Universal Postnatal Home Visiting: Evidence of Impact and Lessons Learned

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Duke

CENTER for CHILD and FAMILY POLICY

DURHAM connects

GROWING HEALTHY BABIES

The Challenge to Change Community Rates of Child Maltreatment

- The Duke Endowment had interest and ten-year commitment
- Requirements in a response:
  - Replicable model based in developmental science
  - Rigorous evaluation of impact
  - Community rate of maltreatment / child well-being as the dependent variable
- Plan:
  - Formulate a model of child maltreatment based on study of risk and processes
  - Pilot several intervention and policy ideas
  - Test through randomized controlled trials
  - Disseminate

Risk Factors for Early Child Maltreatment Vary across Families

Healthcare:

1. Parent healthcare
2. Infant healthcare
3. Health insurance

Parenting/childcare:

4. Childcare plans
5. Parent-infant relationship
6. Manage infant crying

Family safety:

7. Family financial stability
8. Family violence
9. History of parenting difficulties

Parent mental health:

10. Depression
11. Substance abuse
12. Emotional support

UNIVERSAL DELIVERY IS A PARADIGMATIC SHIFT

- Every family is vulnerable at birth, but in different ways.
  - Across areas of demographic risk, 94% of families in Durham had 1+ needs for education and/or community resources.
  - The needs vary across families.
- Universal is the best route to community-level change.
- Universal efforts should not replace more intensive targeted programs, but they complement each other.
  - Analogy to a family practitioner working with specialized care.

Model of Universal Parent Intervention

1. Top down policy for community resources
   -- Preventive System of Care
   -- Align community resources
   -- Reach and screen all families

2. Bottom up practice with each birthing family
   -- Assess to identify risks/needs
   -- Brief interventions or motivational interview
   -- Improve community connectedness

HOW A UNIVERSAL PROGRAM HAPPENS

- Every family in the identified “community” with a newborn is eligible.
  - City, county, neighborhood, health system
- Family Connects is voluntary.
- Family Connects works to align community resources with input from families about the care and support they need.
- The model also leads to identification of gaps in the local system of care.

Three Steps to *Family Connects*

1. Connect with every family (3-7 contacts)
   - Universal recruitment at birthing hospital
   - Home visit(s) by public health nurse
   - Screen, assess 12 risk factors, quantify risk
2. Connect family with community, as needed
   - Professional, paraprofessional, and natural
3. So that parents can connect with infant

CORE FAMILY CONNECTS PROGRAM COMPONENTS

Community Alignment

FAMILY CONNECTS
NURSE HOME VISITS

Home Visiting

Data & Monitoring

1. COMMUNITY ALIGNMENT

THE PREVENTIVE SYSTEM OF CARE: THE CONTEXT FOR FAMILY CONNECTS

Community Alignment Framework

- Identify existing services supporting child and family needs, ranging from housing, to mental health services, to early intervention.
- Establish an Agency Finder for Family Connects program implementation and documentation.
- Identify service delivery gaps for feedback to community and key stakeholders.
- Identify key stakeholders to provide community context and support expanded program reach.

PREVENTIVE SYSTEM OF CARE: COMMUNITY ADVISORY BOARD

Establish a community advisory board (CAB) for ongoing communication among agencies relevant to Family Connects

- The CAB allows for assessment of community readiness prior to program installation, as well as ongoing monitoring of community alignment during program implementation.
- The CAB provides a major source for formative evaluation.
- Also fosters community buy-in and ownership of the program.

2. NURSING INTERVENTIONS

NURSING INTERVENTIONS

- Engagement & scheduling the home visit(s)
  Ideally face to face in hospital post-delivery
- The integrated home visit (IHV; ~2 Hours) at 2-3 weeks
- Follow-up visits (0-2 Total) and telephone calls as needed for further assessment, facilitating linkage to community services, and family support.
- Post-visit call (PVC)
  - For customer satisfaction, quality assurance, and confirmation of connections to community resources

THE FAMILY SUPPORT MATRIX

Support for Health Care

1. Maternal Health
2. Infant Health
3. Health Care Plans

Support for Safe Home

1. Household Safety / Material Supports
2. Family and Community Safety
3. History with Parenting Difficulties

Support for Infant Care

1. Child Care Plans
2. Parent-Child Relationship
3. Management of Infant Crying

Support for Parent(s)

1. Parent Well-Being
2. Substance Abuse
3. Parent Emotional Support

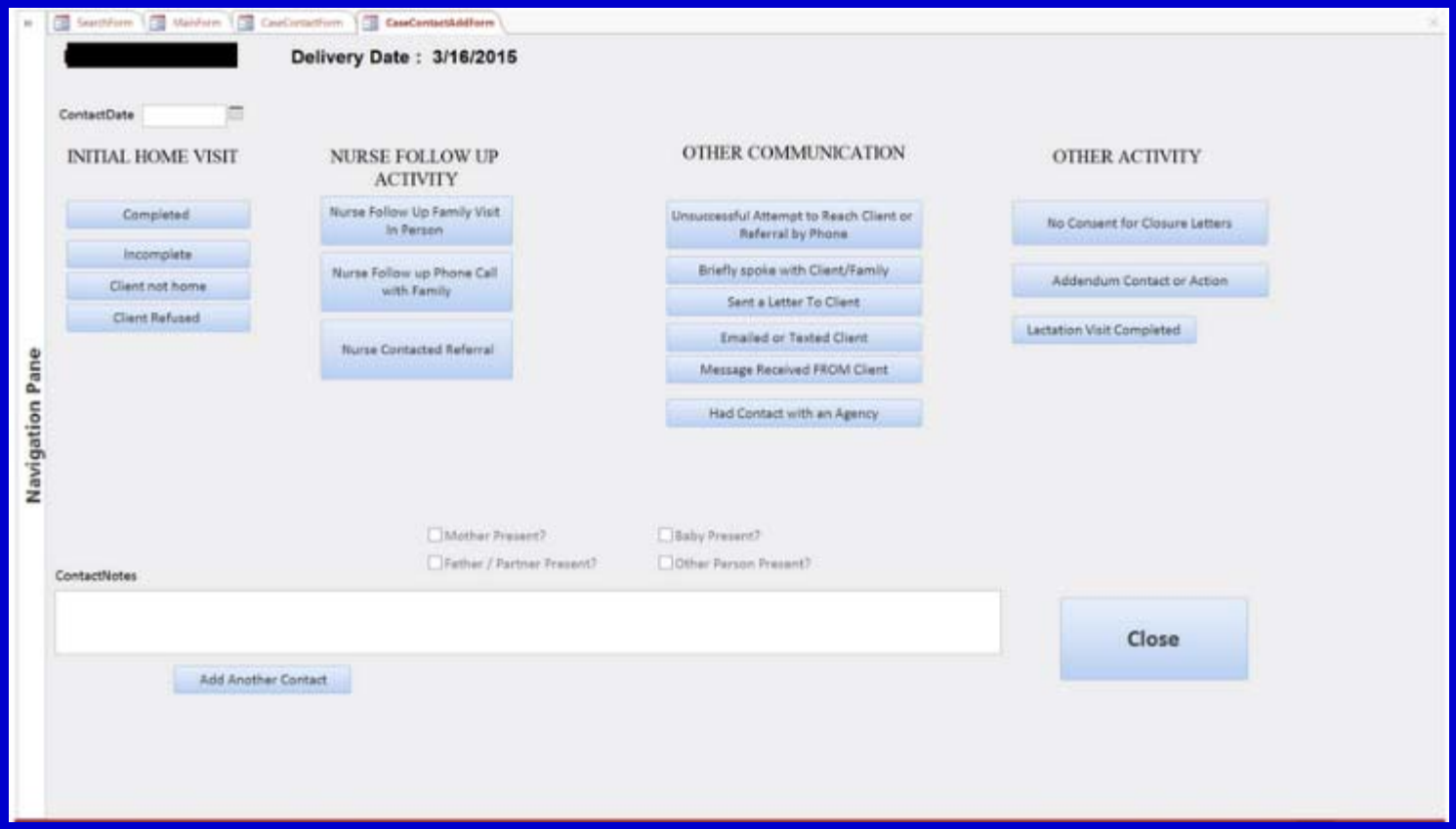
Each factor is rated as:

1 = No needs

2 = Needs addressed during visit

3 = Community resource needed

4 = Emergency intervention needed



3. DATA AND MONITORING

PROGRAM DATA

- DOCUMENTATION of clinical encounters
  - Electronic medical record and billing
- MONITORING program components for quality assurance
  - Population reach (scheduling & IHV completion)
  - Program implementation quality (fidelity & reliability)
  - Referral rates and outcomes
  - Family-consumer satisfaction
- IDENTIFYING community-level rates of risk and community capacity to support family needs

Evaluation Design for *Durham Connects*

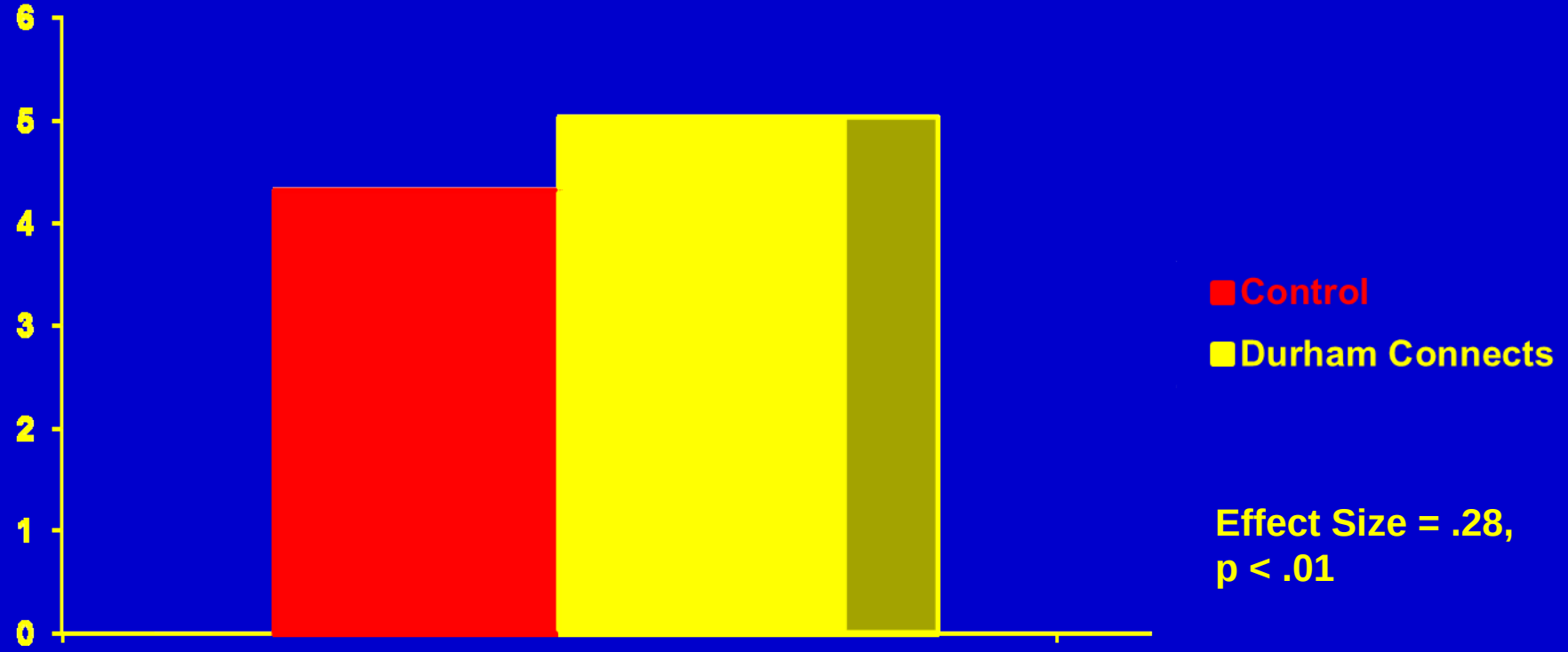
- Randomly assign by even-odd birthdate
  - 4,780 births between 7-1-09 and 12-31-10
  - Recruit even birthdates into intervention
  - No contact with controls
- Analyze by intent-to-treat
  - Administrative record review of all births
  - Random sample (n=686, 80.0% participation) from birth records for in-home interview at age 6 mos.
- Replicate
  - Second RCT
  - Field quasi-experiment

Implementation Findings

- High penetration
  - 80.0% of families agree
  - Of these, 85.9% complete
- High fidelity to protocol (Independent rater for 11%)
  - 85% compliance by nurse
  - Kappa for scoring = .69
- 45% of families show need for community resource
  - 39% connected community service

Mean Number of Community Connections Reported at Age 6 months

(Dodge et al., 2013, Amer J Pub Health)



Impacts at Age 6 Months

(Dodge et al., 2013, Pediatrics)

1. Mother-reported positive parenting behaviors
   -- higher for intervention than control
   (ES = .25, $p < .01$)

2. Blinded observer-rated mother parenting quality
   -- higher for intervention than control
   (ES = .23, $p < .05$)

3. Child care center quality rating (when in care)
   -- higher for intervention than control
   (ES = .85, $p < .01$)

Impacts at at Age 6 Months

(Dodge et al., 2013, Pediatrics)

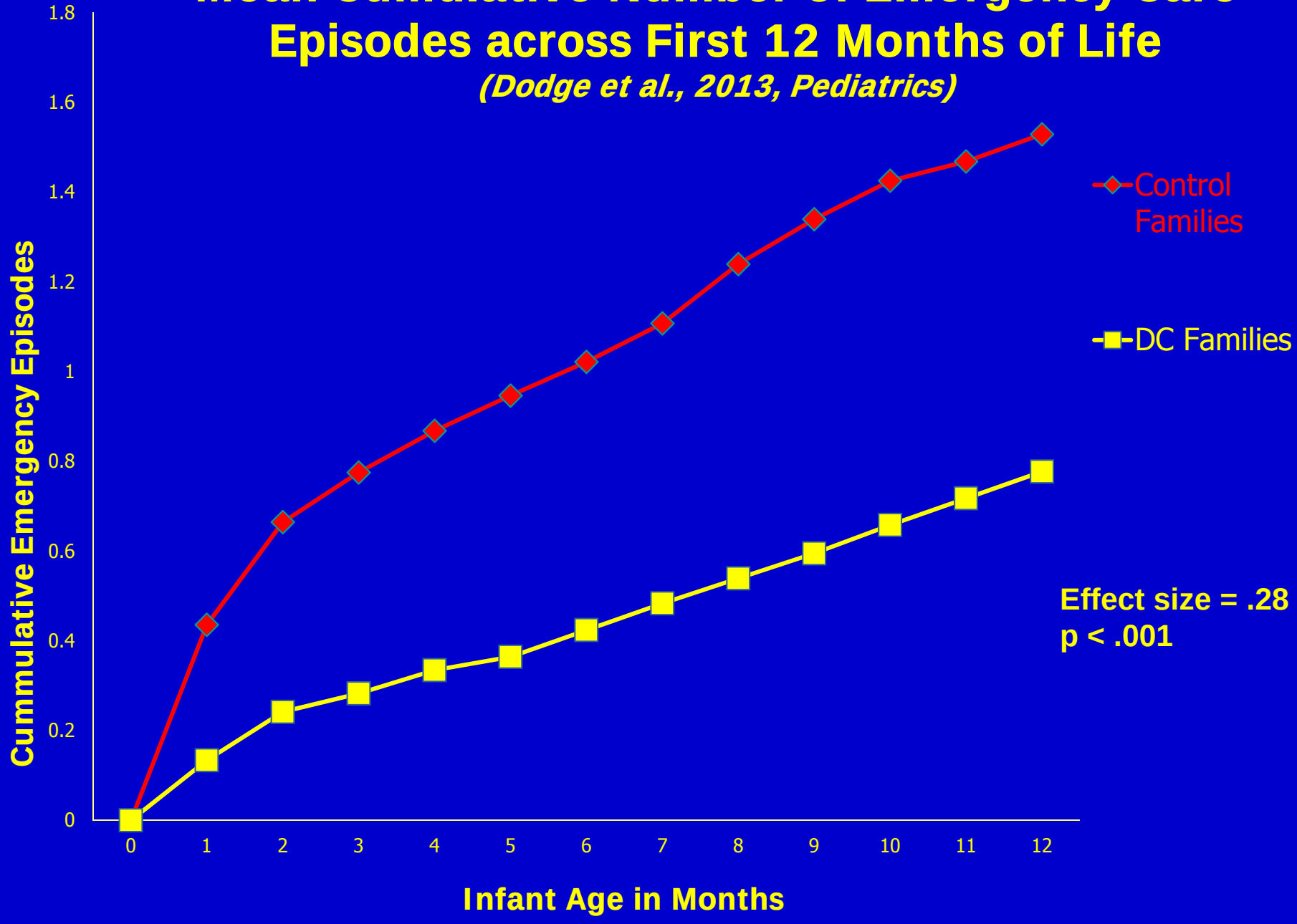
4. Mother-rated father-infant relationship
   -- better for intervention
      (ES=*.21*, p<.07)

5. Observer-rated home safety
   -- better for intervention
      (ES=*.22*, p<.05)

6. Probability of mother clinical level anxiety
   -- lower for intervention
      (OR=.65,p<.04)

Mean Cumulative Number of Emergency Care Episodes across First 12 Months of Life

(Dodge et al., 2013, Pediatrics)



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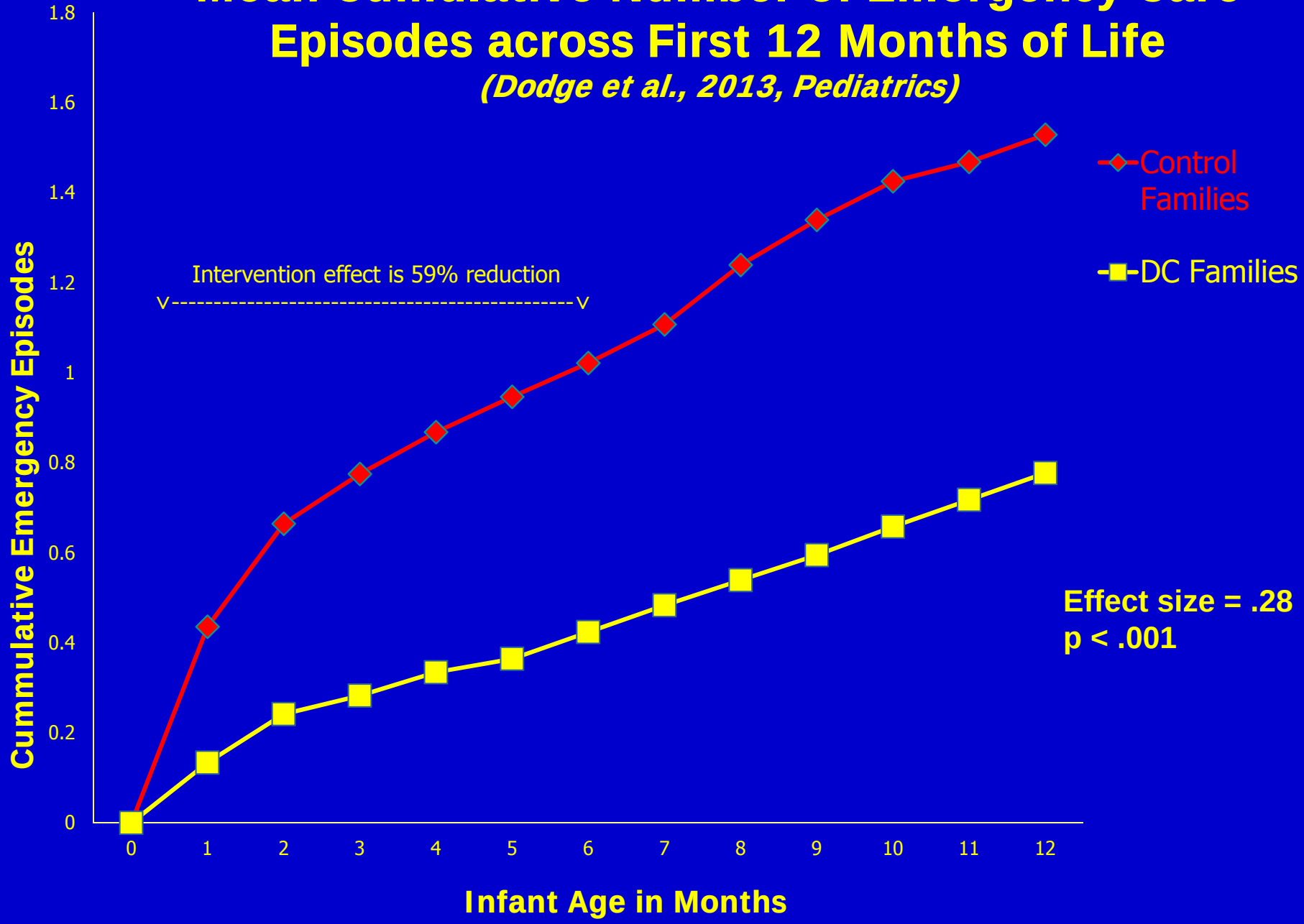

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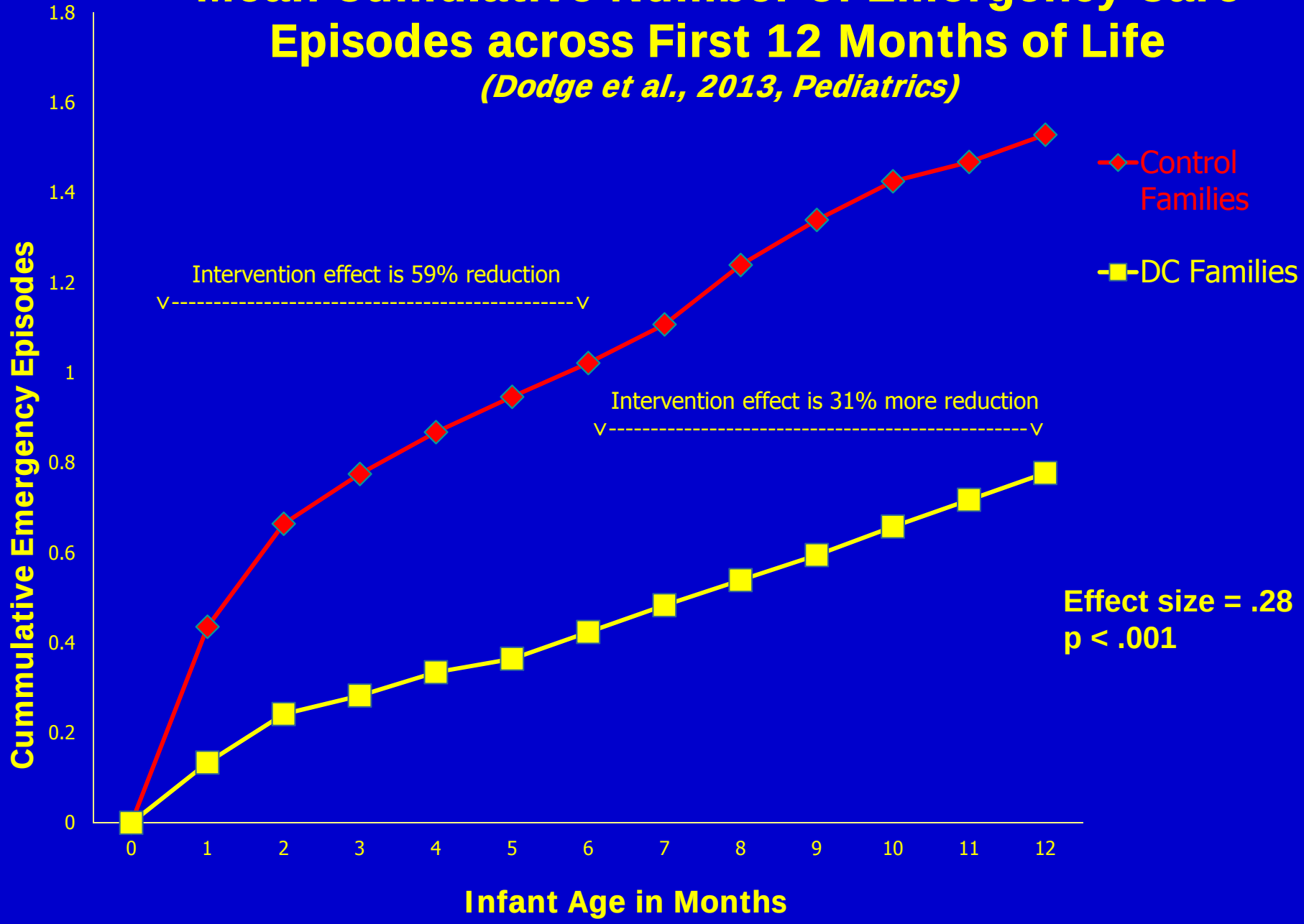
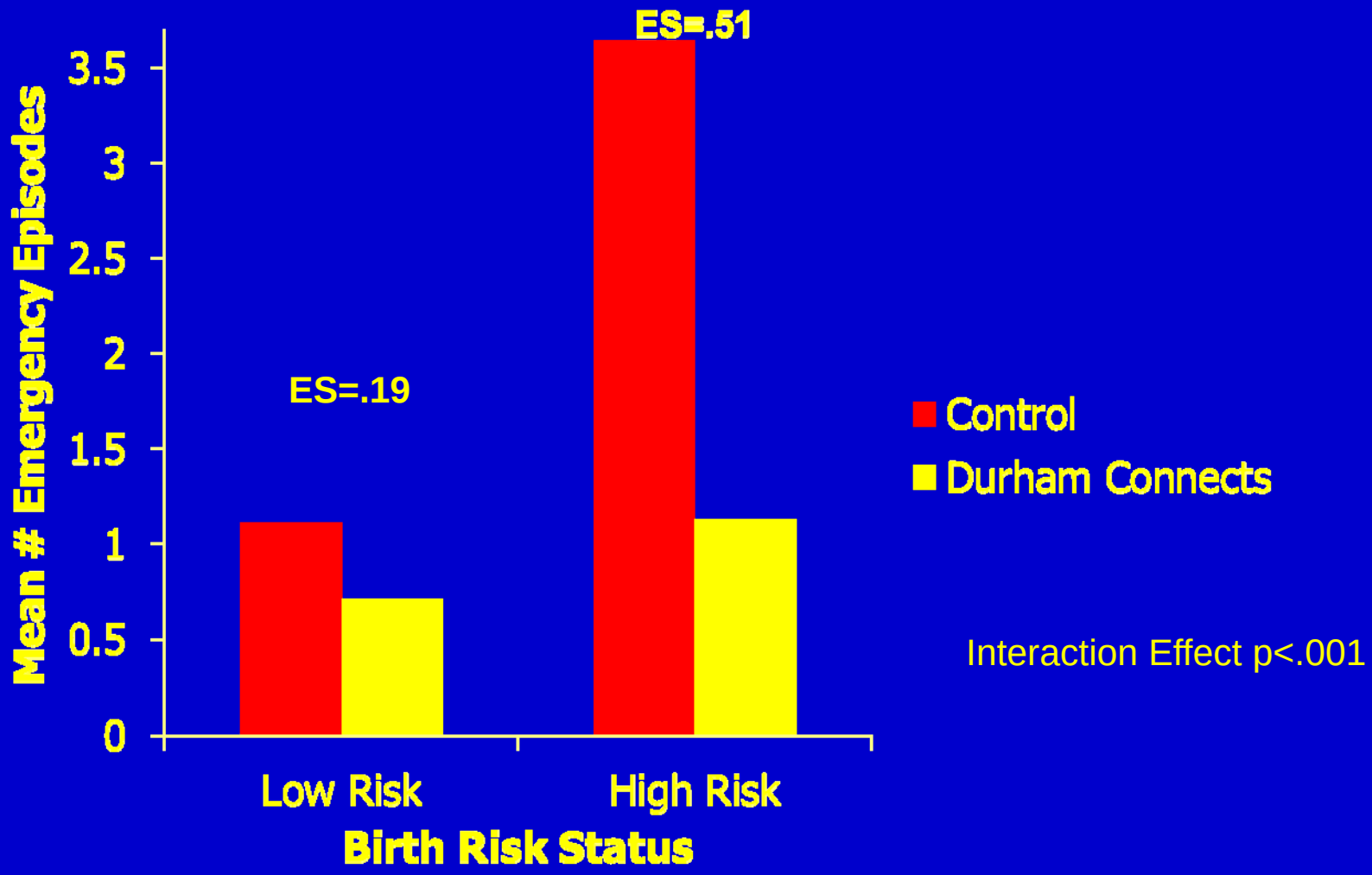


Cumulative Emergency Care at Age 12 Months for High-Risk and Low-Risk Families

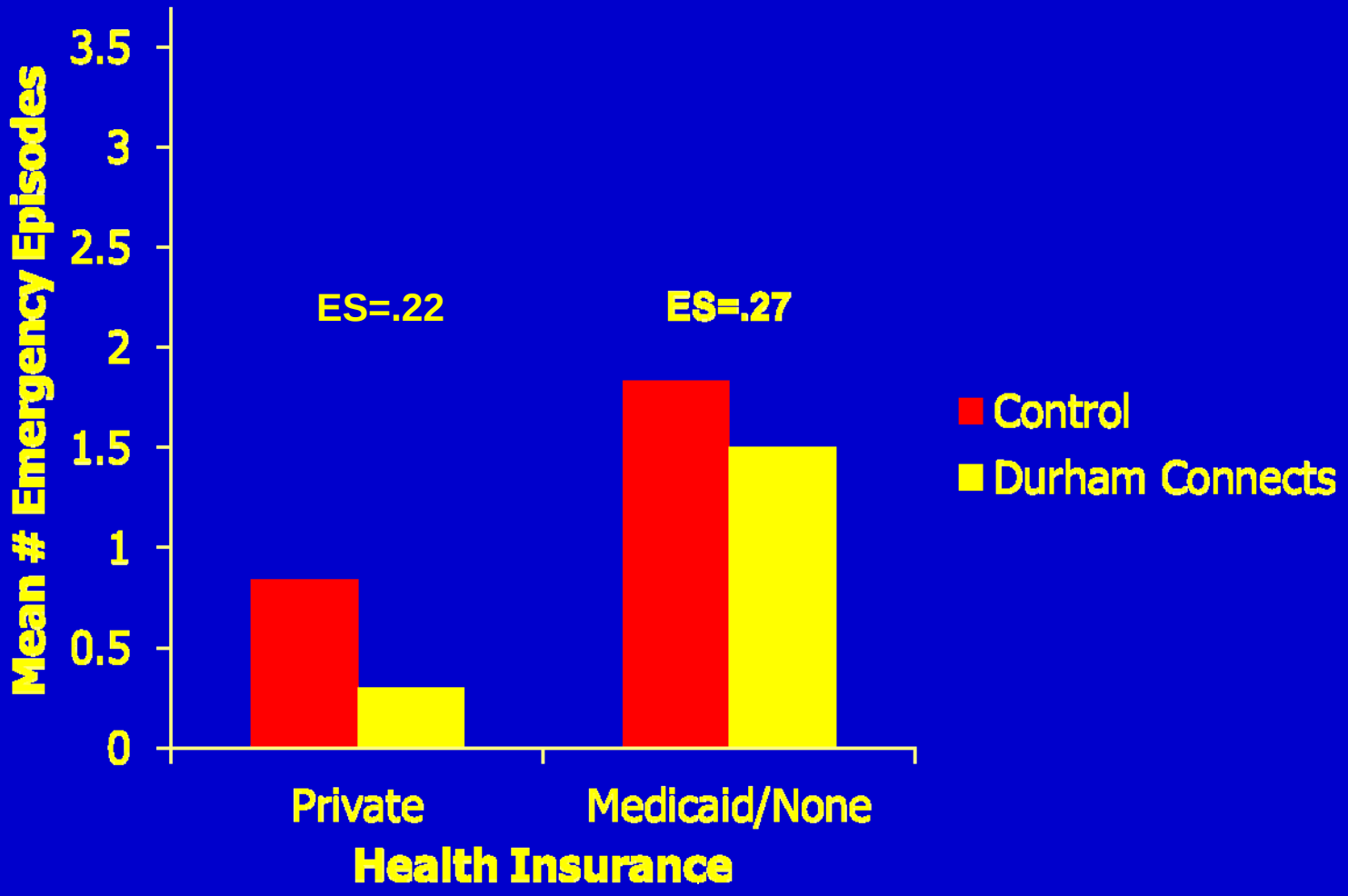
(Dodge et al., 2013, Pediatrics)



Interaction Effect p<.001

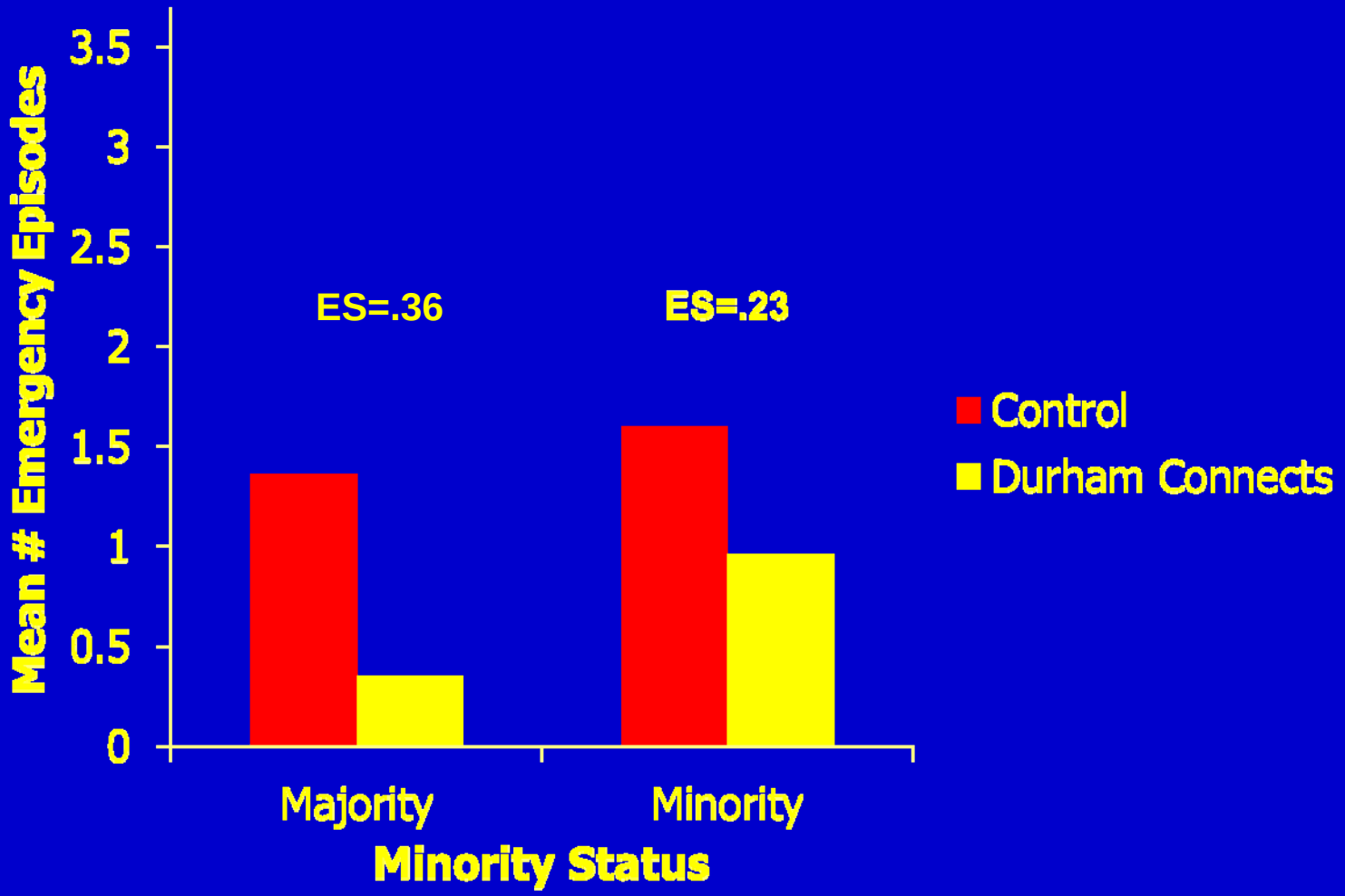
Cumulative Emergency Care at Age 12 Months For Insured and Medicaid Families

(Dodge et al., 2013, Pediatrics)

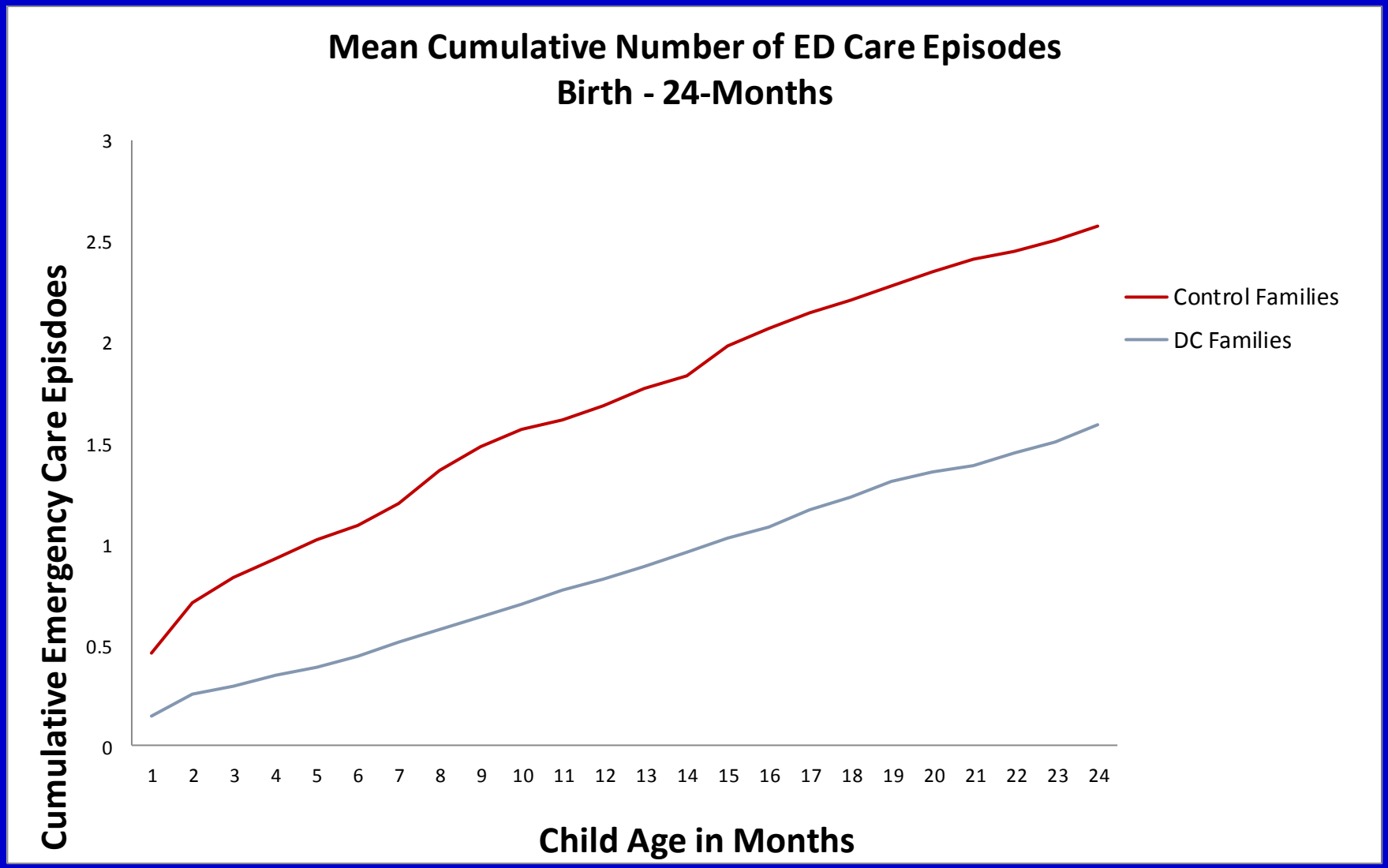


Cumulative Emergency Care at Age 12 Months for Majority and Minority Status Families

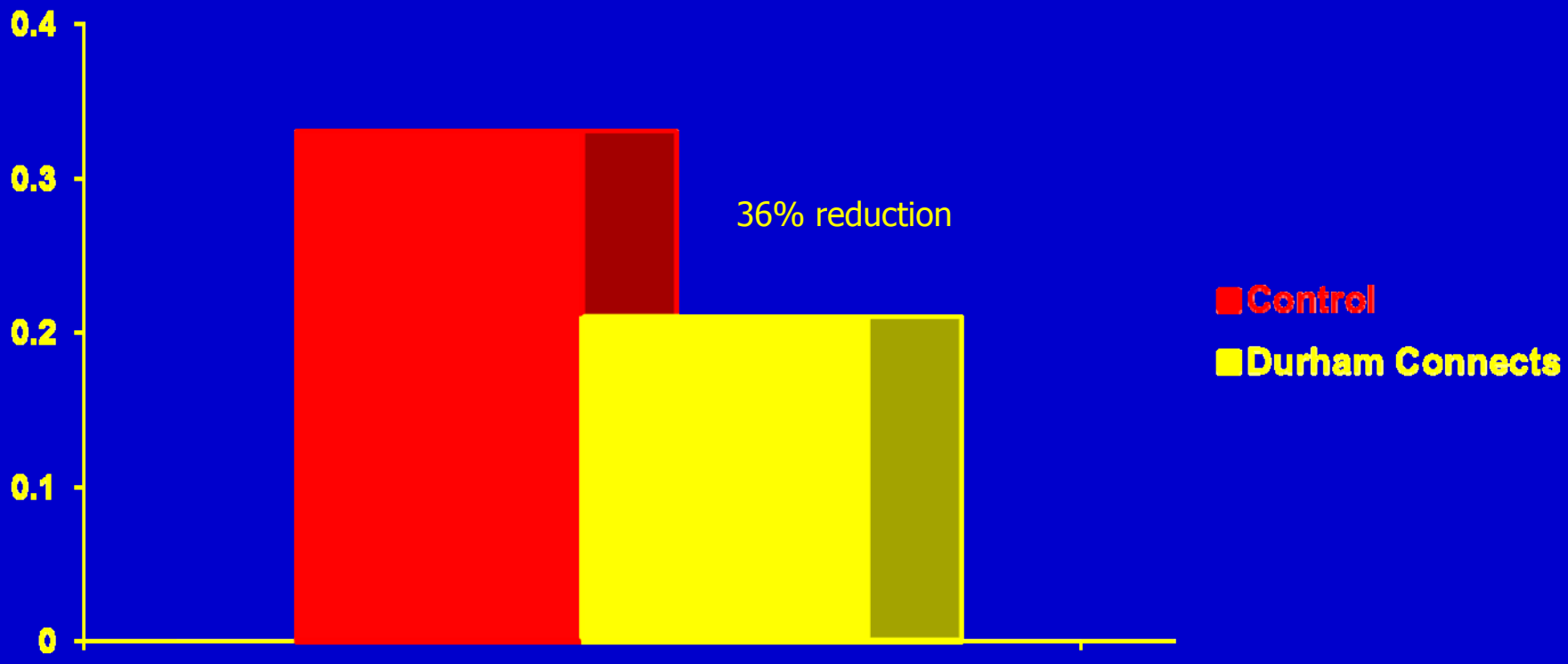
(Dodge et al., 2013, Pediatrics)



DC Impact at Age 24-Months



Mean Number of Reports to Child Protective Services for Child Maltreatment through Age 48 Months



Benefit-Cost Analysis of Intervention Impact at Age 12 Months

Durham Connects intervention costs: $700/assigned family

Emergency Care Outcome Costs:	CONTROL	DC
$ 423 per emergency visit	x .83 = $ 351	x .68 = $288
$3,722 per hospital night	x .74 = $ 2,754	x .11 = $409

$$BCR_{DC} = \frac{(OC_C - OC_I)}{(IC_I - IC_C)} = \frac{(\$3{,}105 - \$697)}{\$700} = \$\ 3.44$$

For Durham, NC:

3,187 resident births/year

Total emergency care costs without DC:	$ 9,895,635
Durham Connects would cost:	$ 2,230,900
Durham Connects would yield savings of:	$ 7,674,296

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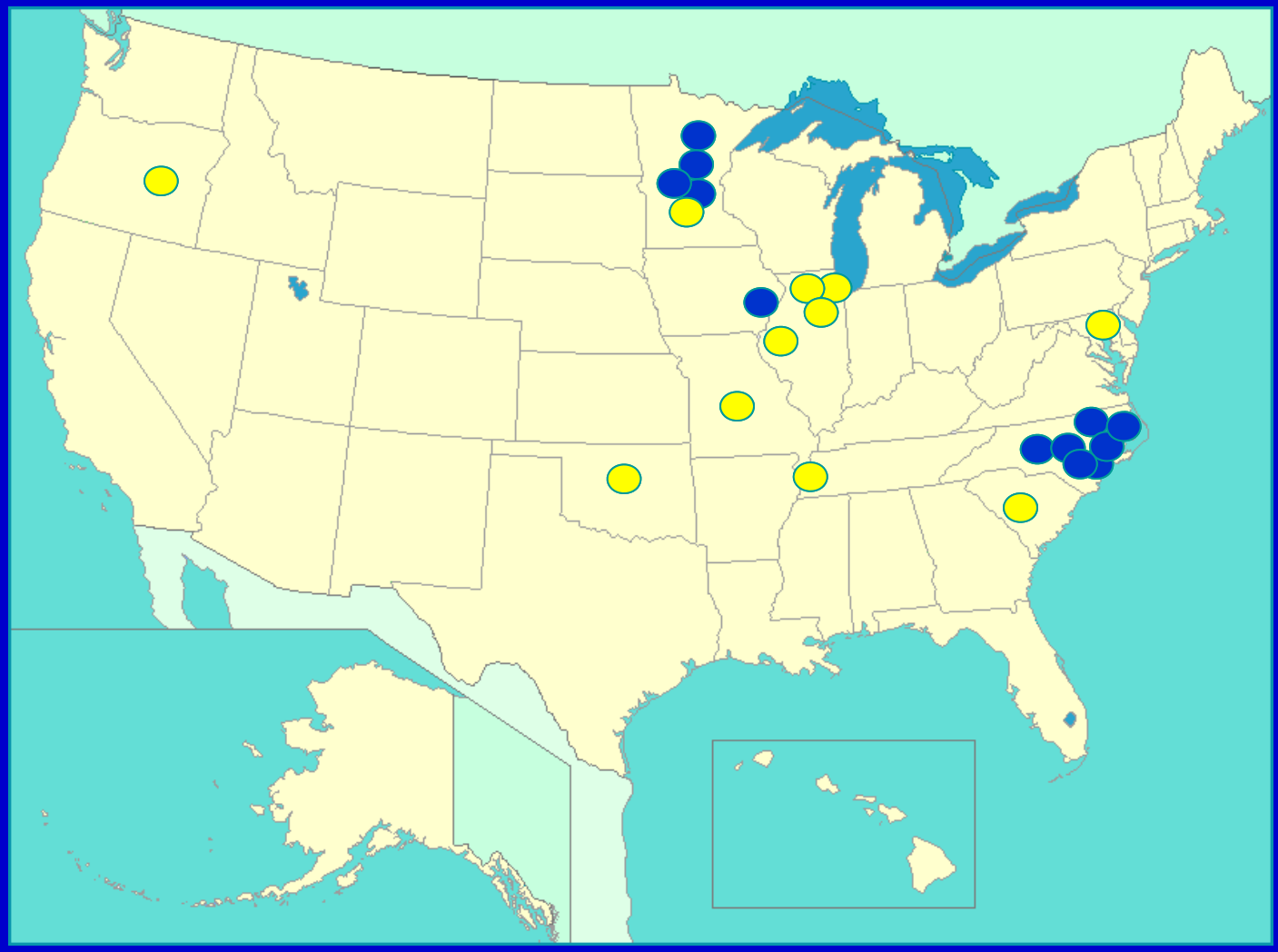
Family Connects is MIECHV-approved and is being disseminated to sites across the nation



Lessons Learned in Infant Home Visiting

- Universal penetration is possible
- Short-term screening and connection vs. ongoing treatment
- Clarity of goals
- Administrative home
- Financing