

# Utah uses GIS to map immunization registry data

**CHAPTER:** Decision support for allocating resources

**ORGANIZATION:** Utah Department of Health

**LOCATION:** Salt Lake City, Utah

**CONTACT:** Sandra Schulthies, data-operations manager for Utah Statewide Immunization Information System  
sandys1@utah.gov  
Yukiko Yoneoka, data-quality analyst for Utah Statewide Immunization Information System

**PROJECT:** Immunization assessment

**SOFTWARE:** ArcGIS

**ROI:** Increased efficiency, accuracy, and productivity; more efficient allocation of resources; improved access to information

*By Sandra Schulthies and Yukiko Yoneoka*

The Utah Statewide Immunization Information System (USIIS) at the Utah Department of Health is an immunization registry that stores and consolidates immunization records for residents of Utah. USIIS receives data from a variety of sources, including local health departments, private health-care providers, and community health centers. Data is submitted by ASCII flat files through a Web application. As of December 1, 2005, it was estimated that 34 percent of private providers, 100 percent of local health departments, and 58 percent of community health centers were submitting patient and immunization data. Authorized users can access USIIS to ensure adequate patient immunization.

The National Immunization Survey (NIS), a yearly assessment of immunization rates for children age 19 months to 35 months old conducted by the Centers for Disease Control and Prevention (CDC), showed that immunization rates in Utah declined significantly from 2003 to 2004. According to the report, in 2003, the up-to-date immunization rate for Utah children getting four doses of diphtheria, tetanus and pertussis (DTP) vaccine; three doses of polio vaccine; one dose of measles, mumps, and rubella (MMR) vaccine; three doses of hemophilus influenza Type B (Hib) vaccine; and three doses of hepatitis B (HepB) vaccine, was 80.4 percent. In 2004, Utah's immunization rate was reported to be 75.4 percent, showing a 5 percent decrease in the state's immunization rate.

The USIIS program developed a strategy to identify where the lowest immunization rates are in Utah by using the immunization registry, ArcGIS ArcView software, and digital maps provided by the Utah Automated Geographic Reference Center. The analyses were conducted for each of the twelve local health districts. Identifying the areas of lowest immunization rates in Utah helped determine where to focus efforts for increasing the number of adequately immunized children.

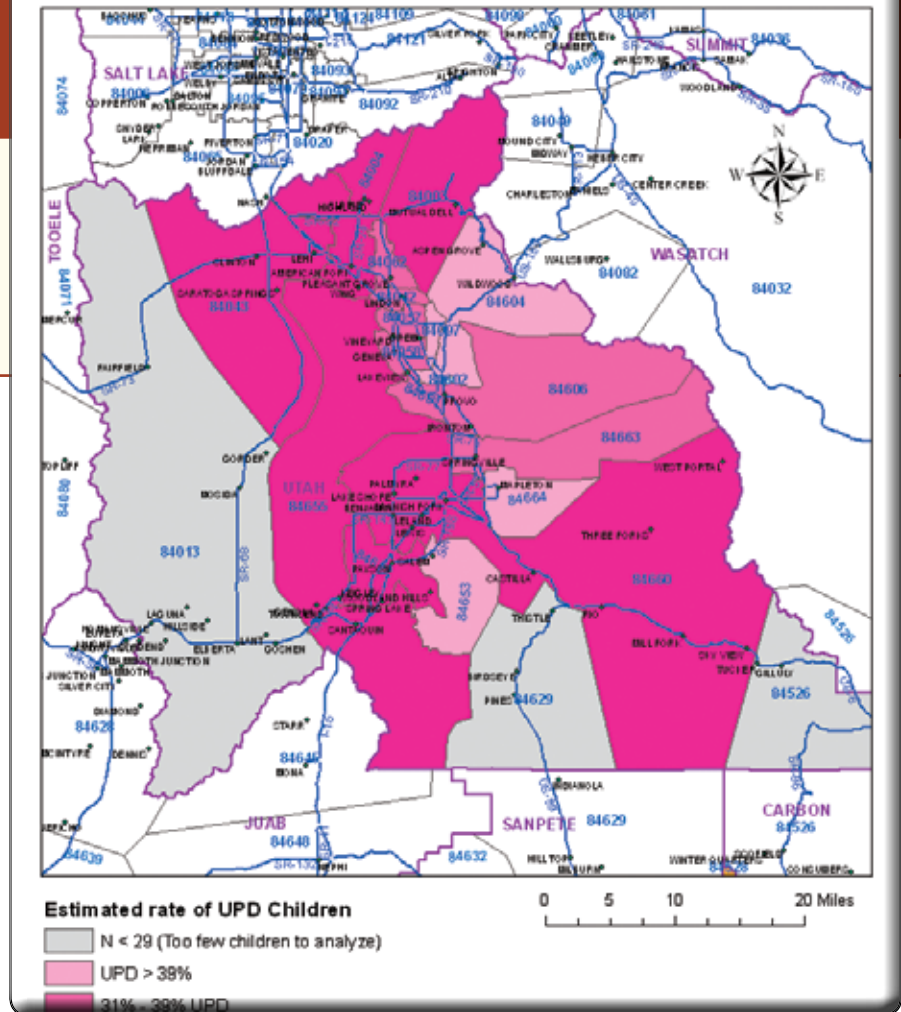
Children age 19 months to 35 months old as of December 31, 2004, were selected from the USIIS database. They were divided into two groups: those





**Estimated Rate of Utah County Children in USIIS  
Up-to-Date with 3 DTP-3 Polio-3 Hib-3 HepB  
Age 19-35 Months as of December 31, 2004 by ZIP Code**

**Figure 5.14** Map shows by ZIP Code how Utah County's toddlers suffer the lowest immunization rates in the state.



**References**

Morbidity and Mortality Weekly Report (U.S. CDC), July 30, 2004/53(29); 658-661, National, State, and Urban Area Vaccination Coverage Among Children Aged 19-35 Months. United States, 2003.

Morbidity and Mortality Weekly Report, July 29, 2005/54(29); 717-721, National, State, and Urban Area Vaccination Coverage Among Children Aged 19-35 Months. United States, 2004.