ADDRESSING EARLY LIFE RISK FACTORS FOR DIABETES

Family Spirit: An Indigenous Solution to Changing Children’s Life Course Trajectories

September 20, 2017 for Preventing Diabetes in Indian Country

Allison Barlow, PhD, MPH and TEAM!
Johns Hopkins University

CENTER FOR AMERICAN INDIAN HEALTH
Presentation Overview

- Background on Johns Hopkins Center for American Indian Health

- Rationale for Early Childhood Home-Visiting to Break the Cycle of Obesity, Diabetes and other Poor Behavioral Health Trajectories for Indigenous Children

- The Family Spirit Model: an Indigenous Solution

- Results/Findings from Family Spirit Trials

- A Look to the Future for Diabetes Prevention Practice
For more than three decades we have partnered with American Indian communities to co-design programs to achieve optimal health and well-being across the lifespan.

MOU with Indian Health Service since 1991.
Johns Hopkins Center for American Indian Health

Founded by Dr. Mathu Santosham at Johns Hopkins School of Public Health in 1991, after 10+ years work with Southwestern tribal communities
Our Center’s 3 decade partnership with Southwestern tribal communities

- Navajo Nation
- White Mountain Apache
- San Carlos Apache
- Santo Domingo Pueblo

Locations:
- Albuquerque
- Tucson
- Phoenix
- San Carlos Apache
- Santo Domingo Pueblo

States:
- Utah
- Colorado
- Arizona
- New Mexico
Our Center’s Current Scope
Program Approach: Working Across the Lifespan

Birth

“Respecting the Circle of Life”
Teen Pregnancy/STI prevention

Early Childhood

“Celebrating Life”
Suicide Prevention

“Family Spirit” Pregnancy - Age 3:
Parenting/Healthy Start

Middle Childhood

Maternal and Child Immunization

“Arrowhead” Youth Entrepreneurship

Adolescence

“Together on Diabetes”
Family Health Coach Model

Adulthood

Higher Ed Scholarships

“EMPWR” Risk Reduction & Counseling

Pneumonia Prevention

“Native Vision”
Health and Education Promotion
1980 to Today: A Changing Landscape…

Major shift from high infectious disease mortality to

Behavior and mental health inequalities

Low education, employment, modern trauma, fractured families
Disparities for Reservation AI/AN Youth Today

- Death Rate (0-25 yrs): 2.5x higher
- Suicide Rate (15-24): 4x higher
- Alcohol Deaths (15-24): 7-10x higher
- Diabetes: 2.5x higher
- School Readiness: <50%
- High school drop-out: up to 50%
- Teen Childbearing: 2x higher
- Unemployment rates: 50 to 80%
The Downward Trajectory

- Early Child Neglect
- Obesity
- Substance Use
- Poor school readiness
- Drop-out
- Unplanned pregnancy
- Suicide Behavior
Where to begin to break the cycle?

Unprepared parenthood → Early child neglect

Unemployment → Poor school readiness

Drop-out → Obesity and Diabetes

Suicide and substance use → Unprepared parenthood

Where to begin to break the cycle?
What We Have Learned About Parenting and Early Childhood Behavior

- Poor/negative parenting (poor maternal self-efficacy, inconsistent discipline; restrictive, coercive parenting) associated with externalizing and internalizing behaviors in infancy/toddlerhood are predictive of problems in middle and later childhood
- Early life is the most formative developmental period
- Pregnancy/early parenting – key time for behavioral redirection
The earliest behavior problems we can measure in children (from Infant Toddler Social & Emotional Assessment)

**Externalizing**
- Aggression/Defiance
- Peer Aggression
- Activity/Impulsivity

**Internalizing**
- General Anxiety
- Depression/Withdrawal
- Separation Distress
- Inhibition to Novelty

**Dysregulation**
- Negative Emotionality
- Eating
- Sleep
- Sensory Sensitivities
Parenting and Early Childhood Behavior Problems Associated with Obesity

- **Negative parenting** (inconsistent discipline; restrictive/authoritative/coercive parenting; negligent) associated with **increased obesity risk in children**.
  - Trends Endocrinol Metab. 2013 Apr 19 E-pub

- **Externalizing behaviors at 24 mos** associated with **higher BMI at 24 months and thru age 12**
  - BMC Pediatr. 2010 Jul 14;10:49

- **Obese children** have **higher rates of externalizing and internalizing disorders**.
  - Acad Pediatr. 2013 Jan-Feb;13(1):6-13
Parenting and Early Childhood Behavior Problems Associated with other adolescent/adult problems

- Early externalizing/internalizing ➔ early onset substance use problems

- Early externalizing/internalizing ➔ young, risky first sex.

- Early externalizing problems ➔ poorer academic achievement

- Externalizing problems (age 7) ➔ risk of suicide.

- Maternal distress + early childhood externalizing ➔ adolescent depression

- Early Externalizing/Internalizing/Dysregulation ➔ poorer physical (obesity/diabetes & heart disease and mental illness) (and cycle repeats)
  - *Psychoneuroendocrinology.* 2013 Dec;38(12):2854-62
Stronger Parents Raise Stronger Children*

- Prenatal/Early Life Home Visiting
  - Evidence-based interventions proven to improve the life trajectories of low income women and children
  - Positive effects now shown up to age 19 yrs

* Credit: Dr. Ann Bullock, Indian Health Service

Family Spirit: An Indigenous Solution
Family Spirit: Two Decades of Development

**Family Spirit Design**
- Tested with 160 Moms/babies prenatal-6 months pp

**Family Spirit Trial 1:**
- Moms/Dads
- Prenatal to 6 mos. pp
- RCT evaluation
(n= 68 parents-children)

**Family Spirit Trial 2:**
- Moms/Dads
- Prenatal to 12 mos. pp
- RCT evaluation
(n= 166 parents-children)

**Family Spirit Trial 3:**
- Mom/babies
- Prenatal to 3 yrs. pp
- RCT evaluation
(n= 322 parents/children)

**Program Replication**
- 100 tribal sites across 16 states
- Chicago and St. Louis

**Program Enhancement**
- Family Spirit-Nurture

1995-1998
1999-2001
2002-2005
2005-2012
2012-Present
Communities that helped develop and evaluate Family Spirit

- White Mountain Apache
- Navajo Nation
- San Carlos Apache
How do we affect change:
The Family Spirit Theoretical Model

Adapted from Patterson et al., 1989 for Family Spirit Intervention
A closer look…

Family Spirit’s Intergenerational design:

- Substance abuse
- Depression
- Parental stress
- Poor coping skills

Family Spirit targets improved parenting, plus behavioral/mental health issues that can impede positive parenting:
Family Spirit Intervention

Home-Based Outreach

Structured, home-based curriculum taught by AI Home Visitors to young mothers from pregnancy – 36 mos post-partum

Family Involvement

Community Referrals
Designed for Culturally Embedded
Paraprofessional Family Health Educators

- Shortage of nurses on reservations
- Local paraprofessionals can navigate local cultural and social mores required for home visits
- Builds trust and local work force
- Agents of change

*TASK SHIFTING*
Comprehensive Content

- Goal-Setting
- Parenting and Well-Child Care
- Reproductive Health
- Nutrition/Responsive Feeding
- Establishing Meal Time/Sleep Routines
- Oral Health
- Family Planning
- Substance Abuse & Depression Prevention/Referral
- Conflict and Problem-Solving
- School/Career Planning
- Budgeting for One’s Family
- Preparing Children for School

American Academy of Pediatrics’ Caring for Your Baby and Young Child: Birth to Age 5 (Shelov et al. 2004): Definitive reference for child care content
Curriculum Overview
Culturally Grounded Content and Format

• “Familiar” **stories create dialogue** between Family Health Educator and mom to solve problems

• Illustrations by indigenous artist

• Out-takes for local cultural activities and additional resources
Lesson Presentation

What participant sees:  

What Health Educator sees:
How Well Has Family Spirit Worked?
Family Spirit Trial Results

“In-Home Prevention of Substance Abuse Risk in Native Teen Families”
(NIDA Grant #: ROI DA019042 with additional support from OBSSR)
Study Design: Randomized Controlled Trial

322 Teen Moms Enrolled in Study at 28-32 wks gestation

- **159 Moms** (Treatment group)
  - Family Spirit Intervention
  - *plus* Optimized Standard Care

- **163 Moms** (Comparison group)
  - Optimized Standard Care
Participants’ Baseline Characteristics

- N=322 mother-child dyads from 4 tribal communities
- Mean (SD) age = 18.1 (1.5) years
- Mean (SD) gestational age = 25 (3) weeks
- 77% primiparous
- 3% married
- 41% currently in school
- 51% lived in ≥ 2 homes in past year
- 32% elevated depression scores
- Lifetime drug use: 84% alcohol, 79% marijuana, 28% meth
Family Spirit Impact: Pregnancy to Age 3

Parenting
- Increased maternal knowledge 1,2,3,4
- Increased parent self-efficacy 3,4
- Reduced parent stress 2,4
- Improved home safety attitudes 3

Mothers’ Outcomes
- Decreased depression 1,2,4
- Decreased substance use 4
- Fewer risky behaviors 3,4

Child Outcomes
- Fewer social, emotional and behavior problems through age 3 2,3,4
- Lower clinical risk of behavior problems over life course 4

Family Spirit Findings

- Parental Factors/Stressors:
  * Reduced substance use
  * Reduced depression
  * Reduced externalizing problems
  * Reduced total behavior problems

- Stressors

- Parenting:
  * Knowledge
  * Self-efficacy
  * Maternal role attainment
  * Maternal involvement
  * Reduce Parenting Stress

- Socioeconomic Status

- PARENTING

- Child Factors

- Behavior Outcomes

- Child Outcomes:
  * Reduced externalizing
  * Reduced internalizing
  * Reduced dysregulation
  * Fewer in “at-risk” range

References:
Closer Look at Children’s Outcomes

ITSEA Problem Domains with Subscales

Externalizing
- Aggression/Defiance
- Peer Aggression
- Activity/Impulsivity

Internalizing
- General Anxiety
- Depression/Withdrawal
- Separation Distress
- Inhibition to Novelty
- Negative Emotionality

Dysregulation
- Eating
- Sleep
- Sensory Sensitivities
Impact of Family Spirit on Children in Tribal Communities

- Aggression & Impulsivity (Externalizing)
- Anxiety & Depression (Internalizing)
- Fussy, Disordered Sleep & Eating (Dysregulation)

National Norms

Family Spirit Children
Other children not participating
Proven Outcomes of Family Spirit

In-Home Visits Reduce Drug Use, Depression In Pregnant Teens

SUCCESSFUL INTERVENTION IN AMERICAN INDIAN COMMUNITIES COULD BE USED WIDELY IN LOW-INCOME GROUPS ACROSS THE COUNTRY, RESEARCHERS SAY

Intensive parenting and health education provided in homes of pregnant American Indian teens reduced the mothers' illegal drug use, depression and behavior problems, and set their young children on track to meet behavioral and emotional milestones they might have otherwise missed.

Johns Hopkins Bloomberg School of Public Health-led research also suggests that employing local community health educators instead of more formally educated nurses to counsel young at-risk mothers could be cost-effective and provide badly needed jobs to high school graduates from the same impoverished communities. While the study was conducted in four American Indian communities in the Southwest, the researchers note that its success could likely be replicated in other low-income populations around the United States.

A report on the findings is published Oct. 10 online in the American Journal of Psychiatry.

"For years in public health, we have been working on immunizations and other medical interventions to set the course for the health of disadvantaged children, and we have turned the tide," says the study's lead author, Allison Barlow, M.P.H., Ph.D., associate director of the Center for American Indian Health at the Johns Hopkins Bloomberg School of Public Health. "Now the burden is in multi-generational behavioral health problems, the substance abuse, depression and domestic violence that are transferred from parents to children. This intervention can help us break that cycle of despair."

American Indian adolescents have the highest rates of teen pregnancy, substance use, suicide and dropping out of high school of any racial or ethnic group in the country.
Family Spirit: National Endorsements

- **Highest federal rating** for HomVEE: effectiveness of home visiting program models targeting families with children 0 to 5.

- Highest **participant retention**: 91% to 1 year postpartum; 83% to 3 years postpartum.

- 4.0/4.0 on “Readiness for Dissemination.”
National Reach

- 100 tribal communities
- Across 16 states
- 2 non-Native communities:
  - Chicago, Illinois
  - St. Louis, MO
Where do we go from here?
A look to the future for Family Spirit

- New Modules to Address Early Childhood Obesity (grants from NICHD R01 HD87407-01A1 and RWJF)
  - Responsive Parenting
  - Early Childhood Diet/Feeding & Food/Water Security
  - Early Physical Activity

- Tailor Family Spirit to Individual Parent/Family Needs
  - Prescreen and tailor content
  - Use Technology to Increase Efficiency of Training and Enhance Retention
  - Digitize content for tablets, with Home Educator prompts and references

- Work Pre-Conception
  - Pre-puberty Mother-Daughter intervention in development
Acknowledgements

- The mothers, babies and families who participated in the Family Spirit development and evaluation
- Navajo Nation
- White Mountain Apache Nation
- San Carlos Apache Nation
- National Institute on Drug Abuse (NIDA)
- Indian Health Service
- Office of Behavioral and Social Science Research (OBSSR)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- Ford Foundation
- CS Mott Foundation
- Annie E. Casey Foundation
- Share our Strength Foundation
- National Institute for Child Health and Development (NICHD)
Allison Barlow
abarlow@jhu.edu
Johns Hopkins Center for American Indian Health

415 N. Washington St., 4th Floor
Baltimore, MD 21231
410-955-6931

Email: familyspirit@jhu.edu
8205 Spain Rd NE
Suite 210
Albuquerque, NM 87109
505-797-3305
A Story of Hope

https://www.youtube.com/watch?v=6e0swZ-e5f8