Medical Toxicology and Public Health: Update on Research and Activities at the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry

Manish M. Patel, MD, Lieutenant Commander, Joshua G. Schier, MD, Lieutenant Commander^a

^a U.S. Public Health Service; Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention

The following is an update on research and activities that medical toxicologists are actively involved in at the National Center for Environmental Health and the Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) at the Centers for Disease Control and Prevention (CDC). The Journal of Medical Toxicology will periodically highlight some of these activities to illustrate the growing relation between medical toxicology and public health.

Health Studies Branch (NCEH, CDC)

Aflatoxins

Medical toxicologists and epidemiologists in the Health Studies Branch are working with international mycotoxin experts to develop the CDC's short-term and long-term public health strategies to define and mitigate aflatoxin-related morbidity and mortality in developing countries. July 2005, the CDC and World Health Organization (WHO) sponsored a workshop for international, aflatoxin experts in Geneva. Through activities such as the workshop, we have worked with international experts to identify public health strategies to reduce morbidity and mortality associated with the consumption of aflatoxin-contaminated food crops in developing countries. In addition, we created a research agenda that combines public health with agricultural approaches to control aflatoxins. Currently, the team is collaborating with the CDC in Kenya to develop research and surveillance protocols to determine the prevalence of aflatoxin exposure and to evaluate a novel diagnostic test for aflatoxin exposure.

Environmental Mercury Exposure

Scientists from the CDC and the Environmental Protection Agency (EPA) are collaborating to assess the impact of atmospheric

and dietary mercury exposure. People living in areas identified as high exposure and where reduction of atmospheric emissions and mercury depositions is being instituted are part of the CDC and EPA project. The project involves measuring blood mercury concentrations to evaluate the extent of human exposure. Characterizing trends in the biologic burden of methyl mercury with parallel atmospheric reductions is likely to lead to a resource-intensive program that will span a decade. In preparation for such a program, we are proposing a pilot project that will serve three main purposes:

- 1) to determine whether individuals with elevated methyl mercury concentrations are living in areas identified by the EPA as having high mercury emissions and depositions. (Regulatory efforts are being instituted to reduce the high concentrations);
- 2) to assess the feasibility of identifying, recruiting, and enrolling individuals in the project;
- 3) to create a plan that will establish baseline methyl mercury concentrations in a highly exposed population and that will monitor future trends in concentrations in the same geographical areas.

Editor's Note: The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or the Agency for Toxic Substances and Disease Registry.