

Credential Maintenance Program Job Analysis Report

For Pulmonary Function Technologists

Robert C. Shaw, Jr. PhD, RRT, FAARC
Senior Vice President of Examinations and Psychometrician
and
Jennifer L. Benavente, BA/BEEd
Research Associate



Executive Summary

Background

In 2015, the National Board for Respiratory Care (NBRC) decided to modify its credential maintenance program (CMP), formerly known as the continuing competency program, by adding a longitudinal assessment for each group of credentials.

This document describes results of the 2021 job analysis study on which the content and design of Pulmonary Function Technologist (PFT) assessments will be based starting in 2023. This is the second study of this type.

Methods

The PFT Examination Committee guided details about the job analysis study.

Individuals who hold the Certified Pulmonary Function Technologist (CPFT) or Registered Pulmonary Function Technologist (RPFT) credentials will be assessed with 5 PFT items per quarter; 20 over the course of a year.

A job analysis study whose results will link to the PFT credentialing examination had been completed in early 2021. The first study had narrowed a task list to a subset that could be justified as critical to practice. The content to be focused on in future CMP assessments was determined by this second job analysis study. The method behind focusing content during the second study emphasized (1) risk to the public and pace-of-change within each task that had survived the first study.

The Committee used the two scales as shown below. After a mean was calculated from respective responses for each task, the committee used results from the risk scale and the pace-of-change scale to exclude tasks from the content of credential maintenance program assessments.

Risk

What is the risk to the public when the task is performed incorrectly?

2 - High

1 - Low

Pace-of-Change

How often does key information change?

6 – Every year

5

4 – Every 5 years

3

2 – Every 10 years

1

0 - Never

An evaluation of the 5-year renewal period was made as well. The committee added an item to the Demographic section of the survey with the intent to collect a piece of information about credential holders who had stopped working. The item was as follows:

If a technologist stops working, how many years will pass before therapies and technologies within this specialty progress to a point when extensive re-training is required for the individual to return to work?

Numbers between 1 and 10 were accepted in the response field.

The second job analysis study was conducted in phases including survey development, distribution, and response evaluations, followed by decision-making about assessment content. Survey items regarding background information were copied from the first job analysis study that had been linked to initial credentialing. According to NBRC policy, the sample was limited to those who were maintaining their CPFT or RPFT credential because it would expire; this excluded a cohort whose credentials did not expire.

Results

After survey responses were summarized, the committee compared demographic characteristics between the first and second job analysis studies. Again, results from the first study link to credentialing examinations while results from the second study link to longitudinal assessments within the credential maintenance program. The committee found strong similarities within the pairs of study results.

Having satisfied themselves about observing valid responses within the second job analysis study, the committee created rules to exclude tasks that were too low on the risk scale or the pace-of-change scale. The remaining tasks were high on both scales and so deemed by the Committee as proper for longitudinal assessment content. Table 1 summarizes the rules that narrowed tasks along with the net consequence of applying these rules to focus content.

Table 1. Task Exclusion Rules and Results

Risk (Standard Errors Allowed for Inclusion)	Pace-of-Change (Standard Errors Allowed for Inclusion)	Surviving Task Count and Percentage
1.67 (2) out of 2	3.25 (2) out of 6	64 / 185 = 35%

The committee specified item distributions by content domains and cognitive levels within the test specifications table. These sets of specifications will govern assembly of each longitudinal assessment that will be released over the course of a year; a new assessment will be developed each year.

Shifting attention to the 5-year renewal cycle, the committee evaluated descriptive statistics from the item that proposed that a practitioner had stopped working but wanted to return to work. Each response was the number of years expected to pass before extensive re-training is required. Responses are summarized in Table 2. The committee recommended that there was no information in Table 2 that should persuade a renewal cycle change.

Table 2. Descriptive Statistics about Practitioners Who Stop Working

Mean (SE of Mean)	Median	Mode
4.95 (.28)	5	5

Summarizing all the mean pace-of-change values from each sample also provided useful information while considering the 5-year renewal cycle. The lowest and highest mean pace-of-change values were transformed so the respective lowest and highest years could be observed, which would define a range for tasks linked to each job. A mean of all the task means was calculated as well so the Committee could observe the typical pace-of-change within each set of tasks. These results were summarized in Table 3. The committee concluded that the current 5-year renewal rule and these study results matched up, which recommended retention of the 5-year rule.

Table 3. Ranges for Pace-of-Change Among Tasks

Years		
Lowest	Mean	Highest
3.3	5.5	7.8

Summary

Content of Pulmonary Function Technologist assessment was identified through job analysis methodology that had been adapted to identify each subset of tasks that put the public at high risk and showed high pace-of-change. The task list was narrowed to 35% of the number of tasks that will be covered by examinations for initial credentialing. This will permit participants to narrow the scope of their continuing education to this high risk plus high pace-of-change content.

A new form of PFT assessment will be developed each year. Publishing the known sequence of content to be released each quarter within the CMP detailed content outline will permit participants to further narrow the scope of their continuing education into manageable sections. This further illustrates that an

intent behind the CMP assessments is to stimulate learning about content that these studies show are linked to maintained competence.

Finally, the Committee saw nothing about expectations for competence degradation within inactive practitioners or the typical pace at which knowledge changes within tasks to recommend a change in the credential renewal cycle.