

# Home visiting at scale: the evaluation of Cuna Mas

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# Motivation

**Home visiting** programs have been shown to **have high impacts** on child development in **low and high-income countries**

Reach Up in Jamaica, Colombia, Bangladesh, India  
Nurse Family Partnership in the USA

However, these results come from **small-scale** pilots or efficacy trials

**Cuna Mas** is Peru's flagship ECD Program

Childcare in urban areas

Home visits in rural areas

It reached **93k children** in 2015

Evaluation of an **at-scale parenting program** implemented by a **government agency**

# Cuna Mas Home Visiting Program

Began operating in 2013

- To promote **better parenting** practices and improve **development** of children **0-36 months** of age
- Targeted to **rural districts** with **high poverty** and **high malnutrition** rates
- Within targeted districts, all children ages 0-24 months of age are eligible



Atma Quella  
(no seas holgazán)



# Program operation

Home visitors are **community members**

- 10 families per home visitor

- 4 days of pre-service training + in-service training

- Get paid for this job

Home visitors are **trained and mentored by their supervisors**

- 10 home visitors per supervisor

- 9 days of pre-service training + in-service training

Supervisors are trained and mentored by **regional specialists**

- 20 regional offices throughout the country

Regional specialists are trained and mentored by a **central team in Lima**

# Staff profile

## Home visitors

85% women

87% are parents

On average 31 years old

## Low **education** levels:

15% have at most complete primary

72% have at most complete high school

13% have some tertiary (e.g. nurses, educators)

## Past **experience**

27% worked with children 0-3

27% worked with families

## Supervisors

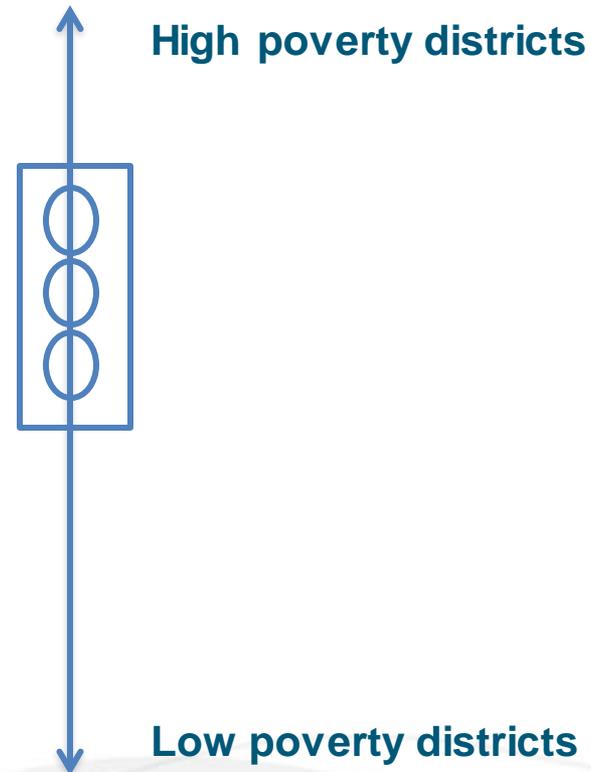
Required to have some tertiary education

# The impact evaluation

Cuna Mas was **rolled-out gradually**

Out of all districts that met eligibility criteria, we selected **180 districts**, grouped in trios of similar levels of poverty

These 180 districts are located in 12 departments (67 provinces)



# The impact evaluation

**180 districts**, grouped in trios of similar levels of poverty

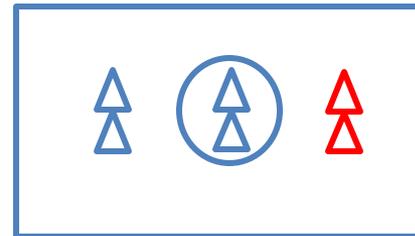
**Within each group**, random assignment into T and C

120 T and 60 C

**Within each district**, selection of 2 villages

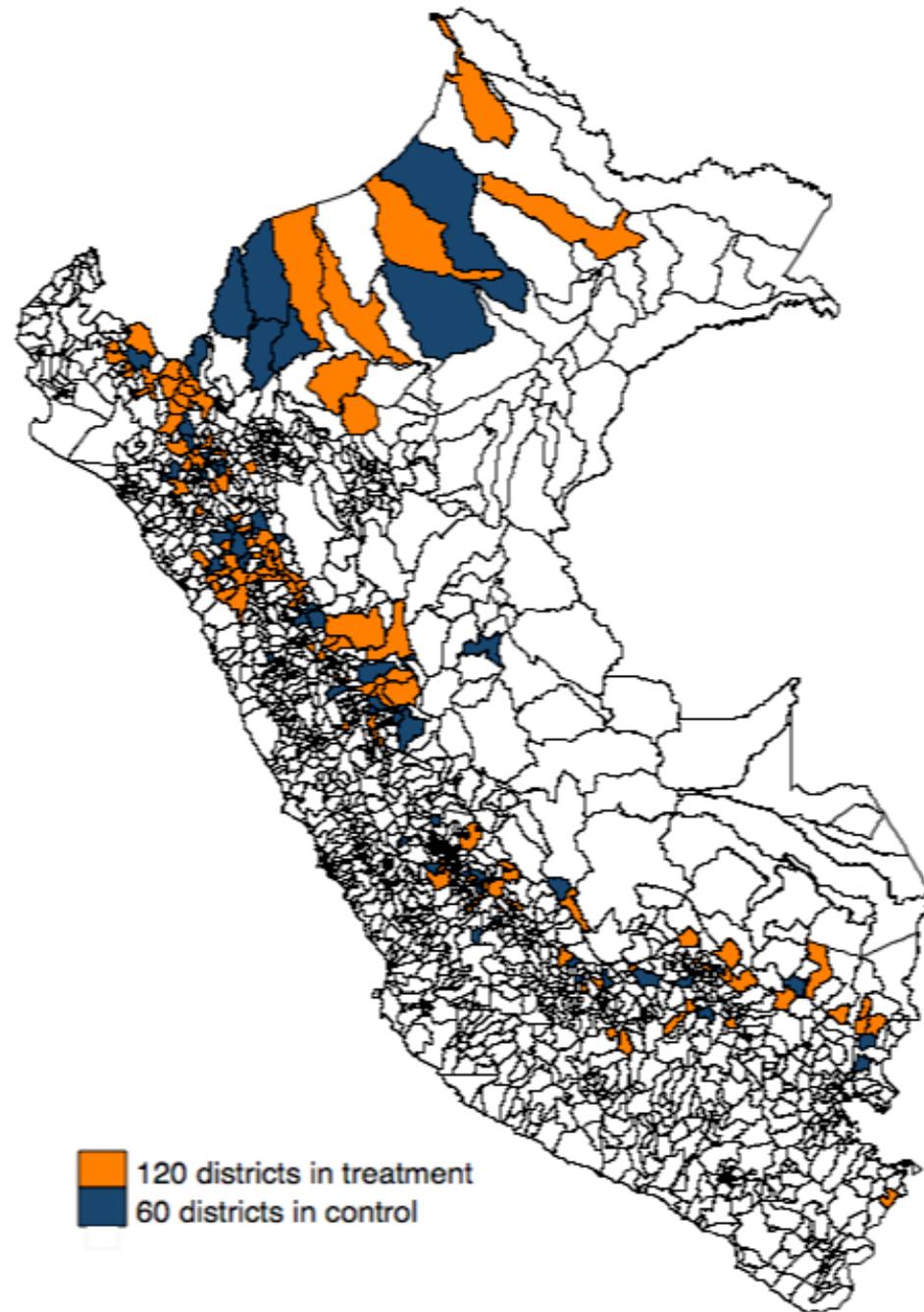
Maximum number of kids 0-24 months old

At baseline, 16 kids per village





# The sample



# Descriptives

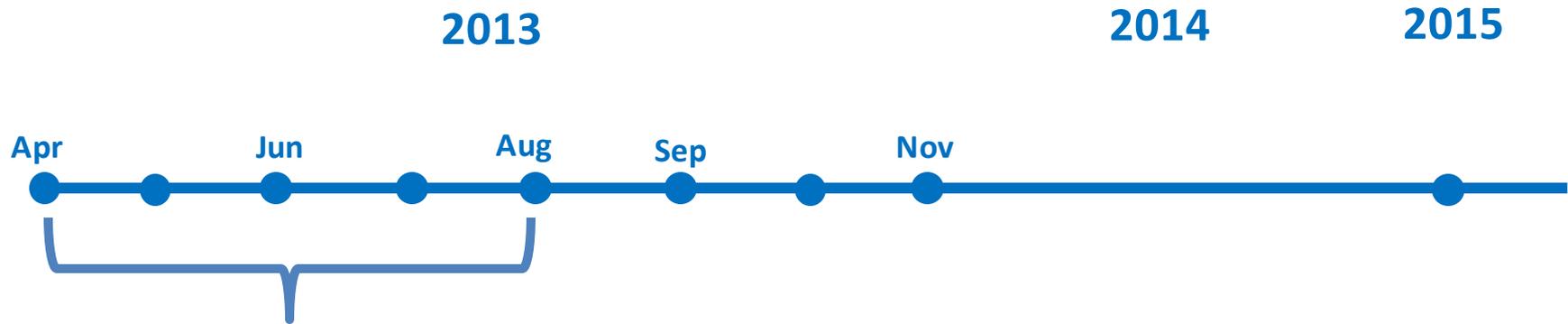
	Mean	SD
<i>Child Characteristics</i>		
Age (months)	12.79	6.66
Proportion of female	0.49	0.50
Proportion of stunted	0.38	0.48
Proportion of underweight	0.08	0.27
<i>Caregiver and household characteristics</i>		
Maternal education (years)	6.57	4.08
Proportion of indigenous	0.11	0.31
Proportion of hh with a TV	0.50	0.50
Proportion of hh with a fridge	0.08	0.27
Proportion of hh with a gas stove	0.41	0.49
Proportion of hh with a cell phone	0.60	0.49
Proportion of homes with a dirt floor	0.26	0.44
Proportion of homes with electricity	0.76	0.43
Proportion of homes with running water	0.59	0.49
Proportion of homes with sanitary facilities	0.25	0.43

# Descriptives

## Full Sample (N=5339)

	Mean	SD
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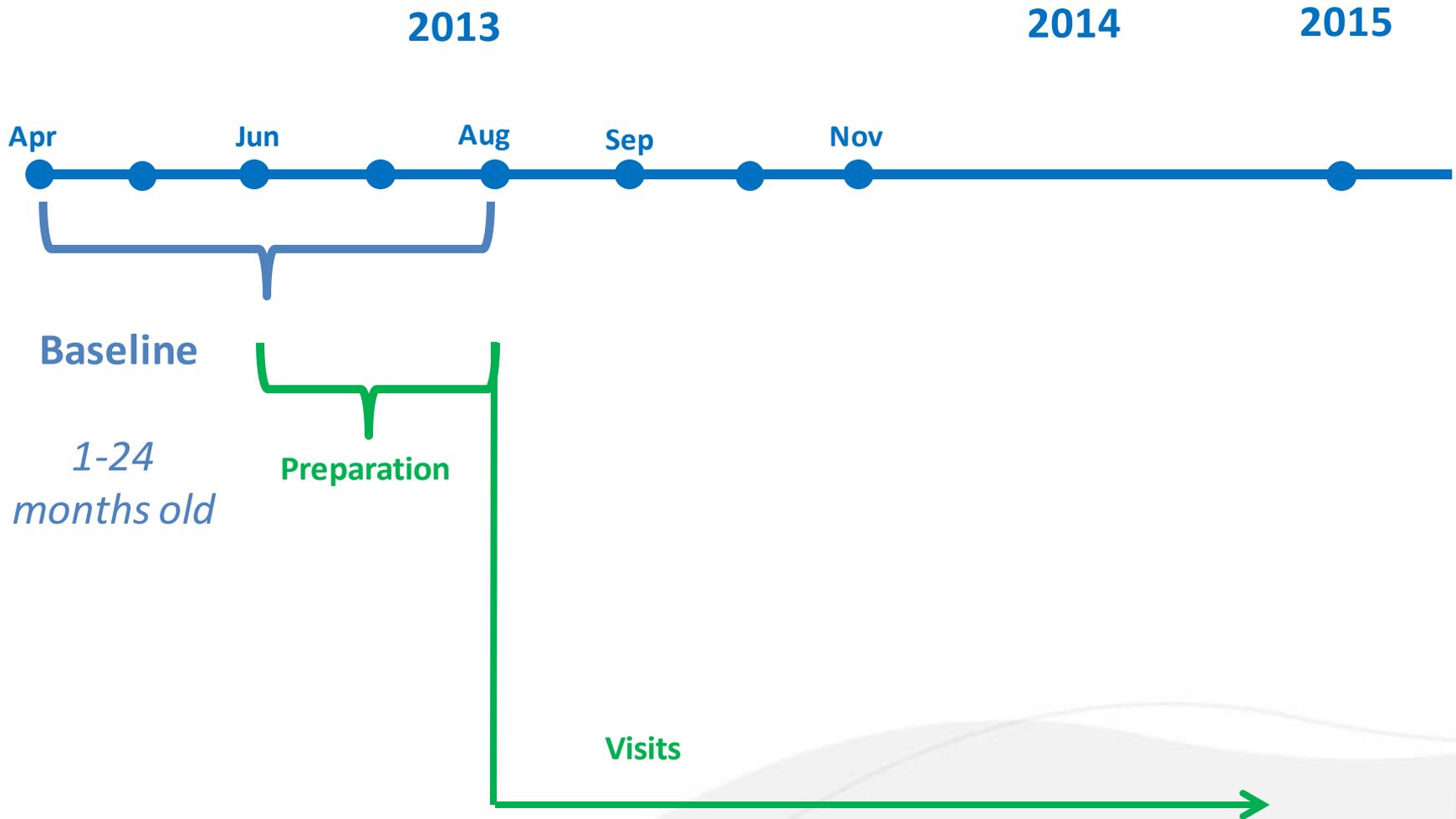
# Timeline



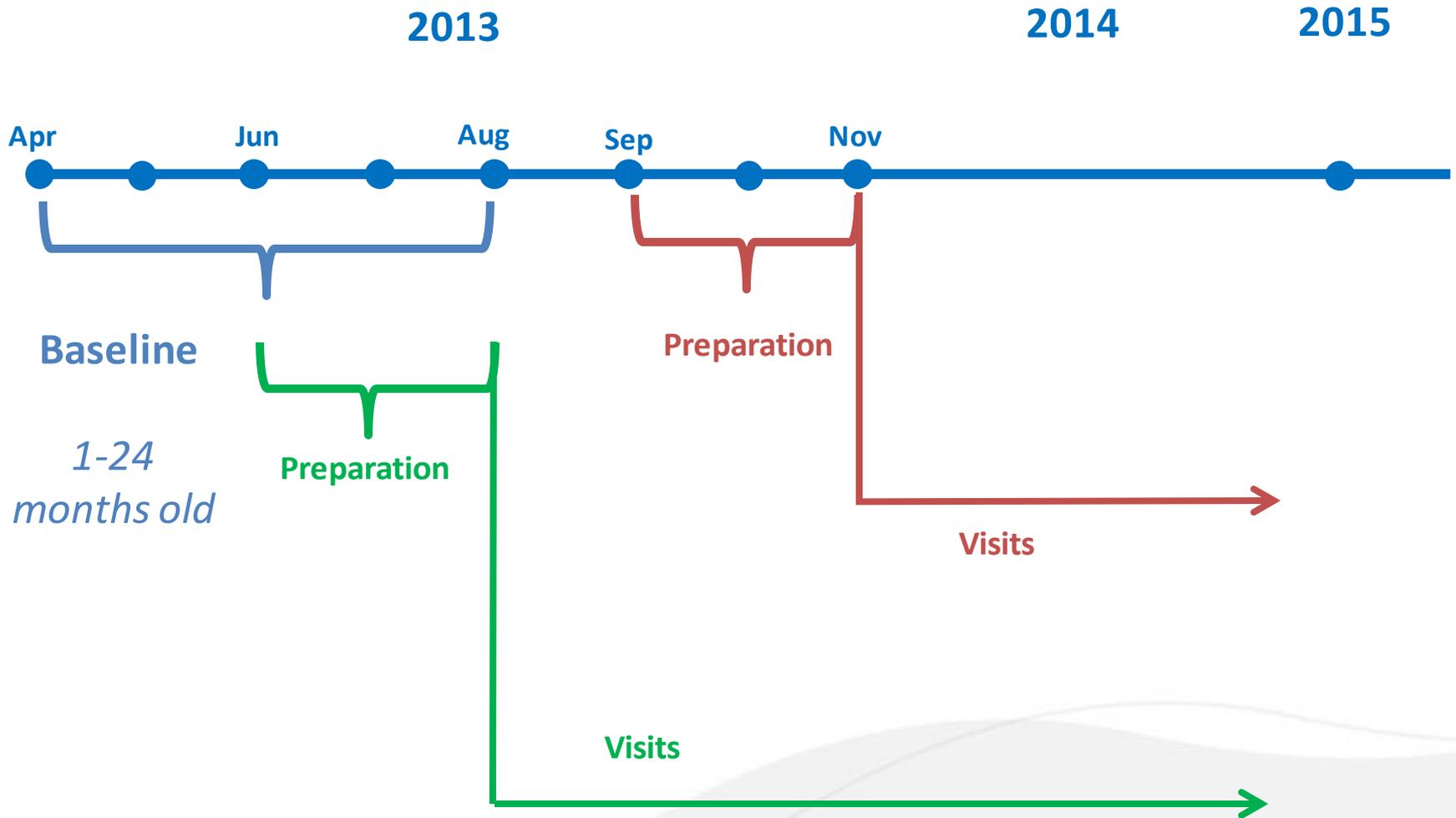
**Baseline**

*1-24  
months old*

# Timeline



# Timeline





# Main outcomes

## **Ages and Stages Questionnaire (ASQ-3)**

Screenener, available in Spanish, adapted to Peruvian context by local psychologists

**5 domains:** problem solving, communication, fine motor, personal-social, and gross motor

Maternal report and direct administration

Administered by survey enumerators in the home

# Main outcomes

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Screenener, available in Spanish, adapted to Peruvian context by local psychologists

**5 domains:** problem solving, communication, fine motor, personal-social, and gross motor

Maternal report and direct administration

Administered by survey enumerators in the home

## **Bayley Scales of Infant and Toddler Development (Bayley-III)**

Diagnostic test, translated to Spanish and adapted to Peruvian context by local psychologists

**4 domains:** cognitive, receptive language, expressive language, and fine motor

Direct administration

Administered by psychologists in a community center

# The data

## Baseline and follow-up data

Household survey

Family care indicators

Anthropometrics

Ages and Stages Questionnaire 3

Follow-up collected between Jun-Dec 2015

**8% of attrition**, uncorrelated with T

**N=5,339** children with complete data

## Bayley

Collected at follow-up only, between Aug-Dec 2015

**5% attrition**, uncorrelated with T

**N=1038** children with complete data

Attrited children are younger and have more educated mothers.

Amongst attrited, T and C are balanced

# Estimation

$$Y_i = \alpha T_i + \beta X_i + \gamma G_i + \delta E_i + \varepsilon_i$$

Where:

$Y_i$  = child development (ASQ z-score, Bayley)

$T_i$  = assignment into treatment

$X_i$  = age, gender, baseline test scores, maternal education, wealth, ethnicity

$G_i$  = group dummy (trio)

$E_i$  = tester dummy

SE are clustered at the level of the district.

# Main results – ITT (N=5339)

Domain	Impact	SE	P-value
Problem Solving	0.064*	0.032	0.047
Communication	0.079*	0.032	0.015
Fine Motor	0.061+	0.036	0.093
Personal-social	0.066+	0.037	0.077
Gross Motor	-0.008	0.031	0.804
Total (all domains)	0.064*	0.028	0.026
Total (PS+Com+FM)	0.063*	0.024	0.010

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# 36% of children assigned to T did not receive Cuna Mas. Why?

40 **villages deemed ineligible** for Cuna Mas after baseline survey

Social conflict OR

Cuna Mas daycare operating

=> **39%**

Children **outgrew eligibility age** due to delays in implementation

=> **14%**

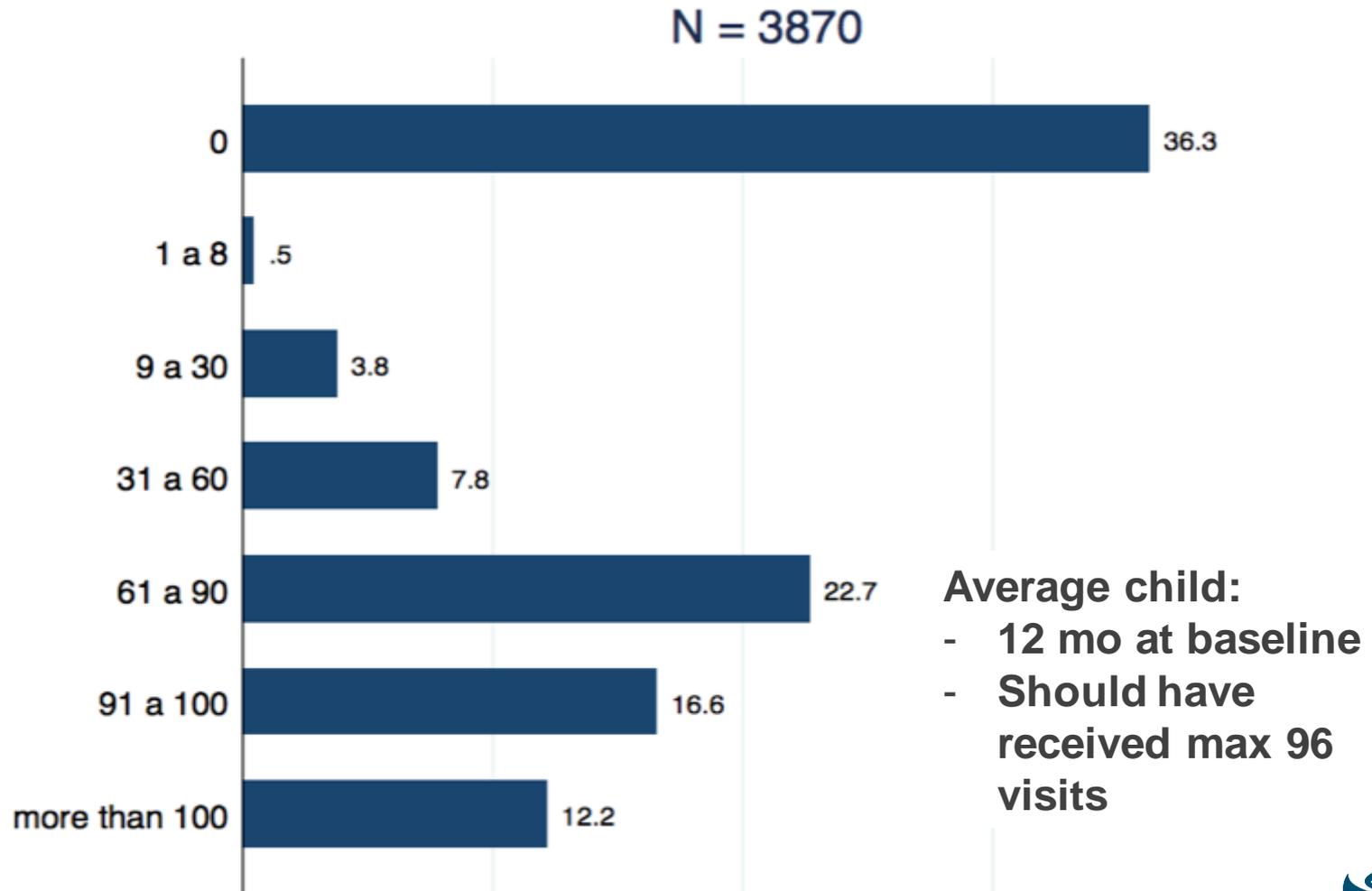
Other reasons

Families chose not to participate

Program did not reach all eligible children

=> **47%**

# After 27m of implementation, take-up amongst T was 64%, with large variation in number of visits received



# Main results - TOT (N=5,339)

Domain	Impact	SE	P-value
Problem Solving	0.098*	0.048	0.042
Communication	0.122*	0.049	0.013
Fine Motor	0.094+	0.055	0.089
Personal-social	0.102+	0.057	0.074
Gross Motor	-0.012	0.047	0.801
Total (all domains)	0.098*	0.043	0.024
Total (PS+Com+FM)	0.097**	0.037	0.009

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# Summary of main findings

## ITT

Significant impact of Cuna Mas on **problem solving, communication, fine motor and personal-social** scales

Magnitude of impact ~ **0.06-0.08 SD**

**Imperfect take-up: 64%**

## TOT

Magnitude of impact ~ **0.09-0.12 SD**

# The Bayley sub-sample

Includes all groups of districts in the sample where...

**No village** in the group was **deemed** ineligible  
**<30%** of households in the survey were  
**indigenous**

Includes **only children under 42 months of age**, to whom Bayle can be administered

By construction the sub-sample has:

- Younger children
- Less indigenous
- Higher compliance
- More children still in the program at follow-up

# ASQ results ITT– All & Sub-sample

Domain	Full Sample			Sub-sample		
	Impact	SE	P-value	Impact	SE	P-value
Problem Solving	0.064*	0.032	0.047	0.177**	0.062	0.006
Communication	0.079*	0.032	0.015	0.078	0.059	0.185
Fine Motor	0.061+	0.036	0.093	-0.035	0.064	0.586
Total (PS+Com+FM)	0.063*	0.02	0.010	0.075+	0.043	0.087
Observations	5339			980		

# Bayley results – ITT (N=1038)

Domain	Impact	SE	P-value
Cognitive development	0.247**	0.075	0.002
Receptive Language	0.162*	0.062	0.011
Expressive Language	-0.111	0.072	0.129
Fine Motor	0.034	0.068	0.622
Total (all domains)	0.139+	0.074	0.066

# Bayley results – ITT (N=1038)

Domain	Impact	SE	P-value
Cognitive development	0.247**	0.075	0.002
Receptive Language	0.162*	0.062	0.011
Expressive Language	-0.111	0.072	0.129
Fine Motor	0.034	0.068	0.622
Total (all domains)	0.139+	0.074	0.066

# Bayley results – TOT (N=1038)

## Treatment on the treated, IV

Domain	Impact	SE	P-value
Cognitive development	0.295**	0.088	0.001
Receptive Language	0.193**	0.071	0.007
Expressive Language	-0.132	0.083	0.115
Fine Motor	0.040	0.079	0.610
Total (all domains)	0.165+	0.086	0.054

# Bayley results – TOT (N=1038)

## Treatment on the treated, IV

Domain	Impact	SE	P-value
Cognitive development	0.295**	0.088	0.001
Receptive Language	0.193**	0.071	0.007
Expressive Language	-0.132	0.083	0.115
Fine Motor	0.040	0.079	0.610
Total (all domains)	0.165+	0.086	0.054

# Heterogeneity

Within Bayley sub-sample:

## **Cognitive development:**

Larger impacts for girls, from poorer households, for children of low-education parents, for children of mothers with more symptoms of depression in baseline

## **Receptive language:**

Larger impacts for kids from poorer households, for those with less educated parents, and for those who were exclusively breastfed 6mo.



# Putting things into perspective

Study	Country	N (N Treated)	Effective treatment	Impact
Grantham-McGregor et al. (1991)	Jamaica	129 (62)	100%	<b>0.91 SD</b> Developmental coefficient (Griffiths)
Hamadani et al. (2006)	Bangladesh	193 (92)	~100%	<b>0.28-0.33 SD</b> Index of mental development (Bayley-II)
Attanasio et al. (2014)	Colombia	1267 (720)	81% of planned visits (average)	<b>0.26 SD</b> Cognitive <b>0.22 SD</b> Receptive Language (Bayley-III)

At a scale 70+ times larger than Colombia, with room to improve implementation and quality, Cuna Mas has robust, significant impacts on child development (cognitive and language).

# Concluding thoughts

Despite all the difficulties of implementing a home visiting program at scale, through a government agency, in areas that are hard to reach and culturally diverse, these results document robust impacts on cognitive and receptive language development.

Program costs: ~US\$300 per child per year in 2015

Impacts are not small:

- They close 18% of the socio-economic gradient for this sample in problem-solving (35% in communication, ASQ)

- They close 62% of the socio-economic gradient for this sample in cognitive development (42% in receptive language, Bayley)





**THANK YOU**

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