

# The Jimmy A. Young Memorial Lecture

July 19, 2018  
9:00 am to 10:30 am  
San Antonio, TX



**The NBRC has honored Jimmy's memory and the contributions he made to respiratory care through this program since 1978**

Jimmy Albert Young, MS, RRT  
1935 -1975



## Jimmy Albert Young, MS, RRT was a most outstanding and dedicated leader

In a 15-year career, Jimmy

- achieved the RRT
- directed an education program
- published a widely-used textbook
- directed a hospital department
- served as AARC President
- served as an NBRC trustee
- 1935 – born in South Carolina
- 1960 – 1966 – served as Chief Inhalation Therapist at the Peter Bent Brigham Hospital, Boston
- 1965 – earned the RRT (#263)
- 1966 – 1970 – served in several roles including director of the education program at Northeastern University, Boston
- 1970 – became director of the Respiratory Therapy Department at Massachusetts General Hospital, Boston
- 1973 – became the AARC's 22<sup>nd</sup> President
- 1975 – was serving as an NBRC Trustee and member of the Executive Committee when he passed away unexpectedly



## Presenters

- Katherine L. Fedor, MBA, RRT, RRT-NPS, CPFT
  - President
- Robert C. Shaw Jr., PhD, RRT, FAARC
  - Vice President of Examinations



## Conflict of interest disclosures

- We have no real or perceived conflicts of interest related to this presentation.
- Uses of brand names are not meant to endorse a product, but rather to illustrate a general point.
- Robert Shaw is employed by the NBRC.



## Learning objectives

- Explain rationales behind changes that will be phased in for each credentialing program involving candidates who fail.
  - Guidance about their scores
  - When to repeat an examination attempt
- Outline methods deployed and results observed during the 2017 job analysis study of respiratory therapists.
- Illustrate changes to be implemented in 2020 for the following examinations:
  - Therapist Multiple-Choice
  - Clinical Simulation



# Guidance for failing candidates



## Information candidates who fail will receive

LNSAMPLE, FNSAMPLE MNSAMPLE SUFFIX  
NOT A REAL ADDRESS  
SAMPLE CITY, XX XXXXX-XXXX  
COUNTRY

CANDIDATE ID NUMBER:	XXXXXX1234
EXAMINATION DATE:	MM/DD/YYYY
CONTROL ID:	123456789
PID:	123456789

You have **failed** this examination. Your score is **XXX** correct answers.  
The passing score is **XXX** correct answers.

The total score is based on 150 scored items. The examination also included 20 pretest items which were not counted in the scoring of the examination.

For guidance in interpreting your score, refer to the 'Accuracy of a Testing Result' document under Resources/DocumentLibrary/Technical Articles at nbrc.org. You are encouraged to read this document before deciding when or whether to apply for the examination again.

To reapply for this examination, go to nbrc.org and login or create an account. If you prefer to pay by check or money order, download the examination application from nbrc.org and submit your payment. For questions about the application process, please contact the NBRC at (913) 895-4900 or nbrc-info@nbrc.org.





# Information available to candidates who fail

[www.nbrc.org/resources/document library](http://www.nbrc.org/resources/document%20library)

## ☐ Technical Articles

- Reducing Test Anxiety Horizons Article
- Tidal Volume Settings in Adult Mechanical Ventilation
- Accuracy of a Testing Result – Part 1
- Accuracy of a Testing Result – Part 2

- Part 1 focuses on the following:
  - Remediation effort as indicated by the size of the gap between a candidate's total score and the cut score.
  - The decision to repeat an attempt in light of the lower boundary of measurement error.
- Part 2 warns against potential misinterpretations about measurement error.



## Rationale

- New NCCA standards require the NBRC to guide failing candidates while cautioning them about measurement error in test scores especially subscores.
  - A 2017 accreditation review cited the NBRC's guidance given in the Candidate Handbook as an area to improve.
- NBRC faced a choice
  - Continue to report subscores while adding information about measurement error in score reports.
  - Stop reporting subscores while focusing attention on the total score.
- NBRC chose to focus on the total score while aware of evidence that subscores rarely provide unique information compared to the total score in occupational credentialing examinations.





# Repeat attempts

Current policy places no limit on the number of attempts; neither is a waiting period imposed.



## Repeat attempt policy starting in January 2020

Examinations	Attempts without waiting	% who eventually pass	Days between subsequent attempts
<b>Licensure</b>			
Therapist Multiple-Choice	3	89	120
Clinical Simulation	3	90	120
<b>Voluntary</b>			
Pulmonary Function Technology	2	90	180
Neonatal / Pediatric Specialty	2	93	180
Sleep Disorders Specialty	2	97	180
Adult Critical Care Specialty	2	96	180



## Observations leading to policy change

- For examinations that have the same pass rates as the NBRC's examinations and produce scores with the same reliability, the probability that a truly
  - competent candidate fails will extinguish within 2 to 4 attempts depending on the examination, and
  - **incompetent candidate passes will increase with each attempt.**
- Over a recent 31-month period (January 2015 to July 2017), the most attempts at licensure examinations were as follows:
  - TMC 28
  - CS 18
- Some candidates who had made an extreme number of attempts eventually passed, but only after outstripping the supply of test forms and taking the same test form again (and again).
  - Doubt creeps in about such cases.



## Policies among credentialing programs of health professionals

### Limit attempts or impose a wait

- emergency medical technicians
- nurses and critical care nurses
- occupational therapists
- pharmacists
- physicians
- physician assistants
- physical therapists
- radiography technologists

### No attempt limit or wait

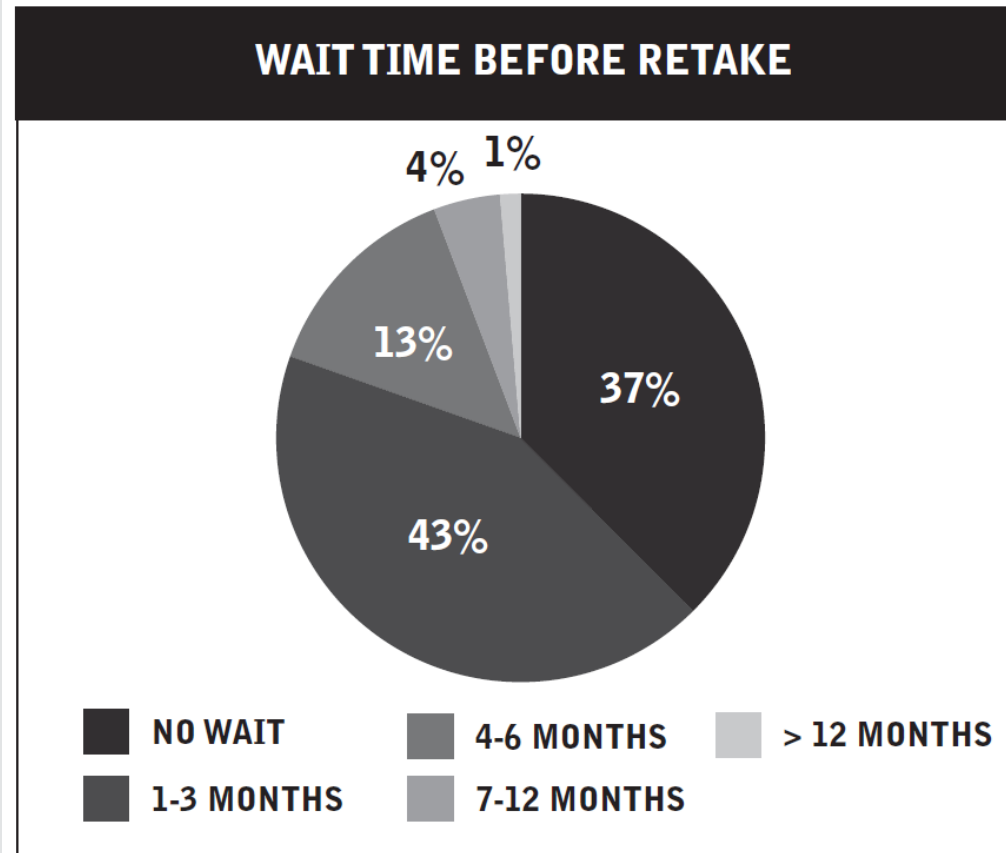
- respiratory therapists, specialists, and PF technologists
- speech-language therapists



## CLEAR Exam Review Journal Winter 2017, p. 30

Number of responses: 203

Results:



## Rationale

- The board wants to be confident that a pass result from a repeat attempt occurred because the candidate had effectively engaged in the remediation needed to bring competence up to the required level.
  - Eventually passed for the right reason.
- Doubt rises when repeated previous exposures to test content could explain a pass result.
  - Eventually passed for the wrong reason.





## Implications after 2020

- Thresholds CoARC uses to (1) accredit programs that reach the minimum success level and (2) recognize programs that reach a high success level are based on **eventually** passing rather than passing on the first attempt.
- By making some candidates wait before the next attempt and **by reducing the incidences of false-positive results after many repeat attempts**, we expect the eventual pass rate for some programs will decrease.
  - Assumes these programs make **no change** in admissions policies or practices.
  - Up to 10% of candidates will encounter 120-day waits unless changes occur in applicant screening and selection.
- Programs that do change admissions policies and practices are more likely to maintain or increase success level, but the size of each cohort may decrease.



# Job analysis 2017

Respiratory Therapists  
Therapist Multiple-Choice Examination  
Clinical Simulation Examination



7/13/2018

## Advisory Committee

Committee Members	Sponsoring Organization*	Location
<b>NBRC Trustees</b>		
<b>Chairperson</b> Robert L. Joyner, Jr., PhD, RRT, RRT-ACCS, FAARC President of the Board of Trustees	AARC	Salisbury, MD
<b>Therapist Multiple-Choice Examination Representatives</b>		
Todd G. Bocklage, MPA, RRT Examination Committee Chairperson	AARC	Columbia, MO
Teresa A. Volsko, MBA, MHHS, RRT, CMTE, FAARC Examination Committee member	AARC	Canfield, OH
<b>Clinical Simulation Examination Representatives</b>		
Alan L. Plummer, MD, FCCP, FAARC Examination Committee Chairperson	ATS	Atlanta, GA
James P. Lamberti, MD, FCCP Examination Committee member	CHEST	Oakton, VA
David L. Vines, MHS, RRT, FAARC, FCCP Examination Committee Vice-Chairperson	AARC	Chicago, IL
<b>Consultants</b>		
Carl Hinkson, MS, RRT, RRT-ACCS, RRT-NPS, FAARC	AARC	Marysville, WA
Robert Aranson, MD, FACP, FCCP, FCCM	BOMA	Freeport, ME
Sarah M. Varekojis, PhD, RRT, FAARC	CoARC	Columbus, OH



## Sampling Method

Groups	Population N
Active NBRC credential holders who, within the last year, achieved CRT or RRT credentials, or renewed active status.	52,904
PDs and DCEs provided by CoARC	815
AHA member Hospitals with 24 or more beds	4,901
Shared referrals	177
Total	58,797

AARC assisted by promoting the survey - Career News and AARConnect groups plus social media pages: Facebook, Twitter, LinkedIn



# Response collection change

## 2012

- How important is each task to the practice of a respiratory therapist in your institution?
  - High importance (4)
  - Above average importance (3)
  - Below average importance (2)
  - Low importance (1)
  - Not performed

## 2017

- Within your institution, how important is each task to the practice of a respiratory care practitioner?
  - Important (2)
  - Not important (1)
  - Never performed



## Results - respondent counts

+1,000 v. 2012

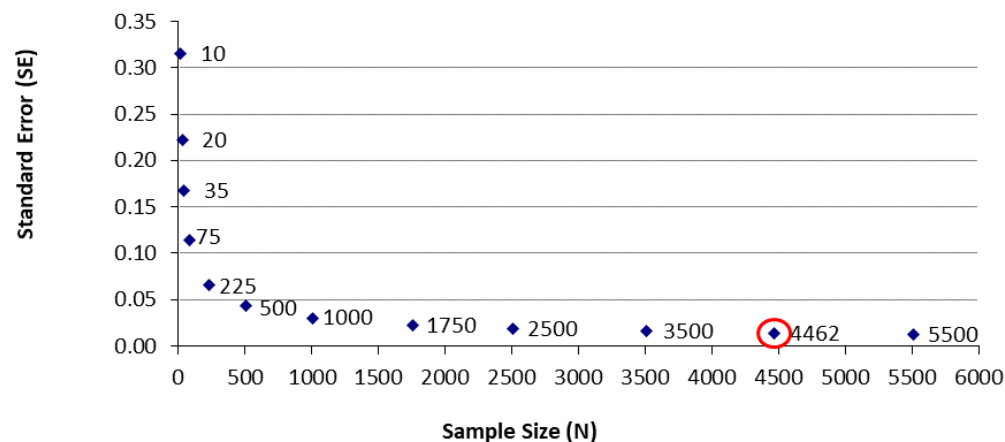
6,877 registered

4,462 completed survey

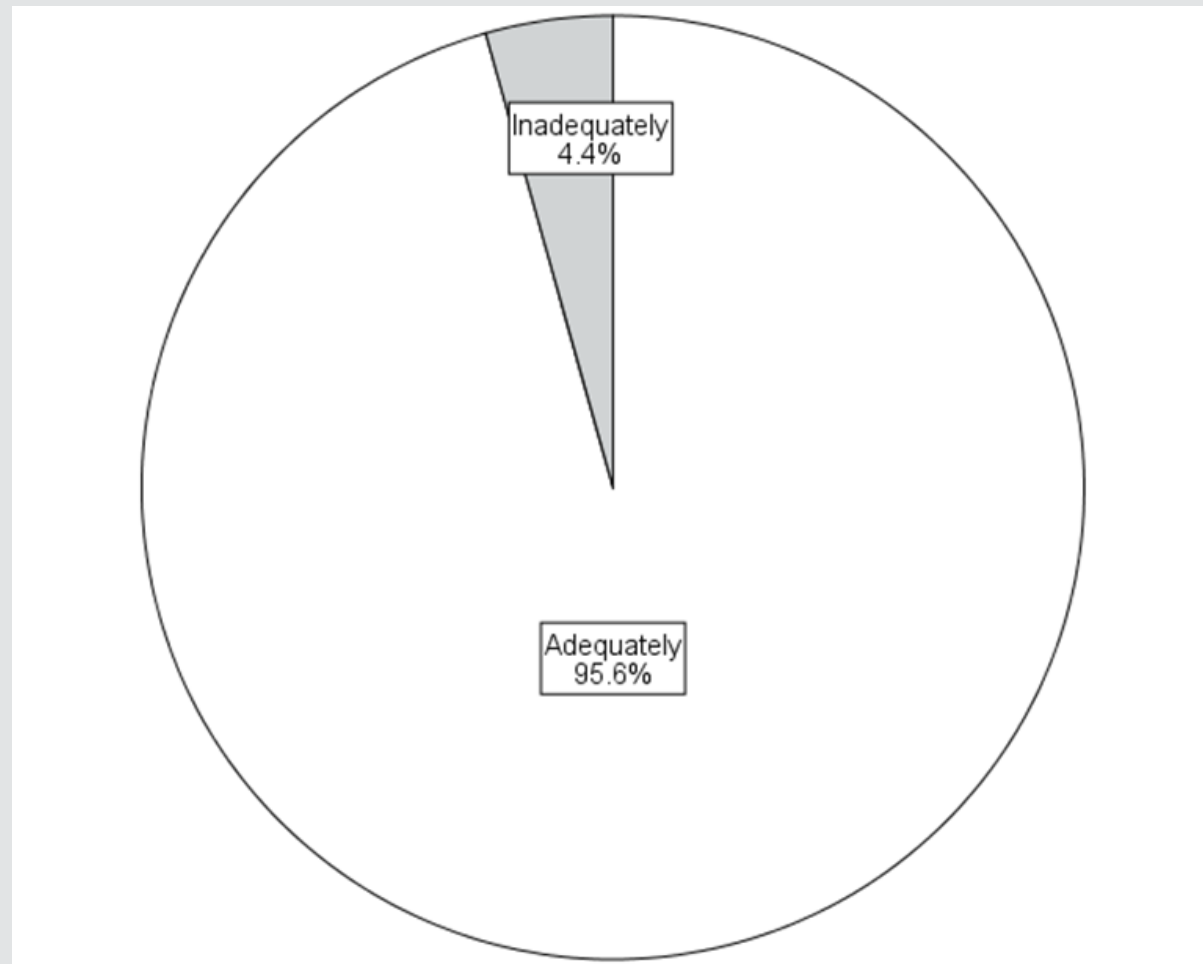
- 7.8% of potential respondents
- 64.9% of registrants



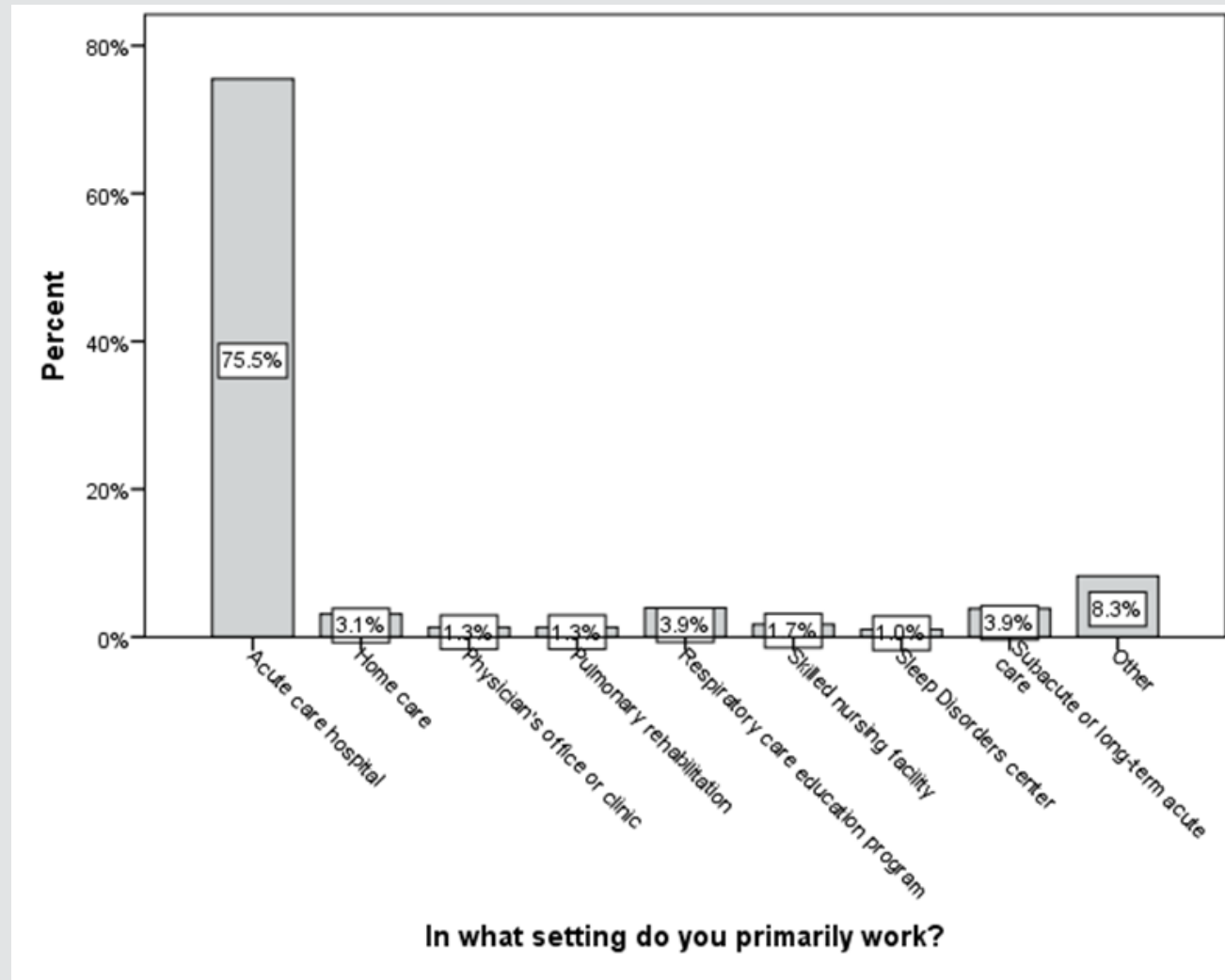
**Relationship Between N and SE**



## Results - task list adequacy



## Results - work setting



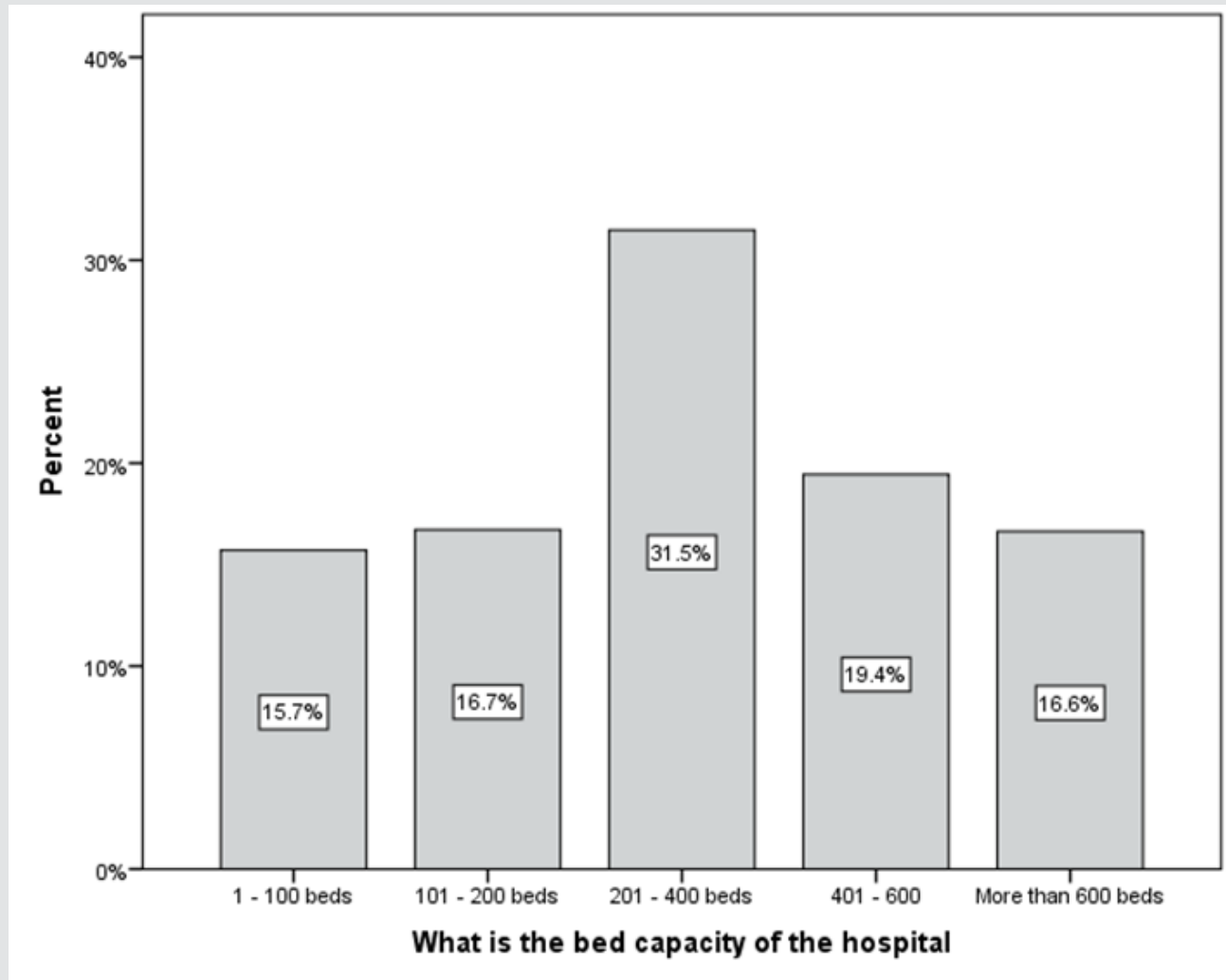


## Results - patient populations

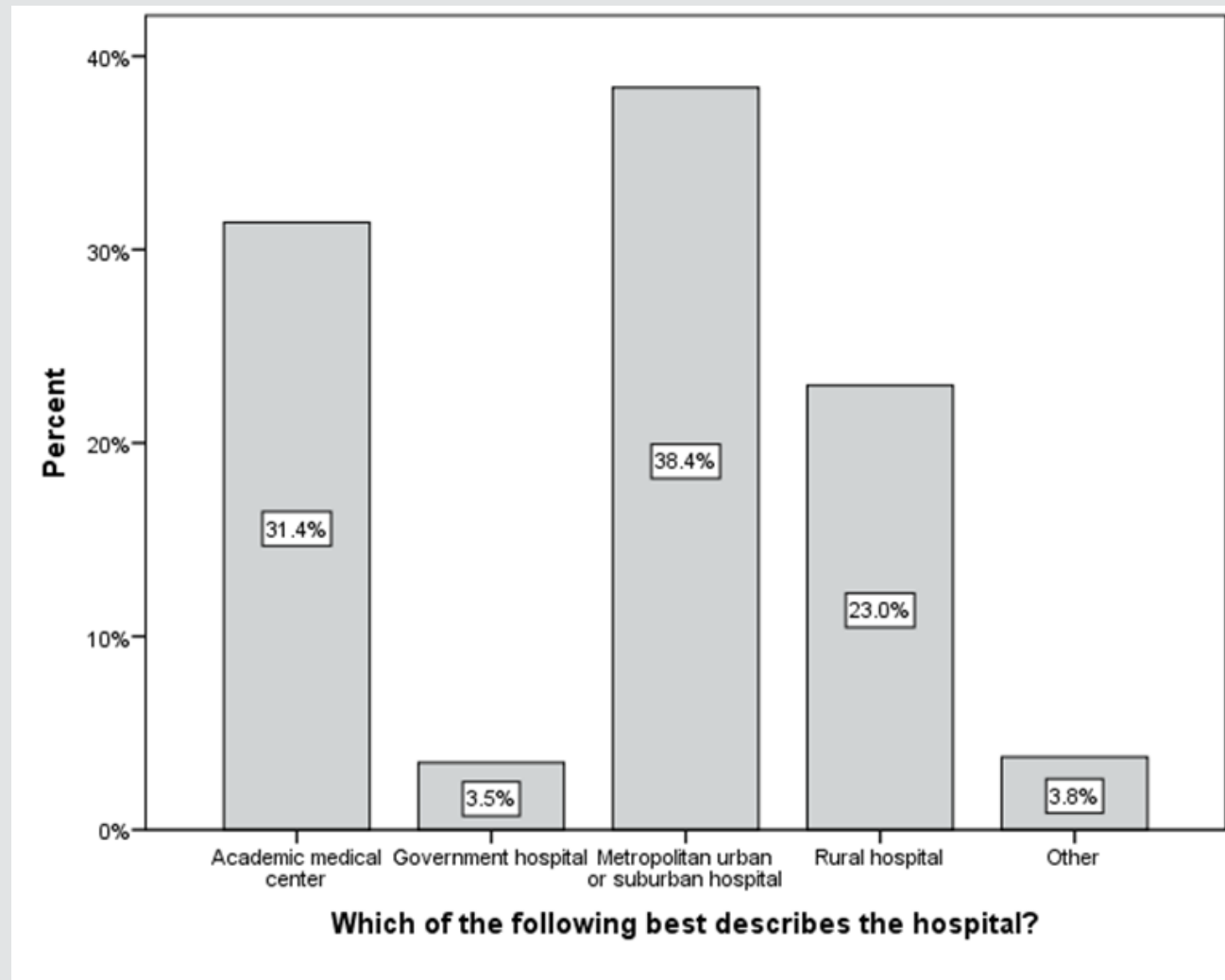
Which of the following patient populations receive care in your hospital? Select all that apply.			
	Responses		Percent of Cases
	N	Percent	
Neonatal	2468	30.3%	73.7%
Pediatric	2502	30.8%	74.7%
Adult	3164	38.9%	94.5%
Total	8134	100.0%	243.0%



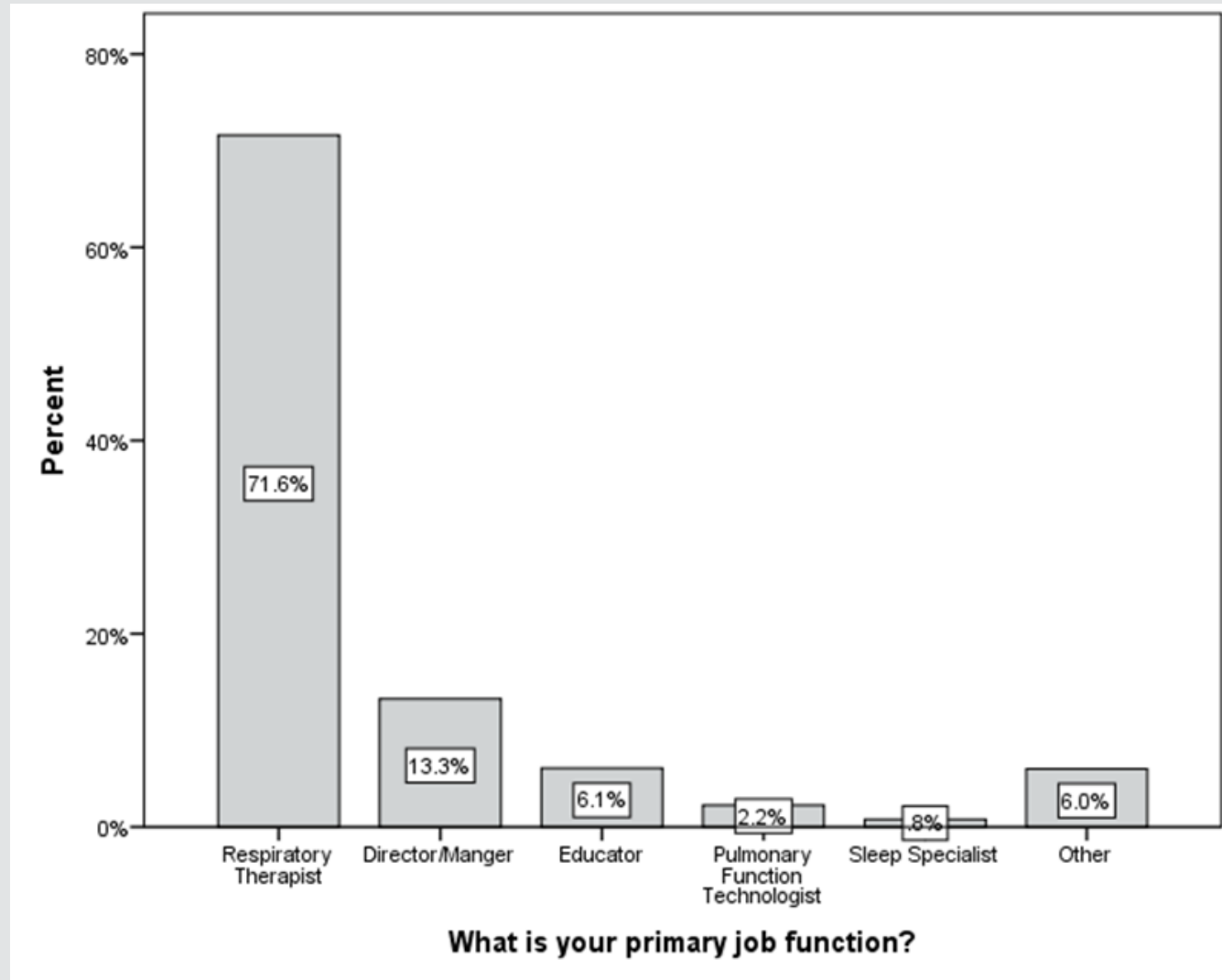
## Results - size



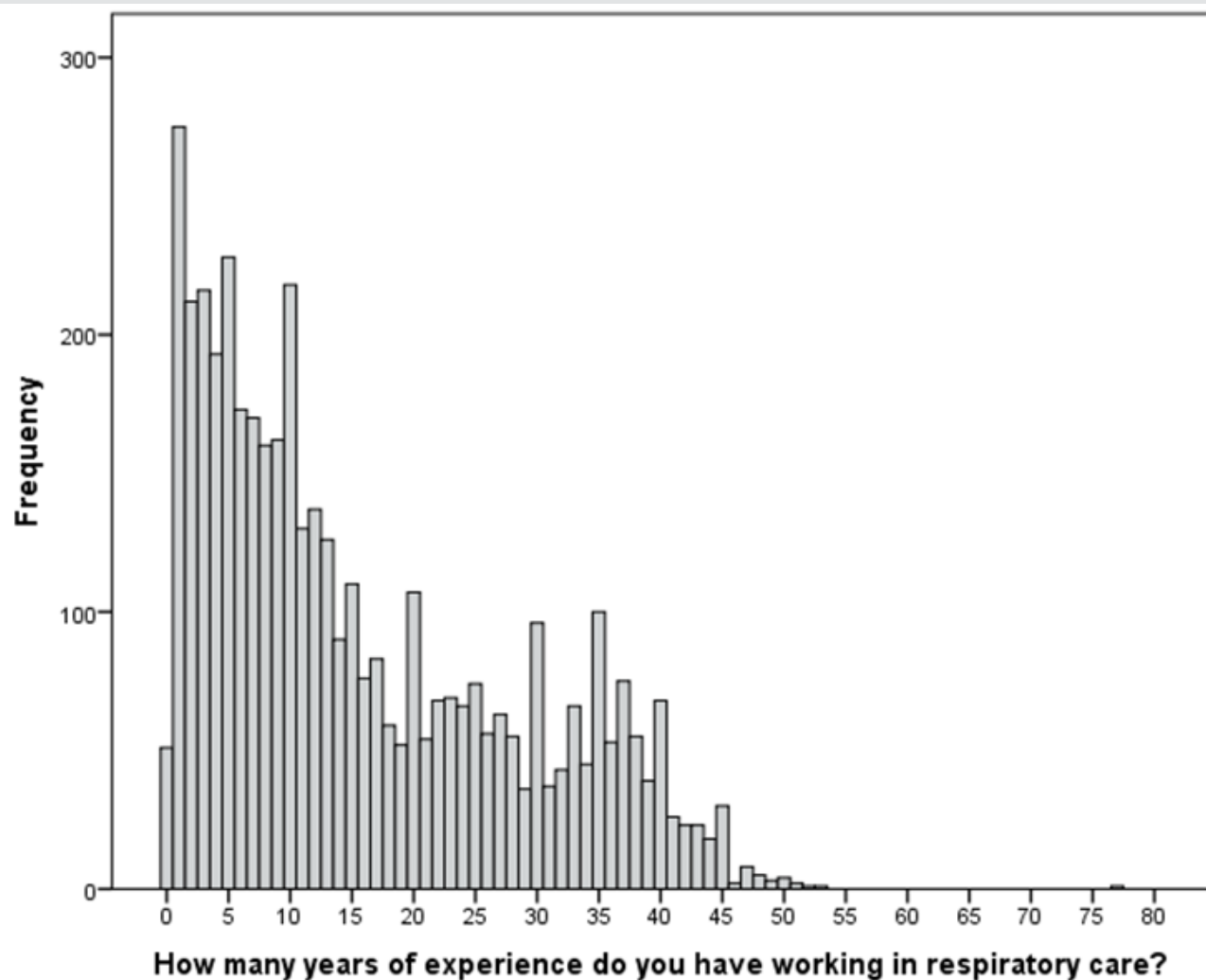
## Results - hospital type



## Results - primary job



## Results - experience



## Decision time

- The advisory committee decided they were comfortable using summaries of survey responses from this sample as guides to decisions about the following aspects of examinations:
  - Tasks that could serve as linkages for items and problems
  - Therapist Multiple-Choice Examination design
    - Content domains
    - Cognitive levels
    - Patient populations
  - Clinical Simulation Examination design
    - Problem types

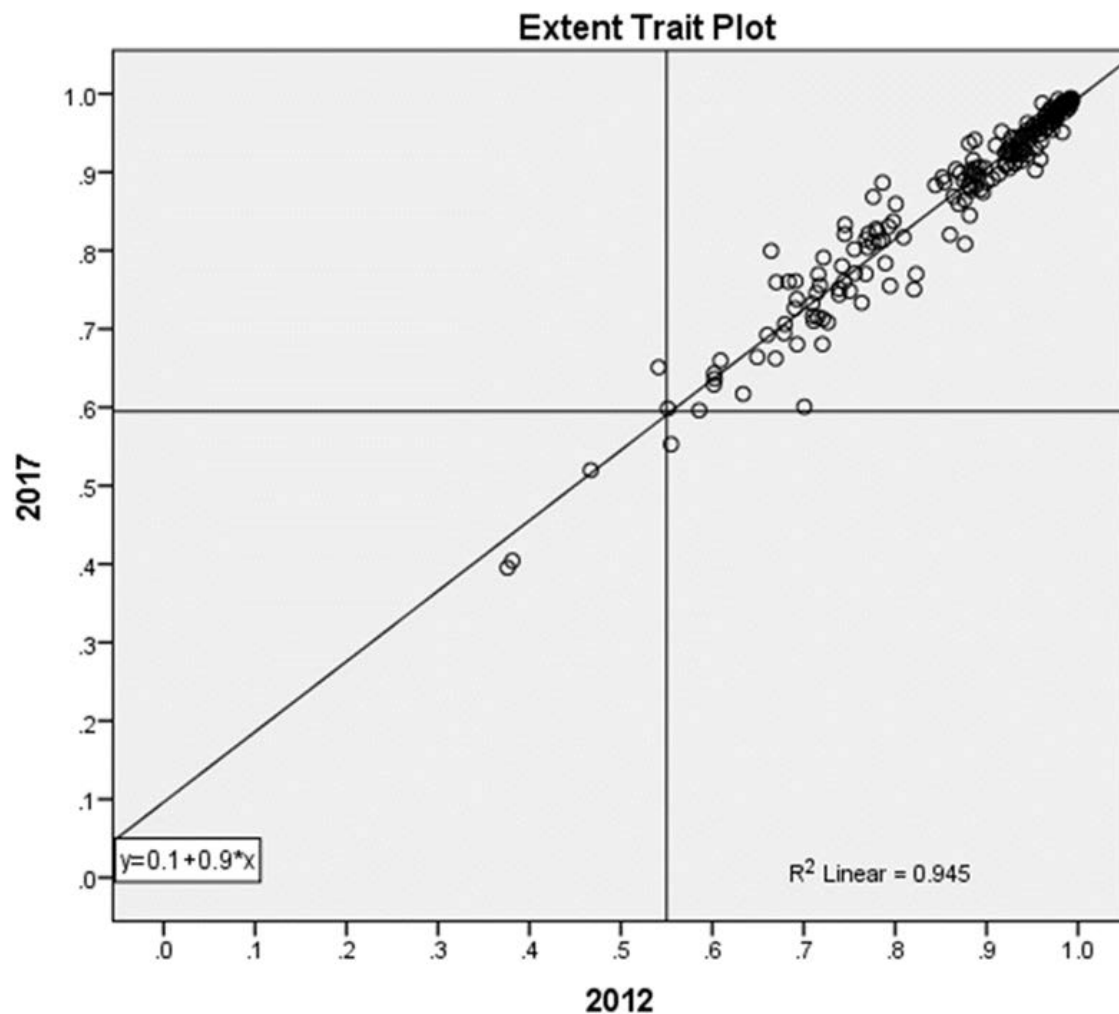


## Decision time - tasks that are fair to test

- Metrics from 252 tasks were evaluated against the following 14 rules:
  - Extent to which a task was a part of practice for all respondents as indicated by the % performed.
  - Importance of each task to practice for all respondents as indicated by the mean.
  - Importance of each task for 12 sets of subgroups (for example, region, hospital type, experience) as indicated by the mean for each subgroup
- 235 tasks survived the 14 rules
  - 13 excluded by extent for all respondents
  - 4 more excluded by importance for all respondents
  - 0 more excluded by subgroup importance

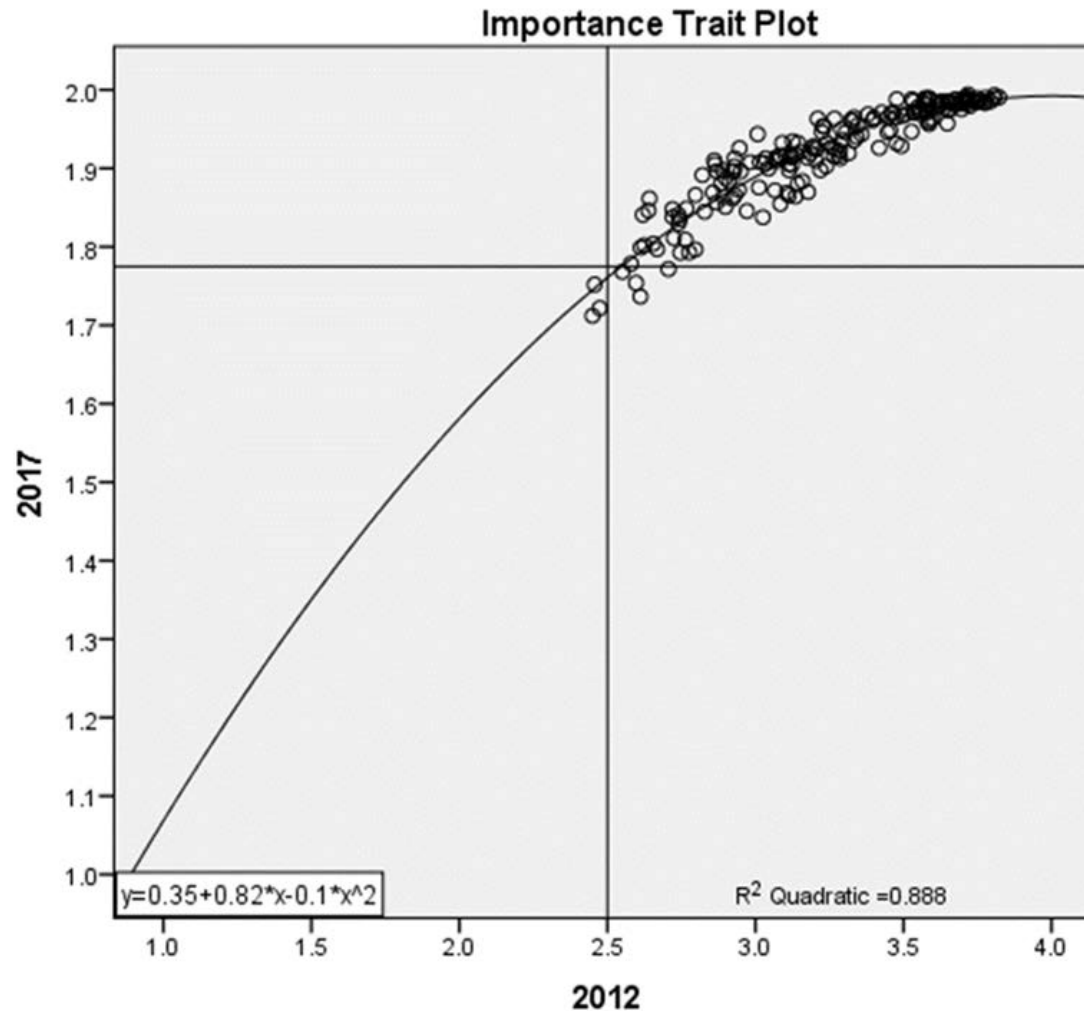


## Decision time - extent rule





## Decision time - importance rule



# Changes

## Therapist Multiple-Choice Examination



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## Excluded content

- **Cardiopulmonary exercise results**
- **Metabolic study results**
- Transpulmonary pressure measurement
- **Lateral neck radiograph**
- **Arterial line insertion**
- Esophageal / transpulmonary pressure monitoring
- Non-bronchoscopic BAL
- **Allergy skin testing**
- **Nitric oxide delivery** and exhaled nitric oxide monitoring
- Initiating and adjusting ECMO
- Recommending vaccines
- Recommending biologic therapy for asthma
- Thoracic ultrasound



## New examination content

- Perform inside a PF lab
  - DLCO
  - Lung volumes
- Evaluate results from inside a PF lab
  - DLCO
  - Lung volumes
- Perform QC of PF equipment
  - DLCO
  - Lung volumes
- Recommend consultation from a physician specialist
- Recommend pharmacologic intervention
  - Narcotic antagonists
  - Benzodiazepine antagonists
- Utilize evidence-based practice for the classification of disease severity
- Provide respiratory care in high-risk situations involving interprofessional communication
- Assist a physician/provider in performing specialized bronchoscopy (EBUS, ENB)





## TMC

Current

Content Area	Items				
	Ethics	Cognitive Level			Totals
		Recall	Application	Analysis	
I. PATIENT DATA		15	27	8	50
A. Evaluate Data in the Patient Record		4	6	0	10
B. Perform Clinical Assessment		3	6	1	10
C. Perform Procedures to Gather Clinical Information		4	7	1	12
D. Evaluate Procedure Results		2	4	4	10
E. Recommend Diagnostic Procedures		2	4	2	8
II. TROUBLESHOOTING and QUALITY CONTROL of DEVICES, and INFECTION CONTROL		8	9	3	20
A. Assemble / Troubleshoot Devices		4	8	3	15
B. Ensure Infection Prevention		2	0	0	2
C. Perform Quality Control Procedures		2	1	0	3
III. INITIATION and MODIFICATION of INTERVENTIONS		10	30	30	70
A. Maintain a Patent Airway Including the Care of Artificial Airways		3	4	3	10
B. Perform Airway Clearance and Lung Expansion Techniques		2	2	1	5
C. Support Oxygenation and Ventilation		1	5	9	15
D. Administer Medications and Specialty Gases		1	3	0	4
E. Ensure Modifications are Made to the Respiratory Care Plan		1	7	10	18
F. Utilize Evidence-Based Practice		0	2	4	6
G. Provide Respiratory Care in High Risk Situations		0	2	3	5
H. Assist a Physician / Provider in Performing Procedures		1	3	0	4
I. Conduct Patient and Family Education		1	2	0	3
Totals	3	33	66	41	140

55

8

13

12

11

11

20

15

2

3

65

9

6

9

5

19

6

4

4

4

3

31 61 48 140



## Therapist Multiple-Choice Examination

Additional Specifications			
Patient Type	Target	Minimum	Maximum
Pediatric – 1 month to 17 years of age	4	3	8
Neonatal – birth to 1 month of age	3	2	5
Adult or General	balance		
Total	140		



# Changes

## Clinical Simulation Examination



7/13/2018



## Current

### Specifications for Each Test Form

Problem Type	Specifications
A1. COPD conservative management	2
A2. COPD critical care management	2
B. Adult trauma	3
C. Adult cardiovascular	3
D. Adult neurological or neuromuscular	2
E. Pediatric	2
F. Neonatal	2
G. Adult medical or surgical	4
<b>Total</b>	<b>20</b>





Test Form Assembly Specifications	Problem Count
<b>A. Adult Chronic Airways Disease</b>	<b>7</b>
1. Intubation and mechanical ventilation	2
2. Noninvasive management, for example, medical treatment, noninvasive positive pressure ventilation	2
3. Outpatient management of COPD, for example, medical treatment, discharge planning, rehabilitation	1
4. Outpatient management of asthma, for example, medical treatment, discharge planning, rehabilitation	1
5. Diagnosis, for example, emphysema, chronic bronchitis, bronchiectasis, asthma	1
<b>B. Adult Trauma</b>	<b>1</b>
<b>C. Adult Cardiovascular</b>	<b>2</b>
1. Heart failure	1
2. Other, for example, arrhythmia, pulmonary hypertension, myocardial ischemia / infarction, pulmonary embolism	1
<b>D. Adult Neurological or Neuromuscular</b>	<b>1</b>
<b>E. Adult Medical or Surgical</b>	<b>5</b>
1. Cystic fibrosis or non-cystic fibrosis bronchiectasis	1
2. Infectious disease	1
3. Acute respiratory distress syndrome	1
4. Other, for example, immunocompromised, shock, bariatric, psychiatric	2
<b>F. Pediatric</b>	<b>2</b>
1. Asthma	1
2. Other, for example, infectious disease, bronchiolitis, chronic lung disease of prematurity, congenital defect	1
<b>G. Neonatal</b>	<b>2</b>
1. Respiratory distress syndrome	1
2. Resuscitation	1
<b>Total</b>	<b>20</b>

## Quick take

- New limits on neonatal content
  - ~~Meconium~~
  - ~~Congenital defects~~
- New mandates
  - Adult asthma
  - ARDS
  - Infectious disease
  - Pediatric asthma
  - Cystic fibrosis or non-cystic fibrosis bronchiectasis
- Increased emphasis on adult chronic airways diseases and adult med/surg
- Decreased emphasis on trauma, neurologic/neuromuscular, and cardiovascular



## Ethics

- A few sections of some problems will cause candidates to consider medical ethics while evaluating options.
- There will be no mandated minimum number of such sections between 2020 and 2024.
  - A design specification for sections that involve ethics likely will be implemented in 2025.



# Summary



7/13/2018

## Management of guidance for failing candidates

- Remediation guidance based on subscores replaced with guidance based on the gap between a candidate's total score and the cut score.
- Some candidates who make repeat attempts will encounter a new policy limiting their abilities to accumulate many fail results thereby reducing or eliminating doubt in an eventual pass result.



## Job analysis 2017

- Similar methods deployed as in the past except for the rating scale.
- Sampling attracted 1,000+ more respondents than in 2012 while emphasizing the following:
  - Respiratory therapy job in hospitals
  - A variety of hospital types and sizes
  - Therapists in their first decade and half of experience
- Out of 252 tasks, 235 tasks survived 14 rules
  - Advisory committee decided to link extent and importance rules to the 2012 study through a scale transformation process.
  - Six bits of content will no longer be covered on examinations starting in 2020.
  - Twelve bits of content will be added to examinations starting in 2020.



## Therapist Multiple-Choice Examination design

- Small evolutionary changes in emphases of content domains and cognitive levels.
- New minimums for items involving the following:
  - pediatric and neonatal patients
  - ethics



## Clinical Simulation Examination design

- Increased level of detail in problem descriptions.
- Neonatal problems limited to RDS management and resuscitation while meconium and congenital problems will be ruled out.
- Infectious disease, ARDS, asthma, and cystic fibrosis/non-cystic fibrosis bronchiectasis problems will appear on each test form, which were not mandated before.
- Otherwise small evolutionary shifts in the emphasis of problem types yielding more opportunities to manage chronic airways diseases.
- A small number of sections will engage thinking about ethics on a typical test form.





## Thank you for the opportunity

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