Transport and health

"Development in the field of air pollution data requirements for health assessment - last 20 years in the Czech Republic"

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Workshop Telč 25-27 June 2007
Transport related adverse health effects

- Noise
- Air pollution
- Road traffic injuries
- Physical activity (mode of transport and spontaneous physical activity)
- Psychological and social effects
Noise

- Annoyance
- Sleep disturbance
- Reading, memory, attention
- Contribution to the development of cardiovascular diseases, hypertension

Inadequate evidence

- Birth weight
- Immune effects
Air pollution

- Mortality
- Morbidity on respiratory diseases
- decreased breathing function's
- Adverse effect on children with asthma
- Inadequate evidence
- Low birth weight
- Pre/term birth
- Intrauterine growth retardation
What we need?
Do we have these data, which we need for assessment and argumentation
Data are necessary for:

- Epidemiological studies
- Health impact assessment
- Health impact management
- Evaluation of trends
- Evaluation of effect of measures
What data we have

Routinely measured or reported data
- noise
- Air pollution – indicators
- Injuries – hospitals

Data based on special studies
- Physical activity
- Psychological effects
Data on health endpoints

HRA/HIA

- Routine data on morbidity and mortality
- Data on health endpoints with sufficient evidence used generally in Europe
Development in the Czech Republic

In 80′ - 90′

- Network of 200 measuring stations operating by hygienic services (and 400 of CHMI and other operators)
- Basic pollutants - TSP, SO2, NOx, elements-Pb, Cd, As, Cr, Ni, Zn
Development in the Czech Republic

- Changes in air pollution are followed by changes in spectrum of pollutants which are measured.
- Changes connected with traffic (fuel, traffic density).
- Lead.
- $PM_{10}$, $PM_{2.5}$. 
PM10/PM2,5 in the CR

PM2,5 - 2005 - aritmetický a geometrický průměr a poměr frakcí PM2,5/PM10

Roční limity limitu - není stanoven

(EU předpokládá v rámci rámové směrnice hodnotu 25 (IL 2) respektive 20 (IL 1) μg/m³ ročního průměru)

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Development in the Czech Republic

- Number of stations operated by hygienic services have decreased from 200 to 40
- Development of analytical methods
- Data processing, modeling
- Other measurement
  - mobile system
  - semimobile system for middle-term measurement in hot spots
Environmental Health Monitoring System

Was set by the Resolution No. 369/1991, since 1994, in operation in 30 localities

The aim of the system

- to follow-up the environmental factors
- estimate the exposures to contaminants
- assess the possible health risks and effects

Represents the basic information for public health, policy making, for health risk management and control.
Monitoring system consists of 8 subsystems:

- ambient and indoor air
- drinking and recreational waters
- urban soil - playgrounds
- dietary exposure
- ambient noise
- occupational environment
- biological monitoring
- population health status monitoring
Ambient and indoor air

- Health indicators
  - Prevalency of allergies
  - Acute respiratory diseases

- Ambient air quality indicators
  - NO2, TSP/PM10, SO2, CO, O3, selected metals (As, Cr, Cd, Mn, Ni, Pb), VOCs, PAHs and pollen

- Indoor air quality indicators
  - NO2, VOCs, HCHO, temperature, humidity, TSP, PM10, bacteria and fungi
Development in the Czech Republic

Obr. 4.15 Rozdělení obyvatel měst podle potenciální expozice vybraným škodlivinám z ovzduší (v intervalech ročního imisního limitu IH$_r$)
Thank you for your attention