Highlighting Childhood Immunization Disparities using Probabilistic Matching and Demographic Data

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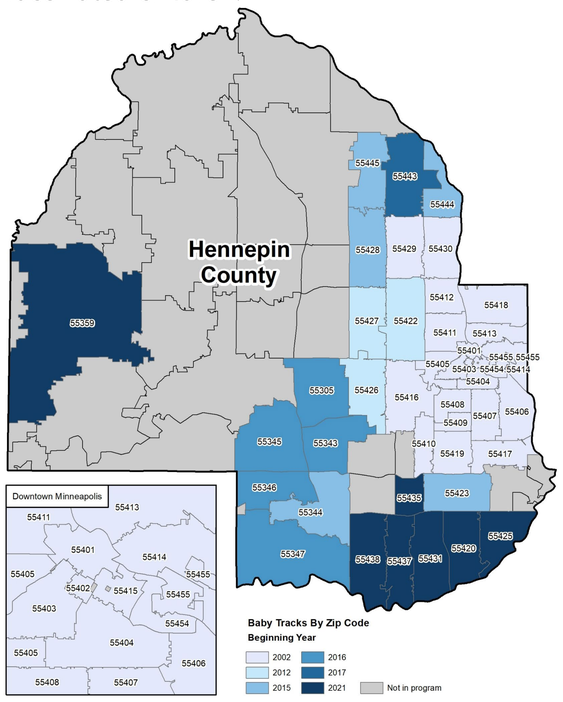
Background

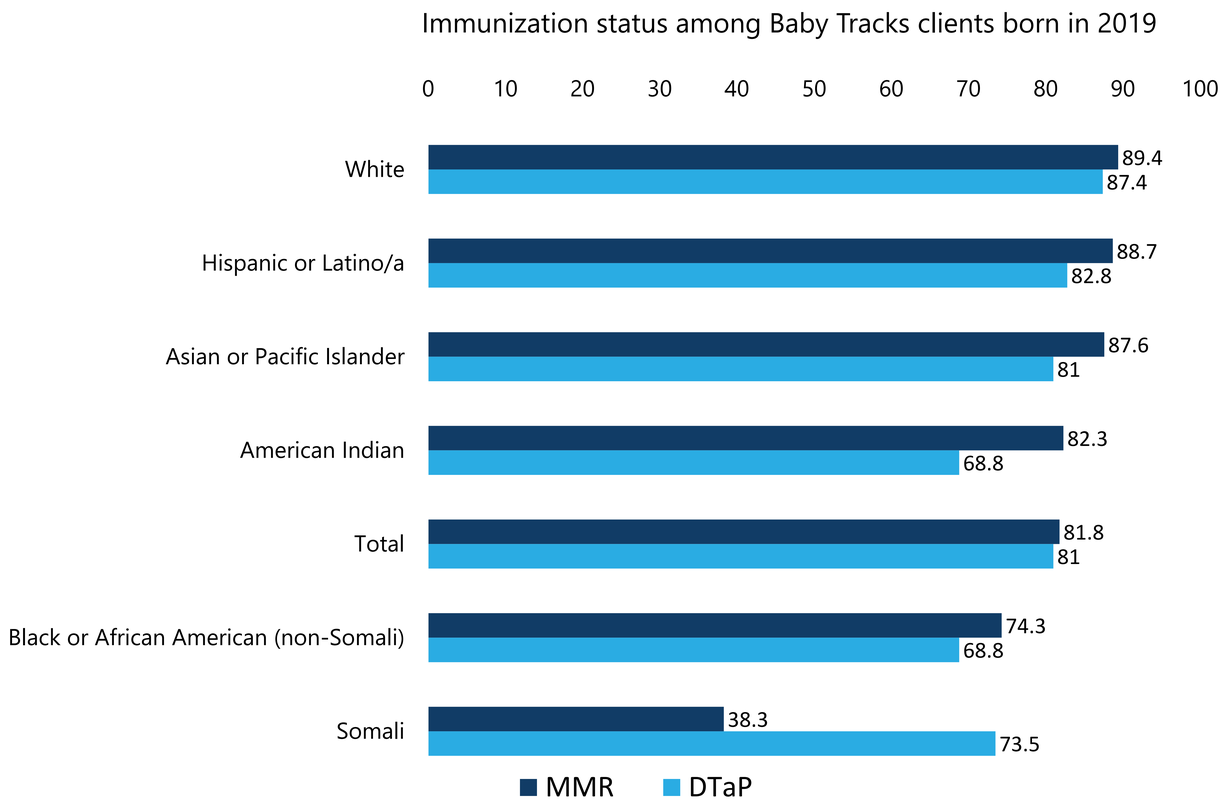
Hennepin County Public Health's (HCPH's) Baby Tracks program helps parents keep their babies up-to-date on vaccinations. Staff provide targeted case management to families whose children are overdue for vaccinations. It serves targeted zip codes that have historically had lower immunization rates and higher social vulnerability.

Vaccine misinformation has increased vaccine hesitancy among parents, particularly around the MMR (Measles, Mumps, and Rubella) vaccine, which led to measles outbreaks in Hennepin County in 2017 and 2022 among unvaccinated children.



Research Question

How does vaccination status vary by racial and ethnic identity among babies served by the Baby Tracks program?



Conclusions

- There are dramatic disparities unique to MMR vaccination status.
- Cross-sector record linkage is a valuable tool for generating otherwise unavailable insights.
- Data on disparities will inform HCPH's efforts to address vaccine hesitancy in its community.

Matching Methods

The Baby Tracks program does not track detailed vaccination or demographic data. This information was important for policy-relevant analysis, especially because the Somali community in Hennepin County has been disproportionately impacted by measles outbreaks.

- Matched Baby Tracks records to birth records with demographic information and to vaccinations from Minnesota Immunization Information Connection (MIIC) database
- Used the RecordLinkage R package
- Matched on first and last name, plus date of birth
- The team manually reviewed borderline matches

Analysis

The team calculated rates that babies born in 2019 were up-to-date on:

- MMR
- DTaP (Diphtheria, Tetanus, and Pertussis)