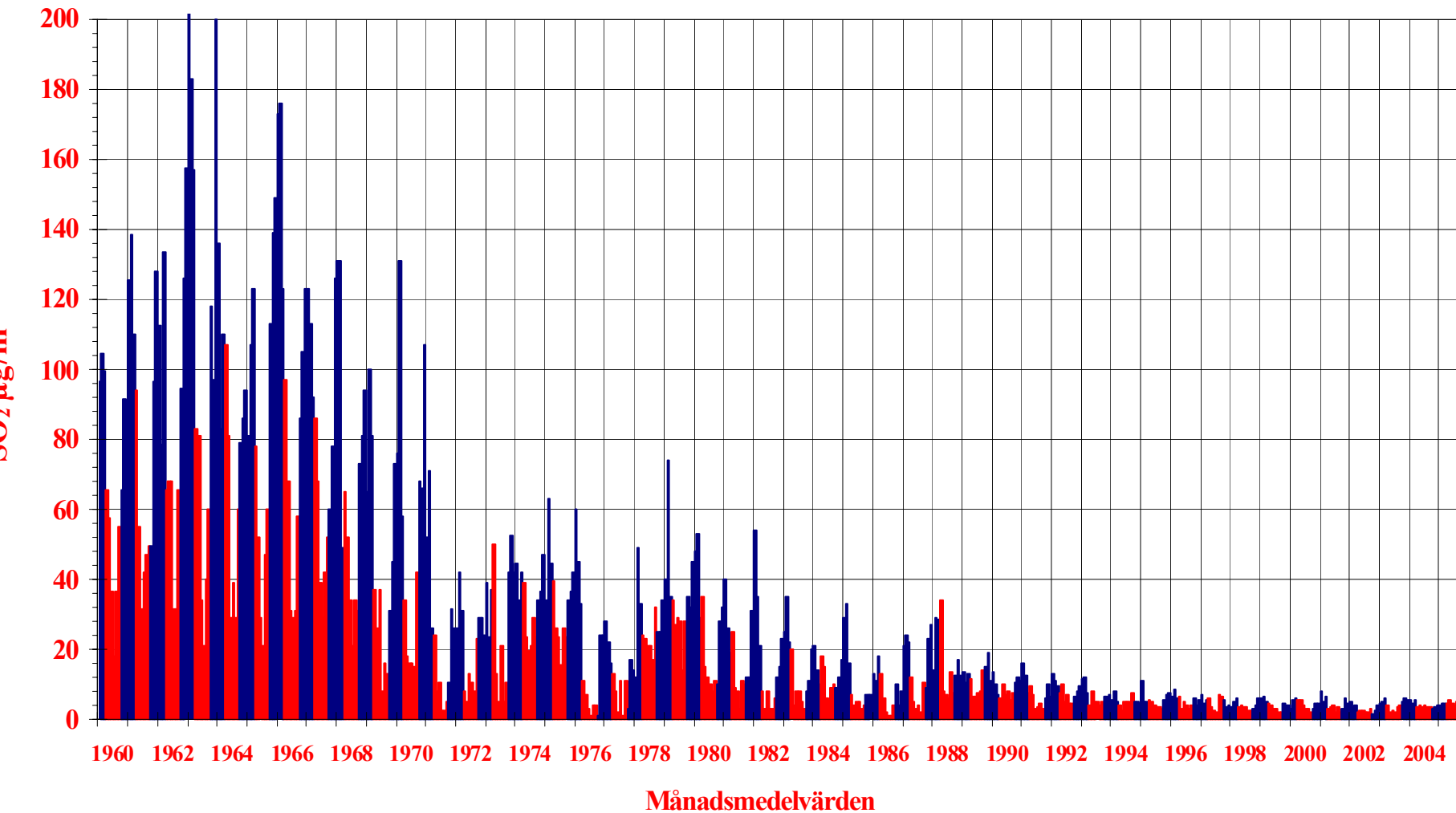


Air Pollution – A Public Health Threat

GAC GAME Conference
Urban Air and Health Effects
May 29-30th 2006

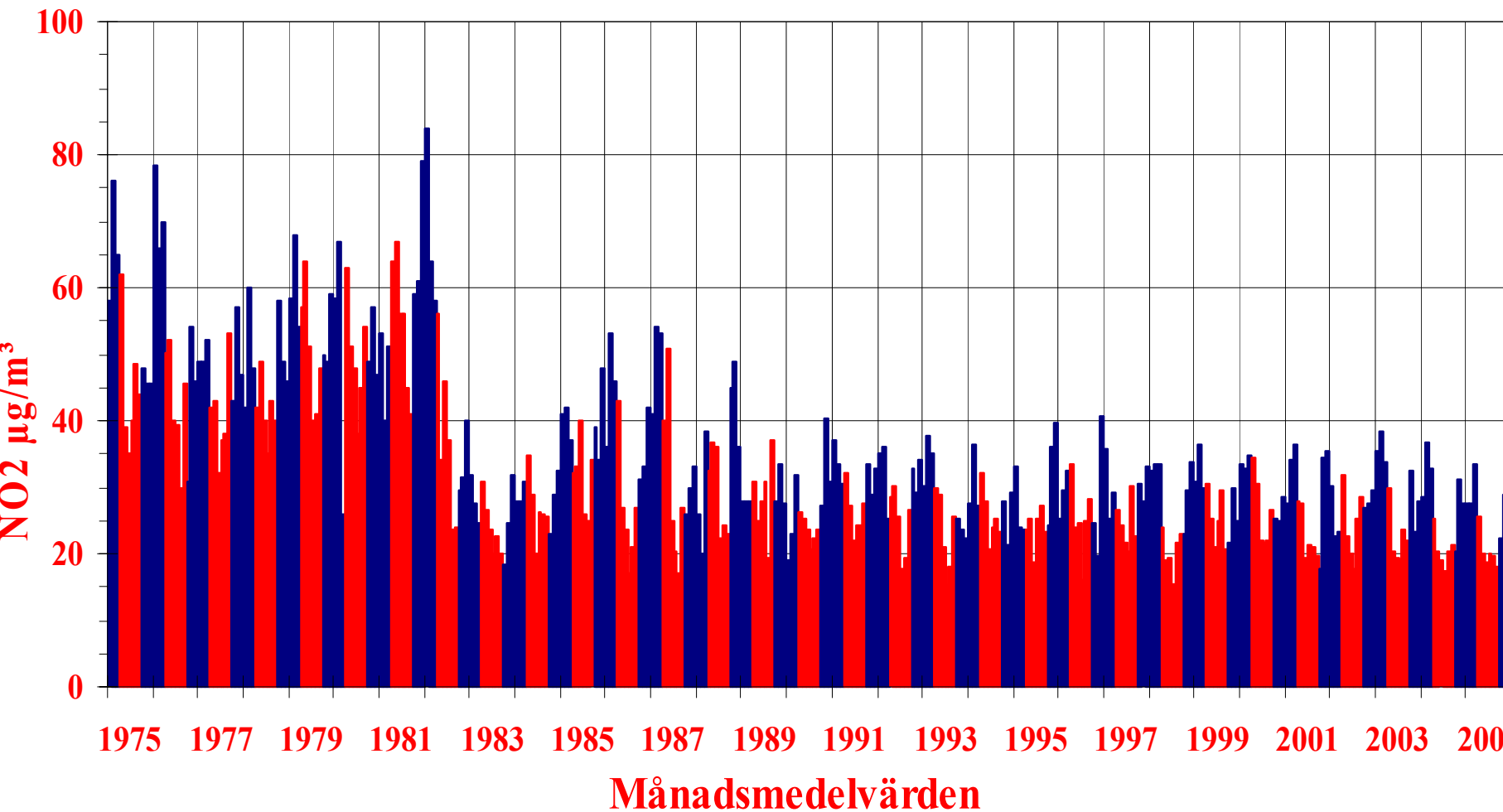


SVAVELDIOXIDHALTER I GÖTEBORG

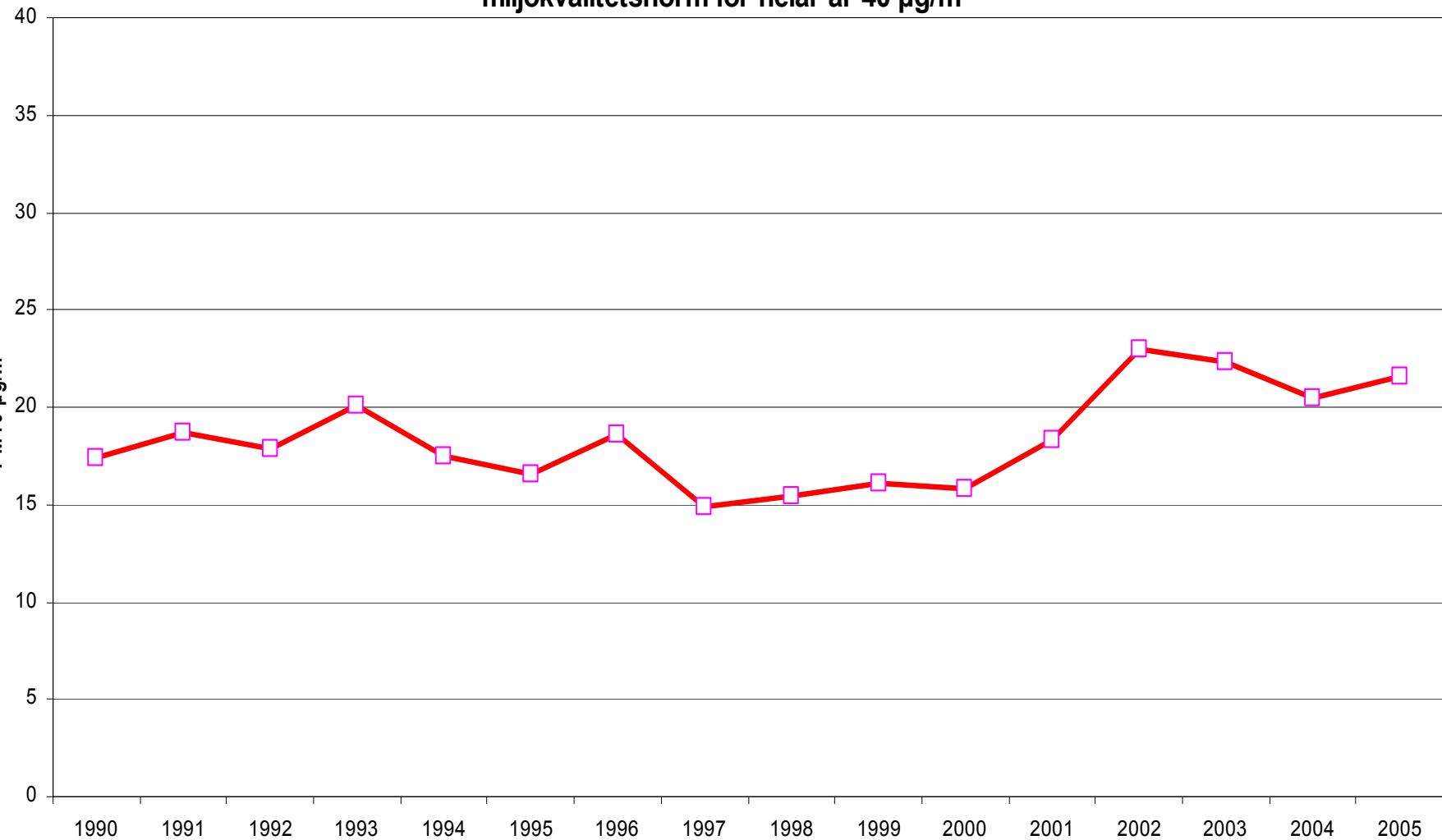




KVÄVEDIOXIDHALTER I GÖTEBORG



PM10-halter vid Femman i Göteborg - årsmedelvärden
miljökvalitetsnorm för helår är 40 µg/m³



Effects of Air Pollution on Children's Health and Development

WHO Regional Office for Europe and the
European Commission's Clean Air for
Europe (CAFE) programme

Report E 86575, published 2005, 185 pages

EFFECTS OF AIR POLLUTION ON CHILDREN'S HEALTH AND DEVELOPMENT



A REVIEW OF THE EVIDENCE

What are the effects of air pollution on children's health and development?

The review considers the effects of air pollution in a number of areas. It considers the effects on the health and development of children during the prenatal period, on the development of the respiratory system and lung function (as well as respiratory morbidity), and on the incidence of childhood cancer.

What are the effects of air pollution on children's health and development?

The experts involved in preparing the report identified a hierarchy of health outcomes:

- (a) evidence is sufficient to infer a causal relationship with exposure to air pollution;
- (b) evidence is suggestive of causality;
- (c) evidence is not sufficient or shows no association between outcomes and exposure.

What are the effects of air pollution on children's health and development?

Effects for which evidence is sufficient to infer a causal relationship with exposure to air pollution:

There is now substantial evidence on the adverse effects of air pollution on different pregnancy outcomes and infant health. The evidence shows that air pollution, with concentrations typical of many European cities, increases the risk of **death from respiratory causes in the postneonatal period** and that there is a relationship between exposure to ambient air pollutants and adverse effects on the **development of lung function.**

What are the effects of air pollution on children's health and development?

The report concludes that there is a causal relationship between exposure to air pollutants and **aggravation of asthma**. The evidence is also sufficient to assume a causal link between exposure to particulate matter and increased prevalence and incidence of **cough and bronchitis**.

What are the effects of air pollution on children's health and development?

Effects for which evidence is not sufficient or shows no association between outcomes and exposure

Accumulated epidemiological evidence is insufficient to infer a causal link between **childhood cancer** and the levels of outdoor air pollution typically found in Europe.

What are the effects of air pollution on children's health and development?

Moreover, the evidence shows clearer relationships for particulate matter and traffic-related air pollution (indicated by nitrogen dioxide) than for other pollutants. Based on current knowledge, air pollutants seem to interact with other environmental factors, such as tobacco smoke, allergens, viruses and diet, that influence the overall impact of air pollutants on children's health.

What are the effects of air pollution on children's health and development?

Policy considerations

A reduction in children's current exposure to air pollutants, especially from motor vehicle exhausts, is recommended. A decrease in motor vehicle exhausts will substantially benefit the respiratory health of children.

Health Impact Assessment of Air Pollution in 26 European Cities – Gothenburg City Report (APHEIS 3)

APHEIS Air Pollution and Health: A
European Information System

Published 2004, 24 pages

The APHEIS programme has assembled a network of environment and health professionals in 26 cities and created an epidemiological surveillance system that generates information on ongoing basis and produces reports on Health Impact Assessments at periodic intervals for Europa.

APHEIS now joins the ENHIS project (Environment and Health Information System) of the WHO-European Centre for Environmental Health (ECEH)

Göteborg

Short-term exposure to PM – hospital admissions

A reduction of the annual mean concentration of PM10 by 5 microgram per kubicmeter is estimated to reduce (be avoided) the number of hospital admissions by

22 each year

APHEIS 2004

Göteborg

Short-term exposure to PM – mortality

A reduction of the annual mean concentration of PM10 by 5 microgram per kubicmeter is estimated to reduce the number of premortality deaths by

23 (15-31) each year

(after 2 up to 40 days)

APHEIS 2004

Göteborg

Long-term exposure to PM – mortality

A reduction of the annual mean concentration of PM10 by 5 microgram per kubicmeter is estimated to reduce the number of premortality deaths by

80 (45-115) each year

(in the long run)

APHEIS 2004

Göteborg

Long-term exposure to PM – life expectancy

A reduction of the annual mean concentration of PM10 by 5 microgram per kubicmeter is estimated to increase the estimated life expectancy by

2.5 months

among the citiziens of Göteborg

APHEIS 2004

The European Parliament and the Council adopted in July 2002 Decision 1600/2002/EC on the Sixth Community Environment Action Programme (Sixth EAP). One of the objectives is to establish “... a high level of quality of life and social well being for the citizens by providing an environment where the level of pollution does not give rise to harmful effects on human health...”

The activities to implement the Sixth EAP currently take place within the Clean Air for Europe (CAFE) programme.

The Thematic Strategy on Air pollution Adopted by the European Commission in 2005 and in 2006

The Thematic Strategy on Air pollution Adopted by the European Commission in May 2005

Impacts of air pollution on human health (PM)

Health effects in 2000

9 months of life expectancy lost

3 million life years lost annually
million

288,000 premature deaths annually

83,000 serious

hospital admissions annually

288 million restricted

activity days annually

Expected

improvement in 2020

Reduction by 3 months

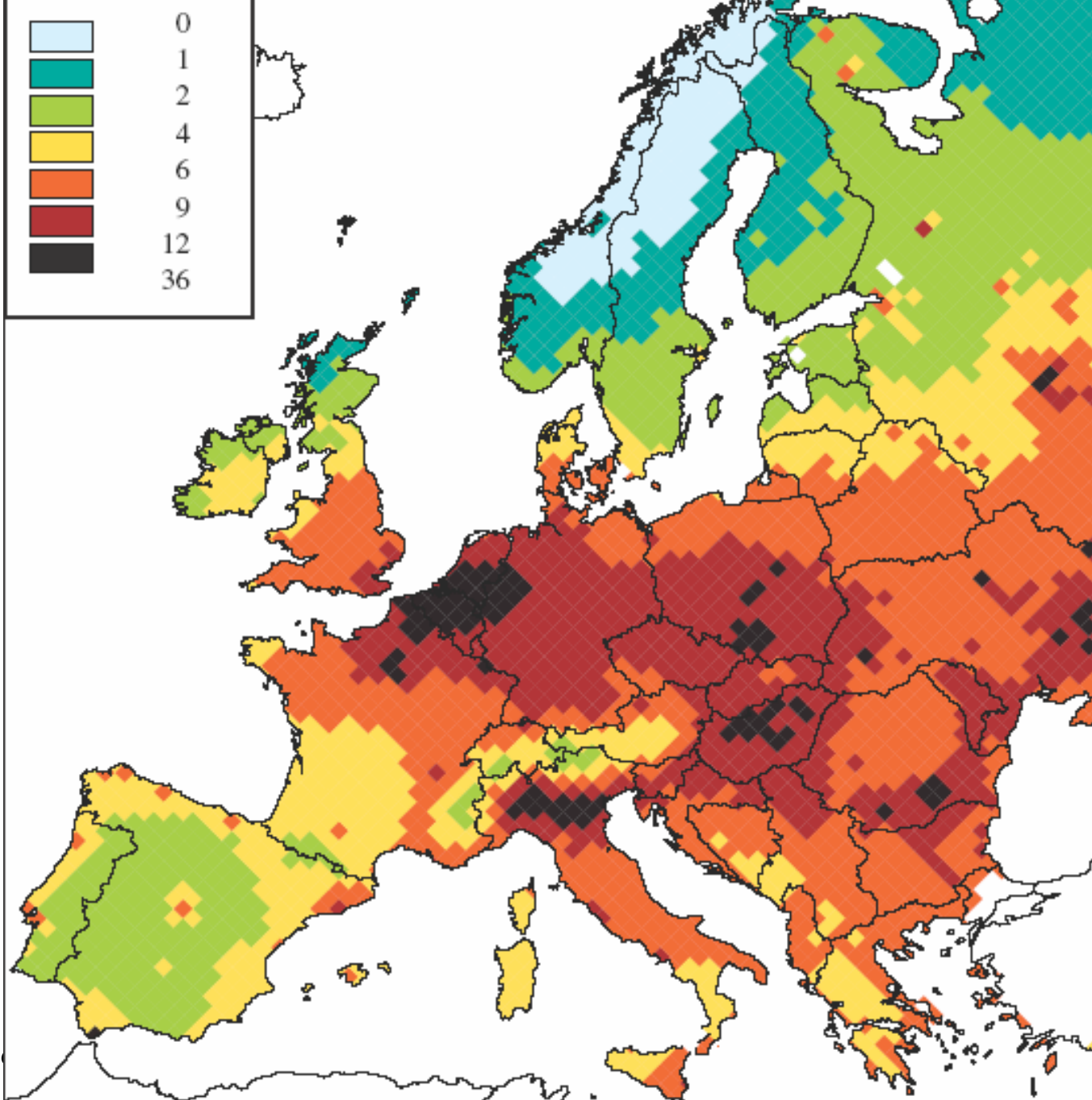
Reduction by 1.1

Reduction by 80,000

Reduction by 30,500

Reductio by 117 million

Map: Loss in average statistical life expectancy (months) due to identified anthropogenic PM2.5



Comparative Health Impact Assessment of Local and Regional Particulate Air Pollutants in Scandinavia

Forsberg B, Hansson H-C, Johansson C,
Areskoug H, Persson K, Järveholm B

Ambio vol 34, no 1, sid 11-19, 2005

Exposure:

Urban and regional background
measurements and estimated values in
Sweden

PM10 and PM2.5

Regardless of origin

Health impact assessment:

No threshold levels below which
pollutants do not cause any harm,
linear dose – effect models

Mortality

Base-line rate is well known

Major impact in economic terms

Premature mortality related to long-range transported antropogenic particles has been estimated to be about **3 500 deaths per year** for the Swedish population, corresponding to a reduction in life expectancy of up to about 7 months.

The influence of local sources could estimated to be **1 800 deaths per year**, corresponding to a reduction in life expectancy of up to 2 – 3 months.

Conclusion:

Exposure to particle matter (PM), despite the low levels we face today, still poses a significant risk to human health

The risk contribution from different sources must be further investigated as many health studies indicate that engine exhaust is the main source of health damaging particles

Webbplatser

- www.miljo.goteborg.se
- www.naturvardsverket.se
- www.who.dk/air/
- www.euro.who.int/document
- www.apheis.net
- www.airnet.iras.uu.nl
- www.epa.gov/oar

Thank you for your attention!

Per Haglind
City Medical Officer, MD, PhD
Environment Administration
City of Göteborg
+46 31 612600