INTRODUCTION
The environmental public health tracking initiative is working to build capacity to track environmental factors and environmentally mediated disease. The ultimate goal is to use such information to reduce risks and disease. Birth defects have been identified by the western states affiliated with the Berkeley Center for Environmental Public Health Tracking and by the Centers for Disease Control and Prevention (CDC) as an outcome of interest for environmental public health tracking. In response, the Berkeley Center has prepared a report intended to provide information about birth defects and about birth defects data that is relevant to this initiative and to other projects seeking to better understand birth defects, environmental factors that may contribute to them, and how to reduce them.

OBJECTIVES
The goals of this report were to:

1. Review and summarize the current status of birth defects surveillance in the United States including the range of outcomes included and data sources and methods applied to estimating the burden on the population; and,
2. Characterize the current surveillance, vital statistics, administrative, and survey data potentially applicable to environmental public health tracking efforts.

Table A outlines the major sections of the report “Birth Defects Data Availability & Other Factors Relevant to Environmental Public Health Tracking.” This document focuses on the birth defects traditionally monitored by surveillance systems, which are the physical malformations and a limited number of chromosomal abnormalities. These birth defects are often considered “major” congenital conditions that require medical or surgical intervention, with a serious adverse impact on the child’s health, development or cosmetic appearance. However, discussion of the approaches and limitations in these various birth defect surveillance systems may be applicable to the characterization of other adverse developmental, neurodevelopmental, sensory or metabolic-related birth outcomes.

METHODS
Data and other information summarized from the peer-reviewed literature, published governmental reports, non-governmental organizations, and data generating agencies.

RESULTS
Several issues in birth defects monitoring may influence its application to EPHT and require sufficient understanding before applying and interpreting such outcomes in regards to their potential environmentally mediated determinants. A few examples of multiple issues discussed in greater detail include:

1. The completeness and accuracy of birth defects reporting for specific defects by surveillance method influence the selection of defect types to track or link with exposure data.
2. The relative completeness of individual data items varies substantially by data source and thereby between surveillance programs.
3. The availability and utilization of prenatal diagnosis and elective termination vary among populations, across geographic regions and over time, influencing the relative reporting of several defects.
4. The etiologically heterogeneous nature of birth defects influences the degree to which birth defects should be grouped; although the relatively small numbers of specific individual defects limits the analytical power to investigate potential environmental associations.
5. The availability of the legislative authority allowing reporting, the extent of data, and the linkage and dissemination of data within and between state databases varies the accessible level of the identifier, the geographic unit, and the population at risk.

Table B-D summarize the characteristics of the general types of data sources available for birth defects surveillance and the potential positive/negative influence of EPHT-related analyses.

Unfortunately to date, the selection of any such subset of birth defects may be limited or monitored on the technical and financial surveillance considerations, than on biological plausibility or environmental appropriateness.

State programs considering birth defects as a tracking outcome must understand the characteristics of their current data that will influence its use (e.g. data completeness by defect type, baseline rates, time trends, county or smaller geographic area level assessments, cluster investigations, population-based research), as well as, the additional technical, financial, and legislative implications to expand identified data elements for utility in future specific EPHT goals. Potential next steps should include a candid discussion between the data providers, including formal birth defect surveillance programs, subject matter experts, and tracking programs to identify/prioritize the specific birth defects most applicable to EPHT with the currently available data and any future, ideal data requirements.

The Environmental Public Health Tracking Initiative is Working to Build Capacity to Track Environmental Factors and Environmentally Mediated Disease.

Tables E and F illustrate examples of both the current wide variation in prevalence of major birth defects by geography (state), ascertainment method (within active surveillance programs) and case definition (inclusion by birth outcome/gestational age).