

Prenatal Substance Exposure and Reporting of Child Maltreatment by Race and Ethnicity

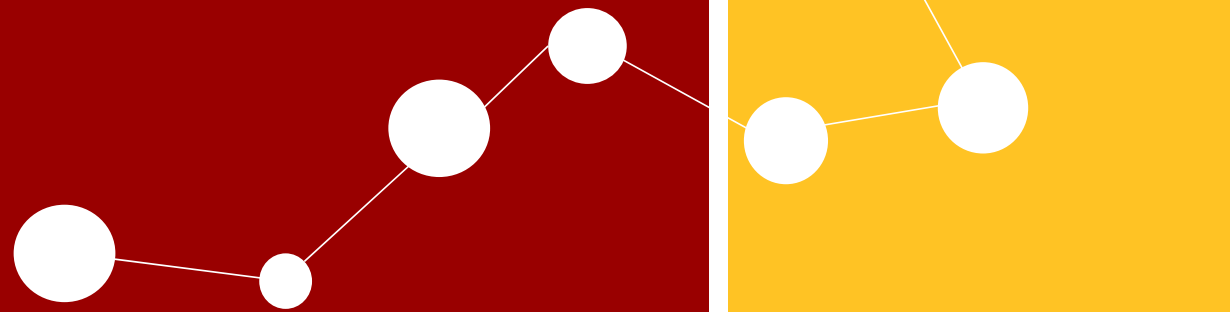
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Harnessing the scientific potential
of linked, administrative data to inform
children's programs and policies.

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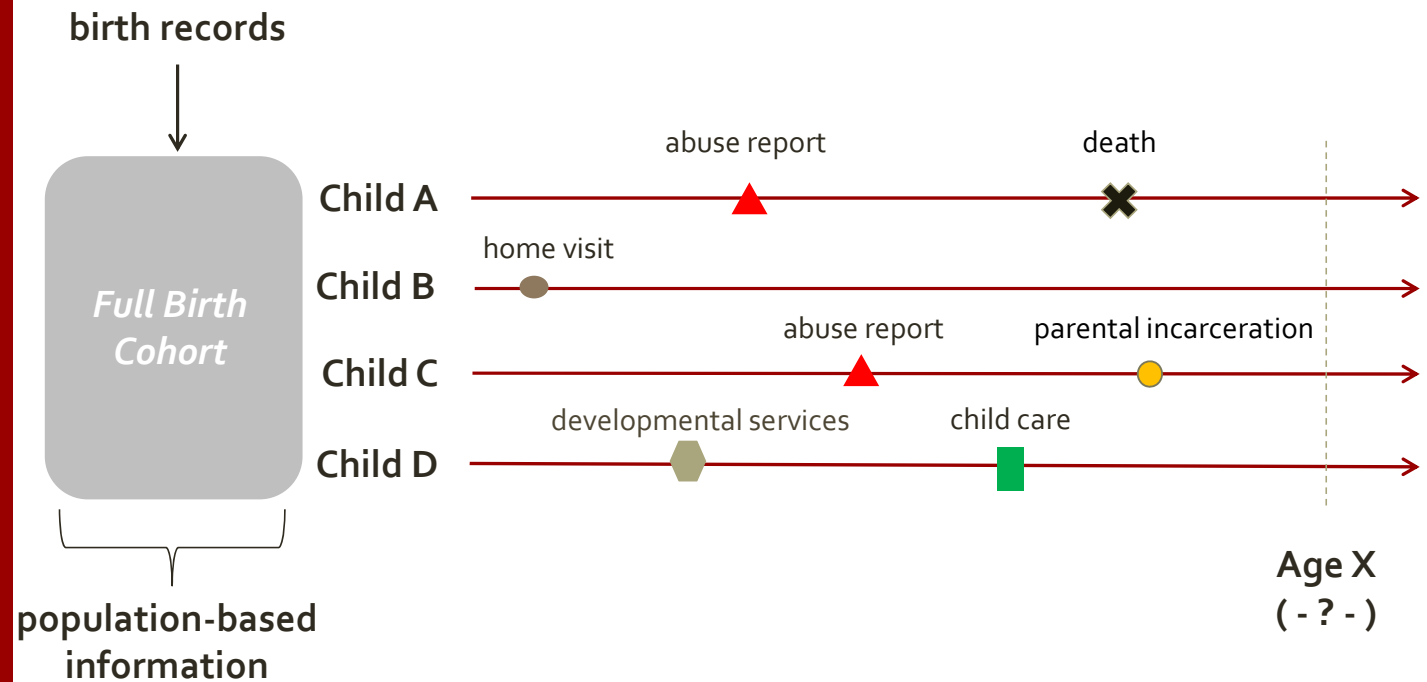
california
child welfare
indicators project



Scope of Work

(defined in IRB and data use protocols)

Largescale, epidemiological birth cohort study...



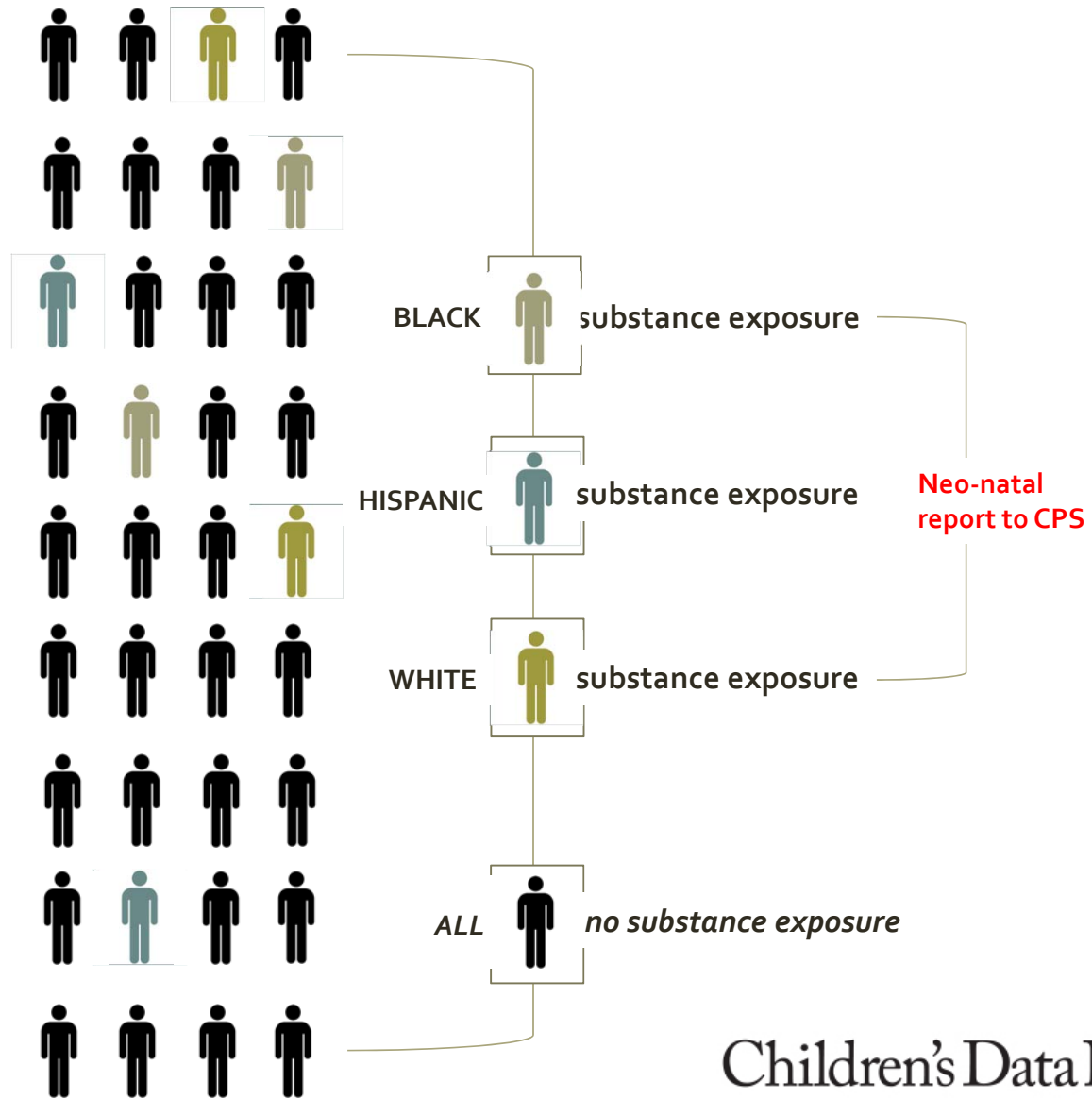
Background

- In the US, persistent racial/ethnic disparities in infants reported and substantiated for maltreatment
 - Black = 40 per 1000
 - White / Hispanic = 18 per 1000
- NEJM Study from 1990 on substance abuse and pregnancy
 - Similar rates of substance abuse across races
 - Increased risk of reporting for Black infants
 - But NOT based on linked data...
- Limited data concerning the role that prenatal substance exposure may play in reporting to child protective services (CPS)
 - Unknown whether medical clinicians are more likely to report black and Hispanic substance-exposed infants than white infants

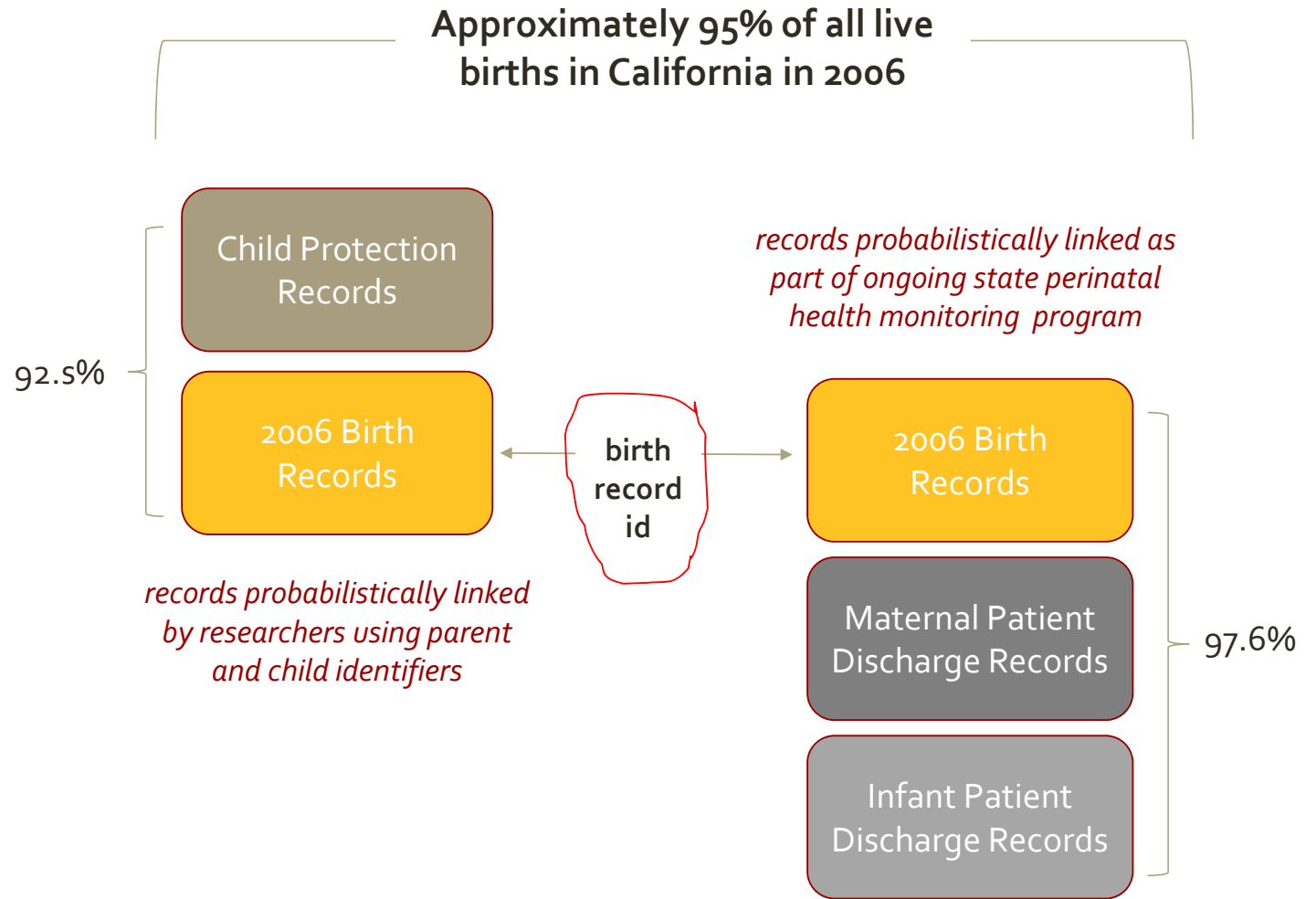
Policy Context

- The Child Abuse Prevention and Treatment Act requires all states have policies and procedures to notify CPS when an infant is born with prenatal substance exposure.
- As of 2012, substance exposure had been incorporated into the definition of child abuse and neglect in at least a dozen states.
- In California, however, there are no laws mandating that prenatal substance exposure be reported to CPS.
 - The law requires a report of a substance-exposed infant only when *“other factors are present that indicate risk to a child”* and makes explicit that *“a positive toxicology screen at the time of delivery of an infant is not in and of itself a sufficient basis for reporting child abuse or neglect.”*

Prospective Design – Using Retrospective Data



Data Sources



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Variables

- **Dependent Variables (child protection data)**
 - Neonatal report to CPS (0/1)
- **Independent Variables (birth and hospital discharge data)**
 - Maternal race / ethnicity (black, Hispanic, white)
 - ICD-9-CM Code for any indication of in utero substance exposure (up to 25 codes on maternal and infant discharge records)
 - ICD-9-CM Code for substance type (e.g., cocaine, cannabis, amphetamine)
- **Demographic and Health Covariates (birth record data)**
 - Maternal age
 - Insurance type
 - Initiation of prenatal care
 - Paternity establishment
 - Parity
 - Infant birth weight

Findings:

Population Characteristics

- 474,071 black, Hispanic, and white infants born in 2006
 - 1.6% (n=7,428) diagnosed with substance exposure
- Substance exposed population:
 - Black: 1,269 (17.1%)
 - Hispanic: 2,999 (40.4%)
 - White: 3,160 (42.5%)
- Substance-exposed infants were **more** frequently observed among births:
 - Covered by public insurance (73.0% vs. 51.9%)
 - Late prenatal care (44.6% vs. 14.5%)
 - Low birth weight recorded (16.9% vs. 6.5%)
 - Missing paternity (40.5% vs. 9.5%)

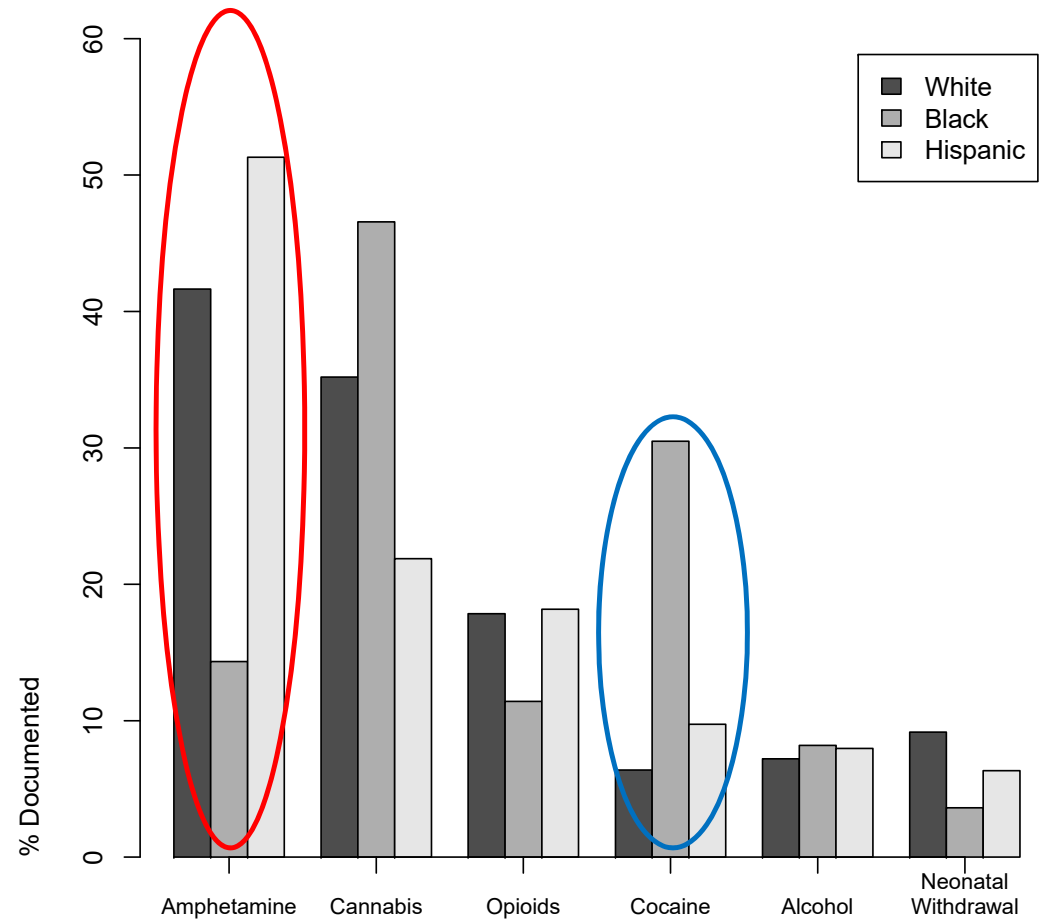
Findings:

Racial/Ethnic Differences by Substance Type

Black –
4.1%

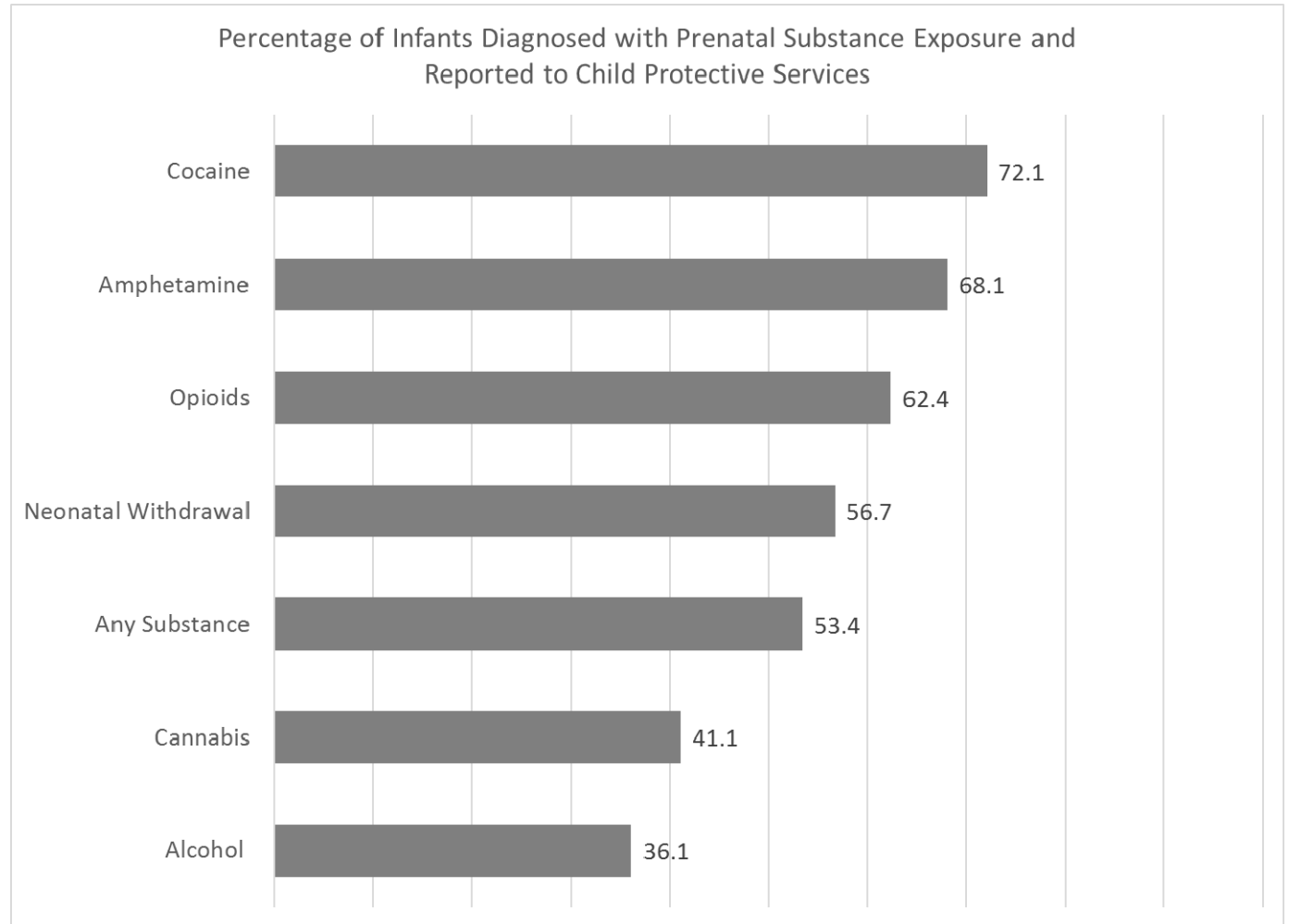
Hispanic –
1.0%

White –
2.1%



Findings:

Differences in CPS Reporting by Substance Type



Findings:

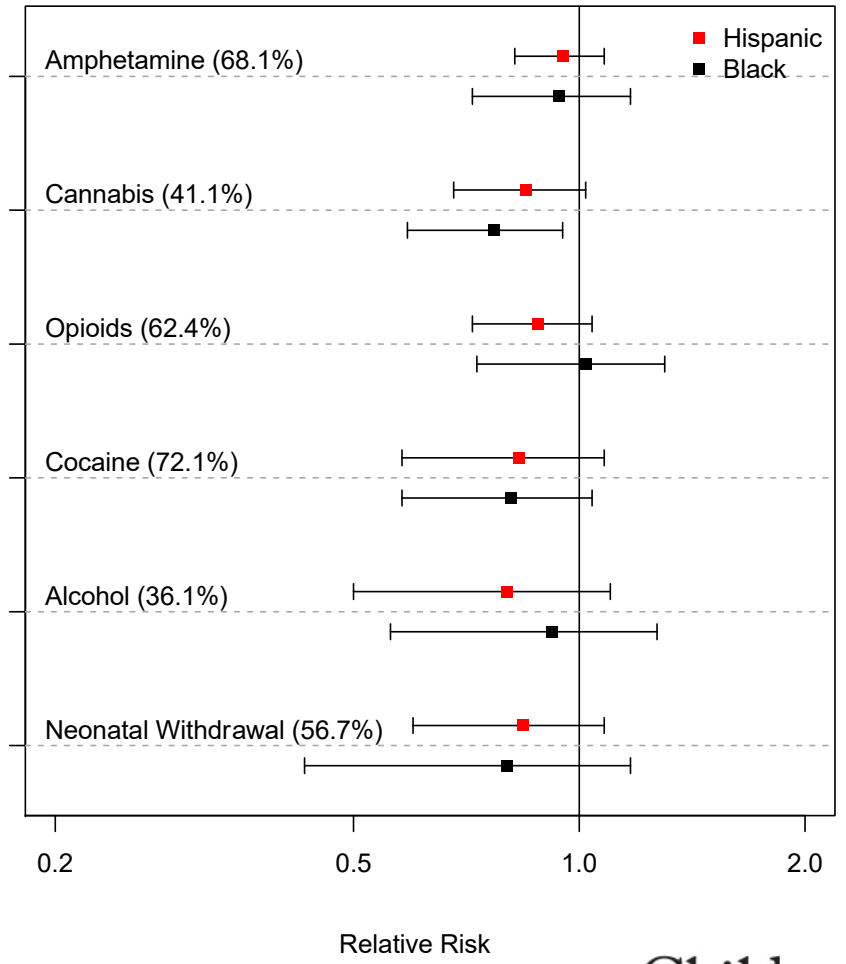
Rates of CPS Reporting - Any Substance Exposure

- Substance Exposure – Risk ↑
 - $RR = 43.0^{***} (41.2, 44.4)$
- Black and Hispanic with Substance Exposure – Risk ↑
 - $RR_{Black} = 1.15^{***} (1.08, 1.21)$
 - $RR_{Hispanic} = 1.13^{***} (1.08, 1.18)$
- Adjusted for Demographics – No Detected Difference
 - $RR_{Black} = 0.96 (0.78, 1.05)$
 - $RR_{Hispanic} = 0.93 (0.80, 1.01)$

*** $P < .001$

Findings:
Rates of CPS Reporting - By Substance Types

Relative Risk for Substance Exposure



Findings: CPS Involvement by Substance Type

Substance Type (% Reported)	Substance Exposure		Black (vs. White)		Hispanic (vs. White)	
	RR	CI _{95%}	RR	CI _{95%}	RR	CI _{95%}
Amphetamine (68.1%)	6.62	(5.97, 7.27)	0.94	(0.72, 1.17)	0.95	(0.82, 1.08)
Cannabis (41.1%)	5.57	(4.83, 6.32)	0.77	(0.59, 0.95)	0.85	(0.68, 1.02)
Opioids (62.4%)	4.93	(3.99, 5.87)	1.02	(0.73, 1.30)	0.88	(0.72, 1.04)
Cocaine (72.1%)	4.96	(3.61, 6.30)	0.81	(0.58, 1.04)	0.83	(0.58, 1.08)
Alcohol (36.1%)	3.56	(2.04, 5.09)	0.92	(0.56, 1.27)	0.80	(0.50, 1.10)
Neonatal Withdrawal (56.7%)	3.79	(2.62, 4.96)	0.80	(0.43, 1.17)	0.84	(0.60, 1.08)

Takeaway #1?

- Diagnosed substance exposure significantly increased an infant's risk of being reported to CPS during the neonatal period (10 times, even after adjusting for other factors)
- But only half of all infants with a substance diagnosis were reported (53.4%). Unknown what services were provided to those who were not reported to CPS. (Other linkages?)
- From the perspective of the CPS system, 40.6% of all infants reported neonatally had diagnosed substance exposure...underscoring the importance of health and developmental supports needed to offset in utero adversities.

Takeaway #2?

- Significant differences in the nature of diagnosed substances by race and ethnicity, a relevant factor given that the likelihood of a report being made to CPS varied substantially by substance type.
- Findings of amphetamine exposure among Hispanic and white infants aligns with broader population differences reported in amphetamine use.
- Data underscore opportunities to use linked administrative data for population-level monitoring of diagnosed substance exposure and system responses.

Takeaway #3?

- We found no evidence that black or Hispanic infants with diagnosed prenatal substance exposure were more likely to be reported to CPS than white infants after adjustment for other covariates.
- Among newborns with diagnosed exposure, black and Hispanic infants had a statistically lower or equivalent risk of being reported to CPS for maltreatment compared with white infants.
- Although we did not find evidence that clinicians were more likely to report substance-exposed black or Hispanic infants to CPS, our findings do not address whether there is bias in screening for substances

Limitations

- Imperfect measurement of substance exposure
 - Only the subset of infants diagnosed at birth
 - Unknown if substance exposure diagnoses made prenatally are recorded at birth
- Data are from California in 2006
 - It is unknown how generalizable these results are for other birth cohorts
 - Or for other regions of the country
- No data on variations in clinician and hospital substance screening practices

Thanks!

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- Thank you to colleagues who have supported the preparation and analysis of these data: Joe Magruder, Daniel Webster, Barbara Needell, and Beate Danielsen.

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**Appendix A: |
Classification of Infants' Exposure to Substances Based on ICD-9-CM Code**

Substance abuse categories	ICD-9-CM codes	Substance abuse categories	ICD-9-CM codes
Alcohol-induced mental disorders	291	Pregnancy and childbirth	
Drug-induced mental disorders	292	Drug dependence	648.3
Alcohol dependence syndrome	303	Suspected damage to fetus from drugs	655.5
Drug dependence		Noxious influences affecting fetus or newborn	
Opioid type dependence	304.0	Alcohol / Fetal Alcohol Syndrome	760.71
Sedative, hypnotic, or anxiolytic dependence	304.1	Narcotics	760.72
Cocaine dependence	304.2	Hallucinogenic agents	760.73
Cannabis dependence	304.3	Cocaine	760.75
Amphetamine, other psychostimulant dependence	304.4	Drug withdrawal syndrome in newborn	779.5
Hallucinogen dependence	304.5	Toxic effect of alcohol	980.0
Other specified drug dependence	304.6		
Combinations of drugs dependence	304.7, 304.8		
Unspecified drugs dependence	304.9		
Nondependent abuse of drugs			
Alcohol abuse	305.0		
Cannabis abuse	305.2		
Hallucinogen abuse	305.3		
Sedative, hypnotic, or anxiolytic abuse	305.4		
Opioid abuse	305.5		
Cocaine abuse	305.6		
Amphetamine or related sympathomimetic abuse	305.7		
Antidepressants type abuse	305.8		
Other, mixed, or unspecified drug abuse	305.9		

Appendix A:
Classification of Infants' Exposure to Substances Based on ICD-9-CM Codes

Substance abuse categories	ICD-9-CM codes	Counts
Alcohol-induced mental disorders	291	5
Drug-induced mental disorders	292	48
Alcohol dependence syndrome	303	54
Drug dependence		
Opioid type dependence	304.0	239
Sedative, hypnotic, or anxiolytic dependence	304.1	3
Cocaine dependence	304.2	74
Cannabis dependence	304.3	124
Amphetamine, other psychostimulant dependence	304.4	242
Hallucinogen dependence	304.5	0
Other specified drug dependence	304.6	12
Combinations of drugs dependence	304.7, 304.8	27
Unspecified drugs dependence	304.9	30
Nondependent abuse of drugs		
Alcohol abuse	305.0	449
Cannabis abuse	305.2	2,235
Hallucinogen abuse	305.3	11
Sedative, hypnotic, or anxiolytic abuse	305.4	74
Opioid abuse	305.5	303
Cocaine abuse	305.6	627
Amphetamine or related sympathomimetic abuse	305.7	2,797
Antidepressants type abuse	305.8	17
Other, mixed, or unspecified drug abuse	305.9	659

Substance abuse categories	ICD-9-CM codes	Counts
Toxic effect of alcohol	980.0	0
Pregnancy and childbirth		
Drug dependence	648.3	718
Suspected damage to fetus from drugs	655.5	103
Noxious influences affecting fetus or newborn		
Alcohol / Fetal Alcohol Syndrome	760.71	99
Narcotics	760.72	791
Hallucinogenic agents	760.73	99
Cocaine	760.75	466
Drug withdrawal syndrome in newborn	779.5	526

Questions?

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Putnam-Hornstein E, Prindle J, & Leventhal JM. (2016). Prenatal substance exposure and reporting of child maltreatment by race and ethnicity. *Pediatrics*. doi: 10.1542/peds.2016-1273

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