COPD Clinical Insight: Increasing Medication Adherence

- Recognize the high prevalence of medication nonadherence and its negative impact on clinical outcomes in patients with COPD.
- Identify patient risk factors that are associated with poor medication use in COPD.
- Describe efficacious interventions to support medication adherence.

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Learning objectives for this audio program include:

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- Describe efficacious interventions to support medication adherence.

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MR. BUSKER: Dr. Eakin, thank you for joining us today.

DR. EAKIN: Glad to be here, thank you.

MR. BUSKER: In your newsletter issue, you reviewed the recent findings about patients’ nonadherence to their COPD medications — why nonadherence is so high, its impact on clinical outcomes, some of the reasons why patients become nonadherent, and some of the things clinicians can do about it. Today I’d like to focus on how this new information can be translated into clinical practice. So please start us out with a patient scenario.

DR. EAKIN: The first patient we have is a 62-year-old male who’s a current smoker with a diagnosis of COPD. His lung function as measured by FEV\textsubscript{1} percent predicted is about 52%, he’s followed by his primary care provider, and he’s currently been prescribed albuterol as needed, tiotropium Respimat 2.5 mcg with two actuations once a day. He was recently hospitalized for a pulmonary exacerbation following an upper respiratory infection and has been discharged home. He lives with his wife and works as a project manager for a construction company. He has two grown children who live near him but are out of the house.

This patient has a 50 pack/year history of smoking. He continues to smoke but has reported that he’s recently cut down to fewer than five cigarettes a day. During a clinic visit, during the medication reconciliation with the medical assistant, he’s unable to name his pulmonary medications and did not recall any instructions on how to use them. During the visit he reported he hasn’t refilled his tiotropium for several months, which was confirmed by refill records showing no refills in the past 12 months.

MR. BUSKER: Do you think he’s able to self-manage his COPD? What concerns do you have?

DR. EAKIN: Our concerns focus around his medication management. As reported, he wasn’t able to name his medications or report how he uses his inhalers. He continues to smoke and has a long history of smoking, although he has cut down, and he had a recent pulmonary exacerbation requiring hospitalization, which is a significant risk factor for declining health.

MR. BUSKER: And his medication adherence?

DR. EAKIN: His medication adherence is a big concern. It will be important to do a thorough assessment of his adherence during the clinic visit.

MR. BUSKER: How do you recommend making that assessment of his adherence?

DR. EAKIN: We recommend using the RUBBER mnemonic to support a good medication adherence during a clinic visit. I’m going to review the steps for the mnemonic so you can understand each of the pieces you would use.

Using RUBBER, we would look at R as review the regimen: ask the patient if he knows what medications he’s supposed to be on, what was prescribed by his physician? U: assess the patient’s understanding about the medications, what are these medicines for, how do they work, what do we expect the outcomes to be? B: assess the barriers to adherence. This is an important one and you may want to look at cost barriers, social support, concerns about getting transportation or logistics of getting the medications from the pharmacy, or any other barriers that might be preventing his use of these medications. B: assess the belief about the medicines. This has been shown time and time again across chronic illnesses that in patients who believe that the medications are important for them, that the benefit of the medicines outweighs the potential risks such as side effects, are more likely to take the medicines long-term. We also want to assess concerns about side effects and worries about the medicine’s long-term use and understand the patient’s risk/benefit ratio for taking these medicines. E: educate the patient. Any concerns or misunderstandings or gaps in knowledge should be addressed. Finally, R stands for...
repeat. Ask the patients to repeat the instructions to ensure understanding. We hear this often referred to as the “tell me back.” I like to say, “We’ve covered a lot of information, can you tell me back exactly what you took from this so you understand what you need to do about taking your medicines?”

MR. BUSKER: I want to ask you about inhaler technique. How do you address that in a patient like this, who’s already been prescribed and, improperly or not, has been using his medication?

DR. EAKIN: When we review medication adherence it is really important to identify and assess inhaler technique. In the newsletter we reviewed a 2017 article by Sulaiman that used electronic monitors to assess both medication use and technique. They demonstrated that the majority of the patients had poor inhaler technique. If patients don’t demonstrate adequate technique, it’s important to use an intervention to help them develop those skills.

Recent studies that have shown a “teach to goal” method is effective in helping patients learn how to use their inhalers appropriately. This method involves demonstrating each step in the inhaler technique administration, and then having the patient demonstrate that step for you. If there is failure when the information is reviewed, you would go through that information over and over until the patient demonstrates effective technique. This method has been shown to be more effective in improving inhaler technique than traditional teaching methods and is recommended to ensure that the patients have adequate inhaler technique to administer the medications.

MR. BUSKER: What about smoking status? Is there a connection between the fact that he still smokes and how he uses his medications?

DR. EAKIN: Recent evidence shows that patients who currently smoke are more likely to be nonadherent with medications. Some patients who smoke report significant guilt and self-blame for the disease due to their own smoking history. Particularly among those who continued to smoke despite physician recommendations to quit or a diagnosis of COPD, they may feel that the medications aren’t going to help them or that they’re sort of stuck.

In this situation it’s important to continue to offer treatment for smoking cessation to patients with COPD who currently smoke and to provide support for patients to quit smoking given that, as we’ve shown, it is the only disease modifying treatment available for COPD.

MR. BUSKER: Thank you for that case and discussion. We’ll return with Dr. Michelle Eakin from Johns Hopkins in just a moment.

MR. BOB BUSKER
This is Bob Busker, managing editor of ePulmonology Review. ePulmonology Review is a combination newsletter and podcast program delivered via email to subscribers. Newsletters are published every other month. Each issue reviews the current literature in areas of importance to clinicians treating patients with pulmonary conditions.

In the month following each newsletter, a case-based podcast discussion, like the one you’re listening to now, is available to help translate that new clinical information into practice. These podcasts are also available as downloadable transcripts.

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Thank you.

MR. BUSKER: Welcome back to this ePulmonology Review podcast. We’ve been talking with Dr. Michelle Eakin from the Division of Pulmonology and Critical Care Medicine at the Johns Hopkins University School of Medicine about increasing medication adherence in patients with COPD. So, let’s continue with another patient scenario.

DR. EAKIN: Our second patient is a 75-year-old female with COPD. She has severe COPD, with her FEV₁ around 28 percent of predicted for normal values. She has multiple comorbidities: hypertension, major depression, and type 2 diabetes and is followed by her PCP for these comorbid conditions.

In the past 12 months she has had three pulmonary exacerbations requiring oral corticosteroids and antibiotics, with one of those events requiring hospitalization. She is currently prescribed the following pulmonary medications: fluticasone/salmeterol Diskus 250 once a day, aclidinium bromide 400 one dose a day, and albuterol as needed. She is also on lisinopril, atorvastatin, metformin, Lantus, and fluoxetine for her comorbid conditions.

She lives with her daughter. She worked as an administrative assistant for 30 years but she retired about 10 years ago. She
MR. BUSKER: From a COPD self-management perspective, how would you view this patient?

DR. EAKIN: This patient is on what we describe as triple therapy — an inhaled corticosteroid, a long-acting bronchodilator, and a long-acting muscarinic to manage her COPD — but she’s still having frequent exacerbations. This makes me consider that nonadherence may be contributing to her poor disease management. This patient also has multiple comorbidities and is on multiple medications, which we describe as polypharmacy. These factors have been shown to put patients at high risk for nonadherence.

We also want to note that this patient’s lung function is low and she may have difficulty producing a strong enough peak inspiratory flow to administer the Diskus medication appropriately. It may be helpful to consider alternative inhaler devices or nebulizers that do not require a strong inspiratory flow for administration.

Finally, the patient is confused and disorganized and has difficulty remembering instructions and her appointment times. This may be evidence of cognitive impairment, which has been shown to be fairly common around patients with COPD. In fact, recent data shows that patients with COPD are at a far greater risk for cognitive impairment.

MR. BUSKER: What impact does cognitive impairment have on the self-management of COPD?

DR. EAKIN: In the newsletter, the article by Sulaiman showed that cognitive impairment was actually the strongest patient predictor of medication nonadherence, above and beyond other demographic and disease characteristics. Given that COPD patients are at an approximately four times greater risk of cognitive impairment, this could be associated with greater risk of nonadherence.

It is recommended that COPD patients be screened for cognitive impairment and referred appropriately.

MR. BUSKER: How does nonadherence in COPD compare to nonadherence in other chronic diseases?

DR. EAKIN: That’s a good question. We have data that shows that patients with COPD are about 50% likely to be nonadherent. In some studies, those numbers can be as low as 25%, and in the newsletter, Sulaiman’s article reported that only 6% of patients reached an 80% adherent level. These numbers are significantly lower than other chronic conditions. Data has shown when they looked at adherence by pharmacy refill across comorbid conditions including cardiology and diabetes, pulmonary conditions often have the lowest adherence. This is often attributed to the majority of pulmonary medications being delivered by inhalers, which can be difficult to use so patients are less likely to use them over time.

MR. BUSKER: So a high percentage of all patients with COPD are nonadherent, and among those with cognitive impairment, nonadherence is even higher. What strategies can you recommend to reduce nonadherence in patients who may show cognitive impairment?

DR. EAKIN: Overall, patients with cognitive impairment may benefit from compensatory strategies to help manage their medications. It may be important for the patient to meet with a clinical pharmacist to have medication therapy management. This program is paid for by Medicare, and a clinical pharmacist review all of the patients’ prescriptions and set up an organization strategy to ensure the patients understand.

In this situation, it may be helpful to ask the patient to bring in her daughter or an alternative caregiver who could help with medication care and organizing.

Finally, there can be some simple strategies such as setting up a reminder system using their phone or alarm clock. Overall, it’s important to tailor strategies to the patient and what they have available, and also to consider other support personnel, clinical pharmacy, or technology to help the patient remember and organize their medication.

MR. BUSKER: This patient you’ve presented has had three exacerbations in the past year and one of them sent her to the hospital. We know that puts her at a high risk for additional exacerbations. What strategies can you suggest that would be helpful for her?

DR. EAKIN: In the newsletter we showed a recent review of adherence interventions for COPD by Bryant. This systematic review demonstrated that multimodal interventions that include patient education, pharmacist involvement, and phone follow-up case management by nurses are effective in improving medication adherence. This improvement in adherence also had improvements in other health outcomes, including reducing utilization, reducing exacerbations, and reducing costs of medical care.
Interventions that include multidisciplinary teams may be the best options.

The review by van Boven, also highlighted in the newsletter, showed that lower adherence is associated with increased mortality and morbidity and reduced productivity. Therefore, it’s important for clinical teams to consider including a multidisciplinary intervention that includes nurses and pharmacists to help implement these interventions for improved health outcomes for these patients.

MR. BUSKER: Thank you for that case and discussion, Dr. Eakin. We’ve got time for one more patient scenario.

DR. EAKIN: Our last patient is a 67-year-old female with COPD and an FEV₁ of 64 percent predicted. She’s had a diagnosis of panic disorder and major depression and is followed by her primary care provider for those comorbid conditions.

In the past 12 months she’s had no pulmonary exacerbations, her current pulmonary medications include ipratropium-albuterol Respimat 20 mg up to four times a day. She also takes fluoxetine 20 mg once a day and alprazolam 5 mg as needed. She lives with her husband and has three grown children who live out of state.

She recently switched providers and reported that her previous doctor never had time and she felt he was not helpful. When asked her about her medications she said they really don’t help her and are expensive, so she often skips her refills.

MR. BUSKER: Out of everything you’ve presented about this patient, which factors would you think are most likely to impact her ability to self-manage her COPD?

DR. EAKIN: There’s a lot of factors to consider. She reports nonadherence to medications, so it’s likely that she skips her medicines frequently. In the newsletter, the article by Cecere demonstrated that patients only take about 50 percent of their medications, and Sulaiman showed that only 6 percent achieve 80 percent adherence. She also reports a strained relationship with her former physician, and she has a history of mental illness including depression and anxiety, which has been shown to be associated with worse morbidity and mortality and lower adherence in COPD.

MR. BUSKER: What impact might her strained relationship with her former physician have on her adherence?

DR. EAKIN: Cecere looked at veterans enrolled in a randomized trial. She looked at the medication adherence as measured by pharmacy refill data, and she found that patients who trusted their physician and reported that trust were more likely to be adherent to both inhaled corticosteroids and long-acting bronchodilators. Trust in the physician was the strongest predictor of adherence in this sample.

In addition, an article by Slatore demonstrated that good patient/provider communication that consists of listening to the patient, attentiveness during office visits, and a feeling of caring was associated with increased patient confidence to manage their illness and take their medications as prescribed.

MR. BUSKER: There’s another aspect of nonadherence that we haven’t focused on yet, and that’s the economic impact.

DR. EAKIN: In the newsletter article, van Boven demonstrated that medication nonadherence has a negative impact on health outcome. He also looked at the impact of adherence on cost, and there are mixed results for the impact on overall health care cost. Studies have shown that patients who are adherent actually have increased medication costs because they’re filling their medicines more frequently. However, they have lower health care costs in the form of fewer exacerbations, fewer ED visits, and fewer hospitalizations.

In most situations, this increased medication cost actually results in a cost savings overall to insurers for patients who are adherent to their medications. In addition, taking this from the patient’s perspective, the cost of medications and copays has been shown to have a significant impact on patients’ adherence.

Finally, it’s important clinically to assess the patient’s ability to pay for their medications and to understand the impact of copays as a barrier to medication adherence.

MR. BUSKER: What else might be helpful for this patient to improve her adherence and to improve her outcome?

DR. EAKIN: This patient had a number of factors going on, including mental health conditions, ability to pay for her medicines, and a difficult relationship with her previous provider. She may benefit from more counseling on these issues. Recent studies have shown that phone-based counseling, including motivational interviewing, can help reduce health care utilization by up to 50 percent. Patients who report more confidence in their ability to manage their illness have improved moods and improved quality of life that might improve their overall well being.

As hospitals look at reducing COPD readmissions and improving health outcomes, it may be helpful to consider phone follow-up interventions based on counseling strategies that could help the patients better manage their medications and improve their self-efficacy to manage their disease. Furthermore, mental health services should be considered, given her
history of depression and anxiety, and it may be helpful if it’s integrated within the specialty care setting so that patients feel more willing to engage in those types of services.

MR. BUSKER: Thank you for today’s cases and discussion, Dr. Eakin. Let me ask you to take a moment to look to the future for us: what research is still needed to improve medication adherence in COPD?

DR. EAKIN: That’s a great question. We covered a lot of the current research on medication adherence, including the prevalence and potential interventions available for medication adherence. However, overall, research on medication adherence in COPD lags woefully behind other chronic diseases, even chronic pulmonary diseases such as asthma.

Very few randomized clinical trials have examined interventions to support medication within this patient population. Given the differences and the unique characteristics of COPD, it’s critical to identify interventions that have been tailored and designed specifically to support COPD patients in managing their medications.

The unique patient characteristics that have been linked to adherence in COPD such as smoking history, peak inspiratory flow, and cognitive impairment, make a case for why we need specific intervention research on this topic.

Furthermore, the advent of technology, including electronic medication monitors, smartphones, and telemedicine, may all provide auxiliary support for interventions that support medication adherence. It’s critical to evaluate how these technologies can be applied to improve patient management of their disease and overall health outcomes.

MR. BUSKER: Thank you for sharing your insights, Dr. Eakin. Let’s wrap things up now by reviewing today’s discussion in light of our learning objectives. Our first objective: recognize the high prevalence of medication nonadherence and its negative impact on clinical outcomes in patients with COPD.

DR. EAKIN: In these case presentations we focused on demonstrating that patients frequently are nonadherent with their COPD medications for a variety of reasons. Unfortunately, nonadherence has been shown to be associated with worse health outcomes, including higher rates of exacerbations and hospitalizations, and even a greater risk of death. Patients who have a decline in their health may need to have a focused assessment of their medication adherence to better identify if there is a need for further intervention to support self management.

MR. BUSKER: And our second learning objective: patient risk factors that are associated with poor medication use in COPD.

DR. EAKIN: As a clinician it’s important to identify what risk factors patients might have that are associated with poor medication use in COPD. The newsletter discussed a number of issues and risk factors for low adherence and the cases highlighted different things to consider when dealing with a patient clinically who might be at risk for poor adherence. Patients may have difficulty using their inhalers or demonstrating adequate technique, so it’s important to assess inhaler technique and the ability to use the different devices.

Patients who have mental health issues or cognitive impairment may also be at significant risk for low adherence. Therefore, it’s important to assess, identify, and refer as appropriate patients with these conditions for adequate services. Furthermore, the case presentations demonstrated that there are other barriers to medication nonadherence. Issues such as cost of medications and copays can make it very difficult for patients to adhere to their medications. In addition, you need to consider that patient’s understanding and beliefs about the medications and whether they think that they know what they’re for and what benefits they might expect, as well as potential side effects.

MR. BUSKER: And finally: efficacious interventions to support medication adherence.

DR. EAKIN: Given the significant impact of medication nonadherence on clinical outcomes and the high prevalence of nonadherence among patients with COPD, it’s critical to identify and implement efficacious interventions to support adherence. We discuss a number of potential interventions for nonadherence, such as using multimodal approaches that incorporate pharmacy and nurse education into clinical care, the use of technology, or even phone support to provide case management in ongoing follow-up for patients.

Furthermore, it’s important to ensure that there’s a strong and positive patient/physician communication so that patients trust their physicians and they understand the importance of medications and have the confidence to self-manage their disease.

Multidisciplinary teams may be well poised to implement such interventions with multiple components, including nurses, education, pharmacy consultation and social worker/psychology to address mental health needs.

MR. BUSKER: Dr. Michelle Eakin, from the Johns Hopkins University School of Medicine, thank you for participating in this ePulmonology Review podcast.

DR. EAKIN: Thank you so much, Bob. It’s been a pleasure to discuss these cases and to discuss the importance of medication adherence in COPD.
MR. BUSKER: To receive CME credit for this activity, please take the post-test at www.epulmonologyreview.org/test

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