Gold Standards for the Treatment of COPD

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Introduction

An evidence-based practice project was developed through the EBP & Research Fellowship program with the clinical question, "In the Chronic Obstructive Pulmonary Disease (COPD) population does implementing Global Initiatives for the treatment of COPD and a Respiratory Therapist-driven COPD protocol as compared with physician directed Nebulizer/MDI orders affect the readmission rates for COPD, the number of nebulizer therapies ordered outside of recommended frequencies, and patient satisfaction?" The purpose of this project was to implement the Global Initiatives for the treatment of COPD in order to improve patient outcomes.

Methods

- In coordination with Physicians, Nurses, Respiratory Therapists and Pharmacists, implementation of a respiratory therapist driven COPD protocol to include Nebulizer to MDI conversion as appropriate, utilizing Administrative Policy #469: Nebulizer to Metered Dose Inhaler Conversion Protocol for Adult Patients and a new Administrative Policy #470: Gold Standard of Care for the COPD Population for the treatment of COPD patients.
- Patient Education on the use of inhaled medications as prescribed, panic control through pursed lip breathing controlled cough techniques, Positive Expiratory Pressure (PEP) or vibratory PEP therapy where applicable. Return demonstration with teach back will be included.
- Patient handouts were standardized with the Pulmonary Rehabilitation Department. The handouts are from the COPD Foundation Slim Skinny Reference Guide and education will be reviewed on an outpatient basis for all patients that qualified.
- Respiratory Therapist and Nurses Referred patients to Pulmonary Rehabilitation that had one or more exacerbation of COPD requiring two or more hospitalizations and/or ED visits annually.
- Smoking cessation information and medication’s were provided when it applied.
- On day of discharge or when stable a pre and post spirometry to grade disease severity or make a more confident diagnosis of COPD.

Inclusion Criteria:
Adult patients in non-critical care areas within NorthBay Healthcare with a primary diagnosis of COPD or history of COPD defined in the history and physical.

Exclusion Criteria:
Primary diagnosis of lung cancer and congestive heart failure.

Project Aims and Endpoints

- Respiratory Therapy/Nursing Practice: Reduction in nebulizer therapy outside of manufacturers recommended frequencies.
- Patient Outcomes:
  - Quality of life measured by COPD Assessment Tool
  - System/Organization: Decreased cost related to inappropriate/unnecessary ordered bronchodilators therapy, and reduction in 30 day readmission rate for COPD.

Results

- 30-day all cause readmission: baseline = 37.5%; post intervention = 10%
- Quality of life measured by COPD Assessment Tool (CAT): statistically significant difference between baseline and post intervention survey (p=0.03513)
- Nebulizer to MDI conversion: 53 patients converted (37.68%). Respiratory therapy was able to reduce number of therapies provided for 66 patients, which decreased staff hours and provided cost savings.
- Referrals to pulmonary rehabilitation: 39 patients referred (28.06%); 7 (4.32%) were actually enrolled. Some patients may have not been referred due to not meeting eligibility criteria and opportunities for improvement to hardwire the process.
- 13 patients were excluded from the data analysis due to the following reasons: 1) 1 patient had a LOS of over a year and was considered an outlier and 2) 12 patients received the benefits of the COPD education but a physician did not write the order to enroll them in the protocol.

Statistical Analysis

The data was evaluated using a one tail, two proportion t-test, to see if there is a reduction in the percent of patients who are readmitted within 30 days which is statistically significant. The level of significance will be 10% (i.e. alpha=0.10), and the power of the test will be 80%. A power versus sample size analysis indicates a sample size of 70 will suffice for the intervention group.

Discussion

It all started with acknowledging some frustration at the lack of tools to provide quality education for COPD patients at the bedside. With many patients who were frequently admitted, it became very common for the Respiratory Therapist to know their patients on a first name basis. Unfortunately for some patients, it was a revolving door of hospitalizations. Many therapists found it difficult to fully understand why these patients kept coming back but some did observe a lack of knowledge of how patients managed their COPD.

Due to the success of this project, multiple departments came together to see how they could further enhance this pilot project.

A new team developed including new physician champions. Respiratory Therapist, Discharge planners, Pharmacy, Home Health, and Quality improvement.

Conclusion

Using the Gold Standard protocol for the treatment of COPD and the MDI conversion protocol, patients nebulizer therapy to Metered Dose Inhalers were converted 38% of the time with good results. This is really important as inhalers are the most effective and cost efficient way to deliver medication to the lungs. Secondly, the number of nebulizer therapies ordered was reduced, preventing unnecessary treatments and less interruption to the patients. In addition, there was a cost savings for the patients and NorthBay. Efforts were successful in reducing nebulizer therapy to recommended treatment times for 44% of the patients involved in the program. Using the protocol, the Respiratory Therapists were able refer patients to Pulmonary Rehabilitation for 28% of the patients in the project.

The most telling result was the overall reduction in 30-day all cause readmission following hospitalization for acute exacerbation of COPD. The readmission rate for COPD patients during the project was 10%, compared to the previous year for the same duration of 14%.

This project not only stated its system and organizational goal to reduce cost related to inappropriate/unnecessary ordered bronchodilator therapy, and a reduction in 30-day readmission rates for the COPD patient.