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- **Population Health Research Team Project:**  
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# **Creation Of An Innovative Interdisciplinary Partnership Program To Reduce Racial Disparities In Sleep-Related Infant Deaths**

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# Background



- In the United States, Black infants are 2 times more likely to die than white infants
- Higher racial disparity in infant mortality in Kalamazoo, MI
  - Black children are 3-4 times more likely to die during infancy than are white children
- Deaths related to unsafe sleep
  - One of the most preventable causes of death in Kalamazoo
  - Black or multi-racial infants account for 75% of sleep-related deaths
  - 94% of deaths occur to infants who have public insurance

# Background



- Many families are not following the AAP's Safe Sleep Guidelines
  - Of sleep related deaths in Kalamazoo (2010-2015)
    - 50% were sharing a sleep surface
    - 88% sleeping in an unsafe location (i.e., couch, chair)
    - 67% stomach or side sleeping
  
- Barriers to promoting safe sleep
  - Home visitors are one of the primary agents for change
  - Often caregivers know the safe sleep guidelines (alone, on back, in crib) but don't follow them
  - Successfully promoting safe sleep among families is often challenging
    - Importance of engaging in conversation, rather than lecture



# Study Purpose

- Evaluate a program to train home visitors to have effective conversations with their clients about infant safe sleep.
  
- Training: Two half days
  - AAP guidelines
  - Cultural sensitivity training
  - Motivational Interviewing training
    - Therapeutic technique
    - Collaborative
    - Focus on safe sleep

# Study Design cont'd

- Included community mothers to help with safe sleep conversation role plays.
- Home visitors from 5 programs
- Assessed effects on home visitors (n=35) and their clients (n=78)

# Measures: home visitors

- Pre and post training
  - Knowledge about safe sleep – questionnaire measure
    - Based on National Action Plan to Promote Safe Sleep (NICHD publications, 2016)
- Use of Motivational Interviewing skills
  - Coded videotapes of safe sleep conversation role plays (8 minutes each)
    - Motivational Interviewing Treatment Integrity 4.2 Coding system (Moyers et al., 2014; Owens et al., 2017; Moyers et al., 2016)
    - Coded counts of MI behavior and made global ratings of behavior
- Cultural sensitivity
  - Community mothers rated home visitors using 4 questions from the Multicultural Therapy Competency Inventory – Client Version

# Measures: Home Visiting Clients

- Changes in safe sleep knowledge, attitudes, and behaviors
  - Via questionnaire administered before and after safe sleep conversations with home visitors
    - Also at 1 month follow-up
- Compared “treatment group” (those whose home visitors attended the training) to “control group” (those whose home visitors did not attend training)



# Results: Home Visitors

- Safe sleep knowledge questionnaire

- No significant change - scores were high at both pre and post-test

- $[t(32) = -1.15, p = 0.14]$

- pre-test mean = 14.3 ( $SD = 1.1$ )

- post-test mean = 14.6 ( $SD = 0.84$ )

- Total score possible = 15



# Results: Home Visitors

- Videotaped observations of safe sleep role play conversations
  - Significant changes from pre to post-test in ~33% of MI-consistent skills assessed
  - No change in MI inconsistent skills
  - Change in 1 out of 4 global ratings (soften sustain talk)
    - No change in: empathy, partnership, cultivate change talk

Changed from Pre-post test	Did not change from pre-post test
Reflections	Open-ended questions
Asking permission	Affirmations
Pros and cons	Seeking collaboration
Scaling questions	Autonomy
	Persuade with permission
	Cultivate change talk
	Empathy
	Goals and values

# Results: Home Visitors

○ Community mothers' ratings of home visitors' cultural competence based on mock safe sleep sessions

○ Significant increases in 2 out of 4 questions

○ The home visitor was open to my expertise (own knowledge) on my own life [ $t(31) = 2.68, p=.012$ ]

○ The home visitor was open (through body language and communication) to the differences between us [ $t(31) = 2.68, p=.012$ ]

No Significant Change

○ The home visitor used relationship building skills, such as listening and paying attention. [ $t(31) = -1.61, p=.26$ ]

○ The home visitor showed openness to my ideas. [ $t(31) = -1.22, p=.23$ ]

# Clients: Sample Demographics

- Average age of infant: 4.3 months
- Primary African-American (43%) or Caucasian (40%)
- Income: 52% earned less than \$10,000 annually
- 50% never married
- 44% some high school or high school graduate

# Results: Home Visiting Clients

- Pre-post Knowledge & pre - follow-up change scores by group
  - ANCOVA – controlled for child age and marital status
    - Significant effect of group at follow-up – higher change scores in treatment group

Pre to post	SS	MS	F	P
Marital Status	4.8	4.8	0.40	0.53
Child age	11.71	11.71	0.97	0.33
<b>Group</b>	<b>36.08</b>	<b>36.08</b>	<b>2.99</b>	<b>0.09</b>
Error	832.84	62		

Pre to follow-up	SS	MS	F	P
Marital Status	6.8	6.8	0.54	0.47
Child age	9.4	9.4	0.75	0.39
<b>Group</b>	<b>94.96</b>	<b>94.96</b>	<b>7.5</b>	<b>0.008</b>
Error	820.32	64		

# Results: Home Visiting Clients

- Attitudes and Behavior

- Group did not predict change score

- But, mean changes were higher in the txt group



# “Post-Hoc” Tests

- Wilcoxon Signed Rank Tests by Group for safe sleep behavior
  - Significant change from pre to follow-up for treatment but not control group
    - Control group  $t(40) = -0.84, p = .40$
    - Treatment group  $t(30) = -2.28, p = .02$
- Changes in the following items for txt but not control group:
  - How often does your baby sleep with pillows, a bumper pad, a thick blanket or stuffed toys/animals?
  - How often does your baby sleep with you or another person?
  - How often does your baby sleep on a sofa, couch, or chair?

# Results: Home Visiting Clients – Effects of Race

- Pre to post attitude changes were greater for White mothers than for mothers of color ( $z = 2.71, p = .01$ ).
  - Knowledge and behavior change did not differ by race.





# Summary

- The training improved home visitors' use of Motivational Interviewing skills and ability to communicate in a collaborative manner with clients.
- Clients who were assessed after their home visitors attended the training had greater changes in knowledge and safe sleep behavior than did clients who were assessed before their home visitor attended the training.



# Conclusions



- Our relatively brief training in safe sleep, cultural competence, and Motivational Interviewing improved home visitors' ability to communicate with their clients effectively about safe sleep.
- Changes in home visitors' skills translated to improved client knowledge about safe sleep and increases in safe sleep behavior.
- Follow-up trainings may benefit home visitors and their clients.
- Similar trainings may benefit other types of providers (e.g., medical providers)

# Limitations

- Home visitors had previous MI training and the level of training varied.
- Small sample size for home visitor and client outcomes.
- No random assignment to group for the client outcomes.
- Only pre-post data were collected on home visitors (no control group).

# Questions?

○ Thank you

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