

A map of the United States with numerous orange and blue dots of varying sizes representing mass shooting locations. The dots are distributed across the country, with a higher concentration in the eastern half and the West Coast. A large orange dot is visible in California, and another large one is in the Southeast. Smaller dots are scattered throughout the Midwest and Northeast.

# Mass Shootings in America

August 7, 2018

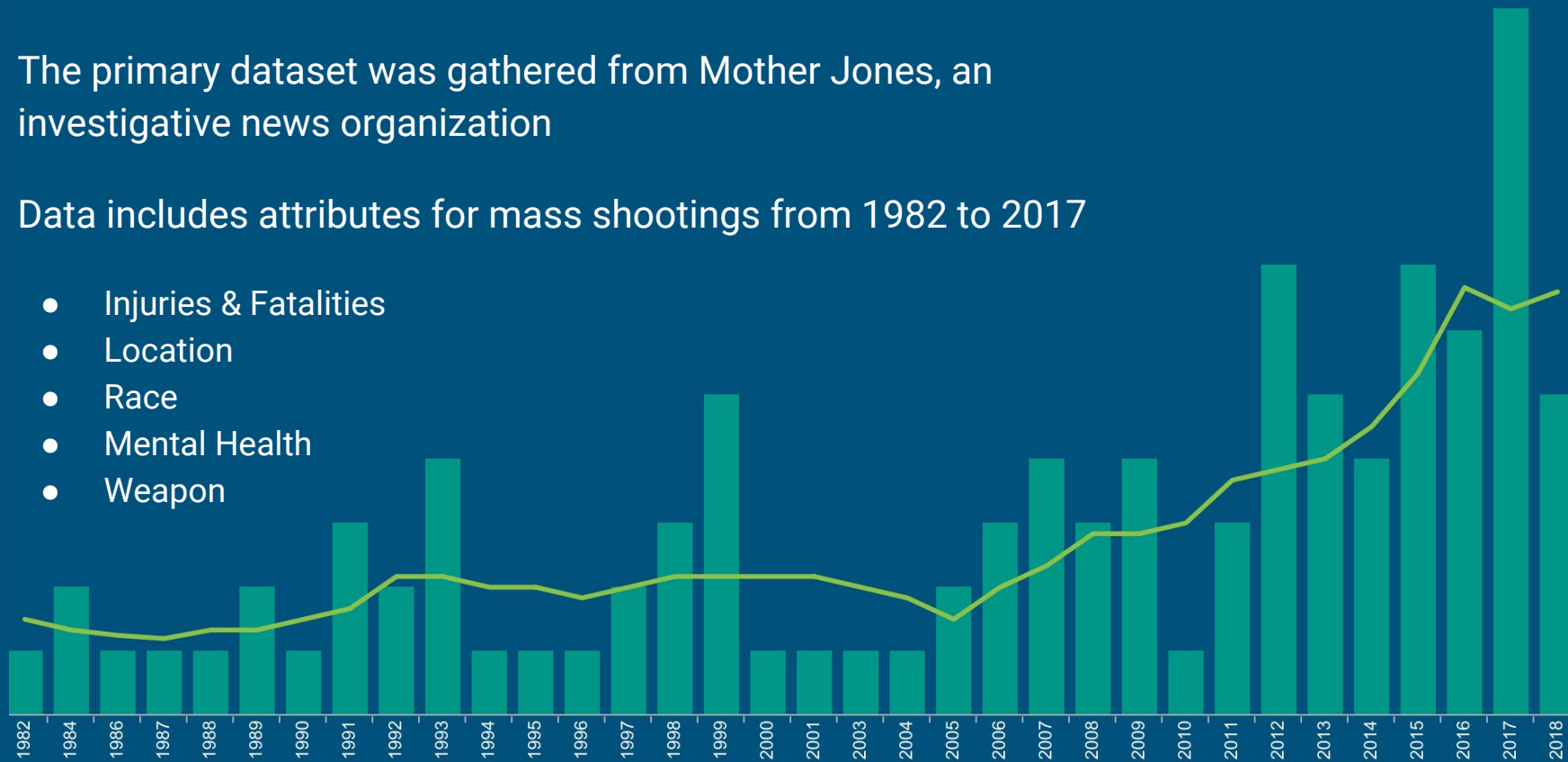
Adam Letcher | Michael Powers | Jessica Vincent

# The data

The primary dataset was gathered from Mother Jones, an investigative news organization

Data includes attributes for mass shootings from 1982 to 2017

- Injuries & Fatalities
- Location
- Race
- Mental Health
- Weapon



A close-up photograph of a person's hand, wearing a dark sleeve, pointing with their index finger at a document on a desk. A pen lies on the desk near the hand. The background is blurred, showing some bokeh lights.

# The users

Any person who wants to understand overall trends in US mass shootings

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# Visualization goals

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Our goal is to provide insights about mass shootings in America. Some questions include:

1. Have mass shootings changed over time?
2. Have fatality rates changed over time?
3. Where have mass shootings taken place?
4. Who is doing the mass shootings?
5. Does the mental health or criminal record play into mass shootings?
6. What venues are the most susceptible to mass shootings?
7. Were the weapons used obtained legally?

Show trends over time

Explore data breakdown

Provide context

# Design Iteration

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## Prototyping

Exploratory analysis of the Mother Jones dataset and initial visualizations

Joined additional datasets and research for context of shootings

## Usability

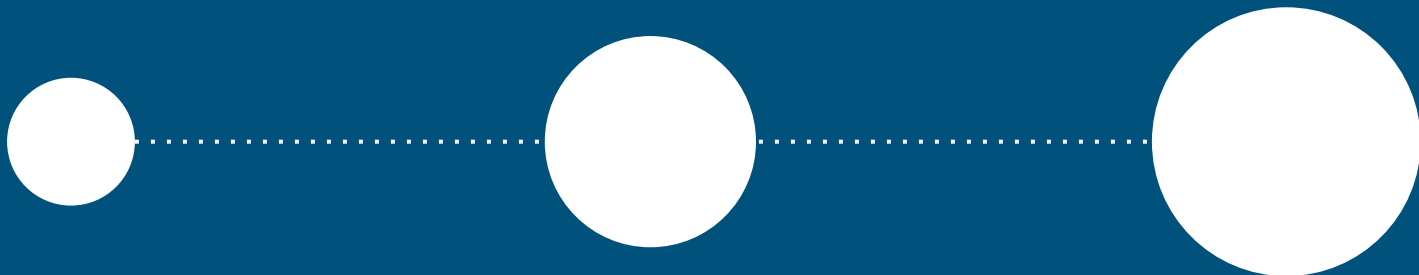
Testing performed by both experienced and inexperienced dashboard users

Users wanted context (data sources, definitions), clarity (hover, labels), and guidance (Tableau tips, filters)

## Production

Introduce data visualization and focused goals with landing page

Added more intuitive interactions and removed extraneous info



# Design Iteration: Context

*Usability Result:* Most users wanted additional background on the purpose of the visualization and the dataset

*Action:* Add a splash page to set the stage

## About the Data



The following visual displays are based primarily on the **Mother Jones open-source database** that documents **mass shootings in the United States from 1982-present**. The database was started in 2012, in the aftermath of the movie theater massacre in Aurora, Colorado, and captures many attributes of mass shooting events, including number of victims, venue, location, gun type, status, race of perpetrator, mental health status of perpetrator, etc. **Our team conducted additional research** on the mass shooting events in the database to add additional informational columns (age, criminal history, etc.), and also joined the Mother Jones data with gun regulation data from the Washington Post.

## Mass Shooting Definition

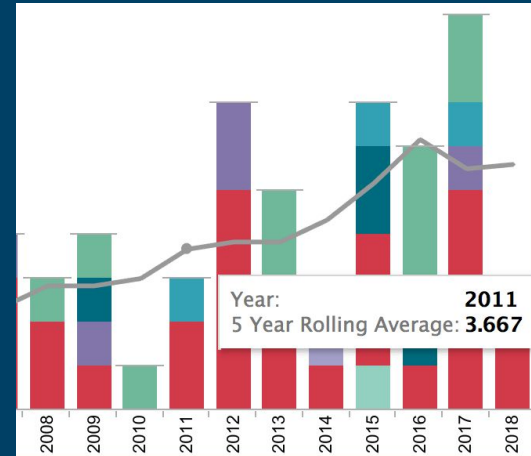
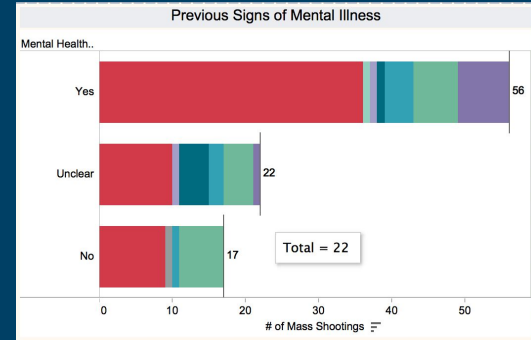


The FBI and criminologists previously defined a mass shooting as **a single attack in a public place** in which four or more victims were killed. In January 2013, a mandate for federal investigation of mass shootings authorized by President Barack Obama lowered that baseline to **three or more victims killed**. Therefore, the dataset includes incidents with 4 or more fatalities prior to 2013, and incidents with 3 or more fatalities from 2013-present.

# Design Iteration: Clarity

*Usability Result:* Many users found it difficult to interpret the details of the visualization

*Action:* Clean up the variable names, provide more detail on hover, and add reference lines for key information



# Design Iteration: Guidance

*Usability Result:* People unfamiliar with Tableau did not find the interactions intuitive

*Action:* Include tips on the splash page and add more explicit filters to the dashboards

## How to Interact with the Visualizations

**Hover:** Hover over different elements of the graphs to display additional details, data and values.



**Click:** Click on different segments of the graph to view it and associated details in isolation.



**Filter:** Click on legend icons, sliders, or dropdowns on the sides of the visuals to filter the data.



**Link:** In some instances, clicking an element of one visual will filter an adjacent one.



Date  
8/20/1982 5/18/2018

# of Years in Rolling Average

State  
(All) ▼

Shooter Age Group  
(All) ▼

Race  
(All) ▼

Mental Health Issues  
(Multiple values) ▼

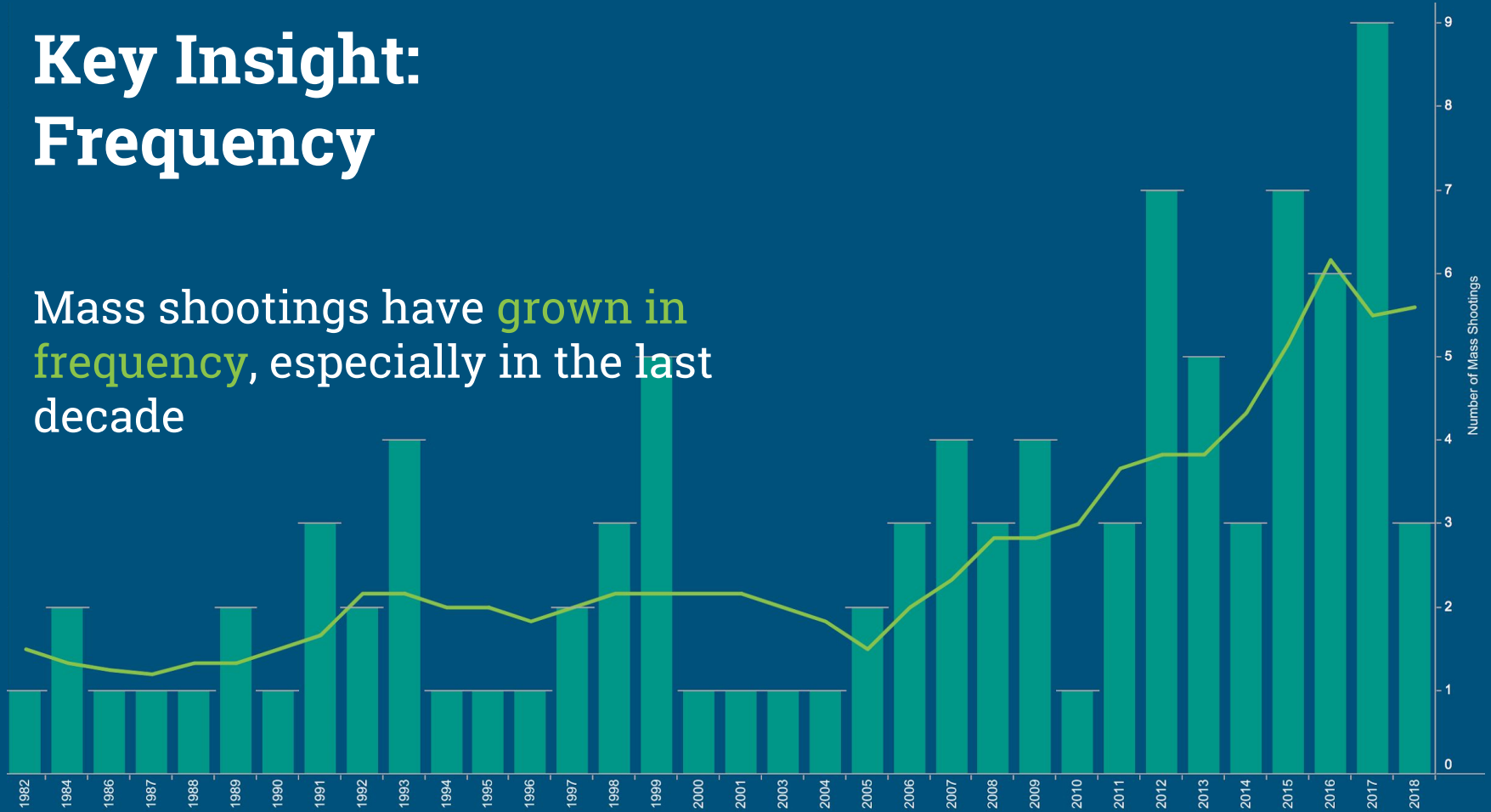
Previous Criminal Record  
(All) ▼

Where Obtained From  
(All) ▼



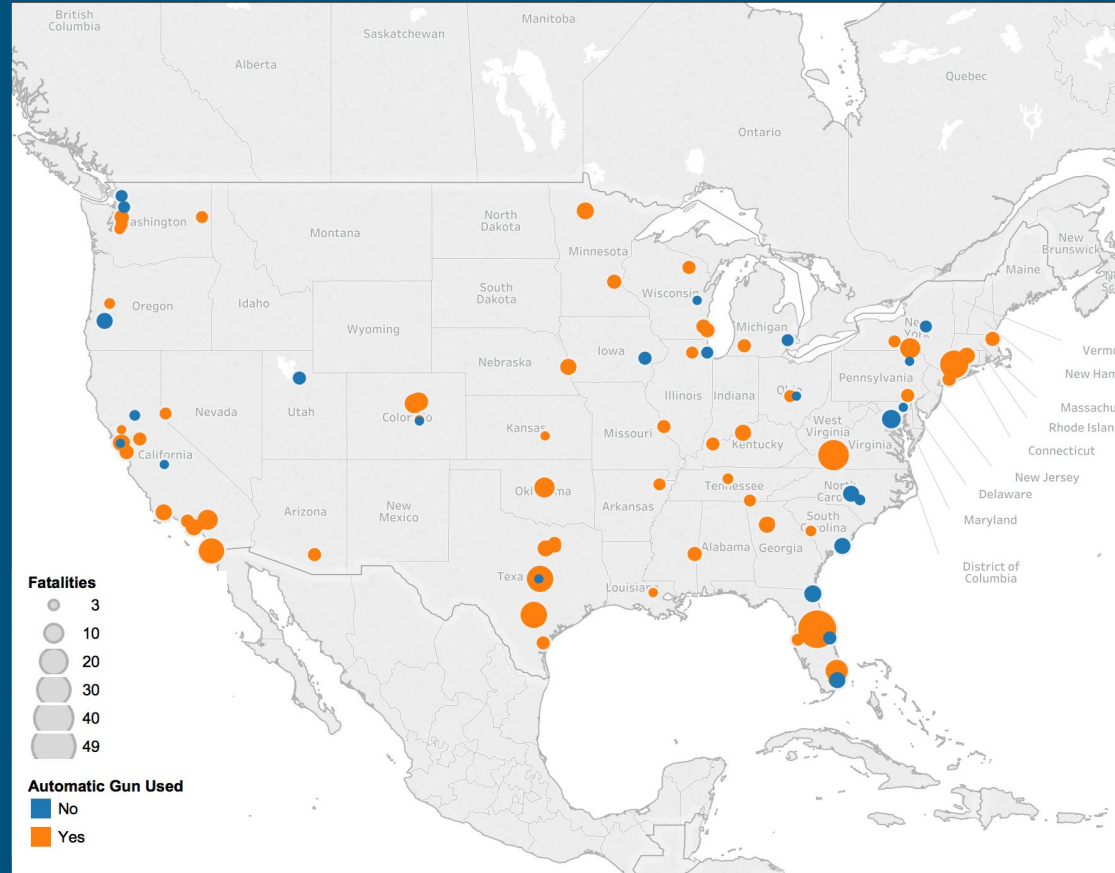
# Key Insight: Frequency

Mass shootings have **grown in frequency**, especially in the last decade



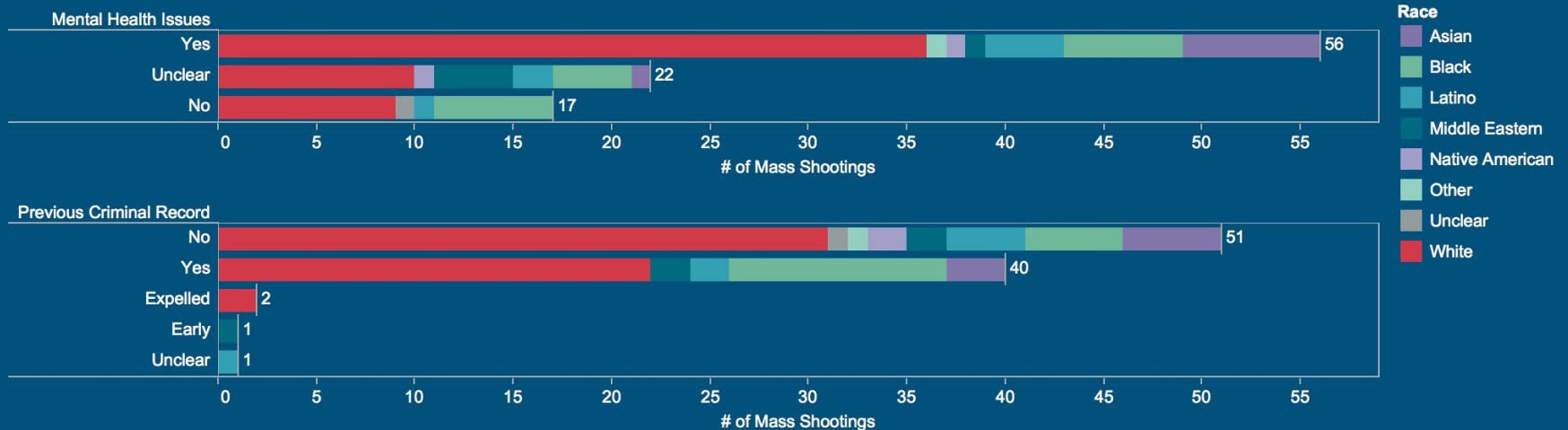
# Key Insight: Geography

California, Florida, and  
Texas have had the most  
mass shootings



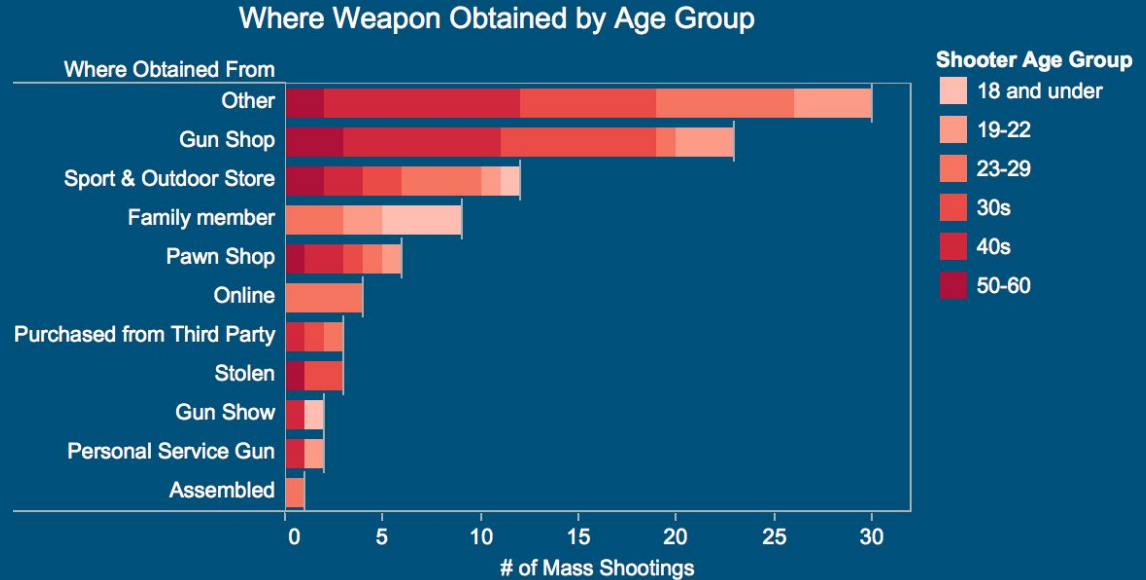
# Key Insight: Shooter Background

The majority of mass shooters had previous **signs of mental illness**, and many had **previous criminal records**



# Key Insight: Age groups

Younger shooters most commonly **get guns from relatives** while older shooters in general **purchase the firearms legally**



# Visualization Demo

