



Project 3 - Relationship between Federal Funding for PREP and Chlamydia Cases in US

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Intro/Objective



Chlamydia is the most common STI in US

Federal government spends \$75 million every year on PREP (Obama reforms)

STIs caused \$16 billion in costs per year

Project Statement: Can more federal funding for preventative STI measures reduce the percentage of population infected with chlamydia?

Who it matters to? Government, Healthcare Officials, College Admin, Pharma





Methodology (SIM Model & Line of Best Fit)

Kermack-McKendrick SIR Model

$\gamma \& \theta = 1/7$

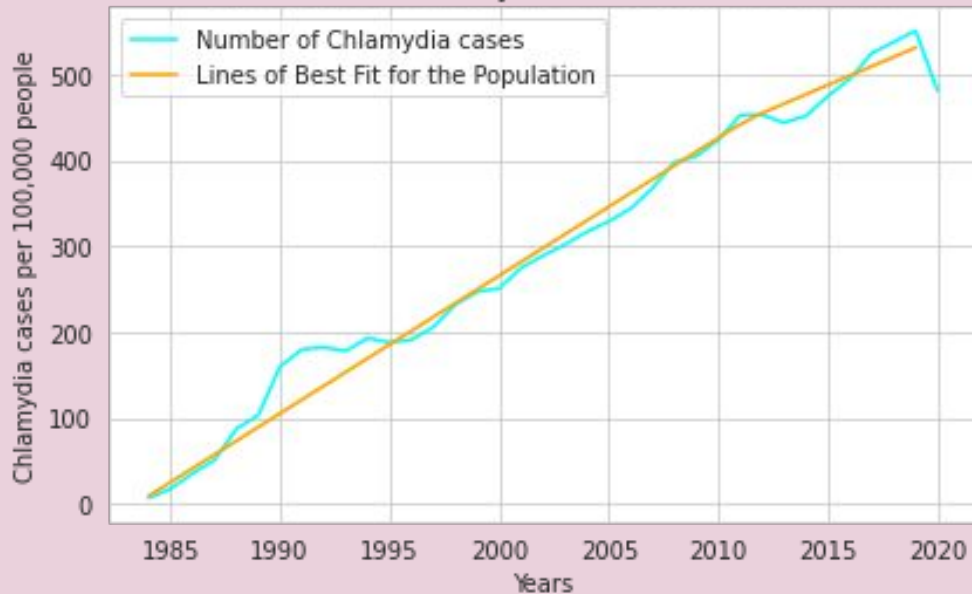
sweep series for β

$S=310, I=6, M=0.1$

Metric = max infected population



The Growth of Chlamydia Cases from 1984-2019





Methodology (Sweep Series & Intervention)

Beta chosen = $1/3$

Funding = intervention

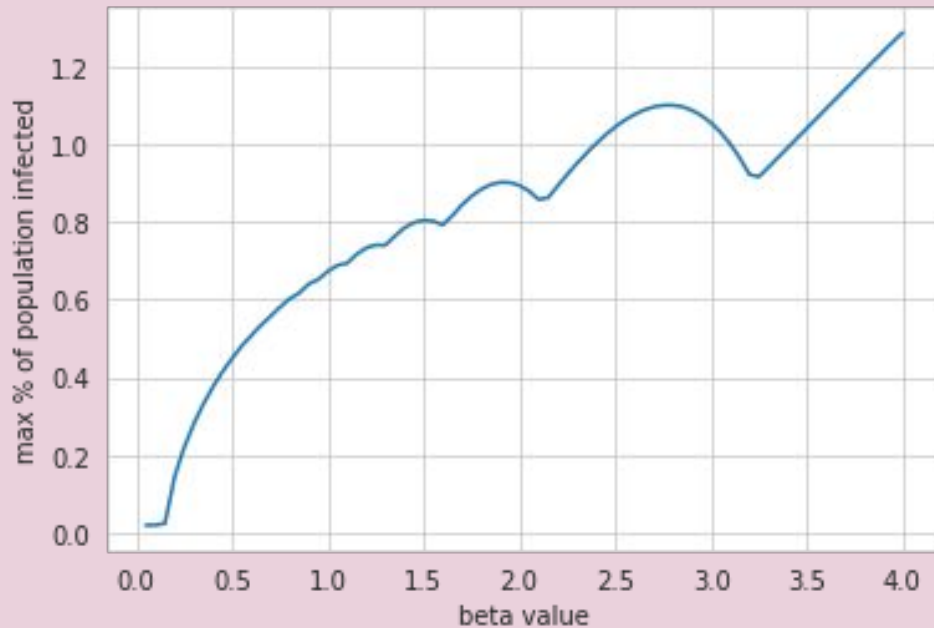
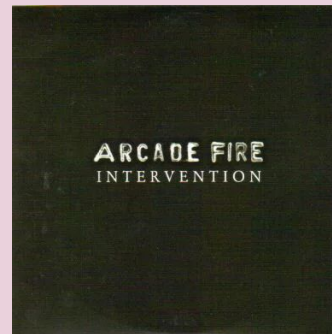
Intervention = change in beta

No funding = beta is $1/2$

Each increment of funding (\$25 mil)

= Plus 1 in beta's denominator

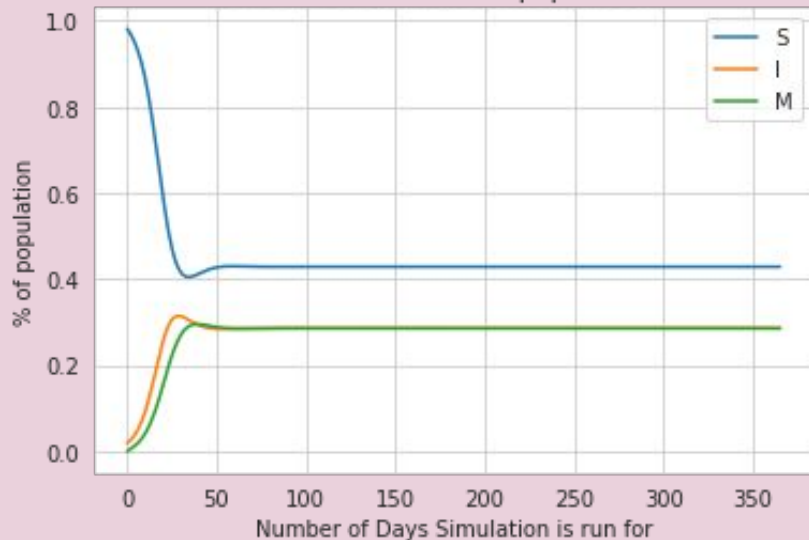
= $1/4$, $1/5$, $1/6$, $1/7$



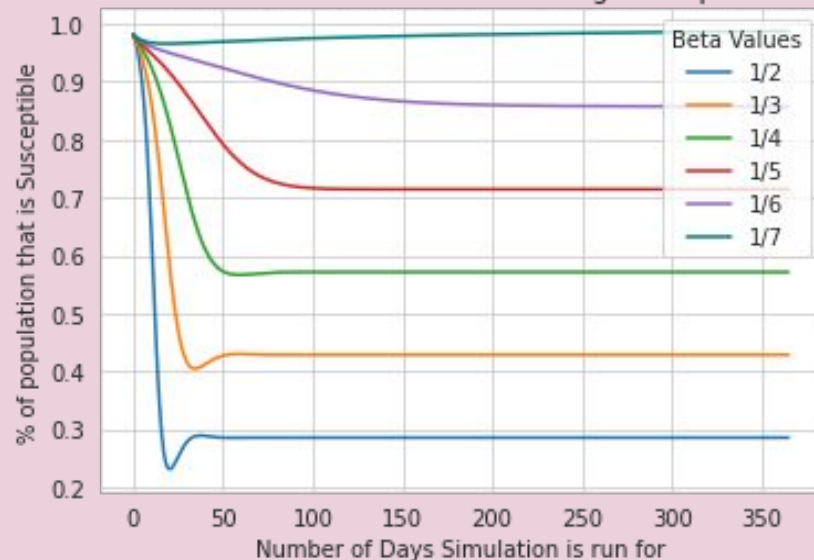


Results

SIM Model with initial populations



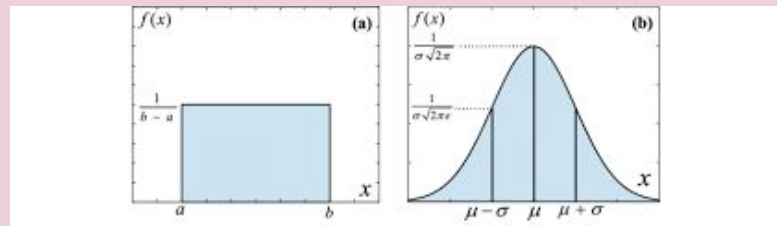
Effect on Different Interventions on Percentage of Population Infected



More federal funding led to fewer people being infected, proportionally.



Analysis



Chlamydia rates were assumed to be distributed equally

Does not take into account reckless human behavior.

The medicated rates is a guess due to the lack of available information.

It was assumed $\frac{1}{3}$ of PREP's budget goes towards STI prevention & people who are infected get medicated within 7 days

Model is robust as it tested different interventions.



Conclusion

Future research:

- Varying the other two parameters over a range
- Running the simulation over different populations (local, state, colleges)
- Using a different intervention:
 - STI clinics /100,000 people
 - Advertising over radio, tv, mail emails, social media, and using search engine marketing





Thank you for lending us your eyes & ears! Work Cited & Pictures

