

# CISBO Intervention

# AstmaVen

## IOM 2000


*"Patients with asthma and the parents of children with asthma need reliable information on which measures are likely to be most effective for improving indoor air quality. Agents that can exacerbate asthma may generally be thought of in two categories: specific allergens and nonspecific respiratory tract irritants. Exposure to nonspecific irritants, such as cigarette smoke, may lead to asthma symptoms in any person with asthma; while allergens are only problems for individuals who are allergic to them. For example, if a person with asthma is allergic to cats, exposure to cats may cause wheezing; but if that person is not allergic to cats, exposure to them will not cause any problems. Therefore, reducing indoor airborne exposure to irritants is likely to help all asthmatic individuals to some degree while reductions in allergen exposure would only be expected to help individuals who are allergic to the allergens being reduced."* [institute of medicine (2000)]

## Experiences from Environment Control

No effect of mattress Covers

House dust mite control measures for asthma

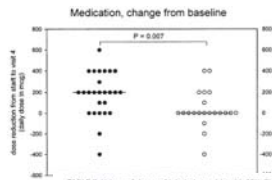
Gøtzsche PC, Johansen HK



**Gøtzsche & Johansen's conclusions:**  
 Chemical and physical methods aimed at reducing exposure to house dust mite allergens cannot be recommended.

It is doubtful whether further studies, similar to the ones in our review, are worthwhile. If other types of studies are considered, they should be methodologically rigorous and use other methods than those used so far, with careful monitoring of mite exposure and relevant clinical outcomes.

## Mattress Covers

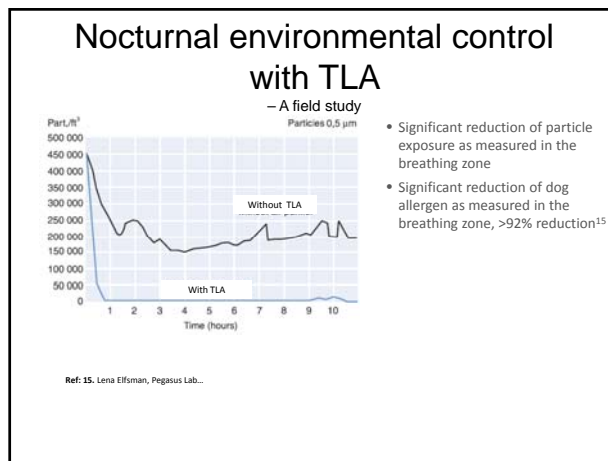
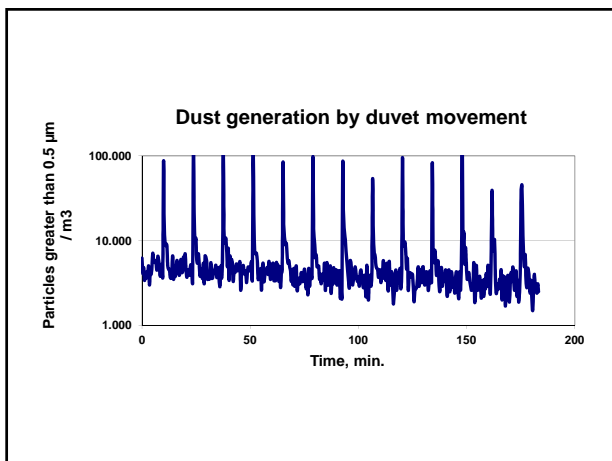


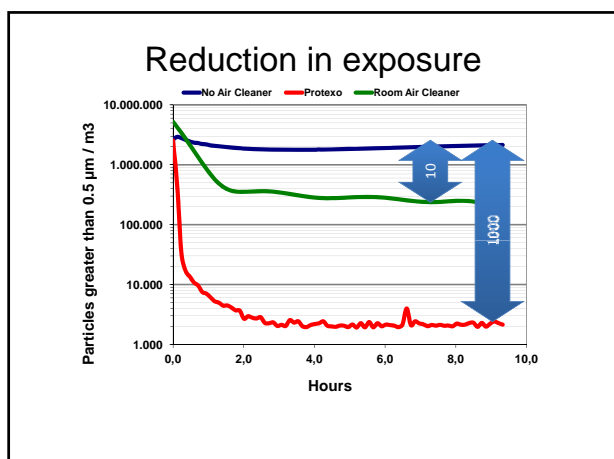
**TABLE II.** Values of doses of inhaled steroids with 95% CI according to time and P values for reduction in dose compared with baseline within and between the active treatment and placebo groups

Time (week)	Active treatment group (n = 26)				Placebo group (n = 21)				P value <sup>b</sup>
	Median, mg <sup>a</sup>	Mean, mg	95% CI, mg	Wilcoxon P value <sup>a</sup>	Median, mg <sup>a</sup>	Mean, mg	95% CI, mg	Wilcoxon P value <sup>a</sup>	
Baseline	400	408	333-483	NA	400	329	227-411	NA	NS
3	400	396	323-369	.180	400	329	227-411	1.000	.199
6	400	336	286-426	.003	400	332	231-453	.477	.004
9	300	281	214-348	.011	400	333	216-470	.837	.031
12	200	227	154-300	.004	300	290	179-401	.307	.007

NA, Not applicable; NS, not significant.

Halcken et al. JACI 2003





**CISBO**

**FORSØGSFAMILIER SØGES**

Projektet **ASTMAVEN** søger børn med astma til gennemførelse af interventionsundersøgelse, der skal belyse sammenhæng mellem ventilation, indeklima og helbred.

Barnambulatoret, samt med hjemmebesøg, hvor målinger af indeklimaet og barnets helbred undersøges.

Hvad måler vi?  
Forsøget planlægges individuelt og tilpasses børnene og deres familier. For at kunne vurdere resultaterne af undersøgelsen, er det vigtigt, at i følger de instruktioner, der er vedlagt, og er tilgængelige til de aftalte tidspunkter. Forsøget gennemføres som en interventionsundersøgelse, hvor 80 astma børn udvæltes for enten åglet ventilation eller uændret ventilation. Lægerne ved barnambulatoret varetager de forskellige helbredsundersøgelser før, under og efter forsøget på ambulatoret og i hjemmet. Målingerne gennemføres ved hjælp af specialiseret udstyr, som vil blive leveret af projekts formål.

**Baggrund**  
Børn med allergi overfor husestøber og astma er langt mere følsomme overfor temperatur og kemiske påvirkninger som f.eks. luftforurening. Ventilation sikrer et højt beskyttelse for indeklimats kvalitet. Undersøgelsen gennemføres som en kontrolleret interventionsundersøgelse. Projektets formål er at undersøge sammenhængen mellem ventilation, indeklima og barnets helbred.

### Design

double blind intervention-control study

- Titration of medication
- Randomly distributed into two groups
  - Two runs Vinter 2011-12 and 2012-13
  - Active ventilation N=40
    - Filtered outdoor air will be supplied to the child's bedroom and living room
  - Placebo ventilation N=40
    - Recycled air will be supplied to the child's bedroom and living room
- Intervention period = 6 months

### Subjects

- From Childrens hospitals in Aarhus and Odense
- 80 Children with allergy to house dust mites (HDM) living in houses with HDM allergens 2µg/g
- Single family houses. (blocked randomisation)
  - Preferably the houses should be free from wall-to-wall carpets and have no visible signs of mould
  - No pets at home if they are sensitised (to cat)
  - Not allergic to tree pollen

### Subjects II

- From 6 years
- Able to perform reproducable PEF and spirometry
- Inh Steroids 100- 800
- Nasal steroids OK
- Accept long acting β<sub>2</sub> agonists
- Combined products not allowed
- Expect a good compliance

### Measurements of home environment

- Temperature
- Humidity
- CO<sub>2</sub>
- Particles??
  - Japanese equipment - Peter Ravn
- Average ventilation
  - PFT method
- Spot ventilation
  - Before and during

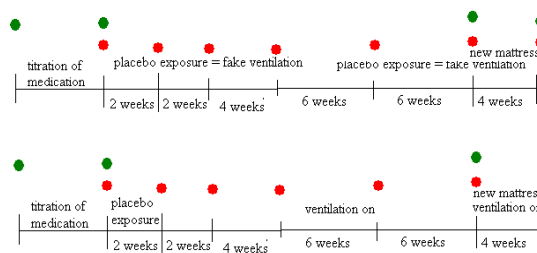
### Clinical measurements

- On site
  - At time 0, 10, 22 & 34 weeks
    - Exhaled breath condensate
    - eNO
    - Nasal lavage
    - PEF variability (every day 3? Times week -1 7 15 & 23) Micro DL electronically
- At the out patient clinic
  - At time -4, 0, 12 24 & 36
    - Probably 3 months before

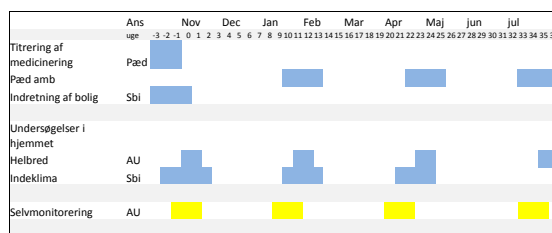
### OUTCOME MEASUREMENT

- Primary
  - Reduction in medication
  - Reduction in allergen load
- Secondary
  - Reduction in symptoms
  - Improved QoL
  - Improved spirometry

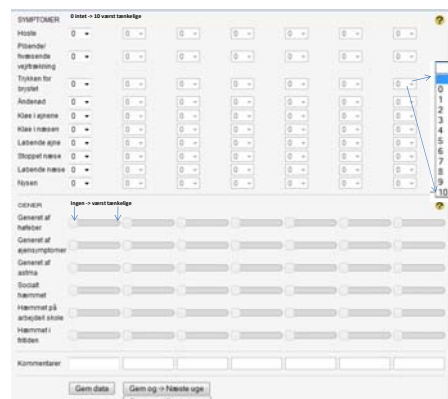
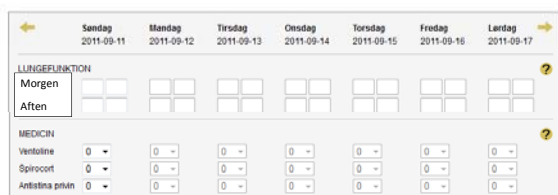
### Design



### Plan



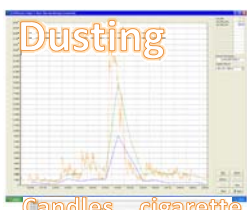
### Self Monitoring



### Particle measurements



> 500 nm



> 1 µm

