

# Dirty jobs ...

## Occupational COPD among Danes aged 45 to 84 years: - A population-based study

### Authors:

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### Background

- 15% of COPD could be attributable to an occupational exposure
- Although smoking is the major risk factor for COPD

### Aim

- Analyse for occupational COPD among 4.747 subjects aged 45 to 84 years in a cross-sectional population based study

### Methods

- From two Danish counties (Figure 1) 155 general practices participated during 2004-06
- Stratified sampling recruited 3.111 males and 1.636 females to the study
- Spirometry defined COPD:
  - When measured ratio of post-bronchodilator FEV<sub>1</sub>/FVC z-score was below 2 standard deviations, based on the LLN criteria
- Questionnaires:
  - Occupational history; job title and duration
  - Smoking habits
- Exposure assessment:
  - The Danish version of ISCO from 1988 (DISCO-88) was used, together with expert derived assessment to define occupational exposure in jobs where vapour, gas, dust (organic and inorganic), and fume (VGDF) were risk factors.
- Defined occupational exposure:
  - Low: 0-4 years in a job
  - Medium: 5-14 years in a job
  - High: ≥ 15 years in a job
- Logistic regression adjusted for smoking status (never, former or current)



Figure 1  
Denmark, the study uptake area is highlighted

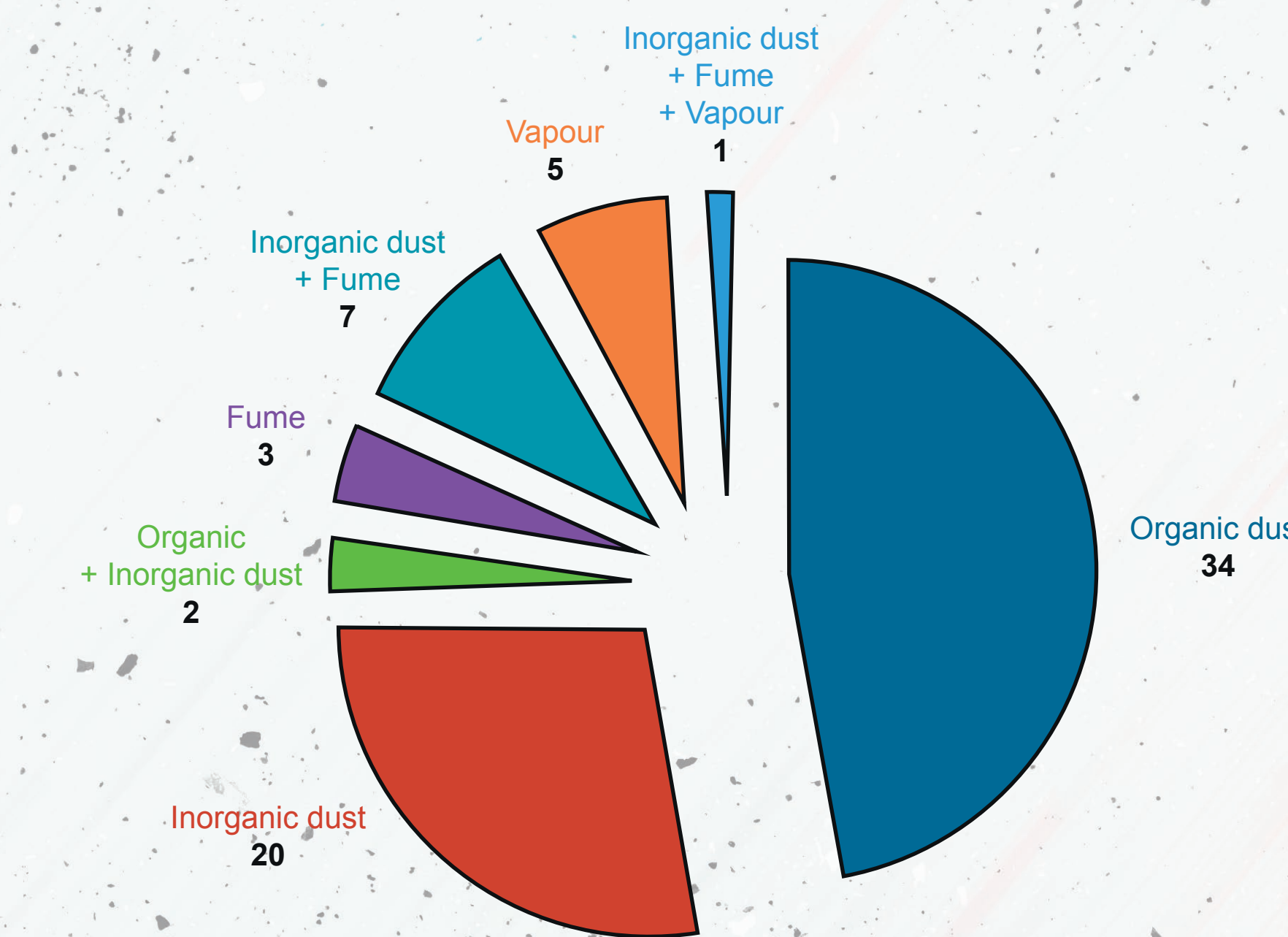


Figure 2  
72 DISCO-88 codes identified with high exposure to vapour, organic dust, inorganic dust and fume/gas

Table 1:  
Associations between COPD and occupational exposure, Odds ratios (OR)

Occupational exposure		Crude OR, (95% Confidence interval), N=4747	Test for trend	OR adjusted for smoking status, (95% Confidence interval), N=4687	Test for interaction
Any exposure	Low n=2948	Ref		Ref	
	Medium n=447	1.67 (1.14-2.45)		1.49 (1.00-2.20)	
	High n=1352	1.63 (1.26-2.12)	p<0.001	1.68 (1.28-2.19)	p=0.23
Organic dust	Low n=3326	Ref		Ref	
	Medium n=380	1.23 (0.79-1.91)		1.11 (0.70-1.74)	
	High n=104	1.62 (1.24-2.12)	p<0.001	1.78 (1.35-2.36)	p=0.16

### Results

- 72 DISCO-88 codes (out of 372) were identified with high exposure to VGDF, visualised in Figure 2
- 28% of the participants had a high exposure for VGDF
- 282 (6%) of the participants had COPD
- Adjusted for smoking status increased risk of COPD was found among workers in jobs with DISCO-88 codes with any high exposure OR 1.68 (95% CI 1.28-2.19) and stratified by exposure character for organic dust OR 1.79 (95% CI 1.35-2.36). We also observed a dose-response relationship with these two exposures (Table1).
- However, for workers in jobs with DISCO-88 codes with high exposure for inorganic dust OR 0.75 (95% CI 0.41-1.36), fume OR 1.20 (95% CI 0.70 - 2.04), and vapour OR 0.76 (95% CI 0.23 - 2.46) no increased risk were observed.

### Conclusions

- Controlled for smoking status increased risk for COPD was observed among subjects in jobs with DISCO-88 codes with any high exposure and for high organic dust exposure in a dose response fashion.

### Abbreviations

- COPD Chronic Obstructive Pulmonary Disease
- FEV<sub>1</sub> Forced expiratory volume in one second
- FVC Forced vital capacity
- LLN Lower limit of normal
- ISCO The International Standard Classification of Occupations
- DISCO-88 The Danish version of ISCO from 1988
- VGDF Vapour, gas, dust (organic and inorganic), and fume



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