

Children Health & Environment

"A better environment for the children" - proposed courses of actions in Denmark

The inter-disciplinary working group headhunted by The Danish Board of technology

Eva C. Bonfeld-Jørgensen, MSc, PhD, Ass Prof, head of Unit of Cellular & Molecular Toxicology, Institute of Public Health, University of Aarhus, Denmark

Lisbeth E. Knudsen, MSc, PhD, Ass Prof, Institute of Public Health, University of Copenhagen, Denmark

Else Guldager, RN, HV, PhD, The National Council for Children, Copenhagen, Denmark

Ole Hertel, Senior Researcher, Department of Atmospheric Environment, National Environmental Research Institute, Roskilde, Denmark

Henrik L. Hansen, Md Mci, Medical Officer, County Vejle , Denmark

Gitte Gross, MSc, The Danish Consumer Council, Copenhagen, Denmark

Troels J. B. Lyngbye, MD SCI, Paediatric Department and Hammel Neurocenter, Aarhus University Hospital.

Project Manager: **Anne F. Rohmann**, MSc, The Danish Board of Technology, Copenhagen.

Aim of the Working Report

To obtain an integrated

- knowledge overview
- assessment and
- recommendation by
- an inter-disciplinary working group of the Danish Board of Technology

Plan of Action

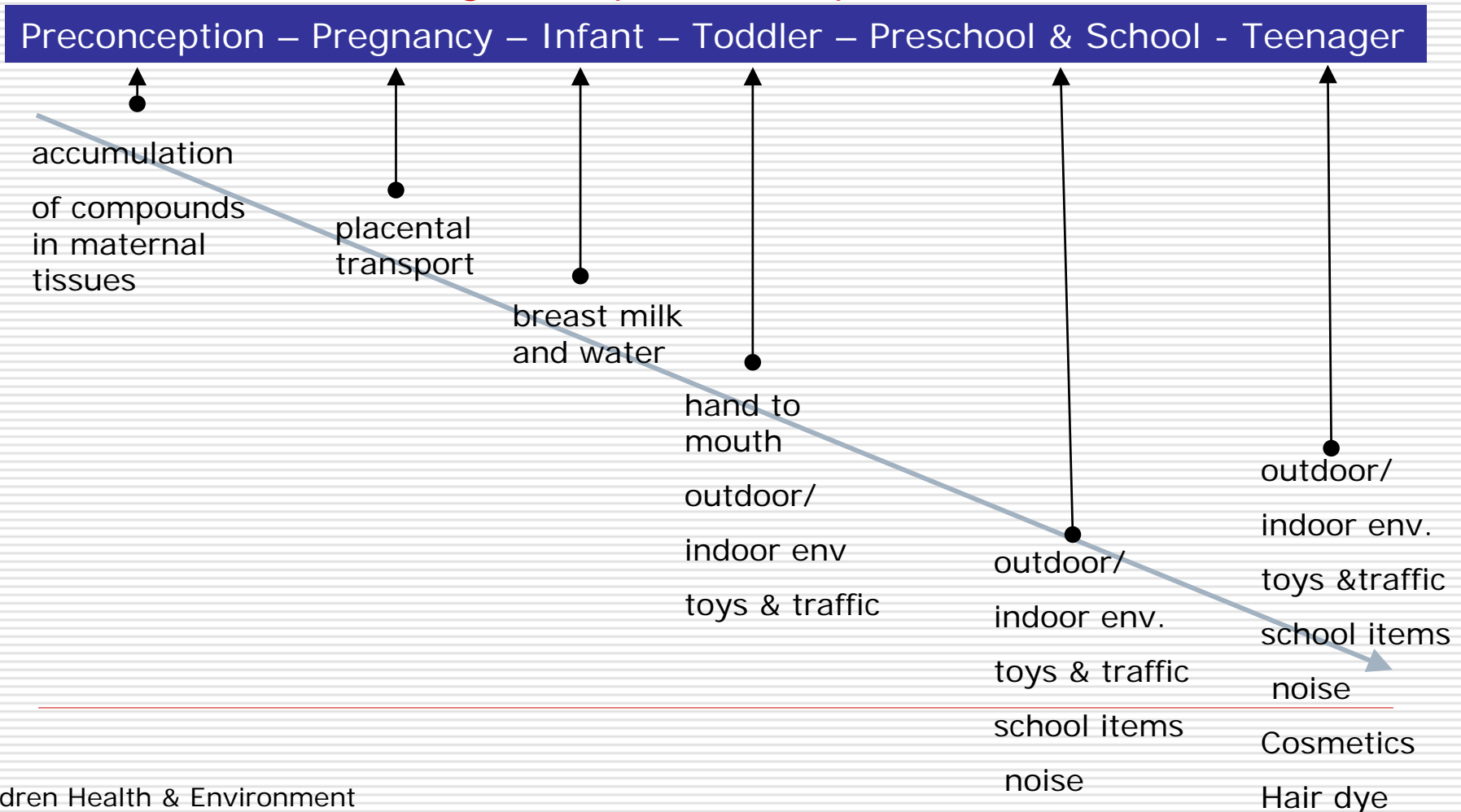
- Elucidate the possible problems
- Focus onto problems not being undertaken and
- where political decisions are missing
- Suggestions to who can act
 - Children them self, parents, teachers

Four important exposure sources will be in focus

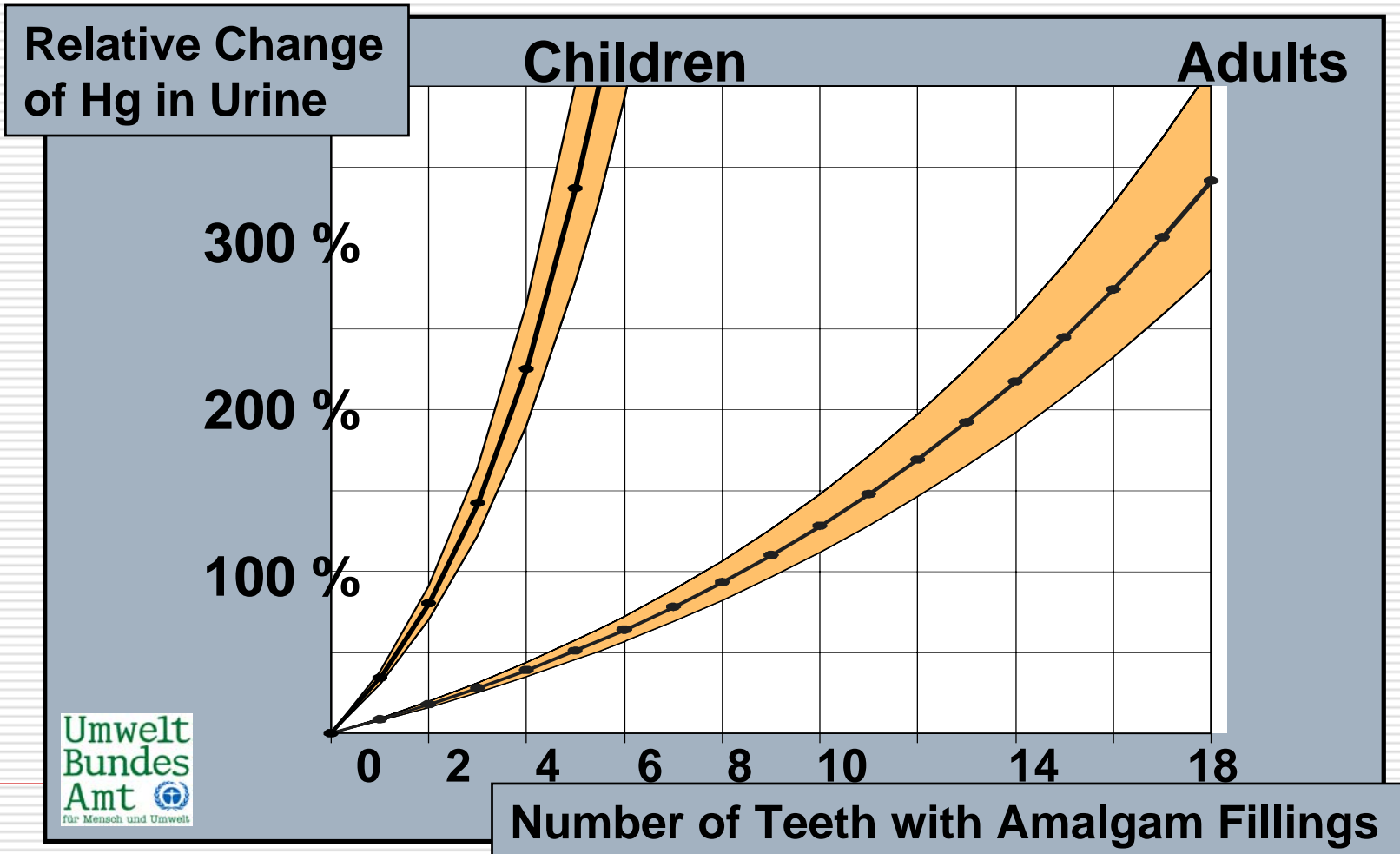
- Transport & Traffic
 - Consumer product / food stuff / chemicals
 - Noise
 - Indoor Climate
-

Exposures: Children differs in susceptibility compared to adults

Age - dependent exposures



Change of Mercury in Urine as a Function of Teeth with Amalgam Fillings (GerES II 1990/92, Multiple Regression Models)



Environmental compounds with potential adverse effects on human health

Sources	Factor	Potential effects on children health
Air (indoor/outdoor)	Compounds & particles from vehicles, incineration, industry	Airway symptoms, developmental disorders, Cancer
Ground & drinking water	Pesticides, nitrate, PVCs and other hazardous compounds	Endocrine disruptions Developmental disorders Allergy & eczema (hypersensitivity)
Consumer products	Electronic products, dyes, cosmetic, crèmes, shampoos, some fatty food items etc.	Allergy, Reproductive-& Developmental disorders, Endocrine- disruptions, cancer
Indoor environment & sanitation	Carpet, vinyl, textile, building materials, tobacco smokes, house dust, moulds etc	Allergy, Reproductive-& Developmental disorders Endocrine-disruptions, cancer
Soil	Polluted soils (e.g. Pb, Hg, PCBs) at playgrounds, vegetables from contaminated soils	Reproductive-& Developmental disorders, Endocrine- disruptions, cancer
Noise	Schools, institutions, heavy traffic, discothèques, cinemas etc.	Hearing impairments, learning difficulties, cardiovascular diseases, stress etc.
Radiation	Mobil phones, aerals, radon from buildings and underground	Cancer
Provisions	Hazardous compounds in wrapping, canned food & drinks, plastic bottles, contaminated food/breast milk/veterinary medicine residues	Reproductive-& Developmental disorders, Endocrine- disruptions, decrease immune system, cancer

Transport & Traffic (T&T)

- Big improvement in the air-pollution from vehicles
 - Lead and benzene reduced in fuel
 - Catalysts have reduced volatile compounds (NO_x and VOC)
- However
 - T&T still the biggest sources for exposure to various compounds and particles
 - e.g. polycyclic aromatic hydrocarbons / dioxins / Pb / SO₂
- Health effects shown in many studies –
 - The adverse effects of particles still need research
 - Particles: Increased mortality (2500/year) especially caused by childhood exposure

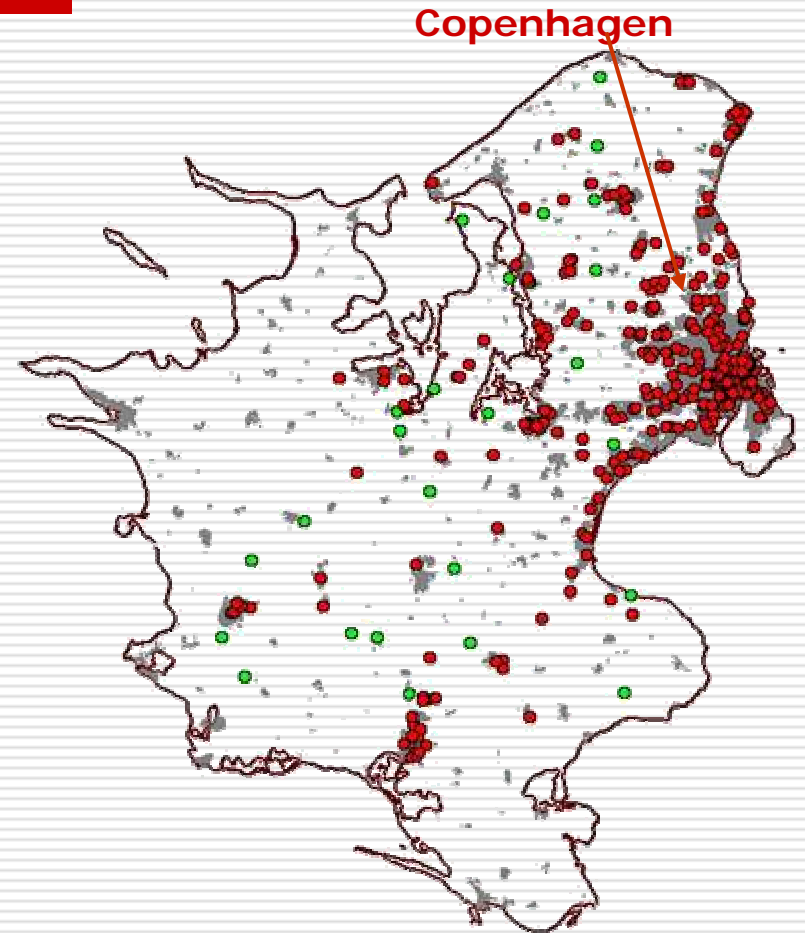
Recommendations

- Children should be protected against the negative effects of traffic
 - Non-trafficable school-way for the Children
- Children institutions and schools should not be placed close to a busy road – should be less than 1000 vehicles / 24 hours

COPSAC - Copenhagen Prospective Study on Atopy in Childhood

The distribution of
411 children
born of asthmatic
mothers

- 203 boys
- 208 girls



Consumer products / foodstuffs / chemicals and EU

Actions

- Declaration of products contents of compounds
 - Lowest safety level should be better documented
 - Approval of new chemicals should for all consider young individuals
 - **Safety borderlines and risk assessments recommendations**
 - Specific analyses for allergy and hormone-like effects should be performed
 - Chemical mixture assays must be included
 - Generation studies should be routine for risk compounds
 - Dose-response determinations for all risk compounds
 - The company / industry must document that their new products have no health risk
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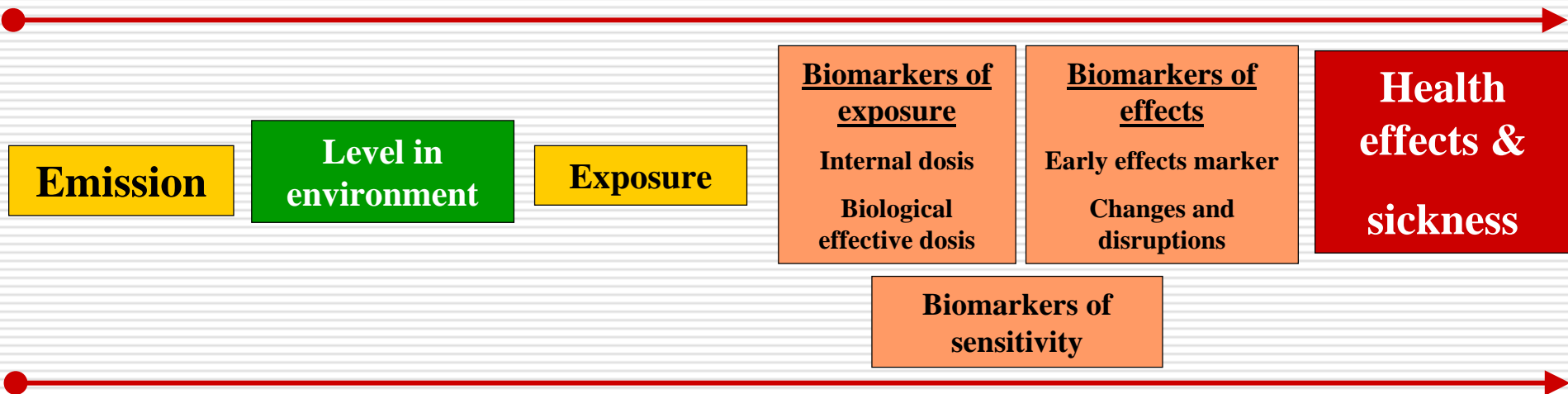
Action:

To improve knowledge for risk assessment

- More research and screening of chemicals and their mixtures
 - Bio-monitoring- programs (mother/father and child) should be started in DK to elucidate long-time effects
 - Child-cohort-studies to improve knowledge
 - Clear and integrated information about results and risk assessment to the consumer
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Integrated bio-monitoring environment & health

- Bio-monitoring integrates environmental exposures and health
- Bio-monitoring can reflect the risk of health effects in individuals



Action:

Regulation and prohibition

- Reduction of the source of pollution
 - All consumer products should be free for health hazardous substances
 - Positive lists for compounds approved for children
 - Strong regulation of cosmetics for children
 - Prohibition of allergy and hormone-disruption compounds in products/food stuff for children
 - Assessments of exposure via packing and containers
-

NOISE

➤ **Risks**

- Learning difficulties
- Decreased memory
- Stress
- Decreased motivation
- Tinnitus
- Reduced language
- Cardiovascular diseases

➤ **Recommendations**

- Assessment of the physiological room for health and wellbeing
- Border line levels must be given with consideration to especial susceptible children
- Noise can be reduced by “more space per child” and sound-absorbing materials

Indoor environment

- 90% of the life is spend indoor

- Increased incidence of allergy and other over-sensitivity the last decades
- Knowledge to limit for prevention
- The consequences can however be reduced based on experiences

Sickness	Age	Frequencies (%)
Asthma, asthmatic / bronchitis	Early childhood	21 – 34
Asthma	School age	7 – 10
Allergic cold etc.	Childhood	10 – 15

Indoor environment

➤ Risks

- Infection diseases
 - Expensive for the society
- Irritation and bad-being
 - Headache, tired etc.
- Exposure to adverse compounds in e.g. dust
- Irritation from e.g. noise, smell, cigarette smoke, mould

➤ Actions

- Smoking forbidden in public rooms
- High hygiene
- Good space per child
 - Known to reduce sickness
- Clean ventilation systems
 - Can spread dust and compounds
- If close to busy traffic-intervention should be possible

Action:

total course of action for Children & Environment

- Protect children against negative effects of traffic
 - No consumer product should contain hazardous compounds
 - High political priority to reduce hazardous compounds in food and drinking water
 - Better systematic surveillance and bio-monitoring and
 - Better risk assessment should be established
 - Limit the noise of children's institutions
 - No smoking in room for children
 - Increase hygiene and give children good hygiene habits
 - Regulation of "working environment" for children like found for adults
 - Up-grading of local health authority health services including health visitor's qualifications in environmental health
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ACTION

High priority of courses of actions to protect children against exposure to hazardous environmental compounds increasing the risk of health effects

!!-It is urgent – to protect coming generations-!!

Thank you

for listening to our recommendations action plans concerning

Children Health & Environment