Vaccines and Herd Immunity: Protecting Children

SDSU Hackathon: Team CS 101

Problem

The anti-vaccination movement has created a hesitance for parents to give their children the proper services to get vaccinated.

Children with compromised immune systems (i.e. leukemia) cannot be vaccinated and rely on herd immunity in their local childcare centers and elementary schools.

Outbreaks can be fatal, especially to those who have not received proper treatment.

Questions

What is the necessary herd immunity rate to ensure a safe childhood place?

How can analyze public health data and provide some recommendations for intervention and policy changes?

Collecting Data

Our program is meant to offer geographic tools in order for parents to determine if a school/child-care center offers enough vaccination protection for their child.

Ex: In 2010, 97 of 815 schools were recorded to be below 90% vaccinated, a determined minimum threshold for schools to be "herd immune"

Data from 2010 to 2016 will be mapped/correlated:

- School's location & Facility Name, City/County
- number of kids in school, percentage of vaccinations
- prevalence of disease in relative timespan
- % of infections per capita

% Of enrolled Vaccinated

Child Care Ctr
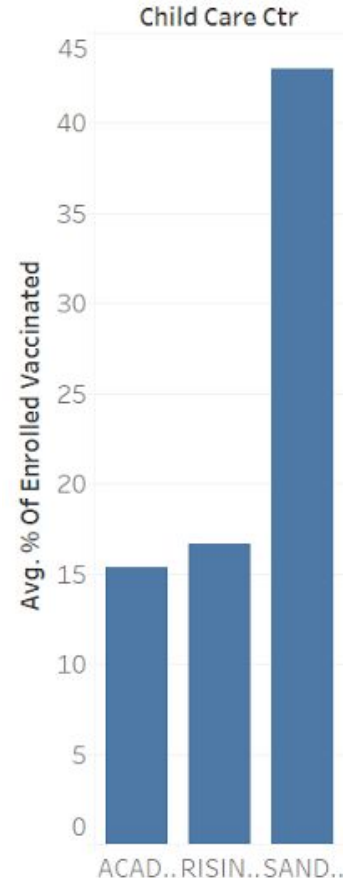
Goals

Expose any trends that show low vaccination rates among certain areas/demographics.

Provide solutions for parents to relocate to a more suitable neighborhood or litigate against their local school board or pressure local senators/representatives for policy changes.

Technology has room for expansion beyond San Diego County and California.