
Master's Thesis

Pulmonary rehabilitation

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Abstract: Over many decades, several organizations like the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR), American Association for Respiratory Care (AARC), American College of Chest Physicians (ACCP), American Thoracic Society (ATS), and European Respiratory Society (ERS) have championed and have developed comprehensive statements and evidence-based practice guidelines for Pulmonary Rehabilitation. The pulmonary rehabilitation program has been defined as a coordinated action of a multidisciplinary healthcare team delivering an individualized rehabilitation program to best effect incorporated modalities such as advice on smoking cessation, exercise training, patient self-management, and disease education among other topics. The physical training helps reduce muscle deconditioning and improves the quality of life by combining the exercise training with resistance and endurance training at least three times per week. Patients with chronic obstructive pulmonary disease (COPD) would benefit from this type of program. COPD can be characterized by breathlessness, frequent cough, shortness of breath, wheezing, tightness in the chest, and feeling tired with exercise or activities which has caused this type of patient to become a frequent flyer of emergency rooms, physician offices, and hospital admissions. The World Health Organization (WHO) estimated COPD will rank as the third leading cause of death in the World by 2030 and COPD has already moved into the third leading cause of death in the United States. Tennessee has the fourth highest incidence of COPD in the United States. With



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decreasing reimbursement of hospital readmissions for COPD and a national readmission average rate of 20% and a Tennessee rate of 23.5%, it has become imperative that XYZ Hospital establish an Outpatient Pulmonary Rehabilitation Program through this project proposal.

Keywords: business proposal, pulmonary rehabilitation, chronic obstructive pulmonary disease (COPD), master's thesis

Introduction

This project proposal consists of establishing a pulmonary rehabilitation program as an adjunct of continued treatment for chronic obstructive pulmonary disease (COPD), patients and to decrease risks of readmissions on inpatient hospitalizations at XYZ Hospital. Today's hospitals are increasingly held more accountable for hospitalized patient outcomes and continued success following discharge for up to a minimum of 30 days with certain diagnoses. This concept is a direct result of Section 3025 of the Affordable Care Act that required the Secretary of the Department of Health to establish the Hospital Readmissions Reduction Program (HRRP) on October 1, 2012 for beginning fiscal year 2013 and forward (U.S. Centers for Medicare & Medicaid Services, 2018). The purpose was to improve America's healthcare by linking payment to the quality of hospital care by establishing financial incentives to make communication and care coordination up-to- and post-discharge planning better. Adding quality measures, transparency, and improvement to value-based payments in inpatient settings should improve healthcare quality and value, since research shows that readmission rates vary across the country, giving rise to improvement opportunities and saving taxpayer dollars for unnecessary readmission costs (U.S. Centers for Medicare & Medicaid Services, 2018). Chronic obstructive pulmonary disease (COPD) has been slated as one of the diagnoses impacted by HRRP. In as early as 2000, COPD accounted for more than 119,000 deaths and ranked as the 4th leading cause of death and the only major disease in the top 10 that was continuing to get worse in the United States (Ries, 2008, p. 1204). Between the years 1980 and 2000, COPD deaths increased by 282% in women and 13% in men. The World Health Organization (WHO) estimated COPD will rank as the third leading cause of death in the world by 2030 and COPD has already moved into the third leading cause of death in the United States (Jovinelly & Case-Lo, 2018). COPD affects 30 million in the United States and over half of them have symptoms and do not know their diagnosis (COPD Foundation, n.d.). COPD is mostly caused by smoking and is an umbrella term used to describe progressive lung disease including emphysema, chronic bronchitis, refractory (non-reversible) asthma, and some forms of bronchiectasis. This disease is characterized by breathlessness, frequent cough, shortness of breath, wheezing, tightness in the chest, and feeling tired with exercise or activities. So, with these symptoms, patients panic—which is understandable, since who would *not* panic when it becomes difficult to breathe—

leading them to the emergency rooms of hospitals in pursuit of immediate relief. COPD has both high morbidity and mortality rates and is a public health problem associated with high health costs (García-Sidro, et al., 2015). Approximately 20% of the patients admitted to a hospital with COPD are readmitted within 30 days and estimated that 10–50% of the return trips may be preventable (Penn Medicine News, 2018). COPD develops over decades and because of the large reserve in lung function there is a long preclinical period with few symptoms and are underdiagnosed until advanced stages of the disease have occurred (Ries, 2008). The World Health Organization estimates 210 million worldwide have COPD and the deaths are expected to increase by 30% over the next ten years (COPD Foundation, n.d.). This proposed program would require all COPD patients that have been diagnosed or hospitalized in XYZ Hospital to be enrolled in the XYZ Hospital Outpatient Pulmonary Rehabilitation Program upon discharge. This program has been designed to assist in decreasing readmissions from occurring within 30 days or longer and to help the patient experience improved quality of life. Pulmonary rehabilitation has been defined as evidence-based, multidisciplinary, and comprehensive intervention for patients with chronic respiratory diseases who are symptomatic and often have decreased function performing daily living activities such as bathing, dressing, cooking, cleaning, etc. (Ries, 2008). Pulmonary rehabilitation programs include patient assessments, exercise training, breathing techniques, panic control and relaxation, disease education, nutritional intervention, medication overview, and psychosocial support. The proposed pulmonary rehabilitation program for XYZ Hospital and components of the program will be reviewed in this section through subject of the project, goals, audience, presentation of results, use of results, and method to conduct the project.

Subject of Project

Over many decades, several organizations like the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR), American Association for Respiratory Care (AARC), American College of Chest Physicians (ACCP), American Thoracic Society (ATS), and European Respiratory Society (ERS) have championed and developed comprehensive statements and evidence-based practice guidelines for pulmonary rehabilitation. The direct result of this is that pulmonary rehabilitation has emerged as a recommended standard of care for patients with chronic lung disease, based on this growing body of scientific evidence (Ries, 2008). COPD in Tennessee has the fourth highest prevalence of the states in the United

States, with West Virginia being number one, Kentucky as number two, and Alabama as number three (COPD Foundation, n.d.). Tennessee has a half of a million adults diagnosed with COPD incidence with 52 deaths of every 100,000 deaths per year that annualizes over \$790 million in costs for treatment (COPD Foundation, n.d.). This further represents 10,048 Medicare hospitalizations and a 23.5% readmission rate for Tennesseans with 10.6% of Tennessee women having COPD and only 8.1% of men (COPD Foundation, n.d.). Also in Tennessee, the statistics reflect that incomes less than \$15,000 annually create a 4.7 times higher incidence of COPD than those with income of greater than \$50,000 annually (COPD Foundation, n.d.). In Memphis, Tennessee, where XYZ Hospital is located, the median household income is slightly less than \$39,000, with the largest share of households having an income in the less than \$10,000 range (Data USA, n.d.). Over the past few years, XYZ Hospital, has experienced a COPD decreasing readmission rate from 20% down to less than 13% for fiscal year 2018. Some of the interventions to date at XYZ Hospital for the COPD population have included the emphasis of the patient understanding the significance of accepting the influenza and pneumococcal vaccines prior to discharge. The respiratory therapists provide this education and administer the vaccines to the patients that accept them in XYZ Hospital. Tennessee has a higher than average vaccine rate for COPD (COPD Foundation, n.d.). The respiratory therapist also provides education about the disease process, use of oxygen and proper use of bronchodilators, and information about breathing treatment medications. Once the patient is discharged, phone calls are made at certain intervals up to the 30 days post-discharge to check on the patient and answer any questions. It is solely up to the patient to comply or even answer the phone. The proposed pulmonary rehabilitation program will be started prior to discharge for all patients admitted with COPD diagnosis at XYZ Hospital with the goal to decrease risks of hospital readmissions within the critical 30-day period and to provide improved quality of life and better outcomes for XYZ Hospital patients. The patients at XYZ Hospital should attend two to three times per week for outpatient education, exercise and breathing retraining, and overall strength and endurance training. Muscles require oxygen to function and the less toned a muscle is, the more oxygen that is required to do the same work, which places a higher demand on the patient to have more effective breathing and that is a problem with COPD. As muscle strength and breathing improves, the patient status should improve, and one should be readmitted less to XYZ Hospital—and that should allow XYZ Hospital to not lose reimbursement on Medicare for 30-

day readmissions for COPD and allows the patient to remain in a more functional state.

According to the American Thoracic Society and the European Respiratory Society, pulmonary rehabilitation programs are designed to decrease symptoms, optimize functional status, increase participation, and decrease healthcare costs by stabilizing or reversing manifestations of the disease (Ries, 2008).

Goals & Sub-Goals of Project

The main goal of this project proposal post-implementation of the pulmonary rehabilitation program would be to decrease the incidence of 30-day readmissions for COPD patients at XYZ Hospital. Other goals include the following:

1. more accurate diagnosis of disease staging through pulmonary function testing and COPD Assessment Test (CAT) to better predict risks of exacerbations of disease (Jovinelly & Case-Lo, 2018);
2. promote functional status change through improved exercise tolerance by evaluation with 6 min. walk pre- and post-program;
3. provide information to help enhance physical fitness and increase physical activity through use of perceived exertion scales;
4. improve the patient's quality of life by enhancing ability to perform activities of daily living (bathing, dressing, cooking, cleaning, etc.);
5. increase the patient's ability to cope with the acute and chronic phases of COPD by managing the disease at home and not being readmitted to the hospital;
6. if readmitted, being able to decrease length of stay in the hospital;
7. provide education on the disease processes and symptoms relief by teaching and practicing techniques of pursed lip and diaphragmatic breathing, panic control and relaxation, and mucous clearance with patients while in program;
8. provide education and resources on smoking cessation to enhance opportunity for COPD patients to quit;
9. provide education on nutrition and medication management by requiring attendance to class on these subjects offered in the Outpatient Pulmonary Rehabilitation Program; and

10. offer the Outpatient Pulmonary Rehabilitation Program to other patients that are in the community but have not been admitted to XYZ Hospital to drive overall incidence of COPD admissions down in the Memphis community.

The evaluation of these goals and outcomes would be tracked through the program documentation, post-program survey questionnaire, COPD assessment tool, 6 min. walk documentation, XYZ Hospital readmission rate, XYZ diagnosis code and length of stay data, and city-wide COPD hospital statistics, along with readmission data.

Audience

Multiple audiences will be involved in this proposed pulmonary rehabilitation program. This project proposal primary audience will first start with the CEO of XYZ Hospital to gain initial approval to move forward with training, implementation, and marketing. Once approved by the CEO, then the proposal would be presented to the next primary audience consisting of the chief medical officer, chief operations officer, chief financial officer, chief nursing officer, and chief of business development. Once approval is gained from the CEO and her executive team, then meeting with the clinical directors of nursing, physical therapy, and pharmacy would be in order. This would assist in the training of involved staff from respiratory therapy, nursing, physical therapy, and pharmacy and would begin preparation for the program start-up. The various departments should begin assigning staff to work with patients in the program. The last primary audience to be included would be working closely with the medical director of the program to help him understand how to meet requirements in his role. After getting the medical director prepared, then marketing to the local pulmonary physicians would need to occur through our physician resource managers. The marketing department would need to prepare brochures and documents that would need to be distributed to the physician offices so they would be able to understand how to write the orders for their patients to attend the outpatient program. At that point, marketing to the secondary audience would be to the COPD patients in the community, so they could become aware of what was being offered to them and could communicate to their physicians so orders could be written for attendance to the Outpatient Pulmonary Rehabilitation Program at XYZ Hospital. The important stakeholders would be the insurance carriers, as this program should save inpatient hospitalizations and therefore save insurance dollars. Medicare already supports outpatient pulmonary rehabilitation and will reimburse for program visits just as they have for cardiac rehabilitation visits.

Presentation of Results

In presenting this proposal to the various audiences, the methods and approaches would vary. The CEO would be given a paper copy of this proposal with a future proposed date for a face to face meeting with the CEO to answer any follow-up questions she may have. After CEO approval, then a formal presentation of proposed program overview would be scheduled and presented in a PowerPoint presentation to the chief medical officer, chief operations officer, chief financial officer, chief nursing officer and chief of business development—and of course, time would be permitted for questions and follow up needed as assigned and directed by this executive team. The anticipated outcomes of the program and funding as it relates to equipment, supplies, and personnel would be discussed. This same PowerPoint presentation with added clinical details of the program by specialty would be presented to the clinical directors of nursing, pharmacy, and physical therapy. This presentation would be to outline what would be needed from each specialty area for teaching requirements in the pulmonary rehabilitation program for the patients, the required documentation, assessments, evaluation tools, progress notes, etc. Questions would also be allowed in this session with assigned persons for follow-up and timelines for return information to be shared with the team. The medical director would have to review the entire program, documentation required (and by what specialty), and the assessments and final documentation that will need to be sent by the medical director of the program to the referring physician upon the conclusion of the program. Marketing would need a brief overview of the program so the proper brochures and documents could be created. The staff assigned by the various specialties would need an overview of the basic program and the various clinical details that would be covered by each discipline for the patient. The physician resource managers would need a brief overview of the program on how to admit to the program, what is required of referring physicians, and the expected outcomes of the program so they can be an asset in building referrals for the program through their physician contacts. People in the community would get the information about the program through marketing brochures, posters, radio commercials, and/or television interviews during local news programs.

Use of Results

The results of this program could be shared with the entire leadership team through a PowerPoint presentation of XYZ Hospital in the beginning as a brief overview of what the program is, why it is needed, and the projected outcomes. After the program has been

implemented for six months, a progress report could be shared with the entire leadership team, again through a PowerPoint presentation. All the SMART goals and results of these goals would be shared in this presentation, so the entire leadership team of XYZ Hospital would be made aware of the progress on goal achievement. This would also be reported quarterly in performance guidance council, which would progress from there up to the governing board of XYZ Hospital. The key metric would be the decrease in COPD readmissions to the hospital and the decreased length of stay of any readmissions along with the post-program performance metrics of increased exercise tolerance, decreased symptoms, and improved quality of life of XYZ Hospital patients. Some marketing materials could be developed to share outcomes with referring physicians and patients in the community. These results should drive improved patient satisfaction, improved physician satisfaction, improved employee satisfaction, and enhanced financial outcomes by not losing reimbursement by having less COPD readmissions.

Method or Procedure Used to Conduct the Project

Once all approvals are obtained, staff is trained, and the medical director is in place and ready for the first patient, the program would be officially kicked off. Once the patient was discharged from the hospital or referred from the community, the patient would be scheduled two to three times per week to come to the Outpatient Pulmonary Rehabilitation Program. Assessments (CAT, 6 min. walk, beginning questionnaire, etc.) would be completed on the first day as an exercise program designed with medical director oversight and review of clinic processes would be shared with the patient. The next visit would include vital signs assessment, warm up exercise, and exercise station rotation to be taught with included breathing techniques and perceived exertion scales (Kendrick et al., 2000). All workouts would be documented as to station, time, speed, incline, vitals, etc. This would serve as important information, since each session would build on the previous session. Throughout the program, education would be provided and documented, with return demonstration required to validate understanding by the patient of pursed lip breathing, panic control and relaxation, proper use of oxygen, medications, and safe exercise. Medical director oversight would occur through the program and up to discharge. At that time, the patient would be encouraged to continue an exercise program at home or at a local fitness facility. The medical director of the program would send a follow-up letter outlining the progress of the patient in the program to the referring physician so they will have the documented progress and outcomes of the program in the patient's medical record.

During the program the SMART goal metrics would be tracked so the progress of the goal achievement and program outcomes could be reported to the leadership of XYZ Hospital.

Project Summary

The background of this project for implementing pulmonary rehabilitation in XYZ Hospital and understanding the magnitude of the issue of COPD readmissions that this project would address are very significant. Recidivism in healthcare has been defined as the tendency by all patients to relapse or return to the hospital for treatment (Panettieri, A look at recidivism in COPD management, 2013). One in five COPD patients visit the emergency room, accounting for over two million annual visits, and may even admit to the hospital within a year accounting for more substantial healthcare costs. COPD ranks as the third most frequent cause for readmissions within 30 days and bottom-line healthcare systems cannot afford readmissions for COPD (Panettieri, Reducing readmissions in COPD, 2013).

Even though XYZ Hospital has continued to experience a decreasing COPD readmissions rate of 12.65% in 2018 (which is under the Tennessee average of 23.5% and national average of 20%), the Medicare reimbursement can still be impacted for this hospital. Tennessee has an incidence of COPD as the fourth highest in the country at 9.4%, with West Virginia leading at 12%, Kentucky is second with 11.3%, and Alabama is third with 9.7% incidence (COPD Foundation, n.d.). With these high statistics, pulmonary rehabilitation would be imperative to decrease the incidence of readmissions.

Pulmonary rehabilitation for COPD has been defined as a comprehensive multidisciplinary intervention designed to decrease symptoms and increase functional status (Reardon et al., 2005). Pulmonary rehabilitation has been recognized as a therapeutic process which entails taking a holistic approach to the welfare of the patient with chronic respiratory illness and is considered essential throughout their lifetime. The pulmonary rehabilitation program has been further defined as a coordinated action of a multidisciplinary healthcare team to deliver an individualized rehabilitation program to best affect incorporated modalities, such as advice on smoking cessation, exercise training, patient self-management, and disease education, among other topics. The physical training has helped reduce muscle deconditioning and improves the quality of life by combining the exercise training with resistance and endurance training at least three times per week. As the exercise has increased with intensity, there was

increased exercise tolerance and fitness. The patient education has incorporated self-management skills such as activities of daily living (bathing, dressing, cooking, cleaning etc.) and includes medication management, symptom relief, breathing retraining, panic control, and relaxation. The physical retraining has helped reduce muscle deconditioning since before the pulmonary rehabilitation program, the patient has experienced decreased physical activity as a result of chronic breathlessness and fatigue. Subsequent deconditioning has been aggravated by systemic effects, such as peripheral muscle, cardiac, nutritional, and psycho-social dysfunction and suboptimal self-management strategies that have added to the burden of the disease. Peripheral muscle dysfunction has been a major cause of reduced function and participation with COPD patients and the physical training has been crucial to increase exercise capacity, functional status and quality of life. Poor nutrition and impact of drugs has caused further muscle dysfunction. These patients have usually been given high dose steroids which over time has caused muscles to become jelly like. The loss of muscle tone has made it more difficult to build the muscles up and regain the tone needed to do activities.

In COPD, the lungs do not work as well and the patient has found it more difficult to breathe; as it progresses and symptoms get worse, permanent damage has occurred in the lungs, as stated by the COPD Foundation (COPD Foundation, n.d.). Emphysema is a disease that destroys the alveoli, tiny air sacs, and making them larger, less flexible, and trap air in the lungs, so the patient cannot get enough oxygen in and carbon dioxide out. Chronic bronchitis has created inflammation of the airways and has produced a cough with phlegm and the patient has had a hard time coughing up all the mucous.

In a 90-day period a multidisciplinary team from Penn Medicine revealed that an automated texting program used to monitor COPD patient status following discharge from the hospital “may have helped prevent three readmissions and intervened with one life-saving hospitalization” (Penn Medicine News, 2018). This platform has a promising avenue as a cost-effective way to engage these patients and decrease readmissions and save lives. Evidence-based practice has revealed that pulmonary rehabilitation can decrease hospital readmissions and length of stay when hospitalized, so XYZ Hospital must embrace this practice and implement an outpatient pulmonary rehabilitation program (Panettieri, Reducing readmissions in COPD, 2013). Evidence has suggested that upon discharge with an immediate admission to outpatient

pulmonary rehabilitation, the patient could increase exercise tolerance and health by three months out from the program and readmission rate has decreased.

When a COPD admission has occurred at XYZ Hospital, the respiratory therapist would begin working with the patient on breathing techniques and preparing the patient for beginning the Outpatient Pulmonary Rehabilitation Program upon discharge. Once the patient has discharged from the hospital, the patient would be scheduled to return on Tuesday and Saturday or Tuesday, Thursday, and Saturday to the cardiac rehabilitation space at XYZ Hospital, depending on what frequency the discharging physician has ordered for the outpatient pulmonary rehabilitation visits. During the first visit, the patient would fill out the intake questionnaire, take CAT test, perform the 6 min. walk, undergo physical therapy assessment and nursing assessment, and review bronchodilator therapy and pursed lip breathing techniques. The second visit would begin the breathing retraining with the exercise portion of the program. This program would continue for several weeks to build muscle strength, endurance, energy conservation, disease management strategies, and improved breathing. There would be some education sessions throughout the program on medications, secretion mobilization, nutrition, oxygen utilization, activities of daily living, vaccines, continued exercise post discharge from the outpatient program, and smoking cessation (if indicated). The medical director of the program would supervise the exercise plan on every patient and would send a discharge summary to the referring physician upon the patient completing the program. This patient would be tracked for one year to see the impact of readmission and the length of stay if hospitalized. This data would be reported to executive leadership by the respiratory therapy clinical director on a quarterly or semi-annual basis, as directed by the CEO.

As the clinical director leader and the driver of the project, the first step would be to seek approval from the CEO and administrative team to implement this project. Once approved, the clinical director would work closely with the medical director on the implementation of the project. A meeting that would include all team members would be the next order of business. The purpose of this meeting would be to educate the team members on what this project would need from each of the departments, so they could begin assigning staff, training staff, and establishing processes, policies, and procedures to get this program fully functional and fully implemented. An implementation action item checklist would be developed from this initial meeting with timelines and persons responsible assigned for each process.

In order to keep the project moving closer to implementation, the clinical director would utilize an action item checklist to follow up with team members to be sure timelines and processes were being developed as outlined. As the clinical director works closely with the department directors, other items and timelines could be added to the action item checklist that may have not been brought up initially. This action item checklist would serve as a work in progress document for the clinical director to lead the project to implementation completion. The clinical director would also work with marketing in developing the marketing materials for physician offices and educational materials to be used in the program. The next order of business would be to work with the physician resource managers to help market the program. Once the action item checklist was completed, the Outpatient Pulmonary Rehabilitation Program would be ready to admit the first outpatient to the XYZ Hospital outpatient program.

The location of the pulmonary rehabilitation program would be in the cardiac rehabilitation space at XYZ Hospital. This area was originally established for cardiac rehabilitation, which is located near a parking lot entrance with close handicap parking to that entrance on the southwest corner of XYZ Hospital campus. Pulmonary rehabilitation patients need handicap parking and a close entrance to the hospital due to having difficulty with shortness of breath when walking long distances. This entrance and parking can work very well for both the cardiac and pulmonary patient.

Once approved, the pulmonary rehabilitation program at XYZ Hospital should only take 30–45 days to implement and begin enrolling the first patient into the program. The crucial factor would be the clinical director utilizing the action item checklist to keep everyone on track and accountable to the timelines established on the checklist from the initial meeting. Developing the marketing materials, education materials, activating charges, documentation forms, developing policies and procedures, etc. could also be time consuming processes. The clinical director must be diligent in staying on all processes to get this program implemented within the estimated time frame.

The start-up budget proposed for this project has been estimated at \$25,000. Since the space has already been established and no build-out is required, this has impacted the cost of start-up and timeframe of implementation significantly. Also, most of the exercise equipment was already been purchased for the cardiac rehabilitation program and can be utilized as well for the pulmonary patient saves more money in the start-up budget. The medical director for the

program and the marketing materials would be of significant cost for the pulmonary program. When one considers the cost of one COPD readmission and that patient being placed on a ventilator and admitted to the ICU, the start-up budget of \$25,000 seems very small. So, this project proposal of a pulmonary rehabilitation program being implemented and placing patients in the program would offset the readmissions costs to XYZ Hospital and would improve the quality of life of these patients.

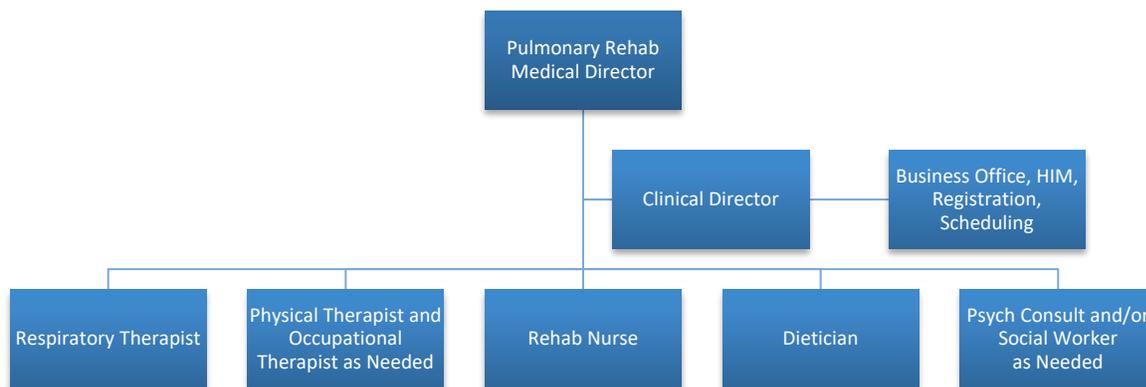
Approach

COPD has been a major cause of morbidity and mortality and has been a serious concern among hospitals and healthcare workers (Simmering et al., 2016). Following discharge from the hospital 10–20% of COPD patients are readmitted within 30 days and this puts them at a greater risk of mortality and with worse outcomes than those that are not readmitted, and bottom-line pulmonary rehabilitation can offset these outcomes. Once the approval from XYZ Hospital has been obtained to implement a pulmonary rehabilitation program, the approach would be very strategic. A strategic planning meeting with department leaders would occur and would include medical records (HIM), business office, registration, scheduling, nursing, respiratory therapy, rehab services, dietitian, case management, information systems, psych, executive analytics, and marketing. This meeting would help establish an action items checklist with timelines and responsible parties. With input from the team the Policy & Procedures (P&P) manual and all forms for documentation would be developed. Staff that would be working in the pulmonary rehabilitation program would need to be trained on expectations, operations, goals, and outcomes. A marketing plan would be developed for inside and outside of the hospital to include elevator posters, perceived exertion posters, brochures, education materials, referral forms, etc. The clinical director would enlist help of physician resource managers to assist in marketing to the physicians in the community and the local veteran's hospital. Another important aspect would be to get charges built from the chargemaster for XYZ Hospital. Scheduling slots would need to be built in the system as well. The clinical director would review plans and expectations with medical director and would also work with executive analytics manager to be sure data was captured to prove the program outcomes and reports could be developed for executive leadership updates. Space and equipment being mostly already in place at XYZ Hospital (since cardiac rehabilitation resides in this space today), the only additional equipment and supplies needed would be oxygen and supplies to administer. The clinical director would need to hold follow-up

meetings with department leaders to be sure the action items were on track. The date for opening the program would be set and the first patient could be enrolled in the program. A formal presentation to executive leadership would be done by the end of the first 90 days of implementing the program. A formal presentation would need to be given to medical staff within first six months of the program implementation.

Figure 1

Structure of Project Team



The structure of the pulmonary rehabilitation program would consist of a medical director (who is a physician trained in pulmonary medicine) who would have oversight for the program with a clinical director (usually a respiratory therapist), and other team members that consist of rehab nurses, physical therapists, dietitians, and as needed psychologists, social workers, and occupational therapists (National Heart, Lung, and Blood Institute, n.d.). Since pulmonary rehabilitation has been established as a broad program that helps improve the well-being of people who have chronic breathing problems, each team member would play a significant role. The medical director would be responsible for medical oversight of the program, reviewing exercise plans, reviewing progress notes, and initiating discharge summaries to referring physicians. The clinical director would work very closely with the medical director and clinical team; would coordinate the clinical operations to be sure needs of patients were met by the clinical team members of the program; would develop policies and procedures for medical director approval; would ensure medical records were recorded and that billing, registration, and scheduling were complete; would market the program both inside and outside of the hospital; would assist marketing with materials; would coach and mentor staff as needed; and would act as the point person for the other team members. The role of the rehab nurse would be to complete

intake questionnaires with patients; educate the patients on disease impact, medication use, and dosage; perform psychosocial assessments of program patients; request psych consults as needed for depression and anxiety; reinforce breathing techniques; and monitor patients daily in program. The physical therapist would assess the patient for any limitations with exercise and advise the other team members. The respiratory therapist would perform CAT test; 6 min. walk pre- and post-program; teach pursed lip breathing techniques with exercise, panic control and relaxation; chest physical therapy (CPT) for mucous clearance as needed; and assist the nurses with daily exercise in the program. Psychologists would be requested on an as needed basis for depression and/or anxiety issues. Social workers would be requested when community needs existed or when home health, or home equipment would be needed. Occupational therapists would assist the patient with activities of daily living. The dietitian would review required diet needs and reinforce any needed education.

Plan Updates

In implementing a pulmonary rehab program at XYZ Hospital, there are many steps of preparation before implementation of the program could occur. The action items list developed by the department leaders responsible for the success of this program, have the action items listed with due dates. This document would be updated on a biweekly basis and sent to the executive leadership team. This action item list would reflect who has completed the task and what is left to do by the person listed on the task line. The action item checklist would include the project tasks that need to be completed, person responsible, and expected time frame. If challenges occurred not allowing tasks to be completed, the challenge would be spelled out and tasks updated as needed to overcome the challenge with new expected timelines. Each item would list the person responsible. Once updated, the action item list would be sent electronically to the CEO and executive team every two weeks. The communication of the plan update would be extremely important for the executive team to see on an every other week basis and would be sent electronically to their email. This process would occur until all steps were completed and the program could be implemented. After implementation, the clinical and financial reports would be sent electronically on a quarterly basis to the CEO and executive team and would be presented at the performance guidance council of XYZ Hospital on a quarterly basis as well.

Figure 2

Work Breakdown and Task Time Estimates



The action items and timelines must have constant focus so the project would be able to stay on track. The CEO presentation would be the first milestone of the project scheduled for March 1, 2019. The strategic meetings with the department leaders are the next big milestone set for March 5, 19, and 29. This would keep the leader group moving through completion of the action items required to get the program implemented. The Policies & Procedures manual and marketing materials would all need to be completed before staff training could begin on March

25, 2019. The physician resource managers and Veteran Affairs (VA) contacts would be met with to market the program and many physicians in the community would be visited as well. The charges and scheduling slots must be built before implementation. The clinical director would work with these areas to complete. There would be some concentrated time spent with the medical director to review the Policies & Procedures manual, required documentation for all patients and exercise plans. Oxygen equipment would have to be placed before the first patient could attend clinic and would be setup no later than March 29, 2019. The day set to receive the first patient would be projected for April 9, 2019. The 90-day presentation for program performance would be scheduled for July 10, 2019 (for the CEO and executive team) and on August 5 (for the medical staff).

Project Deliverables

With the physicians and hospitals being charged to combat COPD readmissions by improving the care for COPD patients and their outcomes—and therefore not facing financial penalties that would be bestowed upon those who do not faithfully take this charge (Panettieri, Reducing readmissions in COPD, 2013)—the project deliverables would be divided into clinical and financial. The clinical director would be tasked with proving both the clinical and financial outcomes were occurring. Pulmonary rehabilitation has improved exercise tolerance with upper and lower extremity strengthening, breathing techniques, nutrition, emotional support, medications, and improved strategies to live with COPD (Steinbaum, 2017). Pulmonary rehabilitation has helped improve the patient's healthcare quality and value (U.S. Centers for Medicare & Medicaid Services, 2018). The clinical deliverables would include reporting the following (1) functional changes in exercise tolerance by the documentation of the pre-and post-program 6-min. walk, (2) tracking the readmission rate within 30 days of discharge of those attending the program and those that refuse to participate in the program, and (3) the results of the patient's functional assessment are pre- and post-program. These clinical outcomes should paint a clear picture as to the impact of the pulmonary rehabilitation program on their quality of life since living with COPD has caused everyday activities—such as walking, climbing stairs, and activities of daily living (bathing, dressing, cooking, cleaning, etc.)—to become more difficult (Steinbaum, 2017). The pulmonary rehab program has helped build fitness and helped patients breathe as well as they can with the use of breathing techniques, improved nutrition knowledge, and disease management strategies. The financial outcomes would be tracking

readmission rates prior to and post implementation of the pulmonary rehabilitation program, overall budget performance of the program, volume of outpatient visits, volume of patient referrals, volume of VA referrals into the program, and physician satisfaction. Both clinical and financial outcomes would be shared with the CEO and executive leadership of XYZ Hospital on a quarterly basis and reported through the Performance Guidance Council of XYZ Hospital, and then on up to the medical executive committee and ultimately to the governing board.

Risk Assessment

Risk assessment in any project proposal has been a very important aspect in preplanning to be sure the project leaders are aware of potential risks and how those risks could completely derail a project. Risk simply means to expose the project to harm or possible failure. Corrective action plans should be made in advance to be sure that each risk identified could be handled as it arises. The following steps should be followed to assess risks: (1) identify events that could happen during the life of the project; (2) transfer risks to external stakeholders when possible; (3) prioritize the risks identified; (4) calculate risk exposure based on impact, probability, and controllability; and (5) put risk avoidance and mitigation strategies in place (Wickford, n.d.).

Many issues could occur that could present as potential risks in this project. These must be identified and reviewed in priority order. The biggest risk in not getting this program implemented would be lack of completion of the action item list. To mitigate this issue, timelines would need to be set for each listed action item and the project leader would be expected to have follow-up meetings with the responsible parties to be sure action items stay on track to completion as required. Also, each person that had items that were not completed should be followed up with to see what could be done to assist with completion and should be reminded of the need for implementation.

The second risk would involve not being able to have the right type and adequate number of employees to handle the volume of patients in the program. The mitigation plan for this would be to train enough staff in all disciplines so there would be backup staff members in case of illness, vacation, or if someone resigned. This of course would have to be an ongoing process to be sure there would always be enough trained staff. As the patient volume could go up, this plan would also allow for these individuals to be ready to step in and assist.

The next risk would potentially be space. The program would be implemented in a space that is already utilized for an outpatient cardiac rehabilitation program on Monday, Wednesday,

and Friday. The current cardiac volume would be smaller than the volume anticipated for pulmonary rehab patients. The Outpatient Pulmonary Rehabilitation Program would be operational on Tuesday, Thursday, and Saturday, with some potential to spill over to the cardiac rehab days of operation. However, when the program has been marketed to physicians and their patients outside of XYZ Hospital, the growth potential could outgrow the space completely. The mitigation plan would be to locate another space within XYZ Hospital that could be prepared and ready for these programs and equipment to be relocated to.

The next risk would involve adding capital expense for this program that would occur as the growth occurred and the larger space would be needed to accommodate the volume. The purchase of more monitors and exercise equipment would be required to meet the demands of the new space and growth in the volume. The mitigation plan would be to build this into the program budget with the note that this extra capital would only be needed as the volume forced growth into the new space.

The next risk would be the absence of volume. This would be a complete failure of the program and could occur if there was ineffective marketing and poor notification in the community of the Outpatient Pulmonary Rehabilitation Program at XYZ Hospital. The mitigation plan for this would be to ensure a widespread and effective marketing plan that had a continued focus on successful patient outcomes with feedback to referring physicians.

The next risk would be overall safety of the patients in the program. When patients are put through the paces of rehabilitation, both cardiac and pulmonary, the patients must be monitored with vital signs measurements, visual observations, pulse oximetry checks, etc. to ensure their personal safety. An emergency defibrillator and crash cart would be readily available in the room with trained staff ready to use in the event of an emergency. Due to this equipment already existing in the space for the cardiac rehabilitation patients and the constant visualization of the patients that occurs, this risk would be very low. No further mitigation plans would be needed to handle this risk.

The last risk for discussion relates to the federal government potentially changing the reimbursement for the program or eliminating the reimbursement. This change could make this program not be financially viable and could create the need to discontinue the program. The mitigation plan for this would be to teach as many components as possible to the patient while they are still an inpatient. Also, there would be an attempt to keep more frequent discharge

phone calls in place and/or requesting frequent home health visits upon discharge. This option would not replace the program, but could have some potential gain of not having as many readmissions without the program.

Plan to Reduce or Eliminate Risks

Reducing or eliminating the identified risks for this project would be the best process to further ensure the success of this project and by putting purposeful steps in place to reduce and/or eliminate the risks would be the right thing to do. The number one risk identified in the previous section included the action items list not being completed. This could just be eliminated by monitoring each item on the list and touching base with the person responsible for the item to be sure the item would get completed within the scheduled time frame. This would eliminate this risk and would be the appropriate action.

The second risk related to having enough trained staff, which could be eliminated by careful planning, training, and continued monitoring of maintaining enough trained staff to cover the required volume. This would be very important to be the required course of action. A program should never be discontinued, or progress slowed, due to staffing issues.

The third and fourth identified risks of more space and equipment needed for volume growth could be greatly reduced risks by knowing and planning for this information on the front end of the project. One would not know how big the volume could be until the program was implemented. Having the contingency plan from the beginning would help reduce both risks.

The fifth risk of experiencing low volume could be reduced greatly by putting several action items in place. Those items would include being sure the marketing plan and face-to-face strategies are met with widespread communication, effectiveness of message, and proper frequency of messaging to heighten the awareness of the program to patients and physicians. The more that others are made aware of the program, the more it would allow the volume to keep coming and this risk could be minimized.

The sixth risk concerning the safety of the patient would already be minimized but can never be eliminated. Since the cardiac rehabilitation program has already been implemented, the emergency equipment has been placed in the room. The staff has been trained to handle the patient emergencies, so there would be nothing else needed for this risk.

The last risk relating to the potential decrease for reimbursement established by the federal government for the Outpatient Pulmonary Rehabilitation Program could not ever be

eliminated. Since that potential would always be a possibility, one could minimize the risk by communicating valuable outcomes to local politicians. Also, publishing results in medical journals would make more individuals aware of what this program could accomplish. Being able to explain how preparing pulmonary patients to get in better shape and enhance their knowledge of improved coping skills would help them be able to live with and manage their chronic disease processes better. The purposeful steps in this section would include having consistent follow-up on the action items checklist to keep the project on track to completion, maintaining competently trained staff to operate the program, locate and budget for new space and added equipment to accommodate growth in volume, ensure effective and widespread marketing of the program to all potential referral sources, ensure continued safety of the patients in the program, and publish outcomes achieved in the pulmonary rehabilitation program. By engaging in these purposeful steps, the risks could be dramatically reduced and possibly eliminated.

Impact of the Risks on the Project and Organization

The impact of any of the identified risks occurring could stall and/or stop the project from moving forward to implementation. The financial impact of not implementing the project would result in added expense to XYZ Hospital with no return on the investment. Likewise, the patient outcomes would not be as favorable for the patient since they would not be able to experience the anticipated outcomes of the program. This could also greatly impact the morbidity and mortality of these patients that suffer from the chronic disease of COPD. This would be true due to the patient not being able to gain enhanced knowledge and coping skills for the chronic disease and these patients would continue to spiral down and be readmitted to the hospital or potentially die. If the program did not get implemented after marketing to referral sources, XYZ Hospital could gain a bad rapport with the referral sources. The referral sources would think XYZ Hospital could not be trusted to implement what the marketing program had communicated to the community. Even if the program was implemented, but delayed, it could still have all the negative impact as already reviewed. The delay would cause a longer return on investment to be recouped, since the income from charges would be prolonged and potentially even lost due to the delay and would increase the uncertainty of the referral sources in the community relating to the hospital. Delays would also create prolonged suffering of patients that could benefit from the program. Since not implementing the project or a delay in beginning the project would have

such a negative impact on patients and XYZ Hospital, the risks must be carefully prevented from occurring by following the purposeful steps as outlined in the previous section.

Risk Management Plan

A risk management plan could minimize risks through proper planning and use of tools and methods of analysis that would allow one to minimize or avoid delays and risks (Wickford, n.d.). As outlined by Wickford (n.d.), a good risk management plan could help avoid potential risks before they become actual problems that could cost the company time and money by causing delays in manufacturing, distribution, or sales of products or services. Preparing a risk assessment matrix could help in the risk management plan by placing risks in descending order. The matrix also rated the probability and the impact on the project if the risk did occur. The risks are classified by the determined mitigation plan (Juneja, n.d.). In the matrix, all risks are listed with the risks rated on probability and impact from 1–5 rating scale, with 5 being the highest rating. Then the risks have been classified into four categories: high probability and high impact, high probability and low impact, low probability and high impact, and low probability and low impact. Once the risks have been classified into one of these four categories, then the mitigation plan must be decided to see if prevention, correction, or warning would be the best approach. This risk matrix model has been applied on this project and the identified risks have been listed and classified and mitigation plans have been determined in the matrix (see below).

Table 1*Pulmonary Rehabilitation Project Risk Assessment Matrix*

Risks	Probability 1-5 rating	Impact 1-5 rating	High Probability & High Impact	High Probability & Low Impact	Low Probability & High Impact	Low Probability & Low Impact	Mitigation/Prevention	Mitigation/Correction	Mitigation/Warning
Action Item List	1	5			x		x		
Staff	1	5			x		x		
Safety	1	5			x		x		
Space	2	2		x				x	
Equipment	3	1		x				x	
Low Volume	1	3			x		x		
Payment change	1	3			x			x	x

The risks have been listed in descending order according to the probability and impact rating. Then each risk has been classified as high or low probability and high or low impact and then the mitigation plan has been listed for each risk. From this matrix, one can see quickly that the risks of the action items list not getting completed, not having enough staff trained, the lack of safety of the patient, and low volume all must utilize the prevention mitigation strategy. The space and equipment risks all require corrective action mitigations along with the payment change. This matrix has offered a quick visual for project leaders to know where the focus must be in handling the risks appropriately and effectively.

Contingency Plans for Risks Not Accessed

The purpose of contingency planning would be to define steps or a method to handle unexpected events that could occur. For example, if there was a fire in the building, processes need to be developed of how to handle this issue. Making a list of some potential issues that could arise could prove to be helpful. Project contingency planning must include major risks, uncertainties, and threats, but also must include creating an action plan to get prepared for any

event (Lewinson, 2011). Some of those events could include loss of data, employee dismissal, lack of finance, various disasters, unhappy customers, dishonest suppliers etc. To be successful in project management, one must have contingency or backup plans to meet those sudden unexpected situations that could derail the project. A contingency plan should be considered and an approach developed that would impact unexpected events and would be able to pull key people, such as risk manager and other leaders, together quickly to develop an action plan to impact the unexpected event and not allow the project to be jeopardized. The more prepared a project leader could be, the more successful the project would be and with less interruptions to the flow of implementing the project. Planning, forecasting, and implementing must be key processes for project leaders. Being prepared with key people in the organization could make a huge difference in the success of the project leader and the organization.

Team Identification

Team identification for this project would include many stakeholders both internally and externally. The top layer of internal stakeholders would consist of the executive team members of the hospital, such as chief executive officer (CEO), chief operating officer (COO), chief financial officer (CFO), chief medical officer (CMO), chief of business development (CBD), and chief nursing officer (CNO). This executive leadership team reports to the governing board of XYZ Hospital and would be accountable to the board for this program approval and implementation along with approving the budget required for this program.

The next layer of internal stakeholders would include the medical director of the program, respiratory therapy clinical director, nursing director, rehab services director, psych director, case management director, and dietitian. These leaders would be more accountable for the actual day-to-day operations of the program. This would include recruiting referrals for the program, ensuring adequate staffing to cover patient volume, ensuring proper documentation of patient activities, ensuring patient safety, ensuring policies and procedures are followed, and initiation of proper charges, etc. Basically, these leaders would have the accountability of all required daily operations of the program.

A few other internal support stakeholders that would have roles in this program would include biomed, facilities services, registration, medical records (HIM), physician resource managers (PRM), and marketing. Biomed and facilities services would be accountable for working equipment, room lighting, room heating and air, etc. Registration and medical records

would be accountable for creating the initial patient chart with required signed patient documents, assigning a medical record number to the chart, and making the chart electronically available in the system. Once the patient completed the program, medical records (HIM), would be accountable for proper storage of the medical record. The physician resource managers and marketing would be accountable for assisting the medical director and clinical director in communicating the information about the program to the physicians, and individuals in the community to build program referrals.

All internal stakeholders hold a part in the success or failure of the program; however, the medical director and respiratory therapy (RT) clinical director have the most at stake. These two individuals have the responsibility for the overall supervision and coordination of the program from obtaining the referral to completion of the program by the patient, along with the documentation and charges required throughout the process and the discharge documentation going to the referral source after the program.

The external stakeholders would include physicians, other facilities, insurance carriers, patients and their families, medical equipment and supply companies, and homecare companies. The physicians and other facilities would have a big stake in referring patients to this program to gain anticipated outcomes. The patients referred could improve their functional daily status and be hospitalized less or need less medical care due to the expected evidence based patient outcomes with this program.

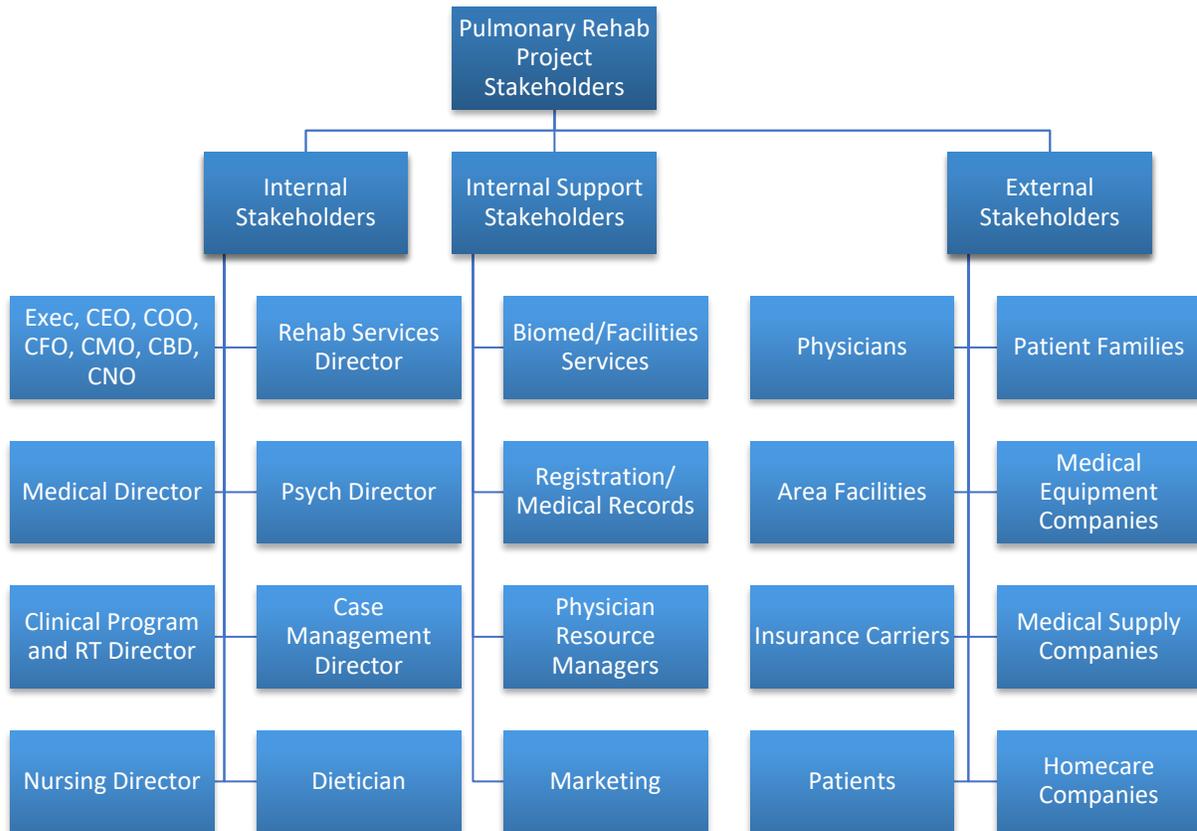
The insurance carriers as external stakeholders would have a financial stake in the program. The reason being, there would be less expected medical care being required following completion of the program. This has proven to be part of the evidence-based outcomes with pulmonary rehabilitation programs.

The patient families as external stakeholders would have a very large stake in making sure the patient attended the program two to three days per week to make the gains expected in the program. The families would also need to remind the patient of the teachings of the program by cueing the patient in the home and assisting with the disease processes and ongoing required medications. All concepts would be extremely important to be learned and reinforced by the family members of the patient, because this would aid in the ongoing success of the patient in maintaining their status following the completion of the program.

The last of the external stakeholders would be the medical equipment and supply companies that would have an obvious financial stake in the program, due to items being purchased by the program for daily operations and continued success. The financial stake for the homecare companies would include items purchased for patients to have in the home during and following the completion of the program. These items would include breathing treatment supplies, oxygen equipment/supplies, and potentially BiPAP machines that are used for improved sleep and overall health. The chart below reveals the internal and external stakeholders that have been described in this section.

Figure 3

Pulmonary Rehab Project Internal and External Stakeholders



Team Qualifications

Team qualifications for this project would be very specific and must be required for this program to be a success. The team members would include the medical director, clinical program respiratory therapy director, registered nurse, physical therapist, case manager/social worker, psychologist, and dietitian. The first team member for review would be the medical

director who must be a pulmonologist, since a pulmonologist would be a medical doctor who specializes in preventing and treating lung disease and breathing problems (Persson, 2014). Patients with COPD have trouble breathing, which has been the most common cause of emergency room visits and the respiratory system, known as the pulmonary system, must have a pulmonologist to treat them. The complex pulmonary system has affected other organs and therefore must have the pulmonary specialist to handle these issues. Breathing difficulties could be caused by not only lung disorders, but by cardiac, kidney, and liver diseases, head injuries and chest trauma, as well as infectious diseases like pneumonia and influenza and need the pulmonologist to figure out the complexity of the breathing issue. The pulmonologist must develop the treatment plan to help patients with breathing issues. A pulmonologist, following high school, must get a four-year degree in premed, chemistry, or biology and after scoring well on the medical school entrance exam would attend four years of medical school. After graduation from medical school, one would serve in a three-year internal medicine residency and take the exam to become board certified in internal medicine then would have a two-year fellowship in pulmonary medicine. After completing the fellowship, the physician could take an exam to be board certified in pulmonary medicine. So, the patients that would be attending the pulmonary rehabilitation program would be patients with breathing disorders and therefore must be managed by the pulmonologist responsible for this program while the patient was in the program. After completion of the program the pulmonologist would send a discharge letter with the patient progress to the referral source.

The next team member would be a respiratory therapist, who assesses and treats patients with acute and chronic dysfunction of the cardiopulmonary system and serves as a vital member of the healthcare team (RespiratoryTherapistLicense.com, 2019). Respiratory therapists must have a broad knowledge of the pathophysiology of the cardiopulmonary system and complex procedures required to properly diagnose and treat patients from newborn age to very old, first breath to last breath. The respiratory therapists also utilize machines and devices that administer respiratory care treatments, along with managing ventilators and artificial airway devices and assessing the blood-oxygen level. The training would include an associate of science degree or a bachelor of science degree, with emphasis in respiratory therapy. Upon completion of the degree, the individual would take a National Board examination, and upon successful completion, then would progress to the next exam, known as Clinical Simulation Exam, and

upon successful completion of that exam the individual would become a Registered Respiratory Therapist. This individual would also be required to obtain a state license to practice the profession in the state they work in. Again, the patients in this program would have respiratory disease and breathing problems and a respiratory therapist would be a key member in this program to benefit the patient to achieve better breathing outcomes. The respiratory therapist would teach pursed lip and diaphragmatic breathing, panic control and relaxation during strength training and exercise tolerance activities, proper meter-dose, breathing treatment, and proper oxygen usage and disease management processes. If a patient has a BiPAP or CPAP device to sleep with for obstructive sleep apnea or COPD purposes, the respiratory therapist would educate the patient to be sure these devices were being utilized and cleaned properly. The respiratory therapist would be readily available in the room to assess and assist the RN with any patient emergencies.

Another important team member would be a registered nurse who has had experience in working with patients with lung disease. An RN (registered nurse) would treat patients and provide advice and emotional support to them and their families and educate patients about medical conditions (McKay, 2019). The nurse would be instrumental in medication review and education, reinforcing the teachings of the other team members, and would assess the need to request a psych consult for the patient. The nurse would act as the glue to the team in supporting the teachings of all the disciplines to the patients. The RN would reinforce the training to the patient and would be there to assess and assist in emergencies. To become an RN, one must earn a bachelor of science degree in nursing (BSN), an associate degree in nursing (ADN) or a diploma in nursing (McKay, 2019). After completion of the degree, the individual would take the National Board exam to gain the RN credential. A registered nurse must have a state license to practice nursing.

The next team member would be a physical therapist, who possesses the ability to assess; diagnose; plan treatments; assist patients to recover from injuries, illnesses, and surgery of the musculoskeletal system, working with them to help regain movement; and manage pain (American Physical Therapy Association, 2019). Physical therapists use treatment techniques to promote the ability to move, reduce pain, restore function, and prevent disability and work with individuals to prevent the loss of mobility before it occurs by developing fitness and wellness-oriented programs for healthier and more active lifestyles. This would be most beneficial in a

pulmonary rehab program to have the physical therapist assess the patient for musculoskeletal issues, gait concerns, or other limiting musculoskeletal factors in performing the exercise and endurance training of the pulmonary rehab program and to assist in building the exercise program for the individual patient. A physical therapist must earn a bachelor's degree with some pre-requisite science courses and then continue to achieve a doctoral degree in physical therapy. After completion of college degrees, then the national board exam for physical therapy must be successfully completed. State licensure would be required in the state in which the physical therapist practiced.

Another team member would include a case manager or social worker. The role of this individual in the program would be to assess the socioeconomic status of the patient and to set up any needs for equipment or insurance programs the patient may need after completing the pulmonary rehab program. Setting up the needs in the home would be crucial. This team member could help arrange transportation if needed by the patient to get to and from the program. Also, this member would be instrumental in assessing family support and offering advice to meet the needs of the patient. This member would be beneficial in working with the insurance carrier of the patient to be sure needs are met during and after the program. Case managers are sometimes nurses. These individuals must have a bachelor or master's degree in social work and must have a state license.

Another potential member of the team would be a psychologist. The nurse in the program would assess the need for a psych consult. A psychologist has studied the human mind and behavior to help patients overcome emotional or psychological difficulties and must obtain a master's degree or doctoral degree to be this type of clinician (Study.com, n.d.). This team member would also need a state license. The nurse and medical director of the program would make the referral to the psychologist if it was assessed that the patient would need this intervention.

The final team member would be a dietitian who would help patients learn how to achieve good health and positive well-being through sound nutrition and eating habits (NutritionEd.org, n.d.). This individual must have a bachelor's degree and would have to take the national registered dietitian/nutritionist exam to get their credentials of RDN and would also need a state license before they could practice. This individual could help the COPD patient understand the significance on their work of breathing compared to their calorie consumption, so

weight loss and loss of muscle mass did not continue to occur. They also could help the patient understand how some foods increase the production of carbon dioxide making it more difficult for this type of patient to breathe. Another significant contribution of the dietitian would be teaching the COPD patient to avoid foods that would cause abdominal bloating again negatively impacting the patient's ability to breathe. All the team members would play a significant role in the ultimate success of the patient in the pulmonary rehabilitation program. These team members would be the only ones working with the patient directly to gain the clinical outcomes anticipated in evidence-based practice of pulmonary rehabilitation.

Project Budget

This section includes start-up budget, proposed cost of annual salaries and benefits for team members, and projected monthly budget. The first budget for review below reflects estimated start-up budget for the pulmonary rehabilitation program at XYZ Hospital. This program will utilize the same space as the cardiac rehabilitation program and will be in operation on Tuesday, Thursday, and Saturday, which are the opposite days of the cardiac rehabilitation program, so there is no build-out or space expenses required. The grid reveals each line item and the estimated expense. Also included is a column for actual costs and the difference between the estimated and actual, which will be completed post implementation of the program. The total projected start-up expense reveals \$25,000. As noted on the grid below, the expenses include exercise equipment, monitoring equipment, oxygen concentrators, medical supplies, and furniture. Marketing materials, office supplies, patient education packets, and perceived exertion posters are also line items listed. Utilities are listed since this area would be closed and not utilized on these days, so estimates must be made since this program will utilize this space on what would have been closed days. The expenses for the first month of the medical director contract and staff training are also listed in the start-up budget. In the Use of Funds section below the actual proposed budget will be a more in-depth explanation of how the \$25,000 will be used and the details of each line item. In summary, the start-up expense budget will be less overall since the cardiac program is already in existence in the space. This program will utilize some of the equipment and other items that have already been purchased for the cardiac program and therefore no need to purchase in this start-up budget.

Table 2*XYZ Hospital Pulmonary Rehabilitation Program Start-up Budget*

Line Items for Start-up	Estimated	Actual	Difference
Exercise Equipment	\$3,000		
Monitoring Equipment	\$5,000		
Oxygen Concentrators	\$5,000		
Medical Supplies	\$1,000		
Education Packets	\$2,000		
Marketing Materials	\$3,000		
Perceived Exertion Posters	\$500		
Office Supplies	\$500		
Furniture	\$500		
Utilities	\$500		
Space (existing for another program)	\$0		
Medical Director Contract	\$1,000		
Labor - staff training	\$2,000		
Other	\$1,000		
Total Start-up Expenses	\$25,000		

Use of Funds

Since the cardiac program already has treadmills, ellipticals, and bicycles, the pulmonary rehabilitation program would benefit by purchasing some weight pulleys for upper and lower extremity strengthening and some hand weights. One or two cardiac monitors and two pulse oximeters will need to be purchased to handle the patient volume. This is important due to lung patients having cardiac issues as well and they need to be monitored during increases in exercise workload. The pulse oximeters are needed to assess the need for supplemental oxygen during exercise. It is very important to exercise the pulmonary patient safely. Oxygen concentrators are needed to supply the source of oxygen to supplement the patients during exercise. The medical supplies will include oxygen delivery devices, such as cannulas and masks. Also, pulse oximeter probes, cardiac monitor leads, and blood pressure cuffs are other medical supplies needed for the

program. Perceived exertion (Borg Scale) posters will need to be purchased so the patients can refer to the poster to explain their work of breathing and work of exercise (Kendrick et al., 2000). Education packets will be needed for the patients to have written educational material to review when not in the clinic and post discharge from the clinic. These documents will review how to better handle and cope with disease symptoms like shortness of breath and sputum production. Also, materials concerning breathing treatments and metered dose inhalers will be included. Marketing materials will be needed for physician resource managers to market the program and leave in physician offices and at community health fairs, since these materials will explain how to gain access to the program. More office supplies such as notebooks for Policy & Procedures, paper for documents, clipboards for charting, etc. will need to be purchased for the onset of this program. Furniture needed will be more stationary chairs, and TV with DVD capabilities for teaching purposes. As stated earlier there is no additional cost for space since the program will take place in an existing space. However, utilities must be added since normally this space would be closed on the days this program will utilize the space. The last expenses in the start-up budget are for the medical director and staff training. Before the first patient can be admitted, the medical director will need to review the Policy & Procedures and sign off on the manual and will also speak with other physicians about making referrals to the program. The staff will need to be trained in required documentation and clinic Policies & Procedures.

Personnel Budget

The grid below reflects the maximum potential for the personnel budget for the first year of operation of the pulmonary rehabilitation program. Each team member is listed in the first column and the annual salary spend is calculated in the second column. This spend is based on the maximum hours needed weekly in the pulmonary rehabilitation program. The last column in the grid reflects the personnel benefits paid by the employer for each team member. This was calculated by taking the number of hours spent in the clinic and divided by the total annual hours worked. Since XYZ Hospital spends roughly 28% of annual salary on benefits, this number was then multiplied by the percent of hours to spend in the clinic. For example, the clinic director will spend 6 hours per week in the clinic at a rate of \$50 per hour, which equals \$300 per week or \$15,600 annually. This would represent 15% of the annual hours. The annual salary was multiplied by 28% to get the annual benefits and then that number was multiplied again by 15%

to get the benefit spend that should be applied to the program. This process was followed for every team member. See below:

Table 3

Annual Personnel Budget

Team Member	Annual Salary	Employer Paid Benefits (28% see narrative)
Clinic Director	6 hours per week @ \$50 per hour = \$300 weekly = \$15,600 annually	\$4,368
Respiratory Therapist	24 hours per week @ \$25 per hour = \$600 weekly = \$31,200 annually	\$9,609
Respiratory Therapist	24 hours per week @ \$25 per hour = \$600 weekly = \$31,200 annually	\$9,609
Nurse	24 hours per week @ \$30 per hour = \$720 weekly = \$37,440 annually	\$10,483
Physical Therapist	6 hours per week @ \$30 per hour = \$180 weekly = \$9,360 annually	\$2,621
Dietitian	2 hours per week @ \$25 per hour = \$50 weekly = \$2600 annually	\$728
Psychologist	1 hour per week @ \$36 per hour = \$36 weekly = \$1872 annually	\$524
Case Manager	1 hour per week @ \$25 per hour = \$25 weekly = \$1,300 annually	\$364
Medical Director	\$12,000	0 (contracted service)
Totals	\$142,572	\$38,306

In summary, the annual maximum salary expense is \$142,572 and benefits are \$38,306.

Projected Monthly Budget

The projected monthly budget with projected income based on 28 patients per day attending the program three days per week is reflected in the grid below. The salaries, benefits, medical supplies, and utilities expenses are listed as well. This reflects a positive balance once expenses are deducted from income. See below:

Table 4*Projected Monthly Budget Summary*

Projected Monthly Budget Summary	Estimated	Actual	Difference
Income			
Patient charges (28/day)	\$20,020		
Expense			
Wages	\$11,881		
Benefits	\$3,192		
Medical Supplies	\$30		
Utilities	\$500		
Balance (Income - Expense)	\$4,417		

This grid could be used in monthly reporting to reflect program success.

Indirect Costs

There could be indirect costs and savings with this program. Obviously, the area would have to be cleaned by the environmental services department at XYZ Hospital, but this is already being done and this department already exists to take care of entire hospital. The security officers, maintenance services, registration, medical records, and information systems are all departments that would need to support this area but already exist for the coverage of the entire hospital. There would also be overhead building and maintenance costs for the hospital but are hard to quantify for this program specifically. Payroll services, accounting, and business office would be support departments too and again are in place for the entire hospital. As well any supplies that would be needed by any of the listed departments that are already being used for the rest of the hospital would be hard to tie back to this program.

The indirect savings would be the most important to point out. This savings would come from the patients attending the pulmonary rehab program and resulting in less emergency room visits, less hospital admissions, shorter length of stays, and less overall use of medical care in the community as evidence-based practice has already published in the medical journals and has been previously stated in this document. This would decrease the issue with these patients being readmitted within 30 days to the hospital, since they would be seen three times per week in the

program. This would allow the patients to better understand how to cope with their shortness of breath and would help them learn better techniques to breathe. The patients would also have better exercise tolerance and could do more for themselves without becoming so acutely short of breath with their activities of daily living, such as bathing, dressing, cooking, etc.

Narrative

The two financial statements to review are the income statement and balance sheet. First, the income statement reflects a report of financial performance over a specified accounting period. In this report, one would list the revenues first and deduct what it costs to produce those revenues. When those two numbers are subtracted, the result is gross profit or gross loss. From the gross profit/loss, the marketing expense, equipment expense, medical supplies expense, and general & administrative expense are subtracted, resulting in operating profit or loss. If there is any interest expense in the company, then that must be deducted from the operating profit or loss. This result becomes the pre-tax income. This pre-tax income must now have taxes deducted from that amount. The ending result becomes the net income or loss. Basically, all of this is depicted in Table 5 below and reflects that out of \$2,000,000 in profits, the company ends up with a final income or net profit of \$840,000.

The balance sheet reflects more of a snapshot in time, like one month or a quarter, and reflects financial position or condition. The accounting formula used is $\text{Assets} = \text{Liabilities} + \text{Stockholder's Equity}$. In an accounting format, the assets and liabilities are listed side by side, but in the report format the assets are above the liabilities and are in liquidity order. The assets are listed first, which includes cash, accounts receivable, inventories, etc. These are items that can be turned into cash quickly. This is what the company has as resources. The liabilities section includes what the company owes, and the equity is what is owned. So as reflected in Table 6, the assets are equal to the liabilities and equity combined. This sheet also allows one to see the working capital available in a company.

Financial Statements
Table 5*Income Statement for XYZ Hospital*

XYZ Hospital Income Statement	
Jan. 1, 2018 to Dec. 31, 2018	
Revenues	\$3,000,000
Cost of Goods	(-\$1,000,000)
Gross profit	\$2,000,000
Marketing Expense	(-\$150,000)
Equipment Expense	(-\$200,000)
Medical Supplies Expense	(-\$100,000)
General & Administrative Expense	(-\$200,000)
Total Expenses	(-\$650,000)
Operating Profit	\$1,350,000
Interest Expense	(-\$150,000)
Pre-tax Income	\$1,200,000
Taxes	(-\$360,000)
Net Income	\$840,000

Table 6*XYZ Balance Sheet*

XYZ Hospital Balance Sheet		
Report Form		
	31-Dec	
	2018	2017
Assets		
Current Assets		
Cash	\$100,000	\$70,000
Accounts Receivable	\$10,000	\$5,000
Inventories	\$100,000	\$92,000
Prepaid Expense	\$500	\$550
Total Current Assets	\$210,500	\$167,550
Property, Plant, & Equipment	\$75,000	\$65,000
Goodwill	\$45,000	\$40,000
Total Assets	\$330,500	\$272,550
Liabilities		
Accounts Payable	\$6,000	\$8,000
Accrued Compensation	\$17,000	\$15,000
Accrued Pension	\$1700	\$1500
Long-term Debt	\$10,000	\$12,000
Total Liabilities	\$34,700	\$36,500
Equity		
Common Stock	\$15,000	\$13,000
Retained Earnings	\$280,800	\$75,000
Total Shareholder's Equity	\$295,800	\$223,050
Total Liabilities & Shareholder's Equity	\$330,500	\$272,550

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