Supplemental: Model Specifications

Models Displayed in Figs. 1 & 2

Modified Poission Regression Procedure:

Generalized Estimating Equations using independent correlation structure, poisson distribution, and robust sandwich variance estimator.

```
####Below is a demonstrative example of the code used to generate the Adjusted Prevalence Ratios#######

library(geeglm)

Models <- geeglm(Y ~ X, data = data, id=id, corstr = "independence", family = poisson(link = "log"))
```

Model 1:

$$\text{Log}(\Pr(\text{Vax})) = \beta_0 + \text{Sex Work}\beta_1 + \text{Age}\beta_2 + \text{Sex}_1\beta_3 + \text{Sex}_2\beta_4$$

Model 2:

$$\begin{aligned}\text{Log}(\Pr(\text{Vax})) = \beta_0 + \text{Sex Work}\beta_1 + \text{Age}\beta_2 + \text{Sex}_1\beta_3 + \text{Sex}_2\beta_4 \\ +\text{Race}_1\beta_5 + \text{Race}_2\beta_6 + \text{Race}_3\beta_7 \\ +\text{Education}_1\beta_8 + \text{Education}_2\beta_9 + \text{Education}_3\beta_{10}\end{aligned}$$

Models Used to Assess Heterogeneity by Housing Status in Fig. 2

Model 1:

$$\text{Log}(\Pr(\text{Vax})) = \beta_0 + \text{Sex Work}\beta_1 + \text{Age}\beta_2 + \text{Sex}_1\beta_3 + \text{Sex}_2\beta_4 + \text{Housing}_1\beta_5 + \text{Sex Work} * \text{Housing}_1\beta_6$$

Model 2:

$$\begin{aligned}\text{Log}(\Pr(\text{Vax})) = \beta_0 + \text{Sex Work}\beta_1 + \text{Age}\beta_2 + \text{Sex}_1\beta_3 + \text{Sex}_2\beta_4 \\ +\text{Race}_1\beta_5 + \text{Race}_2\beta_6 + \text{Race}_3\beta_7 \\ +\text{Education}_1\beta_8 + \text{Education}_2\beta_9 + \text{Education}_3\beta_{10} + \text{Housing}_1\beta_{11} + \text{Sex Work} * \text{Housing}_1\beta_{12}\end{aligned}$$

Model Annotation:

Outcome of Interest:

- **Vax**
  - Vaccinated for Mpox: Yes(1), No(0)

Explanatory Variables of Interest:

- **Sex Work**
  - Comparisons are Yes(1) vs referent No(0)
    - Place of Sex Work
    - Sex Work Compensation
    - Type of Sex Work
    - Source of Clients

Confounders:

- **Sex**
  - Reference: Male
  - Sex_1: Female
  - Sex_2: Other
- **Race**
  - Reference: Hispanic
  - Race_1: Black
  - Race_2: White
  - Race_3: Other
- **Education**
  - Reference: High School
  - Education_1: Less Than High School
  - Education_2: College
  - Education_3: Graduate School
- **Age**
  - Mean (39) standardized

Stratifying Variable:

- **Housing**
  - Reference: Stably Housed
  - Housing_1: Unstably Housed