

# Interstitial lung abnormality presence associates with mortality in a lung cancer screening cohort independent of multi-organ comorbidities

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## Introduction

Interstitial lung abnormalities (ILAs) are frequent findings in lung cancer screening (LCS) and may represent an early form of pulmonary fibrosis (PF). Importantly, ILA presence is associated with increased mortality. Excessive multi-organ comorbidity has been associated with PF and shown to correlate with reduced survival.

We examined whether ILA presence is associated with mortality, independent of the presence of multiple comorbidities in the SUMMIT Study.

## Method

Of 11,635 individuals, 417 participants identified with ILA on CT were compared to an age, sex and smoking pack-year history matched control group.

Primary analyses examined associations between ILA presence and cumulative comorbidity numbers (coded as 0,1,2,3 or more comorbidities) and mortality, using multivariable Cox regression proportional hazards models.

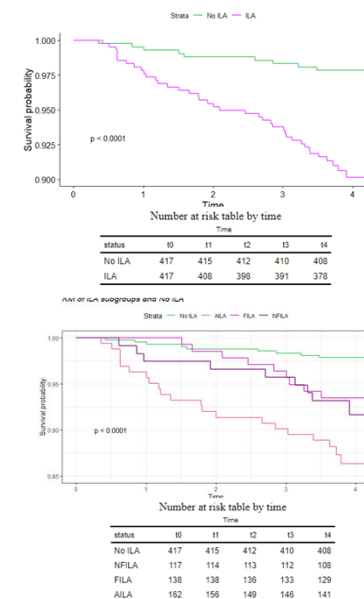
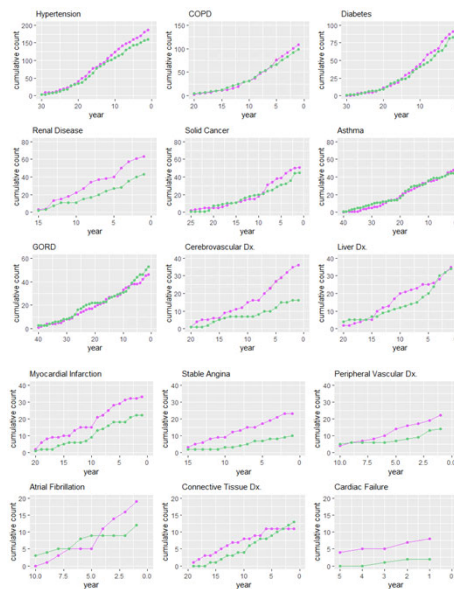
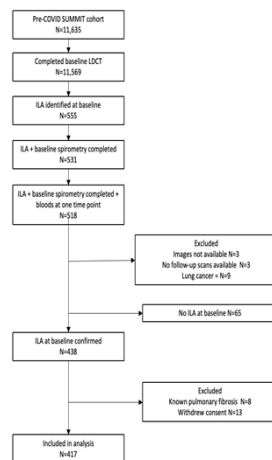
## Results

ILA subjects had more prevalent comorbidities than controls: stable angina ( $p=0.03$ ), cerebrovascular disease ( $p=0.007$ ), renal disease ( $p<0.05$ ). Prevalent comorbidities increased in incidence (versus controls) from approximately 10 years prior to ILA identification. Mortality was increased in participants with ILAs ( $p<0.0001$ ) independent of comorbidity number. ILA deaths were mostly coded as cardiac, respiratory and cerebrovascular diseases, cancer and COVID-19.

## SUMMIT Study

- Longitudinal Cohort Study
- The largest lung cancer screening study in Europe
- Launched in April 2019 and closed in May 2023.
- Identified 55-77 year olds with 20+ years smoking history.
- Identified via National Health Service England primary care records.
- Collaborated with UCLH, UCL, National Institute for Health Research, UCLH Biomedical Research Centre, and GRAIL.

## Study Population



**Figure 1:** Curves show cumulative incidence of disease comorbidities prior to initial lung cancer screening CT scan, with separate curves for subjects with (magenta) and without (green) interstitial lung abnormalities.

**Figure 2:** Kaplan-Meier Survival Curves for participants with and without interstitial lung abnormalities/disease (ILA) on CT (top); and for participants with and without subtypes of ILA on CT (bottom).

