Biomonitoring

What communities must know

Biomonitoring, the study of chemical burdens in our bodies through the testing of bodily tissues and fluids (blood, urine, breast milk), can be an important community health research tool. It creates a new form of community right-to-know and can bolster organizing campaigns by providing objective evidence of exposure. However, many environmental health researchers and advocates are concerned about potential pitfalls for low-income communities of color. Some of the potential limitations to the promise of biomonitoring may include:

- **Biomonitoring alone may not provide the answers community members are seeking.** Because there are few established relationships between levels of chemicals and health effects, and because health harm may result from cumulative exposures to multiple chemicals, biomonitoring of any particular chemical alone may not give sufficient information to establish links between the environment and a particular illness.
- **Biomonitoring identifies exposures that have already occurred.** For example, many childhood lead poisoning prevention programs rely on testing children's blood to identify children at risk. The problem with this approach is that it is an "after the fact" approach—by the time lead has reached levels of concern in the blood of children, damage may have already been done, and may be irreversible. This approach also essentially casts children as human lead detectors. More "upstream" approaches to lead poisoning prevention are now requiring mitigation of lead hazards in the home environment without relying on blood lead levels.
- **Biomonitoring may ignore the problem of short-term chemical effects.** Certain toxins act as "drive by" chemicals; they enter the body, do extensive damage, and then leave. These chemicals represent a whole class of acute, non-bioaccumulative toxins (such as methyl isocyanate the chemical released in the 1984 Bhopal disaster) that may not be addressed through biomonitoring efforts.
- **Biomonitoring may mislead.** Unclear communication of results may lead to alarm and decision-making that is adverse to health. For example, someone who may benefit from fish in his or her diet may stop eating fish after hearing about the pesticides contaminating fish. Similarly, many biomonitoring efforts focus on breast milk monitoring, because toxins accumulate in breast milk. But despite efforts to reinforce the desirability and superiority of breast milk for infants, concerns raised by perceptions of contamination may discourage breastfeeding.
- **Biomonitoring is expensive.** The costs of biomonitoring can be prohibitively high for many community-based organizations. Furthermore, community groups need significant resources to interpret and apply biomonitoring results.
- **Biomonitoring may focus community attention on a single problem, diverting it from other related social and environment factors that affect health.** Ill health is a product of environments where exposure to toxins occurs alongside other social and economic hazards. The relationships among a range of adverse conditions and human health is best considered comprehensively.
- **Biomonitoring can be used by industry, too.** Industry has long relied on science as a tool to promote their agenda. Some industries, such as the American Chemistry Council (ACC), actually support biomonitoring. As one ACC representative has noted, "We as an industry have totally embraced biomonitoring because it takes all the guessing out of what people are exposed to." In other words, biomonitoring may justify industry claims if little or no exposure, or link to illness, is confirmed through testing.

As with all research, communities should insist on meaningful participation in the process; coordinated documentation of information; legal access to data; training on data interpretation; and public accountability to ensure research leads to meaningful social change. Absent these elements, biomonitoring is subject to serious limitations that result from ignoring the moral and political context in which the research is done. ■

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