



CISBO Center for Indeklima og Sundhed i Boliger
Realdania forskning

CISBO Annual Meeting November 7th - 8th 2011

WP 2 Population based study of health effects of indoor air

Steffen Loft (outline and CAMB progress 10-15 min)

Gabriella Karotki (CAMB exposure 5 min)

Gitte Juul Holst (Glostrup SUS progress 10-15 min)

Discussion (10 min)



WP 2 Population based study of health effects of indoor air

WP 2.1 Cross sectional exposure assessment in the Copenhagen Aging and Midlife Biobank (CAMB), The National Birth Cohort (BSMB) and Glostrup Health 2006/2011

WP 2.2 Associations between indoor air in the home and related health effects in the Danish National Birth Cohort (BSMB).

WP 2.3 Associations between indoor air in the home and related health effects in a large cohorts of middle aged citizens (CAMB).

WP 2.4 Asthma, Allergy and Indoor Environment (Gitte)

WP 2.5 Asthma and Allergies among Schoolchildren (Gitte)

WP 2.6 Follow up of all cohorts for health outcomes in registries

WP2.1 Exposure assessment input from WP1



Exposure assessment of indoor air is based on

- 1) ambient air quality at the home address assessed by the AIRGIS model of the National Environmental Research Institute (NERI)
- 2) indoor penetration assessed by building characteristics based on data from the Housing and Dwelling Register (BBR) and a thorough questionnaire (90+ items)
- 3) indoor sources assessed by questionnaire and BBR data and
- 4) indoor deposition, ventilation, air change rate assessed by questionnaire, BBR data, behavior, and ...
- 5) measurement of PM/dust composition from materials collected on EDCs.

The exposure assessment tools are developed and calibrated in WP1 in which subsets of each of the cohorts participate with detailed characterization of the indoor air in their home.



WP 2.1 Cross sectional exposure assessment model preparation and validation by field measurements and biomarkers

28 homes with 48 inhabitants assessed in intervention study last winter (Gabriella et al.)

Copenhagen Aging and Midlife Biobank (CAMB) 60 homes assessed this winter – Gabriella

60 additional elderly subjects with obesity and/or diabetes being recruited this winter (Jette G. Hemmingsen, Faculty PhD student) Fill in 90 items indoor air questionnaire from CAMB and behavior items twice with 2 weeks interval, each followed by largest battery of functional tests and biomarkers. EDCs in the home in between.

Glostrup Health 2006/2010 – next winter

WP2.2 Danish National Birth Cohort (DNBC)

100,000 women with data from pregnancy 1997-2002
2 interviews and blood samples
Childbirth information



follow-up of the children at

- **½ year of age**
- **1½ years of age**
- **7 years of age (ended June 2010)**
- **11 years of age running since July 2010 and include a thorough indoor air questionnaire.**

Planned 10-20,000 selected for clinical examination and blood and urine sampling as well as dust sampling has not yet been funded.

Part of ESCAPE for outdoor air pollution assessment



Genes and Immunity (2011), 1–4
 © 2011 Macmillan Publishers Limited All rights reserved 1466-4879/11
 www.nature.com/gene



Effects of a 17q21 chromosome gene variant, tobacco smoke and furred pets on infant wheeze

EV Bräuner^{1,5}, S Loft^{2,5}, O Raaschou-Nielsen¹, U Vogel³, PS Andersen⁴ and M Sorensen¹

¹Institute of Cancer Epidemiology, Danish Cancer Society, Copenhagen, Denmark; ²Department Public Health, Faculty of Health Sciences, Section of Environmental Health, Copenhagen University, Copenhagen, Denmark; ³National Research Centre for the Working Environment, Copenhagen, Denmark and ⁴Department of Clinical Biochemistry, Statens Serum Institut, Copenhagen, Denmark

Table 1 The genotype-specific effects of the rs7216389 variant on risk of having four or more episodes of wheeze at 18 months of age

Children	Genotype	Cases/controls	OR	CI	P-value ^a
All	C/C	267/204	1.00		0.02
	C/T	555/365	1.16	0.93–1.45	
	T/T	290/165	1.35	1.04–1.76	
Children with atopic dermatitis and/or parental asthma	C/C	102/54	1.00		0.07
	C/T	220/90	1.29	0.86–1.95	
	T/T	115/39	1.56	0.95–2.55	
Children without atopic dermatitis and/or parental asthma	C/C	163/149	1.00		0.14
	C/T	320/270	1.08	0.82–1.43	
	T/T	171/125	1.27	0.92–1.76	

Abbreviations: CI, 95% confidence interval; OR, odds ratio.

^aTrend test.

1,100 children identified from the Copenhagen area with persistent wheezing in the first 18 months of life and similar number of control children > 15 inflammation, metabolism and stress genes

WP2.2 Danish National Birth Cohort (DNBC)



Research questions:

What is the association between

- Assessed exposures (address, BBR and questionnaire, hopefully dust from 10,000)

and

- Health outcomes (especially asthma and allergy) identified by
 - questionnaires
 - clinical examination
 - registers (hospital and prescription) now and during future follow up.

Which genes are important effect modifiers

- initially in candidate genes from a sample of >2000
- eventually GWAS in the whole cohort

WP2.3 The Copenhagen Aging and Midlife Biobank



Copenhagen Aging and Midlife Biobank

Institut for Folkesundhedsvidenskab
Københavns Universitet
Øster Farimagsgade 5
1014 København K
info@camb.dk

camb



- Forside
- Tidsbestilling
- Hvilke tests skal du igennem?
- Om CAMB
- Hvem bliver inviteret til at deltage?
- Hvem er vi?
- Forskningsresultater
- Links til relevante hjemmesider og artikler
- Kontakt

Copenhagen Aging and Midlife Biobank (CAMB)

På denne hjemmeside kan du læse om det videnskabelige forskningsprojekt CAMB – Københavns Aldrings og Midtlivs Biobank. Derudover kan de, der er inviteret til at deltage i projektet booke en tid til samtale og tests. Ved at deltage i forskningsprojektet kan du hjælpe os med at finde svar på, hvorfor mennesker udvikles så forskelligt gennem deres liv. Den viden, vi opnår gennem projektet, kan forhåbentlig anvendes til at forebygge funktionsnedsættelser hos ældre. Dermed kan vi bidrage til, at flere mennesker forbliver sunde og raske gennem størstedelen af deres tilværelse. Undersøgelserne finder sted på Det Nationale Forskningscenter for Arbejdsmiljø på Lersø Parkalle 105, 2100 København Ø.

CAMB-undersøgelsen afsluttes ved udgangen af februar 2011
Den sidste dag, du kan deltage, er derfor mandag d. 28. februar 2011

OM CAMB
Læs mere om baggrunden for projektet



TIDSBESTILLING
Husk at have dit deltagernummer og din pinkode parat



HVOR FINDER UNDERSØGELSEN STED
Adresse, se kort og find din rejseplan

NYHEDER
Delprojekt om Stress og Helbred

WP2.3 The Copenhagen Aging and Midlife Biobank



Invited cohort of 10,000 middle-aged citizens of Copenhagen based on three cohorts followed from birth or childhood

Data and biobank collection from spring 2009 to April 2011
(www.camb.dk)

- Thorough health questionnaires (>400 items; 90 indoor air quality)
- Physical and mental capacity measured
- Lung function measured
- Large battery of inflammation and stress biomarkers

- Samples stored for genomics, transcriptomics and proteomics

- Vascular endothelial function, oxidative stress and inflammation markers and personal exposure monitoring of UFP etc. and extensive indoor exposure assessment in a subset:
 - few (with spouse) recruited for intervention in home in WP3
 - 60 recruited for cross sectional study in home (Gabiella)

- Noise of new interest ! – interaction with stress and CVD

WP2.3 The Copenhagen Aging and Midlife Biobank



Research questions to be addressed from early 2012:

Are short and long-term endpoints associated with (cumulated) exposure from questionnaire (90 items of >500), BBR, and GIS outdoor model assessment (in cross-sectional analysis)

Are short term endpoints from biomarker and function data associated with (time- and space-resolved exposure) in the days preceding the outcomes (by case-cross over analysis)

How does the dwelling characteristics modify associations with outdoor air pollution from models and monitors

Should we consider noise – model from outdoor and modified by dwelling characteristics?

Which genes are effect modifiers

Are future register-based endpoints associated with exposure

WP2.4 Asthma and allergy in relation to indoor air in the home

Glostrup Health 2006/2011 cohorts

New center visit in 2011-2012

Dust wipes and additional indoor air questions to be included - Gitte

100 planned for 48 hour home indoor exposure characterisation similar to the 60 from CMB (winter 2011-2012 pending CMB experience and Gittes starting data collection)

