2017-18 Respiratory Care Annual Assessment Report
Bachelor of Science Program (On Campus)

Mission, Objectives & Learning Outcomes

Oregon Tech Mission:

Oregon Institute of Technology, an Oregon public university, offers innovative and rigorous applied degree programs in the areas of engineering, engineering technologies, health technologies, management, and the arts and sciences. To foster student and graduate success, the university provides an intimate, hands-on learning environment, focusing on application of theory to practice. Oregon Tech offers statewide educational opportunities for the emerging needs of Oregonians and provides information and technical expertise to state, national and international constituents.

Core Theme 1:

Applied Degree Programs Oregon Tech offers innovative and rigorous applied degree programs. The teaching and learning model at Oregon Tech prepares students to apply the knowledge gained in the classroom to the workplace.

Core Theme 2:

Student and Graduate Success Oregon Tech foster student and graduate success by providing an intimate, hands-on learning environment, which focuses on application of theory to practice. The teaching and support services facilitate students' personal and academic development.

Core Theme 3:

Statewide Educational Opportunities Oregon Tech offers statewide educational opportunities for the emerging needs of Oregon's citizens. To accomplish this, Oregon Tech provides innovative and rigorous applied degree programs to students across the state of Oregon, including high-school programs, online degree programs, and partnership agreements with community colleges and universities.

Core Theme 4:

Public Service Oregon Tech will share information and technical expertise to state, national, and international constituents for Program Alignment to Oregon Tech Mission and Core Themes. The Respiratory Care Program aligns with the Oregon Institute of Technology Mission Statement and offers innovative as well as rigorous applied health technologies by, not only building professionals in a growing career, but leaders to support the profession for many years in the future. We foster student and graduate success as we provide an intimate, hands-on learning environment and experience that focuses on application of theory to practice through

didactic and lab courses that improves interfacing equipment and technologies each year. In line with Oregon Techs offering with statewide educational opportunities for the emerging needs of Oregonians health care, the Respiratory Care Program has been highly regarded by Oregon State Medical Centers and Hospitals by filling high employment needs that keep significantly growing with quality graduates.

Accreditation:

This is further evidenced by 100% employer and student satisfaction surveys mandated by the Commission Accreditation for Respiratory Care (CoARC) for several years in a row. What have slipped are the RRT and CRT exams that are administered by the National Board of Respiratory Care (NBRC) first time pass rates, where both were previously 100%. We now find the RRT exam currently at 83.3% and the CRT at 97.6% first time pass rates. We are actively pursuing actions to return to previous exam outcome levels.

We further meet the Core Themes of Applied Degree Programs by being one of two programs in the Northwest regions that offers a Bachelor of Science Degree in Respiratory Care. CoARC, as of January, 2017 will not recognized any new Associate Degree Programs in Respiratory Care showing a need for higher education within this profession. Lane Community College has closed its Respiratory Care Program as a partial result to these changes.

Our Student and Graduate Success rate has improved from a previous 86.7% to 92.9% on time graduation rate. Our attrition rate was previously 6.6% and has also improved to a current 5.1%. We, as faculty, recognize the hardship of family and work outside of academia and work to keep students that may not graduate with their cohort, but will eventually graduate within the 5-year allowed window within this program. We do place a 5-year limit to earn a Bachelor's Degree in Respiratory Care and revise curricular maps to assure graduation can be met by everyone who enters this program. Our students are involved in education as well as speaking or performing for the Oregon Society of Respiratory Care where practicing and student respiratory therapist converge each year for many CEU's and scholarship opportunities. Statewide educational opportunities are met at varying hospitals across the state for extern experiences and applications.

Our program continues to be involved in public service each year. One of our biggest contributions is to public school K through 12 education on asthma maintenance and smoking cessation and prevention. Another public outreach is our students being involved in non-invasive medical diagnostics and health screening through various sponsors including Sky Lakes Medical Center. We have been heavily involved in recruiting for our profession through seminars and city/county events as the job expectation growth is thought to almost double from 12% during the 2014-24 survey to the now current job growth expectations 23% 2016-26 as stated the Bureau of Labor and Statistics.

Advisory Board:

The Respiratory Care Program Advisory Board met with the Medical Director, Dr David Panossian and Advisory Board Chair, Kelly Angel, to assure that our program and student needs were being met. Two students from each cohort, sophomore, junior and seniors met together as well as faculty and various hospital managers to discuss on going changes for the best education for our students within the career field. Changes that were overseen by this committee in March of 2018 was to assure that International Neonatal was replaced by Advanced Pediatric Care. We also added a component of ACLS, PALS and BLS open to all of OIT students for credentialing while applying for job entry level positions, a credential that many employers are looking for prior to hiring. This board has also reviewed the transition of medical directors for the respiratory care program. Dr. David Panossian will be the outgoing medical director while Dr. Michael Bloomhardt will be the new incoming Medical Director for the Respiratory Care Program. We see this as advantage as this medical director has had previous experience in academia direction and currently works at a regional medical center where our students can greatly benefit from during their clinical rotations.

I. Introduction

This Respiratory Care Program is one of only two Bachelor Degree programs in the State of Oregon, Washington, Alaska, Hawaii, and California. This program was initially an associates degree program at Rogue Community College. The Respiratory Care Associate Program transitioned to Oregon Institute of Technology in September 2004 with 25 first year students enrolled. Since then, the Commission on Accreditation for Respiratory Care (CoARC) has allowed a maximum time before its next site visit, has found us to be within the top five performing Respiratory Care Program in the nation for several years now, and has found our board passing rate and employer satisfaction at an all time high.

Initially in this transition, the program was taught on both the Rogue Community College campus and the Klamath Falls campus of Oregon Tech over a period of six years. In the fall of 2009 Oregon Tech enrolled the first class of bachelor's degree students on campus and began phasing out the associates degree with the last class of its kind graduating in June of 2010. The Respiratory Care Program has now moved to the Klamath Falls campus entirely. The first graduates of the BS program were in March, 2012. As the program has changed since this period, so have the current curriculum evolving to stay competitive in an always changing health care.

II. Program Purpose, Objectives and Student Learning Outcomes

During the March, 2018 advisory board meeting, we continue to confirm the September 2016 goal of the program purpose, objectives and outcomes that were reviewed and affirmed, as described below.

"The purpose of the Respiratory Care Program, a Bachelor of Science Degree, is to provide excellence in education and clinical experiences. These standards are reviewed and approved by

the advisory board annually remains the current charter. Our next site visit by CoARC will be during the year 2021".

Respiratory Care Program Purpose

The purpose of the Respiratory Care Program, a Bachelor of Science Degree, is to provide for the regional needs for respiratory care practitioners prepared at an advanced level of a Registered Respiratory Therapist recognized by the National Board of Respiratory Care (NBRC). It is a unique opportunity to build leaders and educators to promote this profession to a higher standard of care within the healthcare industry.

Program Educational Objectives

- Graduates will demonstrate professional behaviors consistent with employer expectations as advanced-level respiratory therapists (affective domain).
- Graduates will demonstrate the ability to comprehend, apply, and evaluate clinical information relevant to their roles as advanced-level respiratory therapists (cognitive domain).
- Graduates will demonstrate technical proficiency in all the skills necessary to fulfill their roles as advanced-level respiratory therapists (psychomotor domain).

Expected Program Learning Outcomes

Students in the program will demonstrate:

1. The ability to communicate effectively in oral, written and visual forms.
2. Knowledge of the respiratory care code of ethics and ethical and professional conduct.
3. The ability to function effectively in the health care setting as a member of the healthcare team.
4. Knowledge and application of mechanical ventilation and therapeutics.
5. Knowledge and application of cardiopulmonary diagnosis and monitoring.
6. Knowledge and application of cardiopulmonary pharmacology and pathophysiology.
7. Management of respiratory care plans for adult, neonatal and pediatric patients.

III. Three-Year Cycle for Assessment of Student Learning Outcomes

The following table shows the three-year plan cycle for assessing individual student learning outcomes.

Student Learning Outcome	2015-16	2016-17	2017-18
1. The ability to communicate effectively in oral, written and visual forms.		●	

2. Knowledge of the respiratory care code of ethics and ethical and professional conduct.	●		
3. The ability to function effectively in the health care setting as a member of the healthcare team.	●		
4. Knowledge and application of mechanical ventilation and therapeutics.			●
5. Knowledge and application of cardiopulmonary diagnosis and monitoring.			●
6. Knowledge and application of cardiopulmonary pharmacology and pathophysiology.			●
7. Management of respiratory care plans for adult, neonatal and pediatric patients.		●	

Table 1. Respiratory Therapy Education Assessment Cycle.

IV. Summary of 2017-18 Assessment Activities

The respiratory care faculty met in Fall 2018, to discuss assessment for the academic year 2018-19 on Ethics. The Program Student Learning Outcomes (PSLO) for the year were discussed and multiple places where these are taught and measured in the curriculum were identified, as shown in Appendix A.

PSLO #4. Knowledge and application of mechanical ventilation and therapeutics.

Assessment #1

The faculty assessed this Spring term 2018 in RCP 353 Mechanical Ventilation III, using a rubric-graded lab practical examination. There were 11 junior level students involved in the assessment that was tested with oral and motor skills in a laboratory environment. This involved various ventilators with various goals to meet that are currently used in the industry around the nation. The below scale is what is used to grade this criteria.

Measurement Scale

Performance criteria Station 1 2 3 4	0= Does not pass. Fails to meet minimal requirement.	1= Does not pass all exam stations but passes some. Needs remediation then possible retest.	2= Passes with marginal results Student shows proficiency and mechanical ventilation.	3= Above average performance in both psychomotor and cognitive function. Demonstrates novice use.	4= Superior knowledge in both Student is able to perform each task independently. Competence.

Criteria and Results

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Rating Results	Overall Student Results
Calculation of initial settings using patients demographic of pathology, IBW, height, and actual weight. Then identifying poor lung mechanics, interpreting ABG's and adjusting for new settings using ARDSnet protocols.	Lab Final Skills Exam station one ventilator interfacing. The Avea ventilator.	(0-4) 0 = 59% and below 1 = 60-69% 2 = 70-79% 3= 80-89% 4 = 90-100%	A 70% pass rate for this station is required.	0 = 0 1 = 0 2 = 0 3 = 2 or 18% 4 = 9 or 82%	Total Students 11/11 100% Pass Rate
The ability to identify that the patient should be set up on a VDR4 ventilator with ABG's and poor lung mechanics. Then Demonstrate how to set up with initial settings and transition the patient to a VDR4 ventilator. Then the student must make the appropriate adjustments to the VDR4 in response to new ABG's and clinical condition.	Lab Final Skills Exam station two ventilator interfacing. Ventilator Avea and VDR4.	(0-4) 0 = 59% and below 1 = 60-69% 2 = 70-79% 3= 80-89% 4 = 90-100%	A 70% pass rate for this station is required.	0 = 0 1 = 0 2 = 0 3 = 2 or 18% 4 = 9 or 82%	Total Students 11/11 100% Pass Rate
Setup a patient for a transport. The student must calculate the proper Vt, RR, I-time, E-time, and flow based on patients' previous clinical condition. The student's settings are checked using a wright's respirometer.	Lab Final Skills Exam station three ventilator interfacing. Ventilator Venti Pac transport ventilator.	(0-4) 0 = 59% and below 1 = 60-69% 2 = 70-79% 3= 80-89% 4 = 90-100%	A 70% pass rate for this station is required.	0 = 0 1 = 0 2 = 0 3 = 0 4 =11 or 100%	Total Students 11/11 100% Pass Rate
Student must demonstrate the ability to correctly setup for an intubation considering the patient's clinical condition first and stabilizing a quickly deteriorating patient. Then, intubating and ventilating the mannequin correctly. The student is also tested orally and must explain what they are doing step by step including but not limited to technique, blade choice, and landmarks. Post intubation	Lab Final Skills Exam station four. Individually Intubating and Ventilating.	(0-4) 0 = 59% and below 1 = 60-69% 2 = 70-79% 3= 80-89% 4 = 90-100%	A 70% pass rate for this station is required.	0 = 0 1 = 0 2 = 0 3 = 0 4 =11 or 100%	Total Students 11/11 100% pass Rate

procedures and					

Figure 1. Students demonstrated knowledge and application of mechanical ventilation and
therapeutics through laboratory practicum with both motor skills and oral communication.
The overall threshold in each of the above-mentioned categories in table is with acceptable
pass rates. All but one student passed this exam on the first attempt and with varying degrees
mentioned below. With 11 students assessed, all were able to meet a rubric score of PSLO #4.
The students overall were able to meet a score of 2 (70%) out of a 0-4 rubric scale.

Program Observation: The faculty approach to remedial activities has helped improved the
results of 2010 that previously ranged from 67-73%. The range for acceptable performance
is 80-87% outcomes for 2012. This year the range is 80- 100% pass rate. Areas of opportunity
exist in the classroom, laboratory, and clinical environment.

Strengths: Students were able to demonstrate both psychomotor and cognitive skills during
the mechanical ventilator laboratory examinations. Students were able to initiate mechanical
ventilation with minor trouble shooting on all three ventilators that they were tested on. Most
students were able to demonstrate pathology report and initiate the ARDSnet protocol based
on clinical findings. The students were then able to initiate the proper lung protective strategies
paying particular attention to the patient lung mechanics including but limited to compliance,
resistance, and plateau pressures. Students did great articulating orally the procedures and
options of patient ventilator care. All students were able to physically stabilize the patient in
the scenario prior to intubation keeping in mind "stabilizing patient first, and patient safety" prior
to intubation procedures. They were then able to show the ability to properly confirm placement of
an endotracheal tube (ETT), stabilize the ETTube, and ventilate the patient according to the
American Heart Association guidelines. In summary, the student was able to treat the patient safely
and effectively for potentially improved quality of life.

Weakness: There were two areas but with minor weaknesses. This included transitioning the patient
to the VDR4. Most students time was spent on this station. I believe it is because this station is quite
detailed and is most challenging than the other accompanying lab stations. It is second station of the
exam. The exam is 1 hour long per student with one on one assessment. The second weakness
was memorizing all criteria for ARDSnet implementation but most did well in this area. Those who did
not memorize all were able implement the protocol in a safe timeline.

Action: Would be to lengthen exam time to 1.25 hours. This final exam in RCP 353 is the last class of
the sequence, and requires some advanced technique and advanced knowledge of the disease process
ARDS. Spending more time in Lab class practicing ARDSnet protocol to ensure the students feel
100% confident coming into the test will be implemented more so.

Other Program Activities: The respiratory faculty is devoted to community involvement. The faculty has been working on a program that will lead to future engagements with the underserved and poverty-stricken portion of our community that cannot afford these services. These activities will include pulmonary function testing and overall health screening. One faculty member whom is currently completing his master's degree through Oregon Tech is developing this project in relation to his Thesis. The approximate completion of the program should be summer 2019.

PSLO #5. Knowledge and application of cardiopulmonary diagnosis and monitoring.

Assessment #1

The faculty assessed this spring term 2018 in RCP 345 Cardiopulmonary Monitoring and Diagnostics, using a rubric-graded lab practical examination. There were 12 junior level students involved in the assessment that was tested with oral and motor skills in a laboratory environment. This included interacting with others in the community that involved pulmonary mechanics measurements through Pulmonary Functions Testing. The below scale is what is used to grade this criteria.

Grading Rubric

Criteria	0= Absent	1= Low Proficiency	2= Proficient	3= Novice	4=Competent	5= Highly Proficient
Calibration of the PFT machine	Missing or feeble attempt at the PFT calibration.	PFT calibration with obvious mistakes.	PFT calibration with subtle mistakes or few errors. An attempt adherence but is weak.	PFT calibration with obvious standards attempts.	PFT calibration done well with most lines on the dotted lines and one red number	PFT calibration met and exceeded all ATS standards with all lines on doted lines no red numbers
Three acceptable loops with peak flow peaks.	Missing or feeble attempt at the PFT.	PFT all the way through with obvious mistakes. No adherence to ATS standards.	PFT with subtle mistakes or few errors. Attempt to adherence to ATS standards but is weak.	PFT with obvious ATS standards attempts and gapes in the start of the loops.	PFT done well good peek on two of the three loops. ATS standards met	PFT met and exceeded all ATS standards. All loop have a peak and a perfect start of the test.
PFT Quality including adherence to ATS standards. All zeros on test	Missing or feeble attempt student does not know about error codes	PFT with obvious mistakes. No adherence to ATS standards.	PFT with subtle mistakes or few errors. An attempt adherence to ATS standards but is weak.	PFT with obvious ATS standards attempts. Did not F2 the bad loops	PFT done well. Three loops chosen not all zeros.	PFT met and exceeded all ATS standards all zeros no ones.
The student Knows FEV1 is upper airways	No FEV1 not done and not attempted	Demonstrates no understanding of FEV1 and how it relates to upper	Demonstrates little understanding of FEV1 and how it relates to upper	Demonstrates partial understanding of FEV1 and how it relates to upper	Demonstrates considerable understanding of FEV1 and how it relates to upper airways	Demonstrates complete understanding of FEV1 and how it relates to upper

		airways	airways	airways		airways
The student shows knowledge of FEF 25 to 75 lower airways	No response/task not attempted	Demonstrates no understanding of FEF 25 to 75 and how it relates to lower airways	Demonstrates little understanding of FEF 25 to 75 and how it relates to lower airways	Demonstrates partial understanding of FEF 25 to 75 and how it relates to lower airways	Demonstrates considerable understanding of FEF 25 to 75 and how it relates to lower airways.	Demonstrates complete understanding of running a FEF 25 to 75 test and how it relates to lower airways
Student knows FEV1/FVC % yes or no question	No response/task not attempted	Demonstrates no understanding of FEV1/FVC % yes or no question	Demonstrates little understanding of FEV1/FVC % yes or no question of COPD	Demonstrates partial understanding of FEV1/FVC % yes or no question of COPD.	Demonstrates considerable understanding of FEV1/FVC % yes or no question of COPD.	Demonstrates complete understanding of FEV1/FVC % yes or no question of COPD.
Student use TLC to prove air trapping patient case.	No TLC done and not mentioned	Demonstrates no understanding of TLC	Demonstrates little understanding of TLC.	Demonstrates partial understanding of TLC.	Demonstrates considerable understanding of TLC.	Demonstrates complete understanding of how to use TLC in PFT testing to prove or disprove air trapping.
Student use RV to prove air trapping patient case.	No response of RV not mentioned	Demonstrates no understanding of RV	Demonstrates little understanding of RV. Many requirements explaining air trapping are missing.	Demonstrates partial understanding of RV. Most requirements of understanding RV are included	Demonstrates considerable understanding of RV. All requirements of understanding RV are included.	Demonstrates complete understanding of RV. All requirements of explaining RV and air trapping are included
Student states DLCO results	No response of DLCO and not attempted	Demonstrates no understanding of DLCO	Demonstrates little understanding of DLCO. Many requirements of understanding DLCO are missing.	Demonstrates partial understanding DLCO. Most requirements of explaining DLCO are included	Demonstrates considerable understanding of DLCO. All requirements of explaining DLCO are included.	Demonstrates complete understanding of DLCO. All requirements of DLCO are included
Student reads general overview of PFT	No overview attempted	Demonstrates no understanding of a PFT overview	Demonstrates little understanding of how to present an overview of a PFT. Many requirements of explaining a PFT are missing.	Demonstrates partial understanding of an overview of a PFT. Most requirements of t explaining a PFT are included	Demonstrates considerable understanding of explaining a PFT. All requirements of explaining a PFT are included.	Demonstrates complete understanding of explaining a PFT. All requirements of explaining a PFT are included
Student picks best flow volume loop	No response not attempted	Demonstrates no understanding of how to pick the best peak flow	Demonstrates little understanding of the problem. Many requirements of task are missing.	Demonstrates partial understanding of the problem. Most requirements of task are included	Demonstrates considerable understanding of the problem. All requirements of task are included.	Demonstrates complete understanding of the problem. All requirements of task are included

Comments are precise and understandable	No comment response not attempted	Demonstrates no understanding of how to put in a comment	Demonstrates little understanding of including a comment. Many requirements of task are missing.	Demonstrates partial understanding of including a comment. Most requirements of the comment are included	Demonstrates considerable understanding of the comments. All requirements of the comments are included.	Demonstrates complete understanding of the included comment. All requirements of the comments are included

Table 2. Rubric scoring for a variety, yet thorough analysis of a patients lung mechanics that detects pulmonary diseases, or absence of.

Measurement Scale

0= Absent Either not present or failure to run any of the thirteen systems listed	1= Harmful, Safety Issues Does not pass exam but makes attempts with multiple flaws. Needs remediation and retesting.	2= Low Proficiency With marginal results with some on-going mistakes. Student shows earnest approaches with little coaching.	3= Proficient/Novice An average performance in both psychomotor and cognitive function. Demonstrates novice use of equipment and diagnostics.	4= Competent The student has knowledge in all methods of pulmonary testing. Student is able to perform each with confidence.	5= Highly Proficient Exhibits the highest of skills adhering to the guidelines set forth by exam expectations

Figure 2. Grading scale implemented by the instructor teaching this course.

Measurement Results

Criteria	Passing Rate	Scoring Results	Overall Cohort Outcomes
Calibration of the PFT machine	3 numerically represent 80% Pass Rate Expectation	0 = 1 or 1 = 0 2 = 0 3 = 3 or 4 = 2 or 5 = 5 or	Total Students 10/11 % Pass Rate
Three acceptable loops with peak flow peaks.	3 numerically represent 80% Pass Rate Expectation	0 =1 or 1 = 1 or 2 = 0 3 = 0 4 = 0 5 = 9 or	Total Students 9/11 % Pass Rate
PFT Quality including adherence to ATS	3 numerically represent 80% Pass	0 =1 or	Total Students

standards. All zeros on test	Rate Expectation	1 = 0 2 = 1 or 3 = 1 or 4 = 0 5 = 8 or	9/11 % Pass Rate
The student Knows FEV1 is upper airways	3 numerically represent 80% Pass Rate Expectation	0 =1 or 1 = 0 2 = 0 3 = 1 or 4 = 1 or 5 = 8 or	Total Students 10/11 % Pass Rate
The student shows knowledge of FEF 25 to 75 lower airways	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 0 2 = 0 3 = 0 4 = 2 or 18% 5 = 8 or 73%	Total Students 10/11 % Pass Rate
Student knows FEV1/FVC % yes or no question	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 0 2 = 0 3 = 0 4 = 3 or 27% 5 = 7 or 64%	Total Students 10/11 % Pass Rate
Student use TLC to prove air trapping patient case.	3 numerically represent 80% Pass Rate Expectation	0 =1 or 95 1 = 0 2 = 0 3 = 1 or 27% 4 = 2 or 18% 5 = 7 or 64%	Total Students 10/11 % Pass Rate
Student use RV to prove air trapping patient case.	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 0 2 = 0 3 = 0 4 = 2 or 18% 5 = 8 or 73%	Total Students 10/11 % Pass Rate
Student states DLCO results	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 0 2 = 1 or 9%	Total Students 9/11

		3 = 0 4 = 0 5 = 9 or 82%	% Pass Rate
Student reads general overview of PFT	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 0 2 = 0 3 = 1 or 9% 4 = 4 or 36% 5 = 5 or 46%	Total Students 10/11 % Pass Rate
Student picks best flow volume loop	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 1 or 9% 2 = 0 3 = 2 or 18% 4 = 3 or 27% 5 = 4 or 36%	Total Students 9/11 % Pass Rate
Comments are precise and understandable	3 numerically represent 80% Pass Rate Expectation	0 =1 or 9% 1 = 0 2 = 0 3 = 1 or 9% 4 = 1 or 9% 5 = 8 or 73%	Total Students 10/11 % Pass Rate

Table 3.

Program Observation and Assessment #1

Strengths:. The strength to this assessment was students had a multiple of testing to have a full overview of the equipment performance as well as patient studies in order to gain an impression and diagnosis of the subject. This included the Affective Domain as students had to use bedside manner in obtaining these test values for each subject. The Cognitive Domain was met by most students as they were able to compile the obtained information and form a clinical judgement of the patient's pulmonary status. The Psychomotor Domain was also met by most students as equipment needed to be calibrated for each use sensing daily fluctuations of ambient and barometric pressures each day. Further timing of maneuvers are important for valuable information to be obtained. Most students were able to effectively communicate to the various maneuvers and gather information making an accurate non-formal diagnosis of the patient's pulmonary status to the instructor. This will be a very important skill for the respiratory care

profession as each respiratory therapist will be expected to perform this task upon job entry level employment.

Weaknesses: One student added in this report was purposely absent for this exam. Another student did have some disabilities that may or may not have affected their performance. Besides these two outliers, the biggest area of needed improvements was calibration of sensitive equipment that requires precise motions and timing. Partly, this lab requires newer equipment that has been acquired currently, but not at the time of this PSLO measurement. These tests require three reproducible maneuvers, and to a minimal degree, some students had slight difficulty choosing the best one. It is not that they had a difficult time producing these results, just reporting the most accurate one as they are so closely related.

Actions: Current generation equipment obtained for easier calibration and equipment interfacing. Assure students can perform these exams fluently with each other prior to volunteer patients for better outcomes. Consider a different approach to substantiated disability students.

Update: Awaiting equipment install and education that should be done during the Fall term 2018 and to be ready by Spring term 2019 when this course is taught again.

Student Learning Summary: Most students were able to demonstrate a high level of the program learning outcomes by verbalization, written communication and demonstration. Our students were able to exhibit professionalism when working with volunteer patients for this exam. Students were able to show the ability to choose the correct exams and pick the best outcomes for each patient with slight challenges found to be within acceptable outcomes. One student, who was absent from this exam, is simply not available to add to these outcomes, whereas the other student who struggled does have confirmed disabilities where this exam may have been customized to meet the set criteria, yet meet the student needs in this area as well.

PSLO #6. Knowledge and application of cardiopulmonary pharmacology and pathophysiology.

Assessment #1

The faculty assessed this PSLO from the class, RCP 252 Cardiopulmonary Pharmacology during spring term 2018. This measurement included a final written didactic exam that included listing indications, contraindications, side effect and action potential for each medication. This exam was pointed at 120 points. There is brief explanation as to how certain drugs react with receptor sites and the anatomical barriers to consider as well as potential side effects. The fill in the blank question relates medication to etiology or indication of use. There are questions that detail seven frequently used drugs in respiratory care that are weighted fairly heavy in scores in this exam or 1/3rd of the grade. This final exam below are sample question that are asked on the exa

Final Exam Sample Questions

1. Please list the three major components of asthma: (3pts.)

   a.

   b.

   c.

2. Relenza is used for the treatment of _____ infection, but needs to be started within _____ days to be effective. (2pts.)

3. What is the mode of action with Pentamidine in combating PCP, How does this disease process present in the lungs? (3pts.)

4. **Mucomyst:** Please list device with the respective dose delivered. What will it innervate, and what are the desired therapeutic outcomes? How often is this drug administered and list at least one frequent side effect: (6pts.)

Figure 3. This exam was designed for the student to express their findings from the study material and text that recognize indications restraints of delivered medication through memorization and entrenching certain medications that are frequently used in the job arena. Another portion of the test was to complete the thoughts on more difficult, yet important material. The final exam results were distributed throughout the students in this course as follows:

Results Review

Students	Results	Passing Criteria	Grade
Student 1	102.5/120	70% Passing Requirement	85%
Student 2	98/120	70% Passing Requirement	82%
Student 3	96.5/120	70% Passing Requirement	80%
Student 4	118/120	70% Passing Requirement	98%
Student 4	101/120	70% Passing Requirement	84%

Student 6	72.5/120	70% Passing Requirement	60
Student 7	87/120	70% Passing Requirement	73%
Student 8	101/120	70% Passing Requirement	84%
Student 9	93/120	70% Passing Requirement	78%
Student 10	89.5/120	70% Passing Requirement	75%
Student 11	82.5/120	70% Passing Requirement	69%

Student 12	86.5/120	70% Passing Requirement	72%

Table 3. Course Observation: Is that out of 12 students, 83.3% of student passed this cumulative exam. for pulmonary pharmacology.

Strengths: The majority of students passed this challenging exam for the knowledge of pharmokinetics in respiratory care that is essential for job level entry success. Pharmacology medications is essential for treating the underlying cause to return a patient to baseline, and these students were able to exhibit understanding of these medications as well as the impact and side effects to look for as well and action needing to be taken to care for the patient appropriately.

Weaknesses: We had two students who failed this exam, one who has dropped the program, while the other continues with the current cohort. Other than the expectant challenge that this exam has to offer, it is lengthy with some highly weighted points in certain areas but realizing how important they are in the context of therapy demands a rigid point system.

Actions: Change the exam to multiple choice as it will be in-line with their National Board Exams in the near future. Give better points distribution.

Student Learning Summary: This outcome was based on a cumulative exam involving pharmacology knowledge as well as implementation. The average score was 78.3% among the class as a whole. 70% was the passing mark in which two students failed, one marginally at 69%. The outcomes had a fair result for program expectations though we would like to see this average at least at 83% or better in the future.

Appendix A-1
Student Learning Outcomes-Course Matrix
2017-2018

PSLO #4: Knowledge and application of mechanical ventilation and therapeutics.
Courses that are shaded below indicate that the PSLO above is taught in the course, students demonstrate skills or knowledge in the PSLO, and students receive feedback on their performance on the SLO.

I = Introduced   R = Reinforced   E = Emphasized

	Freshman			Sophomore			Junior			Senior		
FALL	BIO 231	Human A&P I		BIO 336	Essent Pathol		RCP 337	Pulm Path		RCP 441	Case Cred II	E
	CHE 101/4	Elem Chem		CHE 360	Clinical Pharm		RCP 351	MV I		RCP 450	Clin Care I	E
	MATH 111/243	Coll Alg/stats		RCP 100	Maticu		RCP 388	Adv. Neonatal	E			
	WRI 121	English Comp		RCP 231	Pulm Phys	I						
WN	BIO 232	Human A&P II		BIO 105	Micro		RCP 352	MV II	E	RCP 442	Case Cred III	E
	PSY 201/2/3	Psycholgy		RCP 235	Arterial Blood Gases	I	RCP 386	Crit Care I	E	RCP 451	Clin Care II	E
	HUM	ELEC		RCP 236	Cardio Pulm Dynam	I	RCP 389	Intern Neonatal Care				
	SOC SCI	ELEC		RCP 241	Gas Therap							
	WRI 122	English Comp										
SPR	BIO 200	Med Term		RCP 221	Intro. Pt. Assess	I	RCP 326	Disaster Prep		RCP 452	Clin Care III	E
	BIO 233	Human A&P III		RCP 223	Chest Radiogr		RCP 335	Exercise Phys/ed				

	SPE 111	Public Speaking		RCP 252	CP Pharm	E	RCP 345	CP Diagnosis	R			
	HUM	ELEC		RCP 336	Hyperinf Therapy		RCP 353	MV III				
	SOC SCI	ELEC		SPE 321	Grp/team Comm		RCP 387	Crit Care II				
SUM	COM 205	Intercult Commun					RCP 350	Intro to Clinical				
	MATH	ELEC					RCP 366	Clinical Sim	E			
	WRI 227	Technical Writing					RCP 440	Case man Cred I				
	HUM	ELEC										
	SOC SCI	ELEC										

Appendix A-2
Student Learning Outcomes-Course Matrix
2017-2019

PSLO#5. Knowledge and application of cardiopulmonary pharmacology and pathophysiology. Courses that are shaded below indicate that the PSLO above is taught in the course, students demonstrate skills or knowledge in the PSLO, and students receive feedback on their performance on the PSLO.

I = Introduced   R = Reinforced   E = Emphasized

Freshman			Sophomore			Junior			Senior			
FALL	BIO 231	Human A&P I		BIO 336	Essent Pathol		RCP 337	Pulm Path		RCP 441	Case Cred II	E
	CHE 101/4	Elem Chem		CHE 360	Clinical Pharm		RCP 351	MV I		RCP 450	Clin Care I	E

	MATH 111/243	Coll Alg/stats	RCP 100	Maticu		RCP 388	Adv. Neonatal	E			
	WRI 121	English Comp	RCP 231	Pulm Phys	I						
WN	BIO 232	Human A&P II	BIO 105	Micro		RCP 352	MV II	E	RCP 442	Case Cred III	E
	PSY 201/2/3	Psycholgy	RCP 235	Arterial Blood Gases	I	RCP 386	Crit Care I	E	RCP 451	Clin Care II	E
	HUM	ELEC	RCP 236	Cardio Pulm Dynam	I	RCP 389	Intern Neonatal Care				
	SOC SCI	ELEC	RCP 241	Gas Therap							
	WRI 122	English Comp									
SPR	BIO 200	Med Term	RCP 221	Intro. Pt. Assess	I	RCP 326	Disaster Prep		RCP 452	Clin Care III	E
	BIO 233	Human A&P III	RCP 223	Chest Radiogr		RCP 335	Exercise Phys/ed				
	SPE 111	Public Speaking	RCP 252	CP Pharm		RCP 345	CP Diagnosis	R			
	HUM	ELEC	RCP 336	Hyperinf Therapy		RCP 353	MV III				
	SOC SCI	ELEC	SPE 321	Grp/team Comm		RCP 387	Crit Care II				
SUM	COM 205	Intercult Commun				RCP 350	Intro to Clinical				
	MATH	ELEC				RCP 366	Clinical Sim	E			
	WRI 227	Technical Writing				RCP 440	Case man Cred I				
	HUM	ELEC									
	SOC SCI	ELEC									

Appendix A-3
Student Learning Outcomes-Course Matrix
2017-2019

PSLO#6. Knowledge and application of cardiopulmonary pharmacology and pathophysiology. Courses that are shaded below indicate that the PSLO above is taught in the course, students demonstrate skills or knowledge in the PSLO, and students receive feedback on their performance on the PSLO.

I = Introduced   R = Reinforced   E = Emphasized

	Freshman		Sophomore			Junior			Senior		
FALL	BIO 231	Human A&P I	BIO 336	Essent Pathol		RCP 337	Pulm Path		RCP 441	Case Cred II	E
	CHE 101/4	Elem Chem	CHE 360	Clinical Pharm		RCP 351	MV I		RCP 450	Clin Care I	E
	MATH 111/243	Coll Alg/stats	RCP 100	Maticu		RCP 388	Adv. Neonatal	E			
	WRI 121	English Comp	RCP 231	Pulm Phys	I						
WN	BIO 232	Human A&P II	BIO 105	Micro		RCP 352	MV II	E	RCP 442	Case Cred III	E
	PSY 201/2/3	Psycholgy	RCP 235	Arterial Blood Gases	I	RCP 386	Crit Care I	E	RCP 451	Clin Care II	E
	HUM	ELEC	RCP 236	Cardio Pulm Dynam	I	RCP 389	Intern Neonatal Care				
	SOC SCI	ELEC	RCP 241	Gas Therap							
	WRI 122	English Comp									
SPR	BIO 200	Med Term	RCP 221	Intro. Pt. Assess	I	RCP 326	Disaster Prep		RCP 452	Clin Care III	E
	BIO 233	Human A&P III	RCP 223	Chest Radiogr		RCP 335	Exercise Phys/ed				
	SPE 111	Public Speaking	RCP 252	CP Pharm		RCP 345	CP Diagnosis	R			
	HUM	ELEC	RCP 336	Hyperinf Therapy		RCP 353	MV III				
	SOC SCI	ELEC	SPE 321	Grp/team Comm		RCP 387	Crit Care II				
SUM	COM 205	Intercult Commun				RCP 350	Intro to Clinical				
	MATH	ELEC				RCP 366	Clinical Sim	E			

	WRI 227	Technical Writing				RCP 440	Case man Cred I				
	HUM	ELEC									
	SOC SCI	ELEC									