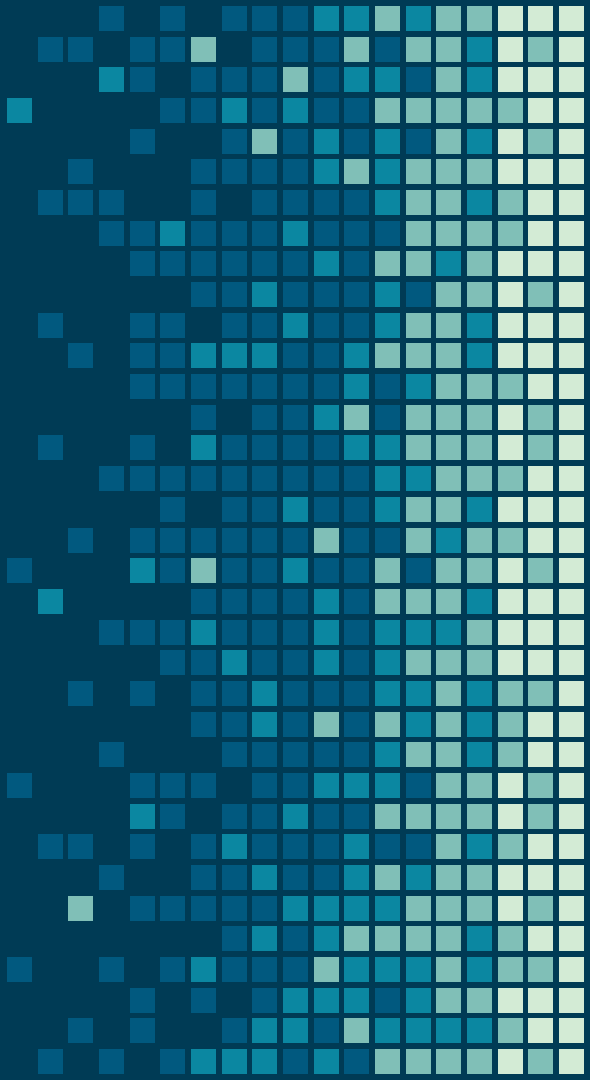
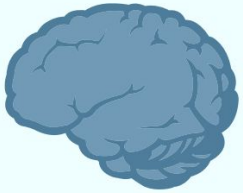
MEASLES AND THE EFFECT OF IMMUNIZATION

ROB MURRAY-RUST
OCTOBER 2018

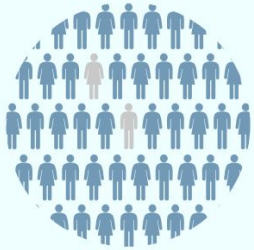


RISKS DUE TO CONTRACTION

About 1 out of 4 people who get measles will be hospitalized.

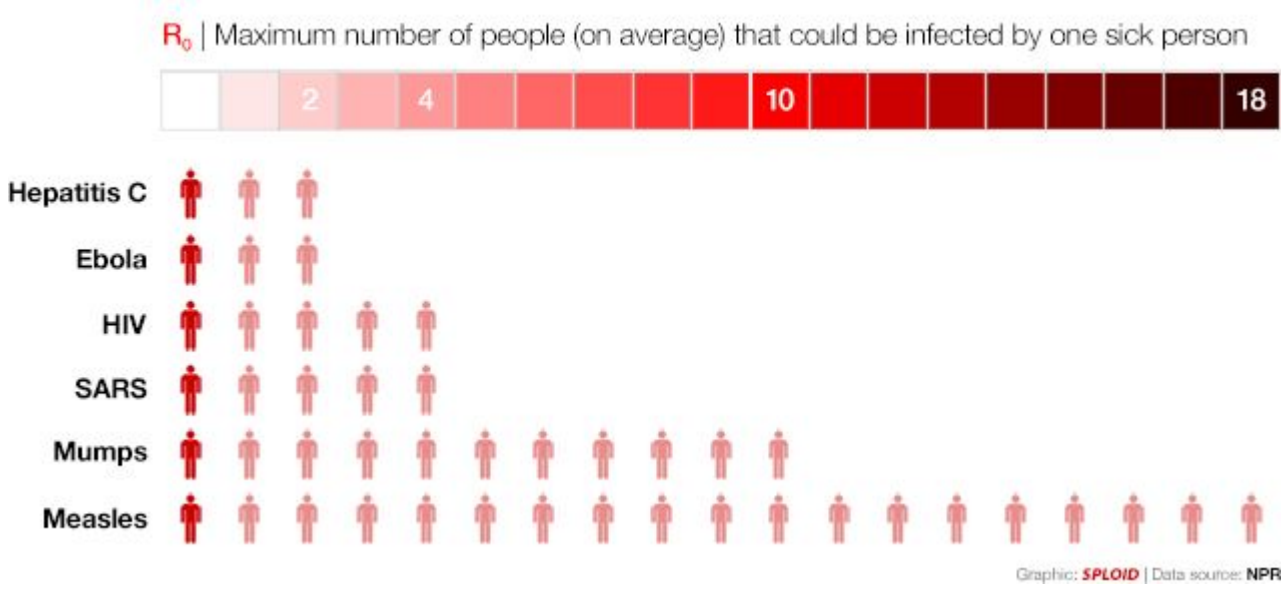


1 out of every 1,000 people with measles will develop brain swelling due to infection (encephalitis), which may lead to brain damage.

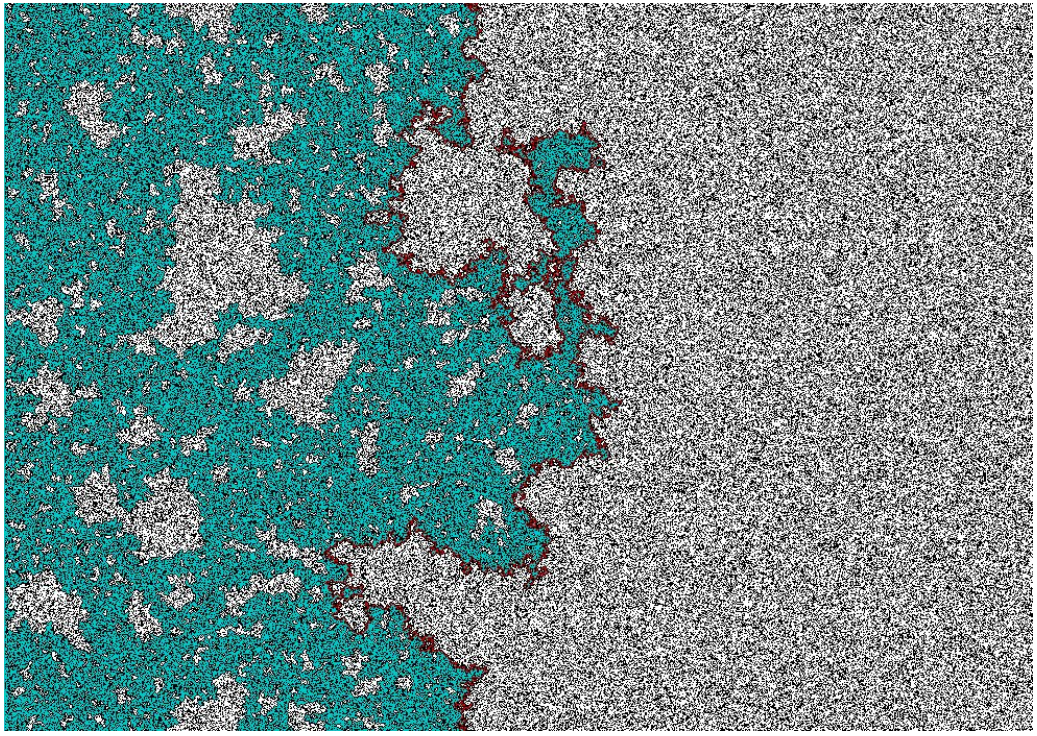


1 or 2 out of 1,000 people with measles will die, even with the best care.

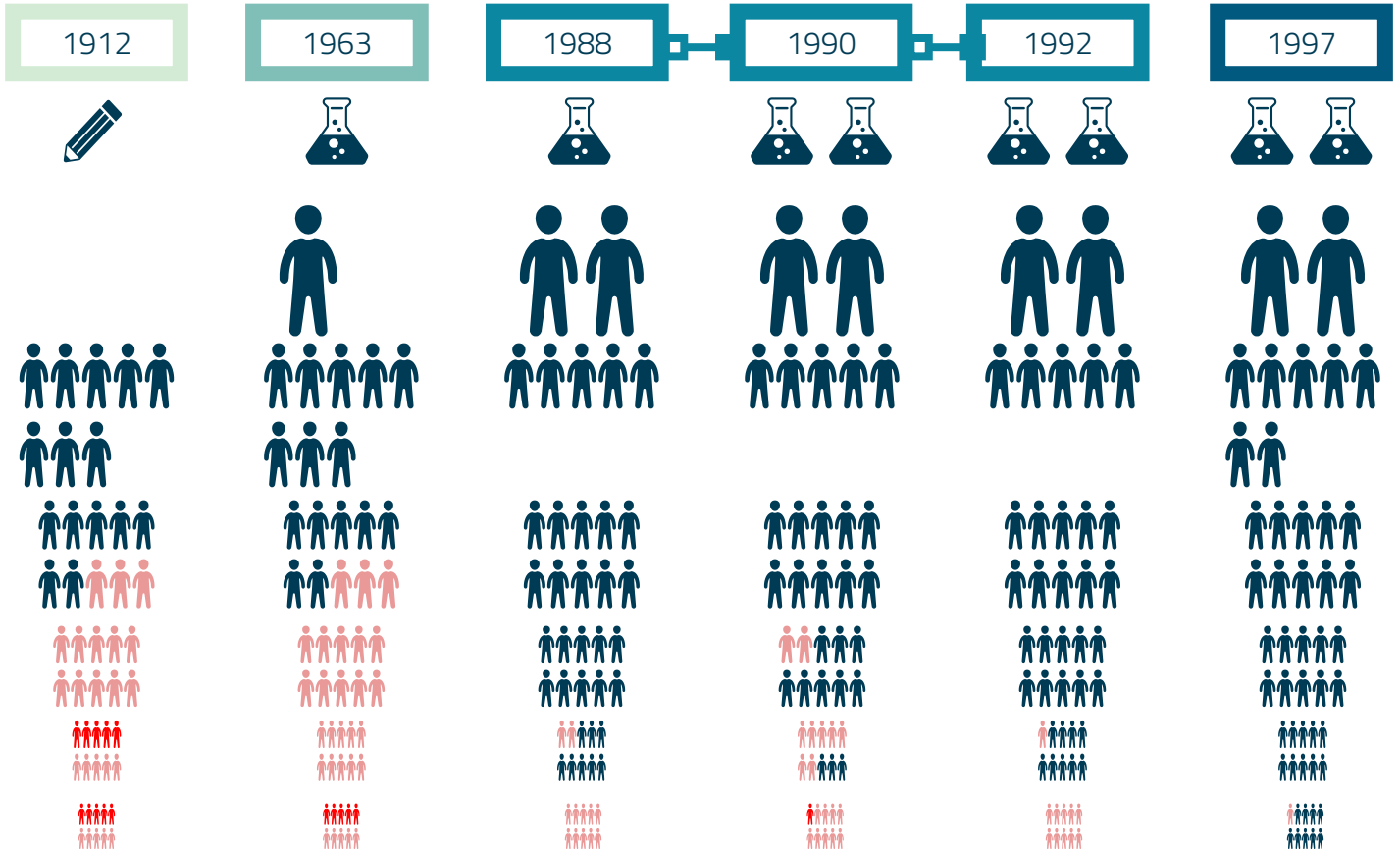
COMPARATIVE INFECTION RATES



PERCOLATION MODEL

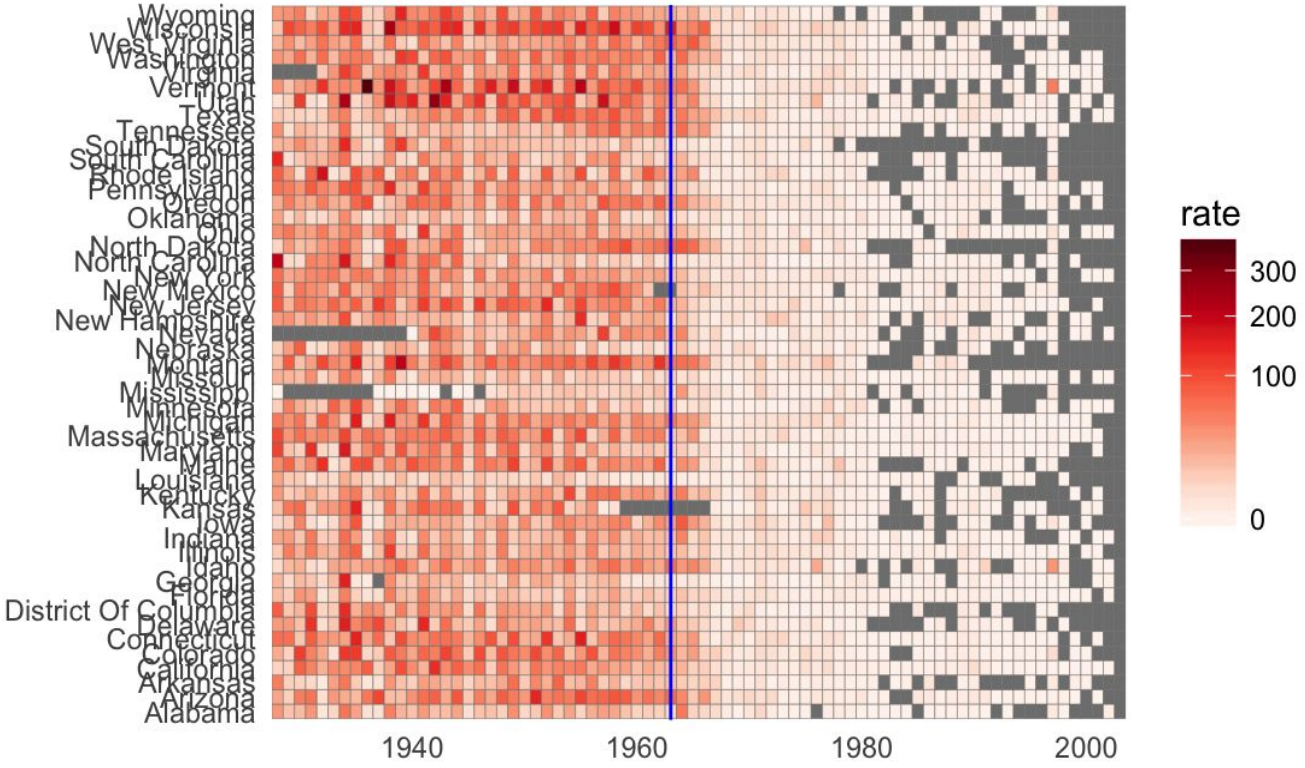


YEARLY US POPULATION/CASES/DEATHS

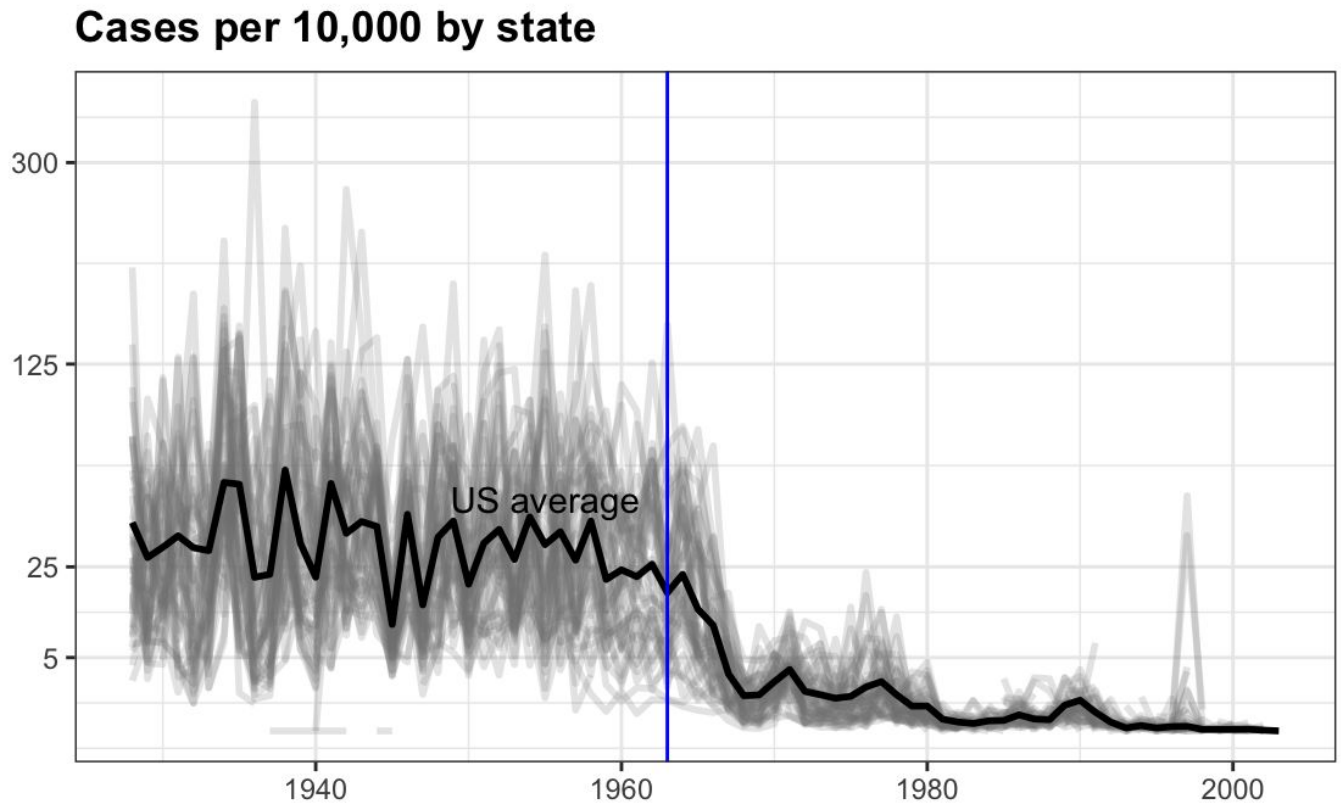


MEASLES INFECTION RATE

1928-2011, CASES PER 10,000



STATE VACCINATION RATES



RECENT MISINFORMATION

1998

U.K. doctor Andrew Wakefield publishes a study in The Lancet suggesting that the measles, mumps, and rubella (MMR) vaccine could trigger autism.

2004

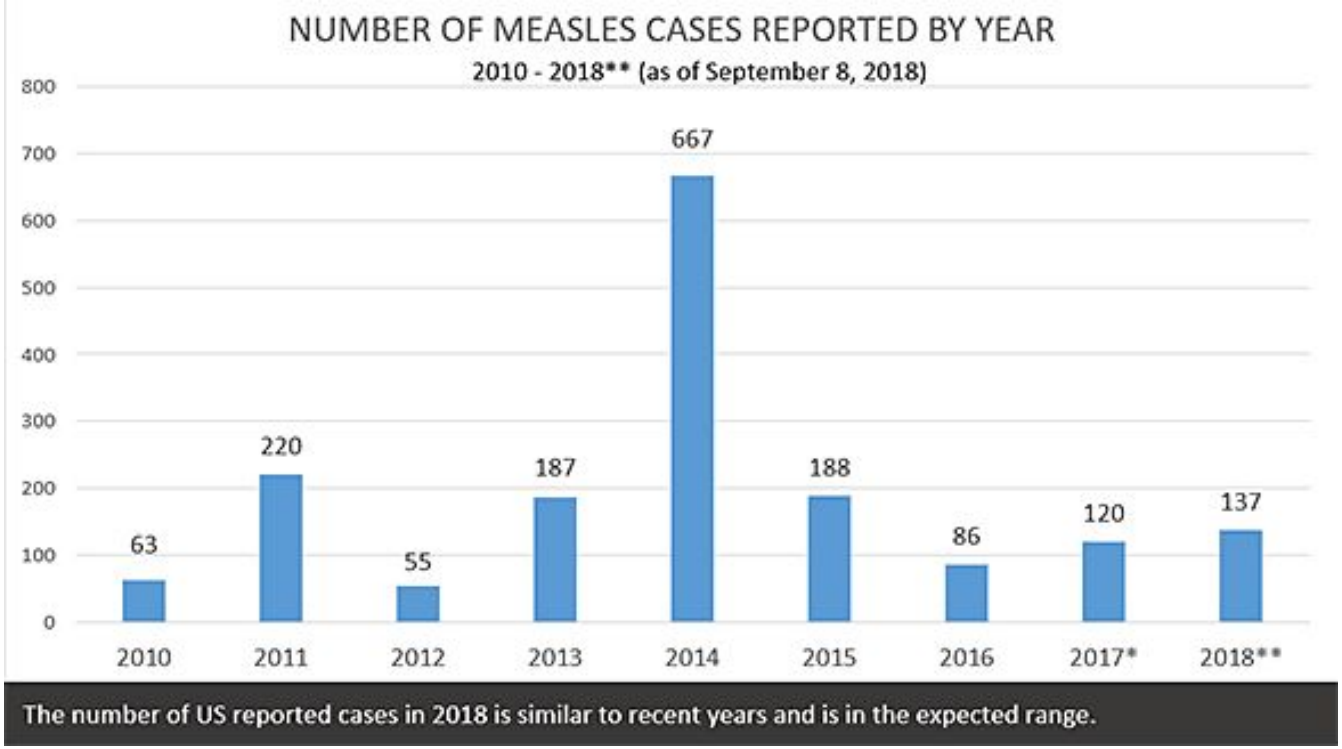
Journalist Brian Deer reports undisclosed conflicts of interest: Wakefield had applied for a patent on his own measles vaccine and had received money from a lawyer trying to sue companies making the MMR vaccine.

2010

The Lancet retracts the study.

Shortly after, the United Kingdom's General Medical Council permanently pulls Wakefield's medical license.

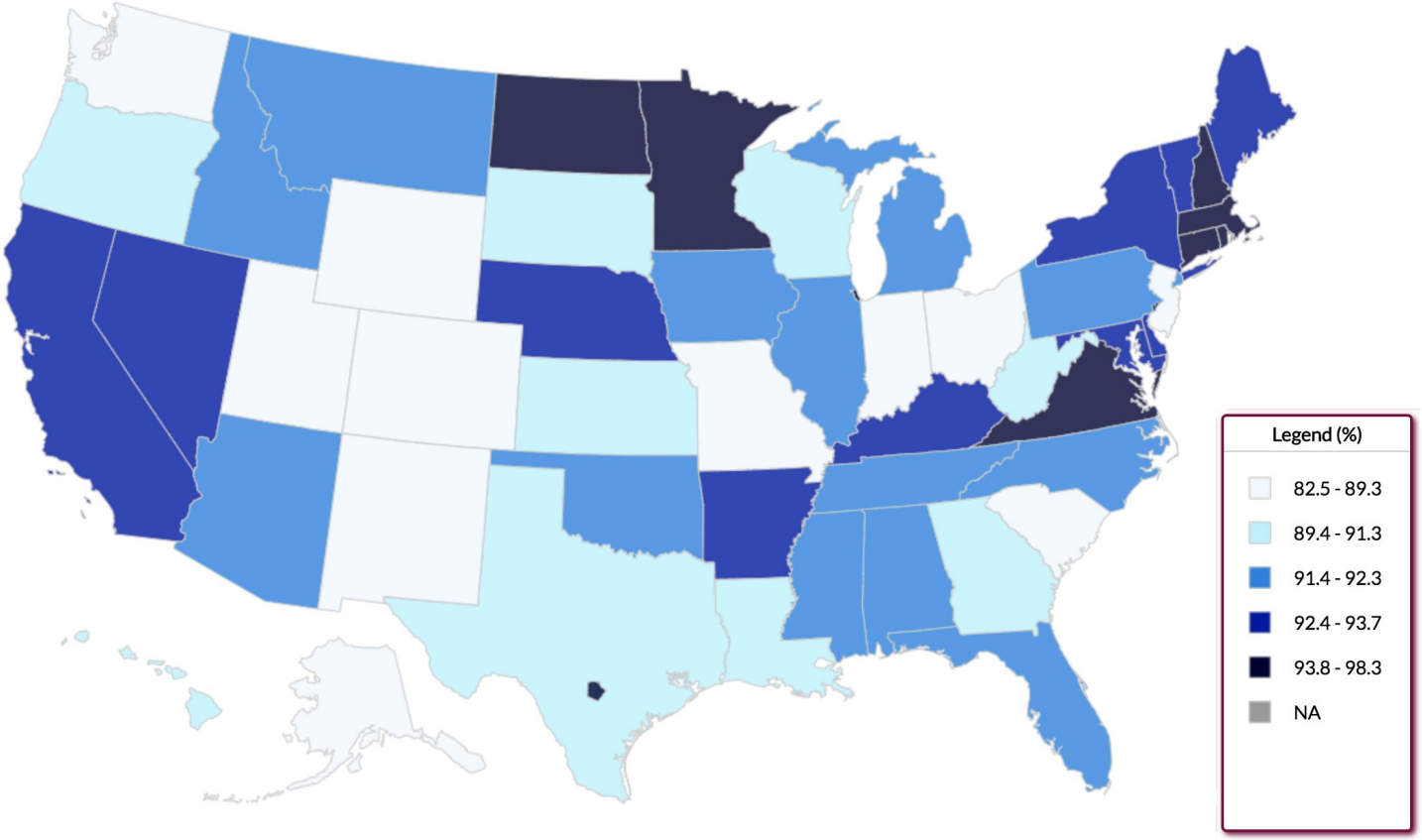
RECENT TRENDS



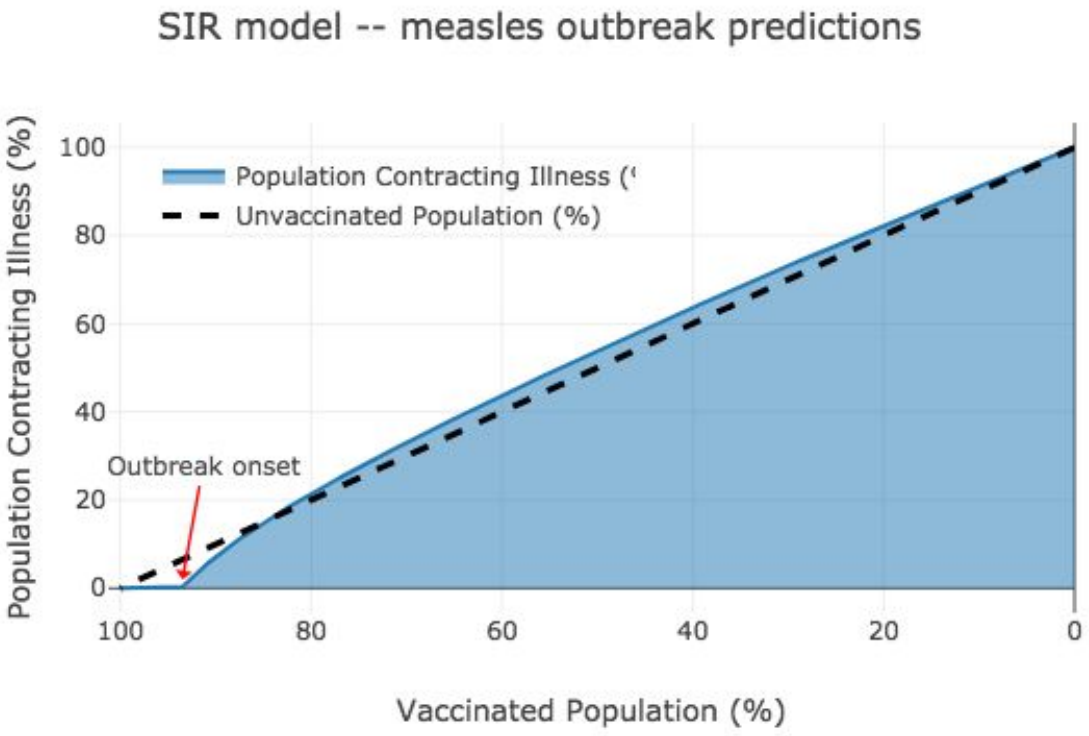
The number of US reported cases in 2018 is similar to recent years and is in the expected range.

STATE VACCINATION RATES

1+ DOSE MMR, AGE 19-35 MONTHS, 2017



CONTRACTION RATES



CREDITS

Presentation template by SlidesCarnival

https://rafalab.github.io/dsbook/case-study-the-impact-of-vaccines-on-battling-infectious-diseases.html

Historical US Infection Rates by State graphic x2

http://efavdb.com/vaccination-rates/

Vaccination contraction rate graphic

https://www.coursera.org/lecture/model-thinking/percolation-models-GiJJw

Inspiration

https://gizmodo.com/ebola-spreading-rate-compared-to-other-diseases-visuali-1642364575

R0 infection rate graphic

https://en.wikipedia.org/wiki/Percolation_theory

Percolation graphic