PRESS RELEASE

17 JUNE 2026 | FOR IMMEDIATE RELEASE

Asian-specific multimorbidity significantly amplifies Asthma and COPD costs in Singapore, with healthcare burden projected in the billions over the next two decades

Singapore, 17 June 2026 — A series of studies[1] led by researchers from the Saw Swee Hock School of Public Health, National University of Singapore (NUS SSHSPH) reveal that Asthma and Chronic Obstructive Pulmonary Disease (COPD) are imposing a rapidly growing healthcare burden in Singapore, driven not only by the respiratory diseases themselves but also by complex Asian-specific multimorbidity patterns.

This work was conducted within the Population Health Research and Implementation Science Modelling Centre (PHRISM). As NUS SSHSPH's centre for non-communicable disease modelling, PHRISM serves as a convening hub that links people, methods and data to support forward-looking health system decisions in Singapore and across the region.

The researchers worked in close collaboration with The Academic Respiratory Initiative for Pulmonary Health (TARIPH), a national multi-institutional research programme led by the Lee Kong Chian School of Medicine (LKCMedicine) at Nanyang Technological University, Singapore. The programme is funded through a National Medical Research Council (NMRC) Open-Fund Large Collaborative Grant (OF-LCG) which was awarded in 2024.

Using eight years of nationwide health administrative data, the researchers found that Asthma patients incurred annual healthcare costs averaging SGD $1,610 per patient, around three times higher than non-asthma patients. Much of the excess burden was attributable to Oral Corticosteroid (OCS)-related adverse health effects (in particular pneumonia, cataract and heart failure), alongside other circulatory, metabolic and respiratory conditions. Alarmingly, these costs escalated progressively across the Asthma disease course, even among paediatric patients where healthcare costs would typically be expected to decline to minimal levels over time, highlighting the cumulative long-term harms of OCS exposure. These findings are being followed up by TARIPH as part of on-going studies within their NMRC-OF-LCG programme.

COPD patients faced even greater healthcare needs, with annual healthcare costs averaging SGD $5,290 per patient-year, predominantly driven by hospitalisations. Only one-third of total costs was directly attributable to COPD care, while two-thirds arose from comorbidities, particularly other respiratory, circulatory and metabolic diseases. The studies also identified distinct high-cost patient subgroup patterns within Singapore's multi-ethnic population, including a disproportionately high representation of Indian ethnicity among the

top-cost Asthma and COPD users, highlighting the need for more tailored and integrated primary care approaches.

Looking ahead, the burden is set to rise sharply. The number of Asthma patients is projected to double from 2024 to 2043, contributing an estimated SGD $7.8 billion in healthcare costs, while COPD is expected to add a further SGD $2.4 billion. Most of these costs will be driven by maintenance care and hospitalisations, with heart-lung-metabolic disease cluster estimated to be key contributors. Together, results highlight a critical shift needed in chronic respiratory care, from single-disease management to integrated, multimorbidity-focused care. Some considerations for integrated, multimorbidity-focused care include OCS use and multimorbidity risk screening in primary care, OCS stewardship programmes, structured referral pathways for high-multimorbidity-burden patients, multidisciplinary heart–lung–metabolic clinics, and payment models that incentivise coordinated management of multimorbidity across care settings. Establishing Asian-specific multimorbid care models will be essential to improving outcomes and ensuring long-term healthcare sustainability, it can also help to reduce avoidable risk factors, such as excessive OCS use.

Quotes

"Our study provides one of the most comprehensive real-world estimates of respiratory disease burden in a multi-ethnic Asian population, revealing important differences in how costs are distributed across age-sex and comorbidity subgroups. These insights can help inform more targeted and equitable healthcare planning."

- Laura Huey Mien Lim, currently a postdoctoral researcher at the University of Cambridge

"Across both Asthma and COPD, heart-lung-metabolic multimorbid clusters with potential OCS toxicity, not the primary disease alone, are the dominant drivers of healthcare costs. This highlights a critical need to move beyond siloed, disease-specific models toward integrated, patient-centred care that addresses the full spectrum of multimorbid conditions."

- Yah Ru Juang, a PhD candidate and Research Associate at the NUS Saw Swee Hock School of Public Health

"Looking ahead, the projected rise in Asthma and COPD burden, particularly hospitalisations, over the next two decades is substantial. Through our work within PHRISM with LKCMedicine's TARIPH research programme, we aim to provide decision-focused evidence that helps Singapore and regional health systems forecast future medical needs and design more sustainable models of care and financing for patients with complex chronic diseases"

- Wenjia Chen, Assistant Professor at the NUS Saw Swee Hock School of Public Health and Co-Investigator of The Academic Respiratory Initiative for Pulmonary Health (TARIPH) research programme helmed by LKCMedicine

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Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, research centres of excellence, corporate labs and more than 30 university-level research institutes focus on themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

For more information on NUS, please visit nus.edu.sg.

Note to Editors

References to research studies[1]:

Asthma Economic Burden Paper:
Lim LHM, Juang YR, Chotirmall SH, Tan KB, Koh MS, Abisheganaden JA, Price DB, Tsai MJ, Liew MF, Tiew PY, Yii ACA, Chen W. Economic burden of asthma multimorbidity in Singapore: Shadow costs of steroid use. World Allergy Organ J. 2025 Nov 27;18(12):101146. doi: 10.1016/j.waojou.2025.101146.

COPD Economic Burden Paper:
Juang YR*, Lim LHM*, Chotirmall SH, Abisheganaden J, Koh MS, Tsai MJ, Liew MF, Yii ACA, Tiew PY, Price D, Tan KB, Chen W. Healthcare Costs and Trends of Multimorbidity in COPD Patients: A Population-Based Study in Singapore. Int J Chron Obstruct Pulmon Dis. 2026 Feb 17;21:563620. doi: 10.2147/COPD.S563620. *Contributed equally

Asthma and COPD Economic Burden Projection Paper:
Juang YR*, Lim LHM*, Chotirmall SH, Tan KB, Koh MS, Abisheganaden J, Price DB, Tsai MJ, Liew MF, Tiew PY, Yii ACA, Chen W. Projecting the 20-year healthcare resource burden of asthma and COPD multimorbidity: insights from Singapore for integrated chronic respiratory care in South-East Asia. *npj Prim. Care Respir. Med.* (2026). https://doi.org/10.1038/s41533-026-00502-9. *Contributed equally

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