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Be the Change: Advancing Lung Health and Closing the Global Healthcare Gap

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References

1. Peker Y, Glantz H, Eulenburg C, Wegscheider K, Herlitz J, Thunström E. Effect of positive airway pressure on cardiovascular outcomes in coronary artery disease patients with nonsleepy obstructive sleep apnea: the RICCADSA randomized controlled trial. *Am J Respir Crit Care Med* 2016;194:613–620.
2. Azarbarzin A, Zinchuk A, Wellman A, Labarca G, Vena D, Gell L, *et al.* Cardiovascular benefit of continuous positive airway pressure in adults with coronary artery disease and obstructive sleep apnea without excessive sleepiness. *Am J Respir Crit Care Med* 2022;206: 767–774.
3. McEvoy RD, Antic NA, Heeley E, Luo Y, Ou Q, Zhang X, *et al.*; SAVE Investigators and Coordinators. CPAP for prevention of cardiovascular events in obstructive sleep apnea. *N Engl J Med* 2016;375:919–931.
4. Sánchez-de-la-Torre M, Sánchez-de-la-Torre A, Bertran S, Abad J, Duran-Cantolla J, Cabriada V, *et al.*; Spanish Sleep Network. Effect of obstructive sleep apnoea and its treatment with continuous positive airway pressure on the prevalence of cardiovascular events in patients with acute coronary syndrome (ISAACC study): a randomised controlled trial. *Lancet Respir Med* 2020;8:359–367.
5. Malhotra A, Orr JE, Owens RL. On the cutting edge of obstructive sleep apnoea: where next? *Lancet Respir Med* 2015;3: 397–403.
6. Eckert DJ. Phenotypic approaches to obstructive sleep apnoea—new pathways for targeted therapy. *Sleep Med Rev* 2018;37:45–59.
7. Zinchuk AV, Jeon S, Koo BB, Yan X, Bravata DM, Qin L, *et al.* Polysomnographic phenotypes and their cardiovascular implications in obstructive sleep apnoea. *Thorax* 2018;73:472–480.
8. Azarbarzin A, Sands SA, Younes M, Taranto-Montemurro L, Sofer T, Vena D, *et al.* The sleep apnea–specific pulse-rate response predicts cardiovascular morbidity and mortality. *Am J Respir Crit Care Med* 2021;203:1546–1555.
9. Somers VK, Dyken ME, Clary MP, Abboud FM. Sympathetic neural mechanisms in obstructive sleep apnea. *J Clin Invest* 1995;96: 1897–1904.
10. Spicuzza L, Bernardi L, Calciati A, Di Maria GU. Autonomic modulation of heart rate during obstructive versus central apneas in patients with sleep-disordered breathing. *Am J Respir Crit Care Med* 2003;167:902–910.
11. Smith RP, Veale D, Pépin J-L, Lévy PA. Obstructive sleep apnoea and the autonomic nervous system. *Sleep Med Rev* 1998;2:69–92.
12. Zwillich CW. Sleep apnoea and autonomic function. *Thorax* 1998;53: S20–S24.
13. Shah N, Redline S, Yaggi HK, Wu R, Zhao CG, Ostfeld R, *et al.* Obstructive sleep apnea and acute myocardial infarction severity: ischemic preconditioning? *Sleep Breath* 2013;17: 819–826.
14. Mendelson M, Marillier M, Bailly S, Flore P, Borel JC, Vivodtzev I, *et al.* Maximal exercise capacity in patients with obstructive sleep apnoea syndrome: a systematic review and meta-analysis. *Eur Respir J* 2018; 51:1702697.
15. Myers J, Tan SY, Abella J, Aleti V, Froelicher VF. Comparison of the chronotropic response to exercise and heart rate recovery in predicting cardiovascular mortality. *Eur J Cardiovasc Prev Rehabil* 2007;14:215–221.

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"I alone cannot change the world, but I can cast a stone across the waters to create many ripples."

—Mother Teresa

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Chronic respiratory disease is the leading cause of disability and death globally, and the figures are truly staggering:

- Asthma affects more than 350 million people and is the most prevalent chronic illness of childhood worldwide.
- Mild to moderate chronic obstructive pulmonary disease afflicts approximately 200 million and claims the lives of 3.2 million each year, making it the third leading cause of death globally.
- Acute lower respiratory infections account for approximately 2.4 million deaths annually.
- Lung cancer claims the lives of nearly 2 million people each year, making it the leading cause of cancer-related deaths (1).
- Approximately 1.5 million tuberculosis-related deaths occur each year (2).

And millions more live with debilitating respiratory illnesses such as sleep-disordered breathing and occupational lung disease. Furthermore, respiratory-related health issues have been exacerbated

by coronavirus disease (COVID-19). For example, in 2019, tuberculosis was responsible for 1.5 million deaths, making it the 10th leading cause of death worldwide. According to the World Health Organization's 2021 *Global Tuberculosis Report*, the COVID-19 pandemic has unraveled years of global progress in tackling tuberculosis, as related deaths increased for the first time in more than 10 years because of health care and supply chain disruptions during the pandemic (2): indirect yet important factors to consider when reflecting on the current state of global lung health. Finally, climate change is starting to have unmistakable impacts on global lung health.

Although most chronic respiratory diseases are preventable and treatable, low- and middle-income countries carry a disproportionate burden of the global morbidity and mortality rates. According to the World Health Organization, there is a strong correlation between chronic respiratory diseases and poverty. Chronic respiratory diseases contribute to complex multimorbidities, and lower track respiratory infections, chronic obstructive pulmonary disease, and tuberculosis are among the top 10 leading causes of death in low- and middle-income countries. Limited access to health education, health and screening services, and vaccines, as well as low literacy rates and greater exposure to harmful environmental toxins, are major obstacles to appropriate health care delivery in these countries.

With more than 15,000 members representing 130 countries, the American Thoracic Society (ATS) has a broad international reach and platform to help level the global lung health landscape and advance our mission "to accelerate global innovation in the advancement of respiratory health through multidisciplinary collaboration, education, and advocacy." On September 25, World Lung Day, the ATS will join our Forum of International Respiratory Societies (FIRS) partners to help focus on these global health disparities. This day is an important reminder of the need to elevate the importance of lung health and disease awareness and our responsibility to engage in advocacy and action that will affect future generations.

As an international society, we provide members with opportunities to get involved locally and collaborate globally with researchers, academicians, and public health professionals to champion change, as outlined below.

- It only takes a spark to light a fire, one person to inspire countless others. Philip Hopewell, M.D., exemplifies this very notion. His lifelong service to patients and extraordinary contributions to the medical research community continue to inspire investigators worldwide. The Philip Hopewell Prize for Global Respiratory Health Research, established in his honor, provides support to midcareer investigators in low- and middle-income countries and nurtures them to become established leaders in global respiratory health research, a prime example of how one's dedication to improving lung health can create a legacy that will continue to motivate others to combat health disparities and affect change on a global scale.
- As philosopher Thomas Hobbes said, "scientia potentia est": knowledge is power. Through the pursuit of knowledge and the advancement of research, we make great strides in improving global health. For nearly 30 years, the ATS MECOR Program has worked to develop lung disease research in low- and middle-income countries at the local and regional levels. To date, more than 1,800 graduates have participated in the program's worldwide network of multilevel research methods and training courses, which prepare them to design and conduct research relevant to the needs of the settings in which they work.
- Investing in the future is essential to maintaining momentum in lung health research, identifying health disparities, and improving patient care for all. With ATS International Trainee Scholarships, we can grant financial support to trainees around the world; connect them with fellow trainees, scientists, and mentors in their areas of research; and provide access to state-of-the-art clinical research. Trainees can also travel to the ATS International Conference to present their research to respiratory health professionals from abroad.
- The ATS community is in an ideal position to influence change and help shape global health policy through advocacy for international programs. For nearly a decade, ATS members have traveled to Capitol Hill in Washington, DC, for the Annual ATS Hill Day, where they gain insight on key issues and advocate for lung health at all federal government levels. From the executive branch to Congress and the courts, our members advocate for global health care on behalf of physicians, scientists, health professionals, and, of course, the patients they serve.
- Through our partnership with FIRS, collaborations with peer societies on joint webinars addressing challenges and opportunities in lung health, the dissemination of research via our four scientific journals, and knowledge sharing at the ATS International Conference, the ATS is committed to doing its part to address disparities, close the health care gap, and improve lung health for all.

On this World Lung Day, we invite and encourage each of you to do *your* part: explore the vast resources provided by the ATS, FIRS, the World Health Organization, and our peer societies; participate in learning opportunities; be a mentor; reach out to colleagues and join the conversation; advocate for health equity; and take every opportunity to get involved. When we work together, the potential for positive change is limitless.

To learn more about ATS initiatives and how you can get involved, visit the ATS website. Also, be sure to follow the conversation on social media. ■

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References

1. Forum of International Respiratory Societies. The global impact of respiratory disease, 3rd ed. Lausanne, Switzerland: European Respiratory Society; 2021 [accessed 2021 Sep 22]. Available from: https://firsnet.org/images/publications/FIRS_Master_09202021.pdf.
2. World Health Organization. Tuberculosis. Geneva, Switzerland: World Health Organization; 2021 [updated 2021 Oct 14; accessed 2022 Jul 12]. Available from: https://www.who.int/news-room/fact-sheets/detail/tuberculosis.

Lung Health for All: Chronic Obstructive Lung Disease and World Lung Day 2022

"Lung Health for All" is the key theme of World Lung Day 2022 (September 25). The day aims to highlight the global burden of the major respiratory diseases and the impact of coronavirus disease (COVID-19), with a focus on low- and middle-income countries (LMIC). Key messages for the day are the importance of early detection and reduction of inequalities. These align well with the objectives Global Initiative for Chronic Obstructive Lung Disease (GOLD) of improving the diagnosis and management of chronic obstructive pulmonary disease (COPD) around the world.

COPD affects 1 in 10 of the adult global population and is one of the three commonest causes of death worldwide (1). It is also a major cause of the global inequalities in health and is more prevalent where such inequalities are more extreme.

In 2019 COPD killed 3.22 million people (2), and the number of deaths rose by 17.5% between 2007 and 2017 (3). The main burden of mortality from COPD is seen in Latin America, sub-Saharan Africa, India, China, and Southeast Asia. The Global Burden of Disease study estimated that COPD affected 104.7 million men and 69.7 million women globally in 2015 and that between 1990 and 2015 the prevalence of COPD had increased by 44.2% (4); however, another analysis has estimated that COPD is much more common and that 384 million people had COPD in 2010 (5). Until recently the mean life expectancy of the population in many LMIC has been poor and survival to an age when COPD would usually be diagnosed was uncommon, but improvements in life expectancy in LMIC over the last 50 years, together with reductions in childhood mortality, are

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