Short-term effects of ambient air pollution on respiratory health in children with asthma

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Bronchial disorders (excl neoplasms)
Study type	Observational non invasive

Summary

ID

NL-OMON43372

Source
ToetsingOnline

Brief title
air quality and asthma

Condition

- Bronchial disorders (excl neoplasms)

Synonym
asthma, shortness of breath, wheezing

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Utrecht
Source(s) of monetary or material Support: STW

Intervention

Keyword: air pollution, asthma symptoms

Outcome measures

Primary outcome

The main endpoints are daily asthma-related symptoms, bronchodilator use and lung function, which will be compared in periods of low and high air pollutant concentrations.

Secondary outcome

not applicable

Study description

Background summary

Respiratory health effects due to air pollution have been well documented in the past decades. The relation between short-term exposure to air pollutants and incidence of asthma symptoms in children is one of the endpoints included in the report of the World Health Organization to fully assess the health impact of outdoor air pollution. However, the evidence base for quantification was judged as too uncertain to include in the main health impact assessment. Furthermore, most studies are relatively old, e.g. over 20 years have passed since the last panel studies on the effects of air quality on asthma-related symptoms have been conducted in the Netherlands, while pollutant concentrations and types of major pollutants have changed over the past decades. Exposure to air pollution is often estimated by one or two central monitoring stations. This may lead to measurement error and potentially to underestimation of air pollution risks. A recently developed air quality measurement network in the city of Eindhoven measures key air pollutant concentrations at a fine spatial and temporal resolution.

Study objective

The main objective of the panel study is to evaluate the associations between short-term variation of concentrations of key air pollutants (NO2, PM2.5, PM10, and ultrafine particles), measured on a fine spatial and temporal resolution, and short-term variation of asthma-related symptoms, on-demand asthma

medication use and lung function in children with asthma.

Study design

Panel study in 100 children with asthma, with daily registration of respiratory symptoms, medication use and lung function in a four month period. Related to daily measurements of key air pollutants.

Study burden and risks

The total participation time for each child and its parents is 4 months. During these 4 months the child will be visited at the home address three times by a research assistant. A short diary will be filled out daily, under parental supervision, taking 2-3 minutes. Twice daily a simple lung function measurement will be performed for a period of 2 months within those 4 months. There is no risk associated with participation. Participants do not personally benefit from the outcomes of the panel study. Although the study will be performed in Eindhoven, the results may also be applicable to cities with similar concentrations of pollutants and other factors.

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Children (2-11 years)

Inclusion criteria

living in Eindhoven, having asthma (based on previous studies, section 4.2 protocol), are 7 - 11 years old

Exclusion criteria

smoking in the household

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	29-03-2017
Enrollment:	100
Type:	Actual

Ethics review

Approved WMO

Date:	28-12-2016
Application type:	First submission

Review commission: METC NedMec

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL59148.041.16