

Scaling Up Growth: Addressing Stunting in Tanzania Early (in the under 5s)

UPDATE ON OPERATIONS RESEARCH

August 2019



OVERVIEW

Addressing Stunting in Tanzania Early (ASTUTE), led by IMA World Health and funded with UK aid from the UK government through the Department of International Development (DFID), aims to effectively operationalize Tanzania's national nutrition policies at scale. ASTUTE's goal is to reach three million mothers and prevent stunting in 50,000 children, collectively reducing stunting prevalence in children under five years by at least 7 percentage points in 5 target regions surrounding Lake Victoria in Tanzania.

Cornell University designed and conducted operations research, in collaboration with IMA World Health and the Tanzania Food and Nutrition Centre (TFNC), to strengthen ASTUTE intervention efforts through exploring attitudes and conditions around infant and young child feeding (IYCF) behaviours and local capacity to deliver quality and effective interventions. The research contained 4 phases, summarized below.

Data collection for operations research started in April 2017 and concluded in May 2019. Preliminary findings have been shared with key stakeholders in participating research sites. Ongoing analysis and dissemination will provide helpful information for continual selection, design and strengthening of community intervention activities that promote nutrition-focused behavioural change. Results will also highlight mechanisms for building capacity of frontline staff and developing an enabling environment to work across sectors on nutrition.

Phase 1. Trials of improved practices (TIPs) and Focus Group Discussions (FGDs) with women and men on exclusive breastfeeding (EBF) for infants 0 to 5 months to learn what feeding practices are acceptable, feasible and can be recommended at scale.

Study Sites (Region-district): Mwanza-Sengerema and Geita-Chato.

Objective: To ensure EBF messages are acceptable and feasible by exploring mothers' and fathers' willingness to try recommended strategies, and motivations, barriers and facilitators of practices.

Methods: Trials of Improved Practices (TIPs) with 72 parents of babies aged 0-6 months and 4 focus group discussions (FGD) with men to explore roles to support EBF. TIPs involved 3 household visits: (1) to assess current feeding practices, (2) to provide tailored recommendations on doable actions to improve practices, and (3) interviews on acceptability and experiences with recommended practices.

Select Findings: Common problems/barriers were giving water, using gripe water when concerned about babies crying, and mothers' lack of time to feed. After counseling, most mothers were able to EBF; fathers encouraged mothers and provided food for sufficient breast milk supply. A few fathers helped reduce wives' workloads; some couples said communication improved, supporting EBF.

Phase 2. Trials of improved practices (TIPs) and Focus Group Discussions (FGDs) with women and men on complementary feeding (CF) for infants 6 to 18 months to learn what feeding practices are acceptable, feasible and can be recommended at scale.

Study Sites (Region-district): Mwanza-Sengerema, Geita-Chato and Kagera-Misenyi.

Objectives: To ensure recommendations on CF are acceptable and feasible by testing with mothers and fathers, gaining feedback, and exploring men's willingness to support and participate in feeding.

Methods: FGDs/recipe trials (60 parents); TIPs (50 mothers and 40 fathers of children 6-18 months).

Select Findings: Most frequently-needed recommendations were: thicken porridge, increase dietary diversity, replace sugary snacks, and feed responsively. After counseling, mothers tried practices to improve diet diversity and nutrient content. Fathers purchased healthier snacks and helped with chores; some fathers fed children, valued being counseled, and felt connected to their children.

Phase 3. Assessing mentoring and multisectoral action teams as vehicles to build capacity of district officers to coordinate and implement nutrition actions.

Study Sites (Region-district): Mwanza-Nyamagana, Kigoma-Kasulu, Kagera-Missenyi, Geita-Chato, Shinyanga-Kahama

Objective: To build MSN capacity and assess how mentoring by Regional Nutrition Officers (RNUOs) impacts the ability of district officers to form strategic multi-sectoral partnerships and support communities and frontline workers.

Methods: We trained 5 Regional Nutrition Officers to each mentor one District Nutrition Officer to form an action team with 2-3 officers from other sectors. Support calls and funding for basic expenses were provided. Team members were mentored to plan goals and activities aligned with MSN policy, and interviewed 3-4 times over 14 months to learn from their experiences. Transcribed interviews (n=66) with 27 regional and district officers were analyzed thematically.

Preliminary Findings: Most Nutrition Officers organized teams across health, agriculture, and education departments. Mentoring capacity varied across mentors but was instrumental for providing teams with official status and credibility. Officers outside the health sector felt their work aligned with nutrition but were initially unaware of policy to guide actions. With adaptation, local governments may benefit from an “action team” approach to prioritize MSN initiatives.

Phase 4. Implementation research on home visiting by Community Health Workers (CHWs) and household decision-making on recommended maternal, infant, and young child nutrition (MIYCN) practices.

Study Sites (Region-district): Kagera-Mabira, Kyaka, Gera; and Shinyanga-Mpunze, Samuye, Mwalukwa.

Objectives: To refine programme implementation by assessing how CHWs target home visiting and messages, challenges CHWs face, and community response; to support behaviour change by exploring household decision-making, gender roles and other influences on adopting recommended practices.

Methods: Interviews with CHWs; household surveys of families in selected districts; interviews and card sort activities to explore household decision-making on nutrition, WASH and ECD behaviours.

Preliminary Findings: Forthcoming in 2020.

BACKGROUND

In Tanzania, child mortality is decreasing and health and nutrition are improving. Although Tanzania surpassed the Millennium Development Goals for Children, Food Security and Nutrition, child stunting continues to pose a serious public health concern, affecting 32% of Tanzanian children under age five (TNNS 2018). Stunting is associated with poor cognitive development and educational outcomes, with long-term implications for individuals and communities.

To address this problem, UK Aid Direct/Department for International Development is supporting the Scaling up Growth: Addressing Stunting in Tanzania Early (ASTUTE) or *Mtoto Mwerevu* project which IMA World Health is implementing in 5 regions around Lake Victoria in collaboration with the Government of Tanzania and other partners.

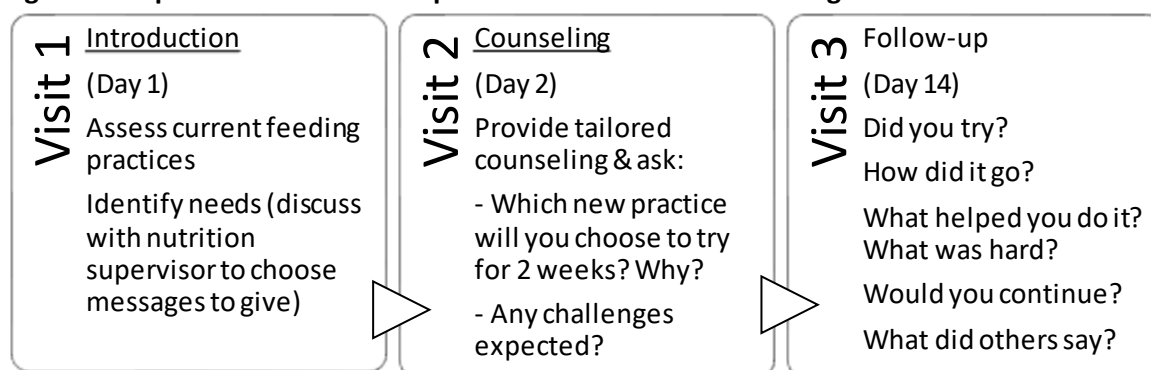
A team from the Division of Nutritional Sciences at Cornell University, in collaboration with the Tanzania Food and Nutrition Centre and IMA World Health, conducted innovative operations research designed to provide feedback to refine social and behavioural change messages, programme implementation and training, and to build capacity to deliver the multisectoral interventions needed to combat stunting in Tanzania. This applied research uses methods developed specifically for the Tanzanian context and focuses on questions directly relevant to the ASTUTE programme. The goal is to build on Tanzania’s strong National Multisectoral Nutrition Action Plan (NMNAP) and cadres of trained personnel coordinating and implementing programmes to support the healthy growth and development of young children.

PHASE 1 AND 2 METHODS: What are Trials of Improved Practices (TIPs)?

Trials of Improved Practices (TIPs) is a well-tested and adaptable method to explore the acceptability of recommended behaviour changes with community members prior to scaling up delivery of messages. This innovative approach is called “consultative research” because we consult with community members on whether suggested behaviours are feasible in their family context, whether they are willing and able to try them, and whether they find them acceptable.

TIPs research involves several visits to a small sample of families so interviewers develop rapport and can gather detailed and realistic information. The process followed in Phase 1 and 2 of the operations research is shown in figure 1 below. During household visits with mothers, interviewers assessed current feeding in order to identify tailored messages to provide the next day. On Day 2, mothers were offered choices of these small doable steps to improve child feeding and asked to select what to try. After 2 weeks, interviewers returned to learn from mothers how they felt about the recommendations after trying them out. This dialogue with participants over time provides much more in-depth information than a survey because it is based on actual experience.

Figure 1: Steps in 3-visit Trials of Improved Practices on child feeding in ASTUTE OR



In the ASTUTE operations research, the TIPs approach focused on the infant and young child feeding behaviours most relevant to prevent stunting. We developed counseling guides that tested specific messages on exclusive breastfeeding and complementary feeding, conducting FGDs and recipe trials with mothers to identify local foods and recipes to diversify child diets.

Recognizing the importance of gender roles and support to reduce women's workloads, this study broke new ground by conducting TIPs with fathers as well as mothers. We held FGDs with groups of men to gather ideas on potential ways that men can support child feeding. Then, we visited men whose wives were in TIPs, provided counseling, and asked these fathers to choose specific behaviours to try and support improved child feeding.

For Phase 1 and 2 of the operations research, most of the data are qualitative, meaning that we analyze the responses of mothers and fathers during interviews by summarizing the range of views and experiences. We look for themes that are unexpected and highlight issues that may affect the success of a programme. Quotes from the parents are used to show the types of responses and their words help us to understand what motivates their behaviour, what concerns they have, and how they interpret the feeding recommendations.

PHASE 1: What have we learned from TIPs on Exclusive Breast Feeding (EBF)?

In Tanzania, EBF decreases from 84% in the first two months of a child's life to 27% by the 6th month. To combat this rapid decline and improve child survival rates, ASTUTE is providing messages promoting EBF. This phase of OR found that these messages are very important, but also that parents need more detailed counseling to overcome barriers to EBF. **Table 1** includes recommendations on what information to provide to parents to support improved breastfeeding practices and shows how the Phase 1 results led to these recommendations.

Research methods: TIPs were conducted with 72 parents of babies aged 0-6 months in 4 communities in Mwanza (Sengerema district) and Geita (Chato district) and 4 FGDs were held with men to explore roles to support EBF. TIPs involved 3 household visits during which fathers and mothers were interviewed individually to assess their willingness to adopt the recommended strategies and to identify barriers and facilitators to improving breastfeeding practices.

Status: This phase of the research is complete.

Key results: Most mothers began to practice EBF after being counseled on breastfeeding more frequently and providing their infant with only breast milk. Fathers most often chose to encourage their wives and to support them by providing food to help ensure sufficient supply of breast milk. Some fathers helped the mothers with their workloads and most provided emotional support. Some couples said because of participating in TIPs and discussing child feeding, their communication with each other improved and this supported improved breastfeeding practices.

Identified Barriers:

- Many parents had concerns about "*mchango*" (crying and other colic-like symptoms) in infants and often used gripe water, traditional medications, and non-prescribed medicines to treat symptoms of *mchango*, such as abdominal pain or crying.
- Some parents gave water, thinking infants might be thirsty.
- Women had heavy workloads leaving them limited time and energy to breastfeed.
- Some fathers reported social norms as barriers to involvement in chores and child care but others were willing to help.

Recommendations:

- To promote EBF and overcome barriers, counseling needs to address infant crying, *mchango* and related symptoms, which parents regard as serious health problems.

- Teach parents soothing techniques and ways to cope with prolonged crying, and encourage them to avoid giving gripe water and other non-prescribed medications.
- Engaging with men may help change social norms and improve support for breastfeeding.

Dissemination:

- Summary reports were shared with each district after fieldwork was completed.
- Findings were presented at “Nutrition 2018” in June 2018. (See [EBF abstract](#) & [EBF poster](#))
- Manuscript, “Overcoming Perceptions of *Mchango* and Increasing Support to Improve Exclusive Breastfeeding in Tanzania” was published in *Food and Nutrition Bulletin*, 2019 May.
- We provided IMA World Health feedback on messages – See table 1 below. Parents wanted more detailed information to understand what it really means to “give only mother’s milk,” as well as the reasons for recommended practices and practical strategies to overcome barriers. Table 1 includes overall messages on EBF and child care, plus detailed messages on what to actually do. The second column highlights brief examples of research findings, including some quotes, to show why these messages are important to address parents’ concerns and motivations, and to clarify more general messages.
- We developed a CHW Dialogue Training Guide on Exclusive Breastfeeding based on key findings from this research. The guide targets CHW supervisors to help use findings from ASTUTE’s research to support effective counseling. The steps in the guide will help CHWs as they discuss and recommend home-based practices people can try to improved nutrition of their children.

Table 1: Input on social and behavioural change messages to support EBF based on results of TIPs

New messages to support EBF	Results and illustrative quotes
<p>The following messages build on existing breastfeeding recommendations by explaining how and why to breastfeed exclusively and avoid other liquids.</p> <p>Overall EBF message: Breastmilk has everything a baby needs to eat and drink to grow well, and also helps to protect the baby from many sicknesses. Do not give any other foods or liquids.</p>	<p>From Trials of Improved Practices with mothers and fathers in “Mtoto Mwerevu” regions</p> <p>Many parents are aware of and report that they are exclusively breastfeeding but need to feed longer and more often, and avoid giving other liquids.</p>
<p>Breastfeeding “strategy” messages:</p> <p>a. Take time to breastfeed for as long as your baby wants at each feed. The longer you breastfeed at each feed, the more nutrient-rich milk your baby gets. Let the baby finish all the milk in one breast before offering the other breast. The baby needs both the “foremilk” (high in water for thirst) and “hind milk” (high in fat and sugar so baby feels full and grows strong)</p> <p>b. Breastfeed often throughout the day and night to help your baby grow and help you make plenty of milk.</p> <p>c. Fathers: Help your wife with activities so she has time to breastfeed long enough and often enough so your child will grow well and be healthy.</p>	<p>Quotes from parents:</p> <p>“I already encouraged my wife to breastfeed exclusively but I reminded her to breastfeed for a longer time so that the child gets all kinds of milk as we learnt that the first milk which comes out has lots of water and the second one has the nutrients.” (father #38)</p> <p>“The first milk is for giving water to baby, the second is for glucose and the third is for fat, that’s how the baby become healthy...” (father #40)</p> <p>“I was told that we should not give our babies water because mother’s milk has enough, especially the first milk.” (mother #43)</p>
<p>Overall “crying baby” message/background: Crying is normal for babies, especially during the first few months of life, and babies cry for many reasons.</p>	<p>Many parents reported that when their babies cried they worried that the baby had stomach pain</p>

<p>Breastmilk is the best thing to offer when a baby cries. Sometimes, crying is not due to hunger, pain, or anything parents can control. Some babies just cry a lot while others cry a little. Many babies will cry less once they are 3 or 4 months old.</p>	<p>or an illness and then gave gripe water or herbal medicine. Some parents worried that breast milk was not sufficient for the baby.</p>
<p>Crying baby “strategy” messages to support EBF:</p> <ol style="list-style-type: none"> When your baby is crying, try giving breastmilk or see if the baby is wet. Try calming the baby in other ways, such as rocking the baby to sleep or holding the baby on their tummy on your lap, rocking the baby and rubbing the baby’s back. Do <u>not</u> give gripe water or any other liquids. Many types of gripe water have alcohol that can affect the baby’s brain. Giving only breast milk is the best way to protect the baby’s health. If you are worried the baby is crying due to sickness, the best thing to do is to see a health worker. 	<p>Parents said cues to breastfeed were babies crying or urinating, particularly at night.</p> <p>“Even when I change her diapers, I breastfeed her before she cries.”</p> <p>“...every time she woke up to urinate I breastfed her. So I woke up to change her urinated clothes then breastfeed.”</p> <p>Some parents successfully soothed the baby and were able to stop giving gripe water. Many parents do not realize that gripe water contains alcohol. Some participants mentioned brain development as motivation for improved practices:</p> <p>“I don’t want my baby to be mentally retarded”</p> <p>“I want my baby to grow, brain-wise”</p>

PHASE 2: What have we learned from TIPs on complementary feeding?

High rates of stunting in Lake Zone, Tanzania are due in part to suboptimal complementary feeding practices of children under 2 years. The complementary feeding study covered 6 communities in 3 regions (Mwanza, Geita, and Kagera), to include maize and banana-staple areas. FGDs and recipe trials were held with 60 parents and TIPs included 50 mothers and 40 fathers of children 6-18 mos. The study also explored fathers’ willingness to participate in complementary feeding as they were identified as key influencers of infant feeding practices.

Status. Data analysis is complete and a manuscript drafted. Select key findings are presented below.

Key results: Initially mothers reported that children were fed thin porridge, had limited dietary diversity of foods, rarely consumed animal source foods, and some were fed sweet snacks and drinks. After counseling, most mothers and fathers reported improved practices. Overall, thick porridge was very acceptable. Adding foods to porridge was also accepted, but depended on what family foods were available. Eggs were not available for some families. Practices that did not require additional money were most feasible for families.

Fathers were counseled on the importance of nutrient-dense foods and support for mothers. Fathers provided money to purchase nutritious foods and bought healthier snacks for children. Some men helped with chores or fed children; this message is acceptable for part of the population.

Emergent Themes:

- Dietary recommendations were accepted by parents
- Perceived improvements in child health, appearance and temperament motivated mothers to continue the improved practices
- Most fathers reported providing support for complementary feeding, which their wives confirmed
- Fathers valued being counseled, and feeling connected to their children
- Improved communication and increased cooperation between couples
- Responsive feeding was not selected or tried by most participants



Barriers:

- Cost of nutritious foods, especially animal-source foods
- Seasonal availability of some foods

Recommendations:

- Encourage parents to increase diet diversity by giving family foods and to purchase specific foods for infants
- Additional research is needed on responsive feeding and how best to encourage parents to feed their children responsively
- Engage fathers in complementary feeding by encouraging them to provide nutritious foods and feed their children.
- Promote replacing sugary snacks and beverages with fruits and other snacks.

Dissemination:

- Each district in the study received a report after field work was completed.
- Preliminary results were presented at the conference “Nutrition 2018” in June 2018. (see [CF Abstract](#) and [CF Poster](#)) as well as at the Annual Meeting of the Society for Applied Anthropology in April 2018 (see [slides](#)), and an abstract is under review for the Micronutrient Forum 5th Global Conference 2020.
- We developed a CHW Dialogue Training Guide on Complementary Feeding based on key findings from this research. The guide targets CHW supervisors to help use findings from ASTUTE’s research to support effective counseling. The steps in the guide will help CHWs as they discuss and recommend home-based practices people can try to improved nutrition of their children.
- A research manuscript for publication is in preparation for submission in September 2019.

Table 2: Examples of messages included in the CHW Dialogue Training Guide to support complementary feeding based on TIPs results

Messages for mothers	Messages for fathers	Illustrative quotes
<ul style="list-style-type: none">• Offer family foods, including eggs, meat, fish, <i>dagaa</i>, vegetables, beans. These foods can be chopped and mashed so they are easy for the child to swallow.	<ul style="list-style-type: none">• Save some of the food you raise that you would normally sell (like eggs, milk, fish, chicken) and keep it for your baby.• Reassure your wife (and other family members) that the child can eat meat, fish, and other family foods that are mashed well.	<p>“When they prepare the food for me, I invite my son. He comes and we eat from the same plate together. I have been doing this almost every day since it was recommended to me. It makes me happy. At first, my son was not used to it. When I used to invite him, he used to refuse until when he got used to it. Others in my</p>

	<ul style="list-style-type: none"> Share food from your plate, including meat, fish, eggs, etc. with your child. 	<p>family are happy seeing me eating with my child.” –Father</p>
<ul style="list-style-type: none"> Avoid giving sugary biscuits and other snacks; give fruits (such as pieces of ripe mango, papaya, banana), avocado, vegetables, boiled Irish potatoes, sweet potatoes. 	<p>Only buy nutritious foods for your baby, do not buy sugary snacks, biscuits, or sweetened drinks and ask others not to feed these foods to your child.</p>	<p>“I tried not giving the biscuits or sweets, and instead I gave her fruits. I gave her bananas. Sweets have nothing. I didn’t encounter any difficulty.” -mother</p> <p>“I educated the family members not to give the baby biscuits. I educated them that the foods that we give the baby, for instance tinned juice, soda, and biscuits are not healthy for the child.” –Father</p>
<ul style="list-style-type: none"> Be patient and encourage your child to eat by sitting with your child and smiling, laughing, and talking to them 	<p>Help your wife by feeding your baby. You can make feeding fun by playing games and telling stories that encourage your baby to eat.</p>	<p>“The thing that I liked was that the child ate food that she didn’t usually eat. I felt so happy and amazed because even when I don’t have money, I know that if I prepare this food and sing to the child when I’m giving it to her, she will eat and like it.” – mother</p> <p>“I enjoyed sitting and playing with my child when I’m home from work. If she’s here at home, I play with her. I tell her sweet stories. My wife says that I should continue playing with my child after I come home from work, so that my child can eat happily.”-Father</p>

PHASE 3: How can Tanzania strengthen capacity for multi-sectoral nutrition planning and action in communities?

Nutrition is usually seen as part of the health sector, but is greatly impacted by other sectors such as agriculture, education and community development. This is recognized in Tanzania’s National Nutrition Action Plan (NMNAP). To combat stunting and promote good nutrition, there is great national support to bring the expertise of the different departments together. However, working across sectors is challenging and we have found in a previous project in Tanzania that having a mentor to support DNuOs was important as they learned to build strategic partnerships and advocate for nutrition. Learn more here: [Building Strong Nutrition Systems](#).

What is mentoring? While there are numerous definitions of mentoring, we conceptualized mentoring as "having two or more individuals willingly form a mutually respectful, trusting

relationship focused on goals that foster the potential of the mentee, while considering the needs of the mentor and the context in which they must function” (Kochan, 2002).

Research methods: Based on a mentoring approach developed with the Tanzania Food and Nutrition Centre (TFNC) in [a previous pilot project](#) (mentioned above), we made adaptations to create a more sustainable strategy that supports Regional Nutrition Officers (RNUOs) to mentor and work closely with District Nutrition Officers (DNUOs). The goal was to support DNUOs to create an action team of field officers across different sectors in the council, and to work with them to develop goals and implement activities that align with the NMNAP and to engage with stakeholders such as ward and village implementers, Civil Society Organizations (CSOs) and community members.

Regional Nutrition Officers (*mentors*) were supported by a 3-day learning exchange workshop (see [report](#) & [toolkit](#)) in February 2018 to introduce the mentoring approach and garner local input and collaboration for approaches to MSN strengthening. The workshop covered specific themes such as study objectives, a mentor’s role, and multisectoral nutrition policy and approaches. District Nutrition Officers and their mentors involved in the previous Building Strong Nutrition Systems study attended to share their challenges and accomplishments. This workshop was a great success and a wonderful opportunity for RNUOs to share experiences and become motivated to provide mentoring and support to district council team.



Participants shared the most useful parts of the workshop were:

- Discussions of mentoring, specifically differences between a mentor and roles of the supervisor, teacher and coach.
- Steps on creating council MSN teams.
- Hearing from experienced DNUOs and RNUOs.

We also created [sample Regional data profiles](#) on the nutrition situation in each region, to help to set goals and advocate for nutrition priorities. Mentors were asked to guide council teams to use available data to create similar materials using data and programme examples in the selected districts. We provided mentors with a suggested schema for mentoring MSN action teams but encouraged flexibility and shaping of the approach to local contexts (figure 2).

Figure 2. Suggested steps for Regional Nutrition Officers to support District Nutrition Officers and a team of 3-4 officers from key sectors.



The mentees participated voluntarily and mentors were provided per diem and transport costs for mentoring visits. Research staff conducted quarterly support calls in Kiswahili with mentors to evaluate fidelity and address implementation challenges mid-study. Outside of these inputs, we minimized interaction between research staff and mentors, relying on them to identify priority areas for improvement and mentor district teams with minimal input, a mechanism to ensure sustainability of the approach.

Active mentoring occurred in one district in each of the 5 ASTUTE regions, in districts selected by the regional government between March 2018 and April 2019. The operations research monitored and supported RNuO mentoring activities and the impacts and activities at the district level. Observations and interviews explored the mentoring process and experiences of RNuOs as well as skill and confidence development amongst council officers and their ability to collaborate and strengthen departmental connections and plan and create actions that support improved nutritional outcomes.

Status. Data has been collected and coded. Analysis and write-up of results is ongoing and thus select preliminary findings are provided below.

Preliminary Results:

Topic	Salient quote
<ul style="list-style-type: none"> Most Nutrition Officers developed action teams comprised of officers from Health, Agriculture, and Education Departments. Education, Community Development, and Social Welfare officers stated their department was in a prime position to work on nutrition given their strong presence in communities, but their departments had not yet prioritized nutrition. 	<p>▶ <i>“Ever since the RNuO started coming, nutrition now is being seen as an activity in this department. Before it was not even known if there are nutrition activities to focus on. So now it has been known.” (Community Development Officer, Site #2)</i></p>
<ul style="list-style-type: none"> Action teams provided an opportunity for officers across sectors to “own” nutrition and propose ways to collaborate on nutrition action. It gave motivated officers an avenue for clarifying key challenges and strategies to address them. 	<p>▶ <i>“The exchange of knowledge and experience amongst team members helps us address challenges. We need to sit together and share experiences for a long period of time. Let every one of us bring forward what they are competent at, then come up with a common understanding.” (District Nutrition Officer, Site #4)</i></p>
<ul style="list-style-type: none"> Motivation, humility, social conscience and the desire to learn from others was critical for action team membership. 	<p>▶ <i>“It requires a lot of commitment to the community. You must think, ‘I am a leader of a people who are malnourished, who need education to improve their knowledge and well-being’ and you work with your heart.” (Community Development Officer, #5)</i></p>

<ul style="list-style-type: none"> Regional mentoring to establish action teams put key MSN players into contact who otherwise were not likely to collaborate. These new intersectoral connections increased access to information, data, and expertise relevant to each participant’s work. 	<p>► <i>We learn from each other when we go for capacity building. You find that you don’t know everything; when others speak there are things that you learn. Sincerely I have seen this team has made us to become friends...Even it is now easier to ask fellow colleagues feedback on something in their area...Now we work together. (Agriculture Officer, Site #3)</i></p>
<ul style="list-style-type: none"> Council officers reported an ability to strengthen the link between district leaders and community members, acting as a conduit to share data, ideas, and feedback that improve community-centered interventions. 	<p>► <i>“The Heads of Department end up giving orders instead of discussing. Because of this action team now there is cooperation which involves members from multiple sectors who can actually go to the community. I think this team can advise Heads of Department, discuss what needs to be done, and bring them suggestions from those at the community-level.” (District Nutrition Officers, Site #2)</i></p>
<ul style="list-style-type: none"> Lack of funds, inconsistent access to transport and fuel, and heavy workloads were key challenges for coordination across sectors. Teams with strong mentors and highly motivated mentees found strategies to overcome these challenges and engage in joint nutrition actions in communities. 	<p>► When it comes to work accountability, lack of resources becomes an irrelevant excuse for not fulfilling your duties. There always has to be work you can be accounted for. (Agriculture Officer, Site #2)</p>

Select examples of actions completed by MSN action teams:

Topic	Action
Strengthen school feeding programmes	<ul style="list-style-type: none"> Conduct supportive supervision in primary and secondary schools, educate on diet diversity and the benefits of school feeding programmes, help set up school gardens (e.g. locate orange flesh sweet potato vines, clear land)
	<ul style="list-style-type: none"> Facilitate 1 day sensitization and advocacy meeting to 3 Ward Development Committee (WDC) members across 3 wards on the importance of school feeding programmes
Cascade the multisectoral nutrition (MSN) approach to local levels	<ul style="list-style-type: none"> Conduct 1 day training on MSN strategy to reduce stunting amongst Primary Health Teachers, Community Health Workers (CHWs), CHW Supervisors, and Extension Officers
	<ul style="list-style-type: none"> Develop Multisectoral Nutrition (MSN) Committees in 5 wards comprised of ward-level officers from key sectors and community leaders; have members sign government “nutrition compact” to increase accountability and motivation

Leverage multisectoral partnerships to strengthen nutrition-specific interventions	<ul style="list-style-type: none"> ▪ Develop promotional materials for Vitamin A supplementation campaign and have officers advertise in their respective sector using their existing community-based connections
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Recommendations provided by participants and district leaders:

We disseminated preliminary findings and recommendations in the 4 research sites that completed study activities. Dissemination meetings included Regional Nutrition Officers, Action Team members, and key regional and district leaders. Attendees were very enthusiastic and generated ideas for how to sustain and scale-up study approaches. Select recommendations are provided below.

- Have Action Team members sign the “nutrition compact” to acknowledge their role and boost accountability and motivation. Signatures are currently only required for administrative leaders including Regional Administrative Secretaries and Regional Medical Officers.
- Create a vehicle share that spans across departments in order for the Action Team to implement several multi-sectoral actions per trip.
- Use current policy to fund Action Team activities (e.g. allocation of 1,000 TSH per child < 5 years in every district).
- Identify ways to share strategies across districts and regions—Teams were motivated to try new activities after learning what others did.
- Scale-up approaches using officers who have firsthand experience with developing strategies to overcome key challenges faced by implementation staff across the country. The initial Action Team members are in a strong position to serve as mentors for others interested in the approach.

Dissemination:

- This work was presented at the American Society for Nutrition (ASN) in June 2019 (see [abstract](#) & [poster](#)) and the Federation of African Nutrition Societies (FANUS) in August 2019 (see [abstract](#) & [slides](#)) and will be presented as a poster at the *Qualitative Evaluation (QE) Symposium* in Brasilia, Brazil in October 2019 (see [abstract](#)).
- Post-study, researchers reported on preliminary findings and recommendations during a 90 minute meeting with mentors, mentees, and district leaders in the 4 study sites who completed activities. Participants in turn shared their experiences and recommendations on future efforts for MSN strengthening. (see [slides](#))
- Analysis is ongoing and manuscripts are forthcoming.

PHASE 4: Implementation research on CHW delivery of home visits and exploration of factors that affect families’ practice of key recommendations

Despite the existence of effective interventions to address stunting, many children still suffer from poor health and development due to preventable and treatable health problems. Quality implementation at a large scale is challenging and there is a lack information on strategies to

improve success. This has led to global calls for more implementation research to understand how best to scale up effective interventions and ensure adequate reach and delivery.

ASTUTE is implementing an innovative home-visiting approach through Community Health Workers (CHWs) and CHW supervisors working with District Nutrition Officers (DNOs). The programme has trained and provided detailed guidance to CHWs and supervisors on how to target priority families and deliver appropriate messages. ASTUTE can contribute greatly to the knowledge base on implementation of home visiting through community health workers (CHW).

The programme also provided an opportunity to delve into families' experiences with recommended practices and the household dynamics and characteristics associated with ability to adopt key nutrition, WASH, and ECD behaviours. This phase of operations research assessed 1) factors affecting implementation and quality of CHW delivery of interventions, including CHW success in reaching and targeting priority families and perceptions of the home visit messaging and 2) household dynamics such as decision-making, gender and social norms that may affect family attitudes and practice of recommended behaviours.

Sites and sampling: In close collaboration with Kagera and Shinyanga Regional Government Officers, we identify 4 districts (Kyerwa, Missenyi, Ushetu and Shinyanga Dc) for this study.

Phase A: Within Kagera and Shinyanda regions, 12 wards, 35 villages, and 211 hamlets were identified. A total of 16,200 households were visited including 5,438 eligible pregnant women or young children under 2.5 years old. All CHWs working in ASTUTE sites were surveyed (n=66). Qualitative in-depth interviews were completed with 20 CHWs and 6 CHWs supervisors.

Phase B: Within Kagera and Shinyanga regions, 6 wards, 14 villages and 44 hamlets were identified. A total of 58 couples (families) were recruited and agreed to participate, including pregnant women and/or mothers/caretakers of children under the age of 24 months and their male partners. A total of 58 men and 58 women completed the survey, in-depth interviews, and pile sorts.

Status. While data collection is complete, coding, analysis and write-up of results is ongoing and will continue into 2020.

Data collection: This research consisted of two phases (A and B). Phase A focused on how 66 CHWs targeted households and how they deliver the messages by (1) interviewing CHWs and CHW supervisors, and (2) surveying household in selected communities to assess success of targeting and outreach. CHWs and families will also be asked about their views on home visits and key messages,

Phase B used qualitative methods with families, including pile sorts and in-depth interviews with mothers and fathers that are eligible to receive home visits. Through using innovative pile sort methods that asked participants to reflect on how resources are allocated and how decisions are made, combined with interviews on current practices, gender roles, and socio-economic status, we learned about the conditions necessary for a family to put into practice the messages that ASTUTE interventions provide. Results from this research can be used to guide programmatic targeting and facilitation of behaviour change.

Overall, understanding facilitators and barriers during implementation of health interventions, and gender and household dynamics that affect intervention uptake will help to increase effectiveness and number of people reached by existing and future interventions.

Preliminary Findings for Implementation Study Phase B:

- Interviews with community members showed women often reported they had little say over decisions made around managing money and resources, and would often agree with their husbands to avoid conflict or violence (even though joint decision-making was often reported).
- Women frequently reported that they did not know what their husbands spent household money on but suspected that it was alcohol or other leisure activities.
- Almost all men and women reported, jointly or alone, that they would allocate money for business, savings, and/or for emergency use if children or other family members fell ill.

Dissemination:

- After the study, researchers officially reported on preliminary findings and recommendations during six Participatory Workshops to share preliminary findings and encourage discussion on results with local government and community partners. Researchers focused on findings and programme implications related to household, social, and gender dynamics around programming, health, and nutrition. Workshops strengthened relevance of the findings and involved community partners in building capacity to successfully implement local programming.
- Presented preliminary results, “He said, she said: Using pile sort methods to explore differences in decision-making and resource allocation for food, agriculture, and other costs amongst couples in Tanzania.” at the Annual Agriculture, Nutrition and Health (ANH) Academy Week, Hyderabad, India, June 2019. (see [abstract](#))
- Analysis is ongoing and manuscripts are forthcoming.

OPERATIONS RESEARCH PRODUCT LIST

Dissemination of Results and Other Outputs of Operations Research for ASTUTE Scaling Up Growth: Addressing Stunting in Tanzania Early (in the under 5s).

Funded by United Kingdom Department for International Development (DFID).

Updated August 22, 2019

Peer-reviewed Publications

CR Matare, HC Craig, SL Martin, RA Kayanda, GM Chapleau, R Bezner Kerr, KA Dearden, LP Nnally and KL Dickin. Barriers and Opportunities for Improved Exclusive Breastfeeding Practices in Tanzania: Household Trials with Mothers and Fathers. *Food and Nutrition Bulletin*, 2019 May.

Oral Scientific Conference Presentations

Kayanda RA, Klemm GC, Kazoba A, McCann J, Nnally LP, Dickin KL. Multi-sectoral “Action Teams” Help District Officers Implement Nutrition Policies and Strengthen Coordination Across Sectors for Nutrition in Tanzania. Accepted for *Federation of African Nutrition Societies (FANUS)*, Kigali, Rwanda, 2019 Aug 26-29.

Owoputi I, Kayanda RA, Bezner Kerr R, Dearden KA, Martin SL, Nnally LP, Dickin KL. He said, she said: Using pile sort methods to explore differences in decision-making and resource allocation for food,

agriculture, and other costs amongst couples in Tanzania. *Annual Agriculture, Nutrition and Health (ANH) Academy Week*, Hyderabad, India, 2019 Jun 24-29.

Martin SL, Matare CR, Kayanda RA, Riggle KR, Owoputi I, Bezner Kerr R, Dearden KA, Nnally LP, Dickin KL. Increasing family support for recommended complementary feeding practices in Tanzania. *Annual Meeting of the Society for Applied Anthropology*, Philadelphia, PA, 2018 Apr 3-7.

Poster Presentations

Locklear K, Khan M, Kayanda RA, Kazoba A, Matare CR, Owoputi I, Nnally L, Bezner Kerr R, Dearden KA, Dickin KL. Spousal Support and Cooperation within Complementary Feeding Practices in Tanzania. Accepted for presentation at *Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)*, Honolulu, HI, 2019 Oct 31-Nov 2.

Dickin KL, Klemm GC, Kazoba A, Kayanda RA, McCann J, Nnally LP. Exploring Mentoring as a Novel Strategy to Support implementation of National Nutrition Policies through Multi-sectoral Coordination in Tanzania. Submitted to *Qualitative Evaluation (QE) Symposium*, Brasilia, Brazil, 2019 Oct 9-11.

Kayanda RA, Matare CR, Craig HC, Rosenthal HE, Martin SL, Nnally LP, Dearden KA, Dickin KL. Recipe trials: A participatory approach to understanding accessibility, attitudes and norms towards foods to improve complementary feeding in Tanzania. Accepted for *Federation of African Nutrition Societies (FANUS)*, Kigali, Rwanda, 2019 Aug 26-29.

Dickin KL, Chapleau GM, Kazoba A, Kayanda RA, McCann J, Frommer M, Lambert V, L. Martin SL, Nnally LP. Policy vs. practice: Exploring a mentoring approach for building capacity to implement multisectoral nutrition policies in Tanzania. *Nutrition 2019 (American Society for Nutrition Annual Meeting)*, Baltimore, MD, 2019 Jun 8-11.

Matare CR, Craig H, Martin SL, Kayanda RA, Chapleau GM, Bezner Kerr R, Dearden KA, Nnally LP, Dickin KL. Overcoming perceptions of colic and increasing support to improve exclusive breastfeeding practices in Tanzania: Household trials with mothers and fathers. *Nutrition 2018 (American Society for Nutrition Annual Meeting)*, Boston, MA, 2018 Jun 9-12.

Martin SL, Matare CR, Kayanda RA, Owoputi I, Bezner Kerr R, Dearden KA, Nnally LP, Kazoba A, Dickin KL. Recommendations to increase children's dietary diversity and decrease sugary snacks are acceptable and feasible for mothers and fathers in Tanzania. *Nutrition 2018 (American Society for Nutrition Annual Meeting)*, Boston, MA, 2018 Jun 9-12.

Symposia

Gryboski K, Matare CR, Mukuria A, Martin SL, Palmquist A, Yourkavitch J. Engaging fathers, grandmothers, and other family members in maternal and child nutrition: sharing lessons from development for humanitarian contexts. Symposium at *CORE Group Global Health Practitioner Conference*, Bethesda, MD, 2018 Jun 4-7.

Manuscripts in Progress

Martin S, et al. Household Trials of Improved Practices (TIPs) on barriers and facilitators to improved complementary (CF) practices. (in progress)

Craig H, et al. “Because of the *mchango* problem, I give my baby gripe water so he sleeps and stops crying”: Exclusive breastfeeding recommendations need to address parents’ concerns of colic-like symptoms of *mchango* in infants 0-6 months in Lake Zone, Tanzania. (in progress)

Kayanda RA, et al. Recipe trials for complementary feeding for infants 6 to 24 months in Lake Zone, Tanzania. (in progress)

Programmatic Products (for Government and Programme Personnel)

Knowledge for Action Brief: Council Multi-sectoral “Action Teams” Enhance Coordination for Nutrition Activities. Prepared for Council-level debrief meetings, 2019 July.

Cornell drafted this brief based on preliminary findings of key themes from the first three (of four) rounds of data collection for the Multi-sectoral Nutrition Initiative Study. The brief focuses on Multi-sectoral Action team accomplishments, barriers, and strategies for increasing collaboration. Briefs were printed and shared with participants and council and regional leaders in the study sites.

CHW Dialogue Training Guides on Exclusive Breastfeeding and Complementary Feeding. Training Guides, Prepared for IMA World Health, 2018 Dec.

Cornell drafted these guides based on key findings from the Trials of Improved Practices (TIPs) studies on exclusive breastfeeding (EBF) and complementary feeding (CF). Guides target CHW supervisors to help use findings from ASTUTE’s research to support effective counseling. The steps in the guide will help CHWs as they discuss and recommend home-based practices people can try to improved nutrition of their children.

Scaling Up Growth: Addressing Stunting in Tanzania Early (in the under 5s). Operations Research Update, Prepared for Department of International Development (DFID), 2018 June.

Cornell wrote this summary that was circulated during DFID’s annual review meeting of IMA World Health’s ASTUTE Programme activities. The summary included the objective, methods, and key findings to date for each phase of the Operations Research: TIPs on Exclusive Breastfeeding, TIPs on Complementary Feeding, Building MSN Capacity, and Implementation Research.

Operations Research Input on ASTUTE SBCC Messages. Report, Prepared for IMA World Health, 2018 May 17.

Report details messages that were developed based on the TIPs studies that asked parents to try new practices related to EBF and CF. We found parents appreciated more detailed information to understand what it really means for example to “give only mother’s milk”. This report provides suggested nuances to messages and draws on research findings to support current IMA messaging around key nutrition behaviours.

Learning Exchange Workshop to Promote Multisectoral Nutrition Capacity in Councils. Workshop Report, Adden Palace Hotel, Ilemela MC, Mwanza, 2018 Feb 7-8. Prepared for IMA World Health, ASTUTE Nutrition Officers, and RNUOs.

Report includes key discussion topics and learnings of the workshop. It draws on presentations and subsequent discussions, key points and individuals’ notes from break out groups, information collected on flip charts, as well as participant responses to a workshop evaluation.

Learning Exchange Workshop to Promote Multisectoral Nutrition Capacity in Councils. Workshop Toolkit, Adden Palace Hotel, Ilemela MC, Mwanza, 2018 Feb 7-8. Prepared for IMA World Health, ASTUTE Nutrition Officers, and RNUOs.

Toolkit shared with RNUOs to help guide them to mentor Council MSN Action Teams. Toolkit provides helpful tips and templates as well as considerations for starting project activities and supporting approaches to building MSN in councils as discussed at the workshop. By providing tailored support, expertise, and advice to this team, RNUOs will help build on existing knowledge of the best practices for promoting multisectoral collaboration for nutrition.

Operations Research on Addressing Stunting in Tanzania Early (ASTUTE): Strengthening Multi-Sectoral Nutrition Capacities amongst Council Officers. Operations Research Brief, 2017 Dec.

Brief provides an overview of the MSN Capacity Building study. Researchers circulated to key stakeholders and partners in study sites to inform them of study objectives, upcoming activities, and key research contacts.

Scaling Up Growth: ASTUTE: Addressing Stunting in Tanzania Early. Operations Research Brief, 2015.

Brief provides an overview of the three phases of Operations Research: TIPs, MSN Capacity Building, and Implementation Assessment. Researchers circulated to key stakeholders and partners in study sites to inform them of OR objectives, an overview of each study phase, and key research contacts.

Programmatic Presentations (for Government and Programme Personnel)

Kayanda RA. Mtoto Mwerevu Operations Research: Progress, Results, and Implications for Stunting Prevention. Presentation to *Development Partners Group for Health (DPG) Nutrition*, Dar es Salaam, Tanzania, 2019 Aug 13.

Presentation of OR findings focusing on the select TIPs themes of the impact of availability, workload, economic barriers, and gender and relationships on infant and young child feeding. Select findings of the MSN study were the main focus of this meeting since these results had not yet been shared nationally. Twelve major non-government organizations who are involved in nutrition in Tanzania attended the meeting.

Kayanda RA, Kazoba A, Nnally LP. Dissemination in councils of the Multisectoral Nutrition (MSN) Study through 90 minute meetings. Four study sites in the lake zone, Tanzania, 2019 July 15-31.

Dissemination of select preliminary results was provided as courtesy to participants to share key themes and elicit feedback as a way to improve the accuracy and validity of the findings and implications for programmes. Discussions highlighted the successes of MSN action teams and facilitated sharing of experiences and recommendations for strengthening and scaling up capacity building approaches. Members from the Council Steering Committee on Nutrition were invited to promote continued efforts to boost MSN planning and implementation in councils.

Kayanda RA, Kazoba A, Owoputi I. Dissemination in wards of the Community-based Implementation Study through half day workshops. Six study sites in the lake zone, Tanzania, 2019 July 15-31.

Preliminary findings were shared to encourage discussion on results with local government and community partners. Discussions focused on findings and programme implications related to impact of household, social, and gender dynamics on health and nutrition. Participatory workshops helped to strengthen relevance of the findings and involved community partners in building capacity to successfully implement nutrition programming.

Kayanda RA, Nnally LP. Mtoto Mwerevu Operations Research: Progress, Results, and Implications for Stunting Prevention. Presentation to *Tanzania Food and Nutrition Centre (TFNC)*, Dar es Salaam, Tanzania, 2018 Aug 8.

Presentation of OR findings delivered to TFNC at the NIMR Conference Hall in Dar es Salaam. There were sixteen attendees at the meeting including twelve individuals from TFNC and one from DFID.

Kayanda RA. District-level reports on research progress.

Reports drafted by Rosemary Kayanda with input from IMA and Cornell colleagues outlining the progress of the trials for improved practices (TIPs) and the recipe trials programmes were circulated to RMOs in all study sites. Kayanda additionally shared slides for presenting TIPs findings at the request of the RMO Kagera who presented OR findings to the Regional Health Management Team and other key nutrition stakeholders.

Training Manuals and Curricula

Tanzania Food and Nutrition Centre in collaboration with Cornell University and the Building Strong Nutrition Systems (BSNS) Project. *Building A Strong Nutrition System Across Sectors: A manual for strengthening district capacity to improve multi-sectoral nutrition planning and action*. Dar es Salaam, Tanzania, 2018 April.

Cornell developed this manual in collaboration with TFNC for the BSNS project. BSNS project findings informed the methods used in the OR Multisectoral Nutrition Capacity Building study. TFNC printed and mailed hard copy manuals to every RNUO in ASTUTE regions as guidance for mentoring council multisectoral nutrition action teams.

Other Resources

<https://blogs.cornell.edu/centirgroup/research-projects/the-astute-project/>

Additional Funding Obtained (to Support Research and Dissemination Activities)

Division of Nutritional Sciences (DNS) Travel Grant, Cornell University, (2018)

Conference Travel Grant, Cornell University Graduate School, (2019)

Einaudi Graduate Travel Grant, Cornell University, (2019-2020)

Engaged Cornell, Cornell University, (2019-2020)