

## Association of increased duration of legislated paid maternity leave with childhood diarrhea prevalence in low-income and middle-income countries: Difference-in-differences analysis

### About:

*This research brief presents key findings from the following article:*

**Yan Chai, Arijit Nandi, and Jody Heymann (2020). Association of increased duration of legislated paid maternity leave with childhood diarrhoea prevalence in low-income and middle-income countries: difference-in-differences analysis. *Journal of Epidemiology and Community Health*, 74, 437–444. [doi:10.1136/jech-2019-212127](https://doi.org/10.1136/jech-2019-212127)**

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### Background:

- Diarrhea is the second-leading infectious cause of death in children under 5 years of age, and the global burden of severe diarrheal disease is concentrated in low- and middle-income countries (LMICs).
- Previous studies have identified interventions that may help reduce the risk of childhood diarrhea, including breastfeeding, vaccine coverage, and improvements of hygiene practices, water quality, and excreta disposal systems.
- However, the evidence for informing specific national social policy strategies to lower childhood diarrhea prevalence through these mechanisms remains limited.
- Using a novel database on nationally legislated maternity leave policies, researchers quantitatively examined whether extending the duration of paid maternity leave affected the prevalence of childhood diarrhea in LMICs.

### Methods:

- Demographic and Health Surveys (DHS) provided information on the prevalence of bloody diarrhea in the past 2 weeks among 884,517 children who were born between 1996 and 2014, and under 5 years old at the time of interviews. Data were available on 40 LMICs that participated at least twice in the DHS between 2000 and 2015.
- DHS data were then merged with data from a novel longitudinal database on national maternity leave policies.
- Using a difference-in-differences approach, researchers compared changes in the percentage of children with bloody diarrhea across the 8 studied countries that lengthened their paid maternity leave policy between 1995 and 2013 to the 32 countries that did not.

## Findings:

- Results indicated that increasing the duration of paid maternity leave policy reduced the prevalence of bloody diarrhea in children under 5 years old in LMICs.
- A 1-month increase in the legislated duration of paid maternity leave was associated with 61 fewer cases of bloody diarrhea per 10,000 children, representing a 36% relative reduction. Given an estimated global burden of 34.6 million severe diarrhea episodes primarily concentrated among children under 5 years in Africa and Southeast Asia, this represents a substantial population-level impact.
- The effect of a 1-month increase in the legislated duration of paid maternity leave was stronger among poorer households: there were 77 fewer cases of bloody diarrhea per 10,000 children **among the poorest households**, compared with about 27 fewer cases of bloody diarrhea per 10,000 children among the richest households.
- There were nearly 82 fewer cases of bloody diarrhea per 10,000 children among children whose mothers were working at the time they were interviewed, compared with 20 fewer cases among children whose mothers were not currently working.

## Discussion:

- This quasi-experimental study offers new evidence on how public policies such as paid maternity leave could contribute to reducing childhood diarrhea in LMICs.
- An underestimation of the true effect of paid maternity leave is possible due to lack of information on policy compliance and implementation, as well as high proportions of women who work in the informal economy and may not have been covered by paid maternity leave policies.
- Previous studies have found that longer paid maternity leave policy lowers infant mortality in LMICs. Since diarrhea is a leading cause of death among young children, these findings suggest a possible instrument through which paid maternity leave might improve child survival.
- Future research should examine the impact of paid maternity leave on other aspects of family health to develop a comprehensive early life-policy framework that ensures the maximum health benefits for families in LMICs.

**Table: Effect of a 1-month increase in the length of paid maternity leave on the prevalence of bloody diarrhea per 10,000 children under age five,  $N = 884,517$**

	Model 1	Model 2	Model 3
<b>One-month increase in legislated length of paid maternity leave (lagged one year, t-1)</b>	-55.08 (-93.11, -17.05)	-50.24 (-89.38, -11.11)	-60.86 (-98.86, -22.86)
Concurrent, t			-79.74 (-127.65, -31.82)
Lead one year, t+1			-49.53 (-118.20, 19.14)
Lead two years, t+2			-31.20 (-105.25, 42.84)
Lead three years, t+3			21.27 (-89.69, 132.22)
<b>One-month increase in FTE length of paid maternity leave (lagged one year, t-1)</b>	-58.14 (-98.30, -17.98)	-53.40 (-94.50, -12.31)	-64.21 (-102.64, -25.77)
Concurrent, t			-82.17 (-129.77, -34.58)
Lead one year, t+1			-49.82 (-120.30, 20.66)
Lead two years, t+2			-34.43 (-106.46, 37.60)
Lead three years, t+3			13.23 (-90.34, 116.80)

95% confidence intervals are in parentheses

Model 1 includes country and year fixed effects

Model 2 additionally controlled for measured individual- and household-level characteristics

Model 3 additionally controlled for country-level characteristics

Reported estimates are average marginal effects, which were multiplied by 10,000