

Using Biomonitoring

Biomonitoring can be used to :

- ☒ Reinforce regulatory actions by providing actual data about which chemicals get into people and at what levels
- ☒ Improve exposure assessment
- ☒ Establish baselines or reference ranges
- ☒ Facilitate people's right to know what chemicals are in their bodies;
- ☒ Establish priorities for tackling environmental health-related problems;
- ☒ Identify health disparities (e.g., Blood levels of certain toxic substance may be different according to the socioeconomic status)



Toxic by-products from Thermal power station "TEC-4", Minsk (Belarus).

Taking Action

Throughout the world, environmental health NGOs, individuals and doctors are attempting to correlate high levels of chemicals such as Persistent Organic Pollutants in blood with chronic illness and adverse impacts. Nowhere is this more important than in the monitoring of new-born babies. Communities are using body burden testing to demonstrate their exposure to particular industries or agricultural practices, and to empower individuals and groups to take action to protect themselves and their families.

FACTSHEET No. 2 BIOMONITORING

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**Community Monitoring
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BIOMONITORING



**International POPs
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What is Biomonitoring ?

CMWG in Brief

The Community Monitoring Working Group (CMWG) aims to support the implementation of the Stockholm Convention on Persistent Organic Pollutants 2001 by facilitating and supporting community monitoring of POPs and other persistent toxic substances.

The CMWG promotes community monitoring of chemicals and ensure ongoing NGO involvement in the Global Monitoring Program for POPs. This will support the effective phase out and elimination of the dirty dozen POPs chemicals, help identify new POP candidates and aid in the struggle for a cleaner, healthier and more sustainable environment.



Patient who suffered and died from Thyroid Cancer in a village in the Philippines due to use of Pesticides.

What is Biomonitoring ?

Biomonitoring is the assessment of human exposure to environmental chemicals by measuring the chemicals or their metabolites in human blood, urine, saliva, or tissue. The results of such measurement are usually called "**body burden**".

Nearly all of us carry a body burden of chemicals that sometimes is sufficiently substantial to either cause or exacerbate illness.

The New York Mount Sinai School of Medicine, in collaboration with the Environmental Working Group and Commonwealth, tested the blood and urine of 9 volunteers and found a total of 167 chemicals with an average 91 chemicals per person.

PCBs - Industrial insulators, largely banned. persistent, accumulates up food chain, cause cancer & nervous system problems

Dioxins/furans - by-products of incineration / PVC, persistent, cause cancer, toxic to hormone system

Metals - Lead, mercury, arsenic, cadmium

Organochlorine insecticides - DDT, chlordane, heptachlor, dieldrin, aldrin, endrin, mirex. Largely banned, persistent, accumulate up food chain, cancer & reproductive effect

Organophosphate insecticide metabolites - Breakdown products, nervous system toxicant

Phthalates - Plasticizers & personal products, reproductive effects, some recently banned

Volatile & Semi-volatile organic chemicals - Industrial solvents, petrol, toxic to nervous system toxic, benzene- cause cancer.

105 chemicals were detected in one female CMWG member including 13 different

Ethical issues relevant to Biomonitoring

Ethical issues are relevant in almost every facet of human biomarker research from the design of the studies, the identification and recruitment of subjects, to the handling and use of the data, and interpretation and communication of the results.

The right to monitor chemical pollutants in blood and breast milk is a crucial aspect of community right to know but also brings with it responsibilities to care and support those who are tested.

Researchers and regulators have to be aware of the potential for biomarker information to affect the lives of subjects and their families. There must be sufficient protection of personally identifiable data and regulation of its use, while ensuring individual subjects right to know their results.

References

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