

Perspectives in Bronchiectasis Management

HIGHLIGHTS

- › Quality of Life Impact
- › Economic Impact and Health Care Resource Use
- › Collaborating to Optimize Management and Address Unmet Needs

Perspectives in Bronchiectasis Management

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Perspectives in Bronchiectasis Management

OVERVIEW

This supplement to *The American Journal of Managed Care*[®] recapitulates the key findings of a March 2024 *AJMC*[®] roundtable assessing the current state of bronchiectasis management.

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Clinical Perspectives in Bronchiectasis Management

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Introduction

Non-cystic fibrosis bronchiectasis, herein referred to as *bronchiectasis*, is a chronic, inflammatory airway disease that leads to permanent lung damage and can be associated with substantial clinical and economic impact.¹⁻³ Its symptoms include chronic cough, sputum production, and chronic respiratory infections.² While much is known of bronchiectasis, there is much that is not well understood.⁴ Currently, there is a lack of published US-based treatment guidelines and FDA-approved therapies for bronchiectasis.

Considering the existing challenges and gaps in care, the authors of this article convened in March 2024 for an *AJMC* roundtable moderated by Dr Haumschild. Particular attention was paid to unmet needs and possible therapeutic developments. This article recapitulates the key findings of that roundtable and places them in a scholarly context.

Disease Overview

Panelists defined bronchiectasis as a chronic, progressive, and inflammatory airway disease that is diverse in presentation and predominantly postinfective or idiopathic. First described in 1819, the disease is marked by permanent dilation of the bronchi.^{2,5} Bronchiectasis progresses variably, and the etiology of each case is highly dependent upon patient demographics and characteristics.⁴ In the US, bronchiectasis affects approximately 364,000 to 558,000 adults.⁶⁻⁸

Bronchiectasis pathophysiology has been described as a cycle or *vicious vortex* of structural damage, chronic respiratory infection, impaired mucociliary clearance, and chronic inflammation. Each component can influence all the others and accelerate disease progression.^{2,5} Dr Winthrop, whose chronic chest infection clinic treats many nontuberculous mycobacteria (NTM) bronchiectasis cases, added a symptomatic corollary: "Along with other drivers, chronic inflammation can cause bronchiectasis, or it can be the result of bronchiectasis. Much depends on what pathogens a patient inhales and is colonized with."

Although the vortex model is well accepted, the pathophysiology of bronchiectasis is heterogeneous and requires more research.^{2,5} Dr Johnson, director of her institution's adult cystic fibrosis (CF)

ABSTRACT

Non-cystic fibrosis bronchiectasis is a chronic inflammatory airway disease that results in permanent lung damage and can correlate with considerable clinical and economic burden. There are gaps in knowledge surrounding bronchiectasis, for which there are no published US-based treatment guidelines or FDA-approved therapies. Given the current challenges and gaps in care, the authors of this article convened for an *AJMC*[®] roundtable in March 2024. This publication summarizes the main findings of that roundtable and situates them in a scholarly context. Panelists agreed that patients with unexplained chronic cough or fatigue, purulent sputum production, hemoptysis, or repeated infection should undergo CT scanning to assess the presence of bronchiectasis, which has been estimated to affect approximately 364,000 to 558,000 individuals at least 18 years of age. They noted that disease symptoms and treatment burden can considerably diminish patient health-related quality of life (HRQOL) and that an exacerbation uniformly signifies deteriorating health and substantially impacts disease progression, hospitalization rates, and mortality. Absent an FDA-approved therapy, panelists' top management priorities were preventing or reducing exacerbations and maintaining or improving HRQOL. Panelists concluded that providers are ill-equipped to change the course of this heterogeneous disease and that there is a real need for options to manage symptoms, for US-based guidelines, and for more research into epidemiology, etiology, and treatment.

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For author information and disclosures, see end of text.

center, introduced this point, and panelists underscored this concept throughout the roundtable. For instance, Dr Solomon, who directs clinical trials for CF and bronchiectasis at his institution, highlighted that the complex interactions between various molecular pathways underlying the disorder are not fully understood.

Clinical Presentation, Diagnosis, and Patient Stratification

Bronchiectasis presents with clinical symptoms including sputum production, cough, hemoptysis, and chronic respiratory infection.^{2,9}

Diagnosis

Panelists agreed that CT imaging of the chest is required to confirm the diagnosis of bronchiectasis. Dr Johnson elaborated that dilation of the airways, thickening of the airway walls, lack of airway tapering toward the periphery, and enlargement of the airway in comparison to the adjacent artery all constitute evidence of bronchiectasis. An airway:artery ratio greater than 1:1 may be used to diagnose this disease.¹⁰

Dr Johnson noted that a subspecialist is not required to interpret the CT scan; diagnosis can be made by a pulmonologist who combines the radiographic evidence and the clinical history. Dr Keith, who directs the outpatient pulmonary clinics within her institution, added that although the radiographic diagnosis of bronchiectasis can be relatively straightforward, determining the etiology of bronchiectasis is much more challenging and often requires a comprehensive multidisciplinary evaluation.

More than 90% of patients with bronchiectasis present with coughing, and approximately 75% produce sputum.¹¹ However, “some patients have radiographic evidence of bronchiectasis and few symptoms,” observed Dr Maselli, who directs a severe asthma program that treats many patients with bronchiectasis.

Cough, sputum production, shortness of breath, and wheezing are common to several respiratory diseases, Dr Maselli continued. Hence, bronchiectasis is frequently misdiagnosed as asthma, chronic obstructive pulmonary disease (COPD), chronic bronchitis, or chronic rhinosinusitis. The symptomatic overlap can also delay diagnosis, as providers may not obtain a CT scan, which is necessary to distinguish bronchiectasis from other respiratory diseases.^{5,12}

Other respiratory diseases may coexist with bronchiectasis, which may further complicate diagnosis. Data from the United States Bronchiectasis Research Registry published in 2017 for 1826 patients demonstrated that 68% of evaluable patients had a history of pneumonia, 29% had asthma, and 20% had COPD.¹³

Patient Identification

Patients with unexplained chronic cough or fatigue, purulent sputum production, hemoptysis, or repeated infection should undergo CT scanning to assess the presence of bronchiectasis.¹⁰

Panelists underscored that the time between disease onset and diagnosis often takes years. Dr Johnson and Dr Garcia, who serves as medical director at his institution’s adult CF center, receive patients whose bronchiectasis has been misdiagnosed as another chronic airway disease. Dr Chaudary, whose institution will have a bronchiectasis center alongside the adult CF center he directs, added that correct diagnosis of another chronic airway disease may influence whether a provider also orders a CT scan to properly diagnose bronchiectasis. Dr Maselli observed that providers often consider a bronchiectasis diagnosis only after patients have not responded to treatment for asthma, COPD, or another respiratory illness. “By then, bronchiectasis may already be established,” he noted.

For many providers, “recognizing that patients may have the disease is difficult,” Dr Solomon noted. Dr Fadell, who serves as chief of pulmonary and critical care medicine at his institution, added, “When we get referrals from general pulmonology clinics, many patients are misdiagnosed as having COPD, asthma, or other diseases.” According to Dr Fadell, a lack of disease awareness among providers means “patients can wait for years until they get good bronchial hygiene and other specialist care.”

Panelists agreed that to improve rates of patient identification, physicians and other health care providers must become more aware of this disease.

Patient Stratification

To identify potential effective therapies, investigating the etiology of bronchiectasis in each person is recommended.^{10,12} CT scanning can be useful to this end.¹² As Dr Keith observed, “Rheumatoid arthritis–associated lung disease with bronchiectasis is different from bronchiectasis associated with primary ciliary dyskinesia or CF. However, they all carry the diagnosis of bronchiectasis.” She, Dr Fadell, and Dr Chaudary agreed that assessing disease etiology is more complicated than making a radiographic diagnosis. Up to 40% of bronchiectasis cases remain idiopathic.^{4,14}

Frequency of exacerbations is used to assess which patients could benefit from various treatments, as are age and sputum culture.¹² In this way, exacerbations are used as a proxy to measure the impact of the disease.¹² Multidimensional scoring systems including the Bronchiectasis Severity Index have been used to assess disease severity in clinical and observational trials.^{2,15-17} However, these tools do not identify which patients might benefit from particular treatments and are not frequently used in clinical practice, panelists agreed. Better stratification tools are needed.²

Epidemiology

The prevalence of bronchiectasis in the United States is more common than previously thought, and it has grown since the early 2000s.¹⁸ Dr Winthrop, who served as an investigator in 2 influential studies of US epidemiology, noted that bronchiectasis was once

considered an orphan disease with 200,000 or fewer people in the US having the disease.^{13,18,19} More recently, bronchiectasis has been estimated to affect 139 to 213 in every 100,000 US adults or approximately 364,000 to 558,000 individuals at least 18 years of age.⁶⁻⁸

The prevalence of bronchiectasis in the US also appears to differ by demographic trait, Dr Fadell highlighted. In the aforementioned study, the prevalence of bronchiectasis in the US was shown to increase with age, to 812 per 100,000 individuals at least 75 years of age.⁶ The disease was almost twice as likely in women as in men (180 per 100,000 vs 95 per 100,000).⁶

Exacerbations

Exacerbations uniformly signify deteriorating health and substantially impact disease progression, hospitalization rates, and mortality, the panelists agreed. Panelists also concurred with Dr Solomon that although efforts have been made in Europe, there is not complete consensus on the definition of *exacerbation* in bronchiectasis management.²⁰

Definition

In clinical practice, an exacerbation of bronchiectasis may be defined as a change in symptoms especially within 48 hours, Drs Solomon and Maselli proposed. Changes in cough; sputum volume, consistency, or purulence; dyspnea; exercise tolerance; hemoptysis; wheezing; infection frequency; malaise; fatigue; and other symptoms may drive decisions to adjust treatment. In the case of some exacerbations, localized symptom changes may be accompanied by systemic symptoms like fever or weight loss. Dr Solomon noted that research publications and clinical trials have defined *exacerbation* according to change in specific symptoms.²¹ However, he continued, these definitions may not be useful in clinical practice where more variation is seen.

Incidence

In an analysis of 2014-2019 IBM MarketScan commercial and Medicare data, 32.6%, 20.9%, and 46.5% of 14,798 patients with bronchiectasis experienced 0, 1, or at least 2 exacerbations, respectively, in the 12 months after initial diagnosis.²² Compared with patients who experienced fewer exacerbations, patients who experienced at least 2 exacerbations in the first 12 months after diagnosis were 3.6 times more likely (95% CI, 3.4-3.9 times) to experience at least 2 exacerbations in the subsequent 12 months.²²

Causes

Dr Winthrop divided infection-driven exacerbations into 3 types. First are bacterial exacerbations—including those related to *Pseudomonas aeruginosa* (*P aeruginosa*) infection—which are relatively acute. They can be subacute to start and then become worse over a few weeks. However, as Dr Garcia noted, patients with

bacterial exacerbations are more likely to come to the hospital, receive intravenous (IV) antibiotics, and recover quickly. Second are mycobacterial exacerbations, which smolder for months or years. Third are viral exacerbations, which are quite acute. These 3 types of exacerbations have different time courses, are treated differently, and can all overlap, Dr Winthrop observed.

The exacerbations interrelate, Dr Winthrop continued. Infections with *P aeruginosa* and *Mycobacterium avium* complex, for example, seem to compete for dominance in the airway. Bacterial infections may precede viral infections. During the COVID-19 pandemic, Dr Winthrop noted, people wore masks and practiced social distancing. At that time, there were few bacterial exacerbations and even fewer viral infections.

Infection is not the only cause of exacerbation, Dr Solomon added. Rather, the inflammation of bronchiectasis itself may provoke susceptibility to new drivers of inflammation. Dr Winthrop stated, “In theory, if we treat the cause of the inflammation, we can mitigate the exacerbation.”

Host factors including biome, environment, and underlying disease also influence exacerbation, Dr Keith observed. She sees many patients whose underlying autoimmune disease can exacerbate their bronchiectasis. Dr Solomon added that research to understand exacerbation phenotypes is ongoing.

Impact on Disease Course and Management

Exacerbations can last up to 16 days, and symptoms may not be totally resolved 35 days after initiation of treatment.²³ In a study of 2572 patients with bronchiectasis, all-cause mortality increased with increasing exacerbation frequency. Compared with patients with no exacerbations at baseline, patients with at least 3 exacerbations had an 86% higher risk of 5-year all-cause mortality (95% CI, 30%-166%; $P = .001$).²⁴

“Each exacerbation contributes to a gradual decline in health,” Dr Garcia observed. “Even mild episodes indicate underlying issues.” He added that this is particularly true for older patients experiencing functional decline during hospitalization. Dr Solomon agreed, noting that “uncontrolled exacerbations can lead to chronic issues” for all patients with bronchiectasis. Indeed, exacerbations have been associated with permanent lung function decline.^{5,25} Dr Chaudary echoed these sentiments, continuing, “Exacerbations prompt changes in management and worsen patient outcomes, including increased hospitalizations.”

“Prevention is paramount,” Dr Garcia concluded. “The goal should be to prevent all exacerbations.”

Quality of Life Impact

Symptoms, treatment burden, and social stigma can substantially diminish the quality of life (QOL) of patients with bronchiectasis and their families, the panelists agreed. Dr Solomon noted that

although few patients with bronchiectasis progress to end-stage lung disease, most remain sick. Moreover, they live with a daily symptom burden that is unlike the episodic burden of moderate persistent asthma and other airway diseases, which can progress more variably. Dr Johnson and Dr Fadell highlighted that chronic cough and dyspnea are tiresome; especially for thin and frail patients, they can be physically exhausting. Dr Keith added that that chronicity not only drives treatment burden for patients, families, and caregivers—it also increases the odds of the patient experiencing anxiety and depression.

For patients who experience substantial symptoms, Dr Keith continued, treatment burden has a profound impact on patients, caregivers, and families. These stakeholders must arrange their schedules to accommodate airway clearance therapy and administration of multiple medications that may include those given by IV infusion. When symptoms worsen or when patients experience exacerbations, these parties may need to accommodate inpatient stays as well.

Therapy administration, including use of airway clearance techniques (ACTs), can require several hours in the morning and afternoon, said Dr Maselli, and some patients are unable to travel or work because of this therapeutic burden. Dr Winthrop echoed that the need to use a nebulizer twice a day can diminish health-related QOL for some patients with bronchiectasis. Finally, Dr Garcia continued, patients feel hopeless, perceiving that this treatment that imposes such a heavy burden may be ineffective as their rate of exacerbations and daily symptom burden remain unchanged. This hopelessness may add to anxiety and depression.

The social stigma of coughing and producing sputum in public also diminishes QOL, according to Dr Johnson and Dr Winthrop. They highlighted that the social stigma has been magnified by the COVID-19 pandemic.

Panelists underscored that the heterogeneity of disease manifestation leads to a wide variety of impacts upon QOL. Dr Johnson added that symptom burden is neither uniform nor predictable based on imaging. “Many people,” she observed, “have significant radiographic bronchiectasis and modest burden.” Dr Solomon added that, by contrast, “patients with milder radiographic bronchiectasis can have significant symptom burden.” Regardless of radiographic findings, Dr Keith emphasized, “QOL correlates with symptom burden.”

This discrepancy between radiographic findings and symptom burden has led investigators to use symptom scores as end points in trials involving patients with bronchiectasis, Dr Solomon continued. Multidimensional scoring systems including the Quality of Life–Bronchiectasis questionnaire, the St George’s Respiratory Questionnaire, and the Leicester Cough Questionnaire have been used to assess symptom burden in clinical and observational trials.^{16,17} Dr Winthrop and others are developing validated tools

to measure QOL or patient-reported outcomes that will be helpful in clinical trials and to categorize patient burden.

Economic Impact and Health Care Resource Use

Bronchiectasis results in many direct and indirect health care costs, panelists highlighted. It also increases hospitalization rates and lengths of stay. Comorbid conditions increase costs and use of health care resources.

Direct and Indirect Health Care Costs

Estimated health care costs for patients with bronchiectasis in the United States total \$14.68 billion annually (2021 US\$), according to the results of a 2023 meta-analysis.³ The results of this investigation, which synthesized findings from 16 US economic studies, estimated that respiratory-related costs alone totaled \$4.12 billion per year.³

Hospitalizations contribute substantially to overall costs, as Dr Chaudary observed. Mean hospitalization costs for patients whose primary diagnosis is bronchiectasis may be as high as \$60,500, according to a claims-based analysis of National Inpatient Sample data. (The standard deviation [SD] was not reported. This and all remaining costs in this section have been inflated to 2024 US\$ unless otherwise cited.)^{26,27}

Expensive diagnostic testing, off-label treatments, and the involvement of several specialists also drive direct costs, Dr Johnson and Dr Chaudary agreed. The long path to diagnosis incurs waste related to misdiagnosis and unnecessary treatments that can be expensive, Dr Johnson continued. Meanwhile, the disease continues to progress, with associated economic costs. Dr Chaudary added that treatments, which are not well studied in this disease state, may be associated with expensive comorbidities.

“Exacerbations in bronchiectasis correlate with poorer outcomes,” Dr Winthrop noted, “including reduced QOL, increased hospitalizations, and higher all-cause mortality rates contributing significantly to health care costs.” Indeed, in an analysis of MarketScan claims from 2009 to 2010, the average incremental cost of exacerbations among 3588 patients with non-CF bronchiectasis was \$10,216.^{27,28} Inpatient hospital costs accounted for \$7715 (75%) of this burden.^{27,28} (SDs were not reported.)

The indirect costs of bronchiectasis are poorly studied.³ However, as Dr Johnson observed, treatment and hospitalization, in addition to being burdensome, can result in substantial productivity loss for patients and caregivers.

Hospitalization

Hospitalizations are associated with adverse outcomes in bronchiectasis, Dr Winthrop observed, particularly in patients with compromised lung function. An analysis of 2009–2013 data from commercial and Medicare claims databases showed that mean annual acute-care hospitalizations were 0.11 per person (95% CI,

0.09-0.12 per person) among 15,573 patients with bronchiectasis and no COPD.²⁹ In an analysis of 2008-2012 data from US commercial and Medicare claims databases for 5847 adults with bronchiectasis, rates of all-cause hospitalization were seen to increase with exacerbation frequency. During the year after initial diagnosis, all-cause hospitalization rates among 5847 adults with bronchiectasis and 1 or at least 2 exacerbations were 22.2% and 58.4%, respectively.¹

In addition to increasing hospitalization rates, bronchiectasis is associated with substantial lengths of hospitalization stay. The mean length of stay for patients with bronchiectasis and hemoptysis as their primary or secondary diagnoses was 6 days among 8240 weighted hospitalizations according to an analysis of 2016-2017 claims from the Nationwide Inpatient Sample database.⁹ (No SD was reported.) Hemoptysis occurs in approximately 23% of US patients with bronchiectasis.⁹

The average length of hospital stay also increases with exacerbation frequency, according to results of the exacerbation prevalence study. Patients with 1, 2, or at least 3 exacerbations had an average (SD) hospital length of stay of 6.91 (9.83), 7.25 (6.89), and 9.31 (8.64) days, respectively.¹

Impact of Comorbidities

In addition to exacerbations, the presence of comorbid conditions has been shown to increase both health care costs and hospitalization rates of patients with bronchiectasis.^{29,30}

Unmet Needs in Bronchiectasis Management

Panelists identified several unmet needs including the lack of US-based guidelines, lack of approved treatments with demonstrated benefit, absence of centers of excellence, and persistent health care disparities in the management of bronchiectasis.

US Guidelines

Panelists agreed unanimously that developing US treatment guidelines should be a major priority in the management of bronchiectasis. Without US-based guidelines, providers lack a standard of care to treat bronchiectasis, and patients receive unstandardized treatment that is insufficiently supported by evidence. Some pulmonologists rely on guidance from the European Respiratory Society, the British Thoracic Society, and other international organizations. However, current guidelines are based upon limited evidence; further, noted Dr Solomon, they rely upon expert opinion, and they do not make recommendations based upon regulatory-approved therapies. Dr Fadell agreed that current guidelines are insufficient and have not penetrated to the community pulmonology clinics where many patients with bronchiectasis are treated. “Lacking guideline support, especially in the general pulmonary clinics, providers rely upon experience, on what will improve their patients’ symptoms,” he said. More research to develop evidence-based guidelines is needed.

Approved Treatments

The FDA approval of a treatment for bronchiectasis constitutes a second major priority, Dr Johnson observed. Dr Winthrop agreed, noting the difficulty of convincing patients to adhere to a treatment when the treatment is not indicated for their condition. “We don’t have any approved treatments,” he continued, “and we have limited data for the treatments we use.”

Research

Panelists underscored the necessity for further investigation into the epidemiology, etiology, and treatment of bronchiectasis.

Epidemiological and Etiological

Bronchiectasis management requires better epidemiological and etiological research, the panelists agreed. Dr Solomon noted that the epidemiology and pathophysiology must be understood as they are for CF, a related condition. Better research on the microbiome might help, Dr Winthrop continued, asking, “How might the microbiome lend itself to disease progression or exacerbation in each individual?” Such understanding might lead to altering the microbiome for therapeutic ends.

Dr Fadell added that such research could aid in the prevention of bronchiectasis along with its treatment. Questions surrounding how the disease progresses in children vs adults and how the disease progresses differently in different regions of the world should be answered. Dr Chaudary and he noted that 50% of bronchiectasis cases remain idiopathic.

Treatment

Research is needed into the safety and efficacy of clinical and investigational therapies, all panelists reinforced. “Few studies have helped us in the tools to support our patients,” Dr Fadell said. Dr Winthrop added that research is also needed in how particular endotypes respond to particular therapies. Dr Solomon concurred and summarized, “The published literature surrounding bronchiectasis is just not that great, especially when it comes to therapeutics.”

Centers of Excellence, Education, and Resources

Dr Keith noted, “Treatment of patients—even with the same etiology—must be individualized.” This can be difficult for providers outside of the bronchiectasis subspecialty and for patients, Dr Solomon highlighted. Moreover, clinics, providers, and patients often lack the necessary resources and support to provide individualized patient education and therapeutic plans.

“Centers of excellence for bronchiectasis are an unmet need,” Dr Solomon continued. He noted that centers of excellence have provided a great deal of knowledge for CF and rare diseases that are less prevalent than bronchiectasis. “Bronchiectasis now increasingly needs a center approach with a multidisciplinary team of people

where we can provide the best care, design the clinical studies, and look at the management protocols.”

Education

Bronchiectasis management also requires better education of providers, patients, and stakeholders, panelists reinforced. Lack of awareness is common. Dr Chaudary stated that education is needed even among pulmonologists, who continue outdated practices including rotational use of antibiotics (eg, alternating monthly between doxycycline monohydrate and sulfamethoxazole-trimethoprim). He added that some of his patients have received outdated treatments for decades. “The absence of clear US guidelines exacerbates this issue.”

Applying Proper Airway Clearance Techniques

A principal educational need surrounds ACT, which is a major component of bronchiectasis management and requires education. However, Dr Chaudary observed, “No simple tool exists to demonstrate to patients in a clinic how to perform it.” Dr Solomon added that patients frequently come to his institution performing ACTs incorrectly, and clinicians spend substantial time teaching proper technique. Dr Keith noted that although her outpatient centers have respiratory therapists dedicated to teaching ACTs, these resource-rich environments are uncommon across the country. Dr Solomon concurred: “Community clinics lack resources for teaching ACTs.”

Dr Fadell added that more education is needed among insurers, as well. “In general pulmonary medicine,” he commented, “we frequently struggle to get insurance coverage for ACT.”

Resources for Team-Based Care

Providers lack resources for the team-based approach to care needed for bronchiectasis management, the panelists agreed. Dr Winthrop and Dr Solomon noted that this lack was particularly acute for community providers who have little support. However, it is a problem even in academic centers. Dr Keith noted, “More resources exist for the CF programs than for the non-CF programs.”

Nutritional Management

Team-based resources to support nutritional management emerged as a particular concern. Panelists noted that chronic cough, persistent airway inflammation, and infections—often coupled with poor appetite—contribute to a caloric imbalance and subsequent weight loss in some patients. Dr Johnson and Dr Winthrop noted that many of their patients are underweight; increasing body mass index by even 2 points can improve disease management dramatically in their opinion. Although care teams for CF include a nutritionist, teams for bronchiectasis most commonly do not. Moreover, in the experience of these experts, insurers rarely reimburse for nutritional management.

Reduction in Health Care Disparities

Several factors contribute to health care disparities in bronchiectasis management, the panel resolved. Principal among these is the lack of US-based guidelines, published research, and FDA-approved therapeutics, Dr Solomon and Dr Fadell agreed. However, low levels of disease awareness, education, and access to care exacerbate disparities. Dr Fadell noted that underserved populations lack access to specialist centers. These patients are at particular risk of not receiving the antibiotics or tools for the bronchial hygiene needed to prevent frequent exacerbations.

Regional discrepancies in health care access worsen health care disparities, Dr Garcia added. This is particularly true in regions like Florida that have large elderly populations. As aging populations move to certain regions, they will increase the demand for specialized services, which leads to prolonged wait times for patients seeking service. Dr Garcia noted that this problem may become more acute as people within the United States live longer.

Management Priorities, Treatment Approaches, and Best Practices

The panelists agreed that preventing or reducing exacerbations and maintaining or improving QOL constituted their top management priorities. Making a correct etiologic diagnosis, educating patients and providers about the disease, maintaining lung function, managing comorbid diseases, and helping patients to devote less time to treatment constituted important goals as well.

Treatment Approaches

Dr Solomon summarized his approach to an initial visit involving a patient with symptomatic bronchiectasis of unknown etiology. He recounted, “I take the patient’s history, including history of exacerbation; assess results of infection cultures and other tests; and discuss bronchial hygiene.” Finally, for patients at risk for infection like NTM or *P aeruginosa*, he modifies treatment.

Treating Exacerbations

Treatment of an exacerbation depends upon the underlying infection, Dr Winthrop observed. Providers should be attentive to antibiotic resistance. However, treatment selection for some infections can sometimes depend upon which antibiotic will have a cost reimbursed by the patient’s insurance provider.

Considering Comorbid Conditions

Comorbid conditions complicate the management of bronchiectasis, panelists agreed, and they should be diagnosed independently. Management of asthma and COPD requires special consideration of the use of inhaled corticosteroids or monoclonal antibodies when the diseases are comorbid with bronchiectasis, Dr Maselli

observed. Dyspnea, obstructive sleep apnea, and other conditions should also be considered.

Dr Johnson noted that comorbidities including underlying sinus disease, esophageal dysmotility, or esophageal dysfunction (reflux) are of particular concern. Expiratory central airway collapse and acquired tracheobronchomalacia may also be correlated with bronchiectasis and require management. Lung cancer should also be considered as providers review CT scans, Dr Garcia added. “Many of our patients are current or previous smokers.”

Nonpulmonary comorbid diseases should also be considered, Dr Johnson and Dr Garcia highlighted. Coronary disease and causes of immune dysfunction, if comorbid, must be managed.

In treating bronchiectasis alongside comorbid conditions, drug-drug interactions should be considered. For instance, many patients with bronchiectasis are elderly, and many use blood thinners, Dr Garcia noted. Antibiotics interact with blood thinners.

Best Practices: Working with Patients, Laboratories, and a Care Team

Panelists underscored the importance of working proactively with patients, laboratories, and larger care teams. Surveillance of the microbiota is essential in bronchiectasis management, for which a laboratory with appropriately trained technicians is important. “Many of the bacteria that we treat would be recognized as normal flora; if they are not cultured properly, they would not be detected at all,” noted Dr Solomon.

It is critical that providers partner with patients to develop a plan for bronchial hygiene that is acceptable and feasible for the patient. Additionally, referral to experts should be strongly considered, especially when sputum cultures are positive for pathogenic organisms. Physical exercise protocols for patients should also be established, as they are lacking for this disease. “Patients need to know what exercises they can do in conjunction with ACTs and for how long,” Dr Chaudary observed. “Patients should know if they should walk or jog and for how many minutes.”

Finally, patients should be appropriately vaccinated against respiratory pathogens to minimize infection risk, Dr Johnson added. As previously discussed, infections often trigger exacerbations.

Collaborating to Optimize Management and Address Unmet Needs

The panelists agreed that private industry, government regulators, and clinical investigators should collaborate to resolve unmet needs in bronchiectasis management and research. Principal among these is the need for FDA-approved therapy. “Regulators at the FDA can incentivize industry to develop and test pharmaceuticals for patients with bronchiectasis,” Dr Winthrop noted. Regulators and investigators can work together, too. “We need to get the right people into the right study and ask the right question,” Dr Johnson

explained. Dr Solomon concurred, adding, “We need to establish clinical trial end points that are meaningful to specific phenotypes.”

Similarly, lung-focused organizations, the National Institutes of Health (NIH), and industry can help fund epidemiological, etiological, and translational research related to bronchiectasis, Drs Solomon and Garcia noted. This would aid in the development and understanding of therapeutic targets. Dr Solomon highlighted the success of 1 such program. The Individual Management of Patient Airway Clearance Therapy–Bronchiectasis (IMPACT BE) program is a collaboration between clinician advisors, pulmonary clinics, private foundations, the NIH, and commercial partners.³¹ The IMPACT BE program promotes education surrounding airway clearance options for people with bronchiectasis.³¹ In 2023, investigators posted positive results from a program pilot held at 8 sites in the United States and 1 in the United Kingdom.³¹

The Bronchiectasis and NTM Research Registry constitutes a promising collaboration between the COPD Foundation, NTM Info & Research, and 22 clinical institutions across the country, to which the panelists contribute.³² Representing a population with advanced disease, the registry has provided epidemiological data, Dr Winthrop highlighted. This database supports collaborative research and facilitates multicenter clinical trials investigating treatment of NTM lung disease and/or bronchiectasis.³²

In February 2024, the COPD Foundation announced the launch of the Bronchiectasis and NTM Care Center Network, which intends to facilitate access to specialized care for patients with bronchiectasis and NTM in 150 locations across the United States.³³ Aiming to provide timely, accurate diagnosis and optimal medical care, the network also looks to serve as a nexus for education, research, and engagement.³³

Ongoing Research

The panelists looked forward to the outcomes of trials of antibiotics, immunomodulators, and other investigational agents. They also looked forward to the use of artificial intelligence (AI) in screening and diagnosis. In particular, Dr Maselli noted, research using AI to analyze medical reports and alert providers to possible bronchiectasis cases is promising. Promising, too, is investigation of the use of AI with CT scans to map airways and vessels, determine airway:vessel ratios, and help assess risk based upon minimal abnormalities.³⁴

Closing Thoughts

Dr Fadell summarized a principal theme of the roundtable: “Providers are ill-equipped to change the course of this heterogenous disease.” Meanwhile, panelists echoed, there is a real need for options to manage symptoms, for US-based guidelines, and for more research into epidemiology, etiology, and treatment. Finally, more support is needed to enhance awareness and education and to support a multidisciplinary approach to care.

“This is a great time to be working with bronchiectasis,” Dr Johnson concluded. “But we need collaboration with industry, regulatory bodies, and academic institutions to move the needle in bronchiectasis management.” ■

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