

Early Child Development: A Whole Child Perspective



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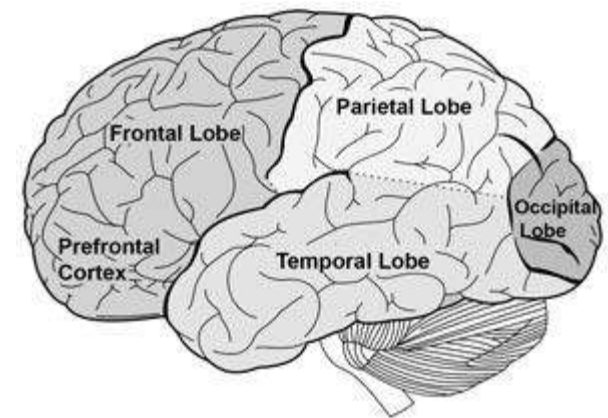
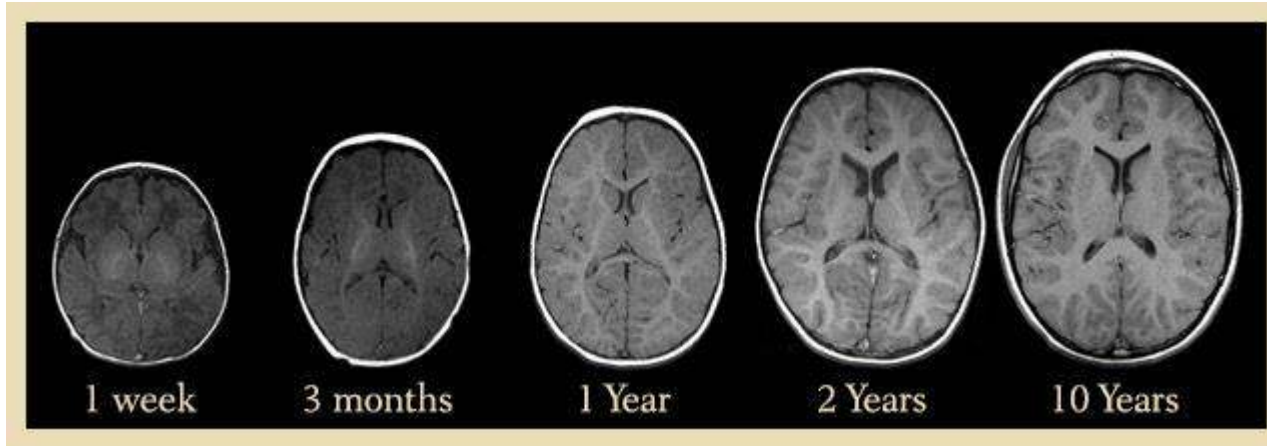
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Note: all photos in presentation taken by Lia Fernald, with exceptions noted

Topics for today

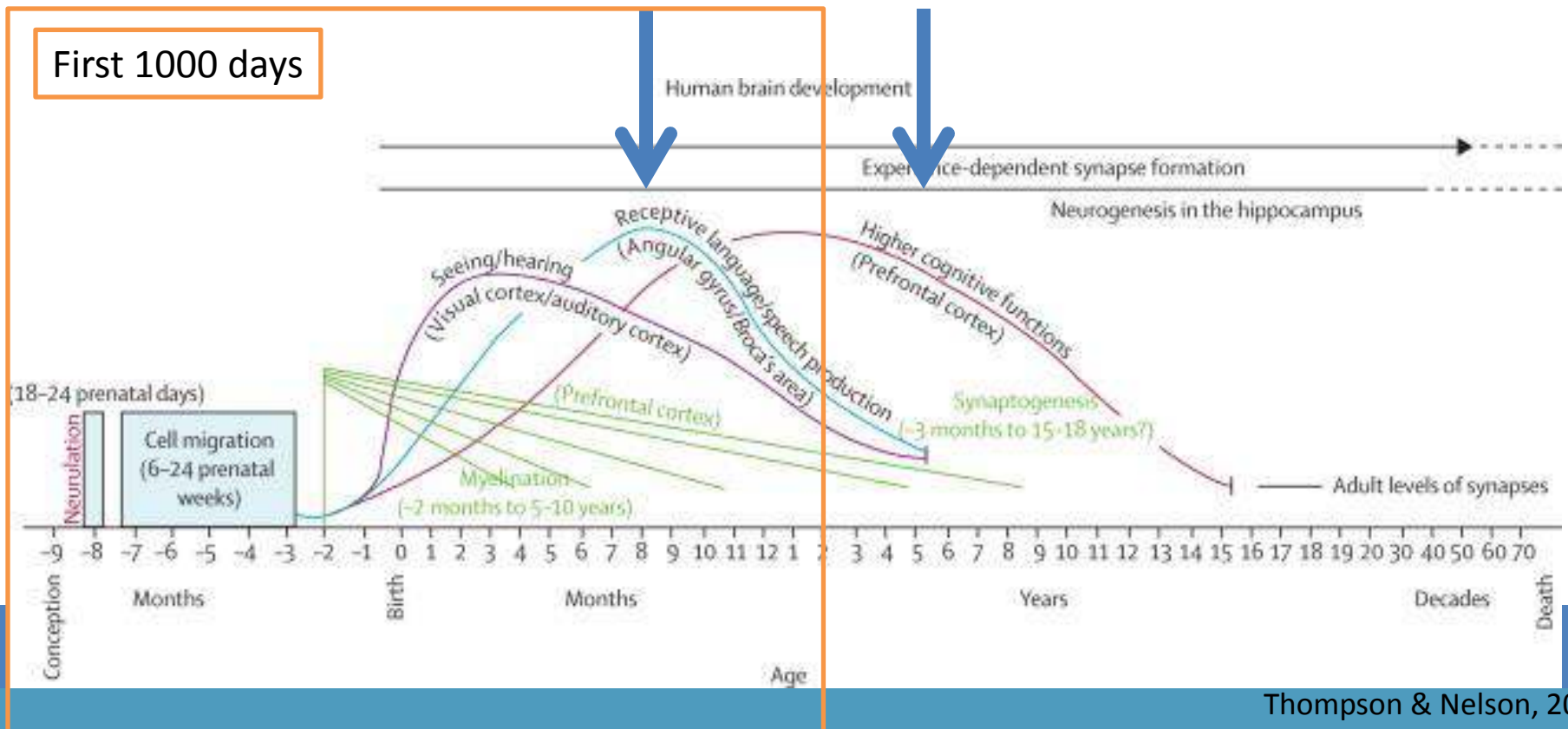
- **Early childhood: vulnerability and opportunity**
- What can interventions do to improve development in children?
- What does it mean to be an “integrated” intervention?
How do these integrated interventions work?
- Example: Group based parenting support integrated into conditional cash transfer program (Mexico)
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90% of brain growth by age 6



Specific domains are more vulnerable

- Neurologic vulnerability in brain regions (Hackman & Farah, 2009)
- Language (perisylvian) and executive function (prefrontal) regions have a more protracted course of maturation (Farah et al., 2006; Kuhl & Rivera-Gaxiola, 2008; Mezzacappa, 2004; Noble et al., 2007; Noble, Norman, & Farah, 2005)



Dimensions of development

- Physical growth
- Motor development
- Perceptual and cognitive development
- Communication and language
- Socio-emotional, behavioral & temperament

Risks for vulnerable children



Poor housing, dangerous neighborhoods

Lack of sanitation, clean water

Larger family size, household crowding

Less nutritious foods, malnutrition

Exposure to infectious diseases, toxic metals, malaria

High levels of maternal depression

Lack of access to schools and health care centers

Engle, Fernald, Alderman et al., *Lancet* (2011)

Grantham-McGregor et al. *Lancet* (2007)

Walker, Wachs et al. *Lancet* (2011)

Photo: Tricia Kariger

Consequences of living in poverty

- Exposure to biological and psychosocial risks leads to deficits in brain structure and function
- Early exposure to risks sets children on a lower developmental path
- Long-term effects contribute to continued inequalities in the next generation.



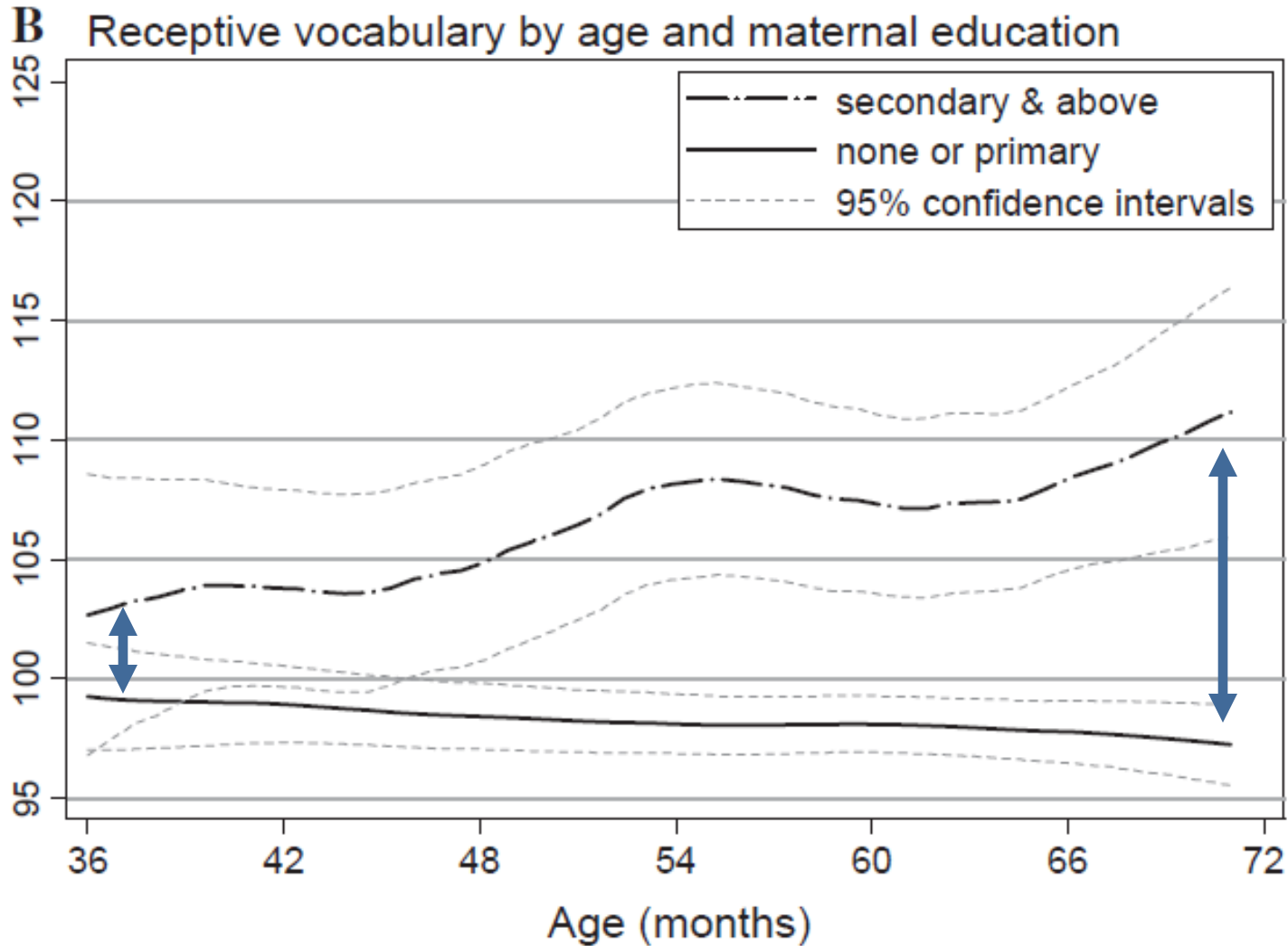
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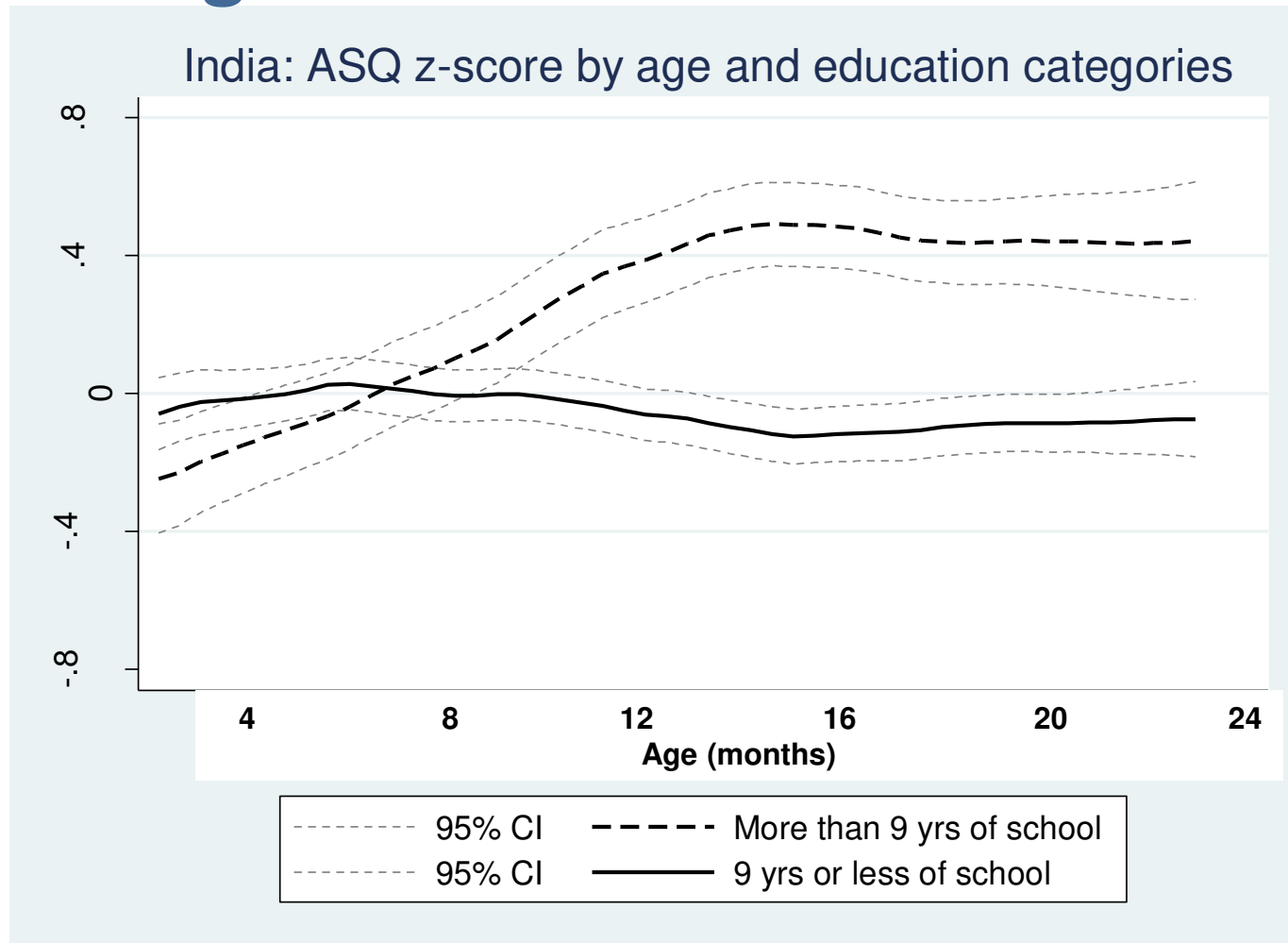
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SES gradients increase with age



SES gradients before 12 months old



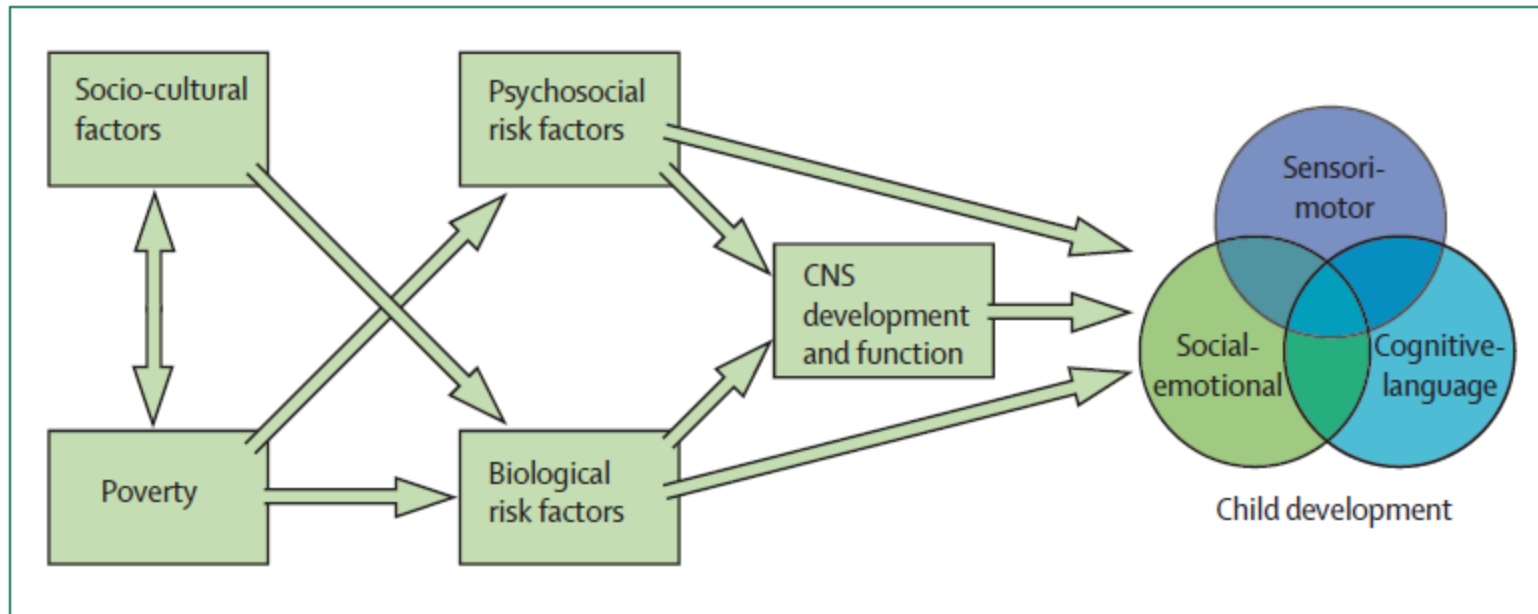
N=2034, children age 0-2 from India

Lack of optimal development

- Reduced long term physical and mental health benefits
- Lower work productivity, responsible citizen & parent
- Worse school performance, learning, & interpersonal relations
- Sub-optimal cognitive, motor & socio-emotional development



Multiple pathways: poverty to poor development

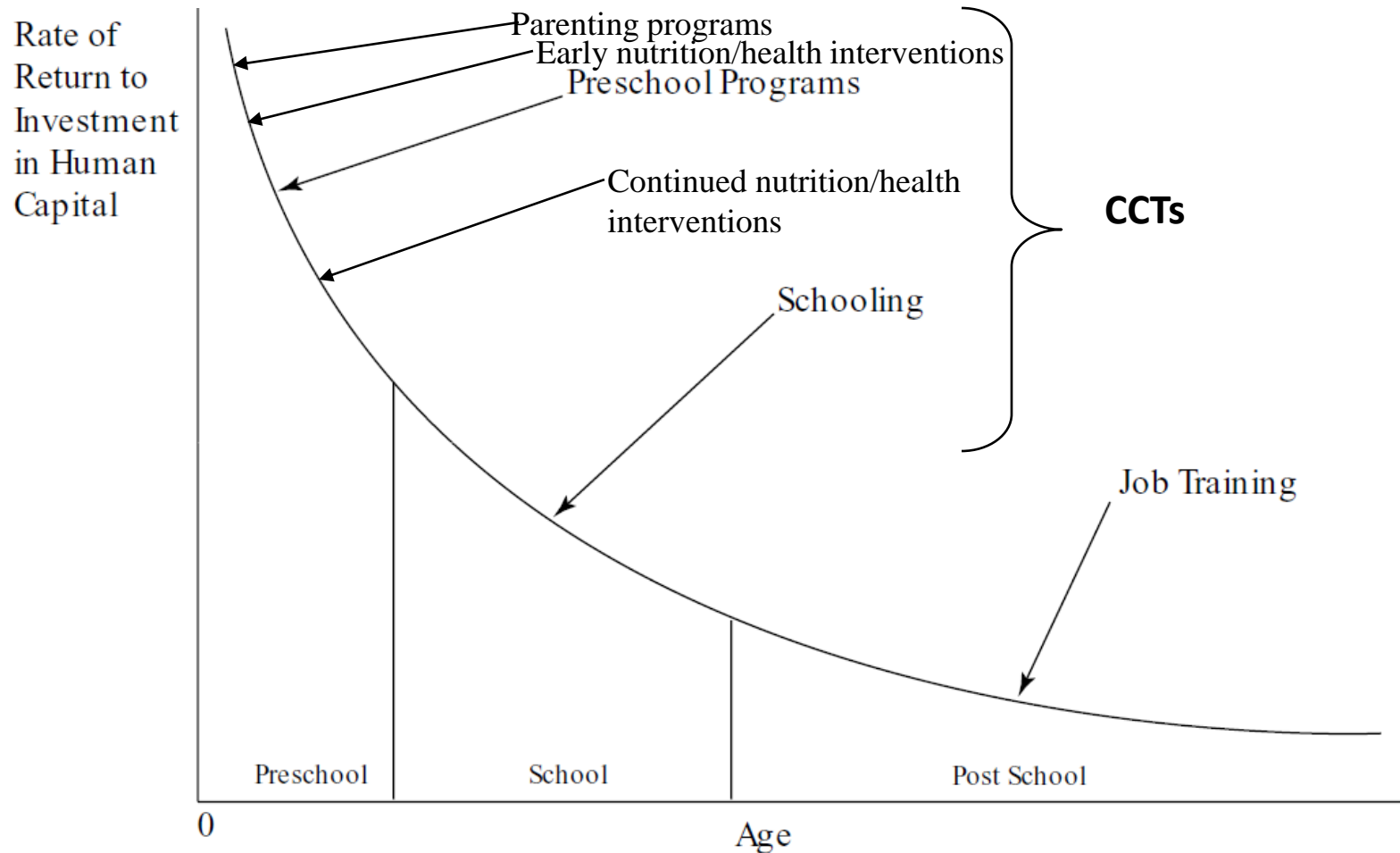


- Timing, dose and differential reactivity influence how exposure to risk translates into differences in brain function and structure
- Sensitive and critical periods in development

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Types of ECD interventions



Nutrition interventions to improve child development

Risk: Undernutrition, micronutrient deficiencies	Interventions
<ul style="list-style-type: none">-Severe acute malnutrition &-Stunting-Iodine-Iron deficiency anemia-Multiple micronutrient deficiencies	<ul style="list-style-type: none">-Breastfeeding-Improved complementary feeding-Energy-protein (food) supplementation-Iodine fortification programs-Iron supplementation-Multiple micronutrient supplementation

Nutrition and health are essential, but...

Substantial gains in children's development require:

- Improvements in parenting, home stimulation and early education
- Increases in protective influences such as maternal education that reduce impact of risks
- Social protection including reductions in stressful experiences including maternal depression and exposure to violence

Parenting programs – how do they work?



- Provided through home visits or sessions at community center
- Parents receive guidance and support from health providers
- Can be delivered by para-professionals
- Need clear curricula and key messages

Photo source: Susan Walker, University of the West Indies

Parenting programs: what do we know?



Interventions can:

- Promote parent-child interactions
- Improve responsive feeding
- Increase attachment
- Encourage learning, book reading, play activities
- Encourage positive discipline
- Promote better problem solving related to child development

Photo source: Shanaz Vhazir, National Institute of Nutrition

What works in parenting interventions?

- Effects are largest when:
 - Parents and children participate *together*
 - Parents and children have a chance to *practice*
 - The most *disadvantaged* children targeted
 - A structured, evidence-based curriculum is used



Parenting: what do we need to know?



- Can these effects be larger programs?
- What works or doesn't work at scale?
- How can parenting support be integrated with other services?

Photo source: Meena Cabral/Jane Lucas, WHO

What can preschool programs do?



- Preschool attendance associated with:
 - Higher scores on one or more measures of child development (e.g. literacy, vocabulary, mathematics, quantitative reasoning, behavior)

- Largest effects:
 - Higher quality programs (more teacher training, better materials, greater direct interaction with children)
 - Target most disadvantaged children

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Integration: Opportunities



- Health and nutrition sectors are often only services for children <3
- Possible lower costs for integrated services
- Children acquire skills through interactions – can benefit from additional contacts
- Nutrition and stimulation may work synergistically.

Integration: Challenges

- Contacts with health sector and few are scheduled after 12 months
- Health and nutrition services are over-stretched.
- Limit to number of messages that any mother can absorb.
- Focus on first 1000 days may distract from later opportunities

Summary of Literature Review

- 11 efficacy trials, 2 non-randomized trials, 8 program evaluations. All included child development and health/nutrition.
- Stimulation consistently benefitted child development
- No significant loss of effects when interventions combined
- Little evidence of synergistic interaction of integration

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Design of *Educacion Inicial*



- State level administration
 - Well-developed and documented theory of change
 - Materials same throughout country
 - Some variability among states on details of implementation
- Developed based on the experiences of programs to promote early childhood education in other countries
 - Focus on children 0-4 years old
 - Group sessions 1/wk with trained *Promotora*, identified by community
 - Follows academic year September to June
 - *Promotoras* retrained every August

Goal: adding parenting support to CCT

- To evaluate the effects of an early childhood stimulation program for CCT (*Oportunidades*) beneficiaries for:
 - Nutritional status and health of children
 - Cognitive, language, and socio-emotional development of children
- To examine differences between program effects when enrollment in CONAFE is “strongly encouraged” v. participation optional
- To examine if the effects of CONAFE-Op differ in communities classified as predominantly indigenous compared to non-indigenous

PARA QUE TU HIJA APRENDA A RECONOCER TU VOZ Y SE TRANQUILICE CON ELLA

- Si está llorando o está inquieta, háblale y cántale con voz suave.



PARA QUE TU HIJA VAYA ADQUIRIENDO CONFIANZA EN AQUELLOS QUE LA CUIDAN

- ¿Qué tienes Rosita?
- ¿Ya te hiciste del baño?
- ¿O será que ya tienes hambre?



PARA QUE TU HIJA TENGA HORARIOS DE SUEÑO Y ALIMENTACIÓN

- Trata de que tenga horarios regulares de comida y sueño. Prepara un lugar especial para que duerma ella sola, por ejemplo, su hamaca o cuna. Como todavía es muy pequeña, duerme mucho y cuando despierta quiere comer.

- Rosita, ya es hora de dormir.



- Atiéndela cuando llore, háblale por su nombre y revisa si está sucia, tiene hambre o si algo le incomoda. No la dejes llorar hasta que se canse porque esto le hará sentirse insegura y desprotegida.

- Hace sonidos simples cuando tú le hablas, como una respuesta al verte.



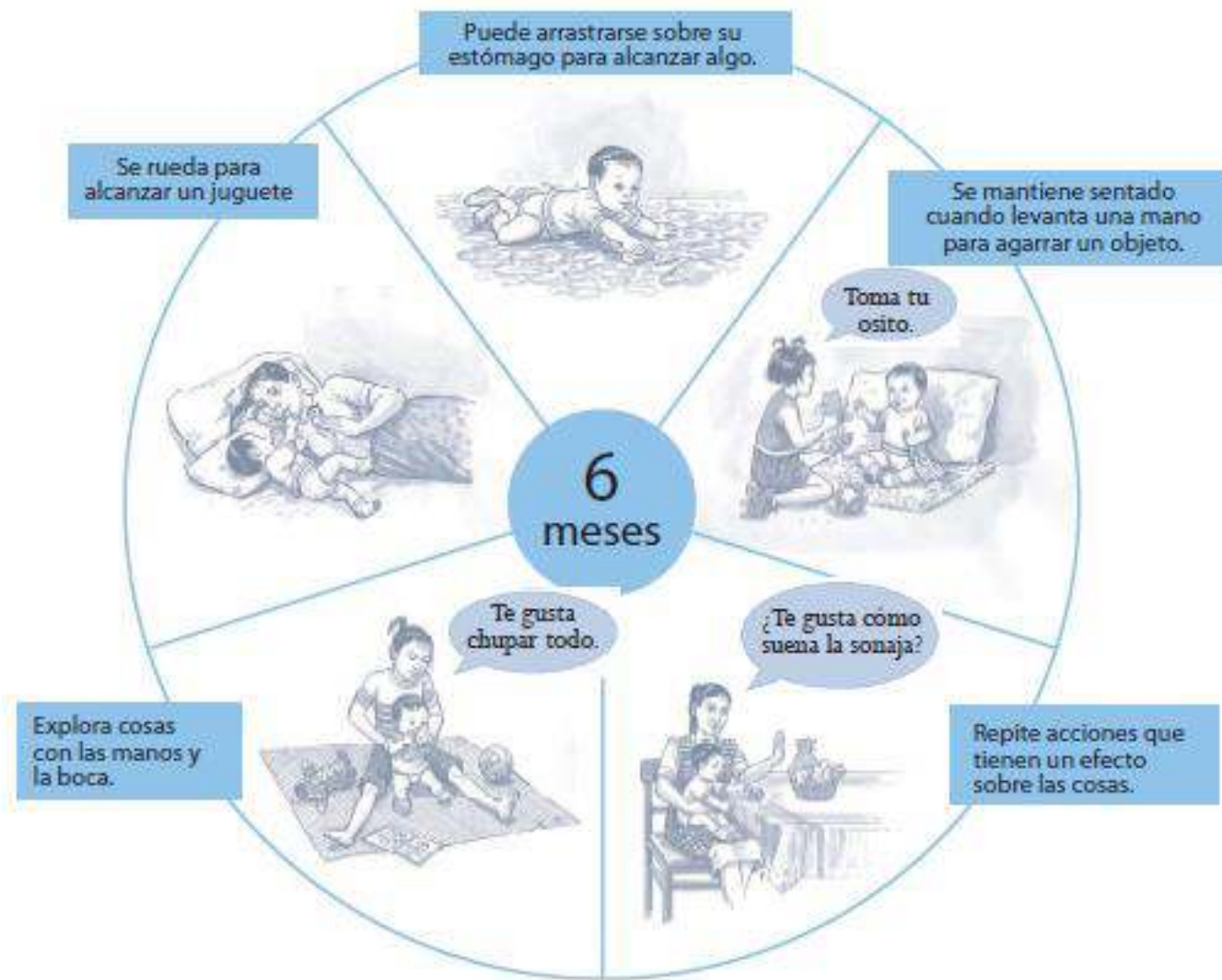
¡Préstame tu pañal!

"Ah", "ae",
"ai", "ao".

Vamos a ver a la abuela.



- Demuestra que comprende lo que dices con algún movimiento y dirige su atención y su mirada hacia los sonidos o voces.



Program components

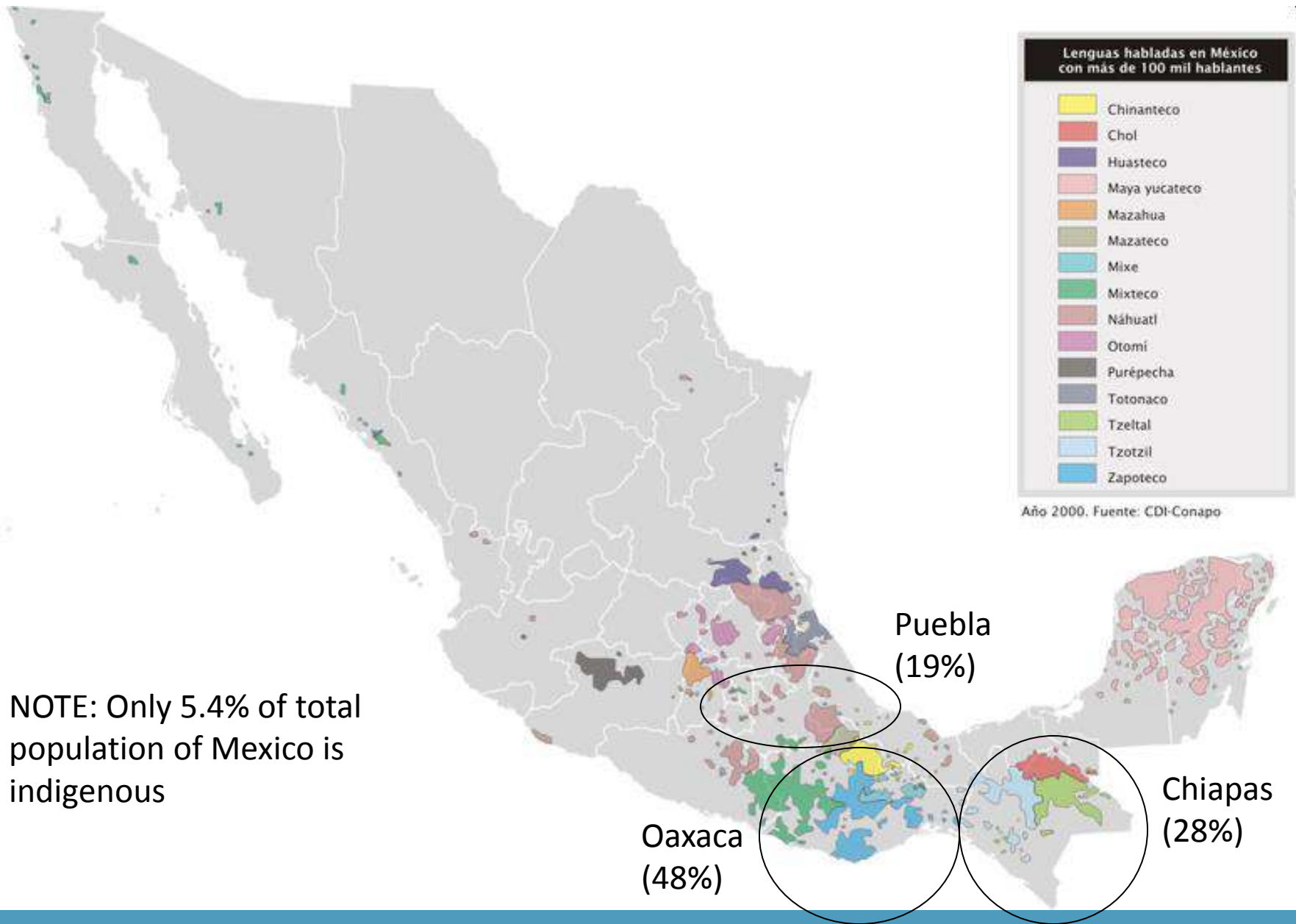
Group sessions with promotora



Often include whole family



States included and % indigenous



Child assessment (3-6 years)

- McCarthy Scales of Children's Abilities

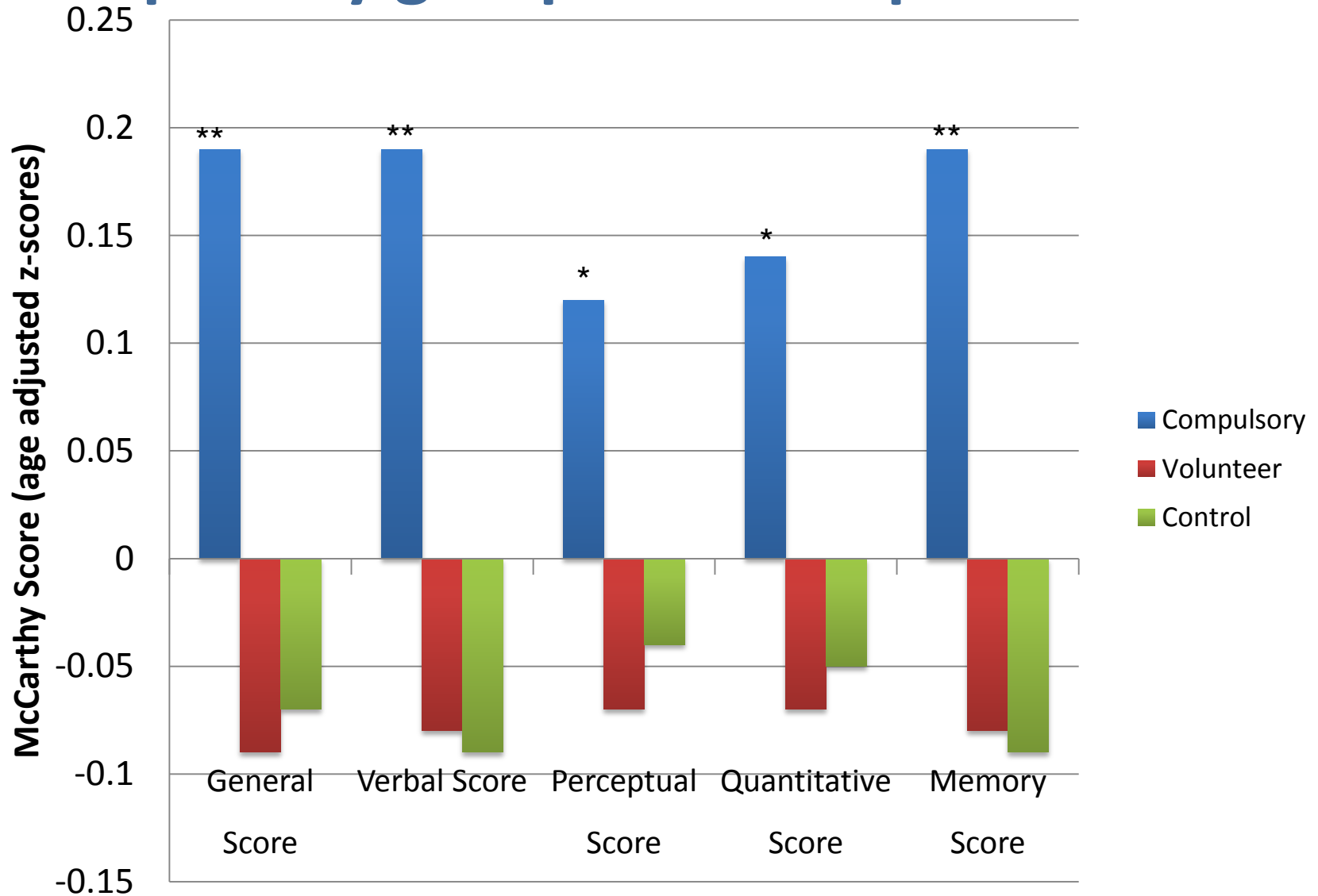


No baseline differences by intervention group

	Volunteer (n=406)	Compulsory (n=341)	Control (n=366)	P Value
Baseline ASQ Z-Scores				
Communication	0.08 (1.19)	0.10 (1.69)	0.08 (1.35)	0.99
Perception	-0.01 (1.59)	0.10 (1.31)	0.13 (1.17)	0.37
Motor Skills	0.01 (1.29)	-0.04 (1.63)	0.11 (1.03)	0.30
Overall Score	0.03 (1.47)	0.06 (1.70)	0.14 (1.22)	0.53
Child characteristics				
Girl	188 (46%)	175 (51%)	180 (49%)	0.37
Cohort Age (months)				0.12
0 – 6	137 (34%)	125 (37%)	157 (43%)	
7 -12	139 (34%)	100 (29%)	108 (30%)	
13-18	130 (32%)	116 (34%)	101 (28%)	
Parental characteristics				
Father Present	385 (95%)	310 (91%)	339 (93%)	0.29
Mother Education				0.83
Kinder or less (≤1yr)	65 (16%)	69 (20%)	67 (18%)	
Primary (7 yrs)	293 (72%)	224 (66%)	246 (67%)	
Secondary (10 yrs)	40 (10%)	40 (12%)	43 (12%)	
High School and above (≥13 yrs)	8 (2%)	8 (2%)	10 (3%)	
Household characteristics				
Indigenous locality	190 (47%)	148 (43%)	198 (54%)	0.67
Number of household members	6.59 (0.07)	6.34 (0.09)	6.86 (0.20)	0.15
Asset Index Value	0.17 (2.71)	0.31 (2.08)	0.17 (2.17)	0.65

NOTE: P-values are generated from F-tests (for continuous variables) and chi-squared tests (for dichotomous variables) and cluster adjusted for community.

Compulsory group had best performance



NOTE: Graph of means for entire sample, adjusting only for state fixed effects. ** $p < 0.05$, * $p < 0.10$ for differences between Compulsory and Control. No significant differences between Volunteer and Control groups. Pattern remains when controlling for covariates, but results not significant. Covariates were from baseline: maternal education, household size, child cognition, wealth, piped water, indigenous status. Fernald et al., in press

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CBCCs in Malawi

- Primary method of ECD service delivery in rural Malawi
- Community-initiated and -owned
- Volunteer part-time teachers
- Untrained teachers with low-levels of education
- Lack of play and learning materials
- Sustainability challenges

How can you approach this sector?

- The Malawian government chose to improve quality in the existing CBCCs.
- Estimated to serve 580,000 children in approximately 5,000 communities (Drouin & Heymann, 2010)
- Two key questions:
 - If teachers are provided with training and are volunteers, will retention in treatment schools be low?
 - Children spend at most a few hours a day at these centers and the rest with caregivers at home: should we not also provide resources to their primary caregivers?

Intervention groups

- **Control group:** Play and learning materials
- **Treatment 1:** Play and learning materials AND Teacher training and mentoring (5-week residential program)
- **Treatment 2:** Play and learning materials AND Teacher training and mentoring AND Teacher incentives (small monthly cash payments, \$12)
- **Treatment 3 (integrated):** Play and learning materials AND Teacher training and mentoring AND Parenting education (12 group sessions for parents & children)

Conclusions

- Urgent need to expand coverage and scaling-up of early child development programs to reach the most vulnerable children early in life. But quality matters!
- Integration is often the answer, but not always effective because of program/parent overload.
- Monitoring and evaluation critically important because we don't always know "What Works" in each setting.
- Following children is critically important to see if effects are sustainable or fade-out.



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ira hotsotra
nanet
iana

- Liana a ficio
fitsapatrana -
- Manomboka mahay
sy mampitaha

Thank you!!
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