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PANELISTS



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COPD Stakeholder Summit: Utilizing Peak Inspiratory Flow Rates to Individualize Treatment and Improve Outcomes

The *American Journal of Managed Care*[®] recently hosted a Stakeholder Summit in which a panel of experts in lung disease and managed care discussed current treatment options for COPD, practical considerations for drug and device selection, the role of peak inspiratory flow rate in therapy, recent guideline recommendations, and approaches for health care decision makers and clinicians for the individualized management of COPD based on patient characteristics and limitations.

Panelists were Donald A. Mahler, MD, emeritus professor of medicine in the Division of Pulmonology, Geisel School of Medicine, Dartmouth University, Hanover, New Hampshire; M. Bradley Drummond, MD, MHS, associate professor of medicine, Division of Pulmonary Diseases, and critical care medicine director, Obstructive Lung Diseases Clinical and Translational Research Center, The University of North Carolina School of Medicine, Chapel Hill, North Carolina; Michael Hess, MPH, RRT, RPFT, respiratory therapist, chronic lung disease coordinator, Western Michigan University School of Medicine, Kalamazoo, Michigan; and Maria Lopes, MD, MS, of MMDLopes, LLC, Cresskill, New Jersey.

The moderator for the summit was Neil B. Minkoff, MD, founder of FountainHead HealthCare in Sudbury, Massachusetts.

CLINICAL BURDEN OF COPD

COPD is a progressive and debilitating disease characterized by persistent respiratory symptoms and airflow limitation and associated with substantial morbidity and death.^{1,2} Said Drummond, "It's estimated that 16 million US adults have COPD, and that's likely an underestimate given the underdiag-

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nosis of COPD. [Diagnosis] requires spirometry testing. Potentially, upward of 24 million individuals in the United States have COPD, and it's the fourth leading cause of death in the country."²

COPD is characterized by regular shortness of breath, cough, phlegm, and wheezing. Exacerbations are defined as acute sudden worsening of symptoms. Drummond noted that these symptoms can impact a patient's daily life and their work productivity. Exacerbations result in "frequent outpatient health care encounters and drive the need for additional medical inhaled therapies," he said. Exacerbations are associated with substantial morbidity and mortality. "An individual who is hospitalized with an exacerbation has a 25% chance of [dying] in the next year, and [among] those who require additional [therapy (eg, noninvasive ventilation)], 40% could [die] in a year," Drummond stated.

The majority of patients with COPD have comorbidities. Common comorbidities include hyperglycemia, atherosclerosis, hypertension, dyslipidemia, and osteoporosis.^{2,3} Psychiatric comorbidities (eg, anxiety, depression) may increase the risk of exacerbation and its frequency.³ Some comorbidities, such as decompensated heart failure or ischemic heart disease, may mimic a COPD exacerbation.³ According to Lopes, patients with COPD and other comorbidities are at even greater risk of visiting the emergency department (ED) or being hospitalized than those with COPD alone.

Impact of COPD on Quality of Life

According to Hess, the impact of COPD on quality of life can be highly variable, particularly in the early phases of disease when patients make accommodations for limitations (eg, taking the elevator instead of stairs due to shortness of breath); this can also result in a delayed diagnosis. Patients with COPD are frequently short of breath and have difficulty doing simple things, like using the restroom. "As symptoms progress in severity, [COPD] has an impact...[in] every minute of your life," said Hess. He further acknowledged that "a lot of people with COPD have problems with producing too much mucus, too much phlegm, and so you have these sudden coughing fits which can be very embarrassing. Those issues [can create] a cycle of anxiety and isolation, which then leads to depression."

RISK FACTORS FOR COPD

Smoking is one of the greatest risk factors for developing COPD.^{2,3} Although the prevalence of COPD is similar in women and men, women tend to be more susceptible to the effects of tobacco smoking.²

COPD prevalence is 1.5 to 3 times greater in those with low socioeconomic status (SES) compared with those of higher SES.⁴ Low-SES patients account for almost two-thirds of the COPD population in the United States despite comprising less than 20% of the overall population.⁴ Economically disadvantaged individuals also tend to have higher smoking rates, more occupational exposure to inhaled toxins, and greater exposure to indoor and outdoor air pollution, which increases the risk of COPD.⁴ Lower SES is associated with poorer health-related quality of life and outcomes, including less health care access, greater health care utilization, greater risk for COPD exacerbations, and death.⁴

Viral infections are a major risk factor for exacerbations of COPD.³ Also, patients with a high blood eosinophil count may have an increased risk of exacerbations.³

ADDITIONAL FACTORS AFFECTING OUTCOMES IN COPD

Smoking cessation is a crucial method to potentially alter COPD outcomes. "We have evidence that smoking cessation delays progression of disease, improves symptoms, reduces the risk of exacerbations, and after a decade can even improve mortality," Mahler said. He also indicated that lifestyle modifications, such as diet and exercise, and maintaining a normal body weight can have an impact, too. Mahler acknowledged that the last 10 to 15 years have brought forth more effective medications for COPD, but the challenge remains to make sure patients are using them correctly.

ECONOMIC BURDEN OF COPD IN THE UNITED STATES

National medical costs attributable to COPD are projected to increase from \$32.1 billion in 2010 to \$49.0 billion in 2020.⁵ Annualized total medical expenditures related to COPD during 2011-2015



were \$5 billion (in 2017 US\$).⁶ Patients with COPD have approximately double the health care costs of those without COPD, Drummond said.

Health care utilization in COPD is driven primarily by the burden of respiratory symptoms and acute exacerbations. Exacerbations represent up to 75% of the total direct cost of COPD,¹ Drummond said, leading “to declines in lung function, which can lead to more exacerbations, which sort of begins the COPD spiral.” Lopes acknowledged that “the single biggest driver of repeat hospitalizations is if you’ve already had a hospitalization related to respiratory issues in the past 6 to 12 months.” COPD, he added, “is actually second only to heart failure with respect to 30-day readmission.”

DIAGNOSIS OF COPD

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) report provides strategies for the diagnosis, management, and prevention of COPD.² Approximately 80% of COPD diagnosis and outpatient management is performed by primary health care providers, including primary care physicians, nurse practitioners, and physician assistants.^{7,8} Compared with patients receiving care from a pulmonologist, or who are comanaged by a primary care physician and a pulmonologist, patients managed by primary care physicians are less likely to receive therapy consistent with the GOLD strategies.¹ The need to increase awareness of the GOLD recommendations is underscored by the finding that an estimated 3.7 million adults in the United States (1.5 million in urban clusters and 2.2 million in rural areas) do not have access to a pulmonologist within a 1-hour driving distance.⁸

The goals of COPD assessment are to measure the level of airflow limitation, its impact on the health status of the patient, and the risk of future events (eg, exacerbations, hospital admissions, death).² Drummond stated that “the first step is...[to] confirm that they actually have COPD....Spirometry testing is important to confirm that the symptoms they’re having actually reflect, or are caused by, their airflow limitation.” The next steps—determining a patient’s symptom burden and their risk of future exacerbation—facilitate patient stratification.

“Once COPD is diagnosed, it’s categorized into 1 of 4 different quadrants, or groups [A through D],”² Mahler explained. “Patients in groups A and B have a reduced risk of an exacerbation based on past history of exacerbations....Those in groups B and D [have] increased symptoms, shortness of breath, and/or other respiratory symptoms.” Drummond said that a patient with at least 2 outpatient exacerbations or a single hospitalized exacerbation within a year is at high risk for future exacerbation.

TREATMENT OPTIONS FOR COPD

The GOLD treatment recommendations recognize the importance of personalized pharmacologic therapy based on disease severity, clinical symptoms, and patients’ needs, preferences, and abilities. Taking all of these factors into consideration is critical in slowing the decline of lung function, providing symptomatic relief to improve quality of life and health status, and optimally managing exacerbations.²

Mahler said that approximately 90% of his patients with COPD are prescribed a maintenance inhaler with a long-acting medication, taken

once or twice daily. Patients are also prescribed a rescue inhaler for use as needed, such as when they have difficulty breathing or are about to begin an activity, like exercise, that might provoke shortness of breath.

COPD medications are of 2 major types, bronchodilators and inhaled corticosteroids. Within bronchodilators are 2 distinct classes, β agonists and muscarinic antagonists, each with short- or long-acting durations. Bronchodilators work “by relaxing bronchial smooth muscle to open up the airways, dilate the airways, make it easier to breathe, and possibly help people cough out mucus or phlegm,” said Drummond. “Inhaled corticosteroids [comprise] the other category. These days, we can prescribe them as individual medications, [but] more frequently we use combination therapies with either 2 or 3 in a single inhaler.”

Drummond noted that the benefits of medications must be balanced against possible adverse events (AEs) or risks. Although serious AEs can occur, “typically [they are] fairly minimal if medications are used at the appropriate dose and frequency.”

Initial Pharmacotherapy

GOLD ABCD groups and their implications for pharmacotherapy are based solely on patient symptoms and their history of exacerbations.² “The GOLD committee has recommended a step-wise approach to treating COPD, similar to the stepwise approach to treating asthma,” Mahler said. However, he noted that he does not always use this approach, as his goal is to prescribe the most effective therapies for relieving symptoms.

According to Drummond, the GOLD treatment strategy for patients with a low symptom burden and low exacerbation risk is a short-acting bronchodilator. Short-acting muscarinic antagonists or short-acting β agonists (SABAs) improve symptoms as well as forced expiratory volume in 1 second (FEV₁), a measurement of lung function, and they can be used daily or as needed.²

“Patients with many symptoms but low exacerbation risk can receive a single or dual bronchodilator,” said Drummond. Long-acting muscarinic antagonists (LAMAs) have demonstrated greater effectiveness in reducing exacerbations compared with long-acting β agonists (LABAs) and are associated with decreased hospitalization.² However, a recent post hoc analysis of a claims-linked cross-sectional study demonstrated that a substantial proportion of patients with COPD treated with LAMA monotherapy remained symptomatic, based on patient-reported burden-of-illness measures.⁹ “Good data [show] that...dual bronchodilators [ie, a LAMA and a LABA] increase FEV₁, and [they] reduce symptoms compared with monotherapy,” said Drummond. “They also likely reduce exacerbations compared with monotherapy.”² As Mahler noted, this finding was supported by recent American Thoracic Society (ATS) guidelines, which indicated that 2 bronchodilators (a LAMA + LABA combination) are better than 1 for those patients who are short of breath or have exercise limitation.¹⁰

“Individuals with high exacerbation risk and high symptom burden can receive dual bronchodilator therapy, or you can begin considering inhaled corticosteroid [ICS]-containing regimens with bronchodilators,” Drummond continued. GOLD recommendations state that an ICS combined with a LABA is more effective than either component alone in improving lung function and in reducing exacerbations in moderate to very severe COPD with exacerbations.² Drummond noted that “there’s

a lot of discussion in the COPD world about when we should incorporate ICSs into a patient's regimen. Certainly, patients who probably should not use them include those who have a lot of pneumonia events, because pneumonia is one of the potential AEs." Others who are not good candidates "have consistently low blood eosinophils. That seems to be a predictor of who may not respond to inhaled steroids. Or...they've got [an]other chronic lung infection," said Drummond. "Conversely, in my clinic, I'd certainly tend to use ICSs earlier...for [patients who have] been hospitalized for an exacerbation, because...[a future exacerbation] could really be a life-threatening event."

“It’s important to match the patient’s preferences on their abilities with each individual device....It’s absolutely essential that we...match the molecule and the device with the situation, [utilizing] precision medicine so that we optimize...outcomes.”

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Triple Therapy

Patients who are severely symptomatic and have a high risk of future exacerbations may benefit from step-up single-inhaler triple therapy: This includes a LAMA, a LABA, and an ICS. The success of the strategy, when compared with LAMA monotherapy, was demonstrated in the TRINITY study.¹¹ Results from the 2016 TRILOGY study showed a change in health-related quality of life and prevention of exacerbations with single-inhaler triple therapy compared with LABA/ICS combination therapy.¹² Mahler mentioned 2 additional recent studies, IMPACT and ETHOS. Their results demonstrated that "triple therapy is more effective in reducing the risk of future exacerbations," but in addition, they "showed a mortality benefit compared with [only] 2 bronchodilators."^{13,14} He further noted that patients who "have been hospitalized for [a] COPD exacerbation...should be on triple therapy unless there's a strong reason" for them not to be.

INHALED DEVICES

Drummond described COPD treatment as "unique" in that a provider is prescribing 1 or more medicines as well as the device that delivers the medicine to the lungs. Both considerations are equally important,

he feels. However, there is no specific guidance on selecting devices.¹⁵ The panelists agreed that several factors, such as patient preference, insurance coverage, and cost, influence the choice of most appropriate device. "It's important to match the patient's preferences on their abilities with each individual device," explained Hess. He doesn't view "any of these devices as inherently superior to any of the others," nor does he believe that "we're ever going to have a device that is inherently superior to any of the others. [Rather,] it's absolutely essential that we...match the molecule and the device with the situation, [utilizing] precision medicine so that we optimize...outcomes."

Types of Devices

Four types of inhaler devices currently exist. The meter dose inhaler (MDI) uses pressurized gas to deliver molecules to the lungs. Dry powder inhalers (DPIs) require the patient to inhale a dry powder containing the molecule. A soft mist inhaler (SMI) delivers the medication through a flow-independent mist. Finally, nebulized therapies use compressed air or oxygen to expand liquid solutions into small aerosol droplets that are inhaled.

MPIs

Providing rapid administration and offering consistent dosing, MDIs are the most commonly prescribed inhaler devices for drug delivery.¹⁶ Drummond noted that MDIs are portable and necessitate a spacer or a holding chamber for best delivery. They also require some coordination of the dose actuation (the dose released from a single delivery) and the inhalation.

DPIs

DPIs have a lot of appealing qualities, Drummond noted: They are portable, and patients appreciate the once-daily dosing possible with DPIs, which helps with adherence. A challenge is that they are flow dependent, and patients may not be able to generate sufficient inspiratory flow to receive the medication. Mahler said that he would ask his "respiratory therapist [to] measure [the patient's] peak inspiratory flow [PIF]. If that is suboptimal, then I'm not going to [prescribe] a [DPI]." Also, "DPIs can sometimes be affected by humidity, so if they're being stored in the bathroom, that can impact how well the powder is being disaggregated," Drummond said.

SMIs

SMIs are "convenient because they are flow independent, so we don't have to worry about that PIF reduction issue...and there is once-daily dosing," Drummond said. They also offer a compact size, portability, consistent dosing, and rapid delivery.¹⁶ SMIs are available in a combination delivery system; however, there are some challenges related to loading and priming the device.

NEBULIZERS

Nebulized therapies require a minimal amount of coordination and effort, but there are portability issues and they have the longest administration time. Differing nebulizer performance and medication formulations contribute to variation in drug delivery.¹⁵⁻¹⁷

Impact of PIF Rate on Proper Device Use

PIF, the maximal flow generated during inspiration, is especially relevant for patients using dry powder inhalers, said Mahler. “Patients must generate sufficient inspiratory flow to disaggregate [the] powder to a small enough size to get it delivered to the distal parts of the lung,” explained Drummond. “And the challenge is that how hard you have to inspire or how hard that flow has to be is different for each device because they have different resistances.” Approximately 40% of outpatients are unable to generate sufficient PIF for the device that they are prescribed, said Drummond, adding, “A lot of work has gone into understanding... how can we identify or predict the PIF in these patients, short of actually measuring it.” Unfortunately, the PIF is difficult to predict and does not correlate consistently with low lung function. Cohort studies have determined that shorter stature and female sex are associated with reduced PIF, Drummond noted. Older age is also correlated with decreased flow.¹⁵

COPD MANAGEMENT CYCLE AND BEST PRACTICES

The GOLD management cycle consists of reviewing symptoms, especially dyspnea, and exacerbations; assessing inhaler technique and adherence, as well as nonpharmacological therapy (eg, pulmonary rehabilitation, self-management education); and adjusting therapy (eg, escalating or deescalating medications) or changing inhaler devices or molecules.²

Mahler described the GOLD recommended management cycle as “a continuous cycle of review, assess, and adjust at each visit.” When first meeting a patient, it is appropriate to review their status, how they feel, their inhaler technique, and adherence to medications, he said. “If they’re doing well, you continue [with the regimen]. If they’re not doing well...you might adjust either the molecule or the delivery system, or both...You might escalate or increase use of one of the medications. And if they’re doing very well, there is an option for de-escalating therapy, which mainly relates to consideration of withdrawal of inhaled corticosteroids,” Mahler said.

Hess indicated that he likes to see patients every 4 to 6 weeks when they are on a new regimen. “Once they are more established—their technique is optimized and everything else is going well—visits can be every 3 to 6 months,” he said.

Withdrawal of ICS From Triple Therapy

Recent ATS guidelines suggest that for those on triple combination therapy (ICS/LAMA/LABA), the ICS component can be withdrawn if the patient has not had an exacerbation in the previous year.¹⁰ “I’d certainly want to look at their blood eosinophil count. If that was low and they’re having episodes of pneumonia, I would definitely recommend withdrawing the inhaled corticosteroid and [closely] following their clinical course,” agreed Mahler.

Assessment Tools

Hess shared that COPD status can be assessed with objective measures, such as spirometry, pulmonary function testing, and the 6-minute walk test (a measure of exercise capacity). The GOLD treatment strategies recommend doing spirometry testing every year. Although some panel-

ists indicated that they do not necessarily follow this timeline because spirometry results may not impact therapeutic decisions, Hess said he “use[s] [PIF] at every encounter because it does change over time as people age, or as their concurrent conditions change. Many [other] factors can impact somebody’s PIF.”

Hess also uses assessments that are “a bit more subjective, what would fall under the category of patient-reported outcomes. These are symptom surveys...the St. George’s Respiratory Questionnaire...the COPD Assessment Test...[and] other[s]...that look at various domains of their symptom burden.”

If a patient is not doing well “we start diving a little bit more into the quality-of-life interviews, because we can look for...treatable [problems that] we can specifically target in COPD therapy...Then, once we have eliminated [those problems]...we can start looking at...what we need to do to [optimize] the medication regimen,” Hess said.

Inhaler Technique

One of the important components of the GOLD management strategy is assessment of a patient’s inhaler technique.² “We have to make sure we’re looking at inhaler technique because...the tools don’t work if you don’t know how to use them,” said Hess.

According to Drummond, each individual inhaler has an optimal or sufficient threshold for inspiratory flow. “The consensus is that if [a patient can] generate a number above that threshold, then likely they’re able to deliver that drug sufficiently down into their lungs, versus individuals who are not able to generate that sufficient or adequate inspiratory flow.” Unfortunately, some studies demonstrate that critical errors that compromise drug delivery can occur in up to 50% of inhalation assessments, Drummond said. Hess noted, too, that “the rate of these critical errors...[has] stayed essentially the same for about 40 years.”

Errors of inhaler use can include not inhaling properly through the device; blowing on a device that has a powder that’s ready to be inhaled (so the powder flies off before used properly); insufficient inhalation duration, so PIF is not reached; not inserting the capsule into the device; or not having synchrony between the hand actuation and inhalation. “These critical errors related to the device, or the lack of [a] sufficient device prescription, can certainly impact our health care utilization in COPD,” Drummond stated. “Patients with reduced PIF near or at the time of discharge from a COPD exacerbation have a higher risk of being readmitted to the hospital,” he continued. “Whether this could actually be a predictor for not only informing how we select...therapies for our patients, but also what their clinical course may be like...is an area of interest for many of us.”

Lopes said that a current area of interest comprises “some digital devices and solutions that can help enhance what we actually know about the patient, that can lead to...more targeted education, more timely education, to correct for some of these critical errors that may lead to hospitalization.” The advent of smart inhalers and devices that can record information (eg, medication logs) and assess information (eg, inspiratory flow) is promising in improving patient inhaler technique. According to Hess, “If we can demonstrate to patients...why perhaps [an inhaler] isn’t working, or identify gaps in our instructions, then we can...give them the tools they need to be successful.”

Adherence

Assessing patient adherence to therapy is another component of the GOLD management cycle.² Mahler highlighted a prospective observational study conducted in Ireland, in which patients with COPD were educated about inhaler use when they were hospitalized for a COPD exacerbation or for an unrelated reason.¹⁸ Despite these educational efforts, adherence to a dry powder inhaler after discharge was still poor (23%). Adherence is “clearly a challenge. It’s difficult sometimes to evaluate,” Mahler said. However, he added, “if a patient uses a medicine and it helps them breathe easier, that’s...extremely positive reinforcement and...it clearly enhances the possibility of good adherence.”

Lopes suggested that “a big opportunity [lies in clinicians learning] how to do more in terms of understanding some of the early signs that patients may not be doing well in terms of technique, adherence.” Predictors of nonadherence would be helpful as well, she continued. “Some of these patients also have depression, and so their ability to engage may be lessened unless we address the mental health component as well. Really, thinking holistically [is important],” Lopes stressed.

The panelists also mentioned cost, prescription coverage, and co-pays as barriers to adherence. They recommended asking patients whether they are taking their medications as prescribed to identify adherence issues and evaluating their prescription refill history.

Mahler suggested that adherence may be improved through free medication samples and vouchers from pharmaceutical companies to reduce cost. Lopes acknowledged the role of coverage and cost, but she also highlighted the need to educate patients on the importance of their medication. “If we’re prescribing it to reduce the risk of future exacerbations, that means they have to take it at least 6 to 12 months to potentially see a benefit—[it offers] no immediate feedback,” Mahler added. The panelists noted the promise of smart inhalers for improving patient adherence to their medication regimens.

Nonpharmacologic Management

Nonpharmacologic therapy is an important aspect of comprehensive management of COPD.² This includes support programs, pulmonary rehabilitation, and education regarding self-management (eg, smoking cessation).²

SMOKING CESSATION

All panelists agreed that smoking cessation is critical in COPD management. Drummond indicated that he reiterates the importance of smoking cessation at every clinical encounter and informs patients that they can still improve their health despite a long history of smoking. He also noted that dedicated tobacco dependence clinics affiliated with The University of North Carolina School of Medicine can connect patients with state programs that offer free nicotine replacement therapy. Hess mentioned the importance of motivational interviewing for smoking cessation.

Lopes indicated that her organization offers smoking cessation programs at zero-dollar cost share, which she notes are heavily underutilized. Moreover, she estimates that half of smokers “don’t even realize they have COPD.” The process should focus “on risk stratification, which starts with identification, smoking cessation, [and] patient

support,” said Lopes. “I think for a behavioral problem we need more behavioral solutions. I think we’re just starting to also see areas like Click Therapeutics’ [digital smoking cessation program] and others [with] devices...[that] create greater success around abstinence and...computerized cognitive behavioral therapy that hopefully can provide [a substantial] degree of support.”

PULMONARY REHABILITATION

Pulmonary rehabilitation is recommended for patients with a high symptom burden who are at risk of exacerbations.² However, Hess stated, numerous barriers to these programs exist, and it is difficult for patients to become motivated and remain engaged in them. “Only 3% of patients with COPD...attend pulmonary rehabilitation,” Drummond added. The current system for pulmonary rehabilitation is flawed, said Hess, adding that he believes it needs to be seen as more of a long-term investment. “Supplemental sessions should go on past the initial run-in period and keep people fit, more like pulmonary fitness than...pulmonary rehabilitation,” he said.

Drummond explained that patients attending pulmonary rehabilitation in group sessions can develop a shared goal of improvement; in addition, they are engaged with nurses and respiratory therapists who can teach them how to use their inhalers correctly. Overall, rehabilitation programs have “de-emphasized a lot of the exercise component,” Drummond said, and instead “try to engage patients through the other potential benefits—improving social isolation...health, nutrition, [and] inhaler technique.” In addition, “learning...from some[one] else who is on that [same] journey is very powerful,” Hess noted.

PAYER CONSIDERATIONS

Lopes indicated that payers want to make evidence-based decisions. “I think we react to [the] published literature, especially if there are data around reductions of mortality, events, hospitalizations, ED visits, and exacerbations,” she said. “Not a lot of prior authorization or scrutiny [exists] around [the] use [of COPD medications]. There may be preferred agents and nonpreferred agents, but in general I think we recognize the value of the treatment and even the convenience and the ease of administration that then links to better adherence.” Payers, she added, should make the “connection [that] the convenience of...combination treatments for the right patient can really optimize outcome[s].” Lopes also stressed the importance of “rapidly identify[ing] if [a patient has] an adherence problem, a technique issue, or an efficacy issue, [and] to be able to escalate treatments appropriately and overcome some of the clinical inertia.”

Several panelists indicated that care coordination is essential to assure the best outcomes. “In the system we have, we really need a COPD navigator type of person,” Hess said. “Even our most fortunate patients—those who may have a primary care provider, a pulmonologist, a pulmonary rehab[ilitation] facility, and maybe a mental health specialist—may have those 4 different specialists on different electronic medical records. They may have different record-keeping practices, and they may not always be in close communication with each other.”

COPD MANAGEMENT DURING THE CORONAVIRUS DISEASE 2019 (COVID-19) PANDEMIC

Role of Telehealth

Arguably, “a silver lining of the pandemic has been much more widespread adoption of various telehealth services,” said Hess. “Fortunately, a lot of what we do in COPD is about symptom assessment and about understanding exacerbation history, which can be discerned relatively easily from a telehealth visit,” Drummond said.

Telehealth makes it easier for multidisciplinary teams to get together, Lopes stated, which limits the traveling a patient is required to do. “On the health plan side, we’ve eliminated co-pay barriers for telehealth visits, so there’s a zero-dollar cost share as well as really no limit on how many of these visits you may have,” Lopes pointed out. “Also, [we have] couple[d] this with the appropriate treatments and ensuring that patients don’t run out of medications,” she said.

COPD Diagnosis and Assessment

COVID-19 has presented a barrier to spirometry testing, the standard diagnostic tool for COPD, “which has changed our landscape,” stated Drummond. “It’s been difficult to get widespread dissemination of in-office spirometry because of the training requirements, the logistic barriers, the reimbursement rates....[In] thinking about or identifying our patients, I’m very excited about some of the newer approaches...like symptom-based screening plus expiratory flow measurements...and then thinking about how we follow those patients over the long term once we’ve initiated a pharmacotherapy regimen or a pulmonary rehabilitation regimen.”

FUTURE OF COPD MANAGEMENT

Drummond and Hess are excited about the emergence of virtual rehabilitation programs. “Even when that fine day comes that COVID-19 is in our rearview mirror, COPD is still going to be around and [patients] will still have the same physical and logistical issues in getting to the programs, particularly in rural areas. So, if we can come to them instead, it’s going to increase outcomes and increase adherence,” Hess said.

All panelists are interested in the use of smart inhalers and devices. “They can be tremendously effective, especially in people who, [for instance,] have cognitive impairments who simply forget to take their twice-a-day medications,” Hess believes. “As we move forward, these devices are going to be an integral part of care...at every level.” Mahler said, “We don’t have a lot of studies yet to show the benefits of these smart inhalers, but I think they will be utilized more in the future.”

Lopes added, “We are on the brink of how some of these innovative digital solutions can add more insight and do more in terms of patient engagement. Hopefully, if they’re embedded into the care delivery model, they can enhance patient experience, as well as the efficiency with which we deliver care.”

CONCLUSIONS

Drummond acknowledged that COPD care has evolved tremendously in the past 20 years, to the point of including assessment of PIF and virtual telehealth and rehabilitation in COPD management. Hess hopes that more advocacy and awareness of lung health, and of COPD specifically, will enable earlier identification of patients with COPD; then, earlier treatment initiation can slow disease progression. From a payer perspective, Lopes recognizes that patients with COPD have many needs; improved care coordination, care management delivery, and the efficiency of care delivery are critical in achieving successful outcomes for all parties. ■

REFERENCES

- Criner RN, Han MK. COPD care in the 21st century: a public health priority. *Respir Care*. 2018;63(5):591-600. doi:10.4187/respcare.06276
- Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: 2020 report. Global Initiative for Chronic Obstructive Pulmonary Disease. Accessed December 13, 2020. https://goldcopd.org/wp-content/uploads/2019/12/GOLD-2020-FINAL-ver1.2-03Dec19_WMV.pdf
- Vinoli C, Vogelmeier CF. Exacerbations of COPD. *Eur Respir Rev*. 2018;27(147):170103. doi:10.1183/16000617.0103-2017
- Pleasant RA, Riley IL, Mannino DM. Defining and targeting health disparities in chronic obstructive pulmonary disease. *Int J Chron Obstruct Pulmon Dis*. 2016;11:2475-2496. doi:10.2147/COPD.S79077
- Ford ES, Murphy LB, Khavjou O, Giles WH, Holt JB, Croft JB. Total and state-specific medical and absenteeism costs of COPD among adults aged ≥ 18 years in the United States for 2010 and projections through 2020. *Chest*. 2015;147(1):31-45. doi:10.1378/chest.14-0972
- Syamal G, Bhattacharya A, Dodd KE. Medical expenditures attributed to asthma and chronic obstructive pulmonary disease among workers — United States, 2011–2015. *MMWR Morb Mortal Wkly Rep*. 2020;69(26):809-814. doi:10.15585/mmwr.mm6926a1
- Perez X, Wisnivesky JP, Lurslurchachai L, Kleinman LC, Kronish IM. Barriers to adherence to COPD guidelines among primary care providers. *Respir Med*. 2012;106(3):374-381. doi:10.1016/j.rmed.2011.09.010
- Croft JB, Lu H, Zhang X, Holt JB. Geographic accessibility of pulmonologists for adults with COPD: United States, 2013. *Chest*. 2016;150(3):544-553. doi:10.1016/j.chest.2016.05.014
- Ray R, Hahn B, Stanford RH, White J, Essoi B, Goolsby Hunter A. Classification of patients with COPD on LAMA monotherapy using the GOLD criteria: analysis of a claims-linked patient survey study. *Pulm Ther*. 2019;5(2):191-200. doi:10.1007/s41030-019-00099-0
- Nici L, Mammen MJ, Charbek E, et al. Pharmacologic management of chronic obstructive pulmonary disease: an official American Thoracic Society Clinical Practice Guideline. *Am J Respir Crit Care Med*. 2020;201(9):e56-e69. doi:10.1164/rccm.202003-0625ST. Published correction appears in *Am J Respir Crit Care Med*. 2020;202(6):910.
- Vestbo J, Papi A, Corradi M, et al. Single inhaler extrafine triple therapy versus long-acting muscarinic antagonist therapy for chronic obstructive pulmonary disease (TRINITY): a double-blind, parallel group, randomised controlled trial. *Lancet*. 2017;389(10082):1919-1929. doi:10.1016/S0140-6736(17)30188-5
- Singh D, Papi A, Corradi M, et al. Single inhaler triple therapy versus inhaled corticosteroid plus long-acting β₂-agonist therapy for chronic obstructive pulmonary disease (TRIOLOGY): a double-blind, parallel group, randomised controlled trial. *Lancet*. 2016;388(10048):963-973. doi:10.1016/S0140-6736(16)31354-X
- Martinez FJ, Rabe KF, Ferguson GT, et al; ETHOS investigators. Reduced all-cause mortality in the ETHOS trial of budesonide/glycopyrrolate/formoterol for COPD: a randomized, double-blind, multi-center parallel-group study. *Am J Respir Crit Care Med*. Published online November 30, 2020. doi:10.1164/rccm.202006-2618OC
- Lipson DA, Barnhart F, Brealey N, et al; IMPACT investigators. Once-daily single-inhaler triple versus dual therapy in patients with COPD. *N Engl J Med*. 2018;378(18):1671-1680. doi:10.1056/NEJMoa1713901
- Ghosh S, Ohar JA, Drummond MB. Peak inspiratory flow rate in chronic obstructive pulmonary disease: implications for dry powder inhalers. *J Aerosol Med Pulm Drug Deliv*. 2017;30(6):381-387. doi:10.1089/jamp.2017.1416
- Rogliani P, Calzetta L, Coppola A, et al. Optimizing drug delivery in COPD: the role of inhaler devices. *Respir Med*. 2017;124:6-14. doi:10.1016/j.rmed.2017.01.006
- Dhand R, Dolovich M, Chipps B, Myers TR, Restrepo R, Rosen Farrar J. The role of nebulized therapy in the management of COPD: evidence and recommendations. *COPD*. 2012;9(1):58-72. doi:10.3109/15412555.2011.630047
- Sultaiman I, Cushen B, Greene G, et al. Objective assessment of adherence to inhalers by patients with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med*. 2017;195(10):1333-1343. doi:10.1164/rccm.201604-0733OC. Published correction appears in *Am J Respir Crit Care Med*. 2017;195(10):1407. doi:10.1164/rccm.201604-0733OC

