

Managing Chronic Obstructive Pulmonary Disease:

An Interprofessional Approach

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Research Question

What would be an interprofessional primary approach to keeping a COPD patient healthy, if the patient is classified as ‘most disadvantaged’ by the Area Deprivation Index (ADI) and has concomitant cardiovascular disease and lung cancer?

Background

- Over 15 million Americans suffer from Chronic Obstructive Pulmonary Disease (COPD), a group of diseases that includes emphysema and chronic bronchitis.
- COPD primarily affects adults over 40 and common symptoms include chronic cough, shortness of breath while doing everyday activities, frequent respiratory infections, and wheezing.
- Risk factors for COPD include, but are not limited to, smoking, pollutant exposure, secondhand smoke, alpha-1 antitrypsin deficiency, ethnicity, and socioeconomic status.
- Unfortunately, 45% of those estimated to have COPD remain undiagnosed; by the time COPD is diagnosed, lung function can be reduced by more than 60%.
- Prior to COVID-19, chronic lower respiratory diseases, including COPD, represented the 3rd leading cause of death in the US, following heart disease and cancer. These leading diseases are all linked--- COPD increases the risk of cardiovascular disease and lung cancer by two-fold or more, while lung cancer and cardiovascular disease are the leading causes of morbidity and mortality in patients with COPD.

Objective

This project aimed to develop an interprofessional annual wellness visit that would allow for comprehensive management of COPD and its comorbidities, mitigation of symptoms, and development of strategies for primary and secondary prevention.

Methods

A team of nine pre-licensure health professional students received interprofessional education in the form of a two-year longitudinal curriculum that included engaging directly with a community member and case-based learning. The team reviewed relevant literature to create an annual wellness visit for patients diagnosed with COPD who are classified as ‘most disadvantaged’ by the Area Deprivation Index (ADI). Each student made evidence-based suggestions for screening and diagnostics from the perspective of their respective health professions. Duplicated services were removed, and the team discussed prioritization of procedures/tests that were most necessary, based on best practice guidelines for COPD.

Results

The developed wellness visit consists of assessments, diagnostic procedures, screenings, and treatment from a healthcare team comprised of medical, dental, nursing, and respiratory therapy professionals. The total estimated cost was \$829.69 for Louisiana residents with Medicaid. Predicted benefits of the interprofessional approach include decreased likelihood of errors, avoidance of unnecessary testing, multiple perspectives on health management, and increased patient satisfaction.

Annual Wellness Visit

| Team Member | Assessments | Codes | Costs | |
|--|---|---------------------------------|-----------------------------------|---|
| Medicine | Assessment/diagnostic: | 99204 | Outpatient visit: \$96.56 | |
| | - Family, occupational, smoking, and immunization history | 99320 | Doppler echocardiography: \$50.53 | |
| | - Full physical exam | 99407 | Smoking cessation: \$21.65 | |
| | - Order and interpret basic metabolic panel, chest x-ray, and echo cardiogram | 80053 | Complete metabolic profile: \$34 | |
| | - Order alpha-1-antitrypsin screening test | 71045 | Chest X-ray: \$200 | |
| | Treatment and secondary prevention: | 82104 | Alpha1-antitrypsin: \$117 | |
| | - Smoking education and cessation counseling | | | |
| | - Pulmonary rehabilitation referral and education | | | |
| | Dentistry | Assessment/diagnostic: | D0150 | Comprehensive oral examination: \$47.37 |
| | | - Periodontal disease screening | D1110 | Prophylaxis: \$48.01 |
| - Dental Caries screening | | | | |
| - Oral, head and neck cancer screening | | | | |
| Treatment and secondary prevention: | | | | |
| - Treatment of periodontal disease and caries | | | | |
| - Smoking cessation education | | | | |
| - Proper oral hygiene education to prevent periodontitis | | | | |
| Nursing | Assessment/diagnostic: | Services incident to MD, PA, NP | Services incident to MD, PA, NP | |
| | - Documentation of patient vitals and history | | | |
| | Treatment and secondary prevention: | | | |
| | - Disease education | | | |
| | - Medication education and device usage education | | | |
| - Lifestyle modifications | | | | |
| - Vaccine administration (influenza, pneumococcal, COVID-19, etc.) | | | | |
| Respiratory Therapy | Assessment/diagnostic: | 94070 | \$39.87 | |
| | - Perform cardiopulmonary physical exam | 94200 | \$14.44 | |
| | - Perform pulmonary function testing | 94640 | \$8.42 | |
| | - Perform 6-minute walk distance test | 94726 | \$34.51 | |
| | Treatment/secondary prevention: | 94727 | \$27.26 | |
| | - Oxygen administration and management | 94729 | \$34.07 | |
| | - Oxygen and equipment education | 94626 | \$56 | |
| - Medication administration | | | | |
| - Pulmonary rehabilitation management | | | | |
| - Disease education | | | | |
| - Chronic bronchitis vs Emphysema vs Combination | | | | |
| Total cost: \$829.69 | | | | |

Impact of ADI

- The ADI is a neighborhood-level composite socioeconomic score.
- Higher ADI is associated with increased risk of multimorbidity, hospital readmission, and worse COPD-related outcomes.
- The influence of area-deprivation on lung function, independent of individual socioeconomic status and individual smoking habit, suggests that environmental determinants and neighborhood-level socioeconomic factors (such as air quality, access to education, substandard housing, etc.) also need to be examined when considering measures to improve respiratory health, enhance quality of life, and promote healthy equity in people with COPD.

Conclusions

While an interprofessional annual wellness visit can be more expensive than a traditional visit, this approach is grounded in holistic care of the patient and organization of the most efficient treatment plan. Furthermore, it allows for streamlined operations and enhanced wellness of the healthcare team. Utilizing an interprofessional approach can help to reduce complications, exacerbations, and long-term sequelae of COPD, which could reduce costs significantly over time, especially for patients with co-morbid conditions.

Reflections

Interprofessional collaboration is vital to effective patient-centered care, as health decisions made by a diverse team of health professionals with a wide array of knowledge and expertise are generally more comprehensive. Collaboration and an enhanced understanding of other professions offers valuable benefits for both providers and patients. This includes prioritization of health equity and addressing factors beyond clinical treatment (including social determinants of health, education, and health literacy), which ultimately serves to improve population health and wellbeing. After reflection, we would also recommend inclusion of social work services in the interprofessional visit, to address and mitigate the aforementioned influence of ADI factors beyond clinical treatment.

Acknowledgment

This work was supported by the LSU Health Sciences Center New Orleans Center for Interprofessional Education and Collaborative Practice. Thank you to Dr. Tina Gunaldo and my fellow TeamUp members- Nicole Catalano, Jacob Cambre, Olivia Borrello, Thomas Jahde, Katherine Hotard, Jordan Jackson, and Gavin Hosch.