

Case Finding COPD and Comorbid Non-Cystic Fibrosis Bronchiectasis (NCF-BE) in Rural Upstate New York: Keystone to Successful COPD Population Health Management

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ABSTRACT

COPD is a major cause of morbidity and mortality as well as healthcare related dollars consumed annually in the US. The 30-day readmission rate for COPD of 10-20% remains a significant contributor to both the clinical and economic healthcare burdens associated with the management of patients with this chronic disease. Within this group, a sizable fraction of patients have non-cystic fibrosis bronchiectasis (NCF-BE), a condition that adds to patient risk and increases the cost of care.

This poster describes a population health initiative in a rural New York community that sought to improve patient care by concerted case-finding of COPD and NCF-BE patients along with providing optimized therapy. The program greatly improved case-finding yield while also reducing health care utilization compared to the same period in the prior year. This proof-of-concept shows that a carefully planned program can improve healthcare metrics in a population that is traditionally difficult to treat.

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INTRODUCTION

There has been growing recognition of non-cystic fibrosis bronchiectasis (NCF-BE) as a significant confounding comorbidity among the COPD population. This demands that any effective population health management approach to COPD include NCF-BE case-finding and appropriate treatment. To date, health care delivery systems have fallen short in the case-finding and treatment of COPD and NCF-BE, particularly in rural settings.

METHODS

- A comprehensive COPD innovation program was executed in rural upstate New York (January – August 2018).
- Vigorous case finding was implemented to identify patients with comorbid NCF-BE.
- The program is designed in a modular format that affords a multi-pronged approach to COPD management.
- The program consists of four modules, each divided into four steps.
 - *Module 1*, identify individuals with COPD who have not yet been diagnosed and identify those individuals with putative COPD who do not, in fact, have COPD
 - *Module 2*, provide maximal medical management of patients with spirometrically confirmed COPD
 - *Module 3*, ensure GOLD-compliant inpatient therapy for all confirmed cases of COPD, identify NCF-BE by high resolution computer tomography (HRCT), and effectively manage NCF-BE with high frequency chest wall oscillation (HFCWO)
 - *Module 4*, institute an effective post-acute pulmonary care model
- Implementation of the program required outreach and training of the majority of primary care providers of St. Lawrence County, NY.

RESULTS

- Over half of the 43 total primary care providers (27 physicians, 16 mid-levels) that service the attributed lives to St. Lawrence county attended at least one of the training sessions (53%, 23/43).
- Since implementing the program, 49 referrals for NCF-BE (23 female, 21 male) were received from 18 unique providers, compared to zero such referrals in the prior 12 months.
- Of the 49 referrals, 71% (35/49) received a diagnostic HRCT scan, and 49% (24/49) were deemed clinically appropriate for airway clearance therapy with HFCWO.
- Since implementing this program, the number of patients requiring hospitalization and emergency department visits for COPD dropped 30.3% and 24.5%, respectively, compared to the same monthly period in the prior year.

Schematic representation of the comprehensive COPD program



Utilization Before and After Implementation

Measure	Jan-Jun 2017	Jan-Jun 2018	% Change
ED Log Account Count	302	212	-30%
ED 48hr Return %	3.62%	3.85%	0.23%
ED 72hr Return %	5.80%	4.81%	-18%
ED Visits D/C to Observation	57	37	-35%
ED Visits Departed	92	70	-24%
ED Visits Admitted	153	105	-32%
% ED Visits Admitted	50%	50%	0%
Total Acute Admissions	156	102	-35%
COPD and Asthma Discharges per 1000 beneficiaries	19.90	16.69	-16%

Table 1. Emergency room visits and hospitalizations before and after implementing comprehensive COPD program. Utilization data from the Canton-Potsdam hospital electronic medical records system, utilizing industry-standard Dimensional Insight algorithms. Discharge data from CMS provided to the North Country accountable care organization.

DISCUSSION

- COPD has often been misdiagnosed in the absence of consistent use of spirometry, particularly in primary care settings.
- This program ensured that existing, as well as new patients, were properly diagnosed within the St. Lawrence system.
- Comprehensive training has increased the number of COPD and NCF-BE cases under care.
- Optimal treatment of these patients has shown a reduction in healthcare utilization.

CONCLUSIONS

- Training primary care providers on a COPD/NCF-BE case finding and management program can greatly improve diagnostic yield, as well as access to appropriate and effective management for COPD and comorbid NCF-BE patients.
- Associated with this program is a reduction in avoidable healthcare utilization in a rural New York State system.
- This proof-of-concept result is remarkable for a patient population that is traditionally difficult to treat.