

# DOES SOCIAL PRESCRIBING IMPROVE PEDIATRIC HEALTH EQUITY?

**Social Prescribing to Promote Child Health: Experiences, Outcomes and Equity**

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Amanda Nickel, PhD MPH CCRP

# Social Prescribing

- Interventions addressing social needs in the healthcare setting are generically termed “**social care**”
- A common subset of social care is “**social prescribing**” providing resources or referrals in response to social needs screening
- Often a stated purpose of social prescribing interventions is to **improve health equity**

# Effects of Social Prescribing

+ positive association/ - no association

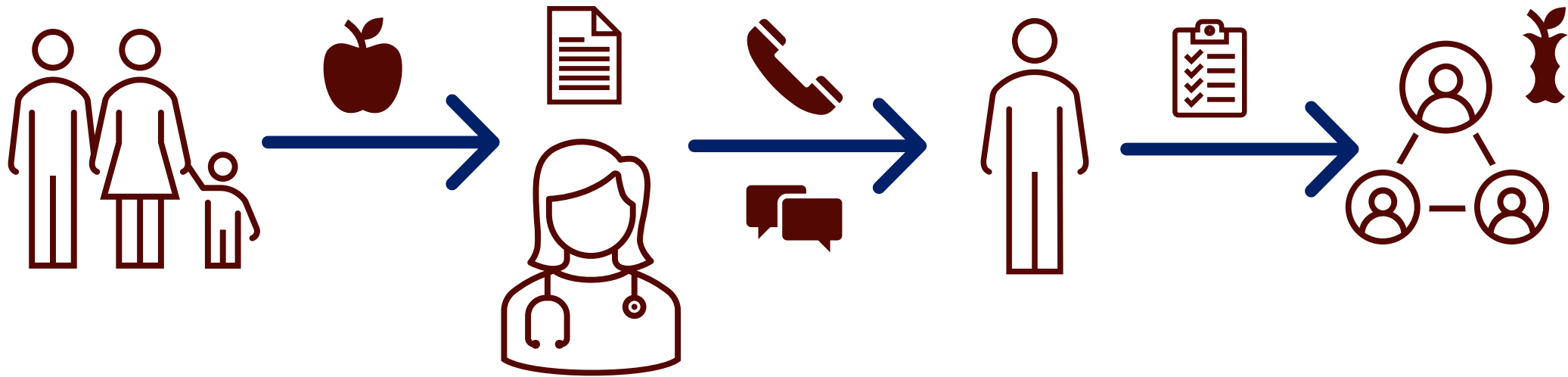
Study Design – 6 Studies	%	Utilization/Health Outcomes	Social Prescribing Effects
Randomized Control Trial	67%	Well-child attendance	+ +
Cohort	33%	ED utilization	-
Process Measures	83%	Hospitalizations	-
Stratification	0%	Child-reported health	+/-
		Lead Screening	-

(Coker et al., 2023 ; Garg et al., 2015; Gottlieb et al., 2016; Gottlieb et al., 2020 ; Hensley et al., 2021; Hill et al., 2022)

# Children's MN Community Connect (CC)

*a representative social prescribing program*

- CC was designed to identify unmet social needs, provide community resources, and engage in case management in Minneapolis and St. Paul General Pediatrics clinics since 2017



# Social Care Logic Model

- Decreasing Social Risk

• Improving Emotional Support

Well-child Attendance

- Increasing Outpatient Services
- Improving Disease Self-Management

*She was actually really easy to talk to. She seems really understanding to everybody's problems, everybody's issues, or the resources that they need, so that was really cool.*  
~CC Participant

(Gottlieb et al., 2016)

# Aims

- **Aim 1:** to build inferential model to test the effect of CC on well-child attendance, influenza vaccination, and acute asthma exacerbation
- **Aim 2:** to identify patient characteristics associated with participation in CC
- **Aim 3:** to test whether CC produces health equity among key equity targets: race/ethnicity, primary language, and SES
- **This study was approved by Children's Minnesota IRB #2023-013 and use of IHP data was reviewed and approved by Minnesota DHS**

# Methods: Data

## *Integrated Health Partnership (IHP)*

- ACO model for Medicaid in Minnesota
- IHP patients are attributed to a health system based on plurality of their prior primary care
- Healthcare systems are at financial risk for meeting cost and quality of care metrics for their attributed Medicaid patients
- Healthcare systems also receive a population-based payment for care coordination and are **required to design population health interventions to address health equity**

(MDH, 2020; MDH, 2021)

# Methods: Study Design

- **Retrospective cohort study leveraging GSEM path analysis**
- **Inclusion Criteria**
  - All patients attributed to Children's MN IHP for at least 6 months in 2018
- **Exclusion Criteria**
  - Primary care clinic was a Children's MN satellite clinic
  - No index well-child visit in 2018
  - Not enrolled in Children's MN IHP for at least 12 months following index well-child visit



# Methods: Outcomes

- All outcomes were identified using aggregated IHP claims files up to 13 months after a patient's 2018 index well-child visit.
- **Primary outcome:** Subsequent **well-child visit** within 13 months of 2018 index well-child visit
- **Secondary outcomes:**
  - **Influenza vaccination** within 13 months of 2018 index well-child visit
  - **Asthma exacerbation** within 13 months of 2018 index well-child visit

(Bright Futures, 2020; Centers for Medicare & Medicaid Services; Lanz et al., 2023)

# Methods: CC Participation

- CC participation was identified using the CC REDCap database
- CC participation was **attributed to all children in the household**
- For families that participated multiple times (2.8%) we used the **first date of participation in 2018**

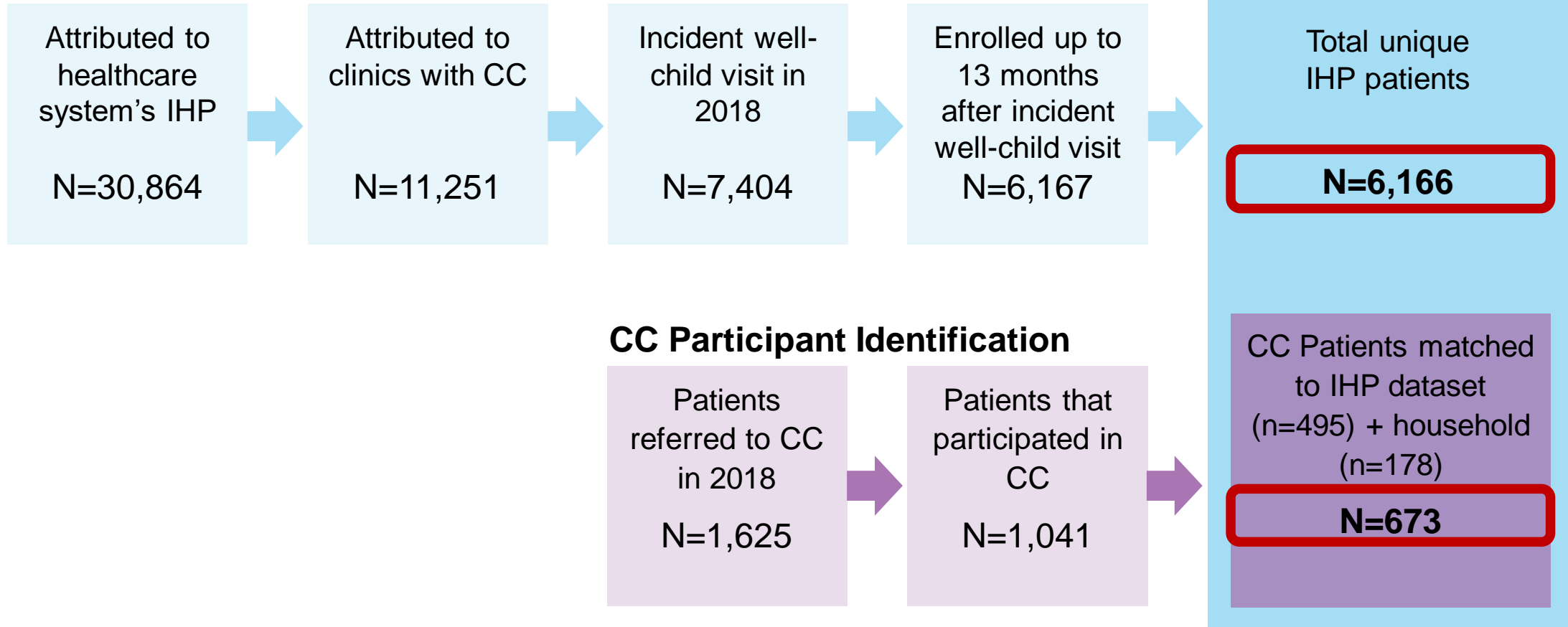
# Methods: Covariates

- Demographic characteristics
  - Age, Sex, **Race/Ethnicity, Primary Language** County of residence at enrollment, number of children in household
  - Socioeconomic status **(SES) measured using HOUSES**
  - County of residence changed from 2017 to 2018
- Patient utilization and complexity indicators
  - Resource Utilization Band (RUB)
  - IHP generated flag for care coordination claims
  - IHP generated flag for persistent asthma
  - IHP generated flag for the presence of additional insurance other than Medicaid

(Johns Hopkins Medicine, 2020; Juhn et al., 2011)

# Results: IHP Cohort Identification

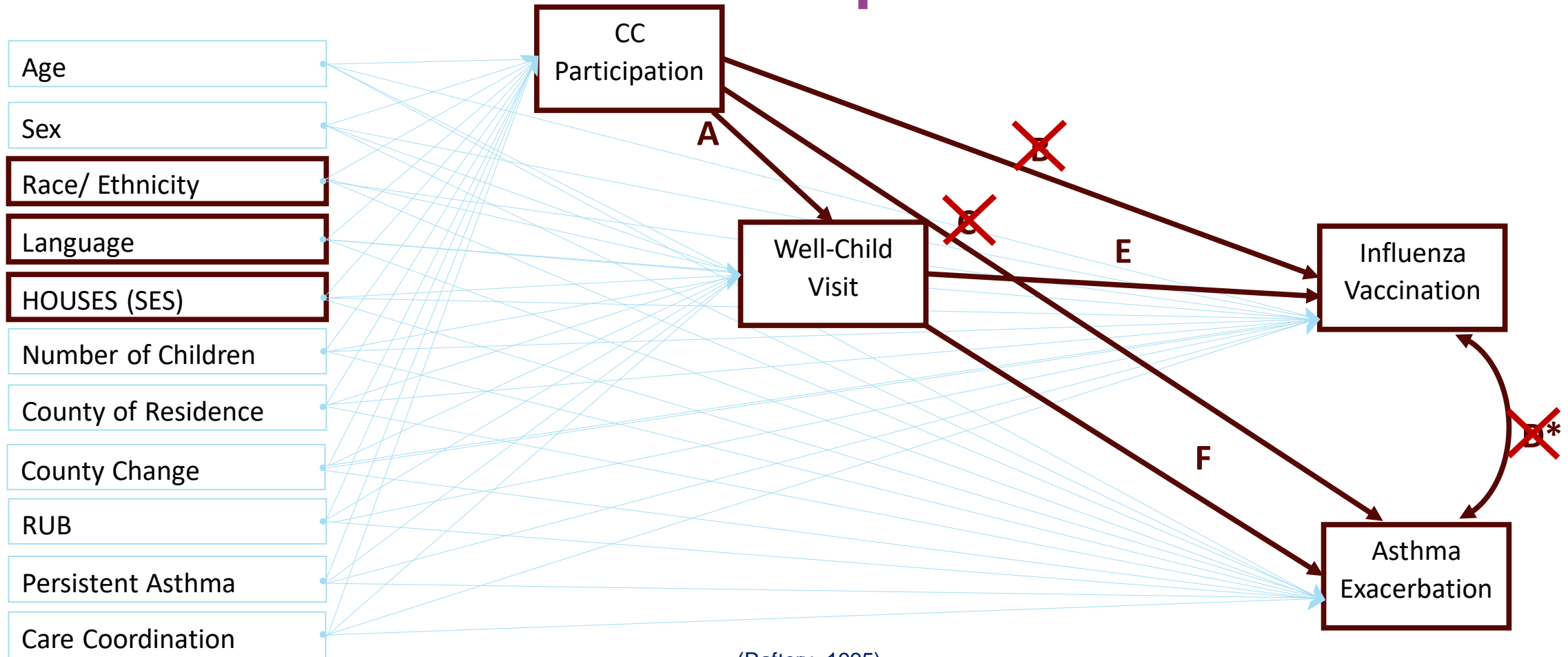
## IHP Cohort Identification



# Results: Unadjusted Outcomes by CC

	<b>CC Participant</b>	<b>Non-participant</b>
<b>Subsequent well-child visit, n (%)*</b>	62.0% (417)	53.2% (2921)
Months to well-child visit, mean (sd)*	6.2 (4.6)	7.2 (4.8)
<b>Influenza vaccination, n (%)</b>	27.5% (185)	26.5% (1457)
Months to vaccination, mean (sd)	7.1 (3.7)	7.2 (3.4)
<b>Asthma Exacerbation, n (%)</b>	7.1% (48)	5.4% (297)
Months to exacerbation, mean (sd)	6.6 (4.0)	5.6 (3.7)
* Statistically significant differences (p-value <0.05) between CC participants and non-participants		

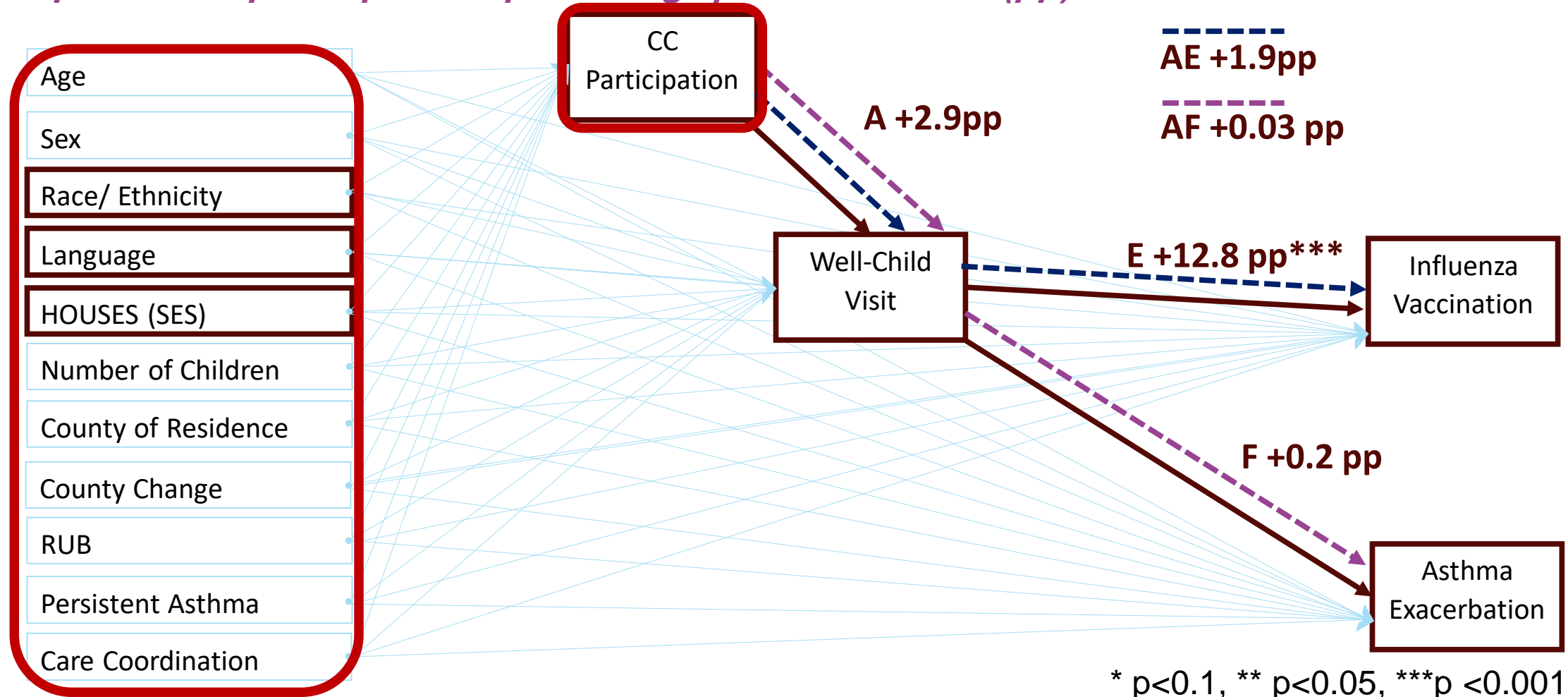
# Results: Inferential Model Specification



(Raftery, 1995)

# Results: Population Model

Impact of CC participation - percentage point difference (pp)



# Results: Population Model

## *Adjusted Odds of CC Participation*

	p-value
Age Category	0.006
Sex	0.15
Household Size	<0.0001
County of Residence	0.008
County Change from 2017	0.004
Resource Utilization Band	0.04
Existing Asthma	0.08
Care coordination Claims	0.54

P-values from joint tests of coefficients using Wald tests

	aOR	p-value
<b>Race / Ethnicity, (col%)<sup>b*</sup></b>		<b>0.003</b>
Asian	0.82 (0.33, 2.04)	
Black/ African American	1.0 (ref)	
Hispanic	1.02 (0.67, 1.56)	
Multi-racial	1.22 (0.82, 1.81)	
Other/ Unknown	1.42 (0.98, 2.04)	
White	0.36 (0.20, 0.67)	
<b>Language</b>		<b>0.007</b>
English	1.0 (ref)	
Other	1.27 (0.76, 2.12)	
Somali	0.81 (0.56, 1.17)	
Spanish	1.89 (1.27, 2.82)	
<b>SES (HOUSES Quartile)</b>		<b>0.005</b>
Quartile 1 lowest/=	1.0 (ref)	
Quartile 2	0.85 (0.61, 1.19)	
Quartile 3	0.70 (0.50, 0.98)	
Quartile 4 highest	0.53 (0.37, 0.76)	
Unknown	0.55 (0.32, 0.95)	

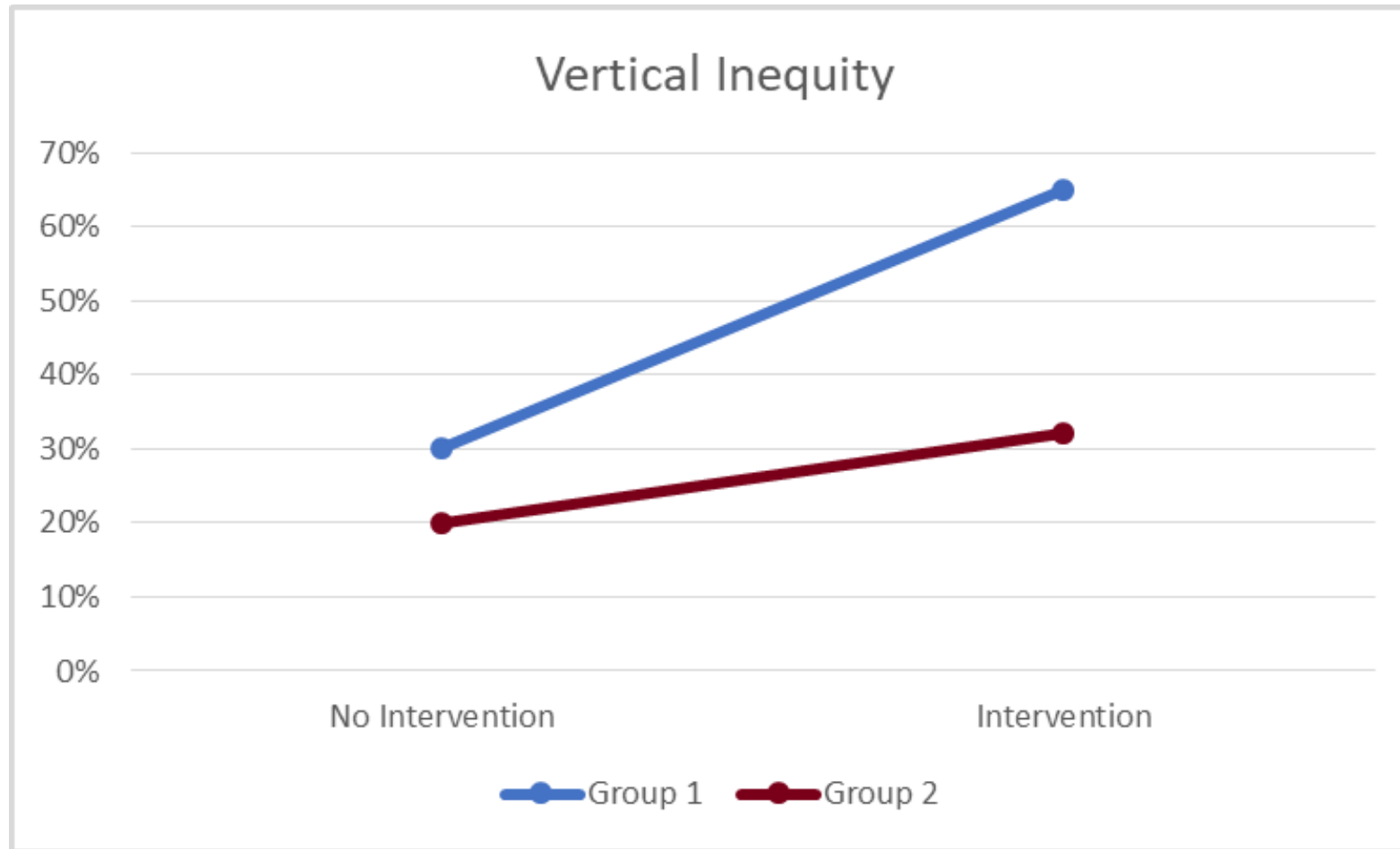


# Health Equity

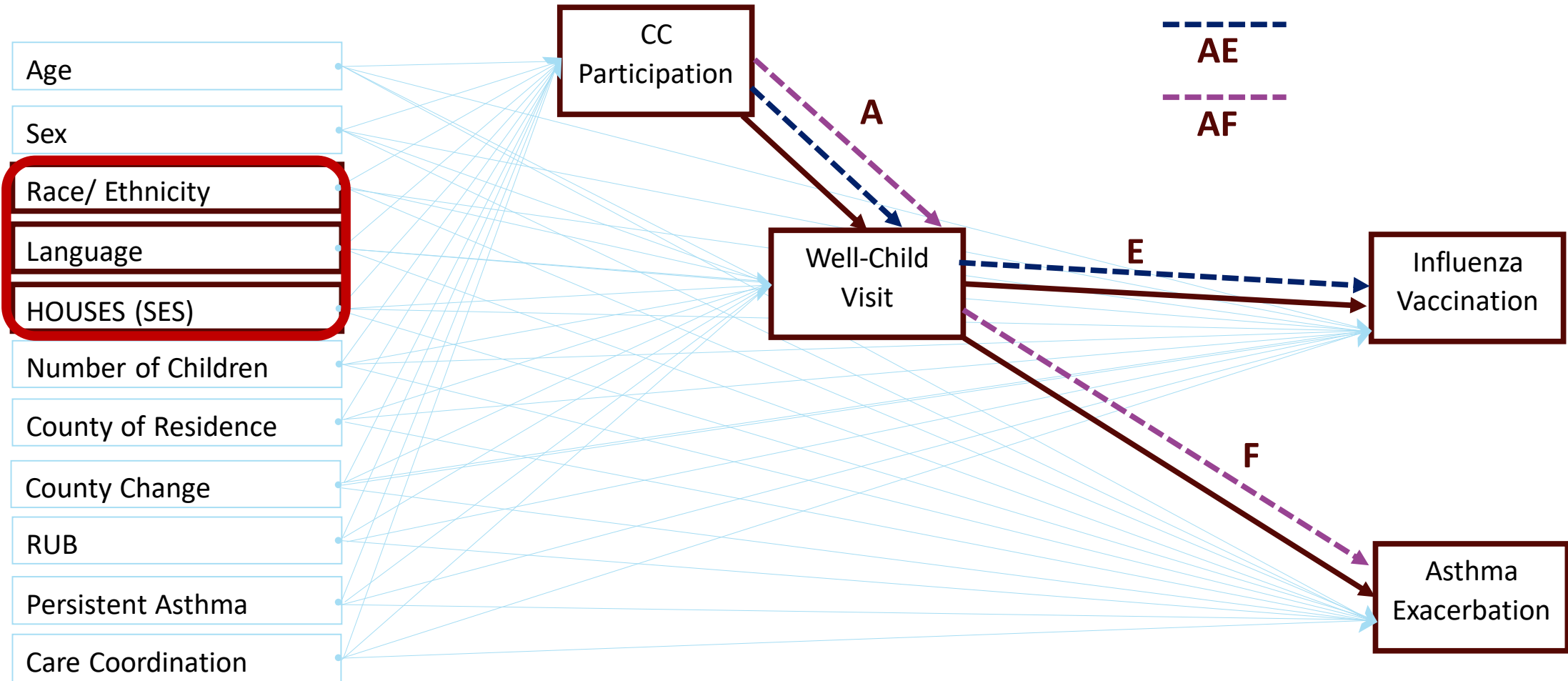
- Achievement of highest level of health for all people; social circumstances do not affect health outcomes
- Evaluation of health equity, allows us to understand what works for whom, and assess whether health inequities have changed
- Programs that produce equity must have:
  - 1) Equal impact among those with equal needs (Horizontal Equity)
  - 2) Greater impact for those with greater needs (Vertical Equity)

(Braveman et al., 2017; Raine et al., 2016)

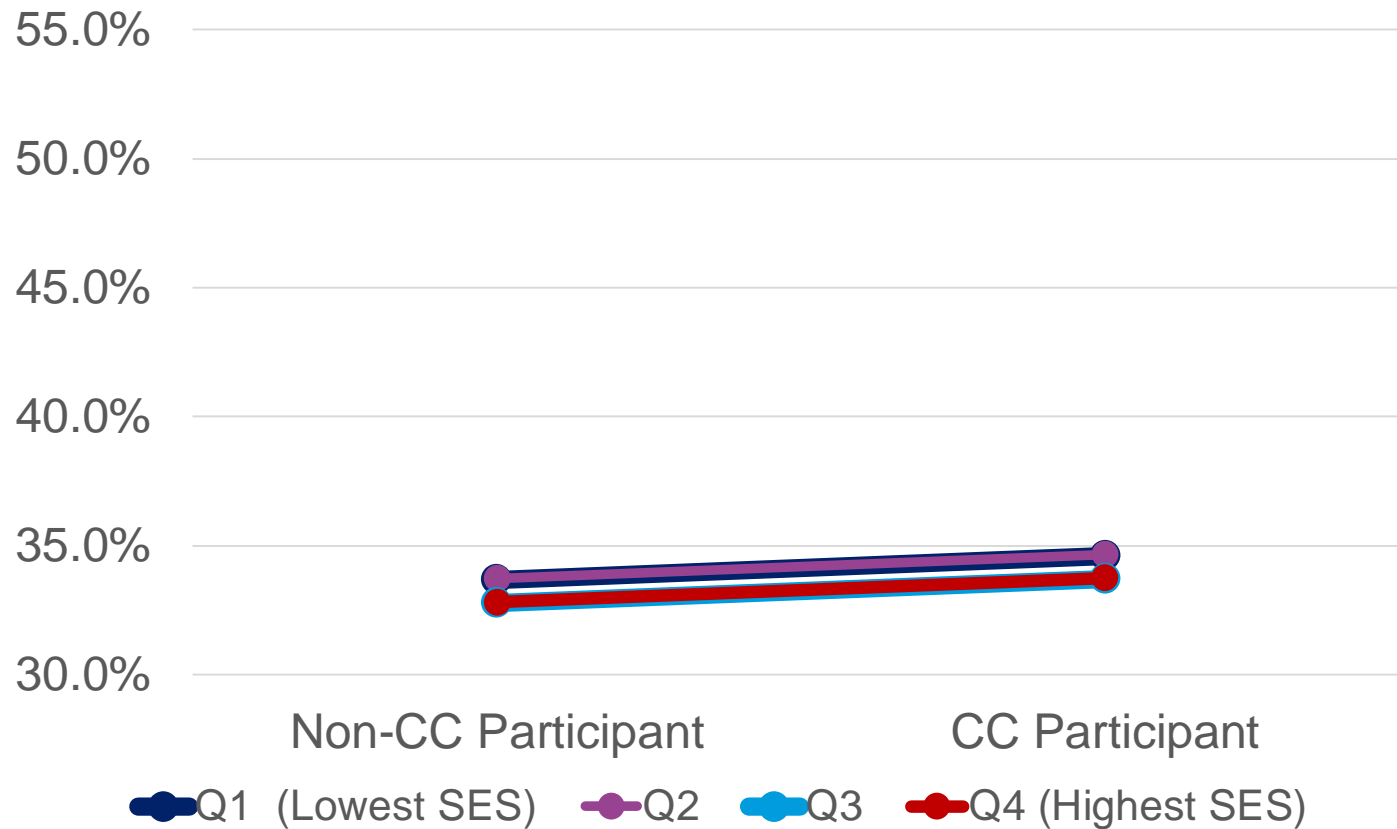
# Graphical Representations of Equity



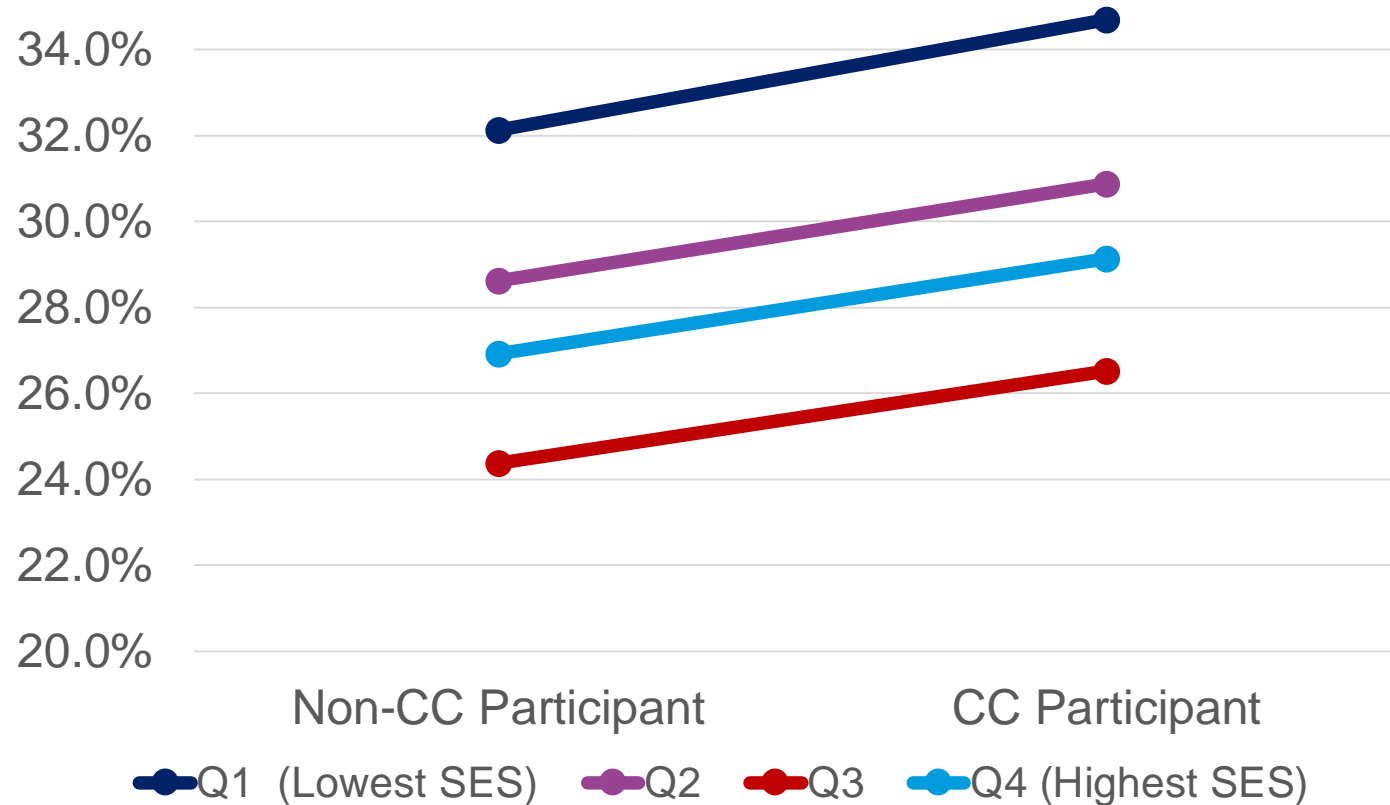
# Results: Stratified Model



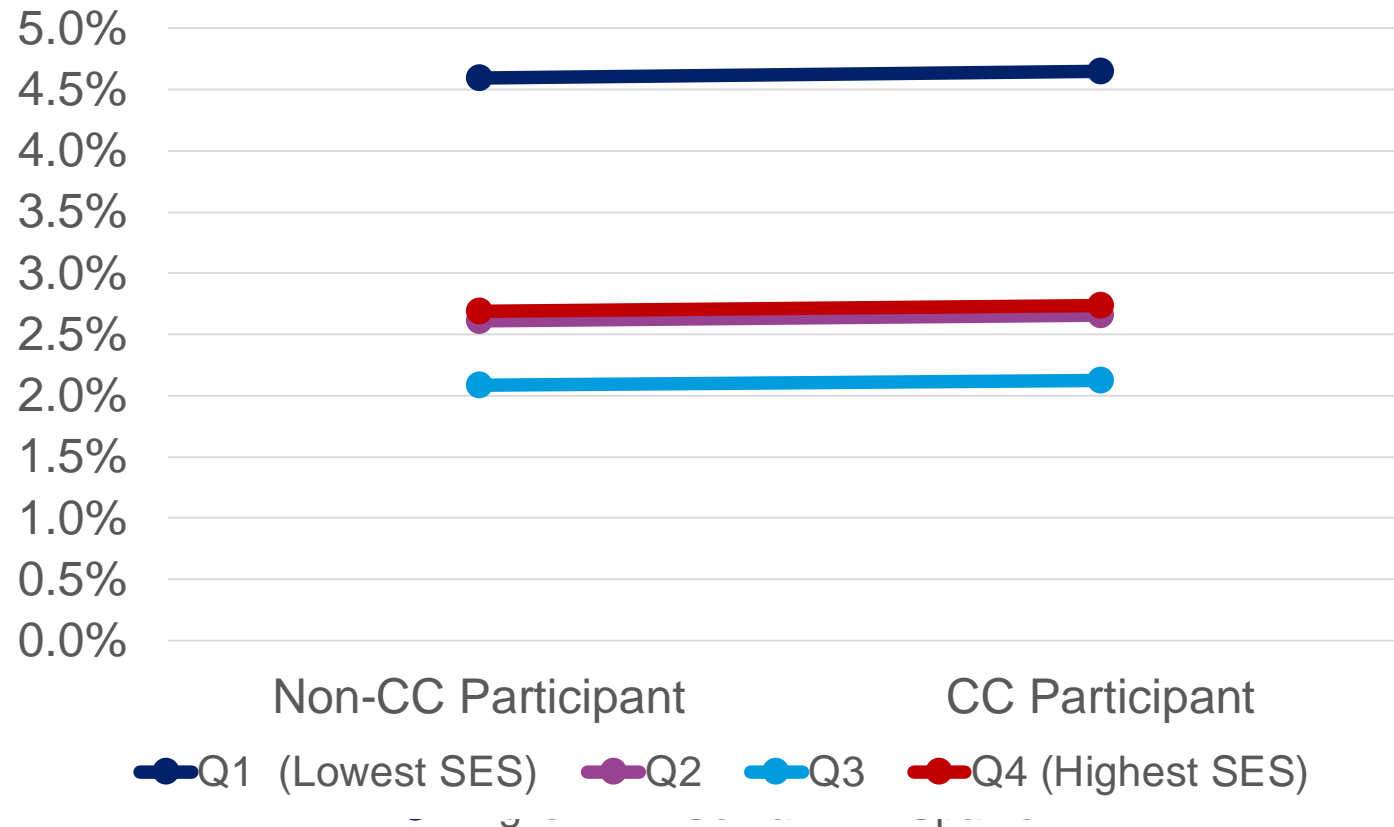
# CC Impact on Well-child Attendance Equity



# CC Impact on Influenza Vaccination Equity



# CC Impact on Asthma Exacerbation Equity



# Summary

- **Inferential Model:**

- **Direct effect of CC** on health outcomes (i.e., influenza vaccination and asthma exacerbation) **worsened model fit**

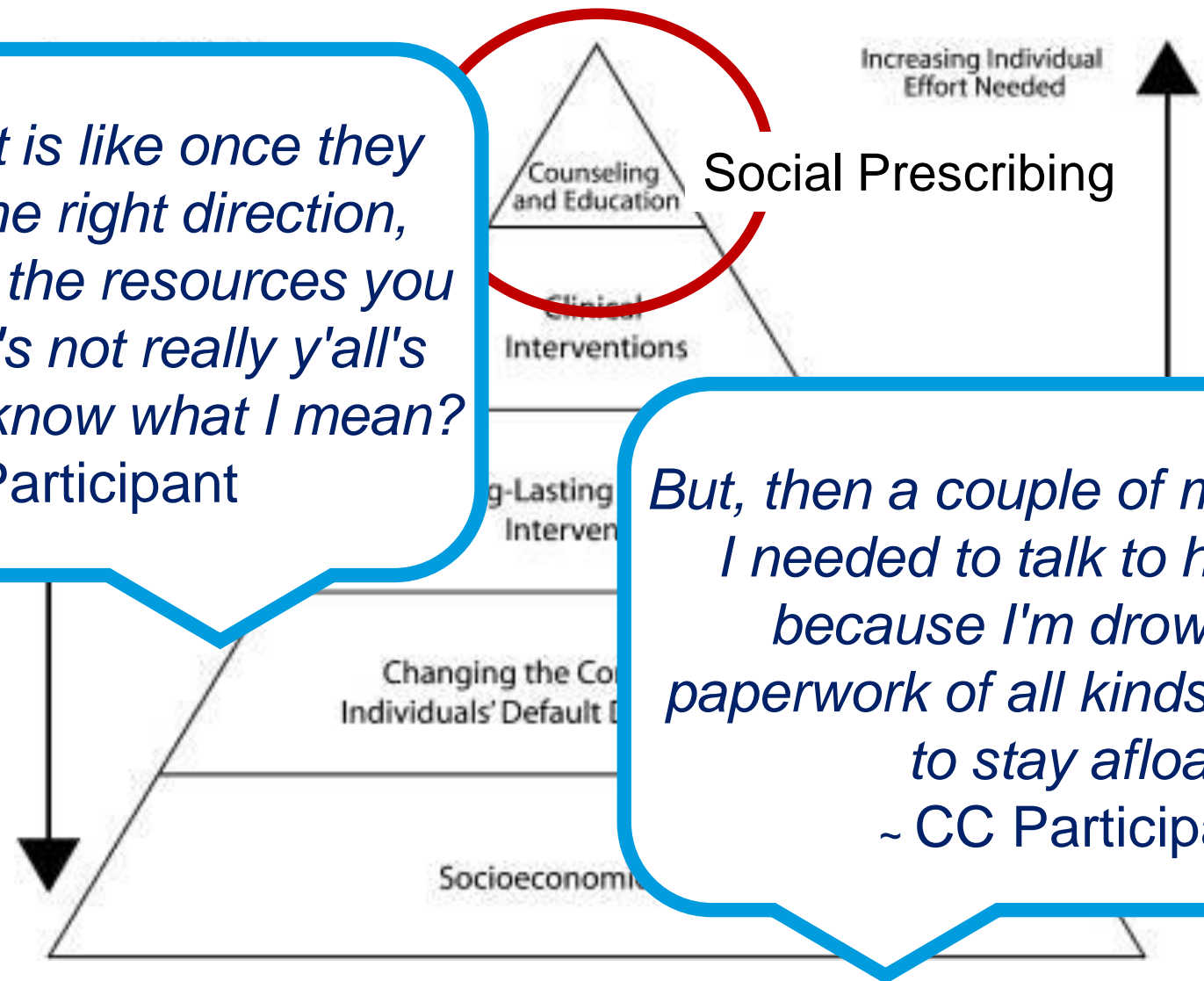
- **Population Model:**

- Effect of CC on well-child attendance was no longer significant after adjusting for potential confounders in GSEM
- **Significant sociodemographic differences in CC uptake**

- **Stratified Model:**

- **Modest effects of CC on well-child attendance and influenza vaccination** when the model was stratified by language and SES.
- Observed one instance of CC improving vertical equity

*What's difficult is like once they point you in the right direction, actually getting the resources you need. But that's not really y'all's [CC] fault. You know what I mean?*  
~ CC Participant



*But, then a couple of months later, I needed to talk to her again, because I'm drowning in paperwork of all kinds, just trying to stay afloat.*  
~ CC Participant

The Health Impact Pyramid Adapted from Frieden, 2010 p. 591



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