

Participation in home visitation is associated with higher utilization of Early Intervention

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- Up to 13% of toddlers are affected by developmental delays
 - 5 domains: Gross motor skills, Speech and language, Cognition, Social/personal, Activities of daily living
- Socioeconomically disadvantaged children disproportionately affected
- Left untreated → life course consequences
 - Disruptive behavior/ Problems interacting with peers
 - Academic failure
 - Poor health outcomes

References:

1. Rosenberg SA et al. *Pediatrics*. 2008;121(6):e1503-1509.
2. Simon AE et al. *Journal of epidemiology and community health*. 2013;67(8):689-695.
3. Bagner DM et al. *Administration and policy in mental health*. 2013.

- Early Intervention (EI) services provide best opportunity for optimal outcome
- Part C of 2004 Individuals with Disabilities Education Act
 - Available to all families, regardless of income
 - Home- or center-based services
- Do **not** provide services to a majority of eligible children
 - 2008 study found 10% of children with DD were receiving intervention services and black children were less likely to receive services than other racial

References:

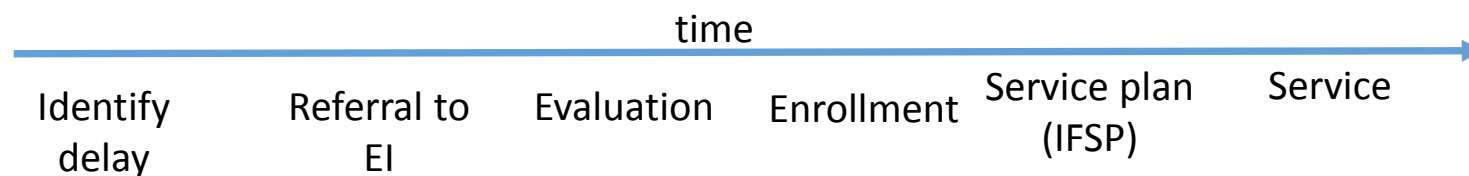
4. Barnett WS. *Science*. 2011;333(6045):975-978.

5. Spittle AJ, et al. *The Cochrane database of systematic reviews*. 2007(2):CD005495.

6. Rosenberg SA et al. *Pediatrics*. 2013;131(1):38-46.

7. Rosenberg SA et al. *Pediatrics*. 2008;121(6):e1503-1509.

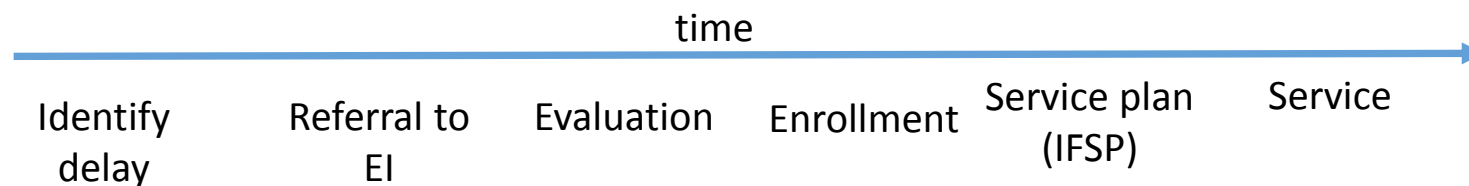
- Potential barriers to EI service access include:
 - Parental belief that child will grow out of delay
 - Lack of standardized screening at pediatric well visits
 - Transportation & cell phone minutes
 - Logistic barriers (navigating the system)



References:

4. Barnett WS. *Science*. 2011;333(6045):975-978.
5. Spittle AJ, et al. *The Cochrane database of systematic reviews*. 2007(2):CD005495.
6. Rosenberg SA et al. *Pediatrics*. 2013;131(1):38-46.
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8. Jimenez, ME et al. *Academic Pediatrics*. 2012;12(6): 551-557

- Home visiting provide opportunity to reduce barriers
 - Provide routine developmental screening
 - Initiate referrals for evaluation
 - Increase adherence to well child care and coordination after physician referral



References:

1. Goyal NK et al. 2016;53:108-117.

- **Objective** was to determine if participation in HV is associated with
 - Greater utilization of EI services
 - Decreased time to initiation of services
- **Approach** to compare EI utilization among participants in HV program to families not in HV

- Every Child Succeeds (ECS) : Multi-model home visiting program
 - Healthy Families America
 - Nurse-Family Partnership
- ECS has served nearly 24,000 first time mothers in greater Cincinnati, Ohio
- Serves children → 3 years of age
 - Routine Developmental screening (Ages and Stages Questionnaire (ASQ) 3 & Social-Emotional)



- Every Child Succeeds (ECS) - Multi-model home visiting
 - Healthy Families Ohio
 - Nurse-Family Partnership
- ECS has served 100,000 mothers in greater Cincinnati area
- Serves children ages 0-5 (includes Routine Developmental Checklist (RD) and Stages Questionnaire (SQ) & Social-Emotional)



- ECS Eligibility Criteria
 - Single parent
 - Low income (WIC or Medicaid)
 - Unmarried
 - Maternal age < 18 years
 - Late/inadequate prenatal care



- **Approach**-to compare EI utilization among participants in HV program to families not in HV
- Comparison sample: selected from births from same geographic area
 - Birth records from Ohio Department of Health
- Propensity score matched to ECS sample

- Outcomes:
 1. Proportion of children being served by EI (yes/no)
 2. Mean time from birth to service (days)
- Captured from Ohio Department of Health (ODH) early intervention data system

Statistical analyses

- To approximate random assignment of home visiting status, propensity score matching was employed
- Comparison subjects matched 1:1 to subjects in HV on the logit of the propensity score
 - Calipers of width equal to 0.2 of the standard deviation of the logit of the propensity without replacement
- Calculated descriptive statistics and group comparisons before and after matching

Statistical analyses

- Logistic regression modeling estimated the relative risk for: utilizing EI service (yes/no)
- Hazard functions were estimated using the kernel-smoothed methods for both ECS and non-ECS group

Prior to Matching:

Comparison of ECS participants to eligible comparison between 2006-2012

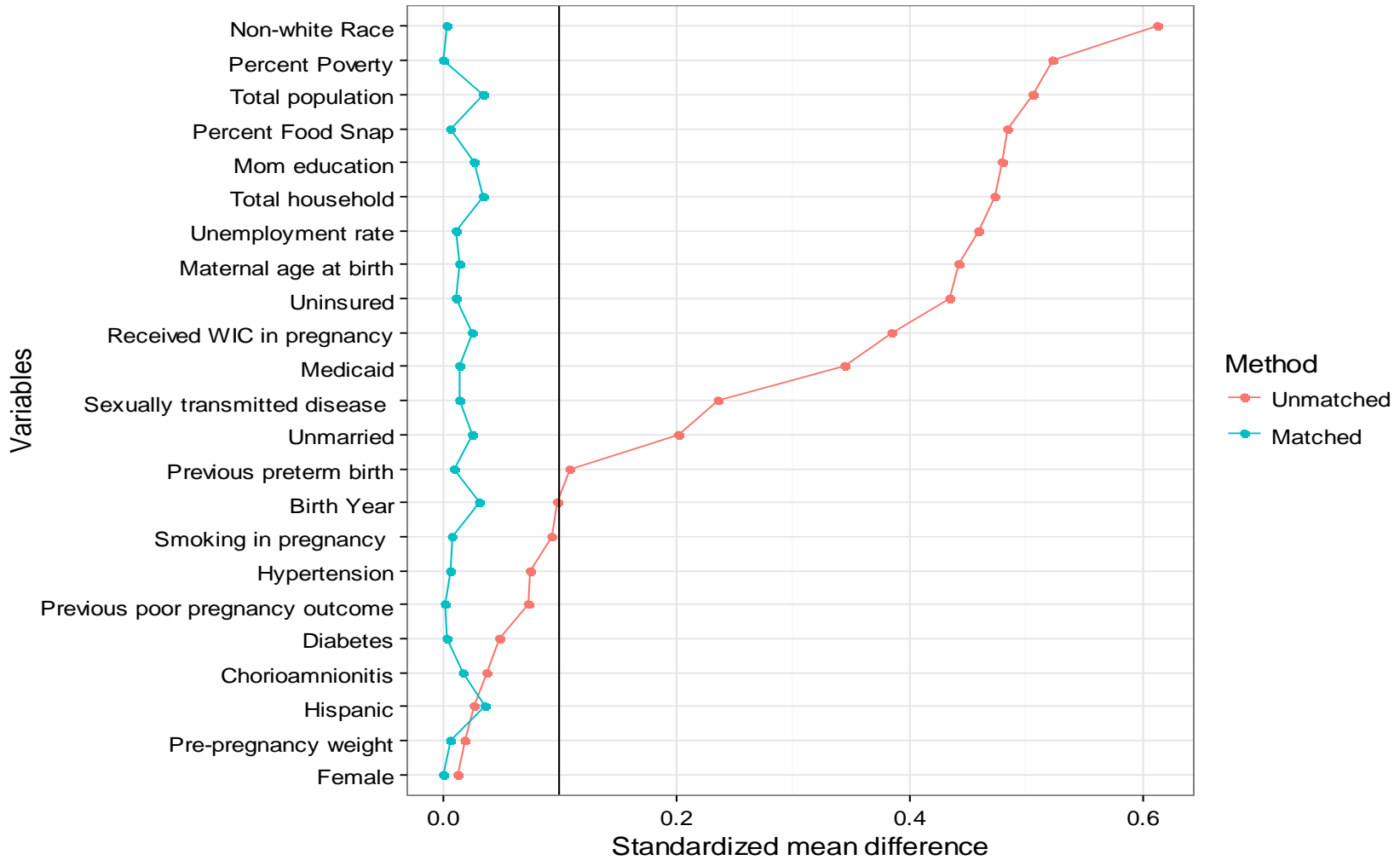
ECS Home Visiting

n=3,574

Home visiting eligible

n=20,071

- *Despite selecting comparable cohort, ECS sample was:*
 - *Less educated*
 - *Poorer*
 - *More pregnancy risk factors*

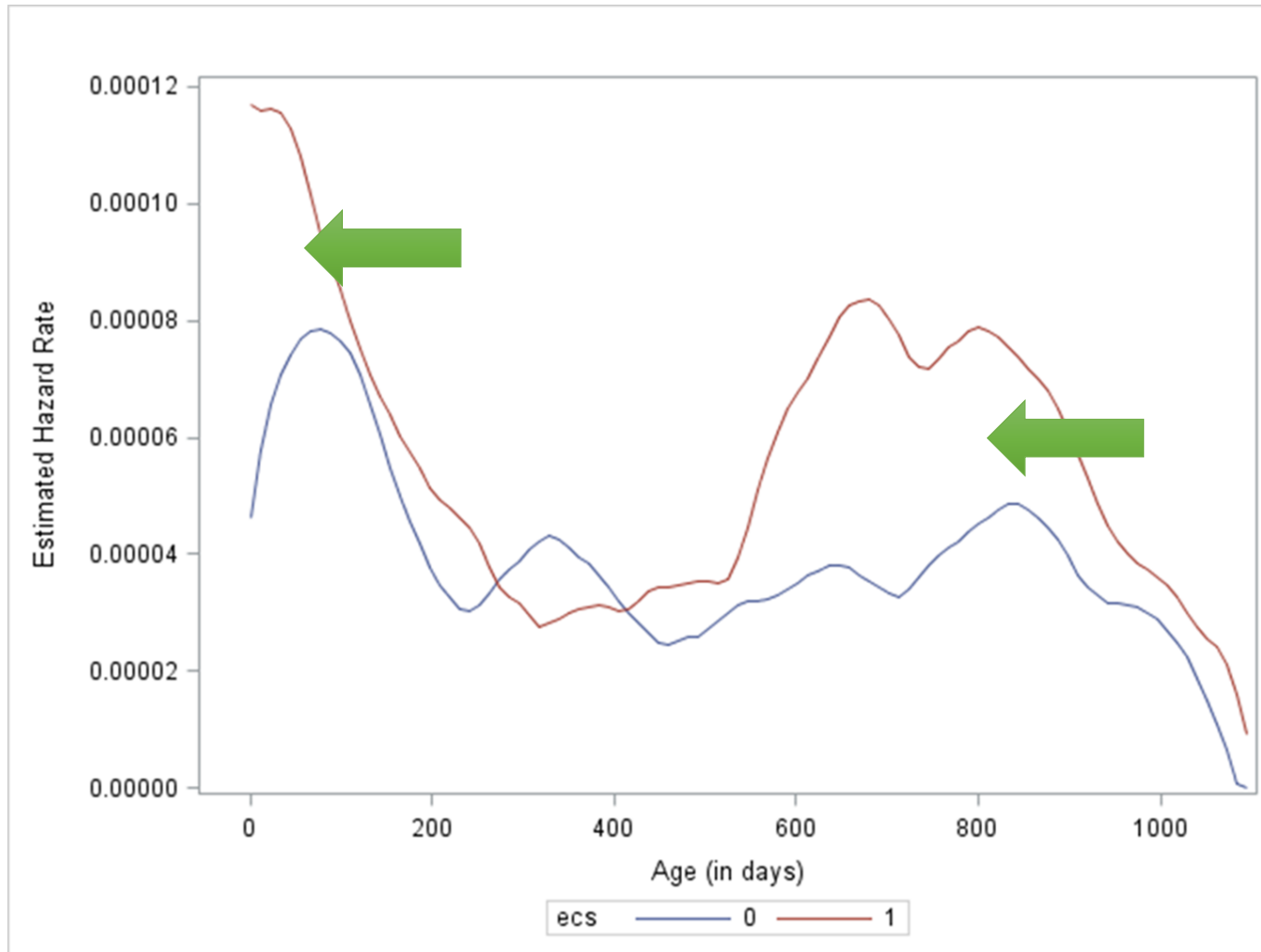


Results

- Time from birth to EI did not differ significantly between HV and Non-HV participants (504 versus 472 days)
- The percent who accessed EI (yes/no) did differ with a larger percentage of ECS participants accessing EI services
 - 6.0 versus 4.3% ($p=0.001$)

Results

	Home visiting eligible N=3,597	ECS home visiting N=3,597
Early Intervention (<3 years)	214 (6.0%)	152 (4.3%)
Odds Ratio	1.00 (reference)	1.43 (1.16, 1.78)



Discussion

- In Ohio, children qualify for EI :
 - Qualifying condition
 - Delay on one or more domains using standardized testing
 - Informed clinical opinion
- HV may improve EI utilization for each pathway (previous slide)

Limitations

- Administrative data- not collected for research purposes
- Assumptions regarding the underlying prevalence of DD
 - No evidence that groups differ by Part C qualifiers

Summary

- The total proportion of families served by EI was higher
- This was especially true during two time points.

Thank you

Study team: Alonzo Folger, Nanhua Zhang, Ting Sa, Jennifer Ehrhardt, Jareen Meizen-Derr, Neera Goyal, Judith Van Ginkel, and Robert Ammerman

Ohio Department of Health