PARENT INFORMATION LEAFLET:

CHILDREN WITH ASTHMA AND ALLERGIES

AIR POLLUTION AND HEALTH

New findings from the EU-wide research project 'European Study of Cohorts for Air Pollution Effects' (ESCAPE) make raising awareness of the effects on health of exposure to air pollution even more urgent. This leaflet developed by the ESCAPE project in collaboration with the Health and Environment Alliance (HEAL) explains the latest news on the links between outdoor air pollution and children's health. It also provides prevention tips for parents of children with asthma and allergies, who are especially vulnerable to exposure to polluted air.

HEAL
Promoting environmental policy that contributes to good health

ESCAPE

WHAT DOES THE LATEST RESEARCH SHOW?

The EU-wide ESCAPE project confirmed the serious impact of exposure to air pollution on children's lung health. Specifically, it showed three new associations. First, that family exposure to fine particles and nitrogen dioxide in the air was related to low birth weight babies. Second, that school children exposed to higher levels of nitrogen dioxide, black carbon and fine particles had a lower lung function than other children. Third, that there was more pneumonia early in life in children exposed to traffic, and to higher levels of almost all pollutants studied.

The findings showed no clear relationships between air quality and rates of asthma and allergic sensitisation in children. However, even a large study such as ESCAPE, cannot answer all questions and needs to be judged in the context of other evidence.

HOW DOES AIR POLLUTION AFFECT MY CHILD'S HEALTH AND CONDITION?

Children are particularly sensitive to harmful effects of pollutants because they are growing and their lungs, cardiovascular system, immune system and brains are still developing. They also breathe more air for their size than adults – including its pollutants. The effects on a child's respiratory system depend on the type and mix of pollutants; the concentration in the air; the amount of time that children are exposed to the pollutant; how much of the pollutant they breathe in; and how much of the pollutant penetrates the lungs.

Depending on their size, particles can be deposited in the upper airways (nose and throat), the large conducting airways and/or the small peripheral airways and air sacs or alveoli. At all of these locations, particles may produce irritation and inflammation.

Being exposed to dirty air can therefore result in a range of consequences from irritations of the nose, eyes or throat to the need to increase a child's medication, consider a visit to the doctor or even hospitalisation.

BUSY ROADS AND CHILDREN'S HEALTH

The ESCAPE study confirmed that traffic is of particular concern for children's health. There are other studies which show a link between exposure to traffic related pollutants and the development of childhood asthma, as well as an increased frequency of asthma attacks.

The ESCAPE results add to newer research which points to the effects of exposure to air pollution on the mother influencing the child's development in the utero. Maternal exposure may be related to low birth weight babies, pre-term delivery, and impaired child development.

What causes air pollution?

Air pollution comes from transport, coal and other industrial power plants, industry, ships and from agricultural production, but also from natural sources such as wildfires. Pollutants in the air are often invisible, but they can have serious effects on our health. Climate change also has an effect: Warmer summers mean longer pollen seasons and heat waves create peak levels of pollution. In addition, it appears that the allergic potential of pollen increases when linked to air pollutants.

Who is most affected?

It is not easy to predict who will be most affected. Although children are more affected than adults because they breathe more air for their size than adults, some will be more affected than others. Children with existing conditions are at greater risk. Genetic factors, infections and nutrition also play a role.

KEEP INDOOR AIR HEALTHY

Most children and adults are indoors most of the time. The air quality outdoors is a key determinant of the air we breathe indoors too. Poor indoor air quality is also a risk factor for children for developing asthma and respiratory allergies (as well as chronic obstructive pulmonary disease later in life). **Indoor air can be improved by ensuring that:**

- There is no smoking indoors
- Rooms are regularly aired during times of low pollution and cleaned to remove dust and mould
- Air freshener sprays are avoided and chemical cleaning products are only used where necessary.

TIPS ON REDUCING YOUR CHILD'S EXPOSURE

Checking the daily air quality forecasts for your city or town (e.g. http://watch.eyeonearth.org/). Use this information to plan your child's activities.

Avoiding outdoor activities near busy roads especially during rush hour. Consider alternative routes with lower levels of pollution.

When pollution levels are high, for example in the summer because of ozone, avoid energetic outdoor activities or by encouraging your child to do them in the morning or late in the evening and keeping windows closed.

The quality of outdoor air is crucial to children's health and lives. Cleaner air would allow children to spend more time playing outside.

JOIN A SUPPORT GROUP

Patient organisations have good practical tips for you.
Find your local patient group

- → http://www.european-lung-foundation.org/16505-patient-organisations.htm
- → http://www.efanet.org/efa-members/

WHAT CAN I DO TO REDUCE POLLUTION LEVELS?

Everyone can contribute to cleaner air and improve their overall health by:

- Reducing car use and walking and cycling more – but try to walk and cycle away from busy roads
- Switching to clean energy: support renewable energy schemes and avoid wood burning in your house, or open fires, as these contribute to bad air.

All these initiatives also help tackle climate change as they help lower carbon emissions and therefore contribute to a healthier future for our children.

ESCAPE - European Study of Cohorts for Air Pollution Effects – investigated the long-term effects of air pollution on a broad range of chronic conditions – asthma, allergies in children; adult respiratory and cardiovascular disease; cancer – and life expectancy. Funded by the EU, the project brought together over 20 leading research groups on air pollution and health from 15 countries to analyse over 30 cohort studies including some 900,000 subjects. Cohort studies follow a population over time and ESCAPE focused on how different levels of exposure to air pollution affected people's health.

SEVENTH FRAMEWORK PROGRAMME

This programme is implemented with the support of the European Union.
The contents of this publication are the sole responsibility of HEAL and the ESCAPE project and can in no way be taken to reflect the views of the European Union.

ACT!

Ask authorities to act

Everyone has a right to clean air, especially children. Yet, most European children and adults breathe air that is much dirtier than the standards recommended by the World Health Organization (WHO). Contact your local, national and European decision-makers and ask them to strengthen European Union (EU) air quality standards and measures to reduce air pollution at the source.

More information and contact us:

ESCAPE:
www.escapeproject.eu

Health and Environment Alliance (HEAL):
www.env-health.org

European Respiratory Society (ERS): Air quality and health p 49-53, www.ersnet.org/images/stories/pdf/web-AQ2010-ENG.pdf

European Lung Foundation, Health effects of outdoor air pollution, http://www.european-lung-foundation.org/16539-health-effects-of-outdoor-air-pollution.htm#par38083

European Respiratory Society (ERS): 10 principles for clean air http://www.ersnet.org/images/stories/DOC/ERS10CleanAirPrinciples.pdf

APHEKOM – Improving Knowledge and Communication for Decision Making on Air Pollution and Health in Europe (summary report) http://www.aphekom.org/c/document_library/get_file?uuid=e711dffa-8b6f-4712-a794-b73fcf351572&groupId=10347

Responsible editors:
Anne Stauffer, HEAL
anne@env-health.org
Professor Bert Brunekreef, PhD
B.Brunekreef@uu.nl