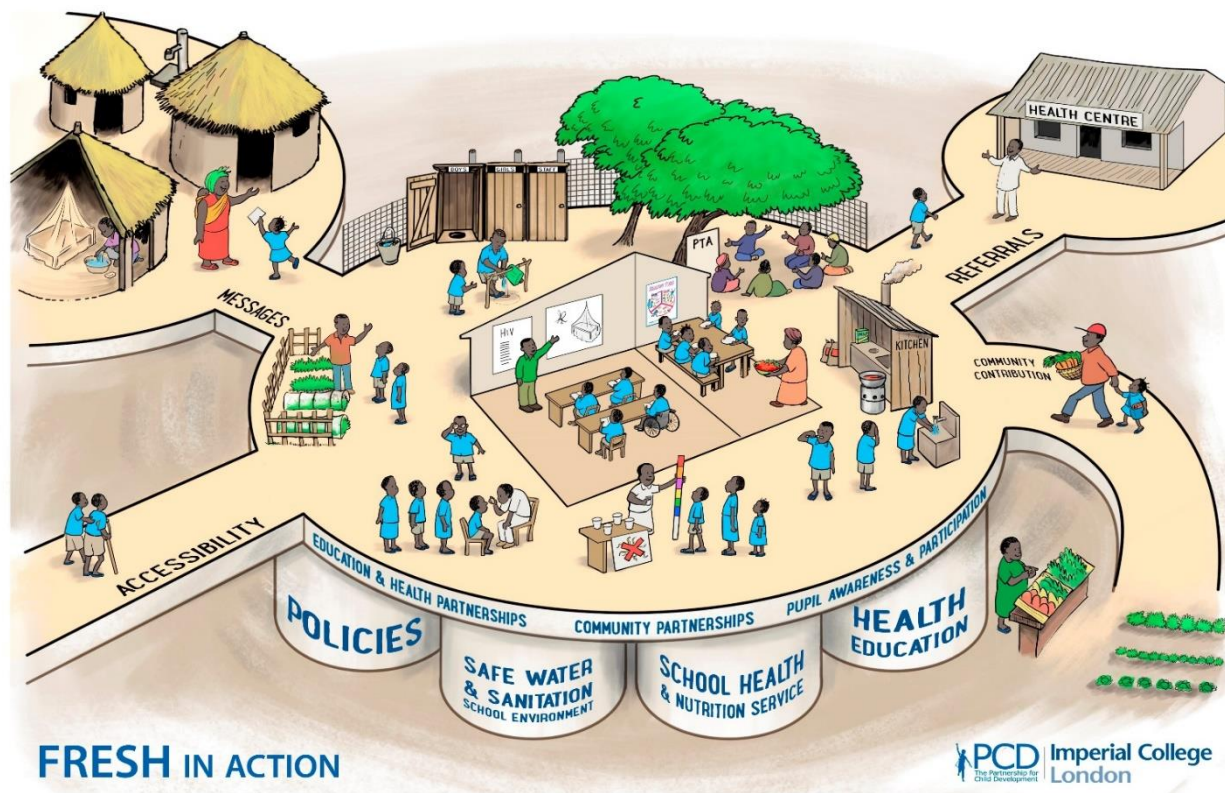


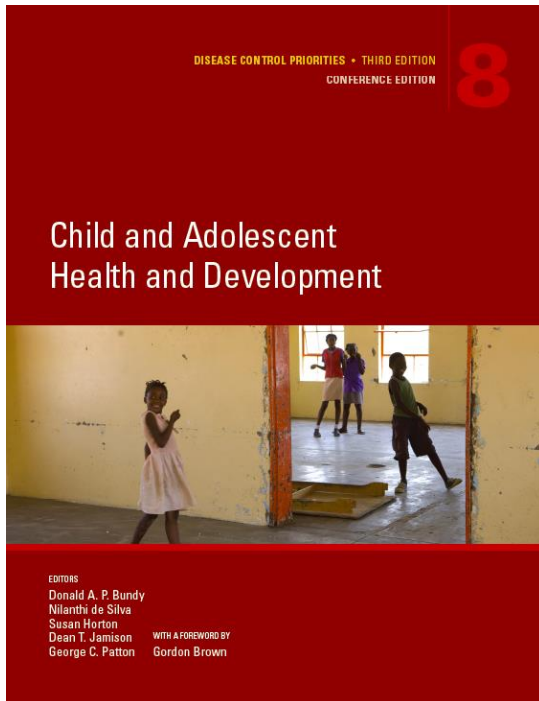
# School Health and Nutrition at Scale





# Volume 8:

## Child and Adolescent Health and Development



## Editors:

Donald A.P. Bundy  
Nilanthi de Silva  
Susan Horton  
Dean T. Jamison  
George C. Patton

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## Main Messages

- It takes some 8000 days for a child to develop into an adult.
- Focus on the first 1000 days is an essential but insufficient investment
- Sensitive phases shape development throughout this period, and age-appropriate and condition-specific support is required throughout if a child is to achieve full potential as an adult.





EDITORS

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WITH A FOREWORD BY  
Gordon Brown

WITH A PREFACE BY  
Julia Gillard

WITH A PROLOGUE BY  
Louise Banham  
Lesley Drake  
Bradford Strickland

DISEASE CONTROL PRIORITIES • THIRD EDITION

8

Child and Adolescent Health and Development

Optimizing Education Outcomes:  
High-Return Investments in School Health for  
Increased Participation and Learning



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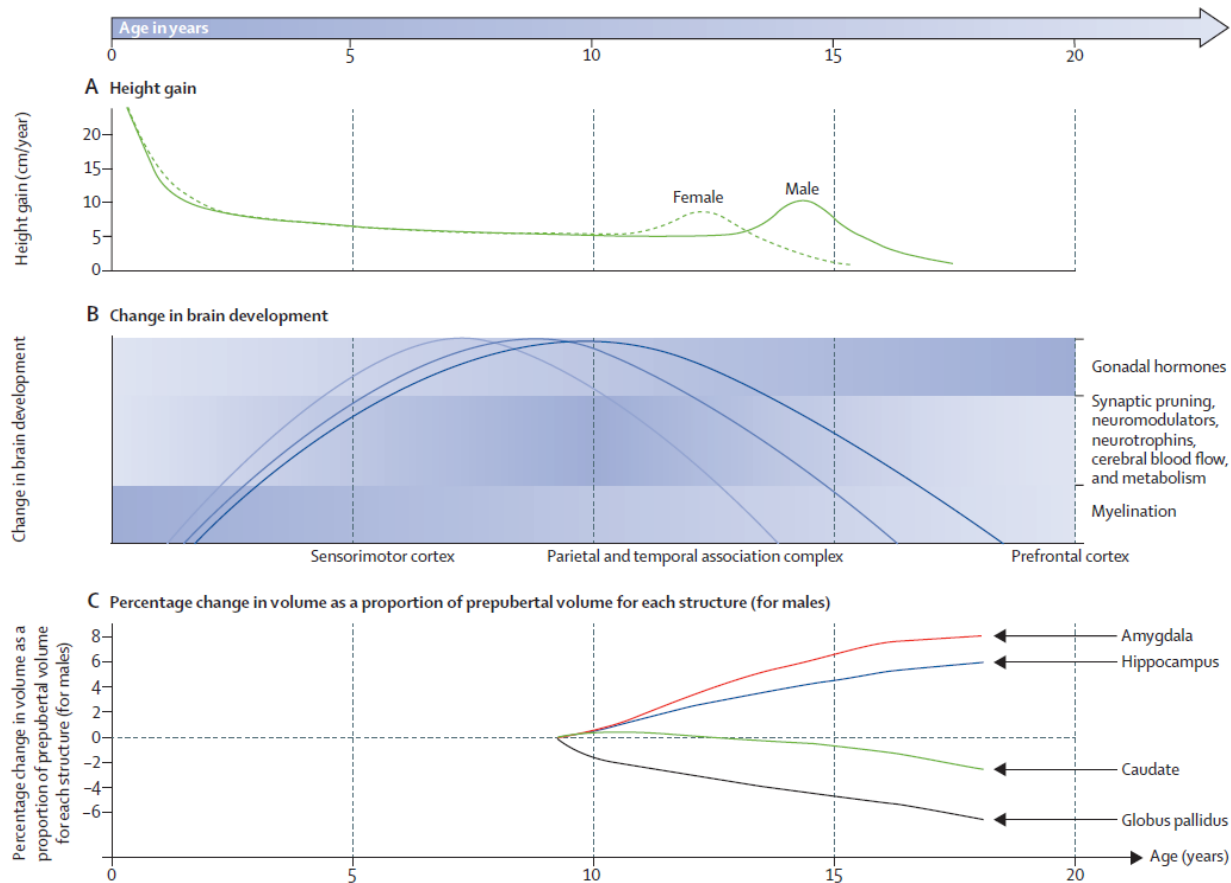
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# Human development to 20 years of age

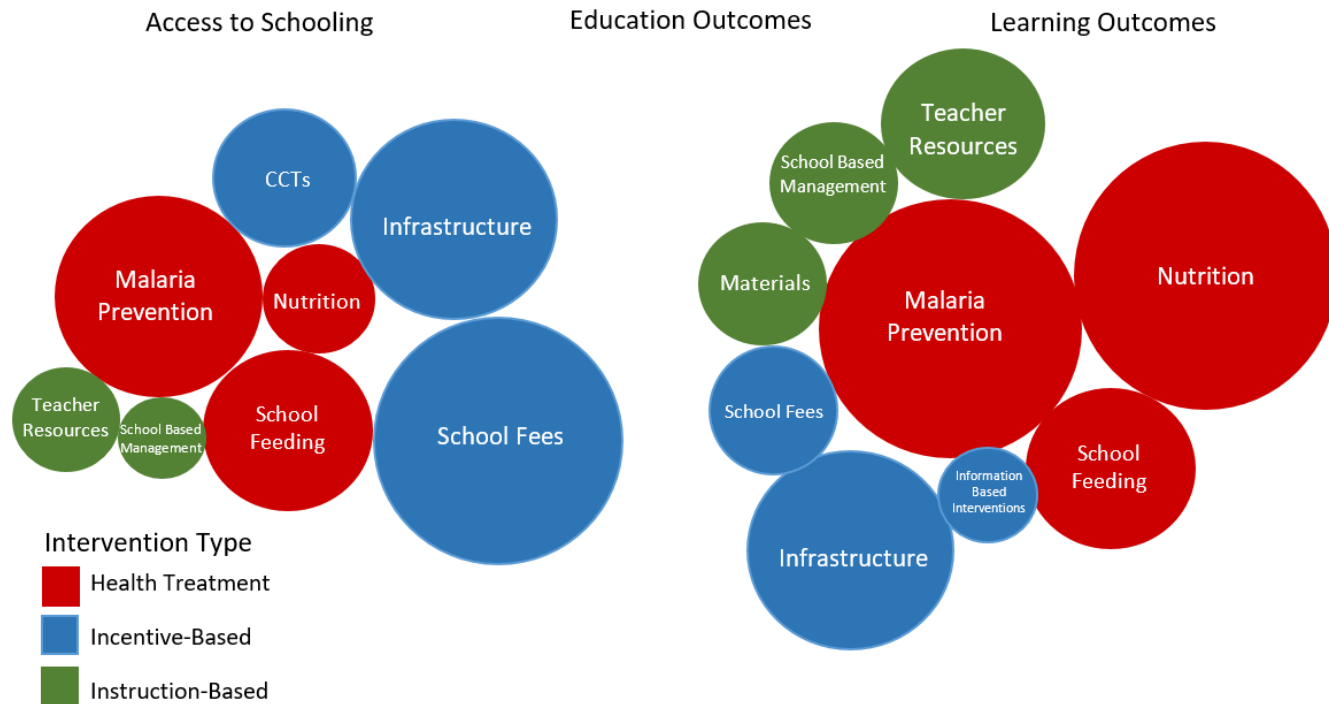


## Two essential packages (5-19 years)

- The volume proposes two essential packages for ages 5-19 years:
  - School-age package (5-14 years):  
utilizes pre-primary and primary schools to address health needs in middle childhood and early adolescence
  - Adolescent package (15-19 years):  
utilizes a mixed approach involving the community, secondary schools, media and health systems

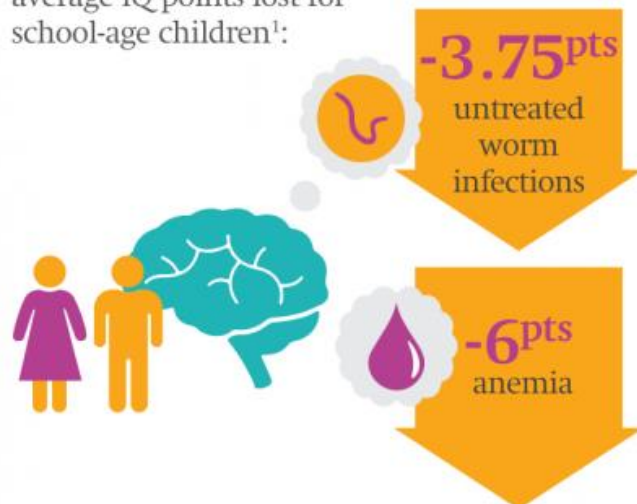


# Median significant effect sizes on education outcomes





In lower middle-income countries,  
average IQ points lost for  
school-age children<sup>1</sup>:



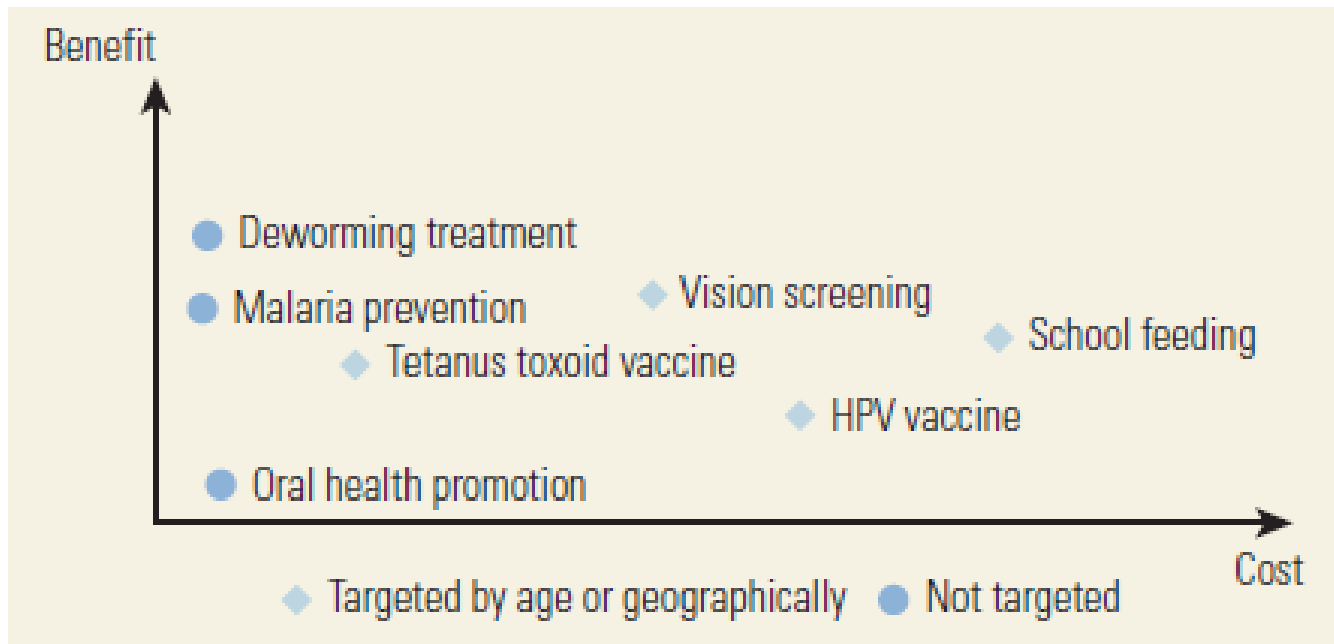
**School-based  
interventions**  
for poor girls and boys  
in areas where worms  
and anemia are  
prevalent would lead to



**2.5**  
extra years of  
**schooling<sup>2</sup>**

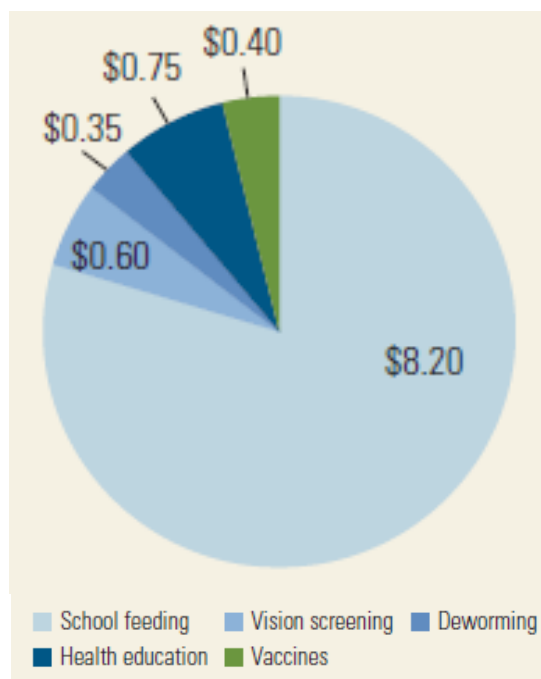


# Cost:Benefit Ratios for the School-Age Essential Package

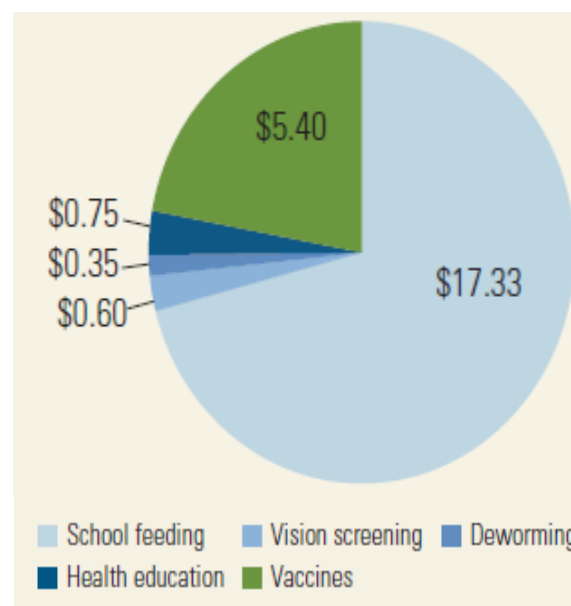


# Cost Share of the School-Age Essential Package

**Low-Income Countries**



**Lower-Middle Income Countries**



# Working across health and education

- Well designed health interventions in middle childhood and adolescence can leverage the current substantial investment in education, and improved design of educational programs can improve health.
- The potential synergy between health and education is undervalued and the returns on co-investment are rarely optimized.



# Three SHN success stories

- ❖ School feeding
- ❖ Vision screening
- ❖ Deworming





# Home Grown School Feeding

- Promoting agricultural development by improving access to the school feeding market
- A win-win
  - for children and communities... improving their education, health, and nutrition
  - Smallholder farmers...providing regular orders and a reliable income



**Social Protection**  
Social Safety Nets  
\*\*\*\*\*

**Health and Nutrition**  
Diet, Growth,  
Development  
\*\*\*

**School  
Feeding  
Programmes**

**Rural Economies**  
Small-holder Agriculture  
\*\*\*\*

**Education**  
Enrolment, Learning, Girls' Education  
\*\*\*\*

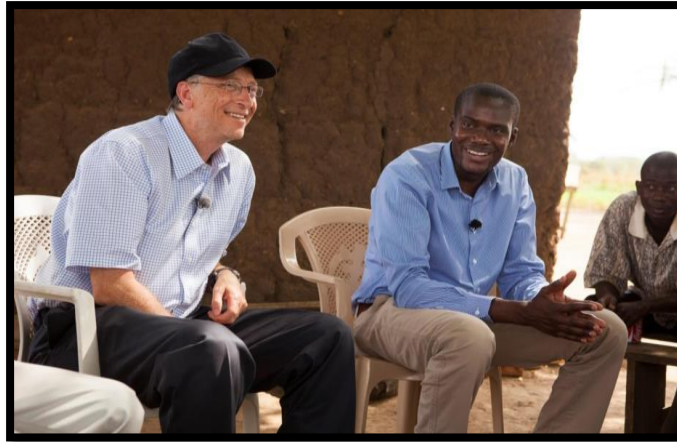


# Local SHNP Protein Commodities Nigeria

- 75 metric tonnes of fish
- 4,341,439 eggs
- 33,000 birds
- 355 cattle

WEEKLY!!





[Countries](#) [FCTs](#) [RDAs](#) [Nutrients](#) [Settings](#)

## Ghana Meals

[New Meal](#)

### Country Options

- [Manage](#)
- [Regions](#)
- [Schools](#)
- [Meals](#)
- [Menus](#)
- [Schedules](#)
- [Reports](#)

### Edit Meal

Meal name:

Targets:

Regions:

Age Group:

### Gingerbread Men



Calcium



Carbohydrate



Energy



Fat



Folate



Iron

### Nutrition Overview Table

[Add New Food](#)

Delete	Edit	Food.ShowContribution	Name	Weight (g)	Food.TotalCost GH¢
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Rice white raw	80	0.32
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Broad beans dried raw	40	0.172
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Plantain ripe raw	20	0.06
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Palm oil red	5	0.025

### Meal RDA

Cost per student:  
**GH¢ 0.58**

Ash (0%)

Beta-carotene equivalent (0%)

Calcium (0%)

Carbohydrate (0%)

Copper (0%)

Energy (85%)

Fat (43%)

Fibre (0%)

Folate (0%)

Iron (70%)

Magnesium (0%)

Niacin (0%)

Phosphorous (0%)

Potassium (0%)

Protein (94%)

Retinol (0%)

Riboflavin (0%)



# 100g Maize porridge & 100g Cassava leaves



**Energy**  
(12%)



**Protein**  
(19%)



**Fat**  
(2%)



**Vitamin  
A**  
(57%)



**Iron**  
(32%)



# 100g Maize porridge & 100g Pigeon peas



**Energy**  
(23%)



**Protein**  
(38%)



**Fat**  
(3%)



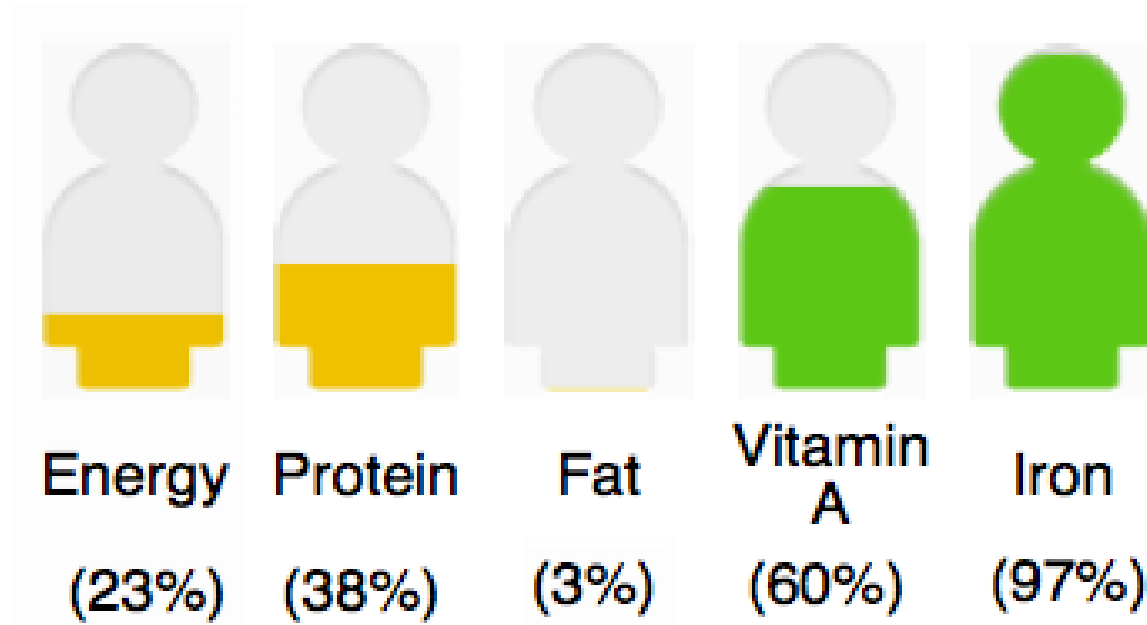
**Vitamin A**  
(0%)



**Iron**  
(27%)



# 100g Maize porridge, 100g of Pigeon peas and one sachet of WFP sprinkles



Contents of WFP sachet (1g): Vit A 300mcg, Vit. C 50mg, Vit. D3 7.5 mcg, Iron 12.5mg, Zinc 5mg and Folic Acid 150 mcg.



# Refractive Error in Children

- Lancet (2012) study has shown that almost 90% of urban school-leavers in Asia require spectacles.
- Refractive error is responsible for 97% of vision problems in school-children – can lead to reduced attainment.



# Worm Infection



***Trichuris trichiura***  
(whipworm)



***Ascaris lumbricoides***  
(roundworm)



***Ancylostoma duodenale***  
***Necator americanus***  
(hookworm)



***Schistosoma haematobium***  
***S. Mansoni***  
***S. japonicum***





# Scaling Up

HISTORICAL PROFILES AND PERSPECTIVES

## Bihar's Pioneering School-Based Deworming Programme: Lessons Learned in Deworming over 17 Million Indian School-Age Children in One Sustainable Campaign

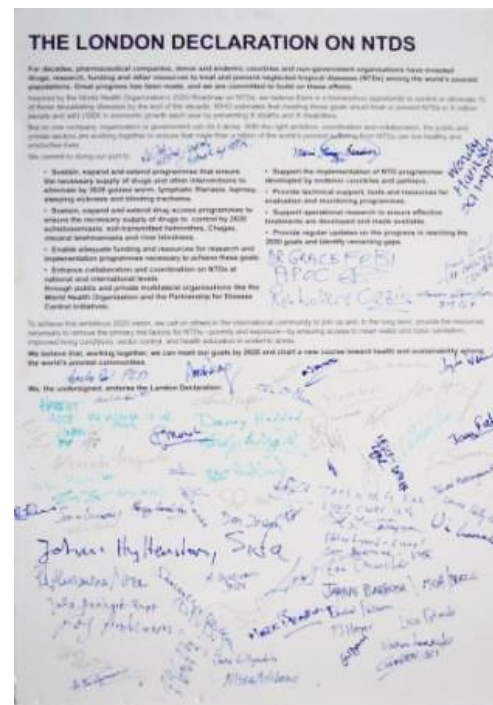
Lesley J. Drake<sup>1,2,3\*</sup>, Sarman Singh<sup>4</sup>, C. K. Mishra<sup>5</sup>, Amarjeet Sinha<sup>5a</sup>, Sanjay Kumar<sup>6ab</sup>, Rajesh Bhushan<sup>7ac</sup>, T. Deirdre Hollingsworth<sup>3,8,9,10</sup>, Laura J. Appleby<sup>1,3</sup>, Rakesh Kumar<sup>2</sup>, Kriti Sharma<sup>2</sup>, Yogita Kumar<sup>2</sup>, Sri Raman<sup>2†</sup>, Stalin Chakrabarty<sup>2</sup>, Jimmy H. Kihara<sup>11</sup>, N. K. Gunawardena<sup>12</sup>, Grace Hollister<sup>2,13,14</sup>, Vandana Kumar<sup>2</sup>, Anish Ankur<sup>2</sup>, Babul Prasad<sup>2</sup>, Sushma Ramachandran<sup>2</sup>, Alissa Fishbane<sup>2,13</sup>, Perna Makkar<sup>1,2</sup>



# London Declaration, January 2012

- PCD was one of many co-signatories of the London Declaration
  - donors
  - pharmaceuticals
  - multilateral agencies

pharmaceutical partners J&J and GSK committed to extending their combined annual donations of 600 million deworming treatments for school-age children at risk of STH through 2020.



Find out more @

[www.schoolsandhealth.org](http://www.schoolsandhealth.org)

[www.hgsf-global.org](http://www.hgsf-global.org)



[www.child-development.org](http://www.child-development.org)

Downloadable

- Documents & resources
- News & Events
- SHN topic information
- Country specific data



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[www.facebook.com/PartnershipforChildDevelopment](https://www.facebook.com/PartnershipforChildDevelopment)

