The Advanced Practice Respiratory Therapist: Education, Competencies and Curriculum Models

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“The opinions expressed here are the personal opinions of David Shelledy. The content is not read or approved by the Commission on Accreditation for Respiratory Care (CoARC) and does not necessarily represent the views and opinions of CoARC.”
Rush is a not-for-profit health care, education and research enterprise established in Chicago, Illinois in 1837, and comprising Rush University Medical Center, Rush University, Rush Oak Park Hospital and Rush Health.

Rush University: Colleges of Medicine, Nursing, Health Sciences and the Graduate College
Mission
The mission of Rush University Medical Center is to provide the very best care for our patients. Our education and research endeavors, community service programs and relationships with other hospitals are dedicated to enhancing excellence in patient care for the diverse communities of the Chicago area, now and in the future.

Vision
Rush University Medical Center will be recognized as the medical center of choice in the Chicago area and among the very best clinical centers in the United States.
1837  Rush Medical College Chartered

Rush Medical College ~1890

Rush Medical College, 1875 building, and Senn Building (right), added in 1902.

Rush football team, 1894.

Jelke 1965

Armour 1975/1997

Atrium 1982

Cohn ~2000

2012
Current academic organization

- Rush University Medical Center
  - Rush University
    - Graduate College
    - College of Nursing
    - College of Health Sciences
    - Medical College
College of Health Sciences

Departments and Programs

- Clinical Sciences
  - Perfusion Technology - BS, MS
  - Physician Assistant – MS
- Clinical Nutrition – MS
- Communication Disorders and Sciences
  - Doctor of Audiology – AuD
  - Speech-Language Pathology - MS
- Division of Health Sciences – PhD
- Health Systems Management – MS
- Imaging Sciences
  - Vascular Ultrasound - BS
  - Imaging Sciences - BS
- Medical Laboratory Science (Medical Technology)
  - BS, MS in MLS
  - MS in CLS Management
  - Blood Bank Specialist (certificate)
- Medical Physics
  - Radiation Oncology Medical Physics Residency
- Occupational Therapy – MS
- Religion, Health and Human Values
  - Clinical Pastoral Education (certificate)
- Research Administration – MS
- Respiratory Care – BS, MS

- Ten academic departments
- 15 professional areas
- 20 different degrees and certificates

2013 Rankings

Health Systems Management: #9 (out of 75)
Audiology: #10 (out of 78)
Speech Pathology: #29 (out of 250)
OT: #36 (out of 156)
24 programs in 17 different professional areas

- Audiology
- Speech Pathology
- Cytotechnology
- Dental Hygiene
- Diagnostic Medical Sonography
- Dietetics & Nutrition
- Emergency Medical Sciences
- Genetic Counseling
- Health Information Management
- Medical Dosimetry
- Medical Technology
- Nuclear Medicine
- Ophthalmic Medical Technology
- Radiation Therapy
- Radiologic Imaging Sciences
- Respiratory Care
- Surgical Technology
Objectives

Upon conclusion of this presentation, you will be able to:

1. Describe the evolution of the health professions and the development of the mid-level provider in nursing and allied health.
2. Understand the need for Master’s degree educational programs in respiratory care.
3. Explain the roles and associated competencies needed by an advanced practice respiratory therapist (APRT) to function as mid-level provider (pulmonary physician assistant).

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Definition of a Profession

Function: noun
Etymology: Middle English *professioun*, from Anglo-French *profession*, from Late Latin & Latin; Late Latin *profession-*-, *professio*, from Latin, public declaration, from *profitri*
Date: 13th century

1 : the act of taking the vows of a religious community
2 : an act of openly declaring or publicly claiming a belief, faith, or opinion
3 : an avowed religious faith

To Profess

Merriam-Webster's Collegiate Dictionary
Definition of a Profession

4a: a calling requiring specialized knowledge and often long and intensive academic preparation

4b: a principal calling, vocation, or employment

4c: the whole body of persons engaged in a calling
What is a profession?

• Classically, there were only three professions:
  – ministry, medicine, and law

• Each have a specific code of ethics
  – members are almost universally required to swear some form of oath to uphold those ethics, therefore "professing" to a higher standard of accountability.

• Each requires extensive training in the meaning, value, and importance of its particular oath in the practice of the profession.
• Medicine dates back to ancient times
  – Early cultures developed herbal treatments for many diseases
  – Surgery may have been performed in Neolithic times
  – Physicians practiced medicine in ancient Mesopotamia, Egypt and China

• Foundations of modern western medicine
  – Ancient Greece
  – Hippocrates (460-360 BC)
    • Hippocratic Corpus
    • Four essential humors – blood, phlegm, yellow bile and black bile
    • Four elements – earth (cold, dry), fire (hot, dry), (cold, moist), air (hot, moist)
  – Hippocratic Oath – ethical principles of behavior
History of the Professions

- Associated with the development of the universities in the middle ages
- Salerno School of Medicine – 9th century
- University of Paris (around 1150-1170)
  - 1231 four faculties
    - Theology
    - Canon law (ecclesiastical law)
    - Medicine
    - The Arts
- Oxford (1096-1167) and Cambridge (around 1226)
- 13th-15th centuries Italian Universities
  - Civil or canon law
- Harvard in 1636
  - Medical School in 1782; Law in 1817
History of Respiratory Care

• 1550 B.C. Ebers’ Paprus, describes an ancient Egyptian inhalational treatment for asthma
• 1774 Joseph Priestley, usually credited with the discovery of oxygen, publishes his work on “dephlogisticated air” oxygen three months after Scheele
• 1798 Thomas Beddoes establishes the Pneumatic Institute in Bristol and uses oxygen to treat a variety of disorders.
• Early 20th Century. Christian Bohr, K.A. Hasselbach, August Krogh, John Scott Haldane, Joseph Barcroft, John Gillies Priestly, Yandell Henderson, Lawrence J. Henderson, Wallace O. Fenn, Herman Rahn, and others make great strides in respiratory physiology and the understanding of oxygenation, ventilation, and acid-base balance.
History of Respiratory Care

- **1947** *Inhalational Therapy Association* (ITA) is formed in Chicago, Illinois.
  - 1973 The AAIT becomes the AART
  - 1984 The AART is renamed the AARC
- **1960** *American Registry of Inhalation Therapists*
  - 1968 Technician Certification Board
  - 1974 National Board of Respiratory Therapy (NBRT)
  - 1983 NBRT becomes the National Board for Respiratory Care (NBRC)
- **1963 Board of Schools** formed to accredit educational programs
  - 1968 JRCITE
  - 1977 JRCITE becomes the Joint Review Committee for Respiratory Therapy Education (JRCRTE)
  - 1998 The Committee for Accreditation for Respiratory Care (CoARC) is formed, replacing the JRCRTE
• AMA – 1847
• ANA – 1896
• AOTA – 1917
• ASRT – 1920
• APTA – 1921
• AARC – 1947
• AAPA – 1968
Characteristics of a Profession

• Requires specialized knowledge, methods, and skills

• Preparation in an institution of higher learning in the scholarly, scientific, and historical principles underlying these skills

• The work is complex, esoteric and discretionary

• Requires theoretical knowledge, skills and judgment that ordinary people do not possess

Mishoe, SC, MacIntyre NR, Resp Care, 1997, 42(1), 71-86
• Definition of first professional degree
  – Since the 1950s
  – Academic requirements precede practice
  – At least 2 years of college prior to entry
  – At least 6 years (total) to complete
  – Law, medicine, other health fields, theology

• Discontinued in IPEDS (2010-11 data collection)
  – Doctor’s degree-professional practice
  – Master’s degree, post masters certificate

The Integrated Postsecondary Education Data System (IPEDS)
Statistical Data and Information on Postsecondary Institutions
First Professional Degrees

Chiropractic (D.C. or D.C.M.)
Dentistry (D.D.S. or D.M.D.)
Law (J.D.)
Medicine (M.D.)
Optometry (O.D.)
Osteopathic Medicine (D.O.)
Pharmacy (Pharm.D.)
Podiatry (D.P.M., D.P., or Pod.D.)
Theology (M.Div., M.H.L., B.D., or Ordination)
Veterinary Medicine (D.V.M.)

* OTD, DPT, DNP Not recognized by IPEDS as first professional degrees
Characteristics of a Profession

Summary Constructs

• Knowledge and skills
• Education
• Recognition and authority
• Professionalism and ethics
The Allied Health Professions
Definition of Allied Health

• Allied Health professionals are involved with the delivery of health or related services pertaining to the identification, evaluation, treatment, and prevention of diseases and disorders; dietary and nutrition services; rehabilitation and health systems management, among others.

• Allied health professionals, to name a few, include dental hygienists, diagnostic medical sonographers, dietitians, medical technologists, occupational therapists, physical therapists, radiographers, respiratory therapists, and speech language pathologists.

Association of Schools of Allied Health Professions
(ASAHP – 112 academic institutions)
and
National Commission on Allied Health, 1995
• All Health Services:
  – 13,062,000 in 2004
  – increase to 16,627,900 in 2014 (up 27.3% - BLS)
• Nursing shortfall of 800,000 by 2020
  – 4,270,000 nurses and related personnel (all levels - 2002)
• Severe shortages in pharmacy, medicine, and dentistry
  – 850,000 physicians and surgeons (2002)
• Over 200 allied health and related professions
• 7,780,000 workers in 2002 - many are projected to have severe shortages

60% of the workforce
## BLS Projections 2008-2018

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>Numbers</th>
<th>Replacement Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2018</td>
<td>2018</td>
</tr>
<tr>
<td>Audiologists</td>
<td>12,800</td>
<td>16,000</td>
<td>25.0%</td>
</tr>
<tr>
<td>Clinical laboratory technologists and technicians</td>
<td>328,100</td>
<td>373,600</td>
<td>13.9%</td>
</tr>
<tr>
<td>Diagnostic medical sonographers</td>
<td>50,300</td>
<td>59,500</td>
<td>18.3%</td>
</tr>
<tr>
<td>Emergency medical technicians and paramedics</td>
<td>210,700</td>
<td>229,700</td>
<td>9.0%</td>
</tr>
<tr>
<td>Home health aides</td>
<td>921,700</td>
<td>1,382,600</td>
<td>50.0%</td>
</tr>
<tr>
<td>Medical assistants</td>
<td>483,600</td>
<td>647,500</td>
<td>33.9%</td>
</tr>
<tr>
<td>Medical records and health information technicians</td>
<td>172,500</td>
<td>207,600</td>
<td>20.3%</td>
</tr>
<tr>
<td>Nuclear medicine technologists</td>
<td>21,800</td>
<td>25,400</td>
<td>16.3%</td>
</tr>
<tr>
<td>Nursing aides, orderlies, and attendants</td>
<td>1,469,800</td>
<td>1,745,800</td>
<td>18.8%</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>104,500</td>
<td>131,300</td>
<td>25.6%</td>
</tr>
<tr>
<td>Physical therapists</td>
<td>185,500</td>
<td>241,700</td>
<td>30.3%</td>
</tr>
<tr>
<td>Physicians and Surgeons</td>
<td>661,400</td>
<td>805,500</td>
<td>21.8%</td>
</tr>
<tr>
<td>Physicians Assistants</td>
<td>74,800</td>
<td>103,900</td>
<td>39.0%</td>
</tr>
<tr>
<td>Radiation therapists</td>
<td>15,200</td>
<td>19,400</td>
<td>27.1%</td>
</tr>
<tr>
<td>Radiologic technologists and technicians</td>
<td>214,700</td>
<td>251,700</td>
<td>17.2%</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>2,618,700</td>
<td>3,200,200</td>
<td>22.2%</td>
</tr>
<tr>
<td>Respiratory therapists</td>
<td>105,900</td>
<td>128,100</td>
<td>20.9%</td>
</tr>
<tr>
<td>Speech-language pathologists</td>
<td>119,300</td>
<td>141,400</td>
<td>18.5%</td>
</tr>
<tr>
<td>Surgical technologists</td>
<td>91,500</td>
<td>114,700</td>
<td>25.3%</td>
</tr>
</tbody>
</table>
COMPILATION OF PATIENT PROTECTION AND AFFORDABLE CARE ACT
[As Amended Through May 1, 2010]
INCLUDING PATIENT PROTECTION AND AFFORDABLE CARE ACT
HEALTH-RELATED PORTIONS OF THE HEALTH CARE AND EDUCATION
RECONCILIATION ACT OF 2010
PREPARED BY THE Office of the Legislative Counsel
FOR THE USE OF THE U.S. HOUSE OF REPRESENTATIVES
MAY 2010

June 9, 2010
Affordable Care Act

- 974 pages in length
- Physician assistant referred to 42 times
- Allied health referred to 33 times
- Occupational therapy referred to 4 times
- Physical therapy referred to 3 times
- Respiratory therapy (or RC or RT) referred to 0 times
Allied Health Education
Entry Level Educational Requirements

- Pharmacist: Doctorate (PharmD -1997)
- Audiologist: Doctorate (AuD – c 1997)
- Physical Therapist: Doctorate (DPT – c1998)
  **Doctorate (DPT) n=197; Masters n=1**
- Occupational Therapist: Graduate degree effective 1/1/2007
  **Doctorate (OTD 5 2012); Masters (154 2012)**
- Physician’s Assistant: Masters degree → 112/136 (82%)
- Medical Technologist: Bachelors degree
- Registered Nurse: Associate degree
- Respiratory Therapist: Associate degree
- Radiologic Technologist: Certificate/Associate Degree
Mid-Level Providers

- **Advanced Practice Nurses (APNs)**
  - Nurse anesthetists
    - US: Certified Registered Nurse Anesthetists or CRNAs
  - Nurse midwives
    - US: Certified Nurse Midwives or CNMs
  - Clinical nurse specialists (CNSs)
  - Nurse practitioners (NPs)

- **Physician Assistants (PAs)**
  - Primary care
  - Specialty practice

- **Radiologist Assistants (RAs)**

- **Nuclear Medicine Advanced Associate**
October 2004

- Specialization in nursing to occur at the doctoral level by 2015

Doctor of Nurse Practice (DNP) is the degree associated with practice-focused doctoral education

- Clinical nurse specialist
- Nurse anesthetist
- Nurse midwife
- Nurse practitioner

AD programs: 691
MS/Doctorate: 688
BS: 800

PhD: 87
DNP: 104
Masters: 497
Baccalaureate: 800
Associate: 691
Diploma: 50
Practical: 167
Nurse Practitioners

- Acute Care NP
- Adult NP
- Adult-Gerontology Acute Care NP
- Adult-Gerontology Primary Care NP
- Adult Psychiatric–Mental Health NP
- Diabetes Management - Advanced
- Family NP
- Family Psychiatric–Mental Health NP
- Gerontological NP
- Pediatric NP
- School NP

Clinical Nurse Specialists

- Adult-Gerontology CNS
- Adult Health CNS
- Adult Psychiatric–Mental Health CNS
- Child/Adolescent Psychiatric–Mental Health CNS
- CNS Core
- Diabetes Management - Advanced
- Gerontological CNS
- Home Health CNS
- Pediatric CNS
- Public/Community Health CNS
Rush University Phases Out BSN

- **BSN replaced by the entry-level Masters Degree in nursing** (summer of 2008)
- Rush advanced clinical specialist and nurse practitioners degrees – 8 ranked in top 10
  - Acute care, pediatrics, neonatal, family, gerontological, mental health
  - Anesthesia – ranked 3rd in the US
- Doctor of Nursing Practice (DNP) in place
- PhD program in nursing in place
• **Physician assistants (PAs)** practice medicine under the supervision of physicians and surgeons.

• Licensed to practice in every state in the US including the District of Columbia.
  
  – PAs have prescriptive rights
  – PAs are recognized under Medicare Part B for reimbursement
  – PAs are formally trained to provide diagnostic, therapeutic, and preventive healthcare services, as delegated by a physician.
  – Take medical histories, examine and treat patients, order and interpret laboratory tests and x-rays, and make diagnoses

• PAs are often based in primary care - licensed to practice medicine with physician supervision.
  – Primary care setting (31% of the workforce)

• PA’s also practice in internal medicine, family medicine, pediatrics, obstetrics, and gynecology, surgery and the surgical subspecialties.
  – Surgical subspecialties second most common setting (23% of the workforce)
Role of a midlevel provider began to emerge as early as the 1900’s, as military medics.

In 1940, a physician by the name of Dr. Amos N. Johnson, who ran a rural based primary care clinic in Garland, North Carolina, employed the first prototypical physician assistant named Henry “Buddy” Treadwell.

– Treadwell performed minor medical procedures, suturing, and ran laboratory examinations
– Relationship between Treadwell and Johnson was brought to light at Duke University where Dr. Eugene Stead practiced

In 1964, Dr. Stead identified former military corps men that had much “practical” medical training in the field but did not have a formal role in state side medicine as suitable candidates for the initial class of physician assistants.

The first formal physician assistant training program began in 1965 at Duke University.
• First PA began practicing in 1967 (first graduating class of PAs from Duke).

• In 1968, at Alderson-Broaddus College in West Virginia developed the first baccalaureate degree training program for PAs.
  – 1972 first baccalaureate trained PAs graduate.

• 1970 the American Registry of Physician Associates (ARPA) developed in North Carolina.
  – Certification examination for graduates of approved programs

• 1973 first American Academy of Physician Assistant meeting.

• 1975, the National Commission on Certification of Physician Assistants was developed and assumed sponsorship of the certification examination for physician assistants.

• 2010 – PA workforce in the U.S. totaled 83,466.
• 159 accredited physician assistant programs (2011)
  – 132 (83%) are masters degree programs
  – 19 are baccalaureate degree programs
  – 4 are associates degree programs
  – 4 are certificate programs

• All accredited programs are required to convert to a master’s degree format by 2020

• Most programs are two years (24-33 months) in length
  – First year of education is comprised of a variety of laboratory activities and classroom work based on the medical sciences such as “biochemistry, pathology, human anatomy, physiology, clinical pharmacology, clinical medicine, physical diagnosis, and medical ethics”
PA Education

- Second year at least 2000 hours of supervised clinical work prior to successful completion of an accredited physician assistant program medical and surgical subspecialties such as: family medicine, internal medicine, obstetrics and gynecology, pediatrics, general surgery, emergency medicine and psychiatry

- 28 post graduate residency programs for physician assistants across the U.S. for medical and surgical specialties including:
  - dermatology, emergency medicine, family medicine, oncology, orthopedics, pediatrics, psychiatry, rural medicine, surgery, cardiovascular surgery, and urology
Table 1. Physician Assistant Competencies: Medical Knowledge

- Understand etiologies, risk factors, underlying pathologic process, and epidemiology for medical conditions
- Identify signs and symptoms of medical conditions
- Select and interpret appropriate diagnostic or lab studies
- Manage general medical and surgical conditions to include understanding the indications, contraindications, side effects, interactions and adverse reactions of pharmacologic agents and other relevant treatment modalities
- Identify the appropriate site of care for presenting conditions, including identifying emergent cases and those requiring referral or admission
- Identify appropriate interventions for prevention of conditions
- Identify the appropriate methods to detect conditions in an asymptomatic individual
- Differentiate between the normal and the abnormal in anatomic, physiological, laboratory findings and other diagnostic data
- Appropriately use history and physical findings and diagnostic studies to formulate a differential diagnosis
- Provide appropriate care to patients with chronic conditions

Adopted from: NCCPA Core Competency: http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%20for%20Publication.pdf
### Table 2. Physician Assistant Competencies: Interpersonal and Communication Skills

- Create and sustain a therapeutic and ethically sound relationship with patients
- Use effective listening, nonverbal, explanatory, questioning, and writing skills to elicit and provide information
- Appropriately adapt communication style and messages to the context of the individual patient interaction
- Work effectively with physicians and other health care professionals as a member or leader of a health care team or other professional group
- Apply an understanding of human behavior
- Demonstrate emotional resilience and stability, adaptability, flexibility and tolerance of ambiguity and anxiety
- Accurately and adequately document and record information regarding the care process for medical, legal, quality and financial purposes

Adopted from: NCCPA Core Competency: [http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%20for%20Publication.pdf](http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%20for%20Publication.pdf)
Table 3. Physician Assistant Competencies: Patient Care

<table>
<thead>
<tr>
<th>Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Work effectively with physicians and other health care professionals to provide patient-centered care</td>
</tr>
<tr>
<td>• Demonstrate caring and respectful behaviors when interacting with patients and their families</td>
</tr>
<tr>
<td>• Gather essential and accurate information about their patients</td>
</tr>
<tr>
<td>• Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
</tr>
<tr>
<td>• Develop and carry out patient management plans</td>
</tr>
<tr>
<td>• Counsel and educate patients and their families</td>
</tr>
<tr>
<td>• Competently perform medical and surgical procedures considered essential in the area of practice</td>
</tr>
<tr>
<td>• Provide health care services and education aimed at preventing health problems or maintaining health</td>
</tr>
</tbody>
</table>

Adopted from: NCCPA Core Competency: http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%203.5%20for%20Publication.pdf
Table 4. Physician Assistant Competencies: Professionalism

- Understanding of legal and regulatory requirements, as well as the appropriate role of the physician assistant
- Professional relationships with physician supervisors and other health care providers
- Respect, compassion, and integrity
- Responsiveness to the needs of patients and society
- Accountability to patients, society, and the profession
- Commitment to excellence and on-going professional development
- Commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
- Sensitivity and responsiveness to patients’ culture, age, gender, and disabilities
- Self-reflection, critical curiosity and initiative

Adopted from: NCCPA Core Competency: http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%20for%20Publication.pdf
Table 5. Physician Assistant Competencies: Practice-Based Learning & Improvement

- Analyze practice experience and perform practice-based improvement activities using a systematic methodology in concert with other members of the health care delivery team
- Locate, appraise, and integrate evidence from scientific studies related to their patients’ health problems
- Obtain and apply information about their own population of patients and the larger population from which their patients are drawn
- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
- Apply information technology to manage information, access on-line medical information, and support their own education
- Facilitate the learning of students and/or other health care professionals
- Recognize and appropriately address gender, cultural, cognitive, emotional and other biases; gaps in medical knowledge; and physical limitations in themselves and others

Adopted from: NCCPA Core Competency: [http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%203.5%20for%20Publication.pdf](http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%203.5%20for%20Publication.pdf)
### Table 6. Physician Assistant Competencies: Systems Based Practice

- Use information technology to support patient care decisions and patient education
- Effectively interact with different types of medical practice and delivery systems
- Understand the funding sources and payment systems that provide coverage for patient care
- Practice cost-effective health care and resource allocation that does not compromise quality of care
- Advocate for quality patient care and assist patients in dealing with system complexities
- Partner with supervising physicians, health care managers and other health care providers to assess, coordinate, and improve the delivery of health care and patient outcomes
- Accept responsibility for promoting a safe environment for patient care and recognizing and correcting systems-based factors that negatively impact patient care
- Apply medical information and clinical data systems to provide more effective, efficient patient care
- Use the systems responsible for the appropriate payment of services

Adopted from: NCCPA Core Competency: [http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%203.5%20for%20Publication.pdf](http://www.nccpa.net/pdfs/Definition%20of%20PA%20Competencies%203.5%20for%20Publication.pdf)
Other Educational Trends

• Radiologic Imaging Sciences
  – Masters degree programs to prepare Radiologist’s Assistants
  – 12 RA programs already – 8 give the master’s degree
  – UAMS – began Masters of Imaging Sciences in 2004

• Nuclear Medicine Advanced Associate
  – 2007 competencies published (first draft)

• Entry level masters degree program in Clinical Laboratory Sciences (medical technology)
  – Rush began in 2004

• Master of Science degree in Perfusion Technology
  – 17 programs in the US; 7 grant masters degree (40%)
  – Rush switched from BS to MS in 2004
NAACLS Approves Standards for the Clinical Doctorate
by David D. Gale, PhD, Chair, NAACLS Graduate Task Force

At the September 30, 2006 meeting of the NAACLS Board of Directors, the Standards of Accredited Educational Programs for the Clinical Doctorate in Clinical Laboratory Sciences were approved.

This effort was the culmination of more than six years of study and planning on the part of NAACLS in cooperation with NAACLS stakeholder organizations.
AOTA President Penny Moyers responded to an article about the emergence of professional doctorates in The Chronicle of Higher Education - 6/29/07

The degree addresses the continually "changing body of knowledge" required in today's practice environments.

- **Entry into the profession** of occupational therapy is at the post-baccalaureate level (master's or doctoral degree levels)
- **Doctoral degree programs** resulted from the need for practitioners to have more in-depth education to address the ever changing body of knowledge required for practice
- **January of 2008, the occupational therapy doctoral programs were required to meet a separate set of accreditation standards** from those required for master's degree programs.
APTA Vision 2020

By 2020, physical therapy will be provided by physical therapists who are doctors of physical therapy, recognized by consumers and other health care professionals as the practitioners of choice to whom consumers have direct access for the diagnosis of, interventions for, and prevention of impairments, functional limitations, and disabilities related to movement, function, and health.

• Provided by doctors of physical therapy
• Direct access
• Autonomous practice
1. Creating a Vision for Respiratory Care and Beyond; RC 54(3), 2009
   - What will the future health care system look like?
   - What will be the roles and responsibilities of RTs in the future system?
   - AARC BOD accepted the direction for the future of health care as recommended. April 2012

2. Competencies Needed by Graduate Respiratory Therapists in 2015 and Beyond.; RC 55(5), 2010
   - AARC BOD accepted the competencies needed by future RTs as recommended. July 2012
     - Competency Area I: Diagnostics
     - Competency Area II: Disease Management
     - Competency Area III: EBM and RC Protocols
     - Competency Area IV: Patient Assessment
     - Competency Area V: Leadership
### AARC 2015 Competencies

**Table 2. Competency Area I: Diagnostics**

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pulmonary Function Technology</td>
<td>1. Perform basic spirometry, including adequate coaching, recognition of improperly performed maneuvers, corrective actions, and interpretation of test results.</td>
</tr>
<tr>
<td></td>
<td>2. Compare and evaluate indications and contraindications for advanced pulmonary function tests (plethysmography, diffusion capacity, esophageal pressure, metabolic testing, and diaphragm stimulation) and be able to recognize normal/abnormal results.</td>
</tr>
<tr>
<td>B. Sleep</td>
<td>1. Compare and evaluate the indications and contraindications for sleep studies.</td>
</tr>
<tr>
<td></td>
<td>2. Understand results in relation to types of respiratory sleep disorders.</td>
</tr>
</tbody>
</table>

**C. Invasive Diagnostic Procedures**

1. Explain the indications and contraindications, and general hazards and complications of bronchoscopy.  
2. Describe the bronchoscopy procedure and describe the respiratory therapist’s role in assisting the physician.  
3. Monitor and evaluate the patient’s clinical condition with pulse oximetry, electrocardiogram, exhaled gas analysis, and other related diagnostic devices.  
4. Perform arterial puncture and sampling and blood analysis.
### Table 3. Competency Area II: Disease Management*

**A. Chronic Disease Management**

1. Understand the etiology, anatomy, pathophysiology, diagnosis, and treatment of cardiopulmonary diseases and comorbidities.
2. Communicate and educate to empower and engage patients.
3. **Develop, administer, and re-evaluate the care plan**

**B. Acute Disease Management**

1. **Develop, administer, evaluate, and modify respiratory care plans in the acute-care setting,** using evidence based medicine, protocols, and clinical practice guidelines.
2. Incorporate the patient/therapist participation principles listed in chronic disease management (see II A.).
Table 4. Competency Area III: Evidence-Based Medicine and RC Protocols

A. Evidence-Based Medicine
   1. Review and critique published research.
   2. Explain the meaning of general statistical tests.
   3. Apply evidence-based medicine to clinical practice.

B. Respiratory Care Protocols
   1. Explain the use of evidence-based medicine in the development and application of hospital-based respiratory care protocols.
   2. Evaluate and treat patients in a variety of settings, using the appropriate respiratory care protocols.

Table 5. Competency Area IV: Patient Assessment

   1. Patient assessment (chart review, interview, history)
   2. Diagnostic data
   3. Physical examination

Table 6. Competency Area V: Leadership: team member, healthcare regulatory systems, communications, healthcare finance, team leader
Survey of Directors of Respiratory Therapy Departments Regarding the Future Education and Credentialing of Respiratory Care Students and Staff; Kacmarek RM, Barnes TA, Durbin CG. RC, MAY 2012, 57 (5)

- 663 responses (28.0%)
- Responses by directors on 66 competencies the 2015 report:
  - 90% agreement on 37
  - 50%-90% agreement on 25
  - < 50% agreement on 4 (ECMO, sleep, research/statistics)
- Education preparation: 36.8% BS or MS; 36.7% AD, 26.5%) no preference.
- 41.8% indicated that a BSRT or MSRT should be required to qualify for a license to deliver respiratory care.
- 81.2% in favor of the RRT being required to practice

Strong evidence supports the need by 2015 and beyond for graduate RTs to master 66 competencies in 7 major areas.

AARC BOD accepted the competencies needed by future RTs as recommended. July 2012
Other Educational Trends: AARC 2015 and Beyond

1. Creating a Vision for Respiratory Care and Beyond; RC 54(3), 2009
   - *What will the future health care system look like?*
   - *What will be the roles and responsibilities of RTs in the future system?*
   - AARC BOD accepted the direction for the future of health care as recommended. April 2012

2. Competencies Needed by Graduate Respiratory Therapists in 2015 and Beyond; RC 55(5), 2010
   - AARC BOD accepted the competencies needed by future RTs as recommended. July 2012

3. Transitioning the Respiratory Therapy Workforce for 2015 and Beyond: RC 56(5), 2011
   - The third task force conference was charged with creating plans to change the professional education process so that RTs are able to achieve the needed skills, attitudes, and competencies identified in the previous conferences.
     - BS entry level
     - RRT
     - By 2020
Examination launched Tuesday, July 17, 2012.
Applicants are now able to sit for the examination.
Applicants who schedule to test before 9/1/2012 will receive the ACCS Self-Assessment Examination for free (a $40 value)!
Candidates can visit the ACCS page for more information on this new examination
# Adult Critical Care Specialty Examination Matrix

## Content Area

### I. RESPIRATORY CRITICAL CARE
   A. Manage Airways
   B. Administer Specialty Gases
   C. Manage Ventilation
   D. Deliver Pharmacologic Agents

### II. GENERAL CRITICAL CARE
   A. Assess Patient Status and Changes in Status
   B. Anticipate Care Based on Laboratory Results
   C. Anticipate Care Based on Imaging and Reports of Imaging
   D. Anticipate Effects of Pharmacologic Agents
   E. Anticipate Care Based on Nutritional Status
   F. Prevent Ventilator Associated Pneumonia
   G. Recognize and Manage Patients with Infections and Sepsis
   H. Manage End-of-Life Care
   I. Prepare for Disasters
   J. Interact with Members of an Interdisciplinary Team
   K. Perform Procedures
   L. Troubleshoot Systems

## Cognitive Level

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Recall</th>
<th>Application</th>
<th>Analysis</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPIRATORY CRITICAL CARE</td>
<td>5</td>
<td>18</td>
<td>35</td>
<td>58</td>
</tr>
<tr>
<td>GENERAL CRITICAL CARE</td>
<td>7</td>
<td>27</td>
<td>58</td>
<td>92</td>
</tr>
</tbody>
</table>

**Totals**

<table>
<thead>
<tr>
<th>Recall</th>
<th>Application</th>
<th>Analysis</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>45</td>
<td>93</td>
<td>150</td>
</tr>
</tbody>
</table>
• The increasing demands on the practice of RC require careful attention to the clinical skills that will be necessary for future practice.

• RCPs are expected to participate in the development, modification and evaluation of care plans, protocol administration, disease management and patient education.

• There is an increasing need for RCP's with advanced credentials and education who can take on leadership roles, including research, education, management, as well as advanced clinical diagnostic skills.

• Therefore, the Board supports the development of baccalaureate and masters level education in respiratory care.
The AD graduate should pass the RRT exam and complete a baccalaureate degree in RC within a set period of time, such as 5 years.

RCP's who have passed the RRT exam and completed a BD in RC may practice advanced procedures such as ECMO, protocol development, respiratory care consult, ventilation management, and advanced medication administration such as moderate sedation, nitric oxide administration, and prostaglandin administration.

The Board believes that ...the requirement of a BD in RC as the minimum entry level for advanced practice is needed .....to improve patient outcomes.

The Board also supports the development of masters level respiratory care education programs for clinical practice, education and management.
There is currently one baccalaureate level education program in respiratory care at the University of North Carolina at Charlotte.

- In order to meet the current and future need for RCP's with advanced credentials and education, the Board supports the establishment of at least two more similar programs in the state

• The Board also supports the establishment of a Clinical Masters Respiratory Care program in the state to provide
  - a midlevel Clinical Respiratory Care Practitioner
  - who can function as a clinical assistant to physicians such as Pulmonologists, Anesthesiologists, Hospitalists and Intensivists.
Why the Master of Science in Respiratory Care?

- Currently, there are only a handful of graduate degree programs with majors in respiratory care in the U.S.
- Leadership training in clinical specialty areas, research, management, and education has been provided at the baccalaureate level or not at all.
- This has resulted in a dearth of qualified individuals able to fulfill the need for trained practitioners to fulfill professional leadership roles.
  - Teaching
  - Management and supervision
  - Assist/perform research
  - Advanced practice and clinical specialization
Why MSRC?

• To fill the need for future educators, managers, researchers, and clinical specialists.

• There are over 400 college or university-based respiratory care educational programs in the U.S.
  – Approximately 2,700 RTs employed as educators by colleges, universities, and health care agencies (2000).
  – Nationally, the vacancy rate for instructors/educators in year 2000 was 9.8%

• About 8% of the respiratory care workforce is employed in management and supervision
  – (9,800 in year 2009)
  – Demand for managers and supervisors is expected to increase.
### Table 10. Mid-point population projections

<table>
<thead>
<tr>
<th>Position</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Therapist</td>
<td>82,660</td>
</tr>
<tr>
<td>Director/Manager</td>
<td>3,655</td>
</tr>
<tr>
<td>Supervisor</td>
<td>6,145</td>
</tr>
<tr>
<td>Non-Supervisory Support Staff</td>
<td>12,899</td>
</tr>
<tr>
<td>Sleep Technologist/Specialist</td>
<td>4,945</td>
</tr>
<tr>
<td>Pulmonary Function Technologist</td>
<td>3,404</td>
</tr>
<tr>
<td>Other Diagnostic Technologist</td>
<td>2,974</td>
</tr>
<tr>
<td>Instructor/Educator</td>
<td>1,129</td>
</tr>
<tr>
<td>Disease Manager/Patient Educator</td>
<td>377</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>118,188</strong></td>
</tr>
</tbody>
</table>
To award appropriate academic degrees based on the work done by the student

- 15 semester hours = 1 FTE student for 1 semester (undergraduate)
- 30 semester hours = 1 academic year (2 semesters)
- Associate degree minimum = 60 semester hours
  - About 1/3 → general education, math and sciences
- Bachelor’s degree minimum = 120 semester hours
  - About ½ upper division → 60 SC
- UTHSC BSRC: 150 semester hours
- UTMB BSRC: 152 semester hours
- Rush BSRC: 135 semester hours
- The equivalent of 4.5-5 academic years.
Successful RC Programs

Total College Credits

\[ n = 30 \]

**AD** should be 60 SC → 88% ≥ 70
29% ≥ 80

**BS** should be 120 SC → 62% ≥ 126
31% ≥ 140

*Bill Galvin, Helmholtz Lecture, July, 2012*
Knowledge and Skills

- Over 50 CPGs setting standards of practice
- Acceptance of Respiratory Care Journal into Index Medicus
### BSRC Core Content

<table>
<thead>
<tr>
<th>Lower division</th>
<th>60 SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Math, English, Psychology, Humanities</td>
<td></td>
</tr>
<tr>
<td>- Science (Chemistry, Physics, Microbiology, A&amp;P)</td>
<td></td>
</tr>
<tr>
<td>Upper division</td>
<td>61-71 SC</td>
</tr>
<tr>
<td>- Intro./Basic Respiratory Care</td>
<td>4-8</td>
</tr>
<tr>
<td>- Patent Assessment</td>
<td>3</td>
</tr>
<tr>
<td>- ALS-Airway Care</td>
<td>3</td>
</tr>
<tr>
<td>- Critical Care/Mechanical Ventilation</td>
<td>4-8</td>
</tr>
<tr>
<td>- Advanced Critical Care Monitoring</td>
<td>3</td>
</tr>
<tr>
<td>- Pharmacology</td>
<td>4</td>
</tr>
<tr>
<td>- Physiology</td>
<td>5</td>
</tr>
<tr>
<td>- Pathophysiology/pulmonary disease</td>
<td>11</td>
</tr>
<tr>
<td>- Diagnostics/PFTs</td>
<td>3</td>
</tr>
<tr>
<td>- Neonatal-Pediatrics</td>
<td>3</td>
</tr>
<tr>
<td>- Patient Care Management</td>
<td>3</td>
</tr>
<tr>
<td>- Clinical Practice (800-900 hours)</td>
<td>18-20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>121-131 SC</strong></td>
</tr>
</tbody>
</table>

Goal for BS degree is 120 SC
BS RC Leadership Content

Leadership core adds and additional 15-20 SC

<table>
<thead>
<tr>
<th>Category</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>3</td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
</tr>
<tr>
<td>Research</td>
<td>3</td>
</tr>
<tr>
<td>Issues and Trends</td>
<td>3</td>
</tr>
<tr>
<td>CP-Technology</td>
<td>3</td>
</tr>
<tr>
<td>Clinical Specialization (200 hours)</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Goal for BS degree is 120 SC

Total is 140-150 semester hours of course work for the BS degree = 4.5-5 academic years
### Rush MS Degree in RC

**119 QH (79 SC) Post - Baccalaureate**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to RC</td>
<td>5</td>
</tr>
<tr>
<td>Cardiopulmonary Physiology</td>
<td>5</td>
</tr>
<tr>
<td>Respiratory Equipment &amp; Tech,</td>
<td>5</td>
</tr>
<tr>
<td>Health Care in America</td>
<td>2</td>
</tr>
<tr>
<td>Patient Assessment</td>
<td>5</td>
</tr>
<tr>
<td>Pulmonary Disease</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical Ventilation</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>Critical Care</td>
<td>5</td>
</tr>
<tr>
<td>Cardiopulmonary Diagnostics</td>
<td>5</td>
</tr>
<tr>
<td>Pediatric &amp; Neonatal RC</td>
<td>5</td>
</tr>
<tr>
<td>Clinical Observation</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Observation</td>
<td>2</td>
</tr>
<tr>
<td>Education</td>
<td>5</td>
</tr>
<tr>
<td>Management</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to Research</td>
<td>5</td>
</tr>
<tr>
<td>Clinical Practice I</td>
<td>12</td>
</tr>
<tr>
<td>Clinical Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>Research Project</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Practice II</td>
<td>12</td>
</tr>
<tr>
<td>Clinical Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>Research Project</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Practice III</td>
<td>12</td>
</tr>
<tr>
<td>Clinical Seminar III</td>
<td>3</td>
</tr>
<tr>
<td>Research Project</td>
<td>2</td>
</tr>
</tbody>
</table>

**Typical minimum MS degree 45 QH or 30 SC**
### PhD Degree in Health Sciences

<table>
<thead>
<tr>
<th>Component</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS in RC</td>
<td>45*</td>
</tr>
<tr>
<td>Education core</td>
<td>12</td>
</tr>
<tr>
<td>Research core</td>
<td>21</td>
</tr>
<tr>
<td>Leadership core</td>
<td>10</td>
</tr>
<tr>
<td>Professional track</td>
<td>16</td>
</tr>
<tr>
<td>Electives</td>
<td>10</td>
</tr>
<tr>
<td>Dissertation</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
</tr>
</tbody>
</table>

* quarter credit hours
Why MSRC?

**Entry Level Education in Allied Health**

- Physical Therapy – Doctoral degree - DPT
- Occupational Therapy – Master’s degree
  – a number of OTD programs already up and running
- Speech therapy – Master’s degree
- Physician Assistant – Master’s degree
- Clinical Nutrition – Master’s degree
- Respiratory Therapy – Associate’s degree

*RT is falling farther behind the other allied health professions in terms of education and training*
<table>
<thead>
<tr>
<th>Rank</th>
<th>Occupation</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physician Assistants (Masters)</td>
<td>$89,470</td>
</tr>
<tr>
<td>2</td>
<td>Physical Therapists (Doctorate)</td>
<td>$79,830</td>
</tr>
<tr>
<td>3</td>
<td>Radiation Therapists (BS)</td>
<td>$79,340</td>
</tr>
<tr>
<td>4</td>
<td>Occupational Therapists (Masters)</td>
<td>$74,970</td>
</tr>
<tr>
<td>5</td>
<td>Speech Therapists (Masters)</td>
<td>$72,000</td>
</tr>
<tr>
<td>6</td>
<td>Audiologists (Doctorate)</td>
<td>$71,000</td>
</tr>
<tr>
<td>7</td>
<td>Nuclear Medicine Technologists (BS)</td>
<td>$69,960</td>
</tr>
<tr>
<td>8</td>
<td>Registered nurses (hospitals) (AD/BS)</td>
<td>$69,110</td>
</tr>
<tr>
<td>9</td>
<td>Diagnostic Medical Sonographers (AD)</td>
<td>$65,800</td>
</tr>
<tr>
<td>10</td>
<td>Medical Technologists (BS)</td>
<td>$58,120</td>
</tr>
<tr>
<td>11</td>
<td>Radiologic Technologists &amp; Technicians (AD)</td>
<td>$56,760</td>
</tr>
<tr>
<td>12</td>
<td>Respiratory Therapists (AD)</td>
<td>$56,260</td>
</tr>
<tr>
<td>13</td>
<td>Respiratory Technicians (AD/cert)</td>
<td>$47,330</td>
</tr>
<tr>
<td>14</td>
<td>Medical Records and HIM (AD)</td>
<td>$35,920</td>
</tr>
</tbody>
</table>
Why MSRC?

• *Provide leadership training* in the areas of management, supervision, education and research.

• Develop *clinical specialists*  
  – adult critical care, pediatric critical care, neonatal critical care  
  – pulmonary function technology and cardiopulmonary diagnostics  
  – polysomnography, and other clinical areas, as needed.

• To prepare *advanced level respiratory therapists* for clinical practice.
CoARC: “First professional degree programs”

• **Associate degree:** 391 (88%)
  – includes 13 satellites and 1 inactive base program

• **Bachelor’s degree (first professional):** 53 (12%)
  – 46 base programs and 7 satellite campuses

• **Master’s degree (first professional):** 3 (<1%)
  – Georgia State University
  – Rush University
  – St. Alexis University (W. Beachey)

• **447 total**
58 Colleges and Universities Awarding the Baccalaureate or Masters Degree to RT Students

CoBGRTE: 31 College and University Members
http://www.cobgrte.org/
• **Prepare leaders**, who are able to plan, develop, and deliver high quality, cost-effective health care services.

• Prepare *future faculty* for college and university based respiratory care educational programs.

• Develop individuals who can **formulate appropriate questions, organize and test hypotheses, and apply research results** to the practice of respiratory care.

• Prepare *clinical practitioners with advanced knowledge and skills*.

• **To advance the science and practice of respiratory care** by providing a link between the sciences, clinical research and practice;
  
  – *increase knowledge within the discipline*;
  
  – provide for *interdisciplinary collaboration* and research.
Programs Awarding a Masters Degree

- **Georgia State University**; Atlanta; Lynda Goodfellow, EdD, RRT, FAARC
  - Program Types: MHS with concentration in RT
  - BA/BS to MHS with concentration in RT

- **Rush University**; Chicago, David L Vines, MHS, RRT
  - Program Type: BA/BS to MSRC, BSRT to MSRC

- **St. Alexius Medical Center & The University of Mary**: Will Beachey, PhD, RRT, FAARC
  - Program Type: BA/BS to MSRT

- **Northeastern University**; Boston; Thomas A Barnes, EdD, RRT, FAARC;
  - Program Type: BSRT to MSRC (online)
  - Concentrations: Adult and Organizational Learning, Clinical Trial Design, Health Management, Higher Education Administration, Nonprofit Management, and Regulatory Affairs

- **Youngstown State University**; Ohio; Sal Sanders, PhD, RRT, CPFT
  - Program Type: RRT with Bachelor's Degree to Master of Respiratory Care (MRC)
  - Specialty Tracks: education, management, advanced therapeutics and monitoring applications

- **University of Texas Medical Branch**; Jon Nilsestuen, PhD, RRT, FAARC
  - Program Type: BA/BS with RRT to MHP with specialty in RT,
  - options for Management, Education, Research and Advanced Practice
The Roster was prepared by the Coalition for Baccalaureate and Graduate Respiratory Therapy Education (CoBGRTE) to assist students in selecting a respiratory therapy graduate program. The roster also serves as a communication tool for existing and developing graduate respiratory therapy programs. The reader is encouraged to visit program web sites and to contact each program directly for more information. New or existing programs not included on the roster should use the "Contact Us" page to request a listing. Suggestions to improve the roster are welcome. An AARC approved white paper from the CoBGRTE Steering Committee, “Development of Baccalaureate and Graduate Degrees in Respiratory Care,” can be found using the link: http://www.aarc.org/resources/bacc_edu/index.asp

Master's Degree with a Respiratory Therapy/Respiratory Care Major

Generally, there are two types of master’s degree programs which offer a major in
Integrated Baccalaureate to Master’s Degree Program

Benefits of the Integrated Baccalaureate to Master's Degree Program

The Respiratory Therapy Integrated Bachelor’s to Master’s Degree Program combines practical, hands-on experience from traditional undergraduate coursework with graduate coursework, some of which is on-line learning. Georgia State University has had a long and prestigious history of educating health professionals in the field of respiratory therapy. Once you’ve earned a degree in Respiratory Therapy you can be working in the field immediately. Take advantage of Georgia State University’s excellent reputation in health care and get hands-on clinical experience in world renowned health institutions, including Children’s Healthcare of Atlanta and Emory University Hospital. Download the Integrated Program brochure.

Career Opportunities

There is a lot of diversity in the field of Respiratory Therapy. Many RTs work in hospitals, in Intensive Care Units, Neonatal Units, the Operating Room, the Emergency Department or the Pulmonary Function Lab. Respiratory Therapists may also bring their skills into the community.
Master of Science in Health Sciences with a Major in Respiratory Therapy

The Division of Respiratory Therapy offers a Master of Science degree, with a specialization in respiratory care, to prepare future faculty in the profession, as well as advanced clinical practitioners. MS Brochure

GENERAL DESCRIPTION OF PROGRAM
The Master of Science degree with a concentration in respiratory care offers the opportunity for credentialed and experienced practitioners to obtain an advanced level of knowledge in the technical area of respiratory care. The program also is intended to provide the ability, knowledge and skills for continued scholarly inquiry within the discipline of respiratory care.

Specific program objectives are:

• Advanced practice/assist physicians.
• Future faculty
• Examine the scientific basis of RC
RRT to Masters; leadership in management, education, advanced clinical practice
Concentrations: Adult and Organizational Learning, Clinical Trial Design, Health Management, Higher Education Administration, Nonprofit Management, and Regulatory Affairs
Education: education theory; course management software; design of online educational materials. Advanced Clinical Practice: develop advanced clinical skills. Management: Health care administration, financial management, HR management, JCAHO accreditation procedures, Medicare reimbursement, regulation. Research: Work in state-of-the-art laboratories under the guidance of the principal investigator.

Admission requirements: Bachelor of Science degree, RRT and current state license.
Any BA/BS + pre-reqs → MSRT + RRT
Any BA/BS + RRT → MSRT with advanced standing
Why MSRC?

- Provide leadership training in the areas of management, supervision, education and research.
- Develop clinical specialists
- To prepare advanced level respiratory therapists for clinical practice – the APRT.
  - This person would be a midlevel provider similar to a PA or APRN
  - The person would serve as a pulmonary physician extender
  - There is no role model for a job analysis to identify the competencies needed
Developing a Curriculum (DACUM)

- DACUM is a structured process that is often used in competency-based education (CBE) curriculum development
  - analyze the jobs, job roles (duties) and tasks associated with a specific profession or occupation.
- DACUM identifies specific knowledge, skills and professional (affective) characteristics needed by individuals to perform their job.
- DACUM uses a facilitator to lead a group of expert practitioners as they identify jobs, roles and tasks.
- Resulting task lists are used to develop the specific performance objectives, learning activities, and evaluation methods for training.
- These materials are then sequenced into specific courses, units of instruction and modules of study → a curriculum.
Method
- A panel of workers or experts in the job
- A neutral facilitator
- A recorder
- Observers

Identify duties and tasks needed to perform on the job.

Rate the resultant task list in terms of importance.
• Duty: Maintain the automobile
• Tasks:
  o Wash the car exterior
  o Vacuum car interior
  o Wax the car
  o Check the car fluid levels
  o Check tire air pressure
Occupational (Job) Analysis Assumptions

1. Expert workers are the best source for job and task analysis.

2. Any occupation can be effectively described in terms of:
   a. Duties and tasks
      - Duty: general area of competence that successful workers in the occupation must demonstrate or perform on an ongoing basis.  
        **APRT Example:** see adult patients in the clinic.
      - Task: a work activity that has a definite beginning and ending, is observable, consist of two or more definite steps, and leads to a product, service, or decision.  
        **APRT Example:** perform a patient history and physical examination.
Occupational (Job) Analysis Assumptions

2. Any occupation can be effectively described in terms of
   b. Knowledge, skills and traits (professional characteristics) needed to perform tasks.
      • Cognitive skills → Knowledge
         – Recall, application, analysis
         – Knowledge, comprehension, application, analysis, synthesis, evaluation
      • Psychomotor skills → technical skills → tasks and procedures
      • Affective skills → professional characteristics

**Competency:** the knowledge, skills and professional characteristics (traits or attitudes) needed to perform on the job.
Job Analysis Methods

**Small Group Method**
This method requires a minimum of three incumbent workers to participate in developing the job and task analysis.

**Research Method**
This method requires a person trained in task analysis to research available resources.

**Job Observation Method**
This method requires a worker who is performing the task and a person trained in job and task analysis to observe and analyze the task.

**Worker Survey**
NBRC job analysis
**Why use the DACUM Process?**

- **Method**
  - A panel of workers or experts in the job (7-11)
  - A neutral facilitator
  - A recorder
  - Observers
- **Identify duties and tasks needed to perform on the job**
  - Nominal group technique used.
- **Rate the resultant task list in terms of importance.**
- **Fast**
- **Cost effective**
- **Involves workers in a participatory process that recognizes their expertise**
## Participants:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carl A. Kaplan, MD</td>
<td>Professor of Internal Medicine, Section Chief, Pulmonary, Rush University Medical Center</td>
</tr>
<tr>
<td>David Bowton, MD, FCCP</td>
<td>Professor and Head, Section on CCM, Wake Forest Univ.-Baptist Medical Center, Winston Salem NC</td>
</tr>
<tr>
<td>Thomas M. Fuhrman, MD, FCCP</td>
<td>Prof of Anesthesiology, Chief Division of Neuroanesthesia, University of Miami</td>
</tr>
<tr>
<td>Robert Aranson, MD, FCCP</td>
<td>Pulmonologist &amp; Intensivist, Locum Tenens, Freeport, ME</td>
</tr>
<tr>
<td>Herbert Patrick, MD, FCCP</td>
<td>Intensivist, Pulmonary &amp; Critical Care, Kindred LTAC Hospitals, Philadelphia, PA and Hahnemann University Hospital, Philadelphia, PA</td>
</tr>
<tr>
<td>Kevin M. O’Neil, MD, FCCP</td>
<td>Pulmonary Clinic, Wilmington, NC</td>
</tr>
<tr>
<td>Robert A. Balk, MD, FCCP</td>
<td>Director of Pulmonary and Critical Care Medicine, Rush University Medical Center</td>
</tr>
</tbody>
</table>
DACUM

Participants:

• John K. McIlwaine, DO, FCCP  ICU Program Director, Geisenger Healthcare, Danville, PA
• Michael Morris, MD, FCCP  Staff, Clinical Investigation, Fort Sam, Houston, TX
• Shaheen U. Islam MBBS, FCCP  Training Program Director, Ohio State University, Columbus, OH
• Jay I. Peters, MD  Chief, Pulmonary and Critical Care Medicine, UTHSC
• Steven Q. Simpson, MD, FCCP  Pulmonary & CCM Training Program Director, University of Kansas, Kansas City, KS
• Mark Yoder, MD  Medical Director, Department of Respiratory Care, Rush University Medical Center

Facilitators:

David C. Shelledy, PhD, RRT, RPFT, FAARC, FASAHP
David L. Vines, MS, RRT, FAARC
Jonathan B. Waugh, PhD, RRT
Directions

List all tasks, procedures and competencies needed for training an advanced-practice respiratory therapist to function as a pulmonary physician assistant.

- Duty or Area: Tasks, Procedures and Competencies Needed to See Patients in the Clinic or Physicians Office.
  - 75 specific tasks, procedures or competencies identified.
- Duty or Area: Tasks, Procedures and Competencies Needed to See Adult Patients in the ICU.
  - 70 additional tasks, procedures or competencies identified.
- Duty or Area: Tasks, Procedures and Competencies Needed to See Adult Patients in the Hospital.
  - 18 additional tasks, procedures or competencies identified.

Total: 163 competencies identified
DACUM Exercise 2012

Tasks, procedures and competencies needed for training an advanced-practice respiratory therapist to function as a pulmonary/critical care physician’s assistant.

Please rate each task or procedure in terms of importance for the training and practice of an advanced level respiratory therapist in order for him or her to function as a pulmonary/critical care physician’s assistant. Please use the following scoring system:

5 = Very Important; 4 = Important; 3 = Neither Important or Unimportant; 2 = Unimportant; 1 = Very Unimportant

NOTE: Tasks, procedures and competencies are listed in the setting where they may be more likely to be performed, however, all competencies may be performed across all sites.
Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician’s Office:

1. Gather essential and accurate information about their patients. 5.00
2. Perform detailed pulmonary assessment. 5.00
3. Identify signs and symptoms of specific general medical and pulmonary condition conditions (see below). 5.00
4. Maintain respect, compassion, and integrity. 5.00
5. Demonstrate caring and respectful behaviors when interacting with patients and their families. 5.00
6. Develop and carry out patient management plans. 4.89
7. Assess history and physical exam. 4.89
8. Work effectively with physicians and other health care professionals to provide patient-centered care. 4.89
9. Evaluate and manage obstructive disorders (asthma, COPD). 4.89
10. Demonstrate sensitivity and responsiveness to patients’ culture, age, gender, and disabilities. 4.89
11. Use effective listening, nonverbal, explanatory, questioning, and writing skills to elicit and provide information. 4.89
12. Understand etiologies, risk factors, underlying pathologic process, and epidemiology for specific general medical and pulmonary condition conditions (see below). 4.78
13. Identify the appropriate site of care for presenting conditions, including identifying emergent cases and those requiring referral or admission. 4.78
14. Interpret ABG report. 4.78
15. Management of CPAP and BiPAP (sleep patient). 4.78
16. Assess patient with dyspnea. 4.78
17. Perform and interpret PFTs. 4.78
18. Demonstrate commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices. 4.78
19. Patient education for specific diseases. 4.78
20. Basic chest radiograph interpretation. 4.78
21. Demonstrate professional relationships with physician supervisors and other health care providers. 4.78
22. Appropriately adapt communication style and messages to the context of the individual patient interaction. 4.78
23. Appropriately use history and physical findings and diagnostic studies to formulate a differential diagnosis. 4.67
24. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment. 4.67
25. Select and interpret appropriate diagnostic or lab studies. 4.67
26. Teaching use of MDI, DPI, Nebulizers (all inhaled aerosol devices) 4.67
27. Interpret lab results. 4.67
28. Prescribe and manage home O2. 4.67
29. Partner with supervising physicians, health care managers and other health care providers to assess, coordinate, and improve the delivery of health care and patient outcomes.

30. Treat pulmonary infections (bronchitis, pneumonia).

31. Prescribe oxygen.

32. Create and sustain a therapeutic and ethically sound relationship with patients.

33. Demonstrate emotional resilience and stability, adaptability, flexibility and tolerance of ambiguity and anxiety.

34. Demonstrate accountability to patients, society, and the profession.

35. Demonstrate commitment to excellence and on-going professional development.

36. Differentiate between the normal and the abnormal in anatomic, physiological, laboratory findings and other diagnostic data.

37. Provide appropriate care to patients with specific chronic conditions.

38. Enter medical history in patient record.

39. Perform physical examination to identify sleep disorders.

40. Obtain detailed history for sleep disorders.

41. Obtain ABG samples.

42. Write and dictate progress notes, history, and physical examination results.

43. Interpret chest pain.

44. Apply and teach nebulizers.
45. Conduct smoking cessation interventions. 4.56
46. Manage bronchiectasis. 4.56
47. Prescribe and oversee pulmonary rehab. 4.56
48. Demonstrate responsiveness to the needs of patients and society. 4.56
49. Demonstrate self-reflection, critical curiosity and initiative. 4.56
50. Apply an understanding of human behavior. 4.56
51. Provide health care services and education aimed at preventing health problems or maintaining health. 4.56
52. Manage specific general medical and surgical conditions to include understanding the indications, contraindications, side effects, interactions and adverse reactions of pharmacologic agents and other relevant treatment modalities. 4.44
53. Counsel and educate patients and their families. 4.44
54. Prescribe (oral) antibiotics, bronchodilators, inhaled and systemic steroids. 4.44
55. Obtain allergy exposure and symptom history. 4.44
56. Interpret mixed acid-base disorders. 4.44
57. Perform and interpret 6-minute walk test. 4.44
58. Manage anticoagulation for PE and DVT. 4.44
59. Perform preoperative pulmonary evaluation. 4.44
60. Contribute to office function meetings (team player). 4.44
61. Change tracheotomy tubes. 4.44
62. Review homecare treatment plan. 4.44
63. Formulate homecare treatment plans. 4.44
64. Assess and document airway for planned procedures. 4.44
65. Recognize and appropriately address gender, cultural, cognitive, emotional and other biases; gaps in medical knowledge; and physical limitations in themselves and others. 4.44
66. Understanding of legal and regulatory requirements for provisional patient care. 4.44
67. Practice cost-effective health care and resource allocation that does not compromise quality of care. 4.44
68. Identify appropriate interventions for prevention of specific general medical and pulmonary conditions. 4.33
69. Interpret CTs, chest X-ray and imaging studies. 4.33
70. Perform outpatient consultation. 4.33
71. Complete O2 forms for home care companies. 4.33
72. Return patient calls with physician reviewed results. 4.33
73. Treatment of anaphylaxis. 4.33
74. Identify and manage drug interactions. 4.33
75. Code for outpatient billing (understand outpatient billing). 4.33
76. Palliative care. 4.33
77. Advocate for quality patient care and assist patients in dealing with system complexities. 4.33
Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician’s Office:

78. Provide palliative care. 4.22
79. Prep/assist bronchoscopy (patient). 4.22
80. Triage patient phones calls. 4.22
81. Assist with outpatient thoracentesis. 4.22
82. Utilize PACS for medical imaging. 4.22
83. Manage medications. 4.22
84. Monitor Moderate Sedation. 4.22
85. Placement and interpretation of PPD. 4.22
86. Administration of mild analgesia and sedation (topical, SC, oral, IM, IV) for bedside and office procedures. 4.22
87. Identify appropriate methods to detect specific general medical and pulmonary conditions in an asymptomatic individual. 4.11
88. Obtain patient consent for prior medical records. 4.11
89. Prescribe medications. 4.11
90. Basic enzyme interpretation. 4.11
91. Arrange inpatient admission. 4.11
92. Management of pulmonary hypertension (including meds). 4.11
93. Prepare the patient for seeing physician (interview, vital signs, oximetry, etc.). 4.11
94. Schedule bronchoscopy. 4.11
### Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician’s Office:

<table>
<thead>
<tr>
<th>Task</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtain advance directive documents and history.</td>
<td>95. 4.11</td>
</tr>
<tr>
<td>Evaluate equipment.</td>
<td>96. 4.11</td>
</tr>
<tr>
<td>Use the systems responsible for the appropriate payment of services.</td>
<td>97. 4.11</td>
</tr>
<tr>
<td>Analyze practice experience and perform practice-based improvement activities using a systematic methodology in concert with other members of the health care delivery team.</td>
<td>98. 4.11</td>
</tr>
<tr>
<td>Interpret EKG.</td>
<td>99. 4.00</td>
</tr>
<tr>
<td>Perform ECG.</td>
<td>100. 4.00</td>
</tr>
<tr>
<td>Perform pleural ultrasound.</td>
<td>101. 4.00</td>
</tr>
<tr>
<td>Manage the following specific medical and surgical conditions:</td>
<td>102. 4.00</td>
</tr>
<tr>
<td>a. COPD/emphysema/chronic bronchitis.</td>
<td>102. a. 5.00</td>
</tr>
<tr>
<td>b. ALI/ARDS.</td>
<td>102. b. 4.89</td>
</tr>
<tr>
<td>c. Pleural disease/pleural effusion.</td>
<td>102. c. 4.89</td>
</tr>
<tr>
<td>d. Tobacco addiction/dependence.</td>
<td>102. d. 4.89</td>
</tr>
<tr>
<td>e. Pneumothorax.</td>
<td>102. e. 4.89</td>
</tr>
<tr>
<td>f. Acute bronchitis.</td>
<td>102. f. 4.78</td>
</tr>
<tr>
<td>g. Bronchiectasis.</td>
<td>102. g. 4.78</td>
</tr>
<tr>
<td>h. Interstitial lung disease.</td>
<td>102. h. 4.78</td>
</tr>
<tr>
<td>i. Pulmonary embolus.</td>
<td>102. i. 4.78</td>
</tr>
<tr>
<td>j. Sleep disordered breathing.</td>
<td>102. j. 4.78</td>
</tr>
</tbody>
</table>
### Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician’s Office:

<table>
<thead>
<tr>
<th>Task/Condition</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>k. Interstitial pulmonary fibrosis (IPF).</td>
<td>4.67</td>
</tr>
<tr>
<td>l. Neuromuscular disease affecting respiration.</td>
<td>4.67</td>
</tr>
<tr>
<td>m. Postoperative care.</td>
<td>4.67</td>
</tr>
<tr>
<td>n. Preoperative care.</td>
<td>4.67</td>
</tr>
<tr>
<td>o. Upper respiratory tract infection.</td>
<td>4.67</td>
</tr>
<tr>
<td>p. Congestive heart failure.</td>
<td>4.56</td>
</tr>
<tr>
<td>q. Fluid and electrolyte disorders.</td>
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<tr>
<td>r. Sepsis.</td>
<td>4.56</td>
</tr>
<tr>
<td>s. Cystic fibrosis.</td>
<td>4.44</td>
</tr>
<tr>
<td>t. Hypovolemic shock.</td>
<td>4.44</td>
</tr>
<tr>
<td>u. Pulmonary hypertension.</td>
<td>4.44</td>
</tr>
<tr>
<td>v. Anaphylactic shock.</td>
<td>4.33</td>
</tr>
<tr>
<td>w. Sarcoidosis.</td>
<td>4.33</td>
</tr>
<tr>
<td>x. Septic shock.</td>
<td>4.33</td>
</tr>
<tr>
<td>y. Cardiogenic shock.</td>
<td>4.22</td>
</tr>
<tr>
<td>z. Chest trauma.</td>
<td>4.22</td>
</tr>
<tr>
<td>aa. Burns and smoke inhalation.</td>
<td>4.11</td>
</tr>
<tr>
<td>bb. Lung cancer.</td>
<td>4.11</td>
</tr>
<tr>
<td>cc. Pneumoconiosis.</td>
<td>4.11</td>
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</tbody>
</table>
Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician’s Office:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>dd</td>
<td>Hypersensitivity pneumonitis.</td>
</tr>
<tr>
<td>ee</td>
<td>Coronary artery disease.</td>
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<tr>
<td>ff</td>
<td>Drug overdose.</td>
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<tr>
<td>gg</td>
<td>Myocardial infarction.</td>
</tr>
<tr>
<td>hh</td>
<td>Fungal lung disease.</td>
</tr>
<tr>
<td>ii</td>
<td>Anemia.</td>
</tr>
<tr>
<td>jj</td>
<td>Obesity.</td>
</tr>
<tr>
<td>kk</td>
<td>Alcohol and drug abuse.</td>
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<tr>
<td>ll</td>
<td>Diabetes.</td>
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<tr>
<td>mm</td>
<td>Renal failure.</td>
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<tr>
<td>nn</td>
<td>Neurologic disease.</td>
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<tr>
<td>oo</td>
<td>Malnutrition.</td>
</tr>
<tr>
<td>pp</td>
<td>Leukopenia.</td>
</tr>
</tbody>
</table>

103. Locate, appraise, and integrate evidence from scientific studies related to their patients’ health problems. 3.89
104. Perform venopuncture. 3.89
105. Manage cystic fibrosis. 3.89
106. Provide Moderate Sedation for outpatient bedside office procedures. 3.89
107. Process bronchoscopy specimens. 3.89
<table>
<thead>
<tr>
<th>Task</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>108. Obtain and apply information about their own population of patients and the larger population from which their patients are drawn.</td>
<td>3.89</td>
</tr>
<tr>
<td>109. Interpret sputum and gram stains (C &amp; S).</td>
<td>3.78</td>
</tr>
<tr>
<td>110. Manage alpha 1 antitrypsin replacement.</td>
<td>3.78</td>
</tr>
<tr>
<td>111. Manage xolair administration (omalizumab).</td>
<td>3.78</td>
</tr>
<tr>
<td>112. Participate in funded clinical research (office-based research activities).</td>
<td>3.78</td>
</tr>
<tr>
<td>113. Administer vaccines.</td>
<td>3.78</td>
</tr>
<tr>
<td>114. Interact with vendors.</td>
<td>3.78</td>
</tr>
<tr>
<td>115. Understand the funding sources and payment systems that provide coverage for patient care.</td>
<td>3.67</td>
</tr>
<tr>
<td>116. Perform methacholine challenge test (bronchial challenge).</td>
<td>3.56</td>
</tr>
<tr>
<td>117. Perform outpatient thoracentesis.</td>
<td>3.56</td>
</tr>
<tr>
<td>118. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.</td>
<td>3.56</td>
</tr>
<tr>
<td>119. Perform and manage high altitude O2 test (HAST).</td>
<td>3.33</td>
</tr>
<tr>
<td>120. Manage WBC for patients on with chemo.</td>
<td>3.00</td>
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<tr>
<td>121. Perform allergy skin testing.</td>
<td>3.00</td>
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<tr>
<td>122. ECHO interpretation.</td>
<td>2.89</td>
</tr>
<tr>
<td>123. Perform/interpret stress test.</td>
<td>2.89</td>
</tr>
<tr>
<td>124. Participate in local Tumor Board.</td>
<td>2.56</td>
</tr>
<tr>
<td>Task</td>
<td>Score</td>
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<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>1. Manage uncomplicated mechanical ventilator patients.</td>
<td>4.89</td>
</tr>
<tr>
<td>2. Assess weanability (weaning readiness).</td>
<td>4.89</td>
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<tr>
<td>3. Measure and manage auto PEEP.</td>
<td>4.89</td>
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<tr>
<td>4. Prescribe and manage NIPPV.</td>
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<tr>
<td>5. Airway assessment, documentation and airway management, endotracheal tube placement and associated tasks.</td>
<td>4.78</td>
</tr>
<tr>
<td>6. Coordinate and communicate care plan with ICU team.</td>
<td>4.78</td>
</tr>
<tr>
<td>7. Manage acute cardiac emergencies (ACLS).</td>
<td>4.78</td>
</tr>
<tr>
<td>8. Ventilator Waveform Assessment and Interpretation.</td>
<td>4.78</td>
</tr>
<tr>
<td>9. JVP measurement.</td>
<td>4.78</td>
</tr>
<tr>
<td>10. Manage chest tubes.</td>
<td>4.67</td>
</tr>
<tr>
<td>11. Change trach tubes.</td>
<td>4.67</td>
</tr>
<tr>
<td>12. Prescribe nebulizer medication (including antibiotics).</td>
<td>4.67</td>
</tr>
<tr>
<td>13. Manage and remove chest tube.</td>
<td>4.67</td>
</tr>
<tr>
<td>14. Perform ETCO2 monitoring.</td>
<td>4.67</td>
</tr>
<tr>
<td>15. Perform inpatient history and physical examination.</td>
<td>4.67</td>
</tr>
<tr>
<td>16. Manage upper airway obstruction post extubation.</td>
<td>4.67</td>
</tr>
</tbody>
</table>
Tasks, Procedures and Competencies Needed to See Adult Patients in the ICU or ED

17. Initiate consults.  
18. Interact effectively with surgeons.  
19. A-line pulse pressure variation assessment and management.  
20. Competently perform specific medical and surgical procedures considered essential in the area of practice.  
22. Evaluate ER patient for admission.  
23. Manage and understand PA catheters.  
25. Capnography set up and interpretation.  
26. Assess hospital floor or Emergency Department patient for transfer and admission to ICU.  
27. Insert and manage arterial lines.  
28. Interpret and manage hemodynamics.  
29. Perform extubation.  
30. Participate with percutaneous trachs.  
31. Manage post op ICU patients.  
32. Access and display digital radiographs.
33. Participate in rapid response team. 4.44

34. Manage complicated (complex) ventilator patients. 4.44

35. Intubate patients. 4.33

36. Perform LMA. 4.33

37. Apply and teach personal protective devices. 4.33

38. Participate in ICU quality improvement. 4.33

39. Access and manage undifferentiated hypotension and shock states. 4.33

40. Diagnose and treat sepsis. 4.33

41. Prescribe and administer diuretics. 4.22

42. Assist with thoracentesis. 4.22

43. Assist with bedside bronchoscopy. 4.22

44. Perform airway exchange catheter. 4.22

45. Prescribe and manage commonly used sedatives and analgesics. 4.22

46. Perform inpatient consults. 4.22

47. Prescribe heliox. 4.22

48. Titrate inhale NO. 4.22

49. Perform thoracentesis. 4.11
<table>
<thead>
<tr>
<th>Task</th>
<th>Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>50. Titrate vasopressors and inotropes.</td>
<td>4.11</td>
</tr>
<tr>
<td>51. Perform BAL (combi-cath mini-BAL).</td>
<td>4.11</td>
</tr>
<tr>
<td>52. Obtain advance directives.</td>
<td>4.11</td>
</tr>
<tr>
<td>53. Perform palliative care.</td>
<td>4.11</td>
</tr>
<tr>
<td>54. Conduct ICU discharge planning.</td>
<td>4.11</td>
</tr>
<tr>
<td>55. Serve as consultant to nurse managers.</td>
<td>4.11</td>
</tr>
<tr>
<td>56. Esophageal intubation, nasal or oral for GI decompression, monitoring, enteral feeds and medication, or NAVA mechanical ventilation.</td>
<td>4.11</td>
</tr>
<tr>
<td>57. Place chest tubes.</td>
<td>4.00</td>
</tr>
<tr>
<td>58. Apply and interpret PPD.</td>
<td>4.00</td>
</tr>
<tr>
<td>59. Prescribe and manage IV antibiotics.</td>
<td>4.00</td>
</tr>
<tr>
<td>60. Admin / mange conscious sedation.</td>
<td>4.00</td>
</tr>
<tr>
<td>61. ICU Infection Control and Q.A. Review and management, i.e. LOS, DOV</td>
<td>4.00</td>
</tr>
<tr>
<td>62. Insert central lines.</td>
<td>3.89</td>
</tr>
<tr>
<td>63. Setup transducers.</td>
<td>3.89</td>
</tr>
<tr>
<td>64. Manage nutritional support.</td>
<td>3.89</td>
</tr>
<tr>
<td>Task</td>
<td>Competency Score</td>
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<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>65. Remove invasive catheters, and chest drains, aortic balloon pump catheters.</td>
<td>3.89</td>
</tr>
<tr>
<td>66. ICU team leader and team coordinator, define patient care pathway, identify daily patient goals and orders, including fluids, diuretics, enteral feeds, occupational and physical therapy, daily labs including laboratory and radiology.</td>
<td>3.89</td>
</tr>
<tr>
<td>67. Remove pulmonary artery catheter.</td>
<td>3.78</td>
</tr>
<tr>
<td>68. Serve as a research manager/coordinator.</td>
<td>3.78</td>
</tr>
<tr>
<td>69. Insert Heimlech valves.</td>
<td>3.78</td>
</tr>
<tr>
<td>70. Evaluate an acute painful and or tender abdomen.</td>
<td>3.78</td>
</tr>
<tr>
<td>71. Mange diabetic keto-acidosis.</td>
<td>3.67</td>
</tr>
<tr>
<td>72. Image acquisition and image interpretation of General Critical Care Ultrasound, including Lung, Pleural, Abdomen, and Vessels (diagnostic and procedural; i.e. DVT assessment, vascular access, a-lines placement) consistent with CHEST journal April 2009 Statement of Competencies. This includes report generation and image storing.</td>
<td>3.67</td>
</tr>
<tr>
<td>73. Lead multidisciplinary team rounds.</td>
<td>3.67</td>
</tr>
<tr>
<td>74. Perform thoracic abdominal ultrasound.</td>
<td>3.56</td>
</tr>
<tr>
<td>75. Image acquisition and image interpretation of Basic Critical Care Echocardiology, including report completion and image storage consistent with CHEST journal April 2009 Statement of Competencies.</td>
<td>3.56</td>
</tr>
</tbody>
</table>
76. Administer vaccines (pneumococ and flu).  
77. Treat elevated ICP.  
78. Perform metabolic studies.  
79. Perform therapeutic bronchoscopy.  
80. Prescribe/manage Flolan (prostaglandin).  
81. Assist with bedside Critical Care Transesophageal Echocardiology, including topical and parental analgesia and sedation.  
82. Perform transthoracic ECHO.  
83. Perform PIC line.  
84. Insert and manage bronchial blocker.  
85. Participate in closed pleural biopsy.  
86. Perform pleurodesis.  
87. Foley urinary catheter placement and monitoring.  
88. Rectal tube placement and monitoring.
<table>
<thead>
<tr>
<th></th>
<th>Tasks, Procedures and Competencies Needed to See Adult Patients in the Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Work effectively with physicians and other health care professionals as a member a health care team or other professional group.</td>
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<tr>
<td>2.</td>
<td>Accept responsibility for promoting a safe environment for patient care and recognizing and correcting systems-based factors that negatively impact patient care.</td>
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<td>3.</td>
<td>Apply information technology to manage information, access on-line medical information, and support their own education.</td>
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<td>4.</td>
<td>Tasks as above for ICU patients when performed in the ED or other hospital floors and units.</td>
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<td>5.</td>
<td>Change trach tubes.</td>
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<td>6.</td>
<td>Assess patient for sleep apnea.</td>
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<td>7.</td>
<td>Apply medical information and clinical data systems to provide more effective, efficient patient care.</td>
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<tr>
<td>8.</td>
<td>Order and interpret labs.</td>
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<td>9.</td>
<td>Effectively interact with different types of medical practice and delivery systems.</td>
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<td>10.</td>
<td>Admit patient.</td>
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<td>11.</td>
<td>Palliative care.</td>
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<td>12.</td>
<td>ED triage to appropriate level of care.</td>
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<tr>
<td>Task</td>
<td>Score</td>
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<tr>
<td>14. Use information technology to support patient care decisions and patient education.</td>
<td>4.44</td>
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<td>15. Discharge patient.</td>
<td>4.33</td>
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<td>16. Participate in selected transport.</td>
<td>4.33</td>
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<td>17. Provide family interaction and updates.</td>
<td>4.33</td>
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<tr>
<td>18. Facilitate the learning of students and/or other health care professionals.</td>
<td>4.33</td>
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<tr>
<td>19. Interpret nocturnal oximetry.</td>
<td>4.33</td>
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<td>20. Obtain advance directives.</td>
<td>4.22</td>
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<tr>
<td>21. Interact with transplant team.</td>
<td>4.22</td>
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<tr>
<td>22. Discharge planning.</td>
<td>4.22</td>
</tr>
<tr>
<td>23. Provide staff education.</td>
<td>4.22</td>
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<tr>
<td>24. Return family calls.</td>
<td>4.11</td>
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<tr>
<td>25. Insert PICC lines.</td>
<td>3.33</td>
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<tr>
<td>26. Pronouncement of death.</td>
<td>3.22</td>
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</tbody>
</table>
Summary Competencies Needed by the APRT

- Patient Assessment
  - Perform history and physical
  - Order and evaluate laboratory testing (includes cardiopulmonary testing)
  - Order and evaluate imaging studies
- Develop and carry out patient management plans (care plans)
  - Treat patients in the acute care setting (pneumonia, respiratory failure)
  - Treat patients in the ambulatory care setting (asthma, COPD)
  - Provide chronic disease management (cystic fibrosis, asthma, CHF, COPD)
- Perform specific tasks and procedures (lines, airway, tests, consults)
- Professional characteristics
  - Professionalism
  - Communication skills
  - Interprofessional practice
- Practice management (calls, billing, office functions)
Next Steps

• Group competencies by course:
  – Theory courses needed
  – Clinical rotations needed

• Develop course descriptions, credits and sequencing

• Develop course syllabi and units of instruction
  • Course outline
  • Units:
    – Overview
    – Learning objectives
    – Learning activities
    – Evaluation
Challenges

• Developing the curriculum is the easy part.

• Major hurdles remain:
  – Certification of competency?
    • NBRC
    • Other
  – Licensure?
    • Respiratory Care Act modification?
    • Medical Practice Act modification?
    • Physician allies and support?
  – Who will pay?
    • Medicare
    • Private insurance
What needs to be done?

• More BS Respiratory Care programs
• Many more Master’s degree respiratory care programs
  – Current BS programs should “flip” to MS degree in RC
  – Entry level masters
  – Advanced masters for leadership in management, education, research and clinical practice
  – Advanced Practice Respiratory Therapist Programs (APRT)
• Develop standards for APRT programs
• Develop credentialing and licensure options for APRTs
• Development payment options for APRTs
• Many more respiratory therapists pursuing graduate level education (masters and doctoral)
  – MS Respiratory Care
  – PhD Health Sciences, Physiology, Public Health, Management, Education
Upon conclusion of this presentation, you will be able to:

1. Describe the evolution of the health professions and the development of the mid-level provider in nursing and allied health.
2. Understand the need for Master’s degree educational programs in respiratory care.
3. Explain the roles and associated competencies needed by an advanced practice respiratory therapist (APRT) to function as mid-level provider (pulmonary physician assistant).