Role of Milk and Whey During the First 1,000 Days

Dairy: An accelerator of economic growth? Focus on developing economies and emerging markets

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Agenda

- Stunting and its cost to nations
- Low birth weight: a new focus
- Revisiting protein quality, needs, and nutrition innovation

Photo sources: Berkeley.edu, NGOhealth committee, US Dairy Export Council
What is stunting?

STUNTING is the UNDERDEVELOPMENT OF CHILDREN due to malnutrition and lack of care in the first 1000 days of life. It leads to developmental problems that have LIFELONG CONSEQUENCES.

Moderately Malnourished Children
195 million,
25% of children worldwide affected by stunting

Photos: TOP 9-years old raised in Guatemala, BOTTOM same age group, Los Angeles
Prevalence of stunting

• 40% of children in sub-Saharan Africa
• East and South Asia: 50% of children (estimates)

Source, diagram courtesy: UNICEF, 2015
Economic significance

Asia and Africa lose 11% of their GDP every year owing to poor nutrition

- Lower productivity
- Increase risk of chronic disease
- Obesity later in life

Diagram courtesy: Gates Foundation, 2015
And impact at the individual level

• Adults undernourished as children have a lower IQ

• They earn at least 20% less than those that were not

Source, diagram courtesy: UNICEF, 2015
Economic Rationale for Investing in Nutrition

- Demonstrated economic rationale for investing in stunting reduction:
  - Benefit-cost ratio average: 18*

- Fit-for-purpose nutrition, not just food is part of the solution

Source:
*Hoddinott, J. Maternal & Child Nutrition, 2013 (9) Suppl. 2
To meet UNICEF specifications, RUTF needs to contain:
- >20-25% skim milk powder or,
- 30% WPC34, or
- 60% sweet whey (or a combination of those)

Source: UNICEF.org
Moderate malnutrition: milk, whey recommended

Treatment of MAM is key to stunting prevention

Dairy ingredients are recommended, but not yet standard of care

Goal: Deliver dairy evidence, recommended dose to WHO for policy development
• Stunting and its cost to nations

• Low birth weight: a new focus

• Revisiting protein quality, needs, and nutrition innovation

Photo sources: Berkeley.edu, NGOhealth committee, US Dairy Export Council
Children’s nutrition is important, mothers’ too

- 30% of stunting occurs in-utero

- Pregnant mothers have higher nutritional needs: proteins, calcium, vitamins – not just energy
Low birth weight: a new United Nations focus

United Nations: new targets for pregnant women and their nutrition

Global Nutrition Targets 2025

Low Birth Weight Policy Brief

TARGET:
30% reduction in low birth weight

Graph courtesy: 1,000 Days Foundation
Not a new concept…

• But in developing countries, she will be pregnant or lactating for 18 years of her life…
• Can she afford these products over her lifetime?
• Are they even available?

Photo sources: Yashili, Fonterra, Abbott, Dumex
Emerging science adds evidence needed by policy makers

- Maternal cow’s milk consumption (>3 glasses/day) was associated with greater fetal weight gain in 3rd trimester
- Maternal milk consumption not associated with length growth
- Protein intake from other non-dairy sources was not associated with birth weight increases.

Source: Heppe et al., 2011
Potential for affordable, effective formula for women

- Supplements
- Fortification of everyday foods
- Need support by Governments, NGOs, and from UN agencies, other donors
• Stunting and its cost to nations

• Low birth weight: a new focus

• Revisiting protein quality, needs, and nutrition innovation

Photo sources: Berkeley.edu, NGOhealth committee, US Dairy Export Council
Nutrition innovation in the 21st century

- Revisiting nutritional needs and protein quality

Source: FAO, published 2013
New method to measure protein quality: DIAAS

### DIAAS and PDCAAS Differ

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1 Based on true ileal AA digestibility and 2-5 yo AA requirement pattern (FAO, 2007)
*NB a more poorly digested protein.

Table source: Moughan, 2012
DIAAS correlated with recovery

Relationship Between Protein Score and Average Recovery Outcome in Children Treated for SAM with RUTF/F100

Chart source: Manary, 2014
Cost-effectiveness (MAM)

Fortified blended foods, complementary foods (LNS)

Perceived high cost of dairy ingredient a barrier…

Despite evidence on overall cost of treatment (moderate malnutrition)

Diagram source: World Food Program, 2014
Possible impact on entire infant formula sector

- Allow to deliver formula closer to breast milk (lower protein than dairy)
- But with optimized amino-acid balance: more closely match plasma amino acid concentration in the infant
The customers and market potential

In 2014, WFP purchased over $75 million worth of specialized nutritious foods.

MSF, other NGOs and foundation purchase significant volumes + large future needs

Market potential for category could exceed 300,000 mt of dairy ingredients
Revisiting protein and needs for 21st century

- Stunting: dairy is part of the solution
- Dairy ingredients: AA composition and utilization (DIAAS), Type II minerals, lactose support growth, lean body mass accretion
- 1,000 days nutrition: need adoption of new WHO policies supported by sound, pre-competitive science
- Large market potential in all developing economies for affordable, optimized products with good shelf-life under adverse conditions
Thank you!

Dairy for Global Nutrition

www.dairyforglobalnutrition.org

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