Food and Nutrition Security Innovation in Action
GASL, 2019 Multi Stakeholder Partnership
Sept 9, 2019

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Photos: G. Reinhart
• Infant and young child nutritional requirements and recommendations for feeding and evidence base for animal-source food interventions
• Eggs as an animal-source food to improve child growth and prevent undernutrition
• Challenges and opportunities for scaling up egg production in low- and middle-income countries to improve access to eggs
“As a public health recommendation, infants should be exclusively breastfed for the first six months of life …”

“…Infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for two years or beyond.”

WHO, 2003; Endorsed by World Health Assembly, 2002
WHO Infant and young recommendations for feeding animal-source foods (ASFs)

• 10 Guiding Principles

• #8 - Nutrient Content of Complementary Foods

“…It is advisable to include meat, poultry, fish or eggs in complementary food diets as often as possible.”

PAHO/WHO, 2003
Necessary contribution from complementary foods as a percentage of requirements of a breastfed child 9-11 months of age

Data from Gibson et al., *European Journal of Nutrition*, 1998
Traditional complementary feeding meal in Latin America compared to an optimal meal

Reyna Lira (Peru)

PAHO/WHO (Colombia)

Instituto para la Investigación en Nutrition, Peru
Evidence base for animal-source food interventions

- Limited quality of the evidence
- Uncertain of the effects of ASFs versus cereals or no intervention on child growth or development
- More adequately powered trials needed with consistency in the definition and quantification of exposure and outcomes

A Systematic Review Investigating the Relation Between Animal-Source Food Consumption and Stunting in Children Aged 6–60 Months in Low and Middle-Income Countries

Myra J Shapiro, Shauna M Downs, Haley J Swartz, Megan Parker, Diana Quelhas, Katharine Kreis, Klaus Kraemer, Keith P West, Jr, Jessica Fanzo

Advances in Nutrition, nmz018, https://doi.org/10.1093/advances/nmz018
Published: 08 June 2019 Article history v
Proportion of nutrients provided

Iannotti, Lutter et al. *Nutrition Reviews* 2014

> 50% of nutrients (++) and 20-50% (+) provided by a 50 g egg for healthy breastfed children 7-12 months
Effect of a 6-month egg intervention on young child growth and stunting reduction in Ecuador

Reduction of 47% in the prevalence of stunting and the prevalence of low weight/age of 74%

Iannotti, Lutter et al. *Pediatrics*, 2017
Effect of a 6-month egg intervention on young child growth and stunting reduction in Malawi

- Malawi - Maize staple, high intake of fish
- Ecuador – Potato and rice staples, low intake of fish
- Differences in baseline stunting
  - Ecuador – 26-37%
  - Malawi – 13%

Stewart, Caswell et al., *American Journal of Clinical Nutrition*, 2019
Why does child egg consumption vary?

- Price & availability (relative)
- Household income (real terms)
- Food preferences (e.g. culture)

Household egg consumption

Child egg consumption

Slide courtesy of D Headey, IFPRI
Regional prevalence (%) of egg consumption among young children in previous 24 hours

Lutter, Iannotti and Stewart. *Maternal & Child Nutrition*, 2018
The ratio of caloric egg prices to caloric starchy staple prices

Headey and Alderman, Journal of Nutrition, 2019
Challenges to increasing egg consumption in young children in low and middle-income countries

• High relative prices
  o Highly perishable
  o Low productivity of village poultry production

• Very large economies of scale in poultry production
  o Commercial poultry in Africa also faces high feed costs
Opportunities for increasing egg consumption in young children in low- and middle-income countries

• For commercial production
  o Reduce cost of inputs, particularly feed

• For village production
  • Address high mortality and improve egg yield
    • Newcastle vaccine
    • Heat resistant breeds
    • Example of Farm Input Promotions (FIPS), Africa

Greg Reinhardt, USA
Relative caloric price of (RCP) animal-sourced foods in 176 countries, grouped by income levels

Data abstracted from Headey and Alderman, Journal of Nutrition, 2019
Key takeaways

• ASFs are essential for improving infant and young child nutrition in low- and middle-income countries

• Research is needed to better establish links between consumption of ASFs and child growth outcomes

• Compared to high-income countries, the poorer the country the higher cost of ASFs

• Production costs need to be reduced to lower costs of eggs through large commercial enterprises

• Creative and sustainable interventions need to be identified to provide inputs needed to improve egg output at the village level
Thank you

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