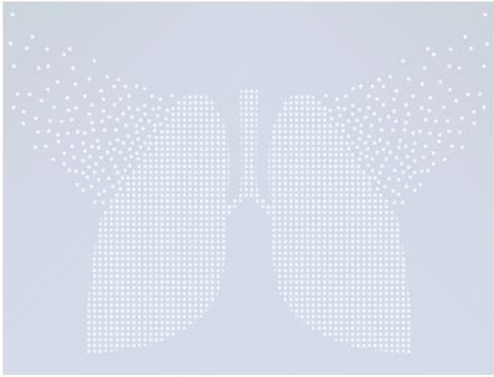




Occupational inhalant exposures and lung function decline;

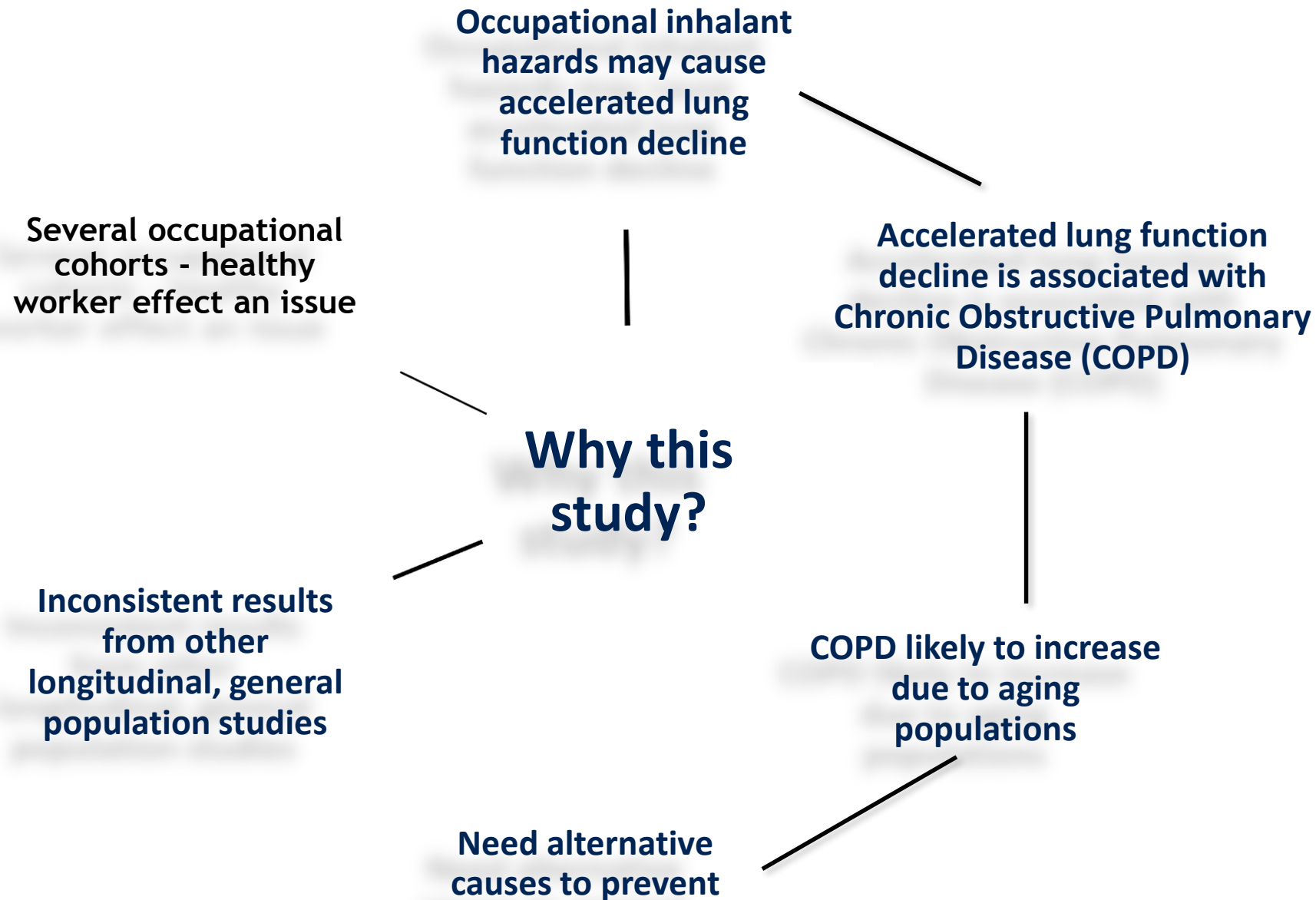
A DOC*X case study

Open DOC*X Research Seminar. November 22, 2018

Stinna Skaaby

Background





Research question



- Do occupational inhalant hazards cause accelerated decline in forced expiratory volume (FEV_1)?

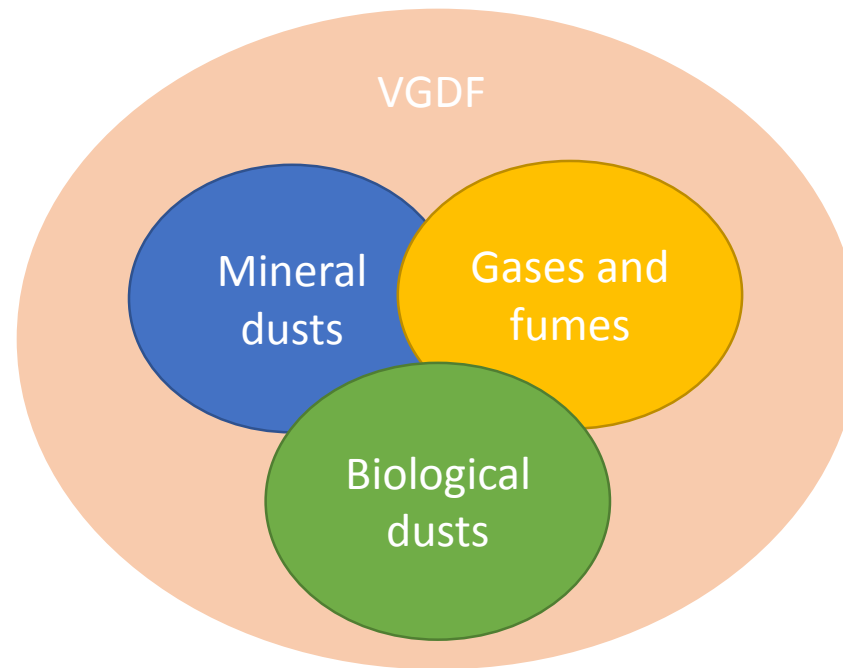
- Vapors, gases, dusts or fumes (VGDF)

- Subtype analysis

Mineral dusts

Biological dusts

Gases and fumes



The Copenhagen City Heart Study,
n = 19,825
The Copenhagen General Population Study
n = 141,118



No smoking history etc.
n ~ 6,724

Age < 35 year old or age > 65 years old
n = 52,131

Only one lung function measurement
n = 77,966

No employment during follow up
n = 1,532

Final cohort
n = 15,841

Exposure

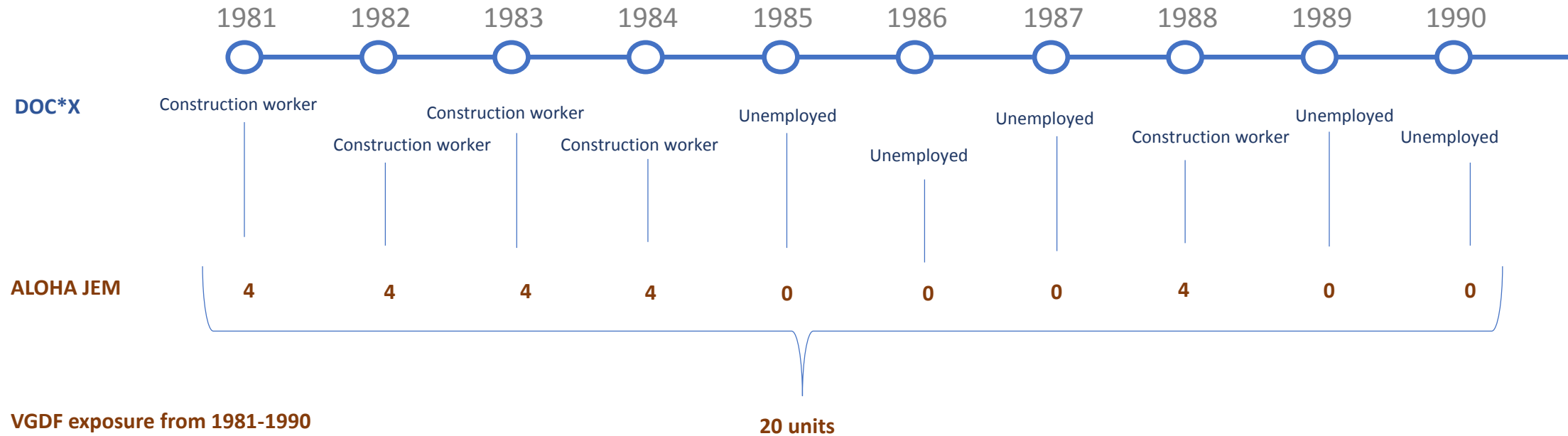


- Annual job titles (DISCO-88 codes) from DOC*X
- ALOHA Job Exposure Matrix exposure categories
 - High exposure 4 units
 - Low exposure 1 unit
 - No exposure 0 units

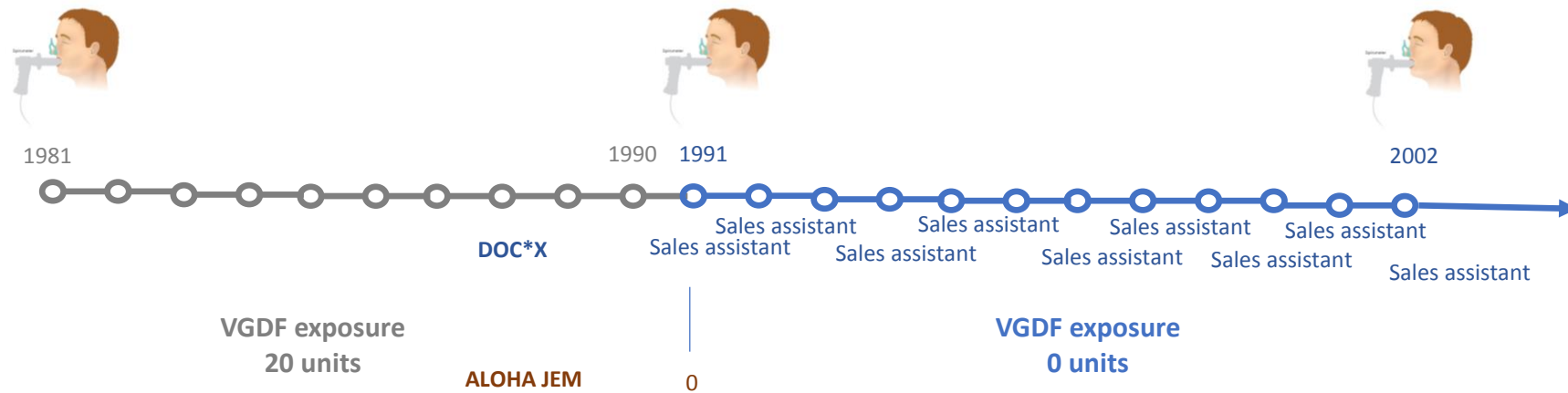


One exposure unit : One year of low exposure *or*
 $\frac{1}{4}$ of a year of high exposure

More on exposure



Timeline



Preliminary results



Mean annual FEV₁ change, never smoker

- 23 mL/year

Adjusted for weight, height, gender,
baseline FEV₁ and education

	Excess change in FEV ₁ , mL/year	95% CI	p
Pack year	-17	(-19;-16)	<0.0001
VGDF-unit	0.09	(-0.75;0.92)	0.84

Abbreviations: **VGDF**: The composite measure of vapors, gases, dusts and fumes. **VGDF unit**: one year of low exposure or ¼ of a year with high exposure. **Pack year**: One year of smoking 20 cigarettes per day.

Mixed effects model with estimates adjusted for weight, height, gender, baseline FEV₁ and education.

Preliminary results



	<u>Baseline FEV₁ below gender adjusted median</u>		<u>Baseline FEV₁ above gender adjusted median</u>	
	Excess change in FEV ₁ , mL/year	95% CI	Excess change in FEV ₁ , mL/year	95% CI
VGDF unit	1.2	(-0.01; 2.5)	-1.4*	(-2.5; -0.3)
Mineral dust unit	0.1	(-1.4;1.7)	-1.8*	(-3.3;-0.3)
Biological dust unit	0.5	(-1.7;2.7)	-1.4	(-3.4; 0.6)
Gas/fumes unit	1.1	(-0.6;2.7)	-1.2	(-2.7;0.3)

Abbreviations: **VGDF**: The composite measure of vapors, gases, dusts and fumes. **VGDF year**: one year of low exposure or ¼ of a year with high exposure. **Pack year**: One year of smoking 20 cigarettes per day.

Mixed effects model with estimates adjusted for weight, height, gender, pack years and education.

* P<0.05

Adjusted for weight, height, gender,
pack years and education

Strengths and limitations



- Strengths
 - Extensive information on job history
 - No recall bias
 - Longitudinal lung function data
 - Possible less healthy worker effect
- Limitations
 - Job exposure matrices might be too general
 - Job exposure matrices cause misclassification – likely weakening the risk estimates
 - Residual confounding

Thank you



Peter Lange



Charlotte Brauer



Esben Meulengracht Flachs



Jacob Marott



Vivi Schlünssen



Jens Peter Bonde