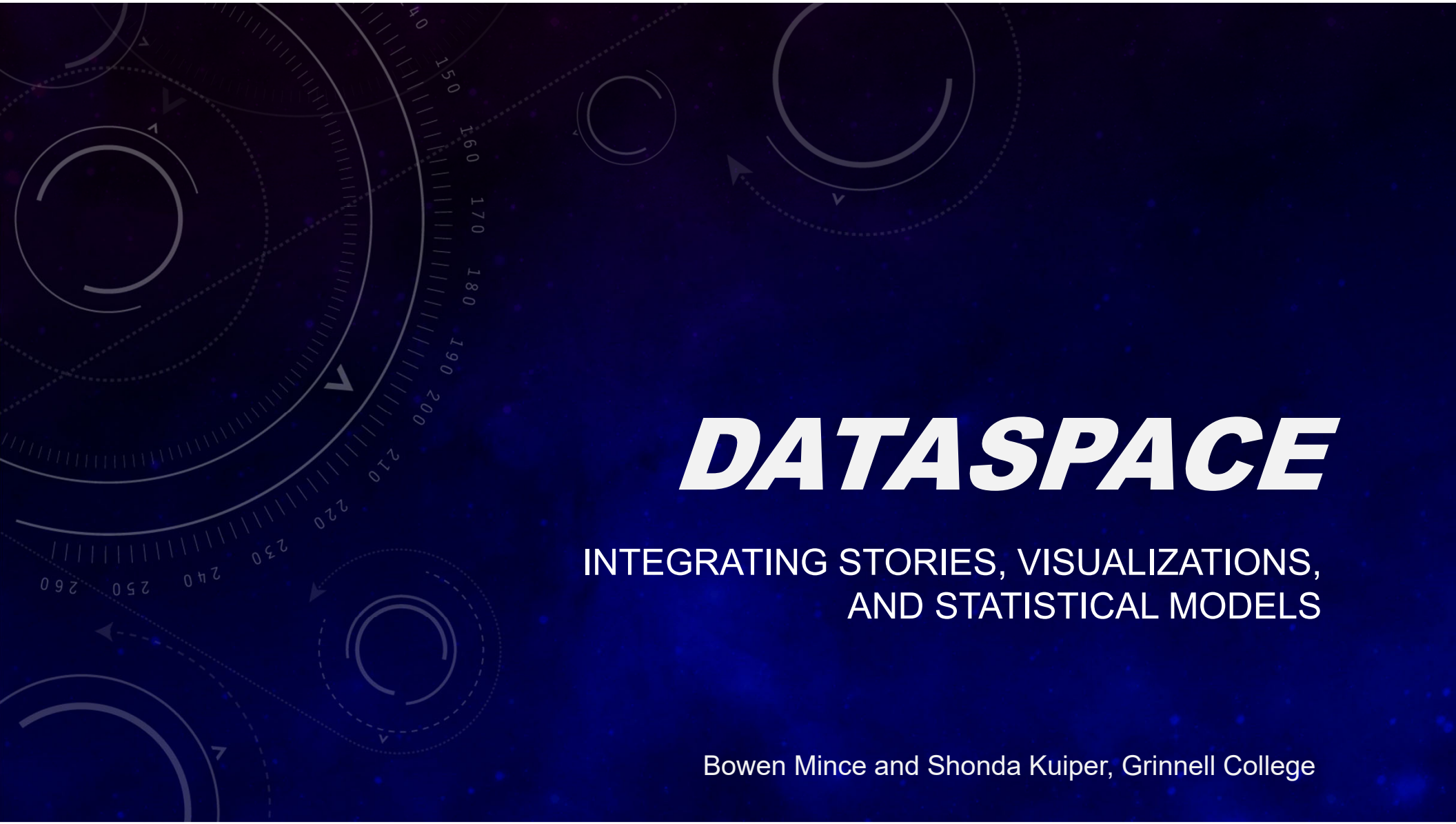


Bowen Mince and Shonda Kuiper, Grinnell College

DataSpace Goals

- Incorporating data journalism into courses in order to provide project-based materials that emphasize real-world applications and conceptual understanding.

- Create materials that are designed to ease the workload of faculty while still incorporating research-like experiences into their own classes.

DataSpace Structure

- **Introductory Article:** We will start with an easy-to-read article
- **Interactive Apps to Investigate Claims**: Throughout the online article, we will provide interactive data visualizations, data tables and/or statistical models to explore claims made in the article.
- **Additional Questions to Investigate**: We will provide additional lists of questions for readers to explore by modifying each of the data visualizations, data tables or models.

Example 1: NYPD Stop and Arrest Data

Data Space
Dec 16, 2020

Stories | About Us | Applications | Datasets | Resources

Exploring Racial Disparities in New York City's Stop-and-Frisk Policies

By Shonda Kuiper and Yusen He
Topics: Data Visualizations, Bias, Multivariate Data

Many individual cases have been found to show evidence of discrimination by police officers. However, showing evidence of systematic patterns (e.g. clear evidence of bias across an entire city) is more difficult. It is essential to consider the type of data available, how the data was collected, and how the data was organized. In this example, we use several New York City crime and education datasets to describe how easy it is to draw incorrect conclusions from these types of data. The emphasis is not on conducting a single statistical test that provides one undisputable answer. Instead, exploratory data analysis, visualization and modeling are used to make decisions with complex and messy data.

NYPD Resources

- Related Stories
- Datasets
- Apps
- Further Questi

DATA SPACE

Stories | About Us | Applications | Datasets | Resources

NYPD Stop and Frisk Policies

People stop more than 1 million people on the street. http://www.nbcnews.com/id/33230464/#.VyttSIQrLIU
NEW YORK CITY BAR ASSOCIATION REPORT ON THE NYPD'S STOP-AND-FRISK POLICY (page 10) http://www2.nycbar.org/pdf/report/uploads/20072495-StopFriskReport.pdf

NYPD Stop and Arrests

- **CLAIM 1**: There is evidence of racial discrimination in the NYPD stops and arrests.

- Every year, the New York City Police Department (NYPD) stops individuals for suspected criminal involvement.
- “This is a proven law enforcement tactic to fight and deter crime, one that is authorized by criminal procedure law (Long 2009).”
- In recent years, the NYPD had been accused of being racially discriminatory in their stops and arrests.

NYPD Stop and Arrests

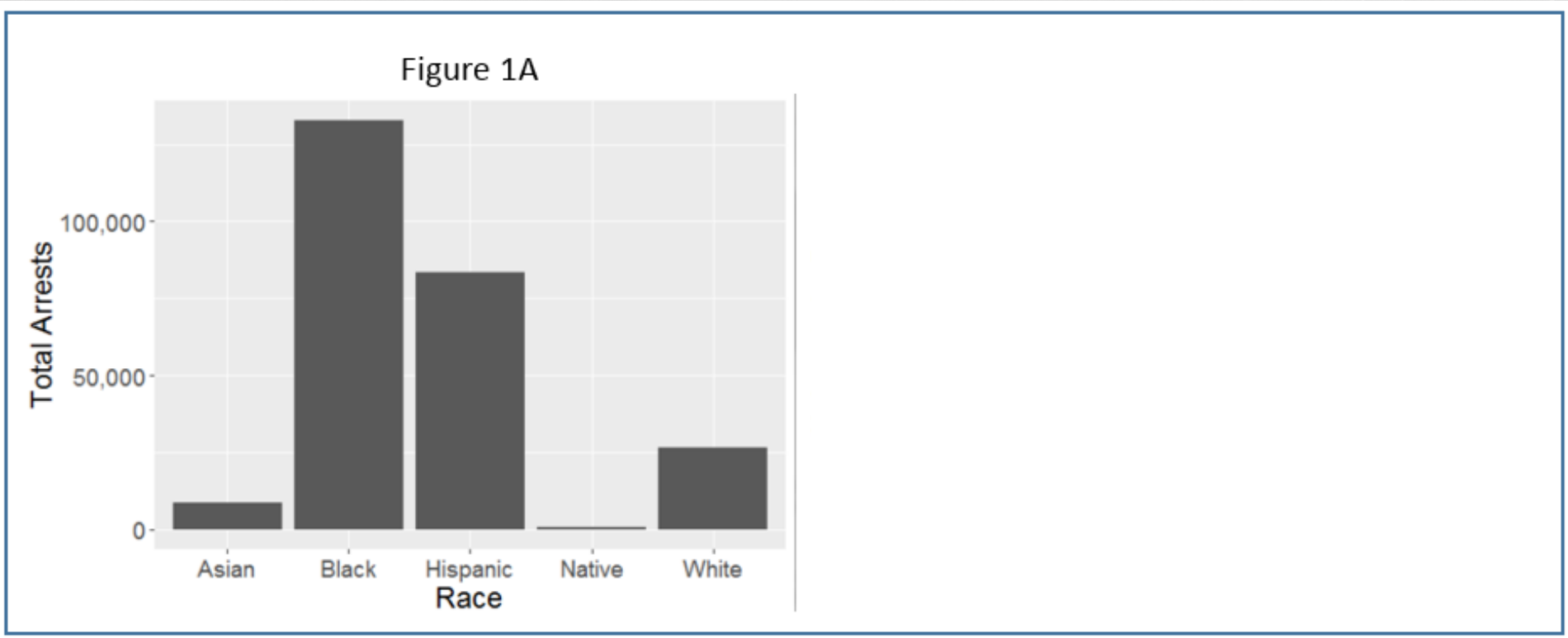
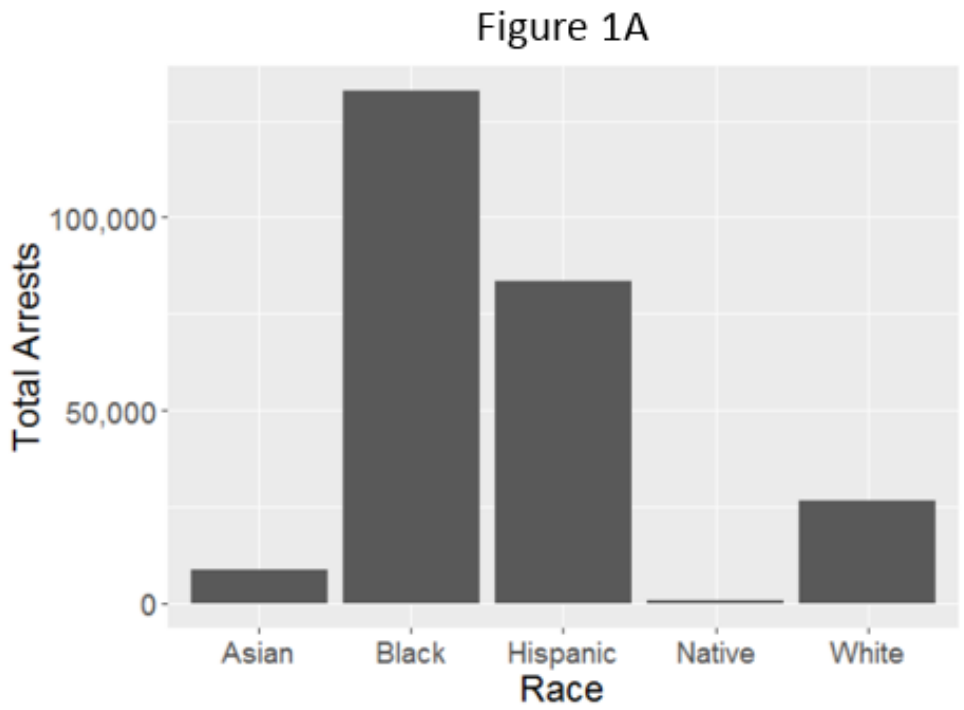


Figure 1A: Bar graph representing the total number of people arrested in New York by race of the suspect from 2006 to 2016.

NYPD Stop and Arrests



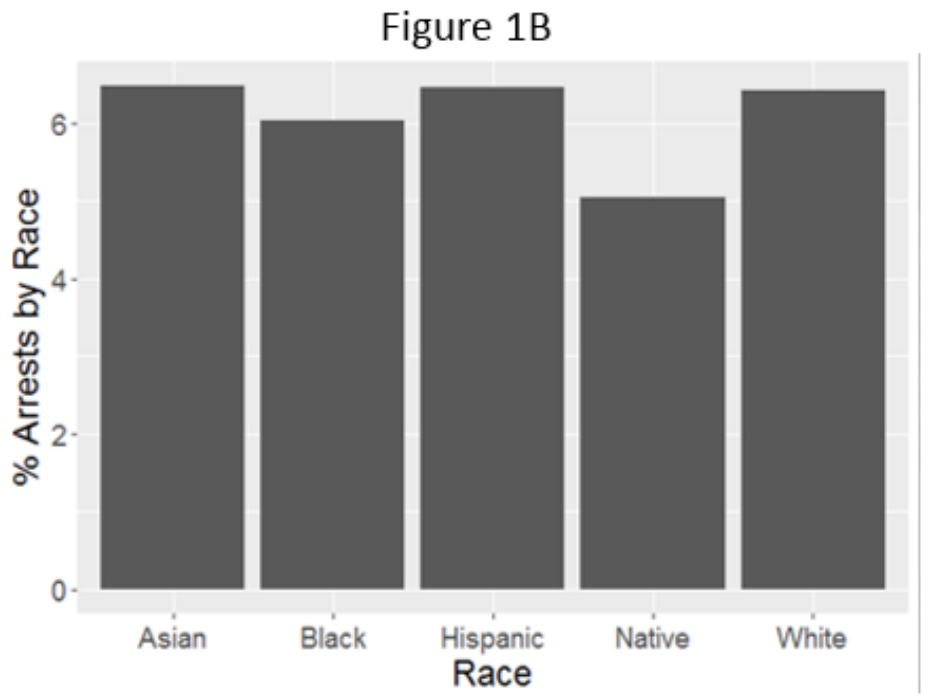


Figure 1A: Bar graph representing the total number of people arrested in New York by race of the suspect from 2006 to 2016. Figure 1B: Bar graph of the percentage of arrests (Total Arrested/Total Stopped) for each race between 2006 and 2016.

NYPD Stop and Arrests

- **KEY IDEA**: Whenever we are shown a percentage, we should always ask the question, “Percentage of what?”

- Figure 1A shows that about 50% of all arrests made in New York involve a black suspect.
- Figure 1B shows that just over 6% of Asians, Hispanics, and whites are arrested after they are stopped.
- The core issue is that the denominator chosen can be mathematically accurate, but lead to very different conclusions.

NYPD Stop and Arrests

- **CLAIM 2**: After a 2013 court ruling, there has been a reduction in the racial disparity in police stops.

- Figure 2 provides shows a significant decrease in the number of police stops after 2012.
- In 2014, the New York Civil Liberties Union stated that New York City Mayor Bill de Blasio had "... made stop-and-frisk reform a central issue in his campaign, and shortly after his election he moved aggressively to honor his campaign promises."

NYPD Stop and Arrests

- **CLAIM 2**: After a 2013 court ruling, there has been a reduction in the racial disparity in police stops.

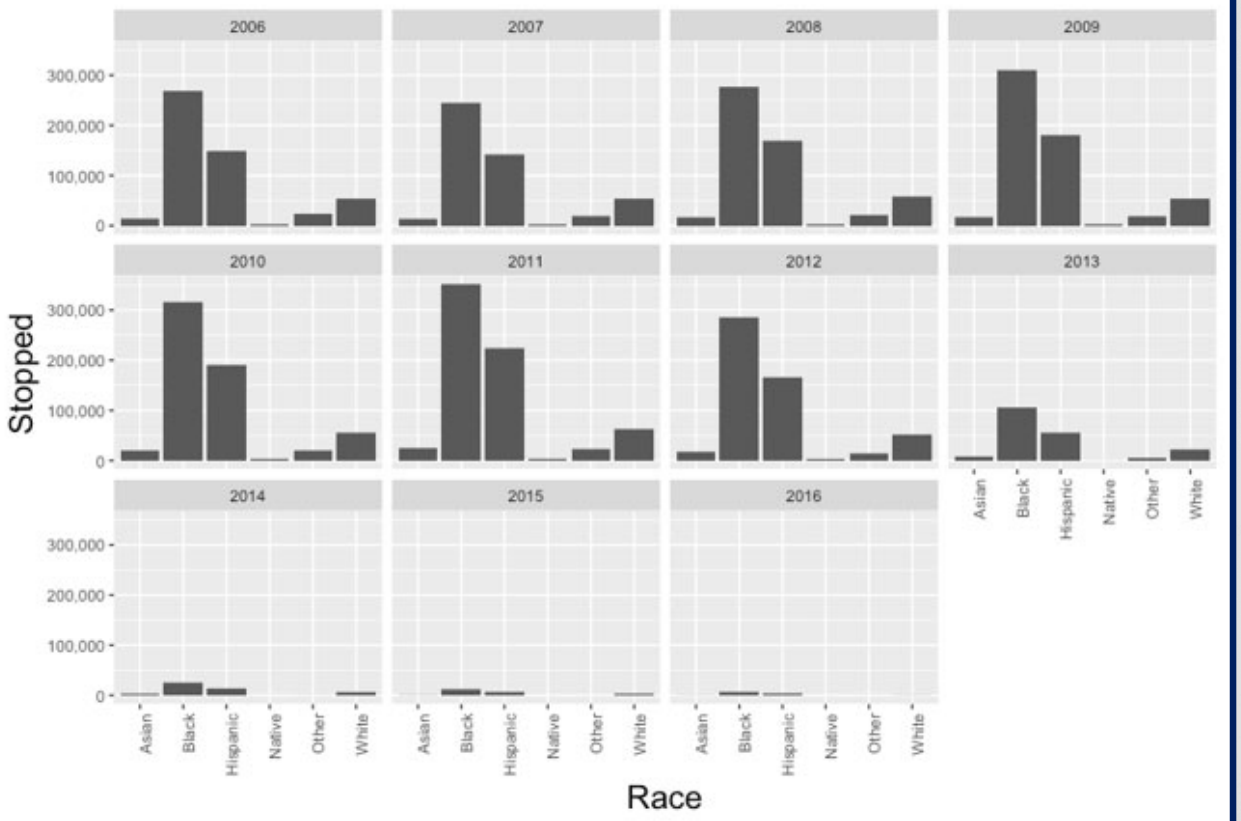


Figure 2: The total number of police stops by year and race in New York City

NYPD Stop and Arrests

- **CLAIM 2**: After a 2013 court ruling, there has been a reduction in the racial disparity in police stops.

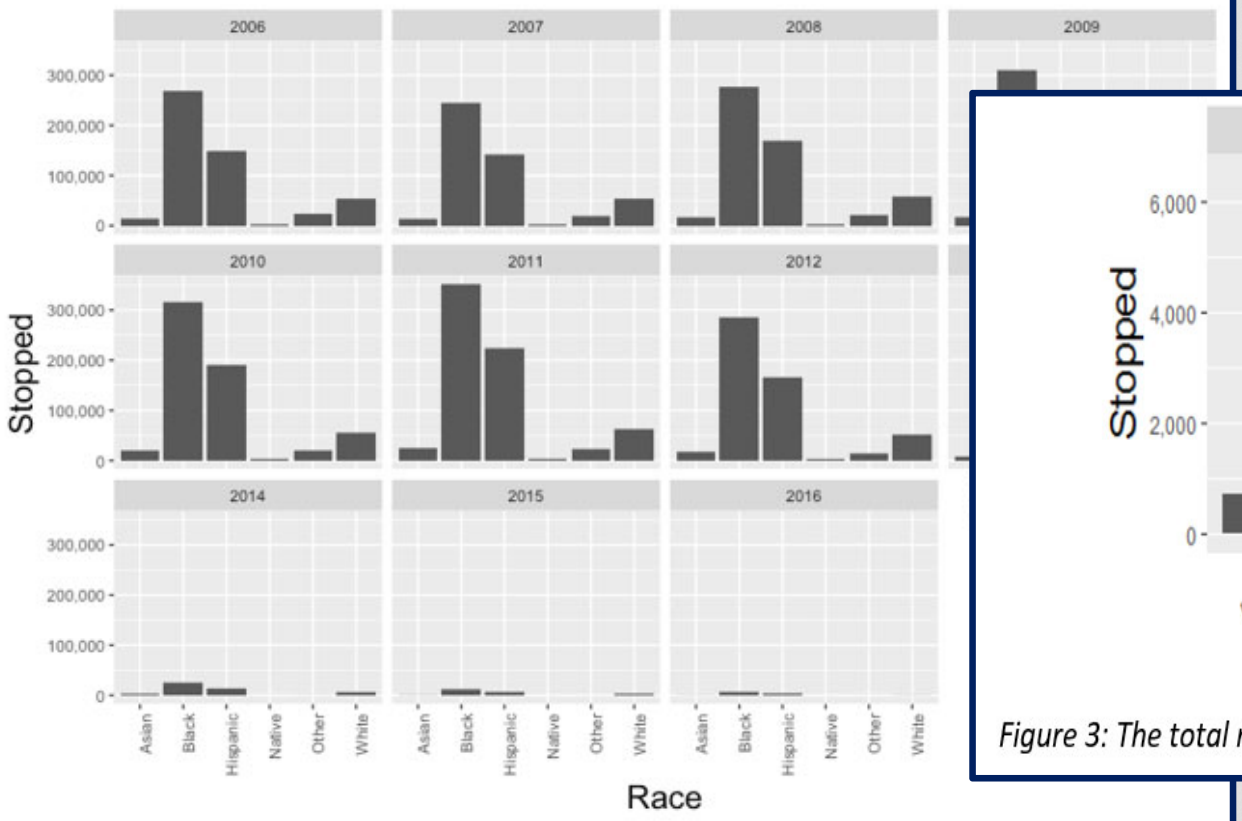


Figure 2: The total number of police stops by year and race in New York City

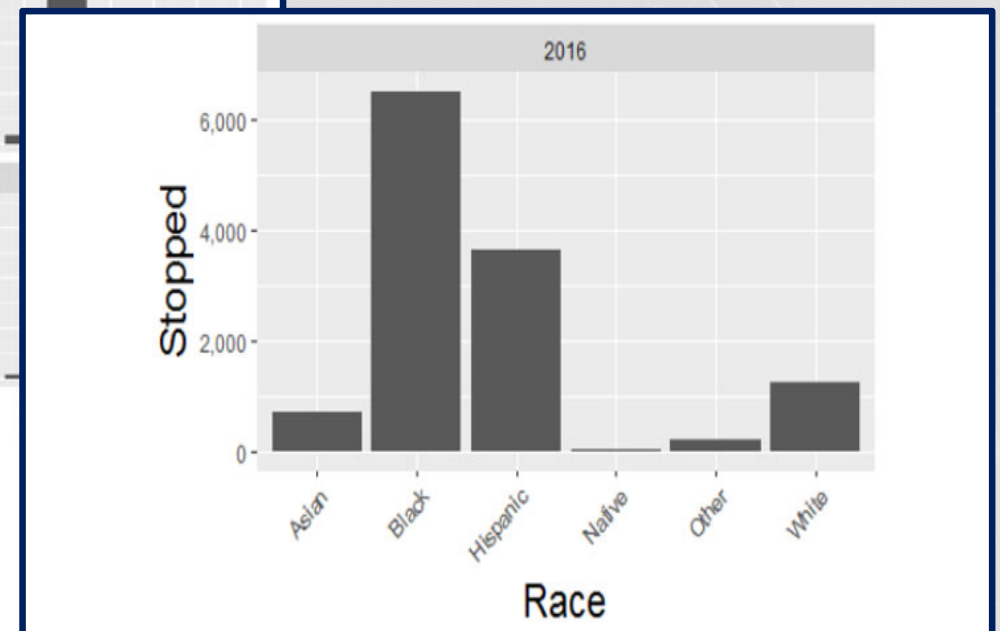


Figure 3: The total number of police stops by race in New York City in 2016.

NYPD Stop and Arrests

- **KEY IDEA**: Data can be easily manipulated to support a particular preconceived notion.

- Summarizing a complex dataset with only one graph (or one hypothesis test) can easily misrepresent the true patterns within the data.
- Objectively look at the entire dataset before drawing conclusions.

NYPD Stop and Arrests

- Has the pattern in the percentage of arrests changed over the past ten years?
- Has the amount or type of force used in a stop changed over time?
- Are there disparities in the stop or arrest data related to gender?
- What patterns occur when the data is restricted to a particular type of force, such as restricting the data to only stops where firearms were used?
- What percentage of arrests involved cases where the police drew a weapon (handgun, taser, pepper spray or baton)?
- Are there any relationships between the types of force used and the suspected crime type? For example, are firearms used more often when the suspected crime is a felony instead of a misdemeanor?

https://dataspace.sites.grinnell.edu/NYPD_Part1.html

Example 2: Covid-19 models

How do we better understand epidemic models and how public policy can influence the disease spread.

By Shonda Kuiper and Bowen Mince

https://dataspace.sites.grinnell.edu/Covid1.html

Introduction

On December 31st of 2019, a novel coronavirus disease, COVID-19, was identified and rep
Since then, the disease has spread to more than 200 countries, infecting over 152 million p
globally as of April 2021 (Johns Hopkins University, 2021). With loss of lives, crashing busi
loss of jobs and the mental toll of social distancing, woes of COVID-19 have been felt throu
the world. The US census estimated a 51.5 percent loss in employment with economic acti
significantly slowing down since the beginning of the pandemic (Census, 2021). Hospitals
quickly overloaded and short-staffed, ICU beds were full, and healthcare workers were put
an immense mental and physical toll, having to work overtime under psychological distress
et al., 2021).

Numerous government organizations have been turning to epidemiologists to:

1) understand and predict how the pandemic will progress, and

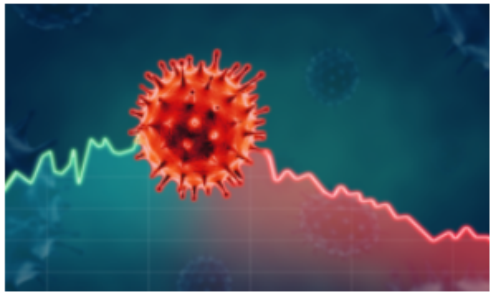
2) determine which actions to take to prevent the spread of the disease.

Useful Links

Covid-19

References

Datasets

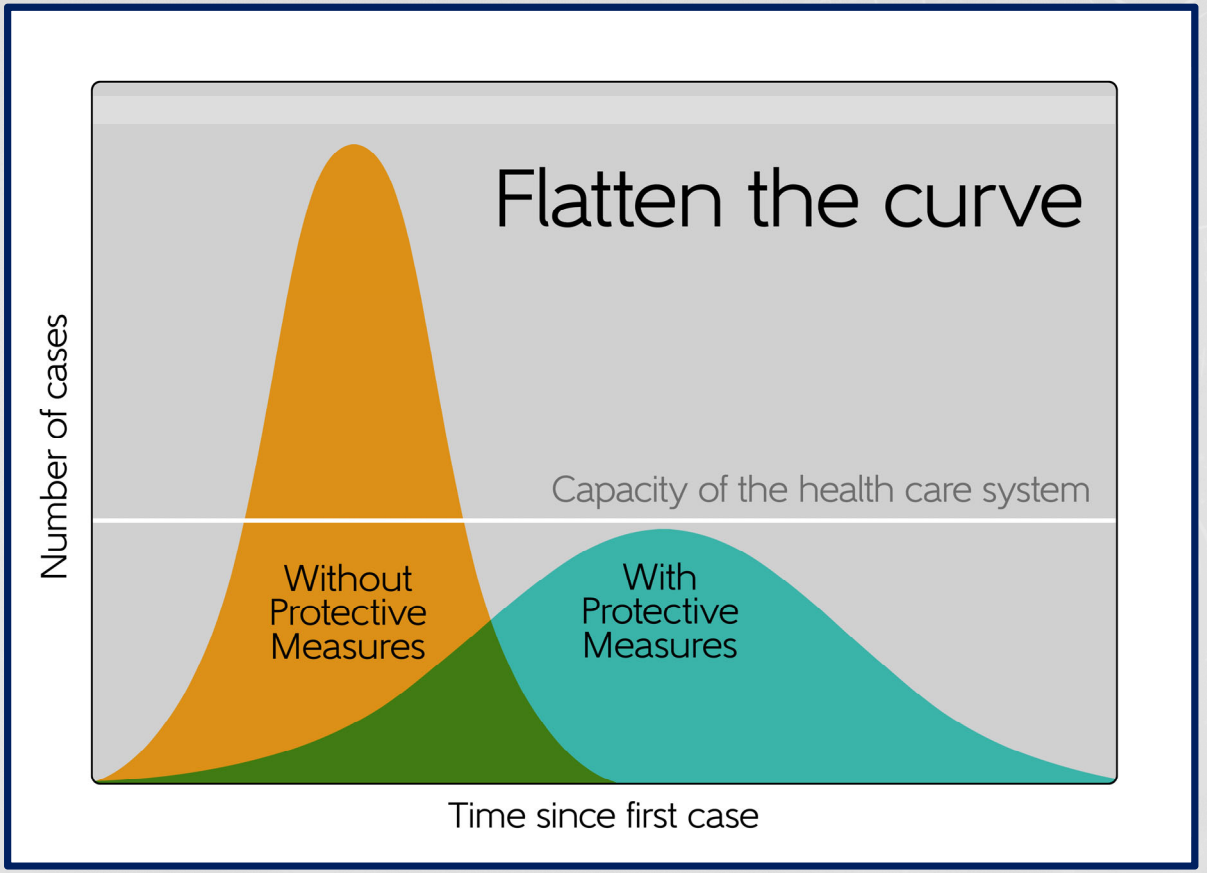


Key Question

How can models help us make informed decisions about pandemic planning?

Covid-19 Models and Public Policy

- What does it mean to “flatten the curve?



https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0413-coronavirus-flatten-curve-20200413-edqqowukp5gq7jbbkdpbky4eau-story.html

Covid-19 Models and Public Policy

Simple SIR Model Simulation

Initial Population: 5000

Initial Infected: 10 (slider 1–10)

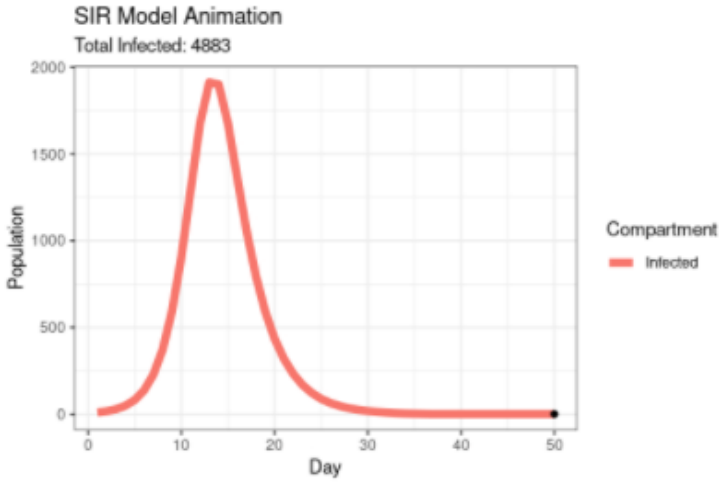
Transmission Rate (0.3 - 2.0): 1

Recovery Rate (0.01 - 0.50): 0.3

Select the number of Days: 50

☑ Check to only show the infection line

Update Graph



Show entries Search:

Day	Susceptible	Infected	Recovered	Population
1	4990	10	0	5000
2	4980	17	3	5000
3	4963	29	8	5000
4	4934	49	17	5000
5	4886	82	32	5000

Showing 1 to 5 of 50 entries Previous 1 2 3 4 5 … 10 Next

Check Your Understanding:

Name (if more than one name, separate each name with a comma).

Instructor email

For the following questions, start with the following settings:
Population: 5000
Initial Infected: 10
Transmission Rate: 1
Recovery Rate: 0.3

How many people have recovered on day 2?

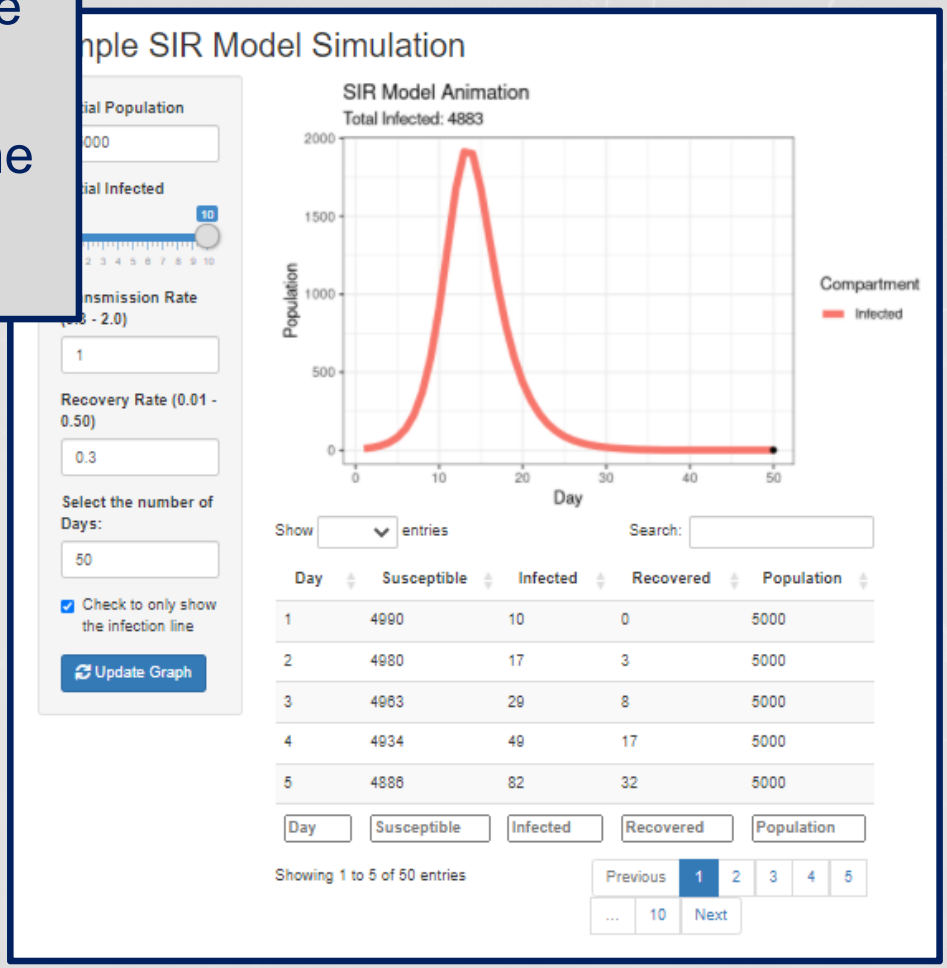
- 0
- 3
- 5
- 10

What day has the maximum number infected?

- Day 10

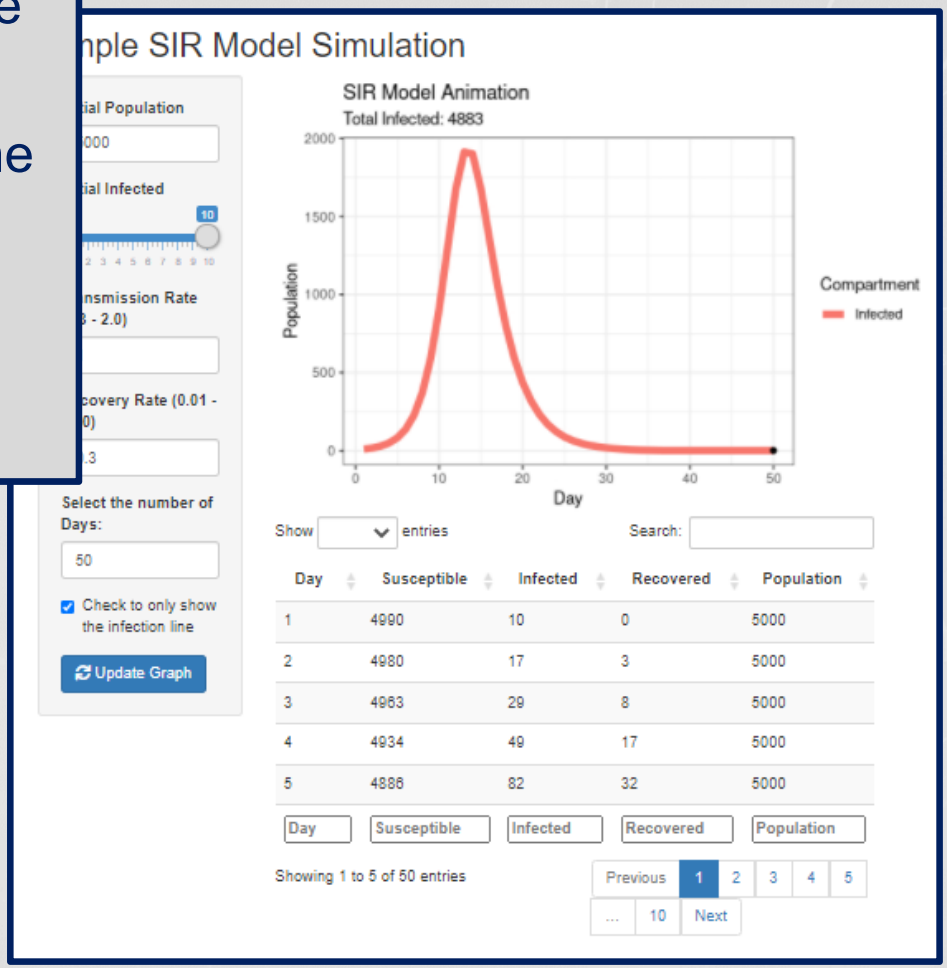
Covid-19 Models and Public Policy

- The CDC estimates the transmission rate to be between 1.1 and 1.8.
- How much does this change influence the number infected?



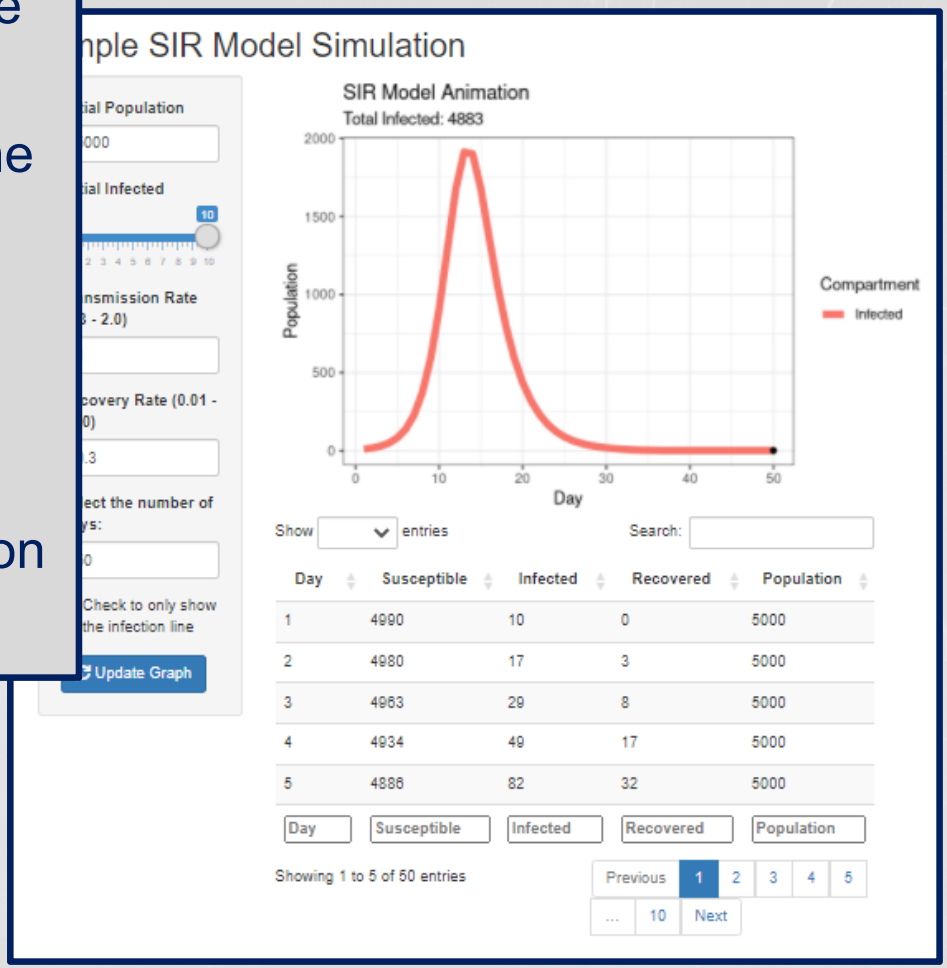
Covid-19 Models and Public Policy

- The CDC estimates the transmission rate to be between 1.1 and 1.8.
- How much does this change influence the number infected?
- Does a higher transmission rate always mean more disease spread?



Covid-19 Models and Public Policy

- The CDC estimates the transmission rate to be between 1.1 and 1.8.
- How much does this change influence the number infected?
- Does a higher transmission rate always mean more disease spread?
- What assumptions can be made about how masks can influence the transmission rate?



DATASPACE

INTEGRATING STORIES, VISUALIZATIONS, AND STATISTICAL MODELS

Bowen Mince and Shonda Kuiper, Grinnell College

https://dataspace.sites.grinnell.edu/Covid1.html