

Monitoring programme for exposure to chemicals

executive summary



Chemicals are present throughout our environment. They are used in agriculture and industry and are present in food, medicines, consumer products such as cosmetics and furniture, and construction materials. Through their many applications, chemicals contribute to our health, safety and quality of life. Exposure to chemicals can, however, also have negative impacts on our health. Consequently, the government develops policies that aim to limit or prevent our exposure to chemicals.

To estimate the exposure of citizens and the environment, the government has monitoring programmes for the presence of chemicals in different environmental compartments, drinking water, food, and consumer products. Our actual exposure, however, can only be determined through regular analysis of human samples such as blood or urine. In the Netherlands, this kind of monitoring is only done sporadically. Consequently, important data about the exposure of the population is missing.

Invest in a structural monitoring programme with human biomonitoring

The Committee for Identification of Environmental and Health Issues of the Health Council of the Netherlands recommends that the government develops a structural monitoring programme to measure and track the exposure of the population to chemicals. This programme should make use of human biomonitoring. This method can determine our exposure to chemicals through analysis of human samples such as blood and urine collected from a group of voluntary participants that are representative of (groups within) the population. A structural monitoring programme can provide key data to verify and improve the efficacy of government policies that seek to limit our exposure to chemicals. This will help the government to better meet her duty of care toward citizens. This duty of care requires the government, among other things, to maintain and improve public health.

Important exposure data is missing

Biomonitoring programmes are on the rise internationally and have existed in Germany and Flanders for decades. Up to 1997, structural monitoring programmes which included biomonitoring existed in the Netherlands as well. These programmes were halted with the government arguing that the costs outweighed the benefits, that levels of exposure to the chemicals that were being monitored were declining, and that they wanted to see how European biomonitoring initiatives would develop. The committee argues that the first two arguments no longer apply. Meanwhile, European biomonitoring initiatives have demonstrated how biomonitoring can play an important part in developing environmental and health policies.

At present, exposure levels in the Netherlands are estimated based on measurements of chemicals in the environment, drinking water, food, and consumer products. Modelling, sporadically produced biomonitoring data, historical data, and data from abroad are also used to estimate exposure. These estimates have many limitations. The Netherlands has its own chemical environment and our exposure differs from that of other countries. In addition, groups that are at risk of higher exposure or worse health outcomes as a result of exposure (as a result of regional or social differences, for example) are often unknown. The real exposure from multiple sources cannot be determined through current environmental monitoring and modelling. The burden of disease as a result of chemical

exposure is largely unknown. There are frequent incidents relating to chemicals or chemical exposure (e.g. pesticides, PFAS, PAH) and in each instance it emerges that there is very little data available on the exposure of citizens and the key sources or routes of that exposure.

Ongoing developments in the use of chemicals increase the urgency of a structural monitoring programme. The use of chemicals is increasing and chemicals whose use is being restricted are rapidly replaced by other substances that remain unregulated. Furthermore, our transition to a circular economy means that harmful substances may remain present in new products. Finally, public trust in the government has declined as a result of incidents relating to chemical exposure. As a result of missing data about the exposure of citizens to chemicals, the government lacks tools to address public concerns.

A monitoring programme will supply missing data

The committee argues that a structural monitoring programme with biomonitoring can be used to guard against exposure to harmful chemicals and to verify the outcomes of chemical management policies. The new Dutch exposure data will provide insight in the exposure of the Dutch population and of the distribution of that exposure between groups within the population. Furthermore, the programme will provide opportunities to address (local) concerns about exposure and to track the emergence of new chemicals and new exposures. There have been

considerable technological and analytical improvements to determine exposure. International exposure science has improved analytical methods, has developed new methods to screen for multiple substances at the same time, and has determined health-based guidance values for exposure to chemicals.

Recurring monitoring cycles and attention for at-risk groups

To implement the programme, the committee recommends that institutes with relevant expertise join forces in a consortium. There are good reasons to charge the National Institute for Public Health and the Environment (RIVM) with coordinating the programme. The committee proposes that the programme will consist of recurring monitoring cycles that will measure selected chemicals occasionally or continuously in a different, representative group of voluntary participants. The committee estimates that such a programme would require no less than 1.500 participants per cycle. To identify high-risk groups, it is important that different regional and social groups are included in each cycle.

When organising the financing for a monitoring programme, there should be attention for structural costs (personnel, infrastructure), variable costs (depending on the selected chemicals and number of participants) and potential costs for follow-up research, for instance into the sources of chemical exposure.

The committee maintains the view that the collective importance of a monitoring programme to improve public health compares favourably to the demands made of a relatively small group of voluntary participants. The committee also maintains the view that a monitoring programme should meet the quality standards of existing laws for human subject research. This means that a protocol must be designed covering the responsible conduct with volunteers, biological samples, personal data, and the research results. This protocol will have to be reviewed by an independent committee.

Participation and communication are important

The committee recommends that the monitoring programme will be integrated with existing government policies and existing environmental monitoring programmes. Within the proposed programme, high-quality exchanging of information between policy makers, experts, and stakeholders is imperative. The committee feels that the inclusion of citizens in particular as well as other stakeholders in society in different phases of the programme (e.g. study design, chemicals selection) is key to its success. A clear communication strategy about the monitoring programme and the research results towards the general public is important to increase support for the programme and the implementation of research findings into policy.



A monitoring programme will improve policy

The committee concludes that a monitoring programme for the exposure of citizens to chemicals requires a structural investment but generates important governmental, societal, and financial benefits. This addition to the existing monitoring system can help the government to better target and support new environmental policies and public health policies. A monitoring programme helps to close a key omission in the current chemicals management system, helping the government to better meet its duty of care.

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