Chronic Obstructive Pulmonary Disease: A Study to analyze COPD Care Practices in the United States

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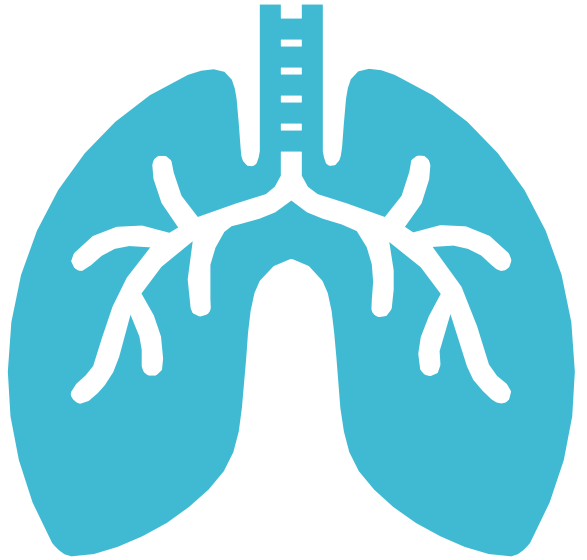


INTRODUCTION

- Chronic obstructive pulmonary disease abbreviated as COPD is defined by the Centers for Disease Control and Prevention as "a group of diseases that cause airflow blockage and breathing-related problems. It includes emphysema and chronic bronchitis".
- The most common symptoms of COPD are chronic cough, dyspnea, respiratory infections, cyanosis, fatigue, wheezing, excess phlegm, mucus, or sputum production.
- About 16 million people in the Unites States are suffering from this disease. In addition to this a large section of population remains undiagnosed.
- . It is projected that the costs associated with COPD patient care will rise to around $49 billion in 2020.

COPD National Action by Department of Health and Human Services highlights 5 main goals to address this chronic disease.

1.	The first goal is to increase the awareness about COPD in the community through outreach programs and make the community aware about the various risk factors.
2.	The second goal is to improve the way care is delivered to the patients suffering from COPD.
3.	The third goal is to promote data collection at all levels that can aid to make informed decisions.
4.	The fourth goal is to focus on research to identify the risk factors and progression of the disease.
5.	The fifth goal is to convert the recommendations of the national action plan to actionable policies

LITERATURE REVIEW

- COPD burden is much higher in the rural parts of United States when compared to the urban areas. The age-adjusted prevalence, Medicare hospitalizations and number of deaths attributing to COPD are much higher in the rural areas. This can be traced to the fact that rural population has higher prevalence of smoking and much lesser access to the smoking cessation programs and other educational programs. (Croft, JB. 2018).

- A study conducted to identify patients at higher risk for readmissions due to COPD states that 30-day readmissions attributing to COPD have association with factors such as age and insurance status of the patients (Simmering, J. 2016).

- A 2017 study found that 82.2% of the COPD patients who present to the emergency department with some clinical complaint were readmitted to the ED within 30 days of discharge. (Rezaee, M. 2018)

RATIONALE

- COPD is the third leading cause of mortality in United States and every year billions of dollars are spent on patient care for COPD. Hospital Readmissions Reduction Program introduced by Centers for Medicare and Medicaid Services imposes penalties on hospitals with excess readmissions due to COPD.

OBJECTIVES

- To study the prevalence of COPD in United States
- To identify the barriers to optimal care of COPD patients
- To study the best practices adopted by hospitals in United States for reducing COPD related readmissions

METHODOLOGY

Study design: Descriptive observational study

Data collection: Secondary research

Duration of study: 3 months (18th Feb 2020 to 18th May 2020)

Data Collection Tool: Research studies, posters, journal articles, surveys

Data analysis

To analyze the prevalence of COPD secondary data was obtained from Behavioral Risk Factor Surveillance System (BRFSS) and analyzed using MS-excel. National and state-wise prevalence of COPD was analyzed.

To analyze the barriers to optimal care of COPD patient's literature review of 5 research studies and articles based on care delivery in United States was conducted. The findings were presented in tabular form.

To analyze the best practices adopted by organizations, 10 healthcare organizations who have implemented COPD readmission reduction programs were selected.

After conducting a thorough review of studies, the interventions and outcomes of the programs and strategies were summarized in tabular form.

Data analysis

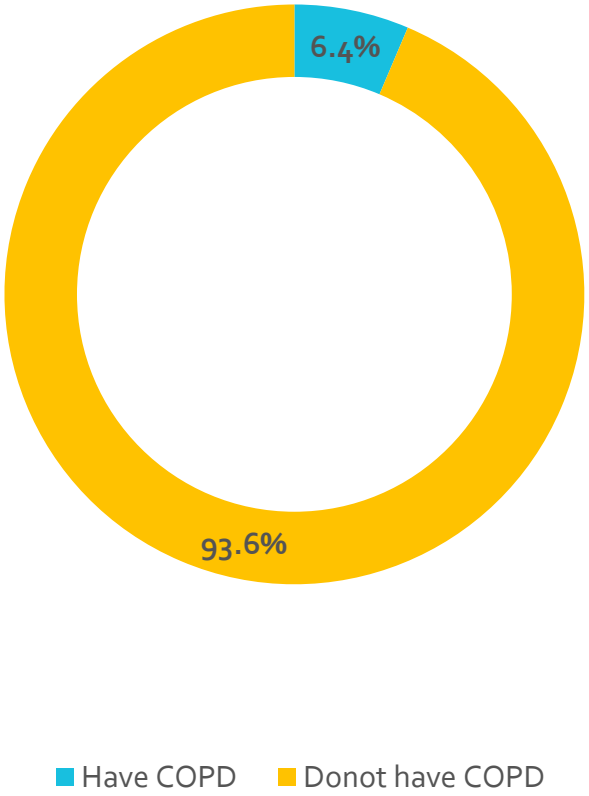
Inclusion Criteria: Studies published between 2016 to 2020, based out of United States

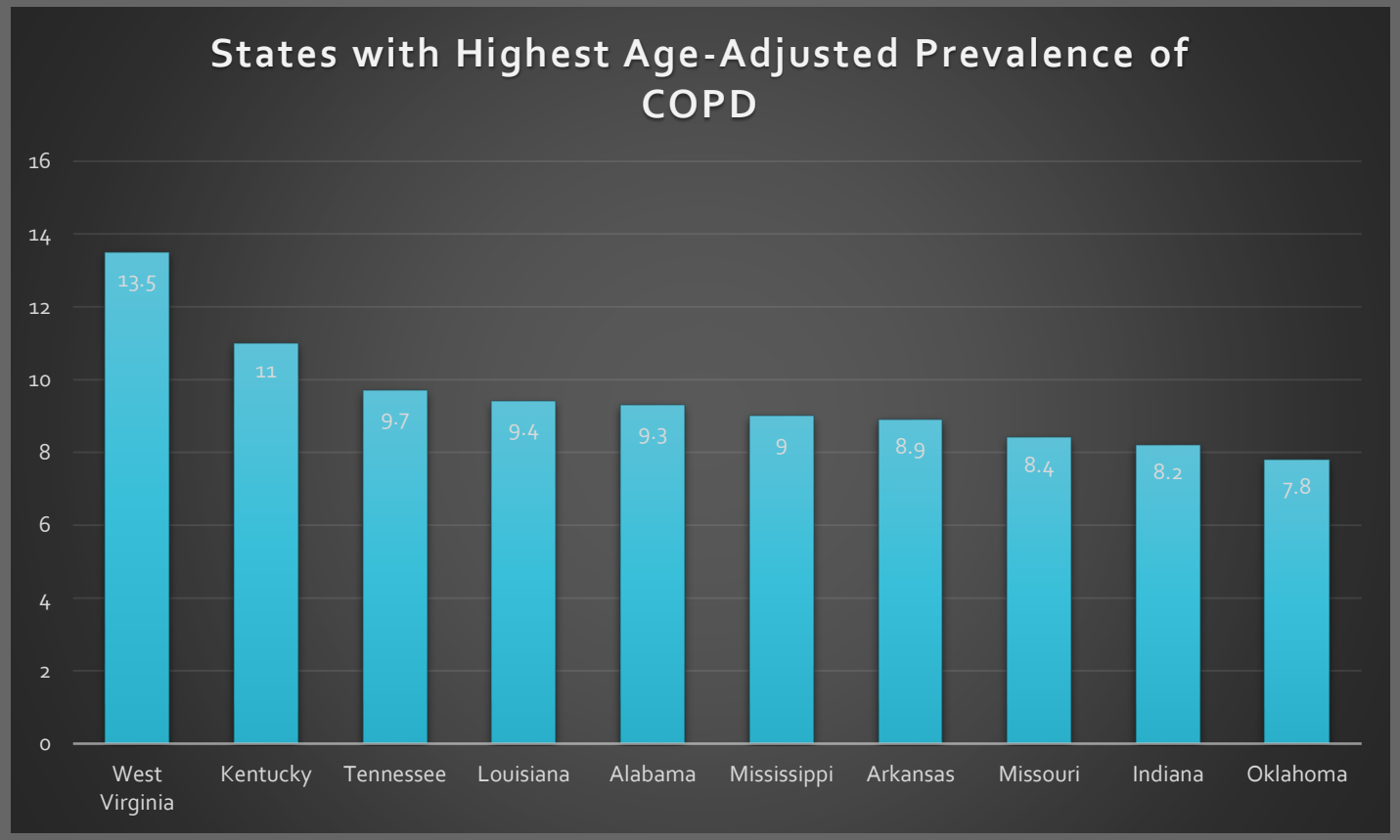
Exclusion Criteria: Studies published before 2016 and not based out of United States

FINDINGS

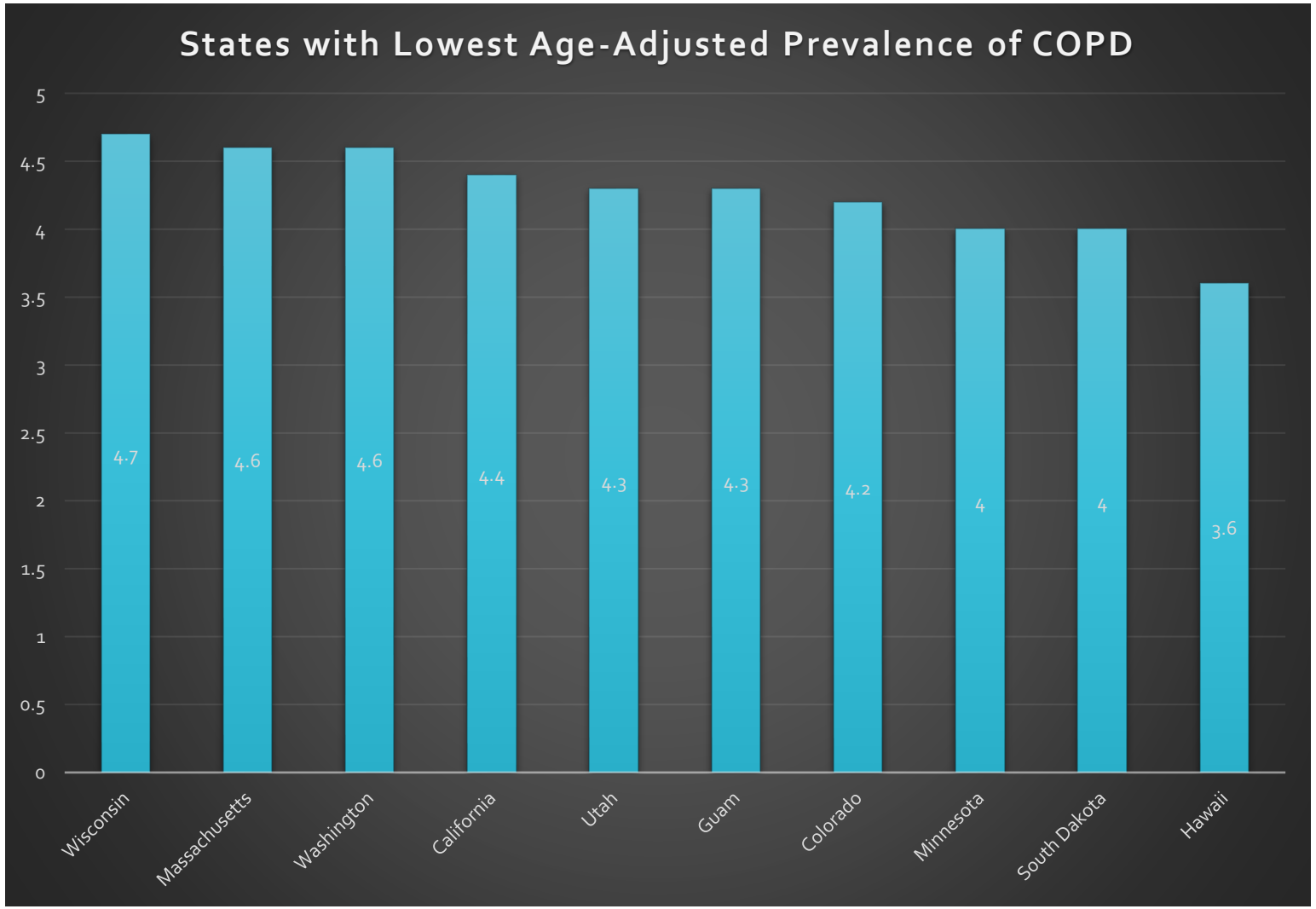
Prevalence of COPD in United States (2018)

- According to the 2018 BRFSS survey, the prevalence of COPD in United States is 6.4%





West Virginia has the highest prevalence of COPD (13.5 %)



Hawaii has the lowest prevalence of COPD (3.6%)

BARRIERS IN OPTIMAL CARE OF COPD PATIENTS

Year	Author	Findings
2018	Press, VG et al.,	Barriers that hinder optimal care include lack of patient education, lack of discharge guidelines, lack of patient and family engagement, inadequate follow-up visits, lack of standardized diagnostic and treatment guidelines, lack of access to pulmonary rehabilitation.
2018	Bocharnikov, A et al.,	Study suggests that noncompliance to medication, inadequate support for smoking cessation, lack to access to pulmonologist are reasons that can impact care delivery in COPD patients.
2018	Sethi, S	The challenges include lack of standardized guidelines, noncompliance of patients to treatment guidelines, improper diagnosis of COPD exacerbation symptoms
2016	Han, MK et al.,	Unavailability of written protocols, inadequate access to pulmonary rehabilitation, lack of patient education, lack of medication adherence, lack of standardized COPD guidelines, lack of access to specialist care such as pulmonologist, unaffordable drugs can impact care delivery.
2016	Willard, KS et al.,	Barriers include lack of care coordination, improper transitions, lack of patient education, lack of rehabilitation services, improper follow-up visits.

Practices adopted by U.S Hospitals in reducing COPD related readmissions

Year	Author	Organization	Study Population	Intervention	Outcome
2019	Spinella, AJ	Unity Point-Methodist Hospital	Retrospective data of patients admitted with diagnosis of COPD	Adopted nurse navigator approach in which nurses kept a check on patient progress, educated patients on inhaler techniques, scheduled follow-up visits and coordinated with the case managers regarding medication regimen of the patients.	The 30-day re-admission rate reduced from 14.5% to 7.7%.
2019	Bhatt, SP et al.,	University of Alabama at Birmingham	Patients who were admitted with acute exacerbation of chronic obstructive pulmonary disease	Implemented a video telehealth pulmonary rehabilitation program which consisted of 36 exercise sessions for 12 weeks as well as educational sessions on smoking cessation, appropriate inhaler techniques.	The readmission rates for patients enrolled for the program were much lesser (3.8%) in contrast to other patients (11.9%).
2019	Elfessi, Z et al.,	Jesse Brown VA Medical Center	Patients with diagnosis of acute exacerbation of chronic obstructive pulmonary disease	Implemented Discharge Plan of Care for COPD (DIPLAC) which includes providing written COPD-specific action plan, medications for emergency use, instructive videos, outpatient clinic appointment within 48 hours.	Reduction in return visits for Acute Exacerbations of COPD was observed among the patients that were enrolled for the plan
2018	Wynn, N et al.,	University of Miami Hospital	Patients coming to the emergency department with diagnosis of COPD	Implemented a multidisciplinary team approach in which the team is alerted whenever a patient with diagnosis of COPD visits the ED.	Readmission rate reduced from 21% to 19% over a 12-month period.

Practices adopted by U.S Hospitals in reducing COPD related readmissions (Cont.)

Year	Author	Organization	Study Population	Intervention	Outcome
2018	Waddell, D et al.,	Baptist Health	Patients admitted with diagnosis of COPD	Adopted a multidisciplinary approach which included counselling on smoking cessation, teaching proper inhaler technique, patient education and adoption of new treatment protocol.	Readmission rate reduced from16.8% to 13.6%.
2018	Euceda, G et al.,	Danbury Hospital Connecticut	Patients with a diagnosis of acute exacerbation of chronic obstructive pulmonary disease	Adopted a comprehensive care management program (CCMP) which allowed smooth transition between hospital and home. Patient care navigators were appointed who followed up patients after discharge and addressed their queries regarding medications and any other issues the patients were facing.	Post implementation of the program the readmission rates reduced from 21.6% to 13.6% over a period of one year.
2017	Muhammad , AZ et al.,	University of Cincinnati Medical Center	Patients with diagnosis of COPD who were readmitted to the hospital	A multidisciplinary team created COPD care bundles which consisted of five main components majorly focused on inhaler regimen and follow up visits.	The readmission rate decreased from 22.7% to 14.7%.

Practices adopted by U.S Hospitals in reducing COPD related readmissions (Cont.)

Year	Author	Organization	Study Population	Intervention	Outcome
2017	Agee, J	St. Joseph Regional Medical Center, Idaho	Patients above 18 years with COPD diagnosis	Adopted a chronic care model which includes components such as delivery system design, clinical practice guidelines, clinical information systems like patient registry and methods to track patient progress.	Post the implementation of this quality improvement project, the organization observed a marked reduction of 46.03% in COPPD readmissions.
2017	Russo, AN et al.,	Cleveland Clinic Main Campus Hospital	Patients who have been hospitalized 2.8 to 3.0 (average) times, with 3 to 3.1 times physician care visits and had visited pulmonary out-patients visits 1.7 to 2.4 times	Two interventions were put into place- First being the setup of COPD exacerbation clinic and the second being the employing care coordinators. The exacerbation clinic included conducted physical examination and patient counselling after one week of discharge. The care coordinator weekly contacted the patients after 30-days of discharge.	The 90-day readmission rate for patients visiting exacerbation clinic was 35.8%, 50% for care coordinator group and 41.2% for patients enrolling for both interventions. For patients receiving none of the two interventions the 90-day readmission rate was 80.8%.
2016	Parikh, R et al.,	Rush University Medical Center	COPD exacerbation patients admitted in the hospital	Developed care bundles for treating COPD exacerbation cases. The care bundles were formed by a multidisciplinary team of experts taking into consideration COPD exacerbation guidelines.	The 30-day in patients treated using COPD care bundle approach decreased was 9.1% and in patients treated without it was 54.4%.

ANALYSIS

Prevalence of COPD in United States

Some of the facts reported in West Virginia BRFSS report (2018) that can be accounted to high prevalence of COPD in West Virginia include:

- The median household income accounts to $44,097 which is much lesser than national median household income $61, 937.
- The proportion of poverty is 19.1%.
- The health status of 26.3% adults in West Virginia is considered to be fair or poor
- West Virginia has highest prevalence of poor physical and mental health in United States.
- The health status of 26.3% adults in West Virginia is considered to be fair or poor
- 19.5% adults in the state don't have personal health care provider
- 14.6% adults were not able to afford medical care in the previous year
- State has highest prevalence of cardiovascular diseases (14.6%)
- State has second highest prevalence of diabetes (15.0%)
- Second highest prevalence of tobacco use (28.4%) which is a major risk factor for COPD

Lack of patient education

Improper follow-up visits schedule

Lack of standardized guidelines

Noncompliance to medications

Lack of discharge planning guidelines

Barriers To Optimal Care Of COPD Patients

Best Practices Adopted By Hospitals In United States For Reducing COPD Related Readmissions

Pre-discharge

1. **Developing care bundles**

The components of the COPD care bundle include:

- Educating patients regarding inhaler regimens
- Adopting inhaler regimen based upon GOLD guidelines
- Developing discharge instruction tool so that uniform education is provided to all patients
- Ensuring follow-up visit plan

Best Practices Adopted By Hospitals In United States For Reducing COPD Related Readmissions (Cont.)

2. Adopting Chronic care model

The major components of the chronic care model include

- Developing clinical practice guidelines for diagnosis and treatment based upon the GOLD guidelines
- Concentrating on patient education during the hospital stay
- Training the healthcare providers to properly instruct patients for the use of inhalers

3. **Adopting Multidisciplinary Team Approach**

Multidisciplinary team consisting of physicians, nurses, social workers, pharmacists, respiratory therapists helps to provide care in comprehensive and efficient way.

Best Practices Adopted By Hospitals In United States For Reducing COPD Related Readmissions (Cont.)

4. Developing Discharge Plan of Care for COPD (DIPLAC)

The discharge plan of care focuses on streamlining the discharge process and providing uniform education to the patients. It focuses on educating the patients regarding medication administration, steps to follow in case of emergency situations, and importance of follow-up visits after discharge.

5. **Employing Patient care navigators**

Patient care navigators helped in transition from hospital to home. The care navigators educated the patients regarding medication administration, addressed financial and social problems faced the patients and coordinated the follow-up visits of the patients.

Best Practices Adopted By Hospitals In United States For Reducing COPD Related Readmissions (Cont.)

Post-discharge

1. Telehealth Pulmonary Rehabilitation Program

The rehabilitation program includes exercises prescribed by the physicians along with aerobic exercises and yoga over teleconferencing device given to the patients. It also focused on providing educational sessions on smoking cessation, self-management techniques were inhaler techniques to the patients.

2. **COPD exacerbation clinic and Care Coordinators**

- The outpatient clinics focused on conducting follow-up visits for COPD patients after discharge. Thorough physical examination of patients is conducted in the clinic along with providing counselling.
- Care coordinators help to coordinate follow-up patients after discharge and address any other issues that are patients are dealing with. They serve as a point of contact for the patients after discharge.

CONCLUSION

- In United States COPD is one of the major causes of mortality and morbidity. According to the BRFSS survey the prevalence of COPD is 6.4% with West Virginia being the state with highest prevalence of COPD
- Various barriers can hinder optimal care include lack of patient education, improper follow-up visits, non-compliance to treatment and lack of care coordination.
- Adopting strategies such as standardizing workflows and treatment protocols, adopting care bundle approach, can significantly contribute in reducing the readmission rates.
- Patient navigator's system, rehabilitation programs, telehealth programs, post discharge follow-up visits and patient education can play an important role in reducing complications after discharge from the hospital.

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THANK YOU