

DEPARTMENT OF
PUBLIC HEALTH AND HUMAN SERVICES

SENATE PUBLIC HEALTH, WELFARE & SAFETY

EXHIBIT NO. 7

DATE: 2-14-05 ROBERT E. WYNIA, M.D.
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STATE OF MONTANA

Informational Testimony for Senate Resolution 15

Mr. Chairman and members of the committee, for the record my name is Dr. Kammy Johnson, with the Montana Department of Public Health and Human Services. I am testifying as an informational resource only.

I currently serve as the Epidemiologist for the Montana Bio-monitoring Project. Montana is part the six-state Rocky Mountain Biomonitoring Consortium. Biomonitoring is the laboratory assessment of human exposure to chemicals by measuring chemicals or their metabolites in human specimens such as blood or urine. The consortium is in it's first year of working together and utilizes very limited funding from the Centers for Disease Control and Prevention to begin biomonitoring activities.

The human health effects of Polybrominated Diphenyl Ethers (PBDEs) are currently not definitive. Available information is from studies of laboratory animals. Animal laboratory studies have shown that some PBDEs, generally tetra, penta-, hexa, and octaBDEs can cause health effects. Given results of animal tests, the main target of concern for humans is possible liver, thyroid, and neurobehavioral development effects.

Studies have shown human levels of lower brominated PBDEs in body fluids are a factor of 10-100 times higher for individuals living in the United States compared to individuals living in other regions of the world. There are currently not enough studies to make broad statements on trends. Maine, California and Michigan have enacted legislation related to reducing exposure to PBDEs. Washington state has also developed a PBDE phase-out plan in 2004.

PBDEs have not been identified as a priority for the Rocky Mountain Biomonitoring Consortium and no human testing has been done by MT DPHHS. Montana Fish Wildlife and Parks did participate in a national study and has collected limited samples of fish for PBDEs. Results of those tests are not yet available.

Mr. Chairman and members of the committee, we stand by to provide additional health effects information for the committee upon request to assist you in your decision making if needed.

Thank you.

Committee: Senate Public Health, Welfare and Safety
Hearing Date: Monday, February 14, 2005
Hearing Time: 3:00 pm
Place: Room 317 A
Bill Author: Senator Carol Williams
Contacted by: Senator Williams

Montana Biomonitoring Project

What Is Biomonitoring?

Biomonitoring is the laboratory analysis of blood, urine, serum, saliva, and other body fluids to identify the burden of certain chemicals present in the human body.

Biomonitoring allows us to recognize the populations that are exposed to and potentially affected by chemicals in the environment. When combined with a nationwide system for tracking chronic diseases, biomonitoring can provide the information necessary for public health departments, health care providers, and policymakers to identify and address public health threats. A 1999 study of biomonitoring data provided information for the first National Report on Human Exposure to Environmental Chemicals, published in 2001 by the Centers for Disease Control and Prevention (CDC); the report can be accessed at www.cdc.gov/nceh/dls/report.

Biomonitoring constitutes an important part of the nationwide chronic disease monitoring and tracking network needed by the United States. It confirms that an exposure has occurred and that varying amounts of toxins are present in the human body. This data must be overlaid with current environmental hazard tracking done by Environmental agencies and the clinical tracking of incidence and prevalence of chronic diseases and conditions. Only when all of the information is complete can we systematically identify and analyze the relationships between human exposure to environmental hazards and the incidence and prevalence of certain diseases and conditions in that same population.

Biomonitoring in Montana

Montana received funding in October 2001 as a member of the six state Rocky Mountain Biomonitoring Consortium. This Consortium is funded 100% by federal funds from the Centers for Disease Control and Prevention. The funding has allowed States to assess needs and create a collaborative plan. In Montana the funding supports a project coordinator who along with an epidemiologist have worked with an Advisory Group to develop a list of prioritized environmental risks and potential pilot projects. Other States in the Consortium include; Arizona, New Mexico, Colorado, Utah and Wyoming. All six states share common environmental problems. Funding was renewed in the summer of 2003 and the Consortium will begin collaborative efforts on two demonstration projects. The budget for the consortium is coordinated among the member states.

Lou Olcott is the coordinator for Montana's biomonitoring project, and can be reached at lolcott@mt.gov

To obtain a hard copy of the second year report on biomonitoring, contact Lou Olcott at lolcott@mt.gov or (406) 444-3444.

Rocky Mountain Biomonitoring Consortium



The **Rocky Mountain Biomonitoring Consortium (RMBC)** was formed to apply regional resources to address environmental public health problems in the states of Arizona, Colorado, Montana, New Mexico, Utah, and Wyoming. The goal of the RMBC is to implement and expand a regional laboratory-based biomonitoring program to assess the extent and nature of human exposures to environmental toxicants, including estimates of background exposure to naturally occurring and industrial chemicals that have the potential to cause harm, and to help prevent disease resulting from such exposures. To accomplish this goal, the RMBC has developed **five objectives**: (1) increase regional laboratory capacity to conduct biomonitoring, (2) support and enhance the collaboration between laboratories, epidemiologists, local public health agencies, and other partners within the region, (3) conduct biomonitoring activities, (4) complement and support on-going bioterrorism and chemical terrorism preparedness efforts, and (5) complement and support on-going Environmental Public Health Tracking (EPHT) efforts.

Biomonitoring is particularly pertinent for this region since it is often sparsely represented or not represented at all on national surveys due to its low population density. The RMBC states share common demographic, geophysical and environmental characteristics, and have extensive histories of mining and Federal military operations. The RMBC includes 790 CERCLIS sites and 69 sites on or proposed for the National Priorities List. As a region, the RMBC states have some of the highest levels of arsenic in drinking water in the nation both from naturally occurring deposits as well as anthropogenic activities such as mining/milling and coal-fired power plants. Similarly, the RMBC states face exposure to radionuclides from deposits of uranium creating exposure both from drinking water as well as the mining/milling of uranium. Uranium exposure is of particular interest to Native Americans who constitute a potentially sensitive population due to the high prevalence of diabetes and the potential increased susceptibility to kidney toxicity associated with uranium exposure. Mining/milling, coal-fired power plants and natural

sources have also led to RMBC lakes and streams with elevated levels of heavy metals. Mercury levels are of particular interest due to the potential exposure from the recreational fishing common to the region. Additional exposure issues identified by the RMBC needs assessment include the widespread use and concern over pesticides and volatile organic compounds (VOCs) in groundwater and stack emissions.

In order to accomplish the RMBC objectives, the Consortium will develop regional laboratory capacity by purchasing and distributing equipment, training personnel and implementing the demonstration projects. Surveillance and targeted-study activities are proposed which are designed to test, exercise, and subsequently strengthen the capability of the RMBC to conduct biomonitoring. Immediate testing of the RMBC will occur through methods development, sample processing, and analysis of archived samples from diabetes mellitus patients for arsenic. While the system is being tested with the archived patient samples, plans will be developed for the collection of samples from communities exposed to arsenic. These activities will test the ability to gather, process, disseminate, and analyze samples from multiple sources as well as generate data that will characterize the nature of exposure to arsenic, uranium, and other heavy metals. This includes developing historical exposure data inventories and mapping of biomonitoring, health effects, and historical exposure data. To support the ongoing nature of broad-based biomonitoring, clinics that provide primary health care and stored infant bloodspots will be explored as sources of urine and/or blood samples to be analyzed for environmental substances. These data will provide background exposure levels for substances including potential chemical terrorism agents (e.g. thiodiglycol, organophosphate metabolites) as well as identify geographic or temporally clustered exposures.

Arsenic and heavy metals analyses serve as the initial test of the capabilities and processes of the RMBC. However, analytic methods for other chemicals of concern to the region, including VOCs, cotinine, mercury, radionuclides, and organophosphate pesticides will be developed simultaneously by designated laboratories within the RMBC. By staging the development of these analyses, the logistical issues will have been addressed. As the RMBC lab capacity increases, samples will be submitted and analyzed for targeted exposed populations, epidemiologic studies, as well as routine or baseline biomonitoring surveillance. In addition to the arsenic and baseline studies, the proposed biomonitoring activities include:

- Determine exposure levels of persons living above VOC-contaminated groundwater.
- Determine the prevalence and levels of cotinine in individuals exposed to ETS.
- Examine the levels of mercury in people who consume fish from RMBC lakes.
- Describe the extent and level of exposure to radionuclides in drinking water.

- Provide baseline and targeted-population (i.e. agricultural, occupational, border-area, West Nile Virus) biomonitoring information for the levels of pesticide exposure.

Collaboration is an integral part of the RMBC Implementation Plan. Since the award of the planning grant, all of the states in the RMBC have been working to familiarize our partners with the biomonitoring project and establish a good working relationship with them, including county level public health officers, state agencies (e.g., agriculture, hazardous waste, environmental quality, fish, wildlife and parks), tribal leaders, coalitions, universities, community groups, extension services, occupational health facilities, and local clinics and hospitals. Nearly all of these partners have offered tremendous support and interest in the biomonitoring project. The RMBC will continue to collaborate with the public, public health partners, and complementary state and regional programs to address the problems identified during the needs assessment.

The RMBC Program goals and activities were selected based on their ability to increase ongoing lab capacity in the Region and to address environmental health issues identified during the needs assessments. The success of the program will be measured by the ability to accomplish these goals