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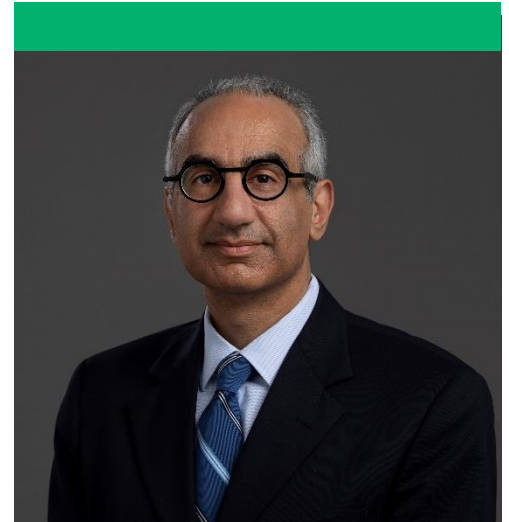
The J. Bailey Carter, MD, Professor of Cardiology

Advancement of Medicine

In 2025, I continued investigations relating to my area of expertise in the field of sleep-disordered breathing and hypoventilation syndromes. My clinical research explores the impact of sleep and obstructive sleep apnea, or OSA, on type 2 diabetes and prediabetes as well as the intersection of sleep-disordered breathing and various pulmonary/critical care disorders such as acute-on-chronic hypercapnic respiratory failure in the ICU, i.e., obesity hypoventilation syndrome. Since my arrival at Rush in late 2021, I have been collaborating with Rush scientist **Sanda Predescu, PhD**, to better elucidate whether obesity and sleep apnea are risk factors in pulmonary hypertension. Pulmonary arterial hypertension, or PAH, is a life-threatening progressive disorder associated with abnormally elevated pulmonary pressure, pulmonary artery remodeling and occlusion of small pulmonary arteries. There is currently no cure. Even with treatment, the prognosis of PAH is poor, with a one-year mortality of 15%. Common comorbidities in patients with PAH include OSA and obesity.

Research

Funds from the J. Bailey Carter Endowment support key laboratory personnel and equipment purchases and maintenance. This enables us to carry out translational research using murine models to explore the role of obesity and exposure to low levels of oxygen in the progression of pulmonary arterial hypertension. We have developed and perfected the animal model to gain a deeper understanding of disease mechanisms.





Grants

Our most recent findings have been submitted as an abstract to the American Thoracic Society 2026 meeting, and a manuscript is in preparation. We plan to submit a multiple-principal-investigator NIH R01 application based on the preliminary data we have accumulated.

Presentation and Speaking Engagements

- 2024 SLEEP 2024: Session: Navigating Respiratory Physiology in the Sleep Lab: Obesity Hypoventilation Syndrome
- 2024 Meet the Professor session at CHEST 2024. Obesity hypoventilation syndrome. Boston
- 2024 Scientific symposium CHEST 2024: Obesity Hypoventilation Syndrome: A Wicked Tough Challenge: Outpatient Management. Boston
- 2024 Sleep Medicine Review for the Pulmonary Boards at CHEST 2023. Boston
- 2024 Scientific symposium CHEST 2024: Case-Based Presentation of New CMS NIV Reimbursement Criteria: Singin' the Respiratory Assist Device Type Rules. Boston
- 2025 Curso de actualización trastornos respiratorios del sueño sponsored by Sociedad Chilena de Enfermedades Respiratorias and Asociación Latinoamericana de Tórax. Virtual conference: Hipoventilación Asociada a Obesidad con y sin Hipertensión Pulmonar. Santiago, Chile
- 2025 Clinical Workshop: Obesity Hypoventilation Syndrome — Updates in Diagnosis, PAP, and Weight Management. My talk: “Cutting Weight, Breathing Easy: Bariatric Surgery in OHS.” SLEEP 2025, Seattle
- 2025 Workshop: Advantages of automatic NIV (AVAPS-AE) in managing OHS. “Background and methodology of the Pickwick Titration Randomized Clinical Trial.” World Sleep Congress, Singapore
- 2025 Scientific symposium chair: Gender disparities in obesity hypoventilation syndrome: From diagnosis and treatment to outcomes. My talk: “Putting it all together: Is gender bias in OHS real and if so, how to avoid it.” World Sleep Congress, Singapore



- 2025 Scientific Symposium: Obesity Hypoventilation Syndrome: Where are we now and where are we going? My talk: “Weighty Decisions: Obesity Management Options in OHS.” CHEST, Chicago
- 2025 Scientific Symposium: The New Bilevel PAP Reimbursement Criteria Tango. My talk: “The New Bilevel PAP Reimbursement Criteria for Hypoventilation syndromes Twist and Shout.” CHEST, Chicago
- 2025 Panel Discussion: The Treatment of Obesity in Sleep Medicine in the Era of GLP-1 Agonists. CHEST, Chicago
- 2025 Invited speaker at Fundación Neumológica Colombiana. Simposio de actualización en enfermedades Respiratorias crónicas del adulto: Retos y avances en el abordaje. My talk: “Obesidad: Trastornos respiratorios del sueño e hipertensión pulmonar.” Bogotá, Colombia
- 2025 Invited speaker at Fundación Neumológica Colombiana. Simposio de actualización en enfermedades Respiratorias crónicas del adulto: Retos y avances en el abordaje. My talk: “Síndrome de hipoventilación obesidad (SHO): evaluación y tratamiento.” Bogotá, Colombia
- 2025 Visiting Professorship at the Cleveland Clinic Foundation, Restrictive Thoracic Disorders Education Day. “Obesity Hypoventilation Syndrome: Lessons learned from the Pickwick Papers.” Cleveland

Publication Highlights – Abbreviated only 2025

1. Andrade RGS, Masa JF, Borel JC, Drager LF, Genta PR, **Mokhlesi B**, Lorenzi-Filho G. Impact of treating obesity hypoventilation syndrome on body mass index. *Pulmonology*. 2025, 31(1): 2416816.
2. Nowalk NC, **Mokhlesi B**, Neborak JM, Masa Jimenez JF, Benitez I, Gomez de Terreros FJ, Romero A, Caballero-Eraso C, Troncoso MF, González M, López-Martín S, Marin JM, Martí S, Díaz-Cambriles T, Chiner E, Egea C, Utrabo I, Barbe F, Sánchez-Quiroga MA. Gender differences in outcomes of ambulatory and hospitalized patients with obesity hypoventilation syndrome. *Chest*. 2025 Jan;167(1):245-258.
3. Lyons MM, Auckley DH, **Mokhlesi B**, Charchafli JG, Myers JV, Yilmaz M, Williams LM, Khan MS, Card EB, Gelfand BJ, Pilla MA, Loftsgard TO, Sawyer AM, Matura LA, Carlucci MA, Sahni

AS, Glaser KM, Al Ghussain DE, Brock GN, Bhatt NY, Magalang UJ, Rosen IM, Gali B.

Physicians-in-training and advanced practice providers perceptions in managing perioperative obstructive sleep apnea: A multi-institutional survey. *J Clin Sleep Med* 2025 May 1;21(5):765-773.

4. Levitt Katz LE, El ghormli L, Burke B, Gubitosi-Klug R, Higgins J, Kutney K, Nadeau K, Shah A, **Mokhlesi B**, on behalf of the TODAY Study Group. Sleep, glycemic control, and cardiovascular risk in young adults with youth-onset type 2 diabetes: Results from the TODAY Study. *J Clin Sleep Med* 2025, Nov 1;21(11):1925-1933.
5. Ramos BA, Ram K, Martinez M, Sunderrajan A, Sindorf J, O'Brien MK, Prokup S, Siddiqui S, Morris LL, Knutson KL, **Mokhlesi B**, Prabhakaran S, Wolfe LF, Zee PC, Jayaraman A, Arora VM. Adapting and implementing a staff-led sleep intervention in an acute rehabilitation setting. *Clin Rehabil.* 2025, Nov;39(11):1492-1503.
6. Redline S, Li D, Javaheri S, Patel SR, Parthasarathy S, Fang JC, Brown LK, Dunlap M, Badr MS, Shah N, Chi L, Majid R, Teodorescu M, Stewart G, Hsich E, Polonsky T, Vader J, Johnson M, Auckley D, Yaggi HK, Kao A, Azarbarzin A, Alex R, Rueschman M, Wolfe L, Gottlieb DJ, Sands SA, Zee PC, Mehra R, **Mokhlesi B**, Khayat R, Lewis EF, Abraham WT, Wang R. Nocturnal Oxygen therapy for central sleep apnea in patients with heart failure: the LOFT-HF trial. *Ann Am Thorac Soc.* 2025 (Epub ahead of print)
7. Daneshvar S, Seyedrezazadeh E, Seyyedi M, Jafari S, Ansarin A, Gilani N, **Mokhlesi B**, Ansarin K. Evaluating the endothelial and metabolic effects of CPAP therapy in obstructive sleep apnea patients: insights from a comprehensive meta-analysis. *Sleep Med Rev* 2025, Oct 29;84:102187.
8. **Mokhlesi B**, Hache Marliere M, Jain D, Bjork S, Malhotra A, Masa Jimenez JF, Labarca G. Impact of positive airway pressure therapy on pulmonary artery pressures in obstructive sleep apnea or obesity hypoventilation syndrome: A systematic review and meta-analysis. *Eur Respir J* 2025 (In press)
9. Sánchez-Quiroga MÁ, Benítez I, **Mokhlesi B**, Gomez de Terreros FJ, Roncero A, Ruiz-Martínez C, Bretón M, Troncoso MF, Herrero J, López-Martín S, López-Padilla D, González M, Díaz de Teran T, Caballero-Eraso C, Martí S, Peñacoba P, Galdeano M, Muñoz-Méndez J, Barca J, Barbe F, Utrabo I, Duran JA, Masa JF. Effectiveness of automatically adjusted vs

manually adjusted noninvasive ventilation in obesity hypoventilation syndrome: The Pickwick Titration Randomized Clinical Trial. *Am J Respir Crit Care Med* 2025 (In press).

10. Schmickl CN, Tripipitsiriwat A, **Mokhlesi B**, Mallampalli M, Nokes B, Kundel V, Page K, Finch C, Donovan L, Tadros M, Aysola RS, Zinchuk A, Zvenyach T, Badr MS, Khalaf A, Patel SR, Orr JE, Owens RL, Lindsell C, Martin J, Malhotra A; PARADIGM-SLEEP Investigators. Treatment Preferences for Comorbid Obesity and Obstructive Sleep Apnea (PRO-CON OSA) Survey: Patient and provider preferences for CPAP and/or tirzepatide. *medRxiv [Preprint]*. 2025 Oct 5:2025. (In press)
11. Pack A, Grunstein R, **Mokhlesi B**, Ryan S, Schwab R, Gozal D. What will the impact be of use of tirzepatide in patients with obstructive sleep apnea (OSA)? *Sleep* 2025 Apr 4:zsaf045.
12. Nowalk NC, Arellano-Maric MP, **Mokhlesi B**. Cutting the weight, restoring the breath: bariatric surgery in obesity hypoventilation syndrome. *J Clin Sleep Med* 2025 (Epub ahead of print)
13. Pack AI, Grunstein R, Mokhlesi B, Ryan S, Schwab R, Gozal D. Is COMISA another opportunity for use of incretin drugs? *Sleep* 2025, 48(9), zsaf254.
14. Manuel A, Mandal S, Pépin JL, Piper A, Hart N, **Mokhlesi B**. Obesity hypoventilation syndrome in the era of GLP-1 receptor agonists and SGLT2 inhibitors: Limitations of serum bicarbonate as a screening tool. *Sleep* 2025, 48(9), zsaf297.
15. Nowalk NC, **Mokhlesi B**. Stimulating progress for pharmacotherapy in obesity hypoventilation syndrome. *Chest* 2025 (In press).
16. Lastra AC, Neborak JM, **Mokhlesi B**. Diagnosis and treatment of obstructive sleep apnea. *JAMA Intern Med*. 2025 (Epub ahead of print).
17. Neborak JM, **Mokhlesi B**. Evaluation and management of obesity hypoventilation syndrome in ambulatory and hospital settings. *Sleep Med Clin*. 2025 Dec;20(4):537-546.



The Year Ahead: 2026 and Beyond

We will continue our translational research to elucidate the mechanisms by which obesity and intermittent hypoxia (a model of sleep apnea) lead to pulmonary hypertension. We will continue to support our two PhD students, **Kanika Sharma** and **Heaven Wade**, who are both completing their PhD programs.

We are working on completing a transgenic mouse model to facilitate research in pulmonary hypertension. We obtained an echocardiogram device to allow us to obtain hemodynamic measures in a noninvasive fashion in mice. Our most recent findings have been submitted as an abstract to the American Thoracic Society 2026 meeting, and a manuscript is in preparation. We plan to submit a multiple-principal-investigator NIH R01 application based on the preliminary data we have accumulated.

With Gratitude

I want to convey my sincere thanks for your generosity, which is helping us develop the necessary research to better understand the mechanisms by which obesity and sleep apnea can worsen patient outcomes in pulmonary hypertension, a deadly and progressive disease.