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MEMORANDUM

To: Interested Individuals
From: Suzanne K. Condon, Associate Commissioner
Director, Bureau of Environmental Health
Subject: Update on Activities Related to Type 1 Diabetes
Date: December 12, 2014

The purpose of this memorandum is to provide an update on Massachusetts Department of Public Health (MDPH)/Bureau of Environmental Health (BEH) activities related to type 1 diabetes in the Commonwealth as well as follow-up to its exploratory investigation of the prevalence of type 1 diabetes among children and adolescents in Weston, Wellesley, and Newton.

MDPH/BEH continues to conduct statewide surveillance of diabetes among children in grades kindergarten through grade 8. This work is partially funded through a cooperative agreement with the federal Centers for Disease Control and Prevention's Environmental Public Health Tracking (EPHT) Program. Currently, data are available for the years 2008 through 2012 for schools across the Commonwealth. Participation rates have been near 100% (approximately 2,100 schools) since collection of diabetes data started in the 2008-2009 school year. These data are available to the public on the state's EPHT website at: <https://matracking.ehs.state.ma.us/>.

With regard to the investigation of type 1 diabetes and environmental factors in Weston, Wellesley, and Newton, following MDPH/BEH's release of their report entitled *Review of the Prevalence of Type 1 Diabetes among Children and Adolescents in Weston, Wellesley, and Newton* in February 2012 work has focused on extensive review of environmental data. [Note: The report along with a fact sheet summarizing the findings is available on the MDPH website at: <http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/investigations/diabetes-surveillance-in-weston-wellesley-newton.html>.] That report highlighted certain areas of interest based on the distribution of where children and adolescents with type 1 diabetes reside.

While family history appeared to contribute in part to the pattern of type 1 diabetes in the areas of interest, MDPH/BEH is also conducting follow-up work to address specific resident concerns. MDPH/BEH has completed its review and abstraction of files available on properties and sites of environmental contamination within the three census tracts in Weston and Wellesley that are the

focus of the follow-up work. These files are maintained by the Massachusetts Department of Environmental Protection (MassDEP) in its Northeast Regional Office in Wilmington. Since the file reviews were conducted in Wilmington, MDPH/BEH has updated its list of disposal sites and reviewed online MassDEP files for additional spills or releases. We have conducted detailed review of residential history information with respect to time of diagnosis, to allow comparison of residence prior to or at diagnosis to the location of MassDEP-regulated sites. For an environmental exposure to contribute to the development of disease, exposure would have to occur prior to diagnosis. MDPH/BEH has also evaluated the location of schools attended by children diagnosed with type 1 diabetes to determine the potential for exposure(s) prior to diagnosis; MassDEP files have been searched and reviewed for these schools. The source of drinking water for the children diagnosed with type 1 diabetes has also been researched, to identify those served by a municipal water supply versus a private well. In addition, MDPH/BEH staff conducted perimeter surveys of selected properties and sites, to assess the likelihood of exposure to site-related contamination. The next step for MDPH/BEH is to complete its interpretation of the abstracted information and data and summarize this information in a report. MDPH/BEH will issue another update in late spring/early summer of 2015.

As part of this follow-up work, MDPH/BEH continues to review the most recent epidemiological literature on the role of environmental chemicals in the development of type 1 diabetes. A workshop convened by the National Toxicology Program (NTP) in 2011 concluded that research on environmental chemical exposures and type 1 diabetes is very limited. Scientists who participated in the workshop identified this as a critical data gap and recommended more research in this area. Since the 2011 workshop, NTP has begun testing chemicals using EPA's ToxCast automated chemical screening technologies and methods, evaluating chemical exposures on relevant biological endpoints such as islet cell function and insulin sensitivity. The results of this research have not yet been published. The observational TEDDY (The Environmental Determinants of Diabetes in the Young) study is also ongoing and has yet to publish its results.