home health settings ($P = 0.028$). Administrative supervisors who reported an increase in the provision of more complex services over the past 5 years ranked clinical skills as a more important reason for hiring RCPs ($P = 0.002$) compared to respondents who did not report that the services offered had increased in complexity.

Administrative supervisors were also asked to respond to several questions regarding their attitudes about the cost effectiveness of RCPs. Participants were asked if they believe RCPs are cost effective, whether RCPs are cost effective for specific services but not for others, or whether RCPs are not cost effective. Forty-two percent of administrative supervisors thought RCPs are generally cost effective, and 58% thought RCPs are cost effective for specific services.

To further assess the diversification of the respiratory care profession, we included a series of questions to elicit more detailed responses from all respondents regarding perceptions of RCP cost effectiveness relative to that of other healthcare workers for various tasks and in a range of settings. In terms of performing specific tasks, based on the population-weighted responses, more than 90% of survey participants reported that RCPs are cost effective for providing higher skill services involving patient interaction, providing higher skill services involving the use of respiratory care technology, performing patient assessments or evaluations, providing patient education and training, and performing respiratory care diagnostic testing (Figure 2). Somewhat fewer survey participants reported that RCPs are cost effective for several less traditional activities, including providing respiratory care case management (81%), implementing guidelines or other cost-containment strategies (89%), and ensuring proper procedures for reimbursement of services (80%).

In addition, survey participants considered RCPs to be more cost effective in certain settings compared with others. More than 90% of survey respondents considered RCPs cost effective in inpatient

Figure 2. Percentage of Survey Participants Who Consider Respiratory Care Practitioners Cost Effective for Specific Tasks



intensive care settings, 81% believed RCPs are cost effective in inpatient nonintensive care settings, and 75% thought RCPs are cost effective in home care settings (Figure 3).

Respiratory care practitioners were considered cost effective for providing specific services even in settings in which fewer respondents reported RCPs to be cost effective overall. For example, more than 5 times as many respondents from nursing homes compared with hospitals believed that RCPs are cost effective for providing higher skill services involving interaction with patients ($P = 0.061$). Nearly 3 times as many respondents from home health organizations compared with hospitals considered RCPs cost effective for providing respiratory care case management ($P = 0.06$).

Respiratory Care Practitioners in Managed Care

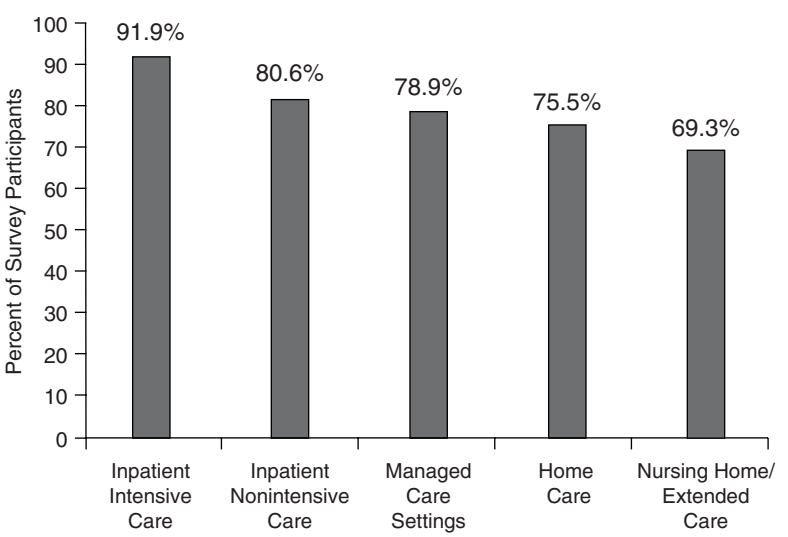
An important goal of our survey was to assess ways in which managed care may be affecting the respiratory care profession. We found that managed care payments contribute substantially to respiratory care revenue for all types of healthcare organizations. There was, however, some variation among institution types as to the extent of managed care penetration; respondents from hospitals and home health organizations reported that approximately 50% of revenues came from managed care payments compared with 58% of revenue at subacute settings, 44% of revenue at rehabilitation facilities, and 36% of revenue at nursing homes.

In an attempt to assess RCPs' role in controlling costs, a key component of managed care, survey participants were asked whether RCPs or other allied health professionals have become responsible for activities related to cost control, such as utilization review. Based on the population-weighted responses, 77% of survey participants reported that RCPs have become responsible for managed care approaches to controlling costs. However, whether RCPs take on this responsibility depends in part on the type of institution at which they work. For example, RCPs in subacute settings are at least 5 times more likely than those in home health ($P = 0.048$) and hospital settings ($P = 0.002$) to implement managed care cost-control techniques, and RCPs in nursing homes are 4 times more likely than those in hospitals to have this responsibility ($P = 0.058$).

Guidelines and protocols are routinely used to aid in the delivery of respiratory care services and are frequently cited as a means of ensuring the appropriate use of respiratory care resources, thereby improving care and controlling costs.[9-11] In total, more than 98% of the survey respondents used at least 1 type of protocol or guideline for respiratory care services. Organizations with higher percentages of respiratory care services paid for by managed care were more likely to report using internally developed guidelines, indicating the level of importance placed on such tools in managed care settings. Furthermore, of the 1% to 2% of respondents whose organizations did not use guidelines, 53% had plans to implement guideline use in the future.

The involvement of RCPs in disease management is another indication of the impact managed care has had on the respiratory care profession. The population-weighted results indicate that 72% of administrative supervisors work in organizations that offer disease management programs. Furthermore, 92% of these programs involve RCPs. Our subgroup comparison results indicate that those organizations with high percentages of respiratory care services paid for by managed care were both more likely to offer a respiratory disease management program ($P < 0.001$) and to involve RCPs in the pro-

Figure 3. Percentage of Survey Participants Who Consider Respiratory Care Practitioners Cost Effective in Specific Settings



gram ($P < 0.001$). Also, administrators working in subacute settings (a new practice setting derived from managed care) were at least 5 times more likely than those working in a hospital ($P = 0.049$) or nursing home ($P = 0.002$) to use RCPs for disease management programs.

··· DISCUSSION ···

This study allowed us to assess opinions about the roles and skills of RCPs and the impact of changes in the healthcare market on respiratory care practice from a cross-section of the respiratory care community. Overall, we found that changes in healthcare have had specific effects on RCPs. One of the largest effects has been the diversification of the respiratory care community, from a traditionally hospital-based profession to one that has branched out into a number of new settings and has concurrently adopted new skills and responsibilities. In addition to hospitals, RCPs now work in subacute, nursing home, home health, and rehabilitation settings, among others.

Furthermore, case studies and structured interviews conducted to supplement our survey results indicate that new, cost effective, RCP-driven delivery systems for respiratory care are emerging. Both of our case study organizations, chosen because of the innovation of their delivery systems, use RCPs to provide case management, implement guidelines, and handle reimbursement. Their RCP-driven disease management and patient education programs have decreased emergency room costs, inpatient days, and missed days of school and work and are considered by their clients (often managed care organizations) to be cost effective. Both the case studies and structured interviews with employers of RCPs confirm survey results that the practice of respiratory care has evolved and broadened in recent years.

Although RCPs in all settings are valued for their clinical skills, respiratory care needs vary, in terms of specific RCP skills, roles, and services, across practice settings. The results of our survey and supplementary structured interviews and case studies of emerging respiratory care delivery systems (including an asthma disease management company and a hospital offering an outpatient asthma management program) indicate that each practice setting may have somewhat different requirements for its RCPs. For example, RCPs working in hospital settings may need higher levels of skills in respiratory care technology and pharmacology. Respiratory care practitioners working in rehabilitation or subacute facilities may need other types of skills, such as knowledge of reimbursement procedures or managed care practices. Those who work in home health settings would be expected to be trained in home environment assessment.

Survey responses on the cost effectiveness of RCPs for performing specific tasks or providing specific services were influenced by their practice setting, perhaps another indication of different RCP responsibilities across various settings. Overall, survey participants considered RCPs cost effective. Although the baseline cost effectiveness results from this study may be somewhat biased because all respondents were associated with the respiratory care profession, the results are useful for assessing perceptions of the relative cost effectiveness of RCPs across settings and specific responsibilities. For instance, more survey respondents considered RCPs cost effective for performing patient assessments or evaluations than for providing respiratory care case management. Similarly, more survey respondents considered RCPs cost effective in inpatient intensive care settings than in home care settings. Additional studies must be conducted to rigorously document the cost effectiveness of RCPs. Documented cost effectiveness will be particularly important as RCPs increasingly enter new areas of practice where services have traditionally been provided by other types of healthcare professionals (eg, nurses have traditionally provided case management services).

Finally, while some practice settings are more likely than others to employ RCPs in specific positions (eg, nursing homes and home health organizations are more likely than hospitals to use RCPs as case managers), results from the survey as well as the case studies and structured interviews indicate that many employment opportunities exist for RCPs, both across the respiratory care community and within individual organizations.

Our study also revealed the influence of managed care on RCPs. Respiratory care practitioners have taken on responsibilities that are directly related to the emergence and growth of managed care as a major force in healthcare. For instance, implementing guidelines has become a new duty for RCPs in the past 5 years; the survey results indicated that virtually all organizations employing RCPs use guidelines or protocols to deliver respiratory care services. This finding is particularly interesting considering the results of a hospital survey conducted in 1995.[12] This report showed that only 40% of hospitals surveyed used respiratory care protocols at that

time and that an additional 18% were in the process of implementing them. If both this study and our study accurately captured guideline use, then the use of guidelines between 1995 and 1997 has increased considerably. Many RCPs have become responsible for managed care approaches to controlling costs. Additionally, administrative supervisors and participants in the structured interviews and case studies indicated that it is important for RCPs to understand reimbursement and cost-containment strategies.

One indication that RCPs have begun to demonstrate their value under managed care is the degree to which respiratory disease management programs involve RCP services. Our survey showed that more than 90% of disease management programs at respondents' institutions involve RCPs. In other ways, however, results indicate that RCPs are considered somewhat less suited for providing services under managed care models. For example, case management is a common tool used under managed care. However, many survey participants believed that RCPs are not cost effective for providing case management services. This viewpoint may be influenced by the fact that, relative to other types of providers, RCPs have had few opportunities to demonstrate their skills as case managers. Our analysis, coupled with the supplementary case studies, emphasizes the importance of documenting RCP-driven patient outcomes. As payers continue to respond to cost pressures by seeking the most cost effective use of healthcare resources, whichever types of providers rigorously document their own cost effectiveness and influence on superior patient outcomes could eventually develop a competitive advantage over other types of providers.

The practice of respiratory care is evolving to meet the changing demands of the healthcare system, and these evolutionary processes will define the future respiratory care professional. A key challenge for all healthcare providers will be to continuously evaluate changes in clinical practice to ensure appropriate growth and development of their profession, as well as the delivery of appropriate services under new care management settings and processes.

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Appendix begins on following page.

Appendix. Survey of Respiratory Care Practitioners, Clinical Supervisors, and Administrators*

··· SECTION I: PRACTICE CHARACTERISTICS ···

1. Which of the following best describes your job title?
- Respiratory care practitioner (RCP)
- Clinical supervisor of respiratory care services
- Administrative director or department head

2. A. Which one of the following best describes your profession? (for RCPs)
- Respiratory therapist
- Respiratory technician
- Pulmonary function technologist
- Nurse
- Physician
- Other

B. Which one of the following best describes your profession? (for clinical supervisors or administrators)
- RCP
- Administrator
- Nonclinical professional
- Nurse
- Physician
- Other

3. How many years have you worked in the respiratory care field?
____ years

4. Which one of the following best describes the type of institution at which you work?
- Hospital
- Subacute care facility
- Nursing facility
- Rehabilitation facility
- Home health agency/DME [AU: SPELL OUT] dealer
- Managed care organization
- Physician office
- Freestanding sleep center
- Other

4X. Which specific department do you report to?

5. In the last 10 years, have you worked as an RCP in a ...
- Hospital
- Subacute care facility
- Nursing facility
- Rehabilitation facility
- Home health agency/DME dealer
- Managed care organization
- Physician office
- Freestanding sleep center
- Other setting

6. Which of the following best describes your highest educational level?
- No high school diploma or general equivalency diploma (GED)
- High school graduate or GED
- Some college, but no degree
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral degree

7. Approximately what percentage of respiratory care services provided by your organization are paid for under managed care?
____ percent

··· SECTION II: ROLES AND RESPONSIBLITIES OF RCPs ···

A. Skills and Responsibilities

8. In your organization, which of the following activities fall under your responsibilities or duties? (yes, no, or unsure for each)
- Patient care
- Decision-making concerning hiring of RCPs and other allied health professionals
- Clinical supervision
- Teaching
- Implementation of guidelines or other cost-containment strategies
- Ensuring proper procedures for reimbursement of services
- Administration
- Research

*Specific questions were omitted depending on the job classification of the respondent.

9. Does your organization employ RCPs?
- Yes
- No
- Unsure

10. For each of the following duties or responsibilities, please indicate whether each one is: (1) not a duty of RCPs; (2) a new duty of RCPs added in the past 5 years; (3) a former duty of RCPs eliminated in the past 5 years; or (4) an ongoing, or constant, duty of RCPs in your organization.
- Provide clinical services
- Patient assessment, such as vital signs, breath sounds
- Design and evaluate patient treatment plans
- Case management
- Patient education or training
- Staff education
- Implementation of guidelines or other cost-containment strategies
- Ensuring proper procedures for reimbursement of services
- Administration
- Supervision
- Research

11. Regarding the roles and responsibilities of RCPs and other allied health professionals in your organization over the past 5 years ...

A. Has there been a change in specialization?
- Yes, more specialized
- Yes, more generalized
- Yes, but unsure how
- No change in specialization
- Unsure

B. Has there been a change in the number of duties?
- Yes, fewer duties
- Yes, more duties
- Yes, but unsure how much
- No change in number of duties
- Unsure

C. Have RCPs or other allied health professionals become responsible for managed care approaches to controlling costs, such as utilization review or clinical guidelines?
- Yes
- No
- Unsure

12. Regarding general professional knowledge and on a scale from 1 to 10, where 1 is not important or valuable and 10 is extremely important or valuable, how important or valuable is it for RCPs to have ...
- Basic knowledge of science?
- Basic medical knowledge of anatomy, physiology, and medical terminology?
- Knowledge of health promotion and disease prevention?
- Knowledge of pharmacology?
- Knowledge of disease etiology and course of illness?
- Knowledge of reimbursement?
- An understanding of disease management?
- An ability to interpret research?
- An understanding of quality assurance and improvement processes?

13. Regarding cognitive skills and on a scale from 1 to 10, where 1 is not important or valuable and 10 is extremely important or valuable, how important or valuable is it for RCPs to have...
- Reading skills?
- Math skills?
- Organizational and time management skills?
- Written communication skills?
- Oral communication skills?
- Analytic, problem-solving skills?
- Judgment?
- Ability to work as part of a team?
- Ability to learn and pick up new skills quickly?
- Flexibility?
- Interpersonal skills, such as patience, empathy, and confidence?

14. Regarding specific knowledge of respiratory care and using the same scale, how important or valuable is it for RCPs to have...
- Knowledge of respiratory care theories and procedures?
- Respiratory care case management skills?
- Knowledge of respiratory care guidelines or protocols?
- Respiratory care patient education skills?
- Respiratory care patient assessment skills?
- Understanding of and ability to evaluate respiratory care technology?
- Knowledge of cost-containment strategies for respiratory care?
- Ability to administer and interpret pulmonary function testing?
- Knowledge of respiratory care reimbursement policies?

B. Training

15. On a scale from 1 to 10, where 1 is not important or valuable and 10 is extremely important or valuable, how important or valuable might it be for RCPs to have specific training regarding...
- Smoking cessation counseling?
- Asthma management?
- Case management, including resource and utilization management or multidisciplinary care planning?
- Respiratory care technology evaluation?
- Respiratory-related chronic illnesses and disease states?
- Use of clinical guidelines or protocols?
- Advanced cardiopulmonary resuscitation or advanced life support?
- Outcomes assessment?
- Home environment assessment?
- Managed care cost-control techniques, such as utilization review and profiling?

C. Respiratory Care Administrative Structure and Utilization of RCPs

16. Has your organization or department restructured in the past 5 years?
- Yes
- No
- Unsure

17. Which of the following 5 definitions best describes the structure for delivery of respiratory care services in your organization before restructuring occurred?
- Centralized, meaning that oversight of all respiratory care was provided by 1 specific department
- Decentralized, meaning that RCPs were assigned to specific units or departments and reported directly to nursing supervisors with no oversight of a single department
- Partially centralized and partially decentral ized, meaning that a specific department was in charge of respiratory care, but RCPs were assigned to individual departments throughout the organization
- Patient-focused care model, meaning that multiskilled, cross-trained personnel and patient care services were brought to the bedside
- Contracted services, such as disease management, home care, nursing home
- None of the above or other
- Unsure

18. Which of the following 5 definitions best describes the current structure for delivery of respiratory care services in your organization?
- Centralized, meaning that oversight of all respiratory care is provided by 1 specific department
- Decentralized, meaning that RCPs are assigned to specific units or departments and report directly to nursing supervisors with no oversight of a single department
- Partially centralized and partially decentralized, meaning that a specific department is in charge of respiratory care, but RCPs are assigned to individual departments throughout the organization
- Patient-focused care model, meaning that multiskilled, cross-trained personnel and patient care services are brought to the bedside
- Contracted services, such as disease management, home care, nursing home
- None of the above or other
- Unsure

19. In addition to the positions of respiratory therapist and respiratory technician, in which of the following positions does your organization employ RCPs? As an...
- Administrator?
- Department head?
- Case manager?
- Patient or staff educator or inservice coordinator?
- Clinical supervisor, including technical supervisor?

20. Regarding the mix of patients and services over the past 5 years...
A. Has there been a change in the number of patients your organization assists?
If "yes," has there been an increase or a decrease?
- Yes, an increase
- Yes, a decrease
- Yes, but unsure how
- No change in number of patients
- Unsure

B. Has there been a change in the overall health of the patient mix?
If "yes," have you seen a sicker or healthier patient mix?
- Yes, sicker mix
- Yes, healthier mix
- Yes, but unsure how
- No change in patient mix
- Unsure

C. Has there been a change in the types of services required?
If "yes," has the change been toward more complex or less complex services?
- Yes, more complex
- Yes, less complex
- Yes, but unsure how
- No change in services required
- Unsure

21. Over the past 5 years, has your organization's hiring of RCPs relative to other allied health professionals increased, decreased, stayed about the same, unsure?

22. Over the past 5 years, has your organization's hiring of allied health professionals increased, decreased, stayed about the same, unsure?

··· SECTION III: COST EFFECTIVENESS OF OUTCOMES GENERATED BY RCPS ···

23. On a scale from 1 to 10, where 1 is not important and 10 is extremely important, rate the following in terms of their importance in your organization's decision to use RCPs to deliver respiratory care services:
- Reimbursement considerations
- Appeal to payers or consumers
- Specialization
- Outcomes or quality of care
- Clinical skills
- Cost effectiveness
- Legal considerations

24. Thinking now about how your organization controls respiratory care costs, does your organization use...
- Utilization review?
- Clinical guidelines or practice protocols?
- Cross-training and substitution of nonrespiratory care staff?
- Financial incentives such as withhold bonuses or capitation?

25. Has your organization conducted any studies documenting the costs and outcomes of RCP delivery or respiratory care services?
- Yes
- No
- Unsure

26. A. Did the study or studies address the cost effectiveness of RCPs?
If "yes," were RCPs found to be cost effective?
- Study done, cost effective
- Study done, not cost effective
- Study done, unsure of results

B. Did the study or studies address quality of care or patient outcomes provided by RCPs, including morbidity, mortality, quality of life, and patient satisfaction?
If "yes," did the use of RCPs worsen or improve the quality of care or outcomes?
- Study done, worsened quality of care
- Study done, improved quality of care
- Study done, unsure of results

27. Which of the following positions best describes your view of the relative cost effectiveness of RCPs as providers of respiratory care services?
- RCPs are generally not cost effective relative to other healthcare workers
- RCPs are generally cost effective relative to other healthcare workers
- RCPs are cost effective for some services but not for others

28. Do you believe RCPs are cost effective relative to other healthcare workers at...
- Providing higher skill services involving interaction with patients
- Providing higher skill services involving use of respiratory care technology
- Performing patient assessments and evaluations
- Providing patient education and training
- Providing respiratory care case management
- Implementing guidelines or other cost-containment strategies
- Ensuring proper procedures for reimbursement of services

29. For the following settings or scenarios, what is your position regarding the cost effectiveness of RCPs relative to other healthcare workers who may provide respiratory care services?

Are RCPs generally more or less cost effective relative to other healthcare workers for...
- Inpatient nonintensive care?
- Inpatient intensive care?
- Home care?
- Nursing home or extended care?
- Respiratory care diagnostic testing?
- Managed care settings, such as an asthma clinic or independent practice association member pulmonologist's office?

30. Is there published evidence to support your positions described in the previous questions about the cost effectiveness or lack of cost effectiveness of RCPs?
- Yes or yes in some cases
- No
- Unsure

··· SECTION IV: USE AND SOURCES OF GUIDELINES FOR RESPIRATORY CARE ···

31. A. Please tell me if your organization uses any of the following guidelines or protocols.
- Guidelines or protocols developed by your organization?
- American Association for Respiratory Care (AARC) Clinical Practice Guidelines?
- National Heart, Lung, and Blood Institute Guidelines for the Diagnosis and Management of Asthma?
- Agency for Health Care Policy Research guidelines?
- Any computerized guidelines?

B. Are there any plans underway to implement protocol use?

32. Has your organization documented any positive effects of guidelines used on cost of care or patient outcomes?
- Yes
- No
- Unsure

··· SECTION V: ADDITIONAL ADMINISTRATIVE-LEVEL QUESTIONS[†] ···

33. Respiratory care services account for approximately what percentage of your total operating expenses?
_____ percent

34. Approximately what percentage of respiratory care services provided by your organization are paid for under managed care?
_____ percent

35. In which of the following settings or sites of service does your organization use RCPs?
- Patients' homes
- Hospitals
- Nursing homes or long-term care facilities
- Subacute care centers
- Ambulatory centers including pulmonary rehab centers
- Physician offices

36. Does your organization offer disease management programs for respiratory diseases, such as asthma and chronic obstructive pulmonary disease (COPD)?
- Yes
- No
- Unsure

37. If so, do you use RCPs in your disease management program?
- Yes
- No
- Unsure

··· SECTION VI: ORGANIZATIONS THAT DO NOT EMPLOY RCPS[‡] ···

38. Has your organization used RCPs to deliver respiratory care services in the past?
- Yes
- No
- Unsure

39. On a scale of 1 to 10, where 1 is not important and 10 is extremely important, rate the following in terms of their importance in your organization's decision not to use RCPs to deliver respiratory care services:
- Reimbursement considerations
- Appeal to payers or consumers
- Specialization
- Outcomes or quality of care
- Clinical skills
- Cost effectiveness
- Legal considerations

[†]In addition to select questions throughout the survey that were asked only of administrators, questions in this section were asked only of administrators as well.

40. Please tell me if your organization uses any of the following providers to staff respiratory care services:
- Physicians
- Registered nurses
- Aides or clinical assistive personnel
- Other allied health professionals

41. Respiratory care services account for approximately what percentage of your total operating expenses?
_____ percent

42. Approximately what percentage of respiratory care services provided by your organization are paid for under managed care?
_____ percent

43. I'd like to read a list of skills that may be important or valuable for individuals who deliver respiratory care services in your organization. First, regarding general professional knowledge and on a scale from 1 to 10, where 1 is not important or valuable and 10 is extremely important or valuable, how important is it for such individuals to have...

[Questions 12-14 were asked here.]

46. Thinking now about how your organization controls respiratory care costs, does your organization use...
- Utilization review?
- Clinical guidelines or practice protocols?
- Cross-training and substitution of non-respiratory care staff?
- Financial incentives such as withhold bonuses or capitation?

47. Does your organization offer disease management programs for respiratory diseases, such as asthma and COPD?
- Yes
- No
- Unsure

48. A. Please tell me if your organization uses any of the following guidelines or protocols:
- Guidelines or protocols developed by your organization
- AARC Clinical Practice Guidelines
- National Heart, Lung, and Blood Institute Guidelines for the Diagnosis and Management of Asthma
- AHCPR Guidelines
- Any computerized guidelines

B. Are there any plans underway to implement protocol use?

49. Has your organization documented any positive effects of guidelines used on cost of care or patient outcomes?
- Yes
- No
- Unsure

‡Questions in this section were the only questions asked of respondents who reported that RCPs were not employed by their organization. All other respondents were not asked these questions.