

# Evolving clinical practice to proactively address cardiopulmonary risk in COPD: Perspectives from Cardiology & Pulmonology



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**Chronic obstructive pulmonary disease (COPD) is a major public health threat, affecting 391 million individuals worldwide.<sup>1</sup> Despite its impact, COPD is often undertreated, underfunded and under-prioritised, with no substantial improvement in mortality rates over the past two decades.<sup>2-6</sup> As the third leading cause of death globally, COPD merits greater attention from the healthcare community and policymakers.<sup>7</sup>**

**Currently, new momentum is building around COPD based on scientific evidence, advocating for proactive treatment and timely pharmacologic interventions with fixed dose triple therapy, to address cardiopulmonary risk, ultimately striving to lower the risk of death.<sup>8</sup>**

**This article explores a transformative journey in COPD management to address the cardiopulmonary risk associated with COPD, driven by insights from leading clinical experts, Prof. Frederik Trinkmann, Professor of Internal Medicine at the Thorax Clinic at the Heidelberg University Hospital, Germany, and Prof. Chris Gale, Professor of Cardiovascular Medicine at the University of Leeds, UK.**



## COPD mechanisms elevate cardiopulmonary risk

The lungs and heart are fundamentally linked and work together.<sup>9</sup> Many of COPD's pathophysiological mechanisms (e.g. lung/systemic inflammation, hyperinflation and hypoxemia) elevate the risk of both pulmonary and cardiac events, including severe or even fatal COPD exacerbations and cardiac events, often requiring hospitalisation.<sup>10-13</sup> This elevated risk is termed 'cardiopulmonary risk'.<sup>14</sup>

Prof. Gale underscored these complex interactions, noting that, "We need to envisage COPD as a chronic disease that not only impacts the lungs, but also has important, and potentially preventable, sequelae in the cardiovascular system."

Cardiopulmonary risk is significantly increased after a COPD exacerbation and nearly half of symptomatic patients will have an

exacerbation within a year.<sup>11,12,15</sup> Just one COPD exacerbation doubles the risk of a heart attack and increases risk of hospitalisation and cardiopulmonary-related death.<sup>11,16,17</sup> Pulmonary and cardiac events are the most common reasons for death in patients with COPD, and approximately 1 in 5 patients die within a year of their first hospitalisation resulting from an exacerbation.<sup>18-21</sup>

## Quantifying the impact of COPD exacerbations beyond the lungs

Multi-country data presented at the European Society of Cardiology (ESC) Congress 2023 and the European Respiratory Society (ERS) International Congress 2023 help further advance understanding of cardiopulmonary risk by exploring the link between COPD and a wide variety of cardiovascular events, including decompensated heart failure, acute coronary syndrome, acute arrhythmias, and ischemic stroke.<sup>14,22-25</sup>

Results from a subset of the retrospective EXACerbations of COPD and their OutcomeS on CardioVascular diseases (EXACOS-CV) study of more than 300,000 patients across Canada, Germany, the Netherlands and Spain, reveal a substantially increased risk of severe cardiovascular events or all-cause death in patients with COPD in the first 30 days following both moderate and severe exacerbations. This not only affects patients with a long history but also those with a first diagnosis of COPD.<sup>22,23</sup>

"What I found particularly compelling about these data is that this risk remained elevated for up to one year," said Prof. Trinkmann. "Clinically, this shows that patients are highly vulnerable following a COPD exacerbation, and pharmacological measures and non-pharmacological measures should be optimised immediately after an exacerbation."

The EXACOS-CV data show that even newly-diagnosed COPD

patients are at increased risk of cardiovascular events after a first exacerbation.<sup>23</sup> According to Prof. Gale, this “*supports the notion of increased cardiopulmonary risk around the time of an exacerbation as a critical point to leverage an intervention; but, moreover, that we should be aiming to prevent exacerbations and thus reduce the risk of subsequent exacerbations and cardiac events.*”

### **Preventing exacerbations and addressing cardiopulmonary risk to mitigate early death**

While individuals with COPD have a number of treatment options, typically a stepwise disease management approach in which therapy is only escalated following treatment failure is followed in COPD.<sup>8,26</sup> This means patients are not diagnosed or treated proactively until they present late in the course of disease and experience exacerbations. Proactively managing COPD to prevent exacerbations, however, can help to address cardiopulmonary risk for patients and lower their risk of early death.<sup>8,26,27</sup>

Both experts noted the importance of adopting proactive measures to prevent exacerbations from happening in the first place. From his unique perspective in pulmonology and cardiology, Prof. Trinkmann drew an analogy from the field of cardiovascular care: “*Nobody would wait for an initial heart attack to avert a second one. This is more or less what we’re doing in COPD care now, and it has to change.*”

COPD should be addressed and treated with a similar sense of urgency as that given to other chronic illnesses. Due to the increased mortality risk, exacerbations must be viewed as critical lung events that require prevention, similar to heart attacks and strokes.

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**Prof. Frederik Trinkmann**

### **Adopting a mortality-prevention mindset in COPD care**

In cardiology, there is a strong emphasis on survival and reducing avoidable cardiac-related mortality – and both experts agree on the need to adopt a similar mortality-prevention mindset in COPD care. The 2024 GOLD Report is an endorsement of the growing consensus on this approach, highlighting the effect on mortality of non-pharmacologic interventions and fixed-dose triple combination therapies and calling for a more proactive therapeutic approach to improve outcomes in COPD.<sup>9</sup>

The annual GOLD report is considered by the global respiratory community to be an evidence-based reference guide for the diagnosis, management, and prevention of COPD. “*So, this is a big game changer,*” said Prof. Trinkmann. “*Because we often use exacerbation reduction as endpoints, but we now have mortality reduction data to consider when treating COPD patients.*”

In addition to a mortality-focused approach, both experts also agree on the need for a more holistic and comprehensive approach to adequately address cardiopulmonary risk. Prof. Trinkmann

noted that “*we can learn a lot from other disease areas in terms of considering the patient as a whole, and not just treating a single organ.*”

Drawing parallels with the evolution of diabetes care, Prof. Gale noted that there are lessons to be learnt concerning the importance of integrating insights from cardiology and adopting a wider perspective on risk factors, care and outcomes. “*Diabetes has moved from a focus on glucose control using HbA1c tests to considering wider cardiovascular risk,*” he said, underlining that diabetes has received clinical and policy priority over the past decade despite having a much lower prevalence than COPD.

Similarly in cardiology, Prof. Gale observed that “*Historically, prognosis after heart failure diagnosis was poor and associated with a feeling of foreseeable decline, akin to the ‘acceptance’ of COPD outcomes. But clinical practice has dramatically evolved for heart failure, with care and outcomes transformed following the development and implementation of new health technologies and robust supporting evidence — an approach that one would hope can be achieved for COPD.*”

### **The future of COPD care**

According to Prof. Gale, while a shift towards a mortality-prevention mindset in COPD care “*requires high-quality prospective data collection and evidence synthesis to provide greater confidence that interventions impact cardiopulmonary risk and reduce mortality,*” there is an opportunity to “*integrate insights from other non-communicable diseases and already consider mortality reduction as a key treatment goal in COPD without waiting for further data.*”

Both experts expressed optimism for the future of COPD management, advocating for a shift now towards a more proactive approach to COPD care that recognises the extensive and sustained risks generated both within and beyond the lungs. “*With current evidence already supporting a proactive treatment approach, we have a highly consequential opportunity to eliminate COPD as a leading cause of death. Let’s shake up the approach to the management of COPD and reduce associated pulmonary and cardiac events to improve outcomes for our patients,*” said Prof. Gale.

“*We have to be optimistic, there’s no alternative,*” added Prof. Trinkmann. “*COPD and cardiopulmonary risk affect hundreds of millions of patients around the globe, and we owe it to those patients to take action to advance and provide optimal treatment strategies.*”

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For more information about the role of cardiopulmonary risk in driving COPD-related mortality, visit [ActonCOPD.com](https://actoncopd.com) (initiated, developed, and funded by AstraZeneca in collaboration with a steering committee comprised of healthcare professionals).

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