Evaluating Opportunity Cost of Caregivers’ Time and its Impact on Comparative Cost-Effectiveness of Supplementary Foods to Prevent Child Undernutrition in Burkina Faso
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Background & Objective
- Opportunity cost of caregivers’ time is generally overlooked in the nutrition intervention programs.
- As part of the Food Aid Quality Review (FAQR) Project at Tufts Friedman School of Nutrition Science and Policy, we evaluated the opportunity cost of caregivers’ time and its impact on relative cost-effectiveness of four specialized nutritious foods in preventing stunting and wasting in a blanket supplementary feeding program (SFP) for children in Burkina Faso.

Study Design
- 48 Food Distribution Points in Sanmatenga Province, Burkina Faso
- Existing Title II USAID supplementary feeding program (VPIM) targeting pregnant and lactating mothers and children 6-23 months
- Four geographic regions randomly assigned to one of four iso-caloric study arms
- Enrolled 6,092 children at ~6 months old
- Monthly food distribution and anthropometric measurements at Food Distribution Points for 18 months with additional data collection at households, communities and other relevant venues.

Costing Methods
- Valuing Caregivers’ Time
  - Opportunity Cost of Time = Hours of Time x Estimated Hourly Wage
  - Self-reported & observed time
  - $0.21 USD/hr
  - Standard deviation = ±$0.15 USD
  - Standard deviation of 60 hours for household workers
- Activity Based Costing- Ingredients Approach
  - Program Perspective + Caregiver Perspective
  - Cost by Component
  - Cost of Ingredient
  - Cost of Ration
  - Cost of Child

Results from Caregiver Perspective
- Calculating % Preparation Time Attributed To Study Food
  - Number of porridge prep occasions
    - (n=235) from IHO
    - Estimated
- Impact of Adding Caregiver Perspective on Comparative Cost-Effectiveness for Stunting Prevention
  - Caregivers’ opportunity cost (valuing at $.21/hr) was a substantial addition.
  - Total cost per child reached in the CSWB arm became slightly lower than CSB+, but CSB+ arm is still the most cost-effective.
  - Sensitivity analyses showed that starting at a rate of $.35/hr, RUSF arm began to have lower total cost per child reached than CSB+ arm.

Conclusions
- Time spent in study food preparation is the largest contributor to the difference in caregivers’ opportunity cost among the two types of foods (fortified blended flours versus ready-to-use foods).
- After inclusion of caregivers’ opportunity cost at $.21/hr, CSB+ with oil remained most cost-effective of the four study arms, but RUSF’s comparative cost-effectiveness improved as opportunity costs increased.
- Results of sensitivity analyses demonstrated the importance of determining the appropriate hourly rate in valuing caregivers’ time. It allows the estimated caregivers’ opportunity costs to best reflect the given context for caregiver perspective compared to program perspective.
- The opportunity costs of caregivers’ time is important in the cost-effectiveness and the sustainability of feeding programs.

Please send any comments/ inquiries to Ye Shen via Ye.Shen@tufts.edu. For more about the Food Aid Quality Review (FAQR) Project, visit www.foodaidquality.org

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