APHL Position/Policy Statement

Biomonitoring

A. Statement of Position

To realize public health gains from the initial federal investment in biomonitoring, additional federal funding should be made available to thoroughly integrate analytical testing, exposure assessment and clinical outcomes.

B. Background/Data Supporting Position

The Centers for Disease Control and Prevention’s National Center for Environmental Health (CDC/NCEH) has played an essential role in human biomonitoring. Biomonitoring is defined as the assessment of individual human exposure by measuring environmental chemicals or their metabolites directly in human body fluids/tissues. The seminal biomonitoring data published as the National Reports on Human Exposure to Environmental Chemicals serves as a nationally representative baseline of the U.S. population’s exposure to environmental chemicals. Human exposure to environmental chemicals is greatly influenced by a variety of local or regional environmental factors; yet state-specific exposure data are not available. State-specific biomonitoring studies will play an important role in public health by helping to set research priorities, defining sources and pathways of exposure and designing effective public health interventions.

Environmental public health tracking (EPHT) describes the ongoing collection, integration, analysis, interpretation, and dissemination of data from environmental hazard monitoring, and from human exposure and health effects surveillance. Tracking data are highly effective in terms of promoting environmental health surveillance and the development of policies and plans that address issues of environmental exposure and health effects. Tracking data can best be used in this manner when they are supported by appropriate biomonitoring data.

Biomonitoring provides a unique laboratory-based tool for conducting reliable, hypothesis-driven research. Such research is necessary for obtaining quality data required to both enhance the understanding and increase the ability of public health and medical professionals so that they may begin to accurately identify linkages between environmental exposures and disease. Biomonitoring studies complement environmental data and provide evidence that environmental contamination is present (or not) in the human body. Biomonitoring provides the public health community with internal exposure measurements which, when coupled with environmental data, serve as a reliable rationale for formulating sound policy decisions. By illustration, the twin tools of biomonitoring and environmental public health tracking were essential to developing public health policies to remove lead from paint and gasoline and to remove second-hand smoke from the workplace.

Currently, scant body burden and health effects data are available to populate the EPHT nationwide databases. The relative lack of human biomonitoring data is problematic for several reasons. Without sufficient biomonitoring data, it is virtually impossible to detect, monitor and link environmental
exposures with subsequent health effects due to uncertainty about the amount of a substance actually present within the human body. Similarly, for certain environmental chemicals, the absence of toxic level human exposure data translates into a very limited understanding of the clinical toxicity of substances once they enter the human body. The federal government, through emergency preparedness funding, has already provided state health departments with an initial investment in equipment to detect a wide variety of chemicals and metabolites in clinical specimens. The time is right to leverage this investment by providing supplementary funds to build state human biomonitoring laboratory programs. If supported with sufficient additional resources, the state public health laboratories can provide the fundamental data needed to implement and maintain effective and purposeful tracking programs.

Building state biomonitoring capacity and capability in coordination with EPHT activities fosters vital linkages between healthy environments and healthy people. State biomonitoring programs will lead to increased communication and partnership opportunities between public health laboratory staff and public health epidemiologists and toxicologists, as well as members of the clinical community.

State public health laboratories, environmental epidemiologists and toxicologists must work collaboratively to develop a robust system for human biomonitoring and environmental public health tracking. Recent advances in analytical technology, coupled with infrastructure developed with emergency preparedness funding, provide the foundation for state public health departments to develop the capability for state-specific biomonitoring programs.

At all levels of government, biomonitoring data are used to develop public policy and to evaluate the results of policy changes. To further develop and enhance sufficient capability and capacity for each state public health laboratory to address the unique, and increasingly complex, body burden of environmental toxicants in the U.S. population, the Congress must appropriate sufficient funding to the CDC/NCEH/DLS specifically for this purpose. This funding should then be utilized by CDC, both to expand its own biomonitoring capabilities and to pass sufficient funding on to each state public health laboratory for training, technology transfer, equipment, supplies and staff to develop state-specific biomonitoring programs. This expanded capability would complement and enhance existing EPHT activities or become a foundation for developing state EPHT programs.

C. References


“National Environmental Public Health Tracking Program” Centers for Disease Control and Prevention) http://www.cdc.gov/nceh/tracking/