European Conference on Human Biomonitoring
Paris, November 4th – 5th, 2008
“Setting the scene”
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- BIOMARKERS
- HUMAN BIOMONITORING
- OCCUPATIONAL HEALTH
- ENVIRONMENTAL HEALTH
- POWER OF HBM
- EU ACTION PLAN
- CHALLENGES
- TOWARDS A SUSTAINABLE ORGANISATION OF HBM IN EUROPE
- PARTICIPATION

What is a biomarker?

Biomarkers can be defined as quantitative measures of changes in the biological system in response to pollutant exposure.

Exposure → Internal dose → Biologically effective dose → Early biological effect → Altered structure/function → Clinical disease

Susceptibility

Biomarker of exposure

concentration of a pollutant or its metabolite(s)

blood (whole or serum), lymphocytes (white blood cells), urine, saliva, adipose tissue, breast milk, toe nails, hair, and exhaled breath

Biomarker of effect

reaction of the human body to environmental pollutants

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What is Human Biomonitoring (HBM)?

“Monitoring activities, using biomarkers, that focus on environmental exposures, diseases and/or disorders and genetic susceptibility, and their potential relationships”


“...a method of assessing human exposure to chemicals by measuring the chemicals or their metabolites in human tissues or specimens, such as blood and urine”


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FIRST USE IN OCCUPATIONAL HEALTH

France: Loi du 11 octobre 1946 qui fait obligation aux employeurs d’organiser une surveillance médicale pour leurs salariés.

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Diapositive 3

kg1  koppeng; 16/09/2002
HBM is used as part of a preventive strategy in the medical surveillance of workers.

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Environmental Health:
3 Types of HBM activities

SURVEY projects: (periodical?) measurements
• information on the prevalence of exposure to environmental agents and the related public health impact
• developing and evaluating policies that protect health

RESEARCH projects
• improvement of knowledge on causal links between environmental factors and health
• hypothesis generation and testing

RAISING AWARENESS PROJECTS

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THE POWER OF HBM

- HBM is much closer to health effects than environmental monitoring
- HBM results integrate the contribution of the different sources and routes of exposure
- More than classical environmental measurements it gets pollution personal!
  - Trigger for actions at personal and at societal level
  - Testing is a message: society cares about H & E

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presents a NEW VISION on how to address environment & health in an integrated way


ACTION 3 announces the development of a coherent approach to HBM in Europe in close cooperation with the MS
Session 1  Concepts, history and general use
HBM in the framework of the European Environment and Health Action Plan, dr. Birgit Van Tongelen
HBM and reference values. German HBM Commission: mandate and achievements, prof. dr. Michael Wilhelm

Session 2 Human biomonitoring in environmental health policy
HBM in Spain, dr. Argelia Castaño,
HBM in the United Kingdom, dr. Ovnair Sepai,
The French dioxin and incinerators study, dr. Nadine Fréry
HBM in the Czech Republic, dr. Milena Cerna
A case study of the health impacts in an abandoned lead mining area using children's blood lead levels, dr. Carrie Garavan
HBM in Cyprus: Cotinine in children, dr. Stella Canna-Michaelidou
HBM in Flanders: assessing exposure in the general population and in hot spot areas, Elly Den Hond
The Swedish national health related environmental monitoring programme, dr. Marika Berglund
The German Environmental Survey (GerES), dr. Marike Kolossa-Gehring

CHALLENGES

"...the complete potential of this tool has yet to be realized, inasmuch as the science (epidemiology, toxicology, pharmacokinetic modeling, and exposure assessment) needed to understand the implications of biomonitoring data for human health is still in its nascent stages.

- for most of the chemicals currently measured, the risks cannot be interpreted.
- tremendous ethical and communication challenges"

Committee on HBM for Environmental Toxicants, National Research Council of the National Academics 2006

http://fermat.nap.edu/execsumm_pdf/11700.pdf

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CHALLENGES

Session 3 Added value of HBM in environmental health

Use of biomarkers as exposure measures in the National Children's Study, dr. Michael Dellarco,
HBM a tool to explore exposure pathways, dr. med. Ursel Heudorf
Chances and limitations of integrating data from human and environmental monitoring
– at national level, Jan Koschorreck
– at EU level, dr. Roel Smolders
From science to policy: translation of HBM results into policy measures in Flanders, dr. Caroline Teughels
Human environmental biomonitoring as a policy lever: a case study of mercury and pesticide exposures in New York City, mr. Daniel Kass
The added value of HBM for human health protection: from science to industry action, ms. Loredana Ghinea
Using HBM to raise awareness for policy change – public interest campaigns, dr. Lisette van Vliet

Communication and Ethics in HBM, dr. Birgit Dumez
Environmental justice and interpretation of HBM results, prof. dr. Claudia Hornberg

CHALLENGES

Session 4 Contribution of research to HBM

Overview of EU research projects related to human biomonitoring, dr. Tuomo Karjalainen,
Pesticide exposure of pregnant women in Brittany: the Pelagie cohort study, dr. Cécile Chevrier
European mother child cohort studies, prof. Lisbeth E. Knudsen, PhD
Impact of air pollution on biomarkers of genetic damage, dr. Radim Sram,
Analytical validation of biomarkers: laboratory issues, dr. Holger M. Koch
Biomarkers of estrogenic/androgenic activity in connection to breast cancer: an experience from Andalucía, dr. Nicolás Olea Serrano, Granada University, Spain
Use of biomonitoring data to improve advanced risk assessment models, dr. Frédéric Y. Bois,
**Session 5: Towards a Sustainable Organisation of HBM in Europe**

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**THE WAY FORWARD IN EUROPE**
- Framework for a **European Pilot Study**, dr. Reinhard Joas
- Current activities of **JRC** in HBM, dr. Claude Guillou
- The **European Health Examination Survey** and HBM? dr. Antoni Montserrat Moliner
- Potential use of HBM for **Reach**
- Overview on **European specimen banking activities**: taking the past into the future, dr. Andreas Gies

**EXAMPLES FROM OVERSEAS**
- HBM of environmental chemicals in the **Canadian Health Measures Survey**, mr. Douglas Haines
- Public health impact of HBM studies in the **United States**, dr. Larry Needham

**LEGISLATION**
- HBM in the **Slovenian Chemical Act**, dr. Lijana Kononenko, dr. Milena Horvat
- The 2003 **Flemish Parliament Act** on preventive health policy, dr. Hana Chovanova
- POP Convention and **WHO Milk Survey**, dr. Seongsoo Park

**Requirements for a European Human Biomonitoring programme** for priority assessment of environmental chemicals, Matti Jantunen, prof. Terttu Vartiainen, dr. Hannu Kiviranta

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In occupational health HBM is often mandatory.

In environmental health participation is on a strictly voluntary basis.

Why do (or don't) people participate?

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I wish you an exciting conference
And I hope we will be able to exchange our views and bring HBM in EU a few steps further ……. 