EVALUATING THE IMPACT OF HOME VISITING ON THE DEVELOPMENTAL PROGRESS OF OUR MOST VULNERABLE CHILDREN

DAVID BARD, PHD
WILLIAM BEASLEY, PHD
JUAN DELARA, MPH
ANNETTE JACOBI, JD

1 University of Oklahoma Health Sciences Center
2 Oklahoma State Department of Health

A Presentation at the HARC Collaborative Science of Home Visiting Meeting 2016
DATE AND LOCATION: November 14, 2015; Crystal Gateway Marriott, Washington DC
OBJECTIVE

- Need for Early Identification of Developmental Disabilities and Behavioral Difficulties
- Explain Possible System Role for Home Visiting Programs
- Describe Home Visiting Infrastructure in Oklahoma
- Review basics of study design
- Evaluate rate differences among HV clients and non-HV comparisons
- Conclusions
- Future work in this area
INTRODUCTION

- Developmental and Behavioral Difficulties (DBDs) are costly
  - Estimated $250 billion per year

- DBDs predominantly persist among two groups of vulnerable children
  - Those susceptible to child abuse and neglect due to insufficient care or nurturance
  - Those, who despite adequate care, suffer developmental and/or behavioral delays or disorders from a very early age
  - ~13% of 9-24 month olds have a developmental concern that qualifies for EI

- When unnoticed and untreated, the price of DBDs and the number of ensuing negative impacts increases
Early interventions for children with DBDs have proven effective at remediation and prevention

- BUT early identification resources/infrastructure are limited.

This present study examines DBD risk among a sample of highly vulnerable Oklahoma children and attempts to build the case for wise use of resources aimed at targeted therapeutic efforts.
OKLAHOMA NATIONAL LEADER IN HOME VISITING AND EARLY CHILDHOOD SERVICE SYSTEMS

- Multiple nationally recognized home visitation programs
- Statewide Pre-K program
- Home visitation coalition
- Interagency council
## Continuum of Home Visitation Services in Oklahoma

<table>
<thead>
<tr>
<th>Model: Nurse-Family Partnership</th>
<th>OCAP – Start Right</th>
<th>Oklahoma Parents as Teachers</th>
<th>Early Head Start Home-Based</th>
<th>Safe Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Families America and Parents as Teachers</td>
<td>Training as Required by Model</td>
<td>Families with a child from birth up to as old as 36 months</td>
<td>Early head Start Home-based</td>
<td>Safe Care (OU Health Sciences Center Pilot Project)</td>
</tr>
<tr>
<td>Every other week</td>
<td>Weekly, then less frequently as needed</td>
<td>Monthly or twice a month as needed</td>
<td>Training as Required by Model</td>
<td>Training as Required by Model</td>
</tr>
</tbody>
</table>

### Home Visiting Staff:
- **Nurses**
  - The new mother must:
    - be less than 29 weeks pregnant;
    - be expecting her first child;
    - meet the same income eligibility criteria as WIC and Medicaid

### Enrollment Criteria:
- Families must:
  - have at least one child 5 years old or younger;
  - not have a current Child Welfare investigation with DHS;
  - have risk factors like substance abuse, domestic violence, or mental health issues.
MIECHV PROGRAM

Maternal, Infant and Early Childhood Home Visiting

Family Support and Prevention Service
Community and Family Health Service
Oklahoma State Department of Health
Maternal, Infant, Early Childhood Home Visiting Grant  (MIECHV)

- **Intent:**

  Grants will result in a *coordinated system* of early childhood *home visiting* in every state that has the capacity and commitment to provide infrastructure and supports to assure high-quality, evidence-based practice.
Community Connectors
Community Coalitions
Marketing Campaigns
Central Intake
Toll-free Phone Number
QR Codes
Website

http://parentpro.org/
MATERNAL INFANT EARLY CHILDHOOD HOME VISITATION GRANT PROGRAMS

- 2 local EBHV evaluation teams
  - Internal: Oklahoma State Dept. of Health (OSDH)
  - External: OUHSC, Center on Child Abuse and Neglect
- Fed expectations for internal evaluation
  - Report MIECHV benchmarks and constructs
- Fed expectation for external evaluation
  - “a continuous program of research and evaluation activities in order to increase knowledge about the implementation and effectiveness of home visiting programs, using random assignment designs to the maximum extent feasible.”
1. Evaluate coordination between home visitation programs and other support services.

[SYSTEMS COORDINATION]

4. Evaluate overall need for child and family services within each community

[SERVICE NEED]
Recruitment

- Caregivers of young children from four Oklahoma counties (2 urban, 2 rural)
- Must meet qualification requirements for Home-Based Parenting Programs
  - Qualification determined by Medicaid and WIC eligibility

Participation

- 1,490 study participants completed an online REDCap survey with an onsite data collector
- Participants answered screen questions about the following areas of concern:
  - General Developmental and Emotional Delays
    - Ages and Stages Questionnaire® (ASQ3)- a parent-completed, child monitoring system
Four HV models managed by the State Dept of Health were considered

- Nurse-Family Partnership®
- Health Families America®
- Parents As Teachers®
- SafeCare®

- 3329 clients enrolled in 2012-2015 and completed 1+ ASQ
OUTCOMES AND PROPENSITY MATCHING

- **Outcomes**
  - ASQ Risk Status up till last administration in 2015
  - Service referrals
    - from HV providers in the client sample
    - from health, EI, or school professional in comparison sample
  - Early Intervention Utilization
    - Self-reported and recorded by HV providers for clients
    - Self-reported and self-recorded for comparison sample

- **Propensity Matching of Samples**
  - Logistic regression propensity model used to produce design weights for comparison sample
  - Model considered…
    - Caregiver’s gender, age, number of children, marital status, income, race/ethnicity, education
    - Child’s gender, birth order, prematurity status, age at last ASQ
## RESULTS

<table>
<thead>
<tr>
<th></th>
<th>El Referral</th>
<th>No Referral</th>
<th>El User</th>
<th>No El</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HV Clients</strong></td>
<td>209 (6%)</td>
<td>3120 (94%)</td>
<td>148 (4%)</td>
<td>3181 (96%)</td>
</tr>
<tr>
<td><strong>Comparison</strong></td>
<td>61 (4%)</td>
<td>1429 (96%)</td>
<td>19 (1%)</td>
<td>1471 (99%)</td>
</tr>
</tbody>
</table>

P-values < 0.0001
RESULTS

- ASQ-3 Cutoff Scores set at 2 SD below mean.
- This cutpoint often represents 12-17% of a normative sample.
- Our comparison sample had percentages well above this range while the client sample fell well below.

<table>
<thead>
<tr>
<th></th>
<th>ASQ Risk+</th>
<th>ASQ3 Risk -</th>
</tr>
</thead>
<tbody>
<tr>
<td>HV Clients</td>
<td>220 (7%)</td>
<td>3109 (93%)</td>
</tr>
<tr>
<td>Comparison</td>
<td>454 (30%)</td>
<td>1036 (64%)</td>
</tr>
</tbody>
</table>

P-value < 0.0001
DISCUSSION

- Conclusions
  - HV programs may be better at referring and connecting children with DBDs to early intervention services
  - Still, plenty of room for improvement
    - Only 7% of families screened “At Risk” in client sample compared to 30% of a comparison sample.
    - Why?! \( p(T^+) = p(T^+ | D^+) \cdot p(D^+) + p(T^+ | D^-) \cdot p(D^-) \); Solve for when sensitivity and specificity equal 0.86: \( p(D^+) = 0.10 \)

- Limitations
  - Measurement across client and comparison samples probably not commensurate (instrumentation bias exists)
  - Self-report bias in referral completion
FUTURE WORK

- Early Intervention data sharing agreement in the works
- ASQ as a BRIEF measure of development
  - Insensitive to change argument???
  - PEW performance indicator: Child development gains
- Extensions to Early Care and Education (ECE)
FUNDING


- 2010-2013: Prevention of Child Maltreatment in High Risk Latino Families with Young Children. Grant funded by the Potts Family Foundation.
University of Oklahoma Health Sciences Center: David Bard, Lana Beasley, Will Beasley, Jane Silovsky, Debra Hecht, La Chanda Stephens, Donna Wells, Gina Carrier, Thomas Wilson, Geneva Marshall: Center on Child Abuse and Neglect, Developmental and Behavioral Pediatrics

Community Agencies: NorthCare Center, Latino Community Development Center, Parent Child Center, Eastern Oklahoma Youth Services, Family and Children's Services, and others

State Agencies: Oklahoma Department of Human Services, Department of Health, Department of Mental Health and Substance Abuse, Ok Health Care Authority,

Others: Legislative staff, Ok Institute of Child Advocacy,
REFERENCES


ADVERSE CHILDHOOD EXPERIENCES

WHAT IMPACT DO ACEs HAVE?

As the number of ACEs increases, so does the risk for negative health outcomes.

Possible Risk Outcomes:

- **Behavior**
  - Lack of physical activity
  - Smoking
  - Alcoholism
  - Drug use
  - Missed work

- **Physical & Mental Health**
  - Stroke
  - Diabetes
  - Depression
  - Schizophrenia
  - Obesity
  - Cancer
  - Chronic disease
  - Broken bones
In a recent national study, Oklahomans were among those at greatest risk for ACEs (Sacks et al., 2014)
  - At least 10% of Oklahoma children experience 4+ ACEs
  - Oklahoma was the only state that fell in the highest prevalence quartile for eight of the most commonly assessed ACEs.

Perhaps not coincidentally, Oklahoma ranks among the worst in the nation on health conditions associated with high levels of ACEs
  - These conditions are now targeted by a conservative Oklahoma legislature for major health policy reforms (Cosgrove, 2015)
ACES HIGHER AMONG IMPOVERISHED FAMILIES

A study of “at-risk” families in Oklahoma (families eligible for some form of government assistance with at least one child age 0-36 months) (Bard, et.al. 2015)

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>CDC-Kaiser (N = 17,337)</th>
<th>MIECHV At-Risk Parents Baseline (N=1,229)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>36.1%</td>
<td>24.7%</td>
</tr>
<tr>
<td>1</td>
<td>26.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>2</td>
<td>15.9%</td>
<td>15.7%</td>
</tr>
<tr>
<td>3</td>
<td>9.5%</td>
<td>24.2%</td>
</tr>
<tr>
<td>4+</td>
<td>12.5%</td>
<td>21.3%</td>
</tr>
</tbody>
</table>

22% CDC-K vs 45.5% “at-risk” Okies Experience 3+ ACEs!!!
ECE and Child Welfare Professionals were given a survey rating their perception of collaboration with stakeholders.

Both groups of respondents reported very low levels of collaboration.

Response Scale Anchors:
0 = No Interaction
5 = Collaboration