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Vaping Expected to Increase COPD Health and Economic Burden by 2050

New ResMed-supported research presented at ERS 2024 projects future Chronic Obstructive Pulmonary Disease (COPD) burden in Western Europe, accounting for increased air pollution, tobacco smoking, and vaping, with Non-Invasive Ventilation (NIV) enhancing survival rates.

- *88.7 million new COPD hospitalizations projected across Western Europe between 2019 - 2050*
- *Vaping projected to incur almost €30 billion additional direct and indirect costs by 2050*
- €4.9 trillion projected cumulative cost to support COPD lung conditions by 2050
- *16% projected reduction in risk of death after a severe exacerbation for COPD patients using home NIV support*

SAN DIEGO and VIENNA, Sept. 10, 2024 (GLOBE NEWSWIRE) -- ResMed presented 18 supported studies at ERS 2024, including research that projects vaping, smoking, and air pollution will substantially increase the economic and public health burden of COPD in Western Europe. Annual direct and indirect costs are projected to reach over €170 billion by 2050, costing Western European economies over €4.9 trillion cumulatively by 2050. Vaping alone is forecast to require an additional €3.78 billion annually to support its impact on medical care and societal costs.

COPD poses a significant health and economic burden, further exacerbated by environmental and behavioral changes such as air pollution and vaping. Previous modeling work has focused on quantifying the burden of COPD across North America, accounting for tobacco smoking and air pollution[1]. The ResMed-supported research aimed to extend this US modeling by also accounting for the effects of vaping on the COPD burden in Western Europe[2].

The results of this pertinent research were presented at ERS 2024 by Elroy Boers, PhD, Lead Health Research Scientist, ResMed. The model projected that, in addition to smoking and air pollution, vaping is going to have a notable economic and health impact on the burden of COPD into 2050, both cumulatively and annually.

2050 outcomes describing the relative increase associated with vaping (vs. the scenario without vaping) were concluded to be:

- Direct costs are projected to relatively increase by 0.5% (cumulative) and 2.1% (annual) – representing a cumulative increase of €10 billion.
- Indirect costs are projected to relatively increase by 0.7% (cumulative) and 2.3%

(annual) – representing a cumulative increase of €20 billion.
- The number of exacerbations is estimated to relatively increase by 0.3% or 1.6 million (cumulative) and 1.8% (annual)
- The number of hospitalizations is projected to increase by 0.2% or 190,000 (cumulative) and 3.3% (annual).

“To avoid escalating costs to public finances, additional strain on health services, and reduce loss of life from COPD, much greater action is required. Public health and advocacy efforts targeting known risk factors such as smoking, vaping, and ambient and household air pollution may be critical to prevent this anticipated burden,” said ResMed Chief Medical Officer Carlos M. Nunez, M.D.

In a separate ResMed-supported study presented by Professor Jean-Louis Pépin, Grenoble Alpes University, France, the role of home non-invasive Ventilation (NIV) support in managing COPD was explored. The study found that continued use of home NIV significantly reduces risk of death from COPD flare-ups (exacerbations), with a 16% reduction in mortality risk following severe exacerbations and a 12% reduction for those without exacerbations. The study involved nearly 50,000 adults with COPD who were treated via home NIV. The multistate model analysis estimated the impact of NIV continuation versus cessation on transitions between three different disease states (without severe exacerbation, severe exacerbation, and death).

“The positive impact of home NIV in reducing risk of death offers some comfort for those millions of people already suffering from COPD and those who will suffer in years to come. However, proactive work now on the part of potential patients and their loved ones to learn and recognize symptoms early, as well as preventative steps to reduce risk factors, will go a long way toward positively impacting hundreds of millions of lives worldwide,” Nunez continued. “Education and meaningful action are essential to curbing the number of people impacted by COPD and life-threatening events caused by these conditions.”

Complete list of ResMed-supported studies presented at ERS 2024:

- The modified Baveno classification for obstructive sleep apnoea management
- Impact of home NIV on severe exacerbations and survival in COPD: a French nationwide cohort study using multistate models
- Light, latitude and Epworth Sleepiness Scale in the European Sleep Apnea database - a daring proposal
- The economic and health burden of COPD in Western Europe through 2050: a scenario analysis based on two large data sources
- Role of Partnership in PAP Therapy Adoption in Obstructive Sleep Apnoea
- A negative effect by ATC N-class treatment in OSA patients with concomitant psychiatric disease: an ESADA cohort study.
- Association of sleep-related hypoxia with survival in patients with non-small cell lung cancer – the NEOSAS-GFPC study group
- Adaptive servo-ventilation (ASV) in patients with central or complex sleep apnea and associated cardiovascular comorbidities: the READ-ASV registry
- Effect of adaptive servo-ventilation on cardiac repolarization in patients with myocardial infarction and sleep-disordered breathing
- Effect of non-respiratory arousals on residual sleepiness in CPAP-treated OSA patients
- The association between behavioural clusters and short-term PAP usage in OSA

- PAP use in OSA patients with and without insomnia
- Usage of adaptive servo-ventilation (ASV): results from the READ-ASV registry
- A scenario-based modelling study to project the future burden of COPD in Western Europe accounting for air pollution, tobacco smoking, and e-cigarette vaping
- Obstructive Sleep Apnoea and C-reactive protein levels: Data from the ESADA
- Preserved ratio impaired spirometry and OSA may contribute to cardio-metabolic complications: evidence from the ESADA cohort
- Comparisons of cardiovascular risk scores in patients with obstructive sleep apnea - the European Sleep Apnea Database (ESADA)
- Effect of CPAP on circulating levels of MPO and MMP-9 in adults with coronary artery disease and obstructive sleep apnoea: the RICCADSA randomized controlled trial

About ResMed
At ResMed (NYSE: RMD, ASX: RMD) we pioneer innovative solutions that treat and keep people out of the hospital, empowering them to live healthier, higher-quality lives. Our digital health technologies and cloud-connected medical devices transform care for people with sleep apnea, COPD, and other chronic diseases. Our comprehensive out-of-hospital software platforms support the professionals and caregivers who help people stay healthy in the home or care setting of their choice. By enabling better care, we improve quality of life, reduce the impact of chronic disease, and lower costs for consumers and healthcare systems in more than 140 countries. To learn more, visit ResMed.com and follow @ResMed.

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[1] E. Boers, A. Allen, A. Benjafield, M. Barrett, and A. Malhotra. The Economic and Health Burden of COPD in North America: Forecasting Through 2050 (abstract). *Am J Respir Crit Care Med*2023;207:A3593.

[2] E. Boers, A. Allen, A. Benjafield, L.E. Crotty Alexander, A. Malhotra and M. Barrett. A scenario-based modeling study to project the future burden of COPD in Western Europe accounting for air pollution, tobacco smoking, and e-cigarette vaping. (abstract). ERS 2024.

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