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Dr Busk's research activities and clinical interests include pulmonary rehabilitation, as well as a clinical interest in chronic obstructive pulmonary disease and emphysema. He also is involved in the Adult Pulmonary Medicine Clinic of the University Hospital in Indianapolis. His professional memberships include the American College of Chest Physicians, the American College of Physicians, the American College of Occupational Medicine, the American Thoracic Society, the Mayo Thoracic Society, and the Indiana Thoracic Society.

Dr Busk received his medical degree in 1984 from the University of Health Sciences/The Chicago Medical School in Illinois. He completed his residency in internal medicine and a fellowship in thoracic diseases at the Mayo Graduate School of Medicine. He completed a second fellowship in occupational and environmental medicine at the University of California, San Francisco. Dr Busk went on to also receive a Master of Public Health degree at the University of California, Berkeley. He is board certified in internal medicine and pulmonary diseases.


ASiM: What, in your opinion, are the biggest impediments to chronic obstructive pulmonary disease (COPD) diagnosis in primary care?

Dr Busk: One of the biggest impediments is the low availability of spirometry. A patient who has a 20 pack-year or more history of cigarette smoking or who is over age 40 years should have spirometry, but there is the time element, and having the properly trained staff. Nowadays, spirometry is done easily. More portable devices that the healthcare provider can bring right into the examination room now exist, and it is now a matter of minutes instead of half an hour to an hour.

Reimbursement [for spirometry] is also a perceived impediment, but it can be overcome if the healthcare provider knows the proper coding. If the provider is performing spirometry, he/she is doing it for shortness of breath, cough, wheezing, or COPD. More than likely, the company that provides the spirometer will provide the correct reimbursement codes.

For me, in a university practice, I have many personnel resources that help me with the diagnosis, education, and teaching for COPD patients. The educational aspects of COPD are as important as the medical aspects. This is especially true for the patient to understand how the pathology of COPD is associated with cigarette smoking, and understand the
importance of taking his/her medications, even though he/she may not feel the immediate effect of the medication. It is also important to have the patient understand that it is chronic obstructive pulmonary disease. This is not a disease that will go away. Physicians in primary care are under time constraints, have a waiting room full of patients, and they are dealing with a broad spectrum of disease processes.

There is also a lack of public information about COPD. Many of my patients, after being told that they have COPD, look at me and say, “I never thought cigarettes would do this to me.” However, I do not think there is anybody in this country who does not know about lung cancer, diabetes, or asthma. Also, we are not automatically asking every patient whether they smoke cigarettes, and we are not making a note of this risk factor in a patient’s chart.

When people are shown the cost of smoking to society, they are almost always very surprised. The Surgeon General’s data show that 38% of deaths are associated with cigarette smoking. Many people do not realize that cigarette smoking is associated with other types of cancer besides lung. I do not think we are getting the message out about the relationship between cigarette smoking and COPD. We are not letting people know that COPD is the fourth leading cause of death in the United States, and if changes are not made, COPD may rise to the third or perhaps even the second cause of death.

**ASiM:** In a primary care setting, is it difficult to distinguish between COPD and asthma? What is the likelihood of having both? Are there other diseases that are commonly comorbid or coexist with COPD?

**Dr Busk:** COPD usually affects people later in life, because it is an accumulation of the effects of cigarette smoking. Unfortunately, most people with COPD are diagnosed in their 60s and 70s when they have severe COPD, not in their 50s, when the disease is of moderate severity. They come in to see the doctor when they can no longer walk to the bathroom without being short of breath.

One of the comorbidities [of COPD] is heart disease, in which COPD leads to cor pulmonale.*

The aging process is also an associated comorbidity, because COPD just adds to this process with shortness of breath and wasting. Once it becomes very severe emphysema, the patient loses weight, or he/she may also become very sedentary and start gaining weight.

Hypoxemia associated with sleep and poor nutrition is also comorbid with COPD. Hypoxemia can limit air travel because, right now, there are only a few airlines that will allow oxygen in flight.

Asthma is also very common, even in the older age group. Healthcare providers will see adult-onset asthma in nonsmokers, and they need to distinguish that. The key is to look for 2 components that may be associated with a smoking patient. The patient may have a significant asthmatic component—the bronchospastic component—which should be treated. If the provider thinks it is more of an asthmatic component or if it is pure asthma—especially if there are other signs associated with it such as allergies, seasonal changes, or nocturnal symptoms—then the provider is going to treat it more aggressively with inhaled corticosteroids.

My practice is a little bit different because the cases referred to me are unusual. I see people who have had lifelong asthma, but they finally come to the doctor when their asthma starts to affect their life (ie, in the later years), because they have had a change in their lung function. Now the asthma is causing significant problems. People who smoke can assume that wheezing is just part of the smoking lifestyle.

COPD can have an asthma-like component, or bronchospasm, but I often see a combination of COPD and asthma. We have a lot of asthmatic patients who smoke cigarettes. It is amazing to think that people do that, but healthcare practitioners should not get discouraged. Cigarette smoking is extremely addictive.

If a patient comes in and says “Doctor, I’m short of breath,” the differential diagnosis of COPD is 90% history. Spirometry with a bronchodilator response would be the next step, and this can now be done right in the examination room, in any clinical setting. If the physician is having difficulty in teasing out the COPD and asthma, time will tell. Like any disease process, it is always in evolution, so follow-up is very important. Asthma will have exacerbations, and asthma can go into a phase of remodeling as it progresses into fixed disease. Asthma is reversible airway disease; it is episodic. COPD is progressive, partially reversible airway disease. The provider will know by the symptomatology. I do feel that the provider needs to distinguish [between COPD and asthma], because

*Chronic cor pulmonale is heart disease characterized by hypertrophy and sometimes dilation of the right ventricle secondary to disease affecting lung structure, such as COPD.
that will determine how the patient will be treated. Providers use anti-inflammatory drugs for asthma more than for COPD, but there is overlap in treatment. Providers may ask what the difference is, as they often give a patient an inhaled corticosteroid and a long-acting beta-2 agonist, but it is very important to distinguish between the 2 conditions. In both asthma and COPD, the provider continually steps up the treatment. However, in asthma, the treatment can be stepped down when possible, and the provider should try to use the least amount of inhaled corticosteroid to obtain and sustain control of the inflammatory component. So, in asthma, the provider starts the medication at a very strong dosage, and steps it down to stabilize it, and in COPD the provider starts slowly and steps upward, as the disease progresses.

**ASiM:** Many healthcare practitioners are reluctant to bring up the subject of smoking cessation with their patients because much of the general public is not ready or does not want to hear that message. How do you motivate a healthcare practitioner to address smoking cessation when smoking is addictive and smoking cessation programs can only boast a 20% success rate?

**Dr Busk:** Our number-one treatment for COPD is smoking cessation. It is the most cost-effective way to prevent the complications of COPD. At the recent American Thoracic Society meeting, Dr Nicholas Anthonisen gave the keynote address on the Lung Health Studies and the importance of smoking cessation. Right now, the average success rate is 20%, but I feel that we can do better than that if healthcare providers are actively involved with the patient. It does take time, but they succeed. Every time the provider sees the patient, he/she should talk to the patient about cigarettes, and be compassionate, able to help the patient, and talk to the patient about the different tools that can help him/her quit. We have so many tools, from the gum to all of the nicotine replacement therapies, bupropion, and smoking cessation programs that are becoming more available throughout the United States. Talking about these with the patients is the key. The number of people who die of COPD each year is about 114 000, so if the provider can affect 20% of his/her COPD patients, he/she will be saving 20 000 to 25 000 lives. If 38% of deaths in the United States are associated with cigarette smoking, that is 450 000 to 500 000 lives. Saving 20% of those lives is 100 000 people.

**ASiM:** The current trend in COPD treatment strategy appears to be “If 1 drug is good, 2 is better,” by treating 2 different aspects of COPD pathology. The guidelines from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) and the American Thoracic Society (ATS) provide strict cut points for switching from only bronchodilator therapy to combinations of bronchodilator and inhaled corticosteroid. What other factors do you take into consideration when making the decision for combination therapy?

**Dr Busk:** I try to follow the guidelines in the diagnosis and treatment of COPD. The GOLD guidelines mainly give a broad perspective on the treatment of COPD. Now, many patients that we see in our office deviate from the norm. The important thing is to know the kind of symptoms and then associating those with spirometry changes.

For my patients with mild disease, I initially start them out with an intermittent short-acting bronchodilator as needed, if they have very minimal disease process. For those who have chronic disease, I put them on a longer-acting agent that covers them, with a short-acting albuterol as a rescue medication. I start in that form, and then add on in a stepwise manner. Unless the patient has severe disease, I do not immediately give him/her several different classes of agents.

The healthcare provider should also look at the patient’s specific symptoms. If the patient has significant decline in their forced expiratory volume in 1 second (FEV₁) (ie, if his/her FEV₁ is <50% or he/she has a bronchospastic component), the provider should treat the bronchospasm aggressively and give the patient an inhaled corticosteroid. For patients with more fixed disease without bronchospasm, providers should use a bronchodilator (ie, anticholinergics and beta-agonists). So it depends on what the patient’s symptoms are, and what the provider finds objectively in spirometry. Interestingly, Hanania’s study also found improvement by using inhaled corticosteroids in individuals who did not have reversibility. I am more aggressive with inhaled corticosteroids when I feel someone has a bronchospastic component, because he/she probably has some asthmatic component associated with the inflammation. With asthma, the provider will deal with mast cells and eosinophils, and with COPD the provider will deal with neutrophils and lymphocytes. I look at the patient, and see where I feel they have more of the disease process. In someone
who has significant chronic bronchitis with a significant amount of sputum production, I try to reduce their sputum production and treat very aggressively with antibiotics for any change in their sputum production, because I am always concerned about the development of pneumonia. The provider centers treatment on what condition he/she feels the patient has from his/her symptoms and then the provider objectively verifies it with laboratory tests.

I have quite a few patients who produce a large amount of mucus. Mucolytics are not recommended by the GOLD guidelines, but I have some patients who swear by their mucolytics. I will administer it to them, because it helps them. Again, the GOLD guidelines are broad guidelines. I teach those patients to look for changes in their mucus production, changes in color, suggesting an infection, and that they should start an antibiotic immediately. I have a handful of patients who have so many chronic infections that I will put them on a rotating antibiotic regimen (eg, amoxicillin for the first week of even-numbered months, then sulfamethoxazole/trimethoprim for 1 to 2 weeks during the odd-numbered months, and perhaps including doxycycline). I try to reduce colonization of the bacteria but not eradicate it, and I rotate the antibiotics so the patients do not develop resistance.

ASiM: The next logical step would be to address all components of COPD pathology (inflammation, fibrosis and airway narrowing, and mucus hypersecretion). What do you envision will be the future of COPD treatment strategies?

Dr Busk: When we say all components, we are talking about the anticholinergics, the anti-inflammatory inhaled corticosteroid, and the beta-agonist. Those 3 components are the mainstays of treatment for COPD, and most of my patients with severe COPD are on triple therapy. I do not ever expect that we will have the ultimate research study looking at triple therapy, but all of us in the field use triple therapy on a regular basis and our patients feel improvement.

I do not think we will start using triple therapy earlier in the disease process. I think it is going to continue being a stepwise approach. The provider should try to use the least amount of medication to help the patient stay as stable as possible and improve his/her disease process. We do this for many reasons: cost, side effects, time, and compliance. The more drugs you give someone, the more he/she fits the sick mold, and one thing that pulmonary rehabilitation does very strongly is help the patient develop coping skills, to look at the glass being half full, not half empty.

ASiM: Do you think that these future directions will focus maybe not so much, or not strictly, on symptoms but also on quality of life?

Dr Busk: Yes, I believe they will. Quality of life is a very important measurement for the person with COPD because COPD causes chronic debilitation. Granted, the symptoms of COPD cause poor quality of life, but there are ways to teach patients with COPD to cope, and more importantly, to conserve their energy to improve their quality of life. A prime example of an intervention that improves quality of life is pulmonary rehabilitation, which improves not only the patient’s exercise capacity, but also increases the knowledge of the disease to prevent further exacerbations.

ASiM: At what point, from your perspective, should a COPD patient be referred from primary care to a pulmonary specialist?

Dr Busk: There are interventions that can be done early to prevent severe COPD. I may be a little bit biased, because I have a particularly strong interest in COPD, but I think that we have a staff that is very much geared towards the lung patient that a primary care provider cannot have or afford in his/her office. My initial response to this question would be to refer to a pulmonologist any patient who is hospitalized more than once in a 1- to 2-year period, or someone who has continued to worsen despite therapy, to make sure that there is not another disease present. But the more I think about it, in the integrated type of approach, patients with moderate COPD should also be seen by a specialist who can reinforce what the primary care provider has initiated, and also reinforce the importance of smoking cessation. People stop [smoking] and then they restart, unfortunately. Specialists and their staff can also initiate the educational aspects associated with COPD. The American Lung Association of Indiana has developed a specialized program for COPD, asthma, and lung disease, through the Indiana chapter of the American Lung Association. We are one of the lung centers to provide free education through our pulmonary nurses for COPD patients, and we are working with primary care doctors to be able to send their patients to us for free educational classes. Also, the Better Breathers Group from
the American Lung Association helps those with severe COPD. Education helps a great deal. We try to develop a rapport with our primary care providers so we can see the patients early, not late, and that is the key.

ASiM: Once patients are on maintenance therapy, how often should they be seen by their practitioner (primary care or specialist) for follow-up?

Dr Busk: In my practice I work very closely with the primary care practitioner. At the point of severe COPD, the primary care practitioners that I work with want me to take over the care of their COPD patients, and to provide the backup and assistance. I see those patients every 3 to 4 months, whether they are doing well or not, plus I reinforce some of the issues that we discussed. Most of the patients with severe COPD are older, so we provide a lot of education on pharmacological therapy and reinforce oxygen therapy, etc.

I see patients with moderate COPD about every 6 months, communicating with the primary care practitioner and reinforcing some of our combined work with the individual. For my situation, which may be unique, I do many lectures on COPD to medical students, residents, and fellows, so I have a lot of experience in the educational aspect and how to assist primary care practitioners. As a subspecialist, my goal is to assist the primary care practitioner, because they have so many things on their platter, and any patient with COPD may also have coronary artery disease, hypertension, or diabetes. The primary care practitioner has a lot to treat, and I can assist them with the pulmonary aspect of the patient. I can also help facilitate and emphasize the importance of pulmonary rehabilitation.

ASiM: Once you have treated a COPD patient, they will most likely be maintained long term in primary care. At that point, what is your role in the treatment team? What is the role of the each member of the primary care team (ie, physician, pharmacist, nurse, respiratory therapist [RT], other) in providing comprehensive care? How can this be optimized?

Dr Busk: RTs and nurses play the biggest role. They are the confidantes, the people with whom the patient talks and develops a rapport. They are the individuals who the patient trusts, who spend time with the patient, who teach the patient how to use the inhaler and teach about the importance of the inhaler. They are the individuals who encourage the patient when they are in a pulmonary rehabilitation program; they are by the patient’s side as they start to progress and improve. They are the strong patient advocates, the initial people to assist them with getting care immediately, especially for exacerbations. They are very important in smoking cessation—the initial contact and the continuing encouragement. The physician, due to time and his/her stature, can be kind of intimidating; sometimes fear is a factor for the patient when the doctor walks in the room.

I think pharmacists have an enormous role in COPD. In our pulmonary rehab program, pharmacists sit down with each patient and explain how and why the medicine works, and the benefits of the medicine. The more the patient understands, the more compliant he/she is in taking the medication. Even educated patients have difficulty sorting out their medications or their inhalers, despite multiple explanations during pulmonary rehab. The pharmacist does a great job of color coding, writing things down, giving them their medicine clocks, so patients know when to take their medicine, emphasizing nebulizer versus inhaler, how they are compatible and similar, appropriate dose ranges of certain medications, knowing that the inhaled corticosteroids and the anticholinergics are not going to give the patients immediate response, but long term they are going to see benefits. I find that those 2 medications—inhaled corticosteroids and anticholinergics—are the first ones people throw in the drawer and they just use their short-acting beta-agonist. Then, when they feel better, they throw away the beta-agonist, and a few weeks down the road they come into the hospital with an exacerbation. So the pharmacists are key in explaining, with very good terminology, why these drugs are important. Pharmacists, maybe through their educational process, have a much better way of explaining medications than physicians.

ASiM: The message we are hearing from authorities such as the ATS and GOLD is that the traditional nihilistic attitudes toward COPD are now obsolete. How do you convey that message to your colleagues in primary care?

Dr Busk: COPD is the fourth leading cause of death in the United States. COPD, in many ways, can be prevented through smoking cessation, or early intervention in COPD. We can prevent the long-term complications by early intervention. It is a disease process for which we do have medications, medications that, when the disease reaches the severe state,
can stabilize the patient. People are living longer with better quality of life with our treatment techniques for COPD, and it is not a disease that should be ignored.

If we are not emphasizing the importance of health in our educational system, we are missing something. If we are going to decrease the rising cost of medical care, of which cigarette smoking is a major cause, there should be mandatory educational lectures in third or fourth grades on cigarettes, because half of all smokers start at younger than the age of 15 years. Three thousand teenagers per day start smoking in the United States. There has to be a seed planted early—not at age 15 years, because half of adolescents this age have already started smoking, and it is very tough to get them to stop. They have to be educated before peer pressure sets in, before they have already set their own values of what is cool and what is important in their lives. We need to have a stigma in the United States that says if you smoke, it is not cool. Do I think it will ever happen? Probably not, mostly because of the tobacco companies’ strong power here in the United States, although that may be changing. In the press especially we hear Phillip Morris with commercials on ways to convince the young child to not start smoking.

ASiM: What do you see are the main distinctions between the ATS/European Respiratory Society (ERS) and the GOLD guidelines? Why did ATS/ERS feel the need to develop their own set of guidelines?

Dr Busk: The ATS adopted the GOLD guidelines, and quite a few of the individuals on the committee for the ATS [guideline] were also on the GOLD guideline committee. ATS wants healthcare providers to adopt the broad initiative of the GOLD guidelines. The ATS guidelines go into specifics, and bring out specifics that they feel a need to emphasize, such as smoking cessation, pharmacological therapy, long-term oxygen therapy, pulmonary rehabilitation, nutrition, and air travel. The broader GOLD guidelines establish when to initiate different aspects of treatment and the reasons behind it.

Another important aspect of the ATS/ERS guidelines is the section on ethical and palliative care issues, and integrated disease management for the primary care practitioner, and between the primary care practitioner and the specialists, how they work together to develop a plan for the COPD patient.

ASiM: What do you think will be included in the next sets of these guidelines?

Dr Busk: I think there is going to be a significant push towards pulmonary rehabilitation, which is still the best way to improve symptoms, especially when it includes exercise and education. As a matter of fact, the current ATS/ERS guidelines have an entire section just on pulmonary rehabilitation.

The other aspect that I see becoming stronger is smoking cessation. I think it is going to be a public outcry. In Indianapolis, there have been ordinances put before the city council to make the city of Indianapolis more smoke-free. There are states [New York and California] that are completely smoke-free. So, the American public is pushing our politicians. I predict there will be more emphasis on ways to prevent our teenagers or grade school children from starting to smoke.

REFERENCE