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Overcoming Challenges in COPD Management

An Exploration of Virtual Care to Improve Outcomes and Lower Costs

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Executive Summary

Chronic obstructive pulmonary disease (COPD) is the third leading cause of death and the fifth most costly chronic condition in the United States.

This complex medical condition, often accompanied by numerous comorbidities and low resource or socioeconomic status, imposes an outsized toll on vulnerable and underserved communities. Unacceptable patient outcomes may be perceived as being due to low patient engagement, inadequate self-management capabilities, a lack of adherence to treatment protocols, and persistent gaps in access to specialists and pulmonary rehabilitation (PR).[1]

Overall, costs associated with COPD in the U.S. amounted to $49 billion in 2020, an increase of 52.6% from 2010[2]. Largely because of increases in the number of older patients with COPD, another study predicts similar trends that will drive annual direct costs to $77 billion by 2030[3]. In 2018, on a per capita basis, patients with COPD paid $6,246 more in direct healthcare costs than did patients without COPD.

Repeated hospitalizations and emergency department (ED) visits account for most direct healthcare costs for these patients. The average cost per patient for each readmission to a hospital now exceeds $12,000. Admission to an ICU with intubation typically costs $45,000.[4]

Since the ongoing pandemic compelled changes in the delivery of health care, many healthcare providers and third-party payers are beginning to embrace alternative, at-home methods of managing COPD care.

The Wellinks Virtual First Care (V1fvC)[5] program for COPD offers an evidence-based solution to improve patient outcomes and quality of life while reducing costs to patients, providers, and payers. This white paper explains how such results are possible.

Wellinks also provides convenient access to pulmonary rehabilitation (a proven, yet dramatically underutilized therapy), behavioral-motivational support through health coaching, and technologies including software and sensors to empower members in the self-management of their COPD. Rather than simply blaming patients for poor outcomes, Wellinks taps into patient abilities and resources for self-management, and then meets them with a positive, supportive, solution. By pairing improved self-management with traditional outpatient specialists and primary care, significant improvements in costs, outcomes, satisfaction, and access can be achieved.[6]

The Current COPD Patient Experience

Those diagnosed with COPD face a challenging journey. Although the etiology of COPD varies, the condition involves moderate to severe difficulty in breathing due to damaged respiratory tissue. COPD is progressive and usually leads to more frequent Emergency Department (ED) visits, hospitalizations, and readmissions. Acute flareups (called exacerbations) of breathing difficulty are extremely disruptive, debilitating, and expensive. Finally, COPD is often accompanied by other chronic conditions such as diabetes and cardiovascular disease that may complicate treatment.[7]

People living with COPD often find it overwhelming to manage daily tasks including meal preparation, household chores, and self-care. Getting enough exercise is daunting for those who suffer from severe fatigue and reduced functional capacity caused by shortness of breath. Moreover, the increased confusion and memory loss associated with COPD adds to the difficulty of such self-care tasks as managing the timing and dosage of medications.[8,9]

Chronic, progressive difficulty in breathing usually leads to diminished quality of life. The trials of daily living impose personal and social consequences. Working becomes progressively more difficult, often resulting in filing for disability or taking early retirement (with associated loss of income). Interacting with family and friends can be exhausting. Traveling outside the home poses challenges in terms of mobility, access to medications, reduced energy level, and access to supplementary oxygen if needed.

All these lifestyle factors can lead to difficulty adhering to prescribed treatment protocols: taking medications, getting sufficient exercise, engaging in breathing exercises, implementing dietary changes to reduce exacerbations, etc. Inability to manage such activities usually leads to more frequent exacerbations that, in turn, cause the disease to progress more rapidly and increase costs.

The Wellinks program is designed to arrest such a downward spiral by helping COPD patients to manage their own care and achieve their own lifestyle goals while reducing the cost of treatment.

Direct costs to COPD patients include:

- ED visits and hospitalizations
- Prescription drugs
- Medical equipment
- Home care

According to the National Health Interview Survey (NHIS), "In 2018, 16.4 million people, or 6.6% of adults, reported a diagnosis of any type of COPD (chronic bronchitis, emphysema, or COPD)."[10] Based on spirometry readings of lung function, COPD has also been estimated to go undiagnosed in 12 million people.[11] Moreover, COPD often occurs with comorbidities that include heart failure, lung cancer, diabetes, and other cardiovascular disorders.[12]

When severe exacerbations occur, an emergency situation develops, resulting in staggering costs for all involved.

The dynamic extends out to costs for medication, doctor visits, and necessary medical equipment. Under the Affordable Care Act, private insurers can no longer limit coverage of COPD by referring to it as a preexisting condition.

Indirect Costs to patients include:

- Loss of income due to absenteeism, forced early retirement or disability
- Disruption of daily life activities and lower quality of life
- Impaired relationships with family and significant persons
- Emotional and physical strain on caregivers
- Mental health/emotional strain on individual – anxiety & depression, excessive stress of managing condition

A 2012 population study showed patients of working age with active COPD to, on average, have more frequent periods of work absence than those without COPD (12.8% vs 8.9%) and to have longer periods of absence (39 days vs 13 days).[13]

Another thorough 2010 study added restricted activity days to absences to quantify overall estimated indirect costs:

> Approximately 13%–18% of those with COPD are limited in the amount or type of work they can do and one-third or more experience general activity limitation. Estimates of restricted activity days range from 27–63 days per year...
>
> Estimates of bed confinement range from 13–32 days per year.
>
> Estimated mean annual indirect costs were $893–$2,234/person (US dollars) with COPD ($1,521–$3,348 in 2010 [US dollars]).[14]

Society at large bears these costs. Lost productivity, and continually rising premiums for employee healthcare insurance coverage make so-called "indirect costs" a matter of economic concern to patients, their families, providers, and payers.

Lifestyle and emotional costs emerge as daily functioning declines. It exacts an enormous toll emotionally, psychologically, and physically on patients, their family, and caregivers. Often, close family members must fill the role of caregiver themselves.

To maintain quality of life in a degenerative context means to manage a patient's level of exercise, prescribed medications, diet, physical environment, and coordination with healthcare providers. All this must be handled while also supporting the morale of everyone concerned.

Moreover, many patients do not feel sufficiently supported in managing their disease, and as a result, have feelings of inadequacy and of being a burden to others.

It is in everyone's interest to reduce exacerbation-related hospitalization and ED visits. Effectively managing medications, diet, coordination with medical providers, and needed lifestyle changes, are practical steps to reducing exacerbations.

And that's where Wellinks can help.

Increasing Costs to Providers and Healthcare Institutions

COPD increases costs to clinical providers and healthcare institutions in three ways:

1. Excessive rates of re-hospitalizations and ED visits
2. Complex and inefficient clinical pathways during transitions of care
3. Intensive resource burden on clinical and administrative staff

As recently as 2018, the average cost per COPD patient readmission in the U.S. fell between $9,000 and $12,000. Usually, such readmissions occur because of an exacerbation that results in an ED visit. Moreover, recent CMS policy intended to reduce readmissions within 30 days resulted in fines totaling more than $564 million to be levied against some 2,500 hospitals[15].

Lack of patient adherence to treatment protocols adversely affects patient outcomes. Expense of medications, inability to ingest proper dosage (orally or via inhaler), barriers to maintaining prescribed diet and exercise practices, and lack of training for caregivers can reduce patient adherence.

When patients aren't given the tools to succeed, providers, too, face difficult challenges. For example, when patients are not engaging in self-management of their condition, exacerbations increase and put a strain on the healthcare system. Exacerbations tend to increase in frequency and severity, leading to unplanned physician visits, ED visits, and hospitalizations. Such developments demand more of a provider's attention, create a need to hire more trained staff, and ultimately lead to more provider burnout. Failure to attain quality-of-care goals can directly impact costs. Indeed, such factors interact with one another to create a vicious cycle that rapidly increases costs.

Increasing Costs to Payers

Costs to payers are largely related to hospitalizations, outpatient visits, ED visits, and prescription medications. Severe exacerbations increase all these factors.[16] Therefore, any approach that reduces the frequency and cost of these factors should be welcomed by health insurance carriers.

Increases in severe exacerbations are especially concerning to payers insofar as exacerbations account for most costs associated with COPD patients. Furthermore, COPD patients generate twice the healthcare cost as do patients without COPD.[17]

For example, in 2010, the mean total cost per patient/quarter with severe exacerbation was $17,016. With non-severe exacerbation, the mean total cost per patient quarter was $6,628.[18] While such costs have surely risen, the main point is that reduction in severity, as well as the number of exacerbations, will produce significant cost savings for Medicare/Medicaid and private insurers.

By partnering with Wellinks, payers implement a strategy to significantly reduce costs while improving patients' quality of life.

Social and Economic Costs of COPD

In 2021, direct costs stemming from COPD total $32 billion, and indirect costs add up to $20.4 billion in the U.S.-three times the costs for non-COPD patients.

This figure directly affects patients, providers, and payers.

Another recent study projects direct medical costs of COPD in the U.S. for the 20-year period from 2019 to 2038 to be $800.90 billion-an astounding rate of growth.[19]

The Wellinks Program for COPD Management

Factors that lead to reduction of costs for treatment of COPD include:

1. Reduction of the number and severity of exacerbations
2. Improved patient adherence to treatment protocols, healthy behaviors and lifestyle changes
3. Management of care outside a hospital/ED setting

Programs that result in all three outcomes are especially likely to produce desired results.

Two hospital-based programs in the past — one at Johns Hopkins Medicine in 1994[20] and the other at Presbyterian Healthcare Services in Albuquerque, NM, in 2011[21] — demonstrated the general cost-effectiveness of such a virtual approach for patients with severe chronic conditions.

More recently, integrated virtual care has gained the attention of healthcare providers and payers. Furthermore, during the COVID-19 pandemic, integrated virtual care became accepted and widely used as a standard method of delivering care to patients with chronic conditions.

Building on the success of integrated virtual care and focusing on COPD patients, the Wellinks integrated V1C program addresses factors that lead to improved quality of care and reduced costs.

The Wellinks solution:

1. Supports COPD self-management at home
2. Provides virtual pulmonary rehabilitation (PR) services
3. Empowers patients to advocate for their health and engage in their care
4. Syncs data with patient's care team and payer
5. Encourages and monitors patient adherence

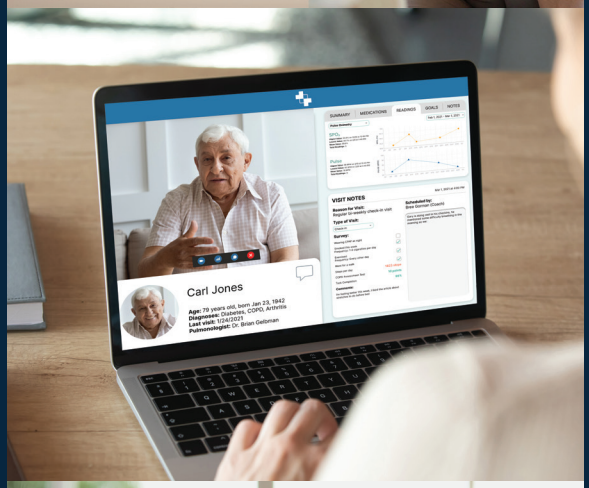
Most analysts now accept that in-home monitoring improves the quality of care for COPD patients and reduces financial and lifestyle costs. Such initiatives improve identification of gaps in care, support patient adherence to treatment protocols, diminish administrative challenges and time spent processing claims, and reduce exacerbations and hospitalization rates.[22]

For example, at-home telemonitoring reduces ED visits for 71.5% of moderate-severe COPD patients.23 Supported self-management of COPD reduces hospitalizations by 39.8% and ED visits by 39.8%.24 Virtual pulmonary rehabilitation over 12 weeks is also as effective as in-person PR25 and reduces cost by as much as $650 per patient per week.[26]

The Wellinks V1C solution consists of three main components:

1

Virtual pulmonary rehabilitation to increase access to a proven method of managing COPD



2

Personalized health coaching to help members reach self-identified health goals and increase their self-management ability

3

Connected devices and a patient app for members to easily track their symptoms, pulmonary data, and adherence to medication. Together with ongoing coach/member communication, these tools provide members with a path to proactive self-management and successful lifestyle changes.

Virtual pulmonary rehabilitation carries significant benefits and delivers similar results as does in-person PR. From the comfort of their own home, patients enjoy significant improvements in exercise, ease of breathing, mobility, and other functional areas, all of which contribute positively to quality of life.[27]

In their analysis of 20 studies, Puhan, et al. concluded,

> **"Pulmonary rehabilitation improves quality of life and exercise capacity and is a safe intervention for patients with COPD after they have experienced an exacerbation."[28]**

When enrolled in the Wellinks solution, members are evaluated on their baseline level of activity and are then given exercises and activities with increasing intensity to improve the member's exercise capacity. Intertwined with virtual PR, the Wellinks program includes 12 weeks of personalized health coaching that focuses on helping patients to identify and achieve goals related to COPD self-management. Such goals typically include smoking cessation and improvements in: exercise capacity, comfort level with necessary oxygen supplementation, and diet. By essentially learning to better cope with managing this chronic disease, patients can experience fewer and less severe exacerbations.

The Wellinks program is not a one-size-fits-all solution. Rather, trained health coaches work with patients to meet them where they are, develop a plan tailored for their needs, and support them in executing their plan. As one randomized trial shows, health coaching can be an effective intervention to reduce COPD readmissions and to improve patients' quality of life.[29]

Using connected devices helps patients to learn more about their condition and makes education about it more personal. They can monitor their own progress as they record their data for transmission to care provider and management teams. In addition, more accurate longitudinal monitoring of results leads to improved adherence to treatment plans and prescribed medications. Enrollment in a home monitoring program that uses such devices shows strong promise of decreasing utilization of institutional healthcare resources.[30]

"Wellinks has helped me understand how to live well with COPD. It's reassuring to know friendly support is there whenever I need it

Mary | Wellinks Member

Continuing Research

Recent research indicates that components of the approach taken in the Wellinks solution — provision of virtual on-demand pulmonary rehabilitation, support of patients by trained health coaches, and use of connected devices and software to monitor patient data — can significantly improve COPD patients' quality of life as well as reduce costs.

In addition to previously cited research that demonstrates the effectiveness of the three components of the Wellinks solution, Wellinks is collaborating with the COPD Foundation and a number of healthcare organizations to continue demonstrating the efficacy of the program. Different studies include a range of clinical data analysis and patient feedback to show impact in such areas as health-related quality of life, health care resource utilization, effect on hospital readmissions, and patient satisfaction.

In a 2021 prospective observational study of patient interaction with the platform, Wellinks evaluated ease-of-use, engagement., and satisfaction.

Using connected devices and software supplied by Wellinks, participants manually recorded daily symptoms and medication use, while spirometer and pulse oximeter data were recorded by the app. Data were reviewed by attending physicians weekly.

Participants, with an average age of 79.6, consistently found the program easy to use (94%) and valuable (82%). A net promoter score (NPS) of 59 indicated overall satisfaction and willingness to recommend Wellinks to others living with COPD.

Full results and insights from this peer-reviewed study were published in March 2022.[31] Health plans and physician groups want the best for their patients but do not have the capacity to provide the individualized, ongoing help that so many patients need for managing a relatively volatile disease. The innovators at Wellinks, working with key partners in the field, have developed a solution to help meet that need and close the gaps in COPD care.

Arriving at a time when the market understands the value of effective virtual care, Wellinks and partners who choose to offer its integrated solution are poised to reinvent COPD management around the needs of patients. To learn more and partner with Wellinks, please contact a team member or email ask@wellinks.com.

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