Spotlight Article

Carlow University, Pittsburgh, Pennsylvania
Respiratory Care Program
By Michael Mehall, MEd, BSRT, CPFT, RRT-NPS, RRT-ACCS
Respiratory Care Program Director

Introduction to Carlow University - A Strong Mercy Heritage

Carlow University is a private, co-educational, Catholic University located in the heart of Pittsburgh Pennsylvania’s “Eds, Meds, and Tech” district. Founded by the Sisters of Mercy in 1929, Carlow University has prepared its students for leadership and compassionate service in
their professional and personal lives. Guided by creativity, courage, and values of the Sisters of Mercy, Carlow boasts a successful model of integrating its historic mission with energy, spirit, and vitality as it moves into the future. Carlow graduates, curriculum, and partnerships reflect its strong commitment to social justice; ethical, forward thinking, and responsible leadership; and service to the community that has a meaningful impact.

**Mission**

*Carlow University, rooted in its Catholic identity and embodying the heritage and values of the Sisters of Mercy, offers transformational educational opportunities for a diverse community of learners and empowers them to excel in their chosen work as compassionate, responsible leaders in the creation of a just and merciful world.*

**Vision**

*Carlow University will be a preeminent, innovative, Catholic university, renowned for providing transformational learning experiences in which students realize their full potential and become career-ready ethical leaders committed to a just and merciful world.*
Carlow University: A Small School for BIG Thinkers

Our student-centered culture and passionate commitment to providing a transformational education are just a few of the reasons why students and families from Pennsylvania and around the world choose us year after year. At Carlow, the “right answer” is only part of the equation. Learning how to shape questions, how to tackle deep-seated problems, and how to affect change is always part of the bigger picture.

Despite Carlow’s smaller size, it boasts numerous career pathways and opportunities for interested students. With more than 50 undergraduate majors, we offer a wide variety of programs concentrations, certifications, and accelerated programs that spark curiosity into real-world skills that make a difference.

We work hard to foster intellectual and emotional growth of students both inside and outside the classroom. To make all this possible, we invest in small classrooms, passionate teachers, and a supportive learning environment that allows for flexibility and self-discovery because knowledge is gained not only through formal instruction but also through experience, collaboration, conversation, and reflection.

The passionate commitment by Carlow University to providing an exceptional education has gained national recognition for affordability and employability. In 2014, Carlow University cracked the top 20 private colleges and top 100 overall on Washington’s Monthly’s Annual ranking of more than 1500 colleges and universities that provide the “best bang for the buck”. In 2015, a survey by Educate To Career which indexed more than 1200 colleges and universities, ranks Carlow University 69th in the nation in terms of helping its students improve their earnings and attain quality employment after graduation.
Commitment to Making a Difference

Education can radically alter the trajectory of a person’s life. At Carlow University, Respiratory Care students can overcome obstacles and become leaders and role models for the next generation. But a university needs to be more than simply an employment agency, where students are matched with a career based on standardized tests. The students also need the freedom to find their own paths in this world. Through the dedication, passion, and commitment of the Carlow University Respiratory Care faculty, Carlow respiratory students are provided exceptional educational opportunities while promoting ethical values to enhance the navigation of challenging situations and address local and global concerns.

Historical Development

BSRC Traditional Program

The initiation and development of a new respiratory care program is a monumental task to pursue. There are numerous policies to create, budgets to develop, marketing to initiate, curriculum to design, and countless accreditation steps to bring a program to fruition. It was clear that the profession required an all-encompassing curriculum extending beyond the traditional associate degree educational level. In July 2014, Michael Mehall was hired as the Inaugural Program Director for the creation of the new bachelor’s respiratory care program. Mehall created a comprehensive plan and initiated its timely implementation. Following the establishment of the accreditation requirements, comprehensive curriculum, and completion of state of art respiratory care facilities; the program continued its progression by establishing its vast network of clinical partners many of which are world renowned for their medical accomplishments. The program then completed it’s CoARC site visit and received a glowing review with no recommendations or citations. The traditional on-ground program was granted Provisional Accreditation and was approved to begin admission of students. The program admitted its first cohort of respiratory care traditional students in the fall of 2015.

BSRC Online Degree Completion Program

In the summer of 2016, the respiratory care department began to explore the addition of a degree completion program for RRT credentialed practitioners. Numerous clinical partners voiced their desire for this option to promote enhancement of the profession and to improve employment skills/knowledge. The respiratory care online faculty developed a multilayered curriculum which targets enhancement of common respiratory knowledge and skills, and is delivered in an 100% online format. Enrollment of the online degree completion program was initiated in the fall of 2016.
Respiratory Care Department – Program Highlights

The respiratory care programs at Carlow University offer intense comprehensive respiratory platforms to deliver maximal educational outcomes for all its student’s. The traditional respiratory care program boasts a multi-layered plan to accumulate knowledge and skills in all areas of respiratory care medicine. The curriculums (indicated below) provide preparation through all educational levels from the simplest to the most complex within the profession. The programs educational training also targets coverage in atypical areas of practice including pulmonary diagnostics, neonatal and pediatric care, and critical care management.

BSRC Traditional Program - Goal

To prepare graduates with demonstrated competence in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains of respiratory care practice as performed by registered respiratory therapists (RRT’s). Upon successful completion of program the student will:

- **Cognitive:** Meet or exceed the minimum expectations of the National Board for Respiratory Care (NBRC) examinations for Registered Respiratory Therapists.
- **Psychomotor:** Demonstrate the technical proficiency to perform patient care in a clinical setting in accordance with American Association of Respiratory Care (AARC) clinical practice guidelines.
- **Affective:** Demonstrate professional behavior consistent with employer expectations as advanced level respiratory therapists.
## BSRT Traditional Program – Curriculum

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting to Carlow CTC 101</td>
<td>1</td>
<td>SKQ 100/101 – Quantitative Reasoning + lab</td>
<td>4</td>
</tr>
<tr>
<td>College Writing + lab SKW 100/101</td>
<td>4</td>
<td>Compass Core 2 – Contemplation and action</td>
<td>3</td>
</tr>
<tr>
<td>Compass Core 1 - critical exploration</td>
<td>3</td>
<td>BIO 207 – Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>Bio 157 – Contemporary Biology</td>
<td>4</td>
<td>RC 100 – Introduction to Respiratory Care Principals</td>
<td>3</td>
</tr>
<tr>
<td>CHM 105 – Principles of Chemistry + lab</td>
<td>4</td>
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</table>

**Total Credits 16**

### SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SKC – Communication - Personal to Professional + lab</td>
<td>4</td>
<td>RC 240 – Cardiopulmonary A &amp; P</td>
<td>3</td>
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<tr>
<td>RC 200 – Respiratory Care Equipment I</td>
<td>3</td>
<td>RC 201 – Respiratory Care Equipment II</td>
<td>3</td>
</tr>
<tr>
<td>RC 250 – Respiratory Care Equipment I Lab</td>
<td>1</td>
<td>RC 251 – Respiratory Care Equipment II Lab</td>
<td>1</td>
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<tr>
<td>RC 221 – Comprehensive Patient Management</td>
<td>3</td>
<td>RC 280 – Respiratory Pharmacology</td>
<td>3</td>
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<tr>
<td>BIO 207 – Anatomy and Physiology II</td>
<td>4</td>
<td>RC 290 – Respiratory Care in Alternative Settings</td>
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Compass Elective

**Total Credits 16**
BSRT Traditional Program – Curriculum

<table>
<thead>
<tr>
<th>JUNIOR YEAR</th>
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<tbody>
<tr>
<td>Fall Semester</td>
<td>Spring Semester</td>
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<tr>
<td>RC 3100 – Respiratory Care</td>
<td>RC 3200 – Respiratory Care</td>
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<tr>
<td>Clinical Education</td>
<td>Clinical Education</td>
</tr>
<tr>
<td>Practicum I *</td>
<td>Practicum II *</td>
</tr>
<tr>
<td>(5 credits)</td>
<td>(4 credits)</td>
</tr>
<tr>
<td>RC 335 - Cardiopulmonary</td>
<td>RC 355 – Mechanical</td>
</tr>
<tr>
<td>Diagnostic Processes</td>
<td>Ventilation Concepts I</td>
</tr>
<tr>
<td>(5 credits)</td>
<td>(3 credits)</td>
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<tr>
<td>RC 305 – Cardiopulmonary</td>
<td>RC 356 – Mechanical</td>
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<tr>
<td>Pathophysiology</td>
<td>Ventilation Concepts I Lab</td>
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<tr>
<td>(3 credits)</td>
<td>(1 credit)</td>
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<tr>
<td>MAT 110 – College Algebra</td>
<td>RC 321 – Advanced Patient</td>
</tr>
<tr>
<td>(3 credits)</td>
<td>Management</td>
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<tr>
<td>Compass elective</td>
<td>RC 380 – Neonatal and Pediatric</td>
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<tr>
<td>(3 credits)</td>
<td>Respiratory Care I</td>
</tr>
<tr>
<td></td>
<td>RC 381 – Neonatal and Pediatric</td>
</tr>
<tr>
<td></td>
<td>Respiratory Care I Lab</td>
</tr>
<tr>
<td></td>
<td>(3 credits)</td>
</tr>
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<td>Total Credits 15</td>
<td>Total Credits 15</td>
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</table>

<table>
<thead>
<tr>
<th>SENIOR YEAR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Semester</td>
<td>Spring Semester</td>
</tr>
<tr>
<td>RC 4100 – Respiratory Care</td>
<td>RC 4200 – Respiratory Care</td>
</tr>
<tr>
<td>Clinical Education</td>
<td>Clinical Education</td>
</tr>
<tr>
<td>Practicum III *</td>
<td>Practicum IV *</td>
</tr>
<tr>
<td>(4.5 credits)</td>
<td>(4.5 credits)</td>
</tr>
<tr>
<td>RC 455 – Mechanical Ventilation</td>
<td>RC 440 – Capstone</td>
</tr>
<tr>
<td>Concepts II</td>
<td>Comprehensive Credential</td>
</tr>
<tr>
<td>(3 credits)</td>
<td>Preparation</td>
</tr>
<tr>
<td>RC 456 – Mechanical Ventilation</td>
<td>RC 480 – ACLS/PALS/NALS and</td>
</tr>
<tr>
<td>II Lab</td>
<td>Respiratory Care Emergencies</td>
</tr>
<tr>
<td>(1 credit)</td>
<td>(3 credits)</td>
</tr>
<tr>
<td>RC 440 – Microbiology for</td>
<td>Compass elective</td>
</tr>
<tr>
<td>Respiratory Care</td>
<td>(3 credits)</td>
</tr>
<tr>
<td>PH 210 – Biomedical Ethics</td>
<td>Compass elective</td>
</tr>
<tr>
<td>(3 credits)</td>
<td>(3 credits)</td>
</tr>
<tr>
<td>Total Credits 14.5</td>
<td>Total Credits 16.5</td>
</tr>
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</table>

BSRC Online Degree Completion Program
The respiratory care department also offers a robust online degree completion curriculum designed to enhance the knowledge and skills of RRT credentialed respiratory professionals. The focus of the curriculum is to enhance an RRT’s existing skills and knowledge. The program
introduces new areas of respiratory medicine including enhanced respiratory theories and research / evidence based practice.

**BSRC Online Degree Completion Program – Goal**

The goal of the BSRC Degree Completion program is to provide a comprehensive affordable education to promote increased career opportunities for licensed respiratory care professionals.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Course number</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Ethics and Legal Principles in Respiratory Care</td>
<td>RC 107</td>
<td>3</td>
</tr>
<tr>
<td>Enhanced Theories in Respiratory Care</td>
<td>RC 117</td>
<td>3</td>
</tr>
<tr>
<td>Research and Evidence Based Practice in Respiratory Care</td>
<td>RC 127</td>
<td>3</td>
</tr>
<tr>
<td>Respiratory Care Practice in Acute and Alternative Settings</td>
<td>RC 207</td>
<td>3</td>
</tr>
<tr>
<td>Patient safety and quality improvement in Respiratory Care</td>
<td>RC 217</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Respiratory Care Pathophysiology</td>
<td>RC 227</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Respiratory Care Pharmacology</td>
<td>RC 307</td>
<td>3</td>
</tr>
<tr>
<td>Leadership and Management Issues in Respiratory Care</td>
<td>RC 317</td>
<td>3</td>
</tr>
<tr>
<td>Respiratory Care Education</td>
<td>RC 327</td>
<td>3</td>
</tr>
<tr>
<td>Capstone - Respiratory Care Project/Portfolio</td>
<td>RC 407</td>
<td>2</td>
</tr>
</tbody>
</table>

**Program Admission Requirements**

With the strong program curriculums, the respiratory care department has established success related program admission criteria while also providing opportunity for a large amount of qualified candidates. Following the Carlow University Mercy Values, the respiratory care program works diligently to provide opportunities for student inclusion and thus provides
manageable program admission criteria. Please find below the following admission criteria for both program tracks.

**Program admission criteria for the BSRC traditional program**

<table>
<thead>
<tr>
<th>All perspective applicants wishing to be considered for admission into the traditional respiratory care program must successfully complete the following minimum requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Submit a completed application for admission to Carlow University</td>
</tr>
<tr>
<td>▪ Successful admission to Carlow University</td>
</tr>
<tr>
<td>▪ Possess an overall high school G.P.A. of 2.5 or better (on a 4.0 scale)</td>
</tr>
<tr>
<td>▪ SAT score of 850 or higher; ACT of 18 or higher</td>
</tr>
<tr>
<td>▪ Submit transcripts from all post-secondary schools</td>
</tr>
</tbody>
</table>

*All students aspiring to enter the professional phase of the traditional program must also successfully complete: Clearances / Documentation, References, Professional RC Letter, Immunizations, CPR, Physical exam requirements.

**Program admission criteria for the BSRC online degree completion program**

<table>
<thead>
<tr>
<th>For admission consideration to the Respiratory Care Degree Completion the applicant must:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Possess an active RRT credential from the NBRC and submit evidence</td>
</tr>
<tr>
<td>▪ Possess an A.S. or A.A.S. degree from a CoARC accredited Respiratory Program</td>
</tr>
<tr>
<td>▪ Minimum GPA of 2.0</td>
</tr>
<tr>
<td>▪ Complete an application and be offered admission to Carlow university</td>
</tr>
<tr>
<td>▪ Submit transcripts from all post-secondary schools</td>
</tr>
</tbody>
</table>

**The Incredible Use of Technology in the Respiratory Care Programs**

The traditional Respiratory Care Program at Carlow University invested in numerous resources and built a state of the art respiratory care laboratory and simulation center. Packed with the latest technology in the profession, the lab contains 14 mechanical ventilators, 2 simulation stations, interactive SIM MAN and neonatal SIM BABY, and the astounding virtual dissection Anatomage table. The lab also contains 16 work stations each with vacuum, oxygen, air, computers, and wireless connectivity.
One of the most unique elements used in the respiratory care educational plan is the Anatomage virtual dissection table. This incredible learning tool utilizes the latest advances in the presentation of anatomically correct visual depictions of the human body. The device allows for 3-dimensional views which can be easily manipulated to be observed from any angle. The table also offers the ability to perform side by side differential anatomy comparisons. The respiratory care department finds the x-ray and CT scan visual imagery especially beneficial in the training provided within the program. The table is integrated into numerous courses within the program such as cardiopulmonary anatomy and physiology, cardiopulmonary disease, and critical care monitoring.
The strength of a program is largely dependent on a wide-ranging clinical education plan that corresponds to the delivery of the curriculum. In the design, the Program Director Mehall acquired numerous world class clinical affiliates while providing rotations to all areas of respiratory care medicine including critical care, neonatal/pediatrics, general patient care, emergency medicine, outpatient diagnostics, community education, and sleep medicine. All students in the program complete extensive didactic training followed by successful completion of numerous laboratory competencies. Upon completion of all the required proficiencies, the students are cleared to begin their clinical rotations.

The traditional respiratory care program at Carlow University provides students four clinical rotations (two in the junior year and two in the senior year) each lasting for 16 weeks. Students rotate through multiple areas of clinical practice to provide the all-inclusive experiential learning to promote career ready respiratory care professionals.

The respiratory care program has collaborated with thirteen clinical partners to establish a diverse clinical education platform for all its aspiring students. Carlow University is proud of its fabulous network of clinical partners who are committed to providing optimal experiences for the respiratory care students.

<table>
<thead>
<tr>
<th>Respiratory Care Clinical Affiliates</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPMC (University of Pittsburgh Medical Center) - Mercy Hospital</td>
</tr>
<tr>
<td>UPMC East</td>
</tr>
<tr>
<td>UPMC McKeesport</td>
</tr>
<tr>
<td>UPMC St. Margaret Hospital</td>
</tr>
<tr>
<td>UPMC Presbyterian Hospital</td>
</tr>
<tr>
<td>Excela Health System (Westmoreland Hospital)</td>
</tr>
<tr>
<td>Select Specialty Hospital</td>
</tr>
<tr>
<td>West Virginia University Hospital</td>
</tr>
<tr>
<td>Forbes Regional Hospital</td>
</tr>
<tr>
<td>Jefferson Regional Medical Center</td>
</tr>
<tr>
<td>Uniontown Hospital</td>
</tr>
<tr>
<td>St. Clair Hospital</td>
</tr>
<tr>
<td>Breathe Pennsylvania</td>
</tr>
</tbody>
</table>
Carlow University: Athletics

The mission of the Department of Athletics at Carlow University is to provide every student-athlete with a supportive environment that encourages leadership, integrity, responsibility, sportsmanship, and respect for others by promoting the balance between academic and athletic excellence. Despite its smaller size, Carlow has developed an impressive resume of scholar athlete programs including:

- Basketball (M) (W)
- Cross Country (M) (W)
- Soccer (M) (W)
- Softball (W)
- Tennis (W)
- Volleyball (W)
- Golf (M) (W)
- Track and Field (M) (W)

The scholar athletic programs provide numerous students including several respiratory care students the ability to participate in intercollegiate athletics. Zachary Talley – Golf, Basketball, Soccer - Sophomore Respiratory Care Student (see Below).
Respiratory Care Program – Community Outreach Partnerships

Giving back to the community is a core foundation principle for the respiratory care programs at Carlow University. Upon inception in 2015 it developed an articulation affiliation with Breathe Pennsylvania, a non-profit organization which delivers numerous community outreach events and activities to patients with pulmonary disease. Breathe Pennsylvania “provides vital, timely educational services for individuals living with lung disease.” As a progressive educational program based in mercy heritage, we are very thankful for the generous support through our local grant partner which has enabled us to expand the partnership to engage in the goal of helping others in the community.

To prepare respiratory care students to become effective contributors in community education and outreach activities, students receive intensive education and training regarding disease pathology, management, and interventions of pulmonary diseases. The students then integrate their acquired knowledge into the educational platform created by Breathe Pennsylvania. One of the most fruitful areas of the partnership is through Breathe Pennsylvania’s School Asthma Initiative (SAI) program. The SAI is a community-based education program that is aimed at enhancing the management of asthma in school aged children. Carlow University students play a vital role in this program and work with Breathe Pennsylvania directly in the schools to provide children with asthma education aimed at enhancing the understanding of their disease, as well as how asthma symptoms can be managed. Additionally, Breathe Pennsylvania offers an Asthma Day program annually that allows kids with asthma the opportunity to learn about their disease and participate in fun activities at places such as the Pittsburgh Zoo and PPG Aquarium and Kennywood Amusement Park. Carlow respiratory students have the opportunity to volunteer at this event and assist with the educational component of the program.
CPR Club: Carlow Practitioners for Respiratory Care

Carlow University respiratory students take great pride in their education and promotion of the field of respiratory care. In the spring of 2016, the first class of undergraduates consisted of thirteen passionate BSRC students and this group came together to develop the Carlow Practitioners for Respiratory (CPR) Care club. The students developed a mission statement, bylaws, annual agenda, and budget aimed at promoting further integration of the Carlow University and Respiratory Care Program values. Elections were initiated and the inaugural officers were selected to serve.

The purpose of the CPR club is to enhance the education of future respiratory therapists and promote a strong sense of community amongst the students. The club encourages student involvement in a variety of activities at Carlow University and around the community that support overall cardiopulmonary health, promote the field of respiratory care, and help members prepare for their future career. Through fundraisers, CPR members could raise money that enabled them to attend the Cambria-Somerset Council for Education of Health Professionals, 2017 Conference at the Slopes. This experience allowed students the opportunity to network with...
various respiratory care organizations, attend a variety of educational training sessions, and can learn about new equipment technologies that are available to aid in the care of patients with cardiopulmonary diseases.

Respiratory Care Faculty

**Michael Mehall, MEd, BSRT, CPFT, RRT-NPS, RRT-ACCS** is the Respiratory Care Program Chair/Director within the College of Health and Wellness at Carlow University. His primary areas of interest include advanced critical care concepts of mechanical ventilation, management of pathophysiological disorders in healthcare, and the comprehensive care of neonatal and pediatric patients. He obtained his Master’s Degree in Education with a concentration in Instructional and Curriculum Design from American Intercontinental University. Michael received his undergraduate Bachelor of Science Degree in Respiratory Therapy from Wheeling University where he graduated Magna Cum Laude with high honors.

Mehall has more than 23 years’ experience delivering respiratory medicine. Mehall possesses a wealth of knowledge regarding the accreditation processes/procedures and functions on numerous university committees at Carlow. He is known for displaying intense passion in his lectures and has more than 14 years’ experience as a Program Director in academia. The courses he teaches include critical care medicine, neonatal and pediatric care, mechanical ventilation principles, cardiopulmonary anatomy and physiology, pathophysiology, respiratory care equipment, introduction to respiratory care principles, respiratory care pharmacology and hemodynamics.

He has been become a pioneer in advancing respiratory care education within the profession. Carlow has received national recognition with his coauthoring of articles published by Advance Magazine for Respiratory and Sleep Medicine including “The Expanding Role of Respiratory Care Practitioners” and “Advancing the Respiratory Care Profession through Excellence in Education.” Additionally, in 2010 he published an article titled, “Preparation for taking the NBRC national examinations for respiratory therapy graduates” which defined a strategy for students to successfully navigate these complex examinations. In 2012, he authored the article “Assessment of the Critically Ill Patient” which presented a systematic strategy to effectively assess the complex ICU patient. Mehall also is member of the CoBGRTE’s new Institutional Member Council. Research and professional interests include integration of new technology into the classroom/educational environment and comprehensive knowledge of the accreditation processes within respiratory care.
Kimberly Haley, MEd, BSRT, RRT was appointed by Carlow University as the Respiratory Care Clinical Director in July of 2016. She graduated with a Master of Education in Curriculum Design with a focus on Career and Technical Education from Concordia University and completed her undergraduate Bachelor of Science degree in Respiratory Therapy from Indiana University of Pennsylvania/Western Pennsylvania Hospital School of Respiratory Care.

Haley brings significant experience as a clinical director and more than 10 years of experience in respiratory academia. She excels in integration of technology into the classroom setting, as well as in the development of online course development. She has taught numerous respiratory care courses including pharmacology, respiratory equipment, patient management, and mechanical ventilation.

Haley has received national recognition by coauthoring of articles published by Advance Magazine for Respiratory and Sleep Medicine including “The Expanding Role of Respiratory Care Practitioners” and “Advancing the Respiratory Care Profession through Excellence in Education.”

**Group Photo - Traditional Track Respiratory Care Students**

Sitting L-R: Camber Massung, Rachel Navarro, Caroline Sieber, Maranda Weekley, Emily Arbutina, Nicolia Rouser, Amy Reehl; Kneeling L-R: Laichelle Fuller, Morgan Lipinski, Alicia Howard, Victoria McFarlane, Jennifer Bartel, Marshayla Davis, Amber Keffer, Ashley Westoven; Standing L-R – Clinical Director Kimberly Haley, Kellie Mendicino, Raven Burrell, Amanda Potanko, Elizabeth Stadelman, Kassidy Dickson, Octavia Jones, Alex Kinslow, Zachary Talley, Tyler Wrobleski, Program Director Michael Mehall.
Outlook – Conclusion

The professional landscape of respiratory medicine continues to evolve and change largely through the contributions provided by dedicated respiratory clinicians and passionate educators. As a profession, respiratory medicine must continue to develop and refine its strategies to promote optimal patient outcomes. As responsible respiratory professionals and community members, we believe that it is not only vitally important to provide a comprehensive education but it is also our responsibility to do so to promote a just and merciful world. We are excited at the challenge and embrace the opportunity to favorably enhance the lives of many young dedicated men and women who have made the commitment to pursue this noble profession.

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Email: mmehall@carlow.edu

Professional Positions Posted at http://www.cobgrte.org/professionalpositions.html
The presence of sleep disorders often go overlooked or ignored by both patients and healthcare providers and, therefore, are left undiagnosed and untreated. This results in rising economic costs to society due to the lost productivity and accidents, as well as increased health care costs associated with the impact of the sleep disorders themselves and the impact to other health problems. We must recognize and pay attention to these financial and health-related consequences and actively work to reduce them. Although awareness of sleep disorders has increased over the years, much more is needed to improve the recognition and overall management of sleep disorders. With increased education and training, ongoing research of diagnosis tools and treatment options, and better collaboration among clinicians, the health care costs associated with sleep disorders can be reduced.

Realizing the Costs

The current edition of The International Classification of Sleep Disorders lists 74 sleep disorders that are divided into six main categories: Insomnia, Sleep Related Breathing Disorders, Central Disorders of Hypersomnolence, Circadian Rhythm Sleep-Wake Disorders, Parasomnias, and Sleep Related Movement Disorders. It is estimated that 70 million Americans experience sleep problems and 60% of them have a chronic disorder. These disorders can affect other diseases and disorders, complicating the medical care and management of patients. The National Center on Sleep Disorders Research, a division under the National Heart, Lung, and Blood Institute of the National Institutes of Health, reports that sleep disorders, sleepiness, and sleep deprivation add $15.9 billion a year to the cost of health care in the United States. These staggering estimates make proper diagnosis and treatment of sleep disorders of vital importance. The two most prevalent sleep disorders are insomnia and obstructive sleep apnea and the costs associated with them are no less daunting.

Insomnia

Insomnia affects approximately 10% of the American population, which equates to 25 to 30 million people. The annual costs for prescription, over the counter sleep aids, melatonin, and the use of alcohol have been reported to be $809.9 million. This does not include the indirect costs incurred due to the impact on health status, lost productivity, falls, and mortality. The main goals in treating insomnia are to improve one’s quality of sleep and daytime function and secondary goals are to lessen the risks of the associated biological comorbidities, psychiatric comorbidities and injuries from accidents. Medications are often used in the treatment of insomnia, however,
they come with their own set of risks. Cognitive behavior therapy for insomnia, commonly referred to as CBT-I, is recommended by leading health authorities and has been shown to have continued positive effects for up to three years. The most efficacious treatment will depend on the type of insomnia (acute vs chronic) and the patient. Annual costs for prescription treatment has been estimated to be between $380 and $600, while CBT-I was estimated to be approximately $420. Treatments need to be tailored to the patient and the resulting positive outcomes of successful treatment are believed to significantly reduce the indirect health care costs associated with insomnia. However, for this to happen, proper diagnosis is key.

**Obstructive Sleep Apnea**

Obstructive Sleep Apnea (OSA) is the most common sleep-related breathing disorder, affecting 3-7% of males and 2-5% of females in the general population. Awareness of this sleep disorder has grown over the last decade, yet continues to go undiagnosed and untreated. As in the case of insomnia, not treating this disorder affects health care costs. This is not surprising, given the associations of OSA to the increased risks of hypertension, pulmonary hypertension, cor pulmonale, cardiac arrhythmias, stroke, and sudden death. Undiagnosed OSA patients have been shown to have more hospital admissions and physician visits in the year prior to diagnosis compared to patients without OSA. One study reported that, during the year prior to diagnosis of OSA, the annual medical expenses per patient was $2720 compared to $1384 for those age and gender matched patients in the control group. Obesity is a well-documented risk factor of OSA. A study that evaluated the health care costs of obese patients with OSA and those of a matched control group over a two year period reported the OSA group spent 251 days in the hospital compared to the control group’s 90 days, the OSA group incurred $161,000 more in resources than the control group, and those in the OSA group averaged medical costs of $847 compared to $422 for those in the control group.

Common treatment for OSA in the adult population is positive airway pressure therapy (PAP). Although achieving adherence can sometimes present challenges, patients who are successfully treated with PAP have been shown to have considerably lower hospitalization risks and overall healthcare costs. In the pediatric population, a common treatment is tonsillectomy and adenoidectomy. This has been reported to reduce annual healthcare costs by a third compared to pediatric control groups with untreated OSA.

**Strategies to Lower Associated Healthcare Costs**

Awareness of the costs of untreated sleep disorders is the first step in developing concentrated strategies to lower them. The significant reduction in health care costs that results from treating these disorders has been repeatedly report. We can achieve this by improving education and training for early and accurate diagnosis and disorder management, continuing research efforts to better understand associated factors of diagnosis and treatment effectiveness and compliance, and encouraging communication and collaboration among the patients’ clinicians.
Improving Education and Training

Education on symptoms of possible sleep disorders needs to be increased to target current and future clinicians, as well as the public. Several doctors in our Sleep Center teach medical school students and pulmonary fellows aspects of pulmonary, critical care, and sleep medicine. The pulmonary fellows also see sleep patients alongside our sleep physicians to gain an understanding of patients’ presentations, symptoms, and responses to therapy. Additionally, the sleep lab manager is invited yearly to give sleep medicine lectures to the respiratory care students that highlight general signs and symptoms of sleep disorders and specific symptoms and treatments for the most common sleep disorders. This can be expanded to nursing students as well. This year the nursing program director asked if the lecture can be given to nursing students to increase awareness in this group of future clinicians.

Our sleep lab has tailored education offerings for our patients and their families in the form of a Sleep Apnea Support Group and a Narcolepsy Support Group. Beginning in January 2017, the sleep apnea group meets monthly and the narcolepsy group meets every other month. Each meeting has a speaker presenting a topic related to the specific sleep disorder, light refreshments are served, and all ages are invited. Furthermore, we target the general population by attending numerous health fairs where we hand out information on specific sleep disorders, provide patient screening tools, and answer questions. This calendar year we have already attended five and four more are planned for this calendar year.

Due to a long wait-time for a sleep consultation, we receive direct referrals from primary care physicians (PCPs) for sleep studies. At times, needed information is incomplete or missing. To help improve this, a packet was recently developed that includes screening tools and questionnaires to be used to recognize sleep problems and OSA, required information needed in the sleep study order, general criteria followed by most insurance companies that may dictate the type of study that will be covered, information to help them choose the correct study (including discerning between polysomnography and home sleep testing (which is a lower cost) and our contact information to call with questions. This will help save time on tracking down needed information, help insure the correct study is ordered, and subsequently, facilitate getting the patients diagnosed. Following the sleep studies, sleep physicians currently send the referring physicians a letter with recommendations for treatment. This helps expedite the patients’ treatment while they wait for a sleep consultation. It should be noted that additional sleep physicians and mid-level practitioners are being sought to improve access to the sleep consultations.

Researching Factors in Diagnosing and Treating

There are various treatment options for sleep disorders and understanding factors relating to treatment success and adherence is important for therapy outcomes. Remaining vigilant in reading research on these topics, conducting research of our own, and being conscience of
treatment trends are necessary to improve therapy efficacy in our patients. By the end of 2017, I’d like to collaborate with our sleep physicians have a study design in place to present to the IRB that would involve our sleep technologists, possibly in the use of oral appliances for treatment of OSA. These oral devices are still considered a “new” treatment option and, therefore, research is limited. This would also involve collaboration with the dentists in our healthcare system that offer this treatment.

**Encouraging Communication and Collaboration**

Sharing information and working together with patients’ healthcare providers will improve education, diagnosis, and treatment. I would plan to discuss with my medical director creating a task force of healthcare providers this summer. This task force would meet monthly or quarterly and include providers and representatives from Pulmonary, ENT, Allergy, Pediatric Pulmonary, Pediatric Behavioral, Dentistry, Pre-Surgical Testing, and Cardiology (to start). We could identify needed changes to our referral processes, improve overall collaboration to diagnose and treat our patients, and work together as a healthcare team.

**Conclusion**

The rising healthcare costs are a concern for patients, providers, employers, and insurance companies. Untreated sleep disorders and their associated comorbidities contribute to these costs. It is our responsibility to identify and address areas we can improve to reduce the costs in our specialty areas. Working together to share information, educate stakeholders, discuss research findings, perform research studies, and improve our process will help in diagnosing and treating patients effectively and help to reduce the costs untreated sleep disorders.

**REFERENCES**

2. The National Heart Lung and Blood Institute. The National Center on Sleep Disorders Research
CoBGRTE Scholarship Committee

Updates for Scholarship Application Process

By Nicholas Henry, MS, RRT-ACCS, RRT-NPS, AE-C

CoBGRTE Scholarship Chair

Since the beginning 2017, the CoBGRTE scholarship committee has been busy discussing and making changes to the scholarship application process after receiving feedback from students and Respiratory Therapists at the 2016 CoBGRTE Roundtable Discussion in San Antonio, TX. These changes have been made in hopes of increasing the number of scholarship applications and to promote research conducted by Respiratory Therapists. There are two categories for scholarships (merit and research) and applications will be accepted from August 1 with a due date of October 15 with notification of awards by December 1. If awarded, recipients of the scholarship will be required to submit a head/shoulder photo taken in a large file format for publication in The Coalition Chronicle.

CoBGRTE Merit Scholarship

The CoBGRTE Scholarship Committee plans to award eight $500 scholarships based on merit to student members enrolled in BSRT and MSRT programs. The application process has been modified to include a fillable application form that will be available for download from the CoBGRTE website and mirrors the scoring rubric used by the committee. Scholarship awards will be based on Academic Achievement, Service, Research Activities, and Awards/Honors.

Submission guidelines: Application materials are due to the Chair of the Scholarship Committee by October 15. Only complete applications will be considered. Applicants are required to submit the following:

1. Typed Application Form available for download from the CoBGRTE website Scholarship Page (coming soon)
2. Official transcript verifying GPA and current enrollment in a RT program
3. One page typed personal statement/essay describing your professional goals and interests related to the profession of Respiratory Care

CoBGRTE Research Scholarship

The profession of Respiratory Care is continually evolving and Respiratory Therapists must be involved in research to add to our scientific and medical knowledge. There are many opportunities for research performed by Respiratory Therapists such as disease management/education, evaluating new medical equipment, and current practices in regards to patient outcomes, cost containment and effectiveness of the therapy we provide to our patients. Respiratory Therapists with an advanced degree are in an ideal position to add to the knowledge base of Respiratory Therapy. To promote and support research performed by Respiratory Therapists, the CoBGRTE Scholarship Committee plans to award one $1000
scholarship to a CoBGRTE member enrolled in a graduate program (master’s or doctoral) who is conducting research.

**Submission guidelines:** Application materials are due to the Chair of the Scholarship Committee by October 15. Only complete applications will be considered. Applicants are required to submit the following:

1. Official transcript verifying GPA and current enrollment in a graduate program
2. Current professional resume
3. One page typed personal statement/essay describing your professional goals and interests related to the profession of Respiratory Care.
4. Research proposal including introduction/literature review, methods and literature citations
5. Letter from faculty advisor supporting the feasibility of the research proposal

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**Northeastern University MSRC Alumni in Seattle at Respiratory Care Society of Washington Annual Meeting**

L-R, Carl Hinkson, MS, RRT-ACCS, NPS, FAARC ’12; Michele Pedicone, MS, RRT-NPS ’15; Gary Wickman, MS, RRT, FAARC ’16; Toni Larson, MS, RRT, CPFT ’17
Round Table Discussion and “Gallery Walk”

**Date:** Sunday June 25th  
**Time:** 6:30PM-9:00PM  
**Location:** Catalina Barbecue Co. & Sports Bar Tucson, Arizona

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Join the Conversations with CoBGRTE

Please join our conversations while meeting a few new friends and colleagues. The Round Table dinner discussions have been instrumental in growing the community of educators, leaders and emerging practitioners interested in advancing the profession & practice of Respiratory Therapy. We tackle “B.I.G.” (bold, innovative, global) ideas to answer the challenges we face in our profession.

Using table topics, our discussions are focussed, deep and rich with ideas that build each year. This year, we will exercise a more fluidic approach called the “Gallery Walk”. We will utilize the patio outside, with the scenic backdrop, for a more casual experience. Table topic conversations will be lead by “Curators” and participants are able to flow from one conversation to another while engaging new people and ideas along the way. Participants will order appetizers, food & drink at their leisure and pay as you go.

As always, we will be mindful of the challenges our large group poses on the servers. This group has grown each year, from 20-30 participants up to 50-75 participants last year. Success! I hope to see you in Tucson and get to know you better.  

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RSVP HERE
CoBGRTE Summer Seminar

Join us during our Summer Seminar in conjunction with the AARC Summer Forum. The seminar participants will satisfy their hunger for delicious appetizers, textbook publishing standards, strategies for the flipped classroom, and technology for distance learning. The Coalition for Baccalaureate and Graduate Respiratory Therapy Education (CoBGRTE) is organized to help students, faculty members, and the public learn about baccalaureate and graduate respiratory therapy education in the United States.

Register for the Seminar:  CoBGRTE Summer Seminar Registration

Monday June 26th
5:00-6:00 “How to Publish a Textbook; The Industry Standards”
Speaker: Cathy Esperti Publisher Academic & Professional Group
Jones & Bartlett Learning
6:00-6:30 “Flipping the Classroom”
Speaker: Jennifer Anderson, EdD, RRT-NPS
Midwestern State University
6:30-7:00 “Technology & Distance Learning”
Speaker: Aaron Light, DHSc, RRT-ACCS
Ozarks Technical Community College
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26
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If you haven’t already decided to become a CoBGRTE member after visiting www.cobgrte.org, the following are 10 reasons why you should join the coalition.

**Ten Reasons Why You Should Become a CoBGRTE Member**

1. Award scholarships to baccalaureate and graduate respiratory therapy students.
2. Assist in the development of ASRT to BSRT Bridge Programs.
3. Collectively work towards the day when all respiratory therapists enter the profession with a baccalaureate or graduate degree in respiratory care.
4. Support a national association, representing the 60 colleges/universities awarding baccalaureate and graduate degrees in respiratory care, to move forward the recommendations of the third 2015 conference.
5. Help start new baccalaureate and graduate RT programs thus leading to a higher quality of respiratory therapist entering the workforce.
6. Work to change the image of the RT profession from technical-vocational-associate degree education to professional education at the baccalaureate and graduate degree level.
7. Join colleagues to collectively develop standards for baccalaureate and graduate respiratory therapist education.
8. Develop public relations programs to make potential students aware of baccalaureate and graduate respiratory therapist programs.
9. Help to publicize, among department directors/managers, the differences between respiratory therapists with associate, baccalaureate and graduate degrees.
10. Help to support maintaining a roster and web site for all baccalaureate and graduate respiratory therapist programs.

*Become a CoBGRTE member by completing the application on the Membership Page: http://www.cobgrte.org/membership.html*
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