**Explain the mask usage**

**Democrats after they area vaccinated**

**Interact incidence rate and wave**

**Restrict to sub 2020 and 2021**

**Before vaccination**

**Slide 1**

Hello everyone, I’m Chris Soria, a graduate student in the Department of Demography at Berkeley. Today, I’ll present some initial findings from my work with co-authors Audrey Dorelien, Ayesha Mahmud, and Dennis Feehan. Our study is titled 'Political Beliefs, Partisanship, and Health Behaviors During the Pandemic.

**Slide 2**

Our research was inspired by the observation that traditional disease models often assume that the population has the same chance of getting infected. However, people within sub-population’s behaviors, which can spread diseases, actually vary a lot. For example, people differ in how often they interact with others beyond their household, whether they wear masks, and whether they get vaccinated.

Our literature review also showed that existing disease models do not differentiate between Democrats and Republicans, even though there's a lot of evidence of different health behaviors during the pandemic between these groups. This variation may have played a role in the higher mortality rates among Republicans that Wallace, Goldsmith-Pinkham, and Schwartz identified in Florida and Ohio.

Beyond categorical differences between Democrats and Republicans, there’s also some evidence that local population partisan *context* plays a role. For example, Ryan Baxter-King and collaborators found that Republicans are less likely to wear masks when they live in neighborhoods amongst other registered democrats.

**Slide 3**

In this study, we aim to explore the following research questions:

1. How did individual political affiliation and the local partisan context impact health behaviors during the pandemic? Specifically, non-household contact rates, mask-usage, and vaccination uptake.
2. To what extent are partisan groups responsive to changes in COVID-19 incidence rates?
3. How can the insights from the first two questions be integrated into disease models that account for partisan identification?

During this presentation, I will focus primarily on the first two questions, but I’m really interested in gathering feedback and suggestions on how to effectively progress with the third question.

**Slide 4**

For this study, we analyzed data from five cross-sections of the Berkeley Interpersonal Contacts Study (BICS), spanning from June 2020 to May 2021. The data encompasses a national sample as well as city-specific samples, and we used the full pooled sample for our analysis. We applied control for the sample source and adjusted with weights to ensure the data's national representativeness. Notably, questions related to vaccination were introduced in the sixth wave of the survey, conducted in May 2021.

**Slide 5**

To give you all a sense of the *magnitude* of difference between Republicans and Democrats, this plot here visualizes descriptive estimated differences in contact rates between comparative groups. Each bar represents the subtractive difference between group A and group B, with positive values indicating higher contact in the first group relative to the second. For example, the 'Republican - Democrat' bar shown in red signifies a higher non-household contact rate among Republicans compared to Democrats. This gap is larger than gender and race-based differences, but not quite as large as young versus old.

**Slide 6**

Here, a negative value indicates a lower percentage of reported contacts carried out while the respondent was using a mask. This time, the biggest difference is between Republican and Democrat, where Republicans are wearing masks 10 percent less than Democrats.

**Slide 7**

Lastly, probability of vaccination differences is largest for young versus old but also large for Democrat versus Republican.

**Slide 8**

And this is despite Republicans being older on average compared to Democrats! They’re also more white, more male, less likely to be college educated or to live in dense urban counties. They also have *very slightly larger* household sizes (probably because they’re older). In the following results, we control for these, alongside county-level mask usage policy and logged per capita incidence rates.

**Slide 9**

In this preliminary analysis, we employed multivariate linear models to derive estimated marginal means for key variables. We considered various contextual factors at the county level, including rural versus urban settings, incidence rates, and mask mandates, to assess their impact on our outcomes. To control for local variations and enhance the robustness of our findings, our incidence rate dependent variable models included county-fixed effects.

First, I’ll present on non-household contacts, then mask usage, and finally probabilities of vaccination. Democrats will always be in blue, republicans in red, and independents in green.

**Slide 10**

Here we can see that political party affiliation, on the x axis, is associated with differences in the number of non-household contacts throughout the pandemic. On average, we estimated that Republicans had an average of about 3.5 cont acts compared to Democrats’ 2.5. This difference is slightly reduced but still persistent when controlling for certain variables in the adjusted model, as represented by the filled dots, compared to the unadjusted model with the hollow dots.

**Slide 19**

Lastly, why does this matter and how does it fit into what we’re trying to do?

Slide 20

Contact rates, mask usage, vaccination, and population composition are all important parameters in disease models designed to