

Elderly, COPD Patients, and High-BMI Individuals Face Increased Pneumonia Risk from Weather and Air Pollution

CAPNETZ

Prospective pneumonia cohort, 10,660 patients over 14 years, rural and urban areas in Germany



Personal Characteristics



Comorbidities



Weather Conditions

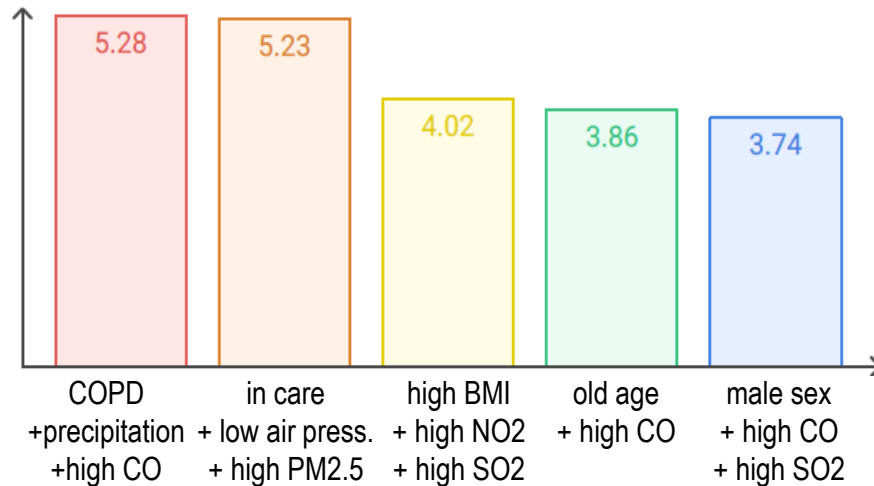


Air Quality



Combinations of weather and air quality factors, personal characteristics and comorbidities increase the risk of pneumonia

PRIF
Pneumonia Risk Increase Factor



Recommended measures include implementing protective strategies for at-risk populations, improving healthcare planning, and enhancing air quality control during weather conditions that exacerbate pneumonia risk.

This study, based on the CAPNETZ cohort of 10,660 patients over 14 years across urban and rural regions in Germany, investigates the influence of weather, air quality, and individual characteristics on pneumonia risk. The findings highlight that specific population groups, including elderly individuals, patients with chronic obstructive pulmonary disease (COPD), and individuals with high body mass index (BMI), exhibit increased susceptibility to community-acquired pneumonia due to interactions between personal factors, comorbidities, meteorological conditions, and air pollution.

Key risk combinations include COPD with precipitation and elevated carbon monoxide (risk factor: 5.28), care dependency with low air pressure and high PM2.5 levels (risk factor: 5.23), and high BMI with increased nitrogen dioxide and sulfur dioxide concentrations (risk factor: 4.02). Additional risk profiles were identified for advanced age and male sex in conjunction with specific air pollutants.

The study emphasizes the need for targeted interventions to protect vulnerable populations, including tailored healthcare strategies and improved planning. Additionally, efforts to manage air quality during adverse weather conditions are critical to mitigating pneumonia risk in high-risk groups.