# Long run effects of early life growth faltering: a retrospective analysis of 847 birth cohorts in low- and middle-income countries

Submission date	<b>Recruitment status</b> No longer recruiting	<ul><li>Prospectively registered</li></ul>		
02/10/2017		☐ Protocol		
<b>Registration date</b> 05/10/2017	Overall study status Completed	Statistical analysis plan		
		[X] Results		
<b>Last Edited</b> 08/07/2019	<b>Condition category</b> Other	Individual participant data		

# Plain English summary of protocol

Background and study aims

Early life growth faltering (slower than expected rate of growth) has increasingly been recognized as a risk factor for children's long run developmental and economic potential. While several studies have linked adult outcomes to child growth at the individual level, there is a lack of evidence on the long run benefits of reducing stunting rates at the national or subnational (population) levels. The aim of this study is to estimate the associations between early life growth faltering at the subnational (population) level and adult height and education outcomes in a representative sample of low- and middle-income countries.

#### Who can participate?

Adults born between 1985 and 1995 across 34 Demographic and Health Surveys (DHS) conducted between 2006 and 2014 in 24 low- and middle-income countries

#### What does the study involve?

Data from the DHS surveys is used to calculated average height-for-age for children under age 5 at the country-region and birth cohort level (a group of people born during a particular period or year). The measures of early life growth are then compared with adult height and educational attainment.

What are the possible benefits and risks of participating? This study only uses de-identified data from the DHS Program and there is no further data collection.

Where is the study run from? ICF International (USA)

When is the study starting and how long is it expected to run for? April 2017 to September 2017

Who is funding the study? Boston University (USA)

Who is the main contact? Prof. Mahesh Karra

# Contact information

## Type(s)

Scientific

#### Contact name

Prof Mahesh Karra

#### **ORCID ID**

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#### Contact details

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# Additional identifiers

**EudraCT/CTIS** number

**IRAS** number

ClinicalTrials.gov number

Secondary identifying numbers

IRB16-0515

# Study information

#### Scientific Title

Long run effects of early life growth faltering: a retrospective analysis of 847 birth cohorts in low- and middle-income countries

#### **Study objectives**

To estimate the associations between exposure to early life growth faltering at the subnational (population) level and adult height and education outcomes in a representative sample of low-and middle-income countries.

#### Ethics approval required

Old ethics approval format

#### Ethics approval(s)

This study obtained a human subjects exemption from the institutional review board at Harvard University, 05/04/2016, protocol number IRB16-0515. Only de-identified data were obtained from the Demographic and Health (DHS) survey program at https://dhsprogram.com/

#### Study design

Observational cross-sectional cohort study

#### Primary study design

Observational

#### Secondary study design

Cross sectional study

#### Study setting(s)

Other

#### Study type(s)

Other

#### Participant information sheet

Not available in web format, please use the contact details to request a patient information sheet

# Health condition(s) or problem(s) studied

Early life growth faltering (height and stunting at childhood)

#### **Interventions**

All available anthropometric data collected through the Demographic and Health Surveys (DHS) is combined to construct country-region measures of early childhood exposure to growth faltering, and this dataset is used to quantify the long-term outcomes of cohort-level changes in early life environments. The final analytic sample consists of 211,318 adult records across 34 DHS surveys that were conducted between 2006 and 2014 in 24 low- and middle-income countries.

Data from the Demographic and Health Surveys were used to compute average height-for-age z-scores for children under age 5 at the country-region and birth cohort level. The cohort measures of early life growth were then linked to adult height and educational attainment. The primary exposure of interest was population-level early life growth faltering, with adult height and adult educational attainment as primary outcomes. Multivariable linear regression models were used to estimate the associations between adult outcomes and population-level measures of early life linear growth.

## Intervention Type

Other

#### Primary outcome measure

- 1. Adult height, measured by reported height in adulthood, taken from DHS surveys conducted between 2006 and 2014
- 2. Educational attainment, measured by the highest educational grade completed, taken from DHS surveys conducted between 2006 and 2014

# Secondary outcome measures

No secondary outcome measures

# Overall study start date

18/04/2017

#### Completion date

28/09/2017

# **Eligibility**

#### Key inclusion criteria

211,318 adults who born between 1985 and 1995 across 34 DHS surveys that were conducted between 2006 and 2014 in 24 low- and middle-income countries

#### Participant type(s)

Mixed

#### Age group

Adult

#### Lower age limit

18 Years

#### Sex

Both

# Target number of participants

211,318

#### Key exclusion criteria

Missing income data

#### Date of first enrolment

01/01/1985

#### Date of final enrolment

31/12/1995

# Locations

#### Countries of recruitment

Burkina Faso

Cameroon

Colombia

Côte d'Ivoire

Dominican Republic					
Egypt					
Ghana					
Haiti					
Jordan					
Kenya					
Madagascar					
Malawi					
Mali					
Nepal					
Niger					
Nigeria					
Pakistan					
Peru					
Rwanda					
Senegal					
Tanzania					
Uganda					
United States of America					
Zambia					
Zimbabwe					

Study participating centre ICF International 530 Gaither Road, Suite 500

Rockville United States of America

20850

# Sponsor information

#### Organisation

**Boston University** 

#### Sponsor details

121 Bay State Road Boston United States of America 02215

#### Sponsor type

University/education

#### **ROR**

https://ror.org/05qwgg493

# Funder(s)

## Funder type

University/education

#### **Funder Name**

**Boston University** 

#### Alternative Name(s)

Universitas Bostoniensis, Newbury Biblical Institute, Methodist General Biblical Institute, Boston Theological Seminary, Boston Theological Institute, BU

#### **Funding Body Type**

Private sector organisation

#### **Funding Body Subtype**

Universities (academic only)

#### Location

United States of America

# **Results and Publications**

# Publication and dissemination plan

The trialists intend to submit the results of the study for publication to the American Journal of Clinical Nutrition.

# Intention to publish date

31/12/2017

# Individual participant data (IPD) sharing plan

The trialists only used de-identified data from the DHS Program and were in no way involved with any of the data collection or human subjects processes. Further information about participation in a DHS survey can be found here: https://dhsprogram.com/What-We-Do/Protecting-the-Privacy-of-DHS-Survey-Respondents.cfm. The DHS data are publicly available at https://dhsprogram.com/ - the data can be accessed free of charge upon request from ICF International, the organization that manages the DHS data.

## IPD sharing plan summary

Available on request

# **Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	04/07/2019	08/07/2019	Yes	No