

**SUMMARY OF RESULTS FROM
A NATIONAL JOB ANALYSIS STUDY
of
Respiratory Therapists Who
Specialize in
Sleep Disorders Testing and
Therapeutic Interventions**

Prepared by

*Robert C. Shaw, Jr., PhD
Senior Vice President, Examinations*



Summary

Background

This job analysis study was conducted to identify critical tasks performed by respiratory therapists who specialize in sleep disorders testing and therapeutic interventions. Study results will influence examination content for the ongoing Sleep Disorders Specialty (SDS) credentialing program of the National Board for Respiratory Care (NBRC). The job analysis study was conducted in 2021 and was the third study of this job. Multiple-choice items, each with four options, will continue to be the basis for assessment with this examination.

Members of the job analysis committee (the Committee) supervised the study and made the decisions affecting data gathering and results evaluations.

Table 1. The Committee

Name	Highest degree, Credentials, Recognitions	# Years in Sleep	Employer	Title	State
Laura L. McFarland	BS, RRT, RRT-SDS, RPSGT	20	Cambridge Medical Center	Professor; Sleep Services Coordinator	MN
Brian W. Carlin	MD, FCCP, FAARC, FAASM, MAACVPR	34	Sleep Medicine & Lung Health Consultants, Inc.	Physician	PA
Robert Chasse	MD	31	Title Health Medical Partners	Medical Director of Critical Care	MD
Amanda Roby	MHHS, RRT, RRT-SDS, RPSGT, RST, CCSH	17	Youngstown State University	Associate Professor; Director of Clinical Education	OH
Tonya M. Brooks	BHS, RRT, RRT-SDS	18	University of Kentucky	Neurosciences Manager	KY
Troy Griffen	BS, RRT, RRT-SDS, RPSGT, CCSH, RST	8	Mary Lanning Healthcare	Sleep Lab Manager	NE
Victoria McMichael	BS, RRT, RRT-SDS, RRT-NPS	12	Southern Regional Medical Center	Sleep Technologist	GA
Barbara A. Phillips	MD, MSPH, FCCP	35	University of Kentucky, College of Medicine	Professor Emeritus	KY
Russell Rozensky	MS, RRT, RRT-SDS, CPFT, RPSGT	22	Stony Brook University	Clinical Associate Professor	NY
Nicole Cochran	BS, RPSGT		Essentia Health	Sleep Medicine Manager	MN

Methods

The survey study was conducted in phases including development, distribution, and response analysis. The Committee developed task statements plus items intended to collect background information about

respondents. The survey was set up to require a response to each task on a page before a respondent could move to the next page. The Committee developed sampling plans for survey distribution after consulting with NBRC staff.

An invitation asking potential respondents to participate in the online survey was electronically mailed to 874 sleep disorder specialists who had credentials designated as active within the NBRC database. A total of approximately 2,767 members of the Sleep, Leadership & Management, and Ambulatory & Post-Acute Care sections of the American Association of Respiratory Care (AARC) also received access to the survey. The NBRC partnered with the American Association of Sleep Technologists who sent invitations to 1,776 of its members as well. Additionally, the final page of the survey permitted respondents to send an email containing the survey link to other technologists.

Results

The response rate among those who were solicited could only be estimated because some mailing lists were out of the NBRC's control and respondents could send the survey link to other potential respondents. A volunteer sample of 256 chose to provide usable responses in time for the analysis. The estimated response rate among potential respondents was 4.7%

After respondents had rated each task, at least 97.6% found that the list of tasks had adequately covered the scope of their job activities, from which the Committee concluded there were no content gaps.

The intraclass correlation value involving 256 sets of responses to 128 tasks was .984, so the same results were highly probable among other potential samples from the population. The coefficient alpha value involving 256 sets of responses to 128 tasks was .970, so tasks within each content domain had received ratings that were highly consistent.

Assessment of Sample Quality

The Committee assessed the degree to which the study sample had represented subgroups (for example, regions, settings) within the population of specialists. Committee members detected no disproportionate representation. Still, the Committee decided to use a task exclusion method that would give sample subgroups opportunities to exclude tasks in case representation bias was present, but undetected by the Committee.

Task Exclusion

The Committee established a total of 17 exclusion rules designed to narrow the full list of 128 tasks to a subset of those tasks that were critical to practice. The concept of criticality subsumed two attributes, (1) the **extent of practice among the respondents** and (2) the **importance to practice**. In other words, to be considered critical to practice, a task had to be performed by a large percentage of the sample and considered important by them. There were two rules based on responses from the whole sample that were created for extent (50% do the task) and importance (1.80 out of 2 within two standard errors). Additional rules based on subgroups (for example, regions, settings, experience level) within the sample were created from responses about task importance (1.74 out of 2 within two standard errors).

The Committee was guided to decisions about these rules by information from Figure 1, which was made necessary by their decision to simplify the importance scale from 4 points (high, above average, below average, or low importance) to 2 points (high or low importance). Figure 1 transformed the ratings that had been used during the 2014 study when the importance scale contained 4 points to the 2-point scale from the 2021 study. Both scales also had a zero value that allowed respondents to indicate a task that was not performed. This point on the scale allowed for a calculation of the extent to which each task was a part of practice.

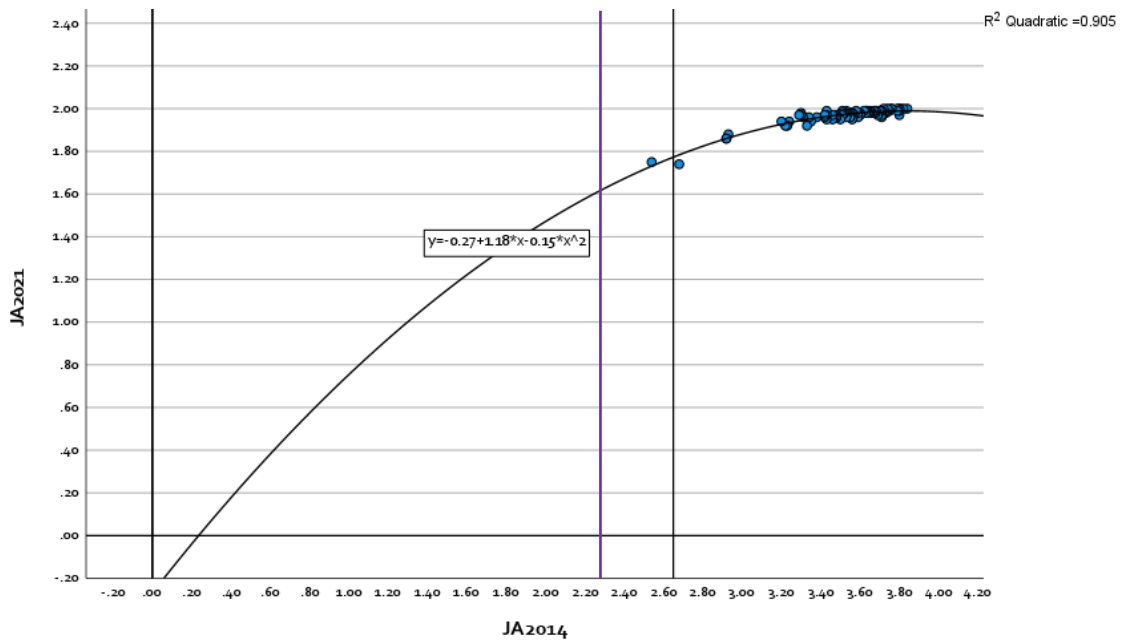


Figure 1. Task Ratings for the Same Tasks from 2014 and 2021

Tasks that were labeled as critical had to survive each of the 17 rules. Application of these exclusion rules retained 127 of the 128 tasks across 5 content areas. Subsumed under these major content areas were 14 sub-domains for which examination items were specified.

Examination Form Specifications

The decision process about specifications was accomplished when the Committee did the following:

- (1) Members assigned cognitive complexity designations by consensus to each critical task according to their perceptions of the mental process by which practitioners behaved competently. The cognitive complexity ratings were 1 - Recall, 2 - Application, and 3 - Analysis.
- (2) To guide decisions regarding the item count for each sub-domain, members considered mean content weightings across the 5 major domains that had been calculated from sample members' responses and the number of critical tasks remaining in each of the 14 sub-domains.
- (3) Having tentatively decided on the total number of items to allocate to each of the 14 sub-domains, members divided each sub-total across the three cognitive levels. Members assessed and then made final adjustments to item counts across the 14X3 table.

Copyright © 2022. NBRC. All Rights Reserved.

- (4) The Committee had anticipated that special competencies arise when assessing and treating pediatric patients, so members evaluated the prevalence of activities involving the pediatric sub-population as indicated by survey responses. While developing examination form specifications, the Committee defined minimum and maximum item counts for (a) pediatric patients 6 years of age or younger, (b) pediatric patients between 7 and 17 years of age, and (c) general patients.
- (5) The Committee said special competencies arise when a patient who has a tracheostomy undergoes a sleep diagnostics study since the artificial airway bypasses a portion of the upper airway and many cases of obstructive sleep apnea are caused by upper airway anatomy. Members decided on a minimum number of items that involve a patient with a tracheostomy.
- (6) The Committee said that since the last job analysis study was done many diagnostic sleep studies have shifted from occurring in labs to occurring in homes to decrease costs and increase patient convenience. Members decided on minimum item counts involving studies at home, in a lab, and in a general setting in which the location is not relevant to the competency being assessed.

In summary, item counts are specified for the following parameters:

- Content sub-domains
- Cognitive levels
- Patient populations as defined by age
- Type of patient airway
- Sleep study location

The Detailed Content Outline document describes specifications used to build each examination form. The first forms to rely on this document will be released in September 2023.