Researching the Outcome and Impact of the Nutritional Improvements through Cash and Health Education (NICHE) Programme on the First 1,000 Days of Life in Kitui County, Kenya- Inception Report

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Cover photo: Flavia Della Rosa

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ACRONYMS AND ABBREVIATIONS

BCC	Behaviour Change Communication
CAPI	Computer Assisted Personal Interviewing
CFA	Cash For Assets
CHV	Community Health Volunteers
CMD	Common Mental Disorder
CT-OVC	Cash Transfer for Orphans and Vulnerable Children
CT-PWSD	Cash Transfer for Persons with Severe Disabilities
DDS	Dietary Diversity Score
ESRC	Ethics and Scientific Review Committee
EU	European Union
GoK	Government of Kenya
HAZ	Height-for-age z-score
HISP	Health Insurance Subsidy Programme
HSNP	Hunger Safety Net Programme
ICC	Intra-Cluster Correlation
IFAS	Iron-Folic Acid Supplementation
IFPRI	International Food Policy Research Institute
IMC	International Medical Corps
JMP	Joint Monitoring Programme
KDHS	Kenya Demographic and Health Survey
MAM	Moderate Acute Malnutrition
MGRS	Multicentre Growth Reference Study
MUAC	Mid-Upper Arm Circumference
NHIF	National Health Insurance Fund
NICHE	Nutritional Improvements through Cash and Health Education Programme
NSSF	National Social Security Fund
OLS	Ordinary Least Squares

OPCT	Older Persons Cash Transfer
ORS	Oral Rehydration Salts
PHO	Public Health Officer
PS Kenya	Population Services Kenya
PROGRESA	Programa de Educación, Salud, y Alimentación
RCT	Randomized Control Trial
SAM	Severe Acute Malnutrition
SE	Socio Economic
SHARE	Supporting Horn of Africa Resilience in Kenya
SP	Social Protection
ToC	Theory of Change
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WAZ	Weight-for-age z-score
WHO	World Health Organization
WHZ	Weight-for-height z-score
WFP	United Nations World Food Programme

OBJECTIVES OF THE INCEPTION PHASE

The aim of this Inception Phase is to assimilate all the relevant background information on the Nutritional Improvements through Cash and Health Education Programme (NICHE), the study area and previous studies, and to use this to formulate the key research questions, the data collection tools, the research design and protocol, and data analysis plan for implementing this evaluation. During this phase, the plans to obtain ethical research clearance and for stakeholder involvement and dissemination of results are also addressed.

As outlined in the Terms of Reference “Researching the Outcomes and Impact of the Nutritional Improvements through Cash and Health Education (NICHE) Programme on the First 1000 Days of Life in Kitui County Kenya” the specific activities and outputs included were as follows:

- Consultation with implementing agencies to understand activities and to advise on targeting and sampling;
- Consultation with relevant stakeholders to understand constraints and needs;
- Desk review of existing research on the impact of cash transfer programmes and nutritional counselling on nutritional status of children under two years;
- Refinement of the theory of change;
- Proposed research design for assessing impact;
- Proposed data collection tools;
- Plans for data synthesis and analysis;
- Plans for stakeholder involvement and dissemination of results;
- Plans for obtaining ethical permission for the research protocol.

These activities and outputs will be addressed sequentially in this Inception Report following a brief introduction to the project and the role of Kimetrica.

BACKGROUND TO THE PROJECT AND KIMETRICA'S ROLE

With technical support from the United Nations Children's Fund (UNICEF), Kitui County Government has developed the NICHE programme. NICHE aims to target 3,800 households with children under two years of age and/or pregnant women (Manji, 2015), and was established by UNICEF with funding from European Union (EU) Supporting Horn of Africa Resilience (SHARE) in Kenya programme, to test whether focusing on combining nutritional counselling with additional cash assistance can improve nutrition outcomes. The NICHE inception report prepared by Manji (2015) outlines the proposed work, and suggests that the additional cash transfers are delivered on top of the Cash Transfer for Orphans and Vulnerable Children (CT-OVC) or the World Food Programme (WFP) Cash for Assets programme (CFA). The impacts of nutritional counselling and additional cash transfers will therefore be compared to only receiving existing cash transfers, as it is the add on effects of existing cash which are of interest.

There are many partners involved in this initiative. They include: the EU, which is providing financial support for the programme; UNICEF which is handling the overall programme management; the Government of Kenya (GoK), providing leadership at the national and county level; WFP who will be supporting in the identification of the beneficiaries from CFA; Population Services (PS) Kenya whose role will be to undertake focused nutritional counselling; International Medical Corps (IMC) who will support in identifying the target households and ensure cash transfers are delivered on time; and Kimetrica Limited, whose role is to evaluate the impact of additional cash transfers and nutritional counselling.

As the lead research institute, Kimetrica will be responsible for designing, implementing and reporting on a robust methodology to evaluate the impact of the NICHE programme during the first 1,000 days of a child's life. This will involve gaining an understanding of previous methodologies, the existing cash beneficiary systems, the proposed approaches, and co-ordinating with relevant partners in the timing and targeting of the interventions in line with the proposed research design. Kimetrica will interpret the TOR "Researching the Outcomes and Impact of the Nutritional Improvements through Cash and Health Education (NICHE) Programme on the First 1000 Days of Life in Kitui County Kenya" and seek to fullfill the requirements of the study through consultations with stakeholders and overall guidance from UNICEF.

CONSULTATIONS WITH IMPLEMENTING AGENCIES AND STAKEHOLDERS

PARTNERS AND MEETINGS HELD

Kimetrica has met with the implementing agencies and other stakeholders on a number of occasions and these are outlined in Annex 1. These have been organized and coordinated by the UNICEF Nutrition Unit (Ann Robins), and included representatives from UNICEF Social Protection (SP) (Susan Momanyi and Luis Corral), IMC (Fridah Mutea, Mercy Mutuku and Charles Karari), PS Kenya (Ann Musuva and Nancy Njoki), WFP CFA (David Kamau) and the SP Secretariat (Ousmane Niang). UNICEF SP also organized a meeting with the SP Secretariat where the NICHE project and partners were presented.

The meetings were important in understanding the roles and activities of the two main implementing agencies and in addressing some key implementation and study design issues. A consensus was built that this work requires a gold standard research design which will not be a general evaluation but rigourous, statistically valid research. The design will answer to the TOR, comply with WHO Research Guidance and be competitive with the international evidence base.

The implementing agencies are IMC for the cash transfers and PS Kenya for the nutritional counselling. PS Kenya is already working in the area undertaking health messaging for the Maternal and Child Health Programme. PS Kenya currently works in Kitui South (Kyuso and Tseikuru wards) and Mwingi North (Mutomo ward). It is proposed that this initiative continues alongside the proposed rollout by the government of a county-wide education programme. These will involve radio messages as well as house visits by Community Health Volunteers (CHVs). Two thousand CHVs throughout the county have been trained on health messaging targeting maternal and child issues. Once beneficiary households have been selected and randomised, PS Kenya will be engaged to coordinate with a range of partners, the intense face-to-face nutritional counselling for beneficiaries in this arm of the study. IMC is also working in Kitui on the Maternal and Child Health Program. For the additional cash transfers they will be working with the Children's Department.

TARGET BENEFICIARIES

In the first NICHE inception report (Manji, 2015) it was suggested to use beneficiaries of both the CT-OVC and the WFP CFA. In both these cash transfers systems, it is the women who generally receive the cash transfer. However, since they use different transfer mechanisms, and have different payment frequencies, it would not be appropriate to group CT-OVC and CFA together.

CT-OVC

CT-OVC specifically targets poor and vulnerable orphans and children. The CT-OVC was jointly established by UNICEF and the GoK in 2005. It is a social transfer programme aimed at reducing poverty and promoting household investment in health and education through unconditional transfers. Beneficiary households are given 2,000 Ksh per month in bi-monthly instalments (4,000 Ksh every 2 months) until the targeted child reaches 18 years of age.

During the meeting with the SP Secretariat, it was noted that cash transfers for the CT-OVC are often delayed for periods of 4 months. This would complicate the analysis, particularly if the delay was not homogenous across all households. It was also suggested that other government cash transfers such as those targeted at households with elderly or disabled members could be included to reach the desired number of beneficiaries. These operate under the same umbrella as CT-OVC, but the numbers are smaller. All these cash transfers are through payment service providers, which are banks. As of September 2016, the National Health Insurance Fund (NHIF) is implementing the GoK Vision 2030 flagship project funded by the World Bank, called Health Insurance Subsidy Programme (HISP). In Kitui, the programme is providing beneficiary households of CT-OVC, the Cash Transfer for Persons with Severe Disabilities (CT-PWSD) and the Older Persons Cash Transfer (OPCT) with a comprehensive health insurance cover for both inpatient and outpatient services per household, with the aim of increasing access to better healthcare services. The scheme is being implemented in phases, with each phase covering a number of sub-counties. The data collection tools will capture whether the sampled households are also part of the HISP scheme.

There is a real-time database that holds CT-OVC beneficiary details, but analysis of this by the Kimetrica research team found that there were only 277 unique households with children under two years old (total of 312 children, but 35 households with more than one child), and no information was available on pregnant women. In addition, 216 of these households reside in separate villages indicating a high dispersion. During the SP Secretariat meeting it was suggested that the database did not contain accurate information and that there would be many more households with children that would meet the inclusion criteria. This also seems probable as the total number of household beneficiaries is 12,215. The only way to establish the actual number both of young children and pregnant women was by verification on the ground, and this was conducted by IMC. The verification exercise was completed on 6th October, 2016 and showed that there are 1,995 beneficiary households with either a child under 2 years of age and/or a pregnant woman. It was decided at a meeting on 3rd October, 2016 that the CT-OVC programme beneficiaries would be used for this study.

WFP CFA

The WFP CFA programme reportedly targets poor households that are identified by the community (as opposed to the geographical and community based targeting adopted by CT-OVC, which is then finalized with a proxy means testing). In order to explore whether there would be sufficient young children and pregnant women currently receiving WFP CFA in Kitui, a validation on the ground was initiated. At the time of writing, the validation in Mwingi of 4,907

households identified 263 pregnant women and 376 children up to the age of 2 years. These households covered 61 communities (3 could not be accessed due to insecurity). The validation is continuing throughout the rest of Kitui (an additional 113 communities). Although the amount received by CFA beneficiaries is the same (2,000 Ksh per month), they are paid monthly and only paid for seven months of the year, corresponding to the lean seasons (April, May, June, September, October, November, December). WFP CFA beneficiaries will not be used for this proposed research. Discussions with UNICEF and other partners are ongoing to explore the possibility of providing and evaluating the nutritional counselling as an add on to cash transfer beneficiaries. This would be addressed by a separate study.

AMOUNT OF ADDITIONAL CASH TRANSFER

The amount of additional cash transfer has been discussed at length during the consultations with the various partners. If it is too small there is unlikely to be an impact, but if too large, it may not be sustainable. At the 6th September meeting, it was suggested that rather than receiving an amount per household, that there would be an amount per individual (pregnant woman and/or child less than 2 years) with a cap on the total amount a household can receive. It was recommended that this cap should not be too low, such that 2-3 beneficiaries per household would receive the full amount. Although the exact amount of transfer is still under discussion, this will not affect the overall design of the evaluation.

CONFOUNDING EFFECTS OF OTHER ACTIVITIES IN KITUI

Consultations with the partners also identified the possible confounding effects of other activities in the study area that may have an effect on the impacts observed. Of particular relevance are those disseminating health and nutrition messaging which may dilute any effects of the nutrition counselling intervention, or indeed how the additional cash transfer is spent. UNICEF is working alongside two such programmes in Kitui. The first is the IDinsight Sannut programme on maternal health and nutrition messaging which is to be rolled out soon, and will involve two caregiver meetings and trainings on infant nutrition and hygiene. It will be facilitated by Public Health Officers (PHOs) throughout Kitui County. The second is the UNICEF Water, Sanitation and Hygiene (WASH) programme which involves ensuring the sustainability of systems, infrastructure and services for the communities in general, and children in particular (UNICEF, 2014). An online search also identified a range of other activities that may influence health seeking and nutritional behaviour (see Annex 2). The data collection tools will capture these activities, which will have to be controlled for in the analysis.

GOVERNMENT AND COUNTY ENGAGEMENT

Critical to the success of the evaluation and uptake of results will be engagement with government officials, both at the County and national level. Engagement at the County level will

be facilitated by IMC and UNICEF staff based in Kitui who are hosted by the Children's Department, and the SP Secretariat at the National level which is already on board and supportive of these activities. They will be updated on the progress of the evaluation at regular intervals. A meeting with the government-chaired EU SHARE Advisory group was held on the 23rd September, and the study and roles of various partners were presented.

DESK REVIEW OF EXISTING RESEARCH ON THE IMPACT OF CASH TRANSFER PROGRAMMES AND NUTRITIONAL COUNSELLING

APPROACH

A desk review of the existing literature on the impact of cash transfers and nutritional counselling on nutritional outcomes was undertaken. The multidisciplinary sites of Google Scholar and Google were used, as well as academic journals such as the Journal of Nutrition, and other journal articles sourced on BioMed Central and Science Direct. The websites of international organizations such as UNICEF, WFP, the World Health Organization (WHO), the International Food Policy Research Institute (IFPRI), and the Overseas Development Institute Humanitarian Policy Group were also consulted. They were searched using the following keywords: “impacts” and “cash transfer”; “impacts” and “nutritional counselling”; “impacts” and “cash transfer” and “nutritional counselling”; “infants” and “stunting”, “height”, “weight”; “infants” and “nutrition”; “pregnant women” and “financial incentives”; “pregnant women” and “undernutrition”; “impact of cash transfer” and “anthropometric indices for children”; “MUAC” and “nutrition counselling”; “infants”, “growth”, “dietary diversity”, “feeding practices”, “breastfeeding”, “complementary feeding”; “social protection” and “Kitui County” etc. The method of snowballing was also employed to build up a larger body of evidence from existing studies, by bibliographic back-referencing and citation tracking.

CASH TRANSFERS IN AFRICA

Cash transfers are considered a form of social protection and are intended for vulnerable groups in the society such as the elderly, persons with severe disabilities, and orphans and vulnerable children. The GoK defines social protection as *“policies and actions, including legislative measures, that enhance the capacity of and opportunities for the poor and vulnerable to improve and sustain their lives, livelihoods, and welfare, that enable income-earners and their dependants to maintain a reasonable level of income through decent work, and that ensure access to affordable healthcare, social security, and social assistance”* (Government of Kenya, 2011). They are predictable direct transfers to individuals or households to protect them from the impacts of shocks and support the accumulation of human, productive and financial assets (UNICEF, 2015). Cash transfers may entail conditions to receiving the transfer, including some qualifying or ongoing action by recipients such as full time school attendance by school-age children; these are known as ‘conditional cash transfers’. ‘Unconditional cash transfers’ on the other hand, do not require any ongoing action by the recipient (UNICEF, 2015). In Kitui County, some of the social protection interventions that have been implemented and are being implemented include NHIF, the National Social Security Fund (NSSF), CT-OVC, the WFP School Feeding Programme, the National Development Fund for Persons with Disability, and Njaa Marufuku program, which is a special programme to ensure food security and bursaries

(IPEC, 2012). Social protection is considered an important aspect when developing strategies to improve maternal and child nutrition (Ruel et al., 2013 in de Groot et al., 2015).

A review of Transfer Project-led evaluations of cash transfer programmes in Africa (UNICEF-ESARO, 2015) showed that for the benefits of such programmes to manifest themselves, the transfer values should be large enough to make a difference to families' incomes, they should be delivered on time and in a predictable manner, and targeting should be transparent and clearly communicated. Cash transfers entail three types of impacts: multi-sector impacts, since cash transfers will be spent on different needs in the beneficiary household (food, water, healthcare, etc.); supplementary impacts, as outcomes in one sector can have knock-on effects in other sectors; and multiplier effects, in that they stimulate the local economy and are often used to support other people in the community who are not necessarily programme beneficiaries themselves (UNICEF-ESARO, 2015). The review found that the average value of the cash transfer ranged from US$8 to US$25 per household per month, or as a share of per capita consumption of beneficiary households, from 7 percent to 30 percent.

THE WHO GUIDELINES ON BREASTFEEDING AND COMPLEMENTARY FEEDING

Guidelines have been developed by the WHO (2002) on infant and young child nutrition. Research shows that the health and nutritional status of mothers and children are highly interconnected, and that the first two years of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduces the risk of chronic diseases and creates the conditions for better development (WHO, 2016a). In fact, direct nutrition interventions have been proven to be highly cost effective when carried out in the critical 1,000 days between conception and 2 years of age (Manji, 2015) and are particularly important in the prevention of stunting (Kumar et al., 2006; Leroy et al., 2014 in de Groot et al., 2015). The WHO and UNICEF thus recommend early initiation of breastfeeding within one hour of birth; exclusive breastfeeding for the first 6 months of life; and the introduction of nutritionally-adequate and safe complementary foods at 6 months together with continued breastfeeding up to 2 years of age or beyond. For children born to HIV-infected mothers, it is recommended for them to be exclusively breastfed until 6 months and for breastfeeding to continue at least until 12 months of age (WHO, 2016a). According to the WHO Guidelines (2002), breastfeeding is the best way of providing healthy and nutritious food to infants for their growth and development, in addition to having important implications for the mother's health (longer durations of breastfeeding reduces the risk of ovarian and breast cancer and helps spread out pregnancies). It also protects the newborn from acquiring infections and reduces the risk of mortality due to diarrhoea. Between the ages of 6 and 12 months, breast milk can provide half or more of a child's energy needs, and between 12 and 24 months up to a third of energy needs. Among the effects of breastfeeding are improved IQ and school attendance, and it is associated with a higher income in adult life (WHO, 2016a). According to the WHO (2016a), few children receive nutritionally adequate and safe complementary foods. Complementary feeding should start at 6 months, and the food

quantity, consistency and variety should be increased gradually. Fortified complementary foods and vitamin-mineral supplements should also be given to the infant as needed.

DEFINITION OF STUNTING AND OTHER METRICS

Malnutrition is a broad term most commonly used as an alternative to 'undernutrition', but which technically also refers to overnutrition. People are malnourished if their diet does not provide adequate nutrients for growth and maintenance or if they are unable to fully utilize the food they eat due to illness (undernutrition). They are also malnourished if they consume too many calories (overnutrition) (UNICEF, 2012). The metrics to be employed in this study will be looking at chronic and acute malnutrition in children who are 24 months and below. Acute malnutrition, also known as 'wasting plus kwashiorkor' is characterized by a rapid deterioration in nutritional status over a short period of time. In children, it can be measured using the weight-for-height nutritional index or mid-upper arm circumference (MUAC). There are different levels of severity of acute malnutrition. Moderate acute malnutrition (MAM) is defined as a weight-for-height between -3 and -2 z-scores below the median of the WHO Child Growth Standards. Severe acute malnutrition (SAM) is defined by a weight-for-height below -3 standard deviations of the WHO standards, a MUAC less than 115mm and/or bilateral oedema (WHO and UNICEF, 2009). Chronic malnutrition, also known as 'stunting', is a form of growth failure that develops over a long period of time. Inadequate nutrition over long periods of time (including poor maternal nutrition and poor infant and young child feeding practices) and/or repeated infections can lead to stunting. In children, it can be measured using the height-for-age nutritional index (UNICEF, 2012). In tackling child undernutrition, there has been a shift from efforts to reduce underweight prevalence (inadequate weight-for-age) to prevention of stunting (inadequate length/height-for-age) given the evidence illustrating the negative impact of stunting on the achievement of overall development potential. Reduction in stunting and other forms of undernutrition can be achieved through proven interventions such as women's nutrition, especially before, during and after pregnancy; early and exclusive breastfeeding; timely, safe, appropriate and high-quality complementary food; and appropriate micronutrients interventions (UNICEF, 2013).

IMPACTS ON NUTRITIONAL OUTCOMES

Many studies have been carried out to assess the impact of cash transfers on nutritional outcomes such as wasting and stunting, particularly in Latin America and Sub-Saharan Africa. It is widely demonstrated that cash transfer programmes directly affect household consumption and food consumption. Cash related interventions have been either unconditional cash transfers (mostly in Africa), or conditional cash transfers (mostly in Latin America). De Groot et al.'s review (2015) of cash transfer programmes showed that in all of the four African countries (Kenya, Malawi, South Africa and Zambia) and programmes reviewed, household consumption increased, the majority of the additional income was spent on food and most households improved their dietary diversity. A review of cash transfer programmes in Africa (UNICEF-ESARO, 2015) also confirmed that there is strong and established evidence from across the

continent that social transfers are an effective and efficient way of achieving results in terms of consumption and food security, dietary diversity, infant and young child feeding, stunting and wasting. However, findings are mixed with a recent evaluation of the Hunger Safety Net Programme (HSNP) concluding that there is no evidence that this has impacted on child malnutrition rates, and that this is unsurprising given the variety of exogenous factors that affect nutrition, which a cash transfer by itself is unlikely to influence (Merttens et al., 2013). Cash transfer programmes have thus taken on an increasingly important role in the anti-poverty programmes of middle income countries (Aguero et al., 2006), by improving quantity and diversity of food consumption as well as providing protection when it comes to food consumption during lean periods. Evidence from Latin America also shows that cash transfer programmes in Brazil, Colombia, Ecuador, Mexico and Nicaragua increased the household consumption, in particular food consumption, and households improved their dietary diversity (de Groot et al., 2015).

However, the evidence of the positive impact of such interventions on child nutritional status is mixed and the impact pathways are not clearly understood (de Groot et al., 2015). For example, while cash grants for households with children in South Africa (children who qualify for the grant live with parents who earn less than R34,800 per annum for single parents and less than R69,600 per annum if married) improved educational outcomes, promoted early childhood development and contributed to a higher participation in nutrition and health monitoring programmes, no impacts were detected on child anthropometry, and overall aggregated levels of children's nutrition had deteriorated (Hendriks, 2014). The conceptual framework developed by de Groot et al. (2015) notes that a child's nutritional intake and health status are the immediate determinants of a child's nutrition status. Household food security, household dietary diversity and food security, feeding practices, care (the uptake of preventive health services and caregiver physical health), and a healthy environment are some of the underlying determinants. Young children's nutritional status is also affected by family income (Jensen, 2000), and in cases where the mother is fending for the family alone, the child's nutritional status is likely to be affected more.

According to some authors including de Melo et al. (2016) however, cash transfers do have a positive effect on anthropometric indices of beneficiary children. Gertler (2004) conducted a study on Mexico's Programa de Educación, Salud, y Alimentación (PROGRESA) programme and the results showed that children who were in households that were beneficiaries were 0.96 centimeters taller than the children in the control group. Buser et al. (2014) found that young children in Ecuador weighed less and were shorter and more likely to be stunted in families that were no longer beneficiaries of unconditional cash transfers as compared to families that were still beneficiaries. Duflo (2003) found that South African girls who lived with grandmothers that received pension transfers had an improvement in height and weight. The study found that pensions received by women had a large impact on the anthropometric status (weight-for-height and height-for-age) of girls but little effect on that of boys. In the Familias en Acción programme in Colombia, a conditional cash transfer programme implemented by the Colombian government in 2001-2002, 12 month old boys in beneficiary households grew 0.44 centimetres more than those in the control group, and the impacts were very similar for girls (Attanasio et al., 2005).

Ferguson et al. (2013) conducted a study in Kitui to identify food-based interventions for improving the nutritional status of young children. The results of this study showed that 6-23 month old children living in Kitui were at high risk of multiple micronutrient deficiencies but not of energy deficiency. Their risk for dietary inadequacies of iron, calcium and zinc are particularly high. The results showed high levels of stunting (29 percent), low levels of SAM and low dietary diversity. The analysis also showed that dietary quality could be improved through careful selection of food for children under 24 months. The nutrient densities of the infant and young child diets for children 6–8 months old were below WHO-desired levels for all nutrients except vitamin A and vitamin C (Ferguson et al., 2015).

The impact of cash transfer interventions on nutritional indicators is much higher when people also receive nutritional counselling, i.e. information about dietary diversity and healthy diets (Ahmed et al., 2016; Devereux, 2016). Nutritional counselling can also be a condition for the receipt of the cash transfer, as was the case for Mexico's PROGRESA (Gertler, 2004). A study carried out in Bangladesh assessed the impact of nutrition counselling (in the form of Behaviour Change Communication (BCC) training) combined with cash transfers on nutritional outcomes (Ahmed et al., 2016). The study adopted four modalities: cash, food, a combination of cash and food, and cash or food accompanied by a nutrition BCC component. The nutritional counselling involved: a) group BCC trainings with the participants; b) group BCC trainings with participants and other influential family members; c) group meetings for community members; and d) household follow up visits to the participants' homes. The BCC covered topics including the importance of nutrition and dietary diversity for health, hand washing and hygiene practices, feeding practices (including breastfeeding and micronutrients) and maternal nutrition. The study found that all treatment modalities improved food consumption, but combining transfers with BCC resulted in larger improvements compared to transfers alone, and the nutritional counselling encouraged households to allocate their transfer resources toward a more diverse and nutritious diet. Maternal knowledge regarding nutrition and care practices also improved with nutritional counselling. The group which received cash transfers and nutritional counselling experienced a statistically significant impact on chronic undernutrition: among children that were less than 48 months old at the endline, height-for-age z scores had increased by 0.24 standard deviations, and stunting was reduced by 7.3 percent over the two years of the project (Ahmed et al., 2016).

In some of the studies reviewed by Bassani et al. (2013), financial incentives were conditional on the mother's participation in health and nutrition education sessions that included breastfeeding promotion. While the review did not specifically evaluate the additional effects of nutritional counselling, the authors noted that all the positive effects observed for breastfeeding outcomes were for programmes that were conditional on women's participation in such education activities.

Bhutta et al. (2008) reviewed all nutrition-related interventions that could affect selected nutritional outcomes or survival in mothers and children, including breastfeeding, complementary feeding, provision of food supplements, micronutrient interventions, supportive

nutrition strategies, and large scale nutrition programmes. Out of these interventions, counselling about breastfeeding and fortification or supplementation with Vitamin A and zinc have the greatest potential to reduce the burden of child morbidity and mortality. They found that the improvement of complementary feeding through strategies such as counselling about nutrition for food-secure populations and nutrition counselling, food supplements, conditional cash transfers, or a combination of these, in food-insecure populations could substantially reduce stunting and the related burden of disease. In three of the studies reviewed, nutritional education in food-secure populations produced an increase in height-for-age z score of 0.25, compared with the control group. The studies reviewed found that education strategies alone were of most benefit in populations that had sufficient means to procure appropriate food; in populations that were not food secure, educational interventions were beneficial when combined with food supplements (Bhutta et al., 2008).

OTHER IMPACTS

Cash transfer programmes also affect other health and nutrition-related indicators. They have lead to an increase in preventive healthcare visits and antenatal care-seeking which in turn affects the child's nutritional status (de Groot et al., 2015). For example, Gertler (2004) found that there had been a significant improvement in all the health measures of children who were beneficiaries of the PROGRESA programme in Mexico, compared to children who were in the control group. Attanasio et al. (2005) conducted a study focusing on the Familias en Acción programme in Colombia. Conditional subsidies, which targeted the poorest households with children less than 18 years, were provided to eligible households. These included a monthly nutritional subsidy if they had children aged 0-6 years who participated in the health component of the programme (requiring them to attend healthcare visits) and a school subsidy (which varied depending on the level of school attended) if the children were of school age (6-17 years). As a result of the programme, preventive healthcare visits increased from 17 to 40 percent and there was a reduction in the occurrence of diarrhoea. De Groot et al. (2015) also found that cash transfer programmes have positive effects on hygiene practices and on the probability of using improved sanitation and water sources. Some of the studies reviewed had found a significant reduction in common children's illnesses, such as diarrhoea, while in other cases, no significant effects were found.

Cash transfers can also affect feeding practices, which can have a positive knock-on effect on a child's nutritional status. A systematic review carried out by Bassani et al. (2013) looked at the effects of six types of financial incentives (unconditional cash transfers, conditional cash transfers, microcredit, conditional microcredit, voucher schemes, and user fee removal) and found that these have a potential positive impact on receiving colostrum, early initiation of breastfeeding, exclusive breastfeeding, and mean duration of exclusive breastfeeding. Pelto and Armar-Klemesu (2013) found that cash transfers have had a positive effect on breastfeeding practices in Kitui, since they provide an alternative income to mothers whose main role in the household is food acquisition. Food acquisition here can involve food production in household fields and gardens, securing money to purchase food and the actual purchase of

food, as well as acquiring the means to prepare food such as water and fuel. This in turn has profound implications on the amount of time women can devote to meeting their children's care needs. Some of the factors that can affect feeding practices include household access to social support or community based savings groups, caregiver's income earning activities and their own health. They also found that caregivers face time constraints, which in turn affect how they manage food, childcare, and feeding practices (Pelto and Armar-Klemesu, 2013).

In Kitui, caregivers have reported that children are introduced to complementary foods after six months and the most common foods consumed are maize porridge (preferably millet or mixed grain or grain-legume mixes but often maize due to lack of resources), milk, rice, irish potatoes, green bananas and beans and their diets are low in fruits and vegetables (Ferguson et al., 2013; Kimiywe and Chege, 2015). Children were fed these core food items concurrently with special infant and young child foods, which continued until 23 months of age in some families. In other families sampled in the study, the children were integrated into the family diet as early as six months of age (Pelto and Armar-Klemesu, 2013). Ferguson et al. (2013) found that the cheapest nutritionally optimal diet ranged from 22 Ksh per day for the 6-8 month olds to 37 Ksh per day for 12-23 month olds.

The mother's feeding behaviours and practices can also affect the child's nutritional outcomes, and the mother's/caregiver's psychosocial health has been linked to children's nutritional status. There is strong evidence that cash transfer programmes improve the mental health of beneficiaries, including reducing stress (de Groot et al., 2015; Engle et al., 1996; Harpham et al., 2005; Pollitt et al., 1994 in USAID, 2011). Harpham et al. (2005) carried out a study in four countries (Ethiopia, India, Peru and Vietnam) to test the hypothesis that maternal common mental disorder (CMD) has an effect on the nutritional status of children. They sampled 2,000 mothers and their children aged 6-18 months in each country, and found that there was a relationship between maternal mental health and a child's nutrition in India and Vietnam. However, the results on stunting were only statistically significant in India where mothers suffering from CMD had a higher chance of having a stunted child. The results from Ethiopia and Peru did not provide sufficient evidence on this (Harpham et al., 2005).

EXTERNALITIES AFFECTING IMPACT

The beneficial effects of cash transfer programmes on child nutrition are not always realized, and this may depend on factors beyond the programme's control. For example, Zembe-Mkabile et al. (2016) suggested that high rates of stunting among poor children continued in South Africa despite the presence of the child support grant. According to the study, this lack of change may have been a result of food price inflation and limited progress in the provision of other important interventions and social services. In a study done in Niger, where households were given a cash transfer of 38 Euros per month, the physical health of mothers and children was found to have declined despite there being improvements in living standards, food security and women's empowerment. However, the authors were not able to definitively attribute this to the intervention given that the study did not have a control group (Fenn et al., 2014 in De Pee et al.,

2015). Another important factor in the realization of cash transfer programme benefits is the frequency and timeliness of payments. Regular and predictable payments facilitate planning, consumption smoothing and investment. The protection and risk management function of cash transfers and other social protection interventions is maximized when beneficiaries are able to meet immediate food and other basic needs, and when they have the possibility to plan the spending of incoming resources (UNICEF-ESARO, 2015).

THEORY OF CHANGE

There have been numerous attempts at describing the causal pathways through which cash transfers and nutritional counselling could impact on nutritional outcomes (for example see de Groot et al., 2015; Fenn et al., 2015; and Manji, 2005). We have attempted to collate these together into a single chart reflecting the Theory of Change (ToC) (see Figure 1). In addition to quantifying an impact on nutritional status, a key aim of the research is also to provide an explanation for the causal pathways that may result in this impact. The data collection tools will attempt to capture these pathways and the intermediate and final outcomes along the way.

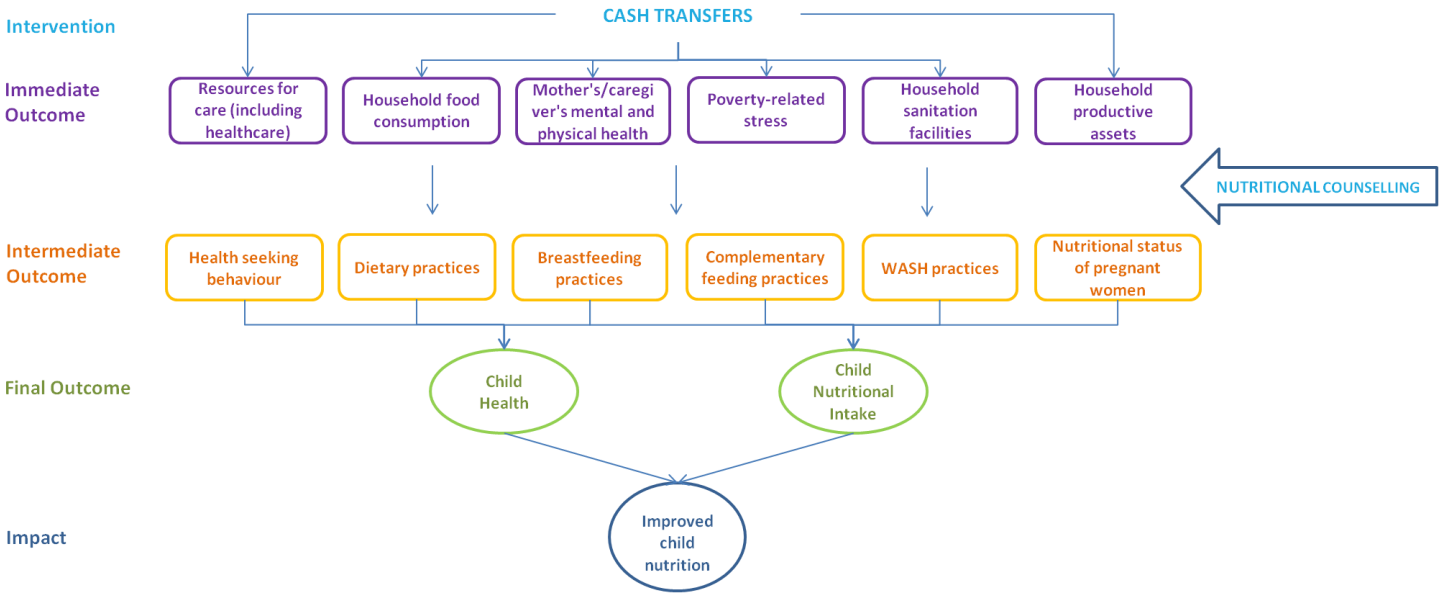


Figure 1: Theory of Change for Cash Transfers and/or Nutritional Counselling Interventions

As can be seen in Figure 1, cash transfers can have a direct effect on the monetary resources available to the household (including monetary resources for healthcare), which in turn can avail more resources to carry out their day to day activities, also relieving mothers and caregivers of poverty-related stress. It can also increase the available resources for child and household care, and household assets. With more funds available, households are able to purchase better and more food, thereby diversifying their diet especially for the first 1,000 days. Nutritional counselling can act as a catalyst in changing these spending patterns as well as promoting behaviours such as breastfeeding, hand washing and health care. These intermediate outcomes then lead to improvements in children's health and nutritional intake, which should translate into improved nutritional status.

The causal pathways depicted in the figure are dependent on a number of assumptions, risks and externalities. Firstly, it is assumed that the cash transfers will be used for the benefit of the these young children and pregnant women, that they will not be allocated to other household members' needs at their expense, and that they will not be used for any harmful or unhealthy

behaviours (such as the purchase of alcohol or illegal substances). Secondly, the successful change in child nutrition also depends on the availability and quality of healthcare, adequate infrastructure and supplies of healthy and nutritious foods in the intervention area.

Risks that may affect the impacts include delays in disbursement of the cash transfers or the ineffective use of resources, which may postpone, or in the worst case scenario prevent, improvements in child nutrition, and other shocks such as increased food prices affecting access to nutritious foods. Unequal distribution of benefits within beneficiary households (intra-household resource allocation) also represents a possible risk. In some contexts, cultural and religious beliefs (such as aversion to medication) can also affect outcomes and the uptake of lessons learned through nutritional counselling. In Kitui County, for example, there are pockets of Jehovah Witnesses and Kavonokya who do not believe in taking medical treatments so any health information to these groups may not have the expected benefits predicted in the ToC. Finally there is also the risk that beneficiary households may start relying on cash transfers as the main household income, as opposed to viewing it as a supplement. This may affect spending behaviour with funds being used for education and rent, rather than also being spent on nutritious food.

For cash transfers and nutrition counselling to have an impact on stunting, the interventions need to be sustained and programme funding should be continuous and consistent. Important externalities such as increased inflation, political tension, disease epidemics or natural disasters, which could significantly affect the successfulness of the interventions, need to be monitored. In addition, other factors concerning the individual (such as diarrhoeal illness which may affect nutritional intake), the household (such as existing socio-economic status) and the location (such a rainfall and food availability) need to be considered as these may confound any impacts.

RESEARCH DESIGN

RESEARCH HYPOTHESIS

The key research hypothesis is that combinations of additional cash transfers and focused nutritional messages have a higher impact on malnutrition than either intervention separately or existing cash transfers alone. The primary malnutrition indicators of interest are stunting, underweight, and wasting, though a range of intermediate outcomes such as food consumption will also be assessed. The aim for this evaluation is to measure effectiveness and impact of these interventions.

The stakeholder consultations coordinated by UNICEF identified that the overall objective of the research will not follow traditional evaluation design, but rather it will be a gold standard piece of internationally comparable research. The research will also have research questions, rather than evaluation questions, answering to the majority of the original TOR. However, to triangulate the quality of the research with the United Nations Evaluation Group (UNEG) guidance is a useful exercise to ensure compliance with the original TOR and overall objectives of the work. Consideration of the UNEG guidance will be shown in the formulation of the research questions.

RESEARCH OBJECTIVES

The study will evaluate the effectiveness of both additional cash transfers and nutritional counselling in improving nutritional outcomes in children during the first 1,000 days of a child's life. This includes 270 days of pregnancy, 365 days of their first year and 365 days of year two. The NICHE programme will target residents in Kitui County already designated for a baseline cash transfer. Our study will be a Randomized Control Trial (RCT) to measure the difference in z-scores of anthropometric measures from a baseline and endline survey. Midline surveys will also be used to determine impact pathways through secondary outcomes and seasonal effects.

A baseline survey will be conducted in existing cash beneficiary households that include pregnant women and children aged 0-24 months. If feasible, equal numbers of women in their second and third trimesters will be enrolled in the study for the midline and endline surveys, as will equal numbers of children in the 0-3, 4-6, 7-9, and 10-12 month age groups. The research team will probably only be able to establish whether this is feasible once the baseline survey is completed and these profiles can be established. Children aged 13-24 months will not be enrolled for the midline and endline surveys, but they will be included in the baseline survey to provide pre-treatment data for children that will end the trial period in that older age group.

The objective of this study is to assess causal linkages between the NICHE programme and expected outcomes such as improvements in growth or food consumption. The proposed methodology and data collection tools have been designed to meet the objectives as set out in the TOR (pages 3-4) and are:

1. Assess whether additional cash transfers or additional cash transfers with nutritional counselling can increase the number of children in beneficiary households who are fed following WHO guidelines;
2. Determine whether beneficiaries have an improved awareness and utilization of Health Services to support better child growth and development;
3. Describe the causal pathways between cash-nutrition counselling and increased awareness and understanding of best practices (e.g., hand washing and breastfeeding) for improved nutritional uptake;
4. Determine whether in beneficiary households the height-for-age and weight-for-length scores in children under 2 years, and nutritional status in pregnant and lactating women are improved;
5. Identify possible confounders or externalities in the study area which may be influencing the results, including delays in receipt of cash.

KEY ANTHROPOMETRIC OUTCOME MEASURES

The primary malnutrition indicators of interest are height-for-age, weight-for-age, and weight-for-height. Each of these measures is a WHO-defined standard for measuring a child's growth. In 2006, WHO released comprehensive findings based on over 8,000 measurements of healthy children from six countries (Brazil, Ghana, India, Norway, Oman, and USA) to define the standard, globally averaged growth curve of a child (WHO Multicentre Growth Reference Study, 2006). The report defined the mean and standard deviation characterizing the normal distribution of height and weight at monthly intervals for the first 24 months of a child's life. Using these distributions, a z-score can be calculated for each nutrition indicator for any child in the world, thereby setting that child's health in the context of the global average. A z-score is calculated as $z = (X - \mu)/\sigma$, where X is the nutrition indicator of the child, μ is the global average for the child's age group, and σ is the standard distribution of the nutrition indicator for the child's age. The z-score describes how many standard deviations away from the global mean the child falls, so if the z-score is negative the child is below average while a positive score indicates that the child is above average.

A child with a height-for-age z-score (HAZ) below -2 is classified as "stunted" while a weight-for-age z-score (WAZ) below -2 is considered "underweight" and a weight-for-height z-score (WHZ) under -2 is called "wasting", and with bilateral oedema/kwashiorkor together are classified as acute malnutrition. In all cases, these classifications of malnutrition indicate that the child falls 2 standard deviations below average height and weight measures for their age, meaning that the child is likely to be in the lowest 2.5th percentile in the world. If the child has a z-score below -3 (equivalent to the bottom 0.1 percent of the global population), they are considered "severely" stunted, underweight, or wasted.

UNEG EVALUATION CRITERIA

The TOR objectives also state the need to meet the UNEG Evaluation criteria at outcome and impact level only. Table 1 demonstrates how the research design meets these criteria in addition to being gold standard research.

Table 1: UNEG Evaluation Criteria

Criteria	Method of Measurement
Efficiency	- Monitoring and Evaluation Framework of the Implementing Organisation IMC; - Questionnaire: Section 5 on payment schedule and regularity of cash transfers including NICHE.
Effectiveness	- Questionnaire: Section 3 on feeding practices and how they change with cash transfers; - Anthropometric measurements of women and children; - Questionnaire Section 3 and Section 4 WASH and hygiene practices; - Questionnaire Section 6 Livelihoods and use of produced food for nutrition; - Questionnaire Section 8 Health seeking behaviour in relation to cash transfers; - Focus group discussions are also being considered to capture qualitative information around the causal pathways of decision making.
Relevance	The overall objective of this research is to disseminate findings to influence the design of the national single registry (new child benefit system for Kenya). This research will produce findings showing any impact of cash transfers on nutrition outcomes. The Social Protection Secretariat has pledged to learn from the findings for the national child benefit design. This research is very relevant to meet this objective and is designed as research to be internationally competitive with the available evidence base.
Gender	- Questionnaire Section 3 on gender of care givers - Questionnaire Section 5 gender decisions about use of cash
Equity	- CT OVC registration of beneficiaries targets the most vulnerable; - Randomised design so that beneficiaries are randomly assigned to research arms.

STUDY AREA

Kitui County was chosen by UNICEF because it is accessible, has high stunting rates and existing cash transfer programmes. It already has a number of programmes operating in the area including the Maternal and Child Health and WASH activities, and has strong county leadership and interest in this programme.

Kitui County is divided into 8 administrative sub counties and covers an area of 30,496 square kilometres. The total population was 1.1 million in the most recent 2009 census, with 47 percent of the population falling in the 0-14 year-old age group. It is a largely agricultural society, with 27 percent of people working on a family farm; only 5 percent of households having electricity; 89 percent of households relying on firewood for cooking, and only 8 percent using charcoal (Ngugi, 2013).

Two recent cross-sectional studies on the nutritional status of children aged 6-23 months have been undertaken in Kitui. Although the sample sizes are small, they provide some useful statistics on stunting, dietary diversity and the types of food consumed.

The first study by Kimiywe and Chege (2015) sampled about 50 households in four divisions (randomly selected from the 10 to capture the diversity of different zones). Of the total 201 children examined, 28 percent were stunted (6.4 percent severely), 11 percent were underweight and 4 percent were wasted. Most children (64 percent) consumed more than four food groups (24 hour recall) and the average dietary diversity was 2.4. The consumption of carbohydrates was high compared to proteins. Although nearly all children (94 percent) had consumed grains, roots or tubers in the past 24 hours, only 5 percent had consumed eggs, 13 percent flesh foods and 32 percent dairy products. The most common cereal consumed was maize flour. They also noted that income and educational level had a significant impact on feeding practices, and that these in turn showed a correlation with nutritional status.

The other study by Ferguson et al. (2015) undertook a cross-sectional survey in four districts (Kitui Central, Lower Yatta, Mutomo and Kitui West) at the end of the food shortage season (October/November 2012). These monitored a range of indicators including 24 hour dietary intake, anthropometrics (weight-for-age z scores and prevalence of underweight children (z-score <-2)) and socio-demographics of the households. A market survey of retail prices of food items consumed was also performed. The data analysis was only performed on 179 of the 200 children with household data, as some were excluded because they were no longer breastfeeding or the data was suspect. Overall 17 percent of 6-23 month old children had consumed at least four food groups over a 24 hour recall (though at least four recalls on different days of the week were performed). As expected, this was markedly lower in those aged 6-8 months (6.1 percent) compared to older ages. This difference was also observed in the mean dietary diversity score (DDS) of 2.1 in 6-8 month olds, compared to 2.6 for those aged 9-11 months and 2.4 for those 12-23 months old. Stunting was not assessed, but the prevalence of underweight children (WAZ <-2) was 12 percent.

The 2014 Kenya Demographic and Health Survey (KDHS) reports that in Kenya, 26 percent of children under five years are stunted while 11 percent of children are underweight and four percent are wasted. Kitui County falls below the country mean with 46 percent of the children under five years being stunted (moderate or severe) (the highest in the country with West Pokot), three percent wasted, and 20 percent underweight (KDHS, 2014). Abstracting the data just for the 165 children aged between 0-24 months of age in Kitui suggests that the prevalence of stunting in this group is of 36 percent (calculated from the KDHS 2014 data). This compares to 28 percent reported by Kimiywe and Chege (2015) although both are from small sample sizes.

Kitui County is large and ideally the study would focus on a relatively homogenous population within a small geographical area. Initial observations on the beneficiaries of existing cash transfers with young children and pregnant women suggest that they may be highly

geographically dispersed. This may cause problems for both the comparability of the households in different arms; and the logistics in collecting the data proposed in the various surveys.

STUDY DESIGN

WHY AN RCT

The original proposal was to evaluate a rolling cohort of under 2 year olds and pregnant women over a period of 15 months. However, after consultation with UNICEF and a review of the literature, an RCT is proposed instead. RCTs have been the study design of choice for much of the literature on the effects of intervention programmes targeting maternal and child health and nutrition (Bassani et al., 2013; Bhutta et al., 2008; Fiszbein et al., 2009; Lagarde et al., 2007). Indeed, the systematic review of Conditional Cash Transfers by Lagarde et al. (2007) only considered RCTs in their evaluation. Since RCTs are the standard, it is highly recommended that this approach is used to ensure uptake by researchers and policymakers alike. Our proposed RCT will have three arms. The first treatment group will receive additional cash transfer, the second treatment group will receive additional cash transfer and nutritional counselling, and the control group will receive only the baseline cash transfer already being distributed.

Most studies in the literature have focused on large baseline and endline surveys in order to maximize the probability of observing a significant difference in the primary outcome variable between the treatment and control groups through the difference-in-difference regression method (Gilligan et al., 2013). However, McKenzie (2012) argues that this approach is not always warranted and often detracts from the number of midline, check-up surveys. McKenzie (2012) argues that such midline surveys are crucial in determining the causal pathways the treatment acts on. Our study design will have at least two midline surveys separated by four months, with the baseline and endline surveys on either end. Given the strong seasonal patterns in crop production in Kitui, which is almost exclusively reliant on variable rain-fed production means, at least two mid-term evaluations are required.

Although this revised approach should be feasible within the time period of the project it has cost implications, which are outlined in a separate document.

SURVEYS AND RANDOMIZATION

A baseline survey will be conducted of 1,500 beneficiary households with existing cash transfers and children up to 24 months of age and/or a pregnant woman, before any interventions are initiated. These households will be sampled from a list prepared from validation on the ground of those cash transfer beneficiaries with at least one child aged between 0 and 24 months and/or a pregnant woman. Before any interview commences, the enumerator will check again that the

household fulfils this criterion. The baseline survey will establish key characteristics of households and beneficiaries prior to randomisation across the study arms.

Using the baseline data, pregnant women and children aged 0-12 months will be randomized while ensuring balance across covariates and across age groups (0-3, 4-6, 7-9, 10-12 months), if possible. Assuming a 10 percent programme drop out during the study period, 333 households will be assigned to each of the three arms. This will ensure that a minimum of 300 beneficiaries will be followed in each arm as outlined in the next section on *Power calculations for sample size*. This assumes randomization at the individual level, including covariates that will account for differences on the village level.

Many RCTs randomize at the cluster level because there is a high risk of "contamination" between control and treatment groups. In a village community, people can easily share resources and/or knowledge, making the delineation between treatment and control somewhat blurred. Ideally, randomizing at the cluster or village level ensures that everyone in one village is assigned to the same arm, reducing "contamination" and maintaining randomization in the group assignment. Village-randomization also avoids complications from perceived unfairness in a close-knit village community between participants assigned to different arms of the study. There are, however, two problems with cluster-randomisation for this evaluation. The first is that this introduces an extra layer of variance, meaning one must consider variance both within and between clusters, which lowers the detectable difference possible to achieve with a specific sample size. For an endline sample size of 900, one would have 10 or 15 people for each cluster with 60 or 90 total clusters, respectively. With this set-up, a 2-arm study would allow a detectable difference of ~0.25 and a 3-arm study would allow ~0.30. If this reduction in detectable difference is deemed acceptable then cluster-randomization could be undertaken. However, the second problem that is beyond our control relates to the availability of participants and villages. Current feedback from the validation of beneficiaries suggests they are dispersed and we may not find sufficient individuals in a cluster. Therefore, although cluster-randomization is optimal it may not be possible do to with these numbers.

The creation of the randomized groups will be done by iterating through random assignations of subjects to different arms of the study, checking to see at each iteration if the baseline covariates are well balanced (i.e. the distribution of household income is roughly the same in each arm). We will ensure that each arm is balanced with respect to the covariates that are most important and that are possible to balance.

There are many approaches for dealing with multiple children and pregnant women in a household. Gertler (2004) in his study in Mexico dealt with the multiple-children-per-household issue by randomly selecting only one child to include in the analysis, although in fact most households only had one child anyway. An alternative approach was proposed by Fenn et al. (2015) whereby the analysis is done once with all children and once by randomly selecting one child from multiple-children-households to ensure that the results still hold. The typical practice in the literature is to do the RCT analysis with only one child per household. If more are included in the study, then one is randomly selected for analysis. The rationale is that if multiple children

from one household are included, you are weighting or biasing the analysis towards that family's household size. An unquantifiable covariate in this study is how "good" the parents are, with "good" parenting leading to better health outcomes while "bad" parenting may lead to poor results. Therefore using only one child per household ensures randomization of parenting styles by not including some households twice or more. However, given the constraints currently observed in the number of beneficiaries available, we may need to include all children in a household in the analysis.

At present the assumption is that although we will randomise on one child or pregnant woman in a household, we will collect information on all children up to the age of 24 months along the followup studies. We will then control for total number of siblings in the household (below and above 24 months of age), and also employ the approach suggested by Fenn et al. (2015). This methodology may also need to be refined once it is established if the cash amounts will be staggered based on the total number of children and/or pregnant women in the household.

The checkup evaluations and the endline evaluation will follow the baseline questionnaire, with an additional section on the PS Kenya nutritional counselling, and some additional open-ended questions on the experience and challenges faced by households with the interventions (refer to Annex 4 for the data collection tools). The first checkup evaluation will occur four months post-intervention, and the second at eight months. A final evaluation will be undertaken 12 months post-intervention, assuming that the baseline and interventions are rolled out in time.

For an effective study design, both implementing agencies will need to wait until the baseline survey has been completed before rolling out activities. Assuming the baseline survey is conducted in January 2017 (pending ethical approval of the study and successful identification of beneficiaries following the verification exercises), the interventions can begin at the end of February/beginning of March 2017 once randomization has been completed.

POWER CALCULATIONS FOR SAMPLE SIZE

Obviously the larger the sample size, the greater the power to detect a difference between interventions. However, any decision on sample size has to also take into consideration the practicalities of sampling such large numbers in terms of both cost and availability of beneficiaries.

In assessing our minimum sample sizes we looked at the expected changes that we would be able to detect given the variance in outcome measures. Our primary outcomes are direct measures of physical health. However, the expected change in these primary outcomes is very small and requires a large sample size to detect differences due to the comparably large variance of our target population. As a result, it is very possible that the resources (both in terms of cost and availability of beneficiaries) will not allow us to sample a group large enough over a long enough period of time to obtain a statistically significant result. Secondary outcomes that may be a less direct measure of physical health can still help us evaluate the impact of the NICHE program. These secondary measures such as behaviour change and dietary change,

are likely to have a smaller variance such that, given our resources and timeline, we will be able to measure a statistically significant change.

Variable treatment effects measured in HAZ, WHZ, and WAZ have been reported in the literature from studies conducted in countries around the world. In an effort to consolidate data from high quality studies, Bhutta et al. (2008; 2013) extracted data from well-designed RCTs to report average treatment effects. From three studies in Brazil, China, and Peru that studied feeding practices and nutrition educational interventions, there was an average increase in HAZ of 0.22+/- 0.21 (Bhutta et al., 2008). Studies that included complementary food provision had even larger gains in HAZ, with seven studies averaging a 0.39+/-0.34 increase in HAZ. In four studies that reported changes in WAZ due to nutritional education, in populations that average an income of more than US$1.25 per day, a statistically insignificant effect of 0.12+/-0.14 was averaged (Bhutta et al. 2013). However, in three studies that focused on populations making less than US$1.25 per day, the average effect was 0.26+/-0.15. Statistics for WHZ are much less frequently reported. A recent study design described in Fenn et al. (2015) plans to evaluate a cash transfer programme in Pakistan over a one year period and proposed a predicted treatment effect of 0.19 for WHZ. Ideally, our study should be powered to detect similar levels of differences in these key primary outcome measures.

To estimate the expected detectable difference from any given sample size requires some assumptions about the current mean and variance of the outcome of interest. Baseline estimates for the expected mean and variance in the distribution of our primary outcome measures (HAZ, WAZ, WHZ) are based on measurements from the 2014 KDHS. The survey included people of all ages from all parts of the country. We analysed separately the 165 children aged 0-24 months from Kitui County, as this would reflect the target population in our study. The mean values for the three primary outcome variables, HAZ, WHZ, and WAZ, are -1.525 (1.287), 0.007 (1.203), -0.836 (1.212) respectively (standard deviations are given in parentheses). All z-scores are reported in reference to the 2006 WHO-defined standards of child growth based on 8,440 healthy children from 6 countries (WHO Multicentre Growth Reference Study Group, 2006). A z-score of 0 would indicate the average healthy child, with Kitui's young children achieving negative scores in HAZ and WAZ, indicating that, on average, they are shorter and weigh less than the average healthy child at their age.

According to the formula for sample size as defined by Matthews (2006) (see Annex 3) and the assumption on variance (as estimated from the 2014 KDHS data), the minimum sample size to detect a 0.20 difference in HAZ for this three arm study would be 1,920 (640 participants in each arm). To detect a 0.25 difference would require a sample size of 1,245, with 415 participants in each arm. Given the constraints on cost and availability of beneficiaries, this proposal will assume a sample size of 900 households (300 in each arm), sampling 333 to account for programme drop-out. These will be equally drawn for the following six groups: pregnant women second trimester; pregnant women third trimester; infants 0-3 months; infants 4-6 months; infants 7-9 months; and infants 10-12 months assuming sufficient sample sizes are available from the Baseline. According to the formula for sample size (see Annex 3) and the assumption

on variance (from the 2014 KDHS data), this will give us the ability to detect a 0.29 change in HAZ and a 0.28 change in WAZ and WHZ, all with 95 percent confidence.

For intermediate measures, more frequently expressed as proportions, this sample size will enable one to detect a statistically significant difference between the treatment and control groups of 6.5 percent or greater for low birth weights (baseline of 9 percent) and 11 percent for indicators with the higher baseline prevalence of 36 percent and 64 percent respectively (see Annex 3). Although the majority of the literature supports detecting change in z-score, proportions in cut-off ranges are also reported. Based on the data extracted from the 2014 DHS Kenya survey on under 2s from Kitui, 36 percent were stunted or extremely stunted (z-score is below -2) and 7.5 percent underweight or extremely underweight. From these original percentages, the detectable percentage changes are outlined in Annex 3.

DATA COLLECTION TOOLS

The data collection tools are outlined in Annex 4. They have been carefully constructed to address the key primary outcome variables; intermediate outcomes; household and individual characteristics which may be affecting any outcomes observed; and any externalities not captured in the above.

During the Baseline, it will be confirmed that all households surveyed are part of the existing cash transfer scheme and that they have a child between 0 and 24 months and/or a pregnant woman. For the purpose of this study, a household is defined as people that eat and sleep together. The Baseline survey will include information on the households, the cash transfer, the health and nutrition related behaviours and status of the target group, in addition to household livelihood activities, income and wealth, and access to food and health services. These cover the main outcome variables, intermediate variables and covariates (see Table 2). The respondent for the survey should be the main caregiver, if possible. Possible confounders or externalities such as religious group (for example, Jehovah witnesses will not seek out healthcare), market prices of food and other interventions will be also be captured. Initial statistics from the WFP CFA suggest that the overlap between beneficiaries of CFA and other cash transfers is small (5-6 percent), but this will also be recorded on the questionnaire.

Once selected, households will be revisited for checkups (post 4 and 8 months intervention) and a final evaluation. For these visits the Baseline tool will be employed again (as enumerators will already be familiar with this, and it will also be important to capture any changes in household size, income and the other household characteristics at each time point), in addition to a section on the PS Kenya intensive nutritional counselling and qualitative information on experiences with the interventions. The households will be identified using the GPS locations and the data collection across surveys linked using a unique identifier and telephone number.

Table 2: Key Variables to be Covered in the Questionnaire

Section	Details
Household characteristics	Location of household; household size; main religion; information on head of household; information on main caregiver; information on participation in cash transfer schemes; other cash donations received.
Household Roster	For all household members: name, age, sex, relationship to head of household, marital status, main activity (attends school, employed, unemployed), educational attainment, if < 2 years (then link to young child and caregiver section), if pregnant (then link to pregnancies section).
Child and Caregiver	For each child aged 0-24 months interview their main caregiver and obtain: details of child (check/link with roster); general health (symptoms of diarrhoea, malaria or respiratory disease in the last 2 weeks); birth weight (if recorded); anthropometrics (weight, height (or length)), MUAC, oedema; vaccinations and health care visits; feeding practices (including breastfeeding, weaning, food consumption) and then: For the main caregiver: details of main caregiver/mother (check/link with roster); anthropometrics (MUAC); relationship to child; is father in the household?; how long has he/she been the caregiver?; other children cared for?; hand-washing practices and other WASH practices; stress and coping levels; time available for the care of children, house chores, and paid work; food consumption; access to health care and nutritional/health-related information.
Pregnancies	For each pregnant women interview directly and obtain: details of pregnant woman (check/link with roster); anthropometrics (MUAC, weight, height); details of pregnancy (including trimester, ANC visits, complications (if any), new vaccinations, previous pregnancies); hand-washing practices and other WASH practices; food consumption; access to health care and nutritional/health-related information.
Cash transfer (receipt and use)	Timings and amounts (including delays); recipients and decision-makers; spending of this cash.
Livelihoods and income	Main livelihood; employment; main sources of income; estimated monthly household income.
Socio-economic (SE) status and wealth indicators	Livestock ownership; school fees paid; electricity and cost; latrine and water sources; position on MacArthur Ladder[1].
Health services (access and participation)	Awareness and access to facilities (distance and cost); use of facilities (including routine visits); other health information (including nutritional counselling in general).
Food access and prices	Access to food (markets, own production); main food groups consumed and prices paid; percent food consumed by source; intra-household allocation of food.
Household Coping Strategies	Coping strategies adopted by the household to address the lack of food or lack of money to buy it.

[1] The MacArthur ladder is a tool widely used to measure subjective socioeconomic status and has been shown to correlate with health outcomes in a wide range of populations. Sometimes objective measures cannot capture the full picture of a household's economic status and therefore their ability to supply adequate nutrition for their children, especially when those measures are compared across communities. The MacArthur ladder is an image of a nine-rung ladder shown to the caregiver who places an "X" on the rung that he/she feels their household occupies with the top rung being the wealthiest and the bottom rung being the poorest members of their community. More information can be found at: http://www.macses.ucsf.edu/research/psychosocial/subjective.php

DATA COLLECTION AND COMPILATION

The questionnaires will be digitised onto Kobo, a survey management software, and data entry will be done on tablets. Data quality will be ensured by regular spot checks and back-checks by the Kimetrica team. After checking in the field, the data will be regularly uploaded to enable real time evaluation of data quality and ensuring a quick turnaround if call-backs are needed. Data cleaning scripts developed in R will be applied routinely.

The four rounds of surveys will be undertaken by a team of 18 local enumerators, supervised by three local supervisors (overseeing teams of six); for the baseline survey an additional team (composed of 6 local enumerators and 1 local supervisor) will also be hired to ensure the timely completion of the survey. The enumerators and supervisors will be chosen based on the following tentative criteria: a) candidates who can speak the Kamba language; b) who have completed at least secondary school education, have a university degree or are studying for one; and c) have previous experience in health-based research. An initial list of potential candidates will be provided by the IMC representative in Kitui in collaboration with the local Health Promotion and Disease Prevention Unit of the Ministry of Health and Sanitation. Candidates will then be screened and interviewed by Kimetrica. Three quality control experts from Kimetrica and one survey manager will manage the field work with the local teams. The quality control experts will each monitor and support one team, carrying out spot-checks and at least 10 percent back-checks on all data collected. They will also support the supervisors in data checking before uploading and syncing for data cleaning back at the Kimetrica offices. Data will be synced on a regular basis during the data collection period, and data cleaning performed in real time to allow call-backs to be undertaken while the teams are still in the field.

A total of 33 local enumerators will be trained on the data collection tools and data collection procedures, including how to gain consent from respondents prior to the interview. Four will be chosen as supervisors and 24 as enumerators. The remaining five will act as backups. Training will be undertaken in the field during a five day training workshop where the potential enumerators and supervisors will be trained by the Kimetrica team on (1) the questionnaires and use of Kobo; and (2) taking anthropometric data.

DATA ANALYSIS

The data analysis will be undertaken routinely after each data collection to provide feedback to UNICEF on some basic metrics related to the anthropometrics, feeding and dietary intake and hand washing practices of the study population in each arm. The more sophisticated analysis of the RCT will be completed at the end of the data collection. Details of the suggested approach are given in Annex 5.

The key variables in the analysis will be the outcome measures (stunting, wasting and underweight), a range of intermediate variables (including breastfeeding and hand washing practices) and covariates (such as educational level of the caregiver), including possible

exogenous variables (such as market prices for food). Covariates can include individual-level variables (such as age and sex) and cluster-level variables (such as average income per household in a given village and rainfall). Although the RCT design is randomized at the individual level, such cluster-level covariates can be included in the analysis as discussed in Annex 5. Annex 6 summarises the range of variables and their calculations. Data will be disaggregated by sex so that any differences in outcomes between boys and girls will be captured. In addition, the study will look at who makes the decision related to spending within the household and other equity and gender considerations.

We will consider a population with height-for-age, weight-for-height, and weight-for-age z-score below two standard deviations of the WHO derived means as stunted (chronically malnourished), wasted (acutely malnourished), and underweight respectively. We will consider anything below three standard deviations as severely stunted, severely wasted, and severely underweight. These will be our key outcome measures. Height-for-age representing linear growth potential, and reflecting long-term effects of malnutrition and poor health; weight-for-height an indicator of acute starvation, and/or severe disease; and weight-for-age being influenced by both height-for-age and weight-for-age, and therefore a mix of long term and acute exposure to malnutrition (Maluccio and Flores, 2005).

Intermediate measures that have been used in previous evaluations are summarised in Table 3, and include anthropometrics (e.g. MUAC), food consumption (e.g dietary diversity), health (e.g. reported illness) and subjective evaluations of status in community and stress/happiness levels.

Table 3: Intermediate Outcomes Assessed in Previous Research

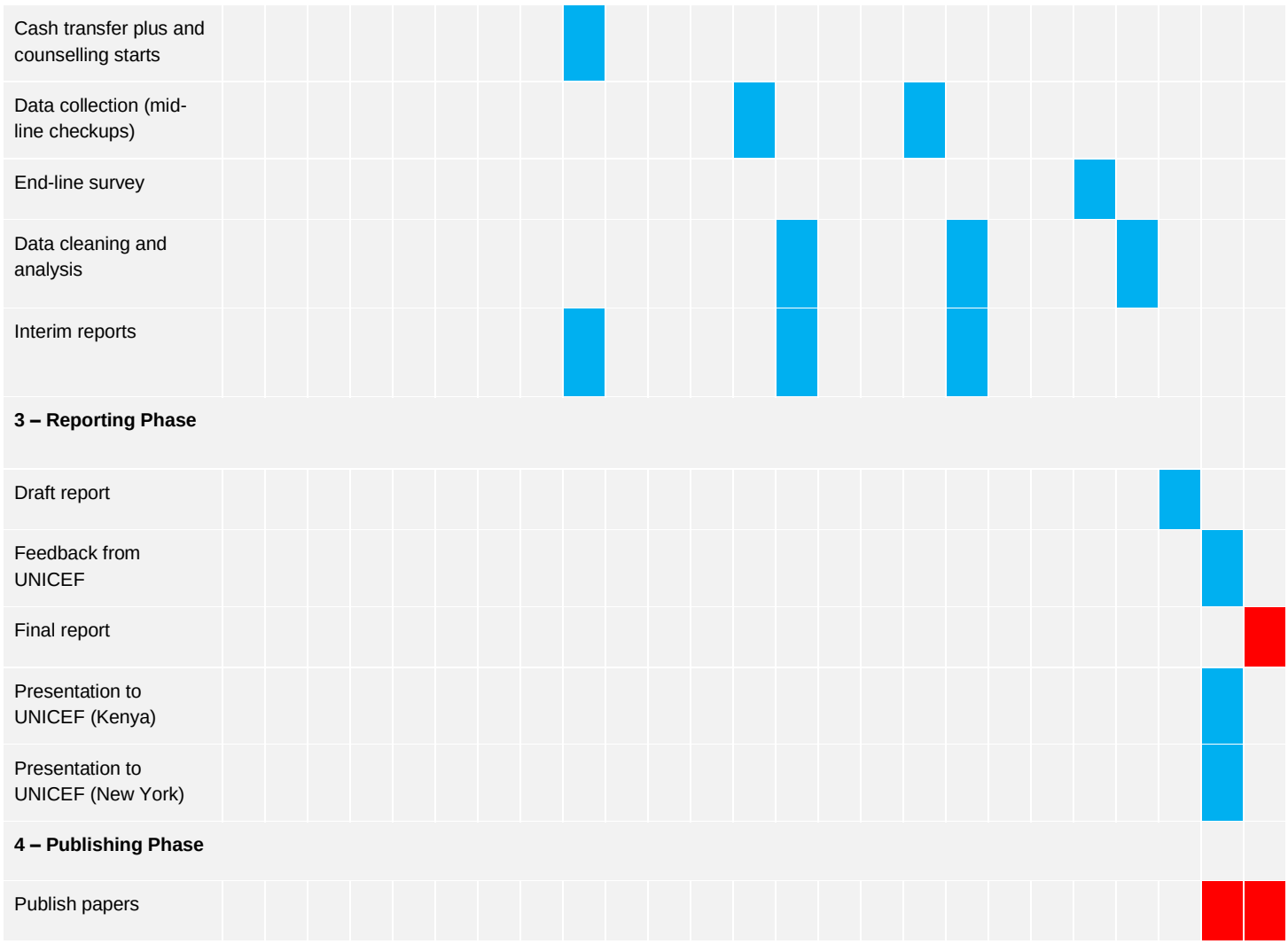
Intermediate Outcomes	Notes	Reference
Middle Upper Arm Circumference (MUAC)	Measured in both the mother and the child	Fenn et al. (2015)
Morbidity/Disease	Mother reports how many times the child was sick with diarrhoea, cough, fever, etc.	Gertler (2004)
Dietary Diversity	Is the child eating a healthier diet with more food groups represented?	Gilligan et al. (2013)
Mother's Happiness/Stress	Does the extra cash relieve parental stress, leaving the mother able to better care for her child?	Paxson and Schady (2010)
MacArthur Ladder	The mother's perception of the socioeconomic status of the household within the community	Paxson and Schady (2010)
Hospital visits	A measure of how ill the child has been over the study period	

WORK PLAN

In addition to this Inception Report, interim reports during the data collection and analysis phase will be prepared. At the end of the fieldwork, a final report will be produced, and finalised after consultation with UNICEF. A slide-deck will also be prepared and the findings will be presented to the UNICEF Kenya and New York offices. The workplan and timelines for deliverables is outlined in Table 4.

Table 4: Proposed Workplan and Deliverables

	2016						2017												2018						
Activities/ Deliverables	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
1 – Inception Phase																									
Contract signed																									
Research design and tools																									
Draft inception report																									
Feedback from UNICEF																									
Final Inception Report																									
Ethical permission																									
2 – Implementation Phase																									
Finalisation of tools and digitisation (including internal pretesting of tool)																									
Training of enumerators (including field testing of the tool)																									
Baseline survey																									
Analysis and randomization of households																									


Cash transfer plus and counselling starts
Data collection (mid-line checkups)
End-line survey
Data cleaning and analysis
Interim reports
3 – Reporting Phase
Draft report
Feedback from UNICEF
Final report
Presentation to UNICEF (Kenya)
Presentation to UNICEF (New York)
4 – Publishing Phase
Publish papers

STAKEHOLDER INVOLVEMENT AND DISSEMINATION OF RESULTS

In addition to a presentation to the advisory group and peer-reviewed publications, we will disseminate findings to a wider group of stakeholders through our website (blogs and videos), and ReliefWeb, and through policy briefs. Table 6 outlines the proposed dissemination plan.

Table 5: Proposed Dissemination Plan

Publication		
	Quantity in each language	
Editing, Translating, Design and Printing	Three in English	
Other materials		
	Target audiences	**Quantity in each language**
1-2 page policy briefs	NGOs, Research Institutions, Government bodies	100 in English
Slide-deck	To be used by policy makers and implementers	
Activities		
	Target audiences	**Quantity in each language**
Radio interview (eg World service)	Experts and General Public	
Blogs and Video on Kimetrica website	Experts and General Public	
ReliefWeb	Experts and General Public	
Presentation to UNICEF (Kenya)	UNICEF	
Presentation to UNICEF (New York)	UNICEF	
Presentation to Advisory Committee	Various Stakeholders	

ETHICS APPROVAL AND ASSURED STANDARDS

Ethical approval for this study is to be sought from the AMREF Ethics and Scientific Review Committee (ESRC). The deadline for the application for the ethical approval is 11 October 2016 in order to be considered at the AMREF ESRC meeting on the 27 October 2016.

Most of the relevant documentation for the application is contained here in the Inception Report, including the study design and data collection tools. In addition, for the AMREF ESRC application, we will provide a signed and dated application form; a statement of agreement indicating that Kimetrica Ltd. will comply with the ethical principles set out in the relevant guidelines; an abstract of the protocol in a non-technical language; detailed CVs of the research team; a signed letter of approval from the County government of Kitui and UNICEF; donor commitment and budget from UNICEF; the consent form to be used for the study; and the terms of reference for the enumerators (who will be sourced with the support of IMC and the County Government and consequently screened and interviewed by Kimetrica). The AMREF application also requires a description of the arrangements for indemnity, though this is not applicable for this study.

It is important to note that no beneficiary will be excluded from receiving general information on nutrition or from receiving the cash transfers they are currently receiving. Ethical issues might come up in every stage of the research. During the baseline study, the main ethical consideration will be the selection of beneficiaries. The selection procedure and allocation of beneficiaries to any of the three arms (including additional intensive counselling and additional cash transfers) will be completely random and all households will be informed as to which arm they have been allocated to. This will ensure there is no exclusion of any disadvantaged groups.

Ethical considerations might also arise in the data collection phase. Anthropometric measurements (height/length and weight) of children will be taken, and this will be done in the fastest way possible, and in a friendly manner (with support of the mother and/or caregiver) to minimize the child's potential distress. Enumerators will be trained in building rapport with the respondents (including gaining consent from them), so as to handle and minimize any potential distress or discomfort from the respondent. Measures will also be taken by Kimetrica to ensure confidentiality and anonymity of responses: data will not be shared with any third party and enumerators will not disclose any of the information collected from the respondent with anyone outside of the research team. Respondents will be adequately informed of the purpose of this research study through the informed consent form, which will detail information about the general themes that will be covered in the interview, the expected duration of the interview, and the fact that their possible decision not to participate will not be penalized. The informed consent form will be provided to all participants that will be interviewed (and will be read to them in case the respondent is illiterate in the presence of an independent literate witness, chosen by the participant), who will sign it unless they do not wish to participate in the study. This will be done before any interview can begin. Enumerators will need to gain the respondents' consent for every survey conducted, including the baseline, midlines and endlines.

Different ethical issues may arise among beneficiaries from the three different arms of the study. Beneficiaries in the control group for example, may find it frustrating that they are not receiving any additional cash transfers and/or nutritional counselling. For this reason, the communication strategy developed by UNICEF, IMC and PS Kenya, the main implementing partners, will be crucial in clearly explaining the purpose of the research and the fact that this study, which will only last for a limited period of time, is based on a randomized selection and allocation of beneficiaries to the different treatment and control groups. The beneficiary selection procedure will also be explained in the informed consent form, to ensure that those interviewed are well aware of the study dynamics. Furthermore, enumerators will be trained on providing an explanation of the research purposes and procedures, so that this may be provided to respondents and all their doubts and questions addressed.

In case the researchers and/or the enumerators encounter someone who is very sick in the sampled households, they will be advised to visit a health facility for treatment (Kimetrica does not directly provide any health care services). If the team encounters a severely undernourished child, recommendations for adequate health treatment will be provided and the child will be removed from the study.

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ANNEX 1. MEETINGS HELD WITH RELEVANT PARTNERS

Table A1: Partner Meetings

Date	Location	Participants
Monday 4 July	UNICEF (Block C)	Kimetrica (Flavia Della Rosa, Helen Guyatt), UNICEF Nutrition (Ann Robins), UNICEF Social Protection (Susan Momanyi)
Friday 15 July	UNICEF (Block C)	Kimetrica (Eric Nussbaumer, Helen Guyatt), UNICEF Nutrition (Ann Robins), UNICEF Social Protection (Susan Momanyi, Luis Corral), IMC (Fridah Mutea, Mercy Mutuku, Charles Karari)
Monday 25 July	UNICEF (Block C)	Kimetrica (Eric Nussbaumer (remotely), Helen Guyatt, Florence Muiruri, Flavia Della Rosa), UNICEF Nutrition (Ann Robins, Grainne Mairead Moloney), UNICEF Social Protection (Susan Momanyi, Luis Corral), IMC (Fridah Mutea, Mercy Mutuku, Charles Karari), WFP (David Kamau)
Thursday 1 September	Sarova Panafric Hotel	Representatives from: SP Secretariat, UNICEF Social Protection, UNICEF Nutrition, Kimetrica, IMC, and Ministry of EAC, Labour and Social Protection
Tuesday 6 September	UNICEF (Block D)	Kimetrica (Eric Nussbaumer (remotely), Alison Campion (remotely), Helen Guyatt, Florence Muiruri, Flavia Della Rosa), UNICEF Nutrition (Ann Robins, Laura Kiige), UNICEF Social Protection (Susan Momanyi, Luis Corral), IMC (Fridah Mutea, Mercy Mutuku, Charles Karari), WFP (David Kamau), SP Secretariat (Ousmane Niang), PS Kenya (Nancy Njoki)
Monday 3 October	UNICEF (Block I)	Kimetrica (Florence Muiruri, Flavia Della Rosa), UNICEF Nutrition (Ann Robins), UNICEF Social Protection (Susan Momanyi), IMC (Fridah Mutea, Mercy Mutuku), PS Kenya (Nancy Njoki, Ann Musuva)

ANNEX 2. HEALTH, NUTRITION, WASH AND LIVELIHOOD INITIATIVES IN KITUI

Table A2: Ongoing Activities in Kitui Which May Influence NICHE Effects

Implementing Agencies/NGO	Donor	Program	Where
AMREF Italy	EU	Health and Nutrition 1) Improving maternal, newborn and child health through stronger and responsive health system 2) Promoting nutrition interventions for mothers, newborns and children under five years 3) Quality family planning and sexual and reproductive health services	Kitui North district, Mwingi East, Mwingi Central and Migwani Districts
Ministry of Health	World Bank	1) Support supply and distribution of nutrition supplements 2) Supporting free maternity service 3) Providing health insurance subsidies for poor households 4) Supporting innovative approaches to improve nutritional status of children under five years of age, and pregnant and lactating women	Kenya
Ministry of Health, Mothers2Mothers	USAID	Psychosocial support and education services by providing comprehensive health services to both HIV-positive and HIV-negative women and their families.	Kenya
IRC, ISLAMIC RELIEF, Save the Children, UNICEF, World Vision	DFID	Health and Nutrition	Kitui County
Bidii	European Union and Concern Universal	Training on hygiene and sanitation, health education on prevention of diseases, improved maternal child health and nutrition, access to health services and economic empowerment among other issues.	Kwa Kavisi and Kavingoni sub-locations in Kathonzweni District
Samaritan's Purse International Relief	-	WASH: 1) Provide training to a few members who then inform other community members. The training is on hygiene and sanitation, water reforms and structures (latrines, hand washing stations and boreholes). 2) Constructing water points and boreholes.	Kitui County

Government of Kenya (GoK)	Swedish Embassy	Sustainable Livelihoods	Kitui County
FARM-Africa	EU	Sustainable Livelihoods 1) Water conservation training 2) Supporting community-based production of drought tolerant crop seeds.	Kitui County
Comitato Europeo per la Formazione e l'Agricultura (CEFA) and Sasol Foundation	Italian government and the EU	Sustainable Livelihoods and WASH 1) WASH activities 2) Sustainable development of agribusiness (such as, creation of vegetable gardens).	Kitui East Sub County
Catholic Diocese of Kitui	-	Home Care based Programme (health, shelter, nutrition and legal support)	Kitui County
Kyeni Foundation	-	Health services (provide different medical facilities with fully equipped mobile clinics that medical workers)	Kitui County
Ministry of Culture, Youth and Sports	County Government	Support to CCIs taking care of orphans, disabled and vulnerable children	Kitui County
Ministry of Culture, Youth and Sports	County Treasury and sponsors	Empowerment Programs for vulnerable individuals and groups	Kitui County

ANNEX 3. SAMPLE SIZE CALCULATIONS

The formula used to estimate the minimum sample size to detect a defined detectable difference given a baseline variance in given variables, or conversely what the detectable difference would be if a certain sample size was used, followed that of Matthews (2006):

1. For an Individually-Randomized Control Trial with a Continuous Outcome Variable:

$$d = \sqrt{\frac{2\sigma^2}{N}} \cdot (Z_{\alpha/2} + Z_{(1-\beta)})$$

2. For an Individually-Randomized Trial with a Binary Outcome:

$$N = \frac{(Z_{\alpha/2} + Z_{\beta})^2 \cdot [p_T(1-p_T) + p_C(1-p_C)]}{d^2}$$

- d: the difference in means between the treatment and control groups that you want to be able to detect with a specific study design
- N: sample size for one arm.
- $\boldsymbol{\sigma}^2$: the variance of the outcome variable. The variance may be different between the treatment ($\boldsymbol{\sigma}^2_T$) and the control ($\boldsymbol{\sigma}^2_C$) groups. However we will assume that $\boldsymbol{\sigma}^2_C = \boldsymbol{\sigma}^2_T = \boldsymbol{\sigma}^2$
- $Z_{\alpha/2}$: The standardized score needed to obtain a confidence level of 1 - α. The score describes the number of standard deviations away from the mean required to obtain (1-α) percent of the distribution. α/2 is required to reflect a two-tailed distribution. Statistical significance describes the percent chance you did not incorrectly reject the null hypothesis.
- $Z_{(1-\beta)}$: the standardized score needed to obtain a power of β. Power measures the percent chance that you correctly reject the null hypothesis.
- $\boldsymbol{\rho}$: the Intra-Cluster Correlation (ICC) coefficient. This is the ratio of variance between clusters to variance within clusters.
- $\boldsymbol{\rho}_T$: the proportion of participants in the Treatment group with the outcome variable = 1
- $\boldsymbol{\rho}_C$: the proportion of participants in the Control group with the outcome variable = 1

Figure A1 illustrates the relationship between sample size and detectable difference in z score (our primary continuous outcome measures) assuming either a 2 or 3 arm RCT with baseline variances of HAZ (1.287) and WHZ (1.203). Because the standard deviations for WAZ and WHZ were so similar (WAZ was 1.212), this figure only shows WHZ for simplicity. The red stars show what the detectable difference will be assuming a sample size of 900. Basically the proposed 3 arm study of 300 in each arm would result in a detectable difference of 0.29 (for HAZ) and 0.28 (for WAZ and WHZ). However, if a 2 arm study was chosen the same sample size (totalling 900, now 450 in each arm) could detect differences of 0.24 for HAZ and 0.22 for WAZ and WHZ with 95 percent confidence. This option could for example involve only additional cash transfer as an intervention arm, and the effects of nutritional counselling assessed as a covariate in the regression analysis.

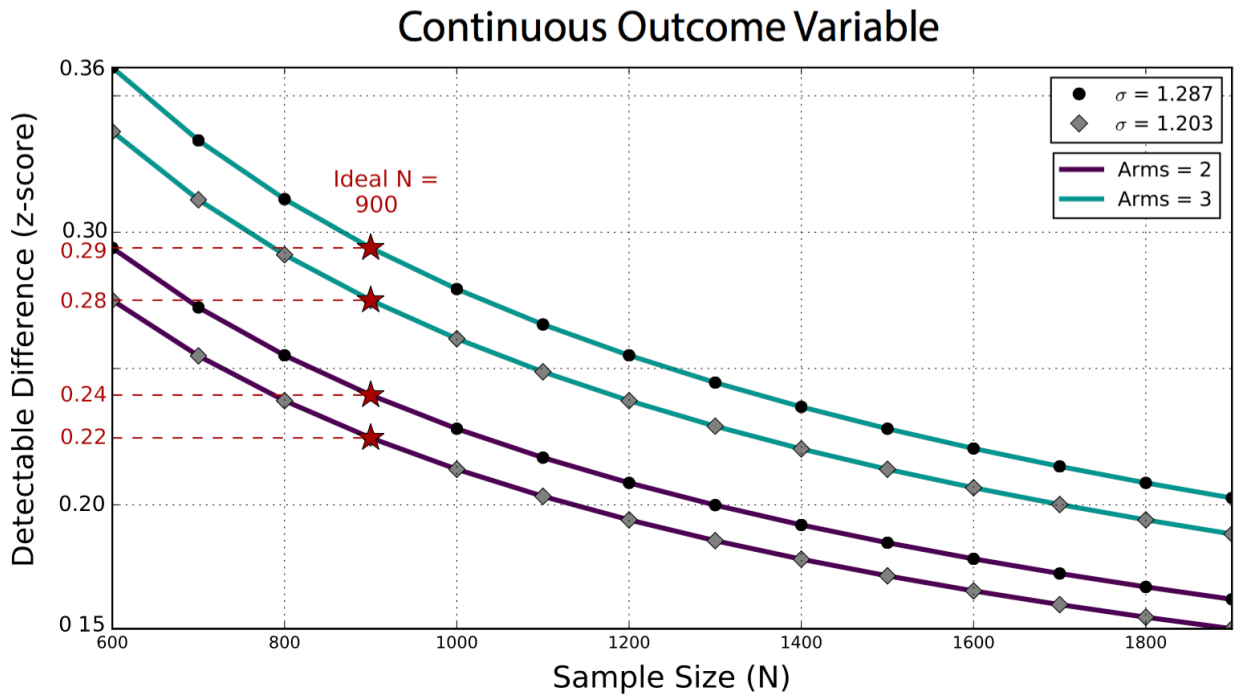

Figure A1: The Relationship between Detectable Differences and Sample Size for the Continuous Outcome Variables of z-scores in a RCT Randomized at the Individual Level

The above figure relates to the primary outcome measures reflected as z scores. The data collection will also capture intermediate outcomes such as the breastfeeding and hand washing practices, and food consumption, amongst others. Most of these will be represented as proportions, for example the proportion of children that are exclusively breastfed in the first 6 months, or the proportion of children aged 12 -24 who consume at least 4 food groups. Any treatment effect will be a decrease in this proportion. Using the formula in Equation 2 and applying the baseline proportion as the value of $_T$ and $\boldsymbol{\rho}_{C,}$ one can also predict the corresponding change that can be detected at the 95 percent confidence level based on our sample size of 900. For example, Figure A2 shows the percentage change in the baseline

proportion that can be detected assuming a 3 arm trial with 300 per arm, and assumed baseline proportions of 17 percent (Ferguson et al., 2015) and 64 percent (Kimiywe and Chege, 2015) for prevalence of at least 4 food groups consumed in a 24 hour recall, 9 percent for low birth weight babies (< 2.5 kg) (Kenya National Bureau of Statistics, 2009) and 36 percent for stunting (calculated from the 0-24 month age group in Kitui abstracted from the KDHS 2014 data). A sample size of 900 (300 in each arm) would be able to detect a statistically significant difference between the treatment and control groups of 6.5 percent or greater for low birth weights (baseline of 9 percent) and 11 percent for indicators with the higher baseline prevalences of 36 percent and 64 percent. Note that prevalences of 36 percent and 64 percent yield identical results, because if 36 percent of the population falls into group 1 in a binary outcome, 100-36 = 64 percent fall into group 2. Thus in a binary set-up, when testing for a statistically significant difference between two outcomes, the prevalence of the two outcomes must sum to 100 percent (the total population), so a 36 percent is mathematically the same as a 64 percent prevalence.

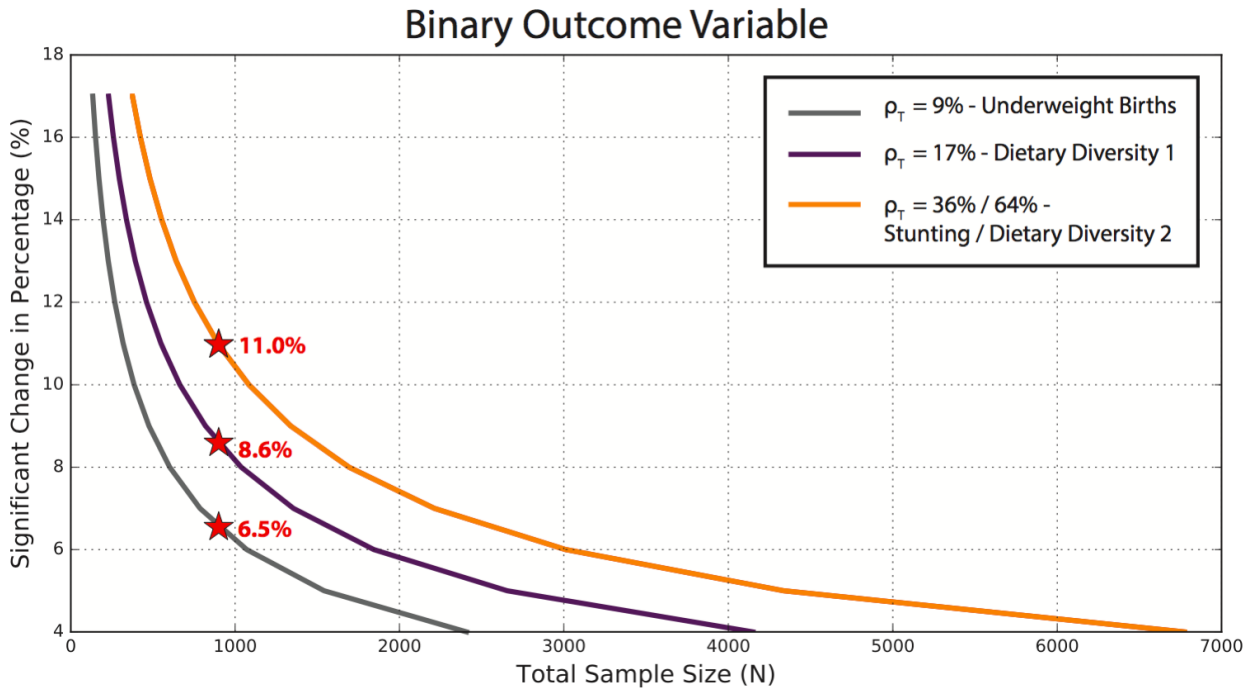

Figure A2: The Relationship between Detectable Percentage Change and Sample Size for a Binary Outcome Variable in a RCT Randomized at the Individual Level

ANNEX 4. DATA COLLECTION TOOLS

The data collection tools were translated into Kiswahili for the AMREF ethical clearance submission.

BASELINE QUESTIONNAIRE

Section 1: Household (HH) Details

Note to enumerator: Request to speak to the main caregiver if they are available

101. Name of Interviewer *(text)*		102. Date of interview *(dd/mm/yy)*	
103. Sub County *(text)*		104. Location *(text)*	
105. Sub-location *(text)*		106. Village name *(text)*	
107. Unique HH ID *(numeric)* *Note to enumerator: This is in the enumerator assignment sheet.*		108**.** GPS Coordinates longitude and latitude. *Note for Enumerator: If using the GPS Unit, copy everything as it appears.* *Example:* *N -1.36700* *E 38.01060*	
109. Has the consent form been completed? *(1=yes and 0=no)*		110. Name of Head of household (HoH) *(text)*	
111. Name of respondent. *(Note to enumerator: Request to speak to the main caregiver in the household if they are available. If they are not available and cannot be located, then request to speak to the person*		112. Telephone number of respondent (or head of household or another member of HH if respondent doesn't have one) ***(A 9-digit number e.g. 700000000)***	

that knows the child best in the household.)			
113. Sex of respondent *(1=male and 2=female)*		114. Age of respondent *(completed years; If more than 99, put 99)*	
115. Religion of Respondent *(1=Christian; 2=Jehovah Witness; 3=Muslim; 4=Hindu; 5=Pagan; 6=Kavonokya; 7=Other(specify); 998=Don't know)*		116. Language of interview *(1=English, 2=Kiswahili, 3=Kamba)*	
117. How many members are there in this household? *(numeric)* *Note to Enumerator: Inform the respondent that the HH members are people that usually live and eat together.*		118. How many pregnant women are there in this household? *(numeric)* 118b. How many can be interviewed today? *(numeric)*	
119. Are you the main caregiver of children in this household? *(1=yes and 0=no)* 119b. **If no to Q119,** why is the main caregiver not being interviewed? *(1=not present, 2=not willing, 3=other(specify))*	⌊____⌋ If yes, go to Q123. If no, go to Q119b.	120. Name of main caregiver (*text)*	
121. Age of main caregiver *(completed years; If more than 99, put 99)*		122. Sex of main caregiver. *(1=male and 2=female)*	
123. How many children in this household are currently aged between 0 and 24 months (including 24 months)? *(numeric)* 123b. Do these children under 2 have the same main caregiver or are cared for primarily by different people? *(1= the same, 2=different)* 123c. If the main caregivers are different, how many caregivers are available to provide information on these children currently aged between 0 and 24 months? *(numeric)*	⌊____⌋ If 1=same, go to Q124. If 2=different, go to Q123c.	124. Name of **CT-OVC Beneficiary** *(text)* *Note to Enumerator: One who receives the cash transfer, not the child.* 124b. Is this the same as the respondent? *(1=yes and 0=no)*	

125. National ID number **of the CT-OVC beneficiary** *(numeric) Note for enumerator: Ask to see and confirm name from the enumerator assignment sheet.*		126. CT-OVC Beneficiary number. *(numeric)*	
127. Telephone number of the CT-OVC Beneficiary (or head of household or another member of HH if beneficiary doesn't have one) ***(A 9-digit number e.g. 700000000)*** *(numeric)*		128. Name of child that the CT-OVC cash transfer is meant for.	
		128b. How old is this child? *(completed years; 1=if less than 1 year)*	⌊_____⌋ If age is greater than 2 years, go to Q129. If age is equal to or less than 2 years, go to Q128c.
		128c. Age in months if the child is aged 0-24 months (including 24 months). *(numeric)*	
129. When did the household member who is a beneficiary of CT-OVC start receiving the cash transfers? *(mm/yy)*	__ __/__ __	130. How is the cash transfer received? *(1=Bank, 2=Mpesa, 3=Other(specify)*	⌊_____⌋ If 1=Bank, go to Q131. If 2=MPESA, go to Q132.
131. Name of Bank. *(text)*	Go to Q133	132. Telephone number the cash transfer is sent to. ***(A 9-digit number e.g. 700000000)*** *(numeric)*	Go to Q133
133. Is this household a beneficiary of the WFP Cash for Assets (CFA) scheme? *(1=yes and 0=no)*		134. Is this household a beneficiary of the Health Insurance Subsidy Programme (HISP)? *(1=yes and 0=no)*	
135. Is this household part of any other scheme that provides financial support, education or any other form of aid? *(1=yes and 0=no)*	⌊_____⌋ If yes, go to Q135b. If no, go to Section 2: Household Roster		
135b. If **yes to Q135**, name of scheme? *(text)*			

Section 2: Household Roster

	201. Name *(Start with Head of Household)*	**202. Age** *(completed years) If less than 1 year put age as 0. If more than 99, put age as 99.*	**202b. If age is equal to or below 2 years, what is the age in months?** *(numeric)*	**203. Sex** *(1= male, 2= female)*	**204. Relation to Head of Household** *(refer to code a)*	**205. Is this household member pregnant (Female and age is 10+)?** *(1 = yes, 0 = no)*	**206. Is this household member a main caregiver /mother of a child aged up to and including 24 months?** *(1 = yes, 0 = no)*	**207. Marital Status (ages 10+)** *(refer to code b)*	**208. Completed education level** *(1= primary, 2=secondary, 3=tertiary, 4= none)*	**209. Main activity** ***For HH members above 2 years.*** *(1=attends school, 2= employed, 3= caregiver, 4= other (specify))*	**210. Does this household member suffer from a chronic disease such as asthma or AIDS?** *(1 = yes, 0 = no)*	**210b. If yes to Q210, which chronic disease?** *(refer to code c) (multiple selection allowed)*	**211. Is this household member disabled?** *(1 = yes, 0 = no) (Note to enumerator: Disability refers to hearing, vision, movement and mental impediments)*	**212. Was this household member present in the household in the last 7 days?** *(1 = yes, 0 = no)*
1														
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CODE

a) Relation to Head of Household code: *1=Head; 2=Wife or husband; 3=Son or daughter; 4=Son-in-law or daughter-in-law; 5=Grandchild; 6=Parent; 7=Parent-in-law; 8=Brother or sister; 9=Other relative; 10=Adopted/foster/stepchild; 11=Not related; 998=Don't know)*

b) Marital Status code: *1= Married, single spouse; 2= Married, more than one spouse, 3= Single, 4= Widowed, 5= Separated, 6= Divorced, 998= Don't know*

c) Chronic Disease code: *1=HIV/AIDS; 2=Diabetes; 3=Cancer; 4=Heart Disease; 5=Arthritis; 6=Allergic disease e.g. Asthma; 7= Other (specify)*

Section 3: Children and Caregivers

Repeat for all children aged between 0 and 24 months (including 24 months) in the Household Roster and **request to speak to their main caregiver or mother. If the main caregiver is not available, speak to the person that knows the child best in the household.**

Child and Parent/Caregiver Details	**Child 1**	**Child 2**	**Child 3**
301. Name of the child.			
302. Respondent's full name. *Note to enumerator: Ask to speak to main caregiver or mother*			
303. What is your relationship to [insert child's name]? *(1=mother, 2= caregiver, 3= father, 4=brother or sister, 5=cousin, 6= aunt or uncle, 7=grandparent, 8=other(specify))*			
303b. How long have you been caring for [Insert child's name]? *(months)*			
304. [Insert child's name] date of birth (*dd/mm/yyyy)*			
304b. How was the date of birth calculated? *(1=by consulting records; 2= recall/using a calendar of events, 3= other (specify))*			
305. What is the name of [insert child's name]'s father? *(text)*			
305b. Does he live in this household and his details collected in the household roster? *(1=yes, 0=no, 2=passed away)*	⌊___⌋ If yes, go to Q306 If 2=passed away, go to Q306 if no, go to Q305c.	⌊___⌋ If yes, go to Q306 If 2=passed away, go to Q306 if no, go to Q305c.	⌊___⌋ If yes, go to Q306 If 2=passed away, go to Q306 if no, go to Q305c.
305c. **If no to Q305b**, age of the father *(completed years)*			
305d. **If no to Q305b**, father's educational level *(1= primary, 2=secondary, 3=tertiary, 4= none)*			
305e. **If no to Q305b**, how often does [insert child's name] interact with the father? *(1= daily, 2= weekly, 3= bi-weekly, 4= monthly, 5= every three months, 6= every six months, 7= yearly, 8= never)*			
305f. **If no to Q305b**, does he give you any money to help in the care of [insert child's name]? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q305g, if no, go to Q306.	⌊___⌋ If yes, go to Q305g, if no, go to Q306.	⌊___⌋ If yes, go to Q305g, if no, go to Q306.

305g. **If yes to Q305f**, how much monetary support does he provide for [insert child's name] on a monthly basis? *(Ksh, 998= don't know)*			
306. How many children aged up to and including 2 years (24 months) in this household do you take care of? *(numeric)*			
306b. How many children aged between 2 and 18 years in the household do you take care of? *(numeric)*			
Child Measurements	**Child 1**	**Child 2**	**Child 3**
307. [Insert child's name] MUAC *(cm to one decimal point; 99.7= If the respondent refused; 88.8=not completed for other reason)*	☐☐.☐	☐☐.☐	☐☐.☐
308. [Insert child's name] Weight *(kg to two decimal points; 99.7= If the respondent refused; 88.8=not completed for other reason)*	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐
309. [Insert child's name] Length / Height *(cm to two decimal points; 99.7= If the respondent refused; 88.8=not completed for other reason)*	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐
310. Test child for Oedema *(1=yes, 0=no; 99.7= If the respondent refused; 88.8=not completed for other reason)* *Note for enumerator: test for oedema on the child*			

Child General Health	**Child 1**	**Child 2**	**Child 3**
311. [Insert child's name] Birth weight *(kg to two decimal points; 99.8=don't know)*	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐
311b. How was this confirmed? *(1=by consulting records; 2= recall/using a calendar of events, 3= other (specify))*			
312. Has [insert child's name] had their haemoglobin measured in the last **6 months**? *(1=yes and 0=no)* *Note for enumerators: If the child is younger than 6 months, ask how many times since birth.*	⌊⌋ If yes, go to Q312b if no, go to Q313.	⌊⌋ If yes, go to Q312b if no, go to Q313.	⌊⌋ If yes, go to Q312b if no, go to Q313.
312b. **If yes to Q312**, what was the value? *(to one decimal point)*	☐☐.☐	☐☐.☐	☐☐.☐
312c. How was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			

313. Does [insert child's name] suffer from any chronic diseases, such as asthma or AIDS? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q313b, if no, go to Q314.	⌊___⌋ If yes, go to Q313b, if no, go to Q314.	⌊___⌋ If yes, go to Q313b, if no, go to Q314.
313b. **If yes to Q313**, which one? *(multiple selection allowed)* *(1=HIV/AIDS; 2=Diabetes; 3=Cancer; 4=Heart Disease; 5=Arthritis; 6=Allergic disease e.g. Asthma; 7= Other(Specify))*			
313c. Does the child take any medication for this? *(1=yes and 0=no)*			
314. How many times has [insert child's name] been taken for a **routine medical check-up** at a health facility in the last **6 months**? *(numeric)* *Note for enumerators: If the child is younger than 6 months, ask how many times since birth.*			
315. How many times has [insert child's name] been taken for to a health facility due to **illness** in the last **6 months**? *(numeric)* *Note for enumerators: Ask how many times since birth if the child is younger than 6 months.*			
316. Does anyone else look after [insert child's name] for periods of **more than an hour** a day on a regular basis? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q316b, if no, go to Q317.	⌊___⌋ If yes, go to Q316b, if no, go to Q317.	⌊___⌋ If yes, go to Q316b, if no, go to Q317.
316b. **If yes to Q316**, what is their relationship to [insert child's name]? *(1=mother, 2= caregiver, 3= father, 4=brother or sister, 5=cousin, 6= aunt or uncle, 7=grandparent, 8=other(specify))*			
316c. **If yes to Q316**, is this person a member of this household and have had their information collected in the household roster? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q316d, if no, go to Q317.	⌊___⌋ If yes, go to Q316d, if no, go to Q317.	⌊___⌋ If yes, go to Q316d, if no, go to Q317.
316d. **If yes to Q316c, (i**f this person is a household member), write their full name. *(text)*			
317. Has [insert child's name] shown symptoms of diarrhoea in the **last 2 weeks (14 days)** (i.e. watery stools at **least three times** in a period of **24 hours**)? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q317b, if no, go to Q317d.	⌊___⌋ If yes, go to Q317b, if no, go to Q317d.	⌊___⌋ If yes, go to Q317b, if no, go to Q317d.
317b. **If yes to Q317**, has [insert child's name] recovered? *(1=yes and 0=no)*			
317c. **If yes to Q317,** was he/she given any of the following			

to drink at any time since he/she started having diarrhoea? *(multiple selection allowed) (1= oral rehydration salts (ORS) and zinc, 2= ORS liquid, 3= homemade fluid, 4= other (specify))*			
317d. In the past **6 months**, how many times has [insert child's name] shown symptoms of diarrhoea? *(numeric)*			
318. Has [insert child's name] had a combination of a cough, fever and fast breathing in the **last 2 weeks (14 days)**? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q318b, if no, go to Q318d.	⌊___⌋ If yes, go to Q318b, if no, go to Q318d.	⌊___⌋ If yes, go to Q318b, if no, go to Q318d.
318b. **If yes to Q318**, has [insert child's name] recovered? *(1=yes and 0=no)*			
318c. **If yes to Q318**, was [insert child's name] treated with medicine? *(1=yes and 0=no)*			
318d. In the **past 6 months**, how many times has [insert child's name] had a combination of a cough, fever and fast breathing? *(numeric)*			
319. Has [insert child's name] had malaria in the last **2 weeks (14 days)**? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q319b, if no, go to Q319e.	⌊___⌋ If yes, go to Q319b, if no, go to Q319e.	⌊___⌋ If yes, go to Q319b, if no, go to Q319e.
319b. **If yes to Q319,** was this confirmed at a medical facility? *(1=yes and 0=no)*			
319c. **If yes to Q319,** has [insert child's name] recovered? *(1=yes and 0=no)*			
319d. **If yes to Q319,** was the malaria treated with medicine? *(1=yes and 0=no)*			
319e. In the **past 6 months**, how many times has [insert child's name] had malaria? *(numeric)*			
320. Has [insert child's name] had a fever in the **last 2 weeks (14 days)**? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q320b, if no, go to Q320d.	⌊___⌋ If yes, go to Q320b, if no, go to Q320d.	⌊___⌋ If yes, go to Q320b, if no, go to Q320d.
320b. **If yes to Q320,** has [insert child's name] recovered? *(1=yes and 0=no)*			
320c. **If yes to Q320,** was [insert child's name] treated with medicine? *(1=yes and 0=no)*			
320d. In the **past 6 months**, how many times has [insert child's name] had fever? *(numeric)*			
321. Does [insert child's name] use diapers? *(1=yes and 0=no)*	⌊___⌋	⌊___⌋	⌊___⌋

	If yes, go to Q321b, if no, go to Q322.	If yes, go to Q321b, if no, go to Q322.	If yes, go to Q321b, if no, go to Q322.
321b. **If yes to Q321,** how much do you spend on them **each month (30 days)?** *(numeric)*			
322. Do you purchase vitamins or supplements for [insert child's name], for example fish oil? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q322b, if no, go to Q323.	⌊___⌋ If yes, go to Q322b, if no, go to Q323	⌊___⌋ If yes, go to Q322b, if no, go to Q323
322b. **If yes to Q322**, how much do you spend on them **each month (30 days)**? *(numeric)*			

Child vaccinations	**Child 1**	**Child 2**	**Child 3**
323. Does [insert child's name] have an immunization card (Mother and Child Health Booklet)? *(1=yes and 0=no)* *Note for enumerators: ask to see it and if they have one, fill in the questions that follow as you refer to the card and ask the mother to clarify where you are not sure.*	⌊___⌋ If yes, go to Q324, if no, go to Q323b.	⌊___⌋ If yes, go to Q324, if no, go to Q323b.	⌊___⌋ If yes, go to Q324, if no, go to Q323b.
323b. **If no to Q323**, are the child's vaccinations recorded somewhere? *(1=yes and 0=no)*			
324. Has [insert child's name] ever received any vaccination drops in the mouth for polio? *(1=yes and 0=no)* *Note to enumerator: Inform the caregiver that at times this vaccine is given during door to door campaigns*	⌊___⌋ If yes, go to Q324b, if no, go to Q325.	⌊___⌋ If yes, go to Q324b, if no, go to Q325.	⌊___⌋ If yes, go to Q324b, if no, go to Q325.
324b. **If yes to Q324,** was the first polio vaccine received in the first two weeks after birth? *(1=yes and 0=no)*			
324c. **If yes to Q324**, how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			
324d. **If yes to Q324**, how many times did [insert child's name] receive the polio vaccine? *(numeric)* *Note to enumerator: Inform the caregiver that at times this vaccine is given during door to door campaigns*			
325. Has [insert child's name] ever received a BCG vaccination against tuberculosis – that is, an injection in the arm or shoulder that usually causes a scar? *(1=yes and 0=no*)	⌊___⌋ If yes, go to Q325b, if no, go to Q326.	⌊___⌋ If yes, go to Q325b, if no, go to Q326.	⌊___⌋ If yes, go to Q325b, if no, go to Q326.
325b. **If yes to Q325**, how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			

326. Has [insert child's name] received a Hepatitis B Vaccination which is injected into the thigh muscle? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q326b, if no, go to Q327.	⌊___⌋ If yes, go to Q326b, if no, go to Q327.	⌊___⌋ If yes, go to Q326b, if no, go to Q327.
326b. **If yes to Q326**, how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			
327. Has [insert child's name] ever received a DPT vaccination – that is, an injection in the right thigh to prevent him/her from getting tetanus, whooping cough, and diphtheria? *Probe by indicating that DPT vaccination is sometimes given at the same time as Polio. (1=yes and 0=no)*	⌊___⌋ If yes, go to Q327b, if no, go to Q328.	⌊___⌋ If yes, go to Q327b, if no, go to Q328.	⌊___⌋ If yes, go to Q327b, if no, go to Q328.
327b. **If yes to Q327**, how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			
327c. **If yes to Q327**, how many times did [insert child's name] receive the DPT vaccine? *(numeric)*			
328. Has [insert child's name] ever received a pneumococcal vaccination – that is, an injection in the left thigh to prevent him/her from getting pneumonia? *Probe by indicating that pneumococcal vaccination is sometimes given at the same time as Polio*. *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q328b, if no, go to Q329.	⌊___⌋ If yes, go to Q328b, if no, go to Q329.	⌊___⌋ If yes, go to Q328b, if no, go to Q329.
328b. **If yes to Q328,** how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			
328c. **If yes to Q328,** how many times did [insert child's name] receive the pneumococcal vaccine? *(numeric)*			
329. Has [insert child's name] received Vitamin A (administered at **6 months**)? *(1=yes and 0=no)* *Note to enumerator: Inform the caregiver that at times this is given during door to door campaigns*	⌊___⌋ If yes, go to Q329b, if no, go to Q330.	⌊___⌋ If yes, go to Q329b, if no, go to Q330.	⌊___⌋ If yes, go to Q329b, if no, go to Q330.
329b. **If yes to Q329**, how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			
330. Has [insert child's name] received the rotavirus vaccine? *Note to enumerator: Inform the caregiver that vaccines are oral (taken by mouth and swallowed)* (*1=yes and 0=no)*	⌊___⌋ If yes, go to Q330b, if no, go to Q331.	⌊___⌋ If yes, go to Q330b, if no, go to Q331.	⌊___⌋ If yes, go to Q330b, if no, go to Q331.
330b. **If yes to Q330**, how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of*			

event, 3= other (specify))			
331. ***Note for enumerator: This vaccine is given to children who are above 6 months.*** Has [insert child's name] ever received a measles injection (or an MMR or MR) – that is, a shot in the arm at the age of 9 months or older - to prevent him/her from getting measles? *(1=yes, 0=no, 2=child is less than 6 months)*	⌊___⌋ If yes, go to Q331b, If 2=child is less than 6 months, go to Q331b, if no, go to Q332.	⌊___⌋ If yes, go to Q331b, If 2=child is less than 6 months, go to Q331b, if no, go to Q332.	⌊___⌋ If yes, go to Q331b, If 2=child is less than 6 months, go to Q331b, if no, go to Q332.
331b. **If yes to Q331,** how was this confirmed? *(1=by consulting records; 2= recall/using a calendar of event, 3= other (specify))*			

Feeding practices	**Child 1**	**Child 2**	**Child 3**
332. Was the child breastfed at birth? *(1=yes, 0=no, 998=don't know)*	⌊___⌋ If yes, go to Q332c, if no, go to Q332b if don't know, go to 333	⌊___⌋ If yes, go to Q332c, if no, go to Q332b if don't know, go to 333	⌊___⌋ If yes, go to Q332c, if no, go to Q332b if don't know, go to 333
332b. **If no to Q332**, why? *(1= no milk, 2= the child didn't like it, 3= the milk was not sufficient, 4= other (specify))*	⌊___⌋ Go to Q333	⌊___⌋ Go to Q333	⌊___⌋ Go to Q333
332c. How long after birth was [insert child's name] first put to the breast? *(hours, 000=if immediately after birth; 1=if less than 1 hour)*			
333. Has [insert child's name] consumed breast milk in the **last 7 days?** *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q333d, if no, go to Q333b.	⌊___⌋ If yes, go to Q333d, if no, go to Q333b.	⌊___⌋ If yes, go to Q333d, if no, go to Q333b.
333b**. If no to Q333,** why? *(1= no milk, 2= the child doesn't like it, 3= the milk is not sufficient, 4= they have been weaned 4= other (specify))*	⌊___⌋ Go to Q333c.	⌊___⌋ Go to Q333c.	⌊___⌋ Go to Q333c.
333c. Has the child ever consumed breast milk? *(1=yes and 0=no)*	⌊___⌋ If yes, go to 333d, if no, go to Q335.	⌊___⌋ If yes, go to 333d, if no, go to Q335.	⌊___⌋ If yes, go to 333d, if no, go to Q335.
333d. **If yes to Q333**, how many times was [insert child's name] breastfed **in the last 24 hours** (include day and night)? *(numeric)*			
334. Is [insert child's name**] only** fed breast milk (in other words takes no other milk or food source)? *(1=yes and 0=no)*	⌊___⌋ If yes go to next part of section: Caregiver details Q349. If no, go to Q335.	⌊___⌋ If yes go to next part of section: Caregiver details. Q349. If no, go to Q335.	⌊___⌋ If yes go to next part of section: Caregiver details. Q349. If no, go to Q335.

335. Is [insert child's name] fed infant formula? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q335b, if no, go to Q337.	⌊___⌋ If yes, go to Q335b, if no, go to Q337.	⌊___⌋ If yes, go to Q335b, if no, go to Q337.
335b. **If yes to Q335**, how much do you spend on infant formula **each month (30 days)**? *(Ksh)*			
336. **If yes to Q335**, how many times was [insert child's name] fed infant formula **in the last 24 hours** (include day and night)? *(numeric)*			
337. Is [insert child's name] fed with alternative milk (any other milk that is not breast milk)? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q337b, if no, go to Q339.	⌊___⌋ If yes, go to Q337b, if no, go to Q339.	⌊___⌋ If yes, go to Q337b, if no, go to Q339.
337b. **If yes to Q337**, which milk? *(multiple selection allowed) (1=cow milk, 2=goat milk, 3= Camel milk, 4= Powder milk 5=other (specify))*			
338. How many times was [insert child's name] fed with alternative sources of milk in the **last 24 Hours** (include day and night)? *(numeric)*			
339. Is [insert child's name] fed with a bottle? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q339b, if no, go to Q341.	⌊___⌋ If yes, go to Q339b, if no, go to Q341.	⌊___⌋ If yes, go to Q339b, if no, go to Q341.
339b. **If yes to Q339**, do you sterilize the nipple? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q339c, if no, go to Q340.	⌊___⌋ If yes, go to Q339c, if no, go to Q340.	⌊___⌋ If yes, go to Q339c, if no, go to Q340.
339c. **If yes to Q339b,** how do you sterilize it? *(1=boiling water, 2=sterilizing tablets, 3=other(specify))*			
340. How many times was [insert child's name] fed with a bottle in the **last 24 hours** (include day and night)? *(numeric)*			
341. Is [insert child's name] fed any food (soft, semi-solid or solid) (excluding milk or formula)? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q341b, if no go to next part of section: Caregiver details Q349.	⌊___⌋ If yes, go to Q341b, if no go to next part of section: Caregiver details Q349.	⌊___⌋ If yes, go to Q341b, if no go to next part of section: Caregiver details Q349.
341b. **If yes to Q341,** at what age (months) did you start			

weaning [insert child's name] (giving them food)? *(number of months)*			
342. Is [insert child's name] fed any commercial fortified baby food e.g. Cerelac or other iron-fortified baby food? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q342b, if no, go to Q344.	⌊___⌋ If yes, go to Q342b, if no, go to Q344.	⌊___⌋ If yes, go to Q342b, if no, go to Q344.
342b. **If yes to Q342**, how much do you spend on commercial fortified baby food **each month (30 days)**?*(Ksh)*			
343. **H**ow many times was [insert child's name] fed solid, semi-solid or soft foods, including commercial fortified baby food in **the last 24 hours** (include day and night)? *(numeric)*			

344. Please describe the foods or liquids (milk, semi-solid, solid or soft foods) that [insert child's name] ate or drank in **the last 24 hours** during the day and night. Start with the first food or drink of the morning.
Note for enumerator: *Write down on your NOTE BOOK all foods and liquids mentioned. When composite dishes are mentioned, ask for the list of ingredients. When the respondent has finished, probe for meals and snacks not mentioned and check with the frequencies of milk and food above (milk, semi-solid, solid or soft foods).*

Child					
Breakfast	Snack	Lunch	Snack	Dinner	Snack

*345. When the respondent recall is complete, fill in the food groups on the **24-hour recall** based on the information recorded above. For any food groups not mentioned, ask the respondent if a food item from this group was consumed or if the child ate any food outside of the house. Then ask the respondent **how many days in the past 7 days**, did the child consume each of the food items listed in the table.*

Food Group	Examples	**Child 1**		**Child 2**		**Child 3**	
		Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q344 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the child consume each food group? *(days)* ***Note to enumerator:*** *this item may have not been consumed in the last 24 hours*	Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q344 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the child consume each food group? *(days)*	Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q344 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the child consume each food group? *(days)*
Cereals (or foods made from these e.g. bread, noodles, porridge or	Bread						
	Noodles						
	Ugali						

other grain products, ugali)	Porridge						
	Millet						
	Rice						
	Wheat						
	Sorghum						
	Other grains						
White roots and tubers	White potatoes (including irish)						
	White yam						
	White cassava						
	Other foods made from roots						
Vitamin A rich vegetables and tubers	Pumpkin						
	Carrot						
	Sweet potato						
	Red sweet pepper						
	Other vegetables that are orange inside						
Dark green leafy vegetables	Cassava leaves						
	Kale						
	Spinach						
	Other dark green leafy vegetables						
Other vegetables	Tomato						
	Onion						
	Eggplant						
	Cabbage						
	Other vegetables						
Vitamin A rich fruits	Mango						
	Papaw						
	Watermelon						
	Other vitamin A rich fruits						

Other fruits	Avocado						
	Bananas						
	Oranges						
	Wild fruits						
	Other fruits						
	100 percent fruit juice made from these						
Organ meat	Liver						
	Kidney						
	Heart						
	Matumbo						
	Other organ meats						
Flesh meats	Goat						
	Beef						
	Pork						
	Sheep/Lamb						
	Rabbit						
	Chicken						
	Duck						
	Other birds or meat						
Eggs	Chicken eggs						
	Duck eggs						
	Other eggs						
Fish and seafood	Fresh fish						
	Dried fish						
Legumes, nuts and seeds	Dried beans						
	Peas (Chickpeas, Cowpea, green peas)						
	Lentils						
	Nuts						

	Seeds						
Milk and milk products	Milk						
	Yogurt						
	Cheese						
	Other milk products						
Oils and fats	Oil						
	Fats						
	Butter						
	Margarine (Blueband, Prestige etc.)						

	Child 1	Child 2	Child 3
346. Total number of meals **in the last 24 hours**. *(numeric) Note for enumerator: confirm total number makes sense with answers provided in Q333d, Q336, Q338, Q340, Q343 and Q344 as includes breastfed and other milk sources*			
347. Were any meals missed in **the last 24 hours**? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q347b, if no, go to Q348.	⌊___⌋ If yes, go to Q347b, if no, go to Q348.	⌊___⌋ If yes, go to Q347b, if no, go to Q348.
347b. **If yes to Q347**, reason for missing meals **in the last 24 hours** (*1= lack of water/charcoal/firewood to cook, 2= lack of food, 3= child's lack of appetite, 4= other (specify))*			
348. In the last **7 days**, has [insert child's name] missed any meals? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q348b, if no, go to Section 3: Caregiver	⌊___⌋ If yes, go to Q348b, if no, go to Section 3: Caregiver	⌊___⌋ If yes, go to Q348b, if no, go to Section 3: Caregiver
348b. **If yes to Q348**, how many days in the last 7 days has [insert child's name] missed a meal? *(numeric)*			

Section 3: Caregiver of a child aged 0 to 24 months

Note for enumerator: If the caregiver of the child is the same for all children, fill in just 1 column. If the caregivers are different, fill the respective columns depending on which child they care for.

3.1 Is the caregiver the same for multiple children aged 0 to 24 months? *(1=yes and 0=no)*	
3.1b. If yes, for how many children aged 0 to 24 months?	

Caregiver Measurements	**Caregiver of Child 1**	**Caregiver of Child 2**	**Caregiver of Child 3**
349. Name of Caregiver *(text)*			
349a. Sex of Caregiver. *(1=male and 2=female)*			
349b. MUAC of Caregiver *(cm to one decimal point; 99.7= If the respondent refused; 88.8=not completed for other reason)*	☐☐.☐	☐☐.☐	☐☐.☐
349c. **If Q349** is not completed due to another reason (answer to Q349=88.8), what was the reason? *(text)*			

Caregiver Information	**Caregiver of Child 1**	**Caregiver of Child 2**	**Caregiver of Child 3**
350. Do you take any vitamins or supplements for example fish oil? *(1=yes and 0=no)*	⌊_⌋ If yes, go to Q350b, if no, go to Q351.	⌊_⌋ If yes, go to Q350b, if no, go to Q351.	⌊_⌋ If yes, go to Q350b, if no, go to Q351.
350b. **If yes to Q350**, please provide details. *(text)*			
351. **On a scale of 1-5** how do you rate this household's food availability stress? *(1= never worried about getting enough food, 2= rarely worried about getting enough food, 3= sometimes worried about getting enough food, 4= often worried about getting enough food, 5= always worried about how to get enough food)*			

352. **On a scale of 1-5** how do you rate your own level of stress as a caregiver? *(1= never worried, 2= rarely worried, 3= sometimes worried, 4= often worried, 5= always worried)*			
353. Do you worry about your future? *(1=yes and 0=no)*			
354. **On a scale of 1-5,** how do you rate your level of happiness? *(1= never happy, 2= rarely happy, 3= sometimes happy, 4= often happy, 5= always happy)*			
355. On average, how many hours do you spend looking after and caring for children **each day (24 hours)**? *(numeric)*			
356. Do you feel this is sufficient time for you to address their health care and nutritional needs? *(1=yes and 0=no)*			
357. On average**, how many hours per day** do you spend on house chores but not in CARE roles (e.g. cooking, fetching water and firewood, cleaning, etc.)? *(numeric)*			
358. On average, **how many hours per day** do you spend on paid work? *(numeric)*			
359. Do you feel you have sufficient resources (time, money etc.) to care for the children you care for? *(1=yes and 0=no)*	⌊_____⌋ If yes, go to Q360, if no, go to Q359b.	⌊_____⌋ If yes, go to Q360, if no, go to Q359b.	⌊_____⌋ If yes, go to Q360, if no, go to Q359b.
359b. **If no to Q359**, what is needed? *(multiple selection allowed) (1= more time, 2= more money for food and care, 3= medicines for the child, 4= other (specify))*			

360. Please describe the foods and liquids that you ate or drank **in the last 24 hours** during the day and night. Start with the first food or drink of the morning.
Note for enumerator: Write down all foods and liquids mentioned in your NOTE BOOK. When composite dishes are mentioned, ask for the list of ingredients. When the respondent has finished, probe for meals and snacks not mentioned.

Caregiver					
Breakfast	Snack	Lunch	Snack	Dinner	Snack

*361. When the respondent recall is complete, fill in the food groups on the **24-hour recall** based on the information recorded above. For any food groups not mentioned, ask the respondent if a food item from this group was consumed or if the caregiver ate any food outside of the house. Then ask the respondent **how many days in the past 7 days**, did the caregiver consume each of the food items listed in the table.*

Food Group	Examples	**Caregiver of Child 1**		**Caregiver of Child 2**		**Caregiver of Child 3**	
		Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q360 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the caregiver consume each food group? *(days)* ***Note to enumerator:*** *this item may have not been consumed in the last 24 hours*	Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q360 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the caregiver consume each food group? *(days)*	Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q360 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the caregiver consume each food group? *(days)*
Cereals (or foods made from these e.g. bread, noodles, porridge or other grain products, ugali)	Bread						
	Noodles						
	Ugali						
	Porridge						
	Millet						
	Rice						
	Wheat						
	Sorghum						
	Other grains						
White roots and tubers	White potatoes (including irish)						
	White yam						
	White cassava						
	Other foods made from roots						
Vitamin A rich vegetables and tubers	Pumpkin						
	Carrot						
	Sweet potato						
	Red sweet pepper						
	Other vegetables that are orange inside						

Dark green leafy vegetables	Cassava leaves						
	Kale						
	Spinach						
	Other dark green leafy vegetables						
Other vegetables	Tomato						
	Onion						
	Eggplant						
	Cabbage						
	Other vegetables						
Vitamin A rich fruits	Mango						
	Papaw						
	Watermelon						
	Other vitamin A rich fruits						
Other fruits	Avocado						
	Bananas						
	Oranges						
	Wild fruits						
	Other fruits						
	100 percent fruit juice made from these						
Organ meat	Liver						
	Kidney						
	Heart						
	Matumbo						
	Other organ meats						
Flesh meats	Goat						
	Beef						
	Pork						
	Sheep/Lamb						
	Rabbit						

	Chicken						
	Duck						
	Other birds or meat						
Eggs	Chicken eggs						
	Duck eggs						
	Other eggs						
Fish and seafood	Fresh fish						
	Dried fish						
Legumes, nuts and seeds	Dried beans						
	Peas (Chickpeas, Cowpea, green peas)						
	Lentils						
	Nut						
	Seeds						
Milk and milk products	Milk						
	Yogurt						
	Cheese						
	Other milk products						
*Oils a*nd fats	Oil						
	Fat						
	Butter						
	Margarine (Blueband, Prestige etc)						
Sweets	Sugar						
	Honey						
	Soda						
	Sweetened juice drinks						
	Cookies and cakes						
Spices, condiments, beverages	Spices (black pepper, salt, others)						

	Coffee/ tea						
	Other drinks						

	Caregiver of Child 1	Caregiver of Child 2	Caregiver of Child 3
362. Total number of meals **in the last 24 hours**. *(numeric) Note for enumerator: confirm total number makes sense with answer provided in Q360.*			
363. Were any meals missed **in the last 24 hours**? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q363b, if no, go to Q364	⌊__⌋ If yes, go to Q363b, if no, go to Q364	⌊__⌋ If yes, go to Q363b, if no, go to Q364
363b. **If yes**, reason for missing meals **in the last 24 hours** (*1= lack of water/charcoal/firewood to cook, 2= lack of food, 3= lack of appetite, 4= other (specify))*			
364. In the last **7 days**, have you missed any meals? (*1=yes and 0=no)*	⌊__⌋ If yes, go to Q364b, if no, go to Q365	⌊__⌋ If yes, go to Q364b, if no, go to Q365	⌊__⌋ If yes, go to Q364b, if no, go to Q365
364b. **If yes to Q364**, how many days did you miss a meal? *(numeric)*			
WASH Practices	**Caregiver of Child 1**	**Caregiver of Child 2**	**Caregiver of Child 3**
365. Do you wash your hands? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q365b, if no, go to Q370.	⌊__⌋ If yes, go to Q365b, If no, go to Q370.	⌊__⌋ If yes, go to Q365b, if no, go to Q370.
365b. **If yes to Q365,** what do you generally use to wash your hands? *(1=only water, 2=soap and water, 3=soap when I can afford it, 4= Traditional herb, 5=other (specify))*			
366. **In the last 24 hours** in which instances did you wash your hands? (answer for each question 366a-366e) *(1=yes and 0=no)*			
366a. After using the toilet			
366b. Before cooking.			
366c. Before eating			
366d. After taking children to the toilet			
366e. Other (specify			

367. Do you wash your hands after changing the child's diapers/nappie? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q367b, if no, go to Q368.	⌊__⌋ If yes, go to Q367b, if no, go to Q368.	⌊__⌋ If yes, go to Q367b, if no, go to Q368.
367b. **If yes to Q367**, what do you use to wash your hands after changing the child's diaper? *(1=only water, 2=soap and water, 3=soap when I can afford it, 4= Traditional herb, 5=other (specify))*			
368. Do you wash your hands before preparing food? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q368b, if no, go to Q369.	⌊__⌋ If yes, go to Q368b, if no, go to Q369.	⌊__⌋ If yes, go to Q368b, if no, go to Q369.
368b. **If yes to Q368,** what do you use to wash your hands before preparing food? *(1=only water, 2=soap and water, 3=soap when I can afford it, 4= Traditional herb, 5=other (specify)*			
369. Do you wash your hands before feeding the child? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q369b, if no, go to Q370.	⌊__⌋ If yes, go to Q369b, if no, go to Q370.	⌊__⌋ If yes, go to Q369b, if no, go to Q370.
369b. **If yes to Q369,** what do you use to wash your hands before feeding the child? *(1=only water, 2=soap and water, 3=soap when I can afford it, 4= Traditional herb, 5=other (specify)*			
370. How is the disposal of children's faeces mainly done? *(1=Child used toilet/latrine, 2= Put/rinsed into toilet or latrine, 3= Put/rinsed into drain or ditch, 4=Thrown into garbage, 5=Buried, 6=Left in the o*pen, 7=Other (specify))			

Healthcare Access	**Caregiver of Child 1**	**Caregiver of Child 2**	**Caregiver of Child 3**
371. What is the nearest health facility? *(1= public hospital, 2= health centre, 3= private health facility, 4=dispensary, 5=clinic, 6= other (specify))*			
371b. Where is this health facility? *Please give the village name (Text)*			
371c. How far is this health facility? *(km to two decimal points)*	□□.□□	□□.□□	□□.□□
371d. What mode of transport do you use to reach this facility? *(1=walking, 2=motorbike/bodaboda, 3=matatu, 4=other(specify))*			

371e. How much does it cost you for transport to reach this health facility? *(Ksh, 0 if walking)*			
372. How often do you visit this facility? *(1= daily, 2= weekly, 3= bi-weekly, 4= monthly, 5= every three months, 6= every six months, 7= yearly, 8= never)*	⌊__⌋ If 8=never, go to Q374.	⌊__⌋ If 8=never, go to Q374.	⌊__⌋ If 8=never, go to Q374.
373. What was the main purpose of your last visit to this health facility? *(1= routine medical check-up, 2= antenatal check-up, 3= illness, 4= other (specify)*			
374. How many times have you visited ANY health facility (public hospital, health centre, private health facility, dispensary, clinic) in the **last 30 days**? *(numeric)*			
374b. How many times have you visited ANY health facility in the **past 6 months**? *(numeric)*			
375. In the **past three months**, have you received any **nutrition**-related information **on the RADIO?** E.g. On how best to feed yourself and your child? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q375b, if no, go to Q376.	⌊__⌋ If yes, go to Q375b, if no, go to Q376.	⌊__⌋ If yes, go to Q375b, if no, go to Q376.
375b. **If yes to Q375**, do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q375c, if no, go to Q375d.	⌊__⌋ If yes, go to Q375c, if no, go to Q375d.	⌊__⌋ If yes, go to Q375c, if no, go to Q375d.
375c. **If yes to Q375b**, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q376.	1) 2) 3) Go to Q376.	1) 2) 3) Go to Q376.
375d. **If no to Q375b**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			
376. In the **past three months**, have you received any **nutrition**-related information from **ANY other SOURCE** (i.e. not the radio) on how best to feed yourself and your child? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q376b, if no, go to Q377.	⌊__⌋ If yes, go to Q376b, if no, go to Q377.	⌊__⌋ If yes, go to Q376b, if no, go to Q377.

376b. **If yes to Q376**, where did you hear about it? *(1= friends or family, 2= health facility, 3= Community Health Volunteer, 4= NGO (name), 5= other (specify))*			
376c. **If yes to Q376,** do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q376d, if no, go to Q376e	⌊___⌋ If yes, go to Q376d, if no, go to Q376e	⌊___⌋ If yes, go to Q376d, if no, go to Q376e
376d. **If yes to Q376c**, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q377.	1) 2) 3) Go to Q377.	1) 2) 3) Go to Q377.
376e. **If no to Q376c**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			
377. In the **past three months**, have you received any **health**-related information **on the RADIO**? E.g. hand-washing, importance of vaccinations? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q377b, if no, go to Q378.	⌊___⌋ If yes, go to Q377b, if no, go to Q378.	⌊___⌋ If yes, go to Q377b, if no, go to Q378.
377b. **If yes to Q377**, do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q377c, if no, go to Q377d.	⌊___⌋ If yes, go to Q377c, if no, go to Q377d.	⌊___⌋ If yes, go to Q377c, if no, go to Q377d.
377c. **If yes to Q377b**, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q378.	1) 2) 3) Go to Q378.	1) 2) 3) Go to Q378.
377d. **If no to Q377b**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			

378. In the **past three months**, have you received any **health**-related information from **ANY other SOURCE** (i.e. not the radio)? E.g. hand-washing, importance of vaccinations? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q378b, if no, go to Q379.	⌊___⌋ If yes, go to Q378b, if no, go to Q379.	⌊___⌋ If yes, go to Q378b, if no, go to Q379.
378b. **If yes to Q378**, where did you hear about it? *(1= friends or family, 2= health facility, 3= Community Health Volunteer, 4= NGO (name), 5= other (specify))*			
378c**. If yes to Q378**, do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q378d, if no, go to Q378e.	⌊___⌋ If yes, go to Q378d, if no, go to Q378e.	⌊___⌋ If yes, go to Q378d, if no, go to Q378e.
378d. **If yes to Q378c**, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q379.	1) 2) 3) Go to Q379.	1) 2) 3) Go to Q379.
378e. **If no to Q378c**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			

Additional Information on Caregiver	**Caregiver of Child 1**	**Caregiver of Child 2**	**Caregiver of Child 3**
379. Religion of Caregiver. *(1=Christian; 2=Jehovah Witness; 3=Muslim; 4=Hindu; 5=Pagan; 6=Kavonokya; 7=Other; 998=Don't know)*			
380. Is the main caregiver employed? *(1=yes and 0=no) (Note for enumerator: check with HH roster)*	⌊___⌋ If yes, go to Q380b, if no, go to Q381	⌊___⌋ If yes, go o Q380b, if no, go to Q381	⌊___⌋ If yes, go o Q380b, if no, go to Q381
380b. **If yes to Q380,** how long have you been employed for? *(years; 1= if less than 1 year)*			
380c. **If yes to Q380,** are you the main breadwinner in this household? *(1=yes and 0=no)*			
380d. What is your monthly (30 days) income? *(Ksh)*			

Note to enumerator: Confirm that the numbers in the table below match the number in Q123 in Section 1

381. Number of children up to and including 24 months whose information has been collected. (numeric)	
382. Number of caregivers interviewed. (numeric)	Go to Section 4: Pregnant women.

Section 4: Pregnant Women

Note to enumerator: Kindly request to interview all the pregnant women in the household including the caregivers who are pregnant**.**

Information on pregnancy and general health	**Pregnant Woman 1**	**Pregnant Woman 2**	**Pregnant Woman 3**
401. Name of Pregnant woman *(text)*			
402. Have you had your haemoglobin measured in the last **6 months**? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q402b, if no, go to Q403.	⌊__⌋ If yes, go to Q402b, if no, go to Q403.	⌊__⌋ If yes, go to Q402b, if no, go to Q403.
402b. **If yes to Q401**, when was the last time you had your haemoglobin measured? *(1= more than one year ago, 2= less than 6 months ago)*	⌊__⌋ If 2= less than 6 months ago, go to Q402c, if 1= more than one year ago, go to Q403.	⌊__⌋ If 2= less than 6 months ago, go to Q402c, if 1= more than one year ago, go to Q403.	⌊__⌋ If 2= less than 6 months ago, go to Q402c, if 1= more than one year ago, go to Q403.
402c. What was the value? *(to one decimal point)*	□□.□	□□.□	□□.□
402d. How was this confirmed? *(1=by consulting records; 2= recall, 3= other (specify))*			
403. In what trimester are you? *(1= first (1-3 months), 2= second (4-6 months), 3= third (7-9 months))*			
403b. Weeks into pregnancy if known *(numeric, 998 = don't know)*			
404. How many times have you visited a health facility for an antenatal care (ANC) visit? *(numeric)*			
404b. How would you rate the assistance you received? *(1= good, 2= average, 3= poor)*			
405. Where did you go for most of your visits? *(1= public hospital, 2= health centre, 3= private health facility, 4= dispensary, 5=clinic, 6= other (specify))*			
406. Have you had any complications so far? *(1=yes and 0=no)*	⌊__⌋ If yes, go to Q406b, if no, go to Q407.	⌊__⌋ If yes, go to Q406b, if no, go to Q407.	⌊__⌋ If yes, go to Q406b, if no, go to Q407.

406b. **If yes to Q406**, please explain. ***(multiple selection allowed)*** *(1= Anemia, 2= Urinary Tract Infections, 3= Mental Health Conditions such as a low or sad mood; Loss of interest in fun activities; Changes in appetite, sleep, and energy; Problems thinking, concentrating, and making decisions; Feelings of worthlessness, shame, or guilt; Thoughts that life is not worth living. 4= Hypertension (High Blood Pressure); 5= Gestational Diabetes Mellitus (GDM); 6= Obesity and Weight Gain; 7= Infections; 8= Hyperemesis Gravidarum, 9=Other(Specify))*			
407. Have you received any vaccinations since you got pregnant? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q407b, if no, go to Q408.	⌊___⌋ If yes, go to Q407b, if no, go to Q408.	⌊___⌋ If yes, go to Q407b, if no, go to Q408.
407b. **If yes to Q407**, which ones? *(1=Tetanus, diphtheria, acellular pertussis (Tdap); 2=Influenza (flu); 3=Hepatitis A; 4=Hepatitis B; 5=Poliomyelitis; 6=Pneumococcus; 7=other(specify))*			
408. Do you take any vitamins or supplements such as fish oil or calcium? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q408b, if no, go to Q409.	⌊___⌋ If yes, go to Q408b, if no, go to Q409.	⌊___⌋ If yes, go to Q408b, if no, go to Q409.
408b. **If yes to Q408**, please provide details. *(text)*			
409. Do you consume iron tablets or Iron-Folic Acid Supplementation (IFAS)? *(1=yes and 0=no)*			
410. Have you taken any medication since the beginning of your pregnancy? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q410b, if no, go to Q411.	⌊___⌋ If yes, go to Q410b, if no, go to Q411.	⌊___⌋ If yes, go to Q410b, if no, go to Q411.
410b. **If yes to Q410**, please specify. *(text)*			
411. Have you been doing any physically demanding work *(e.g.* carrying heavy loads, fetching water) during pregnancy? *(1=yes and 0=no)*			

412. Do you engage or have you engaged in any of the following behaviours since discovering you were pregnant? (*multiple selection allowed)* *(1= smoking, 2= drinking alcohol, 3= taking drugs or other illegal substances, 4= none of the above)*			
413. What is the name of the father to the child you are expecting? *(text)*			
413b. Does he live in this household and his details collected in the household roster? *(1=yes, 0=no, 2=passed away)*	⌊___⌋ If yes, go to Q414, If 2=passed away, go to Q414, if no, go to Q413c.	⌊___⌋ If yes, go to Q414, If 2=passed away, go to Q414, if no, go to Q413c.	⌊___⌋ If yes, go to Q414, If 2=passed away, go to Q414, if no, go to Q413c.
413c. **If no to Q413b**, age of the father *(completed years)*			
413d. **If no to Q413b**, Educational level *(1= primary, 2=secondary, 3=tertiary, 4= none)*			
413e. How often does the father visit you? *(1= daily, 2= weekly, 3= bi-weekly, 4= monthly, 5= every three months, 6= every six months, 7= yearly, 8= never)*			
413f. Will he be providing you with any monetary support for your child? *(1=yes, 0=no, 998=don't know)*			
414. Is this your first pregnancy? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q419, if no, go to Q414b.	⌊___⌋ If yes, go to Q419, if no, go to Q414b.	⌊___⌋ If yes, go to Q419, if no, go to Q414b.
414b. **If no to Q414**, how many other pregnancies that went to term (gave birth) did you have? *(numeric)*			
415. **If no to Q414,** did you give birth prematurely in any of your previous pregnancies? *(1=yes and 0=no)*			
416. **If no to Q414,** did you have any miscarriages? *(1=yes and 0=no)*			
417. **If no to Q414,** where did you deliver your last baby? *(1=home and 2= hospital)*			
418. **If no to Q414,** was your last birth assisted by medical personnel? *(1=yes and 0=no)*			

419. Do you feel you have sufficient resources (time and money) to care for the child once he/she is born? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q420, if no, go to Q419b.	⌊___⌋ If yes, go to Q420, if no, go to Q419b.	⌊___⌋ If yes, go to Q420, if no, go to Q419b.
419b. **If no to Q419**, what is needed? *(1= more time, 2= more money for food and care, 3= medicines for the child, 4= other (specify))*			
420. Do you worry about the future? *(1=yes and 0=no)*			
421. On a scale of 1-5, how do you rate your level of happiness? *(1= never happy, 2= rarely happy, 3= sometimes happy, 4= often happy, 5= always happy)*			
Details on the Pregnant Woman	**Pregnant Woman 1**	**Pregnant Woman 2**	**Pregnant Woman 2**
422. Has the pregnant woman responding been interviewed as the caregiver in section 3? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q440, if no, go to Q423.	⌊___⌋ If yes, go to Q440, if no, go to Q423.	⌊___⌋ If yes, go to Q440, if no, go to Q423.
423.MUAC of pregnant woman *(cm to one decimal point; 99.7= If the respondent refused; 88.8=not completed for other reason)*	☐☐.☐	☐☐.☐	☐☐.☐

*424. Please describe the foods and liquids that you ate or drank **in the last 24 hours** during the day and night. Start with the first food or drink of the morning.*
Note for enumerator: Write down all foods and drinks mentioned in your NOTE BOOK. When composite dishes are mentioned, ask for the list of ingredients. When the respondent has finished, probe for meals and snacks not mentioned.

Pregnant Woman					
Breakfast	Snack	Lunch	Snack	Dinner	Snack

*425. When the respondent recall is complete, fill in the food groups on the **24-hour recall** based on the information recorded above. For any food groups not mentioned, ask the respondent if a food item from this group was consumed or if the pregnant woman ate any food outside of the house. Then ask the respondent **how many days in the past 7 days**, did the pregnant woman consume each of the food items listed in the table.*

Food Group	Examples	**Pregnant Woman 1**		**Pregnant Woman 2**		**Pregnant Woman 3**	
		Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q424 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the pregnant woman consume each food group? *(days)* ***Note to enumerator:*** *this item may have not been consumed in the last 24 hours*	Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q424 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the pregnant woman consume each food group? *(days)* ***Note to enumerator:*** *this item may have not been consumed in the last 24 hours*	Consumed in the **PAST 24 HRS** *(1=yes and 0=no)* ***Note to enumerator: The information collected in Q424 is to be filled in this column ONLY.***	In the **PAST 7 DAYS**, how many days did the pregnant woman consume each food group? *(days)* ***Note to enumerator:*** *this item may have not been consumed in the last 24 hours*
Cereals (or foods made from these e.g. bread, noodles, porridge or other grain products, ugali)	Bread						
	Noodles						
	Ugali						
	Porridge						
	Millet						
	Rice						
	Wheat						
	Sorghum						
	Other grains						
White roots and	White potatoes						

tubers	(including irish)						
	White yam						
	White cassava						
	Other foods made from roots						
Vitamin A rich vegetables and tubers	Pumpkin						
	Carrot						
	Sweet potato						
	Red sweet pepper						
	Other vegetables that are orange inside						
Dark green leafy vegetables	Cassava leaves						
	Kale						
	Spinach						
	Other dark green leafy vegetables						
Other vegetables	Tomato						
	Onion						
	Eggplant						
	Cabbage						
	Other vegetables						
Vitamin A rich fruits	Mango						
	Papaw						
	Watermelon						
	Other vitamin A rich fruits						
Other fruits	Avocado						
	Bananas						

	Oranges						
	Wild fruits						
	Other fruits						
	100 percent fruit juice made from these						
Organ meat	Liver						
	Kidney						
	Heart						
	Matumbo						
	Other organ meats						
Flesh meats	Goat						
	Beef						
	Pork						
	Sheep/Lamb						
	Rabbit						
	Chicken						
	Duck						
	Other birds or meat						
Eggs	Chicken eggs						
	Duck eggs						
	Other eggs						
Fish and seafood	Fresh fish						
	Dried fish						
Legumes, nuts	Dried beans						

and seeds	Peas (Chickpeas, Cowpea, green peas)						
	Lentils						
	Nut						
	Seeds						
Milk and milk products	Milk						
	Yogurt						
	Cheese						
	Other milk products						
Oils and fats	Oil						
	Fats						
	Butter						
	Margarine (Blueband, Prestige etc.)						
Sweets	Sugar						
	Honey						
	Soda						
	Sweetened juice drinks						
	Cookies and cakes						
Spices, condiments, beverages	Spices (black pepper, salt, others)						
	Coffee/ tea						
	Other drinks						

	Pregnant Woman 1	Pregnant Woman 2	Pregnant Woman 3
426. Total number of meals **in the last 24 hours**. *(numeric) Note for enumerator: confirm total number makes sense with answers provided for Q424.*			
427. Were any meals missed **in the last 24 hours**? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q427b, if no, go to Q428.	⌊___⌋ If yes, go to Q427b, if no, go to Q428.	⌊___⌋ If yes, go to Q427b, if no, go to Q428.
427b. **If yes to Q427**, reason for missing meals **in the last 24 hours** (*1= lack of water/charcoal/firewood to cook, 2= lack of food, 3= lack of appetite, 4= other (specify))*			
428. In the last **7 days**, have you missed any meals? (*1=yes and 0=no)*	⌊___⌋ If yes, go to Q428b, if no, go to Q429	⌊___⌋ If yes, go to Q428b, if no, go to Q429	⌊___⌋ If yes, go to Q428b, if no, go to Q429
428b. **If yes to Q428**, how many days did you miss a meal? *(numeric)*			

WASH Practices	Pregnant Woman 1	Pregnant Woman 2	Pregnant Woman 3
429. Do you wash your hands? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q429b, if no, go to Q432.	⌊___⌋ If yes, go to Q429b, if no, go to Q432.	⌊___⌋ If yes, go to Q429b, if no, go to Q432.
429b. **If yes to Q429,** what do you generally use to wash your hands? *(1=only water, 2=soap and water, 3=soap when I can afford it, 4= Traditional herb, 5=other (specify))*			
430. **In the last 24 hours** in which instances did you wash your hands? (answer for each question 430a-430e) *(1=yes and 0=no)*			
430a. After using the toilet			
430b. Before cooking.			
430c. Before eating			
430d. After taking children to the toilet			
430e. Other (specify)			
431. Do you wash your hands before preparing food? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q431b, if no, go to Q432.	⌊___⌋ If yes, go to Q431b, if no, go to Q432.	⌊___⌋ If yes, go to Q431b, if no, go to Q432.

431b. **If yes to Q431,** what do you use to wash your hands before preparing food? *(1=only water, 2=soap and water, 3=soap when I can afford it, 4= Traditional herb, 5=other (specify)*			
Healthcare Access	**Pregnant Woman 1**	**Pregnant Woman 2**	**Pregnant Woman 2**
432. What is the nearest health facility? *(1= public hospital, 2= health centre, 3= private health facility, 4=dispensary, 5=clinic, 6= other (specify))*			
432b. Where is this health facility? *Please give the village name (Text)*			
432c. How far is this health facility? *(km to two decimal points)*	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐
432d. What mode of transport do you use to reach this facility? *(1=walking, 2=motorbike/bodaboda, 3=matatu, 4=other(specify))*			
432e. How much does it cost you for transport to reach this health facility? *(Ksh, 0 if walking)*			
433. How often do you visit this facility? *(1= daily, 2= weekly, 3= bi-weekly, 4= monthly, 5= every three months, 6= every six months, 7= yearly, 8= never)*	⌊___⌋ If never, go to Q435.	⌊___⌋ If never, go to Q435.	⌊___⌋ If never, go to Q435.
434. What was the main purpose of your last visit to this health facility? *(1= routine medical check-up, 2= antenatal check-up, 3= illness, 4= other (specify)*			
435. How many times have you visited ANY health facility (public hospital, health centre, private health facility, dispensary, clinic) in the **last 30 days**? *(numeric)*			
435b. How many times have you visited ANY health facility in the **past 6 months**? *(numeric)*			
436. In the **past three months**, have you received any **nutrition**-related information **on the RADIO?** E.g. On how best to feed yourself and the child you're expecting? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q436b, if no, go to Q437.	⌊___⌋ If yes, go to Q436b, if no, go to Q437.	⌊___⌋ If yes, go to Q436b, if no, go to Q437.

436b. **If yes to Q436**, do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q436c, if no, go to Q436d.	⌊___⌋ If yes, go to Q436c, if no, go to Q436d.	⌊___⌋ If yes, go to Q436c, if no, go to Q436d.
436c. **If yes to Q436**, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q437.	1) 2) 3) Go to Q437.	1) 2) 3) Go to Q437.
436d. **If no to Q436b**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			
437. In the **past three months**, have you received any **nutrition**-related information from **ANY other SOURCE** (i.e. not the radio) on how best to feed yourself and the child you're expecting? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q437b, if no, go to Q438.	⌊___⌋ If yes, go to Q437b, if no, go to Q438.	⌊___⌋ If yes, go to Q437b, if no, go to Q438.
437b. **If yes to Q437**, where did you hear about it? *(1= friends or family, 2= health facility, 3= Community Health Volunteer, 4= NGO (name), 5= other (specify))*			
437c. **If yes to Q437,** do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q437d, if no, go to Q437e	⌊___⌋ If yes, go to Q437d, if no, go to Q437e	⌊___⌋ If yes, go to Q437d, if no, go to Q437e
437d. If yes to Q437, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q438.	1) 2) 3) Go to Q438.	1) 2) 3) Go to Q438.

437e. **If no to Q437c**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			
438. In the **past three months**, have you received any **health**-related information **on the RADIO**? E.g. hand-washing, importance of vaccinations? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q438b, if no, go to Q439.	⌊___⌋ If yes, go to Q438b, if no, go to Q439.	⌊___⌋ If yes, go to Q438b, if no, go to Q439.
438b. **If yes to Q438**, do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q439c, if no, go to Q439d.	⌊___⌋ If yes, go to Q439c, if no, go to Q439d.	⌊___⌋ If yes, go to Q439c, if no, go to Q439d.
438c. **If yes to Q438b**, what were the three most important things that you learned? *(text)*	1) 2) 3) Go to Q439.	1) 2) 3) Go to Q439.	1) 2) 3) Go to Q439.
438d. **If no to Q438b**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			
439. In the **past three months**, have you received any **health**-related information from **ANY other SOURCE** (i.e. not the radio)? E.g. hand-washing, importance of vaccinations? *(1=yes and 0=no)*	⌊___⌋ If yes, go o Q439b, if no, go to Q440	⌊___⌋ If yes, go o Q439b, if no, go to Q440	⌊___⌋ If yes, go o Q439b, if no, go to Q440
439b. **If yes to Q439**, where did you hear about it? *(1= friends or family, 2= health facility, 3= Community Health Volunteer, 4= NGO (name), 5= other (specify))*			
439c**. If yes to Q439**, do you feel this information has been useful for you? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q439d, if no, go to Q439e.	⌊___⌋ If yes, go to Q439d, if no, go to Q439e.	⌊___⌋ If yes, go to Q439d, if no, go to Q439e.
439d. **If yes to Q439c**, what were the three most important things that you learned? *(text)*	1) 2)	1) 2)	1) 2)

	3) Go to Q440.	3) Go to Q440.	3) Go to Q440.
439e. **If no to Q439c**, why not? (*1=Knew it already; 2=did not understand what they were saying; 3= it was not relevant to me; 4=other(specify))*			

Note to the Enumerator: Confirm this number is the same as the one given in Section 1: Q118b

440. Number of pregnant women interviewed *(numeric)*	Go to Section 5: Cash Transfers

Note to the Enumerator: Now go back to the main respondent to complete the rest of the survey (Sections 5-9) if there are no other pregnant women to be interviewed.

Section 5: Cash Transfers

Note to enumerator: Go back to the main respondent to complete the rest of the survey (Sections 5-9).

501. Are you (the respondent), the person who receives the CT-OVC cash transfer payments? *(1=yes and 0=no)* *Note for enumerator: check with the response in section 1: Q124 and Q124b,*	⌊_____⌋ If yes, go to Q502, if no, go to Q501b.	502. When did this household last receive a cash transfer? *(mm/yy)*	__ __/__ __
		502b. How much was the cash transfer? *(Ksh)*	
501b. **If no to Q501**, who receives the CT-OVC cash transfer? *(Name of the household member)*		502c. What was this money spent on? *Multiple selection allowed; (1= food; 2= health; 3= child needs; 4= non-food items (soap, clothes, books, etc.), 5= household assets, 6=school fees, 7=All of the above, 8=Other(specify))*	
		502d. Did you spend the entire cash transfer? *(1=yes and 0=no)*	⌊_____⌋ If yes, go to Q502f, if no, go to Q502e.
		502e. **If no to Q502d**, how much is remaining? *(Ksh)*	Go to Q502f
		502f. **D**id you share this cash transfer with anyone else who is not a household member? *(1=yes and 0=no)*	
503. When did this household receive the cash transfer before the one that has just been asked about? (*mm/yy)*	__ __/__ __	504. Do you (the respondent) contribute to the decisions on how the CT-OVC cash transfer is spent? *(1=yes and 0=no)*	
503b. How much was this? *(Ksh)*		504b. How many household members contribute to the decision on how to spend the CT-OVC cash transfer? *(numeric)*	

503c. What was this money spent on? *Multiple selection allowed; (1= food; 2= health; 3= child needs; 4= non-food items (soap, clothes, books, etc.), 5= household assets, 6=school fees, 7=All of the above, 8=Other(specify))*		504c. What are their names? *(text)*	1) 2) 3)
504d. Is any of these household members that contribute to the decisions the CT-OVC beneficiary? *(1=yes and 0=no)*		505. Have you ever experienced delays in the disbursement of the cash transfers? *(1=yes and 0=no)*	⌊___⌋ If yes, go to Q505b, if no, go to Q506.
504e. Is there a final decision maker or is the decision always shared? *(1=final decision maker, 2=shared)*	⌊___⌋ If 1=final decision maker, go to Q504f, if 2=shared, go to Q505.	505b. **If yes to Q505**, what is the longest period you have had to wait for the cash transfer in months? *(numeric)*	
504f. Name of the final decision maker? *(text)*		505c. How many times in the last 12 months did you experience delays? *(numeric)*	
506. How would you rate the disbursement on a scale of 1-5? *(1=not at all efficient, 2= slightly efficient, 3=somewhat efficient, 4= very efficient, 5= extremely efficient)*			

Section 6: Livelihoods and Income

601. What is the household's main livelihood activity? (*refer to livelihood code)*		602. What is the household's main source of income? *(refer to income code)*	
603. How much total income did this household receive in the **last 30 days** (**excluding cash transfers**)? *(Ksh)*		604. Are there months where you have more money than others? *(1=yes and 0=no)* 604b. **If yes**, which months. *(multiple selection allowed) (refer to month code)* 604c. What is the source of this extra income? *(refer to income code)*	⌊___⌋ If yes, go to Q604b, if no, go to Q605.
605. Does the household receive any external financial support (from family or friends)? *(1=yes and 0=no)* 605b. **If yes**, how much on average **per month (30 days)?** *(Ksh)*	⌊___⌋ If yes, go to Q605b, if no, go to Q606.	606. How many household members generate income? *(numeric)*	

Livelihood activity	**CODE**	**Income source**	**CODE**	**Months**	**CODE**
Farmer	1	Crop sales	1	January	1
Fishing	2	Livestock sales	2	February	2
Livestock rearing	3	Fish sales	3	March	3
Business	4	Sale of milk/dairy/egg products	4	April	4
Teacher	5	Other animal products	5	May	5
Skilled labour	6	Skilled labour	6	June	6
Unskilled labour	7	Unskilled labour	7	July	7
Other (specify)	8	Sale of charcoal/firewood	8	August	8
		Petty trade	9	September	9
		Sale of wild foods	10	October	10
		Receipt of remittances from relatives outside the village	11	November	11

		Cash gifts (relative/friends/community) change code in digital	12	December	12
		Cash relief (NGOs, organizations)	13		
		Other (specify)	14		

Section 7: Social Economic status and wealth indicators

Note to Enumerator: **Q701b; Q702** and **Q702b** are for your **observation only do not ask.**			
701. Do you have a place in the house for hand-washing? (1=yes and 0=no) *Note for enumerator: ask to view the facility*	⌊_____⌋ If yes, go to Q701b, if no, go to Q703.	*Observation only, do not ask.* 702. Is the hand washing facility close to the sanitation/toilet facilities? (1=yes and 0=no)	
Observation only, do not ask. 701b. If yes, is soap and water available? *(1=yes and 0=no)*		702b. Is this facility close to the food preparation area (within 2 metres)? *(1=yes and 0=no)*	
703. Do you have stagnant or sewage water near your house? (1=yes and 0=no)	⌊_____⌋ If yes, go to Q703b, if no, go to Q704.	704. What kind of toilet facility does this household have? *Note to enumerators: Confirm this through observation* *(1=Flush Toilet, 2=Pit Latrine, 3=Ventilated improved pit latrine (VIP), 4=Pit latrine with slab, 5=Pit latrine without slab/open pit, 6=Composting toilet, 7=Bucket, 8=Hanging toilet/hanging latrine, 9=No facilities or bush or field, 10=Other (specify))*	
703b. How close is it in metres? *(estimated metres to 1 decimal point)* *Note to enumerators: Confirm this through observation*			
705. How many cows does this household own? *(numeric)*		706. How many goats or sheep does this household own? *(numeric)*	
707. How many chickens does this household own? *(numeric)*		708. How many ducks or geese does this household own? *(numeric)*	
709. What is the main cooking appliance? *(1=Charcoal (stove); 2=Traditional jiko; 3=Improved jiko; 4=Kerosene stove; 5=other(specify))*		710. What is the main source of drinking-water for members of this household? *(1=Piped water into dwelling(in the house); 2=Piped water to yard/plot; 3=Public tap/standpipe; 4=Tubewell/borehole; 5=Protected dug well; 6=Unprotected dug well; 7=Protected spring; 8=Unprotected spring; 9=Rainwater collection; 10=Cart with small tank/drum; 11=Tanker-truck; 12=Surface water (river, dam, lake, pond, stream, canal, irrigation channels); 13=Other (specify))* 710b. What is the distance to this source of water? *(km to 1 decimal place)*	___ ___ . ___

711. How long does it take to go there, get water, and come back? *(minutes, 998=Don't know)*		712. Do you treat your water in any way to make it safer to drink? (*0=no, 1=yes, 998=don't know)* 712b. What do you usually do to the water to make it safer to drink? *(1=boil; 2=add bleach/chlorine; 3=strain it through a cloth; 4=use a water filter (ceramin, sand, composite etc; 5= solar disinfection; 6=let it stand and settle; 7= other (specify); 998=don't know)*	
713. What is the main source of water used by this household for other purposes, such as cooking and hand washing? *(1=Piped water into dwelling; 2=Piped water to yard/plot; 3=Public tap/standpipe; 4=Tubewell/borehole; 5=Protected dug well; 6=Unprotected dug well; 7=Protected spring; 8=Unprotected spring; 9=Rainwater collection; 10=Cart with small tank/drum; 11=Tanker-truck; 12=Surface water (river, dam, lake, pond, stream, canal, irrigation channels); 13=Other (specify))*		714. What is the distance to this source of water? *(km to 1 decimal place)*	
715. Does the family own the home they live in? *(1=yes and 0=no)* 715b. **If no**, how much rent do they pay **each month (30 days)**? *(Ksh)*	⌊____⌋ If yes, go to Q716, if no, go to Q715b.	716. Does the family own the land they farm? *(0=no, 1=yes, NA= Not applicable(NA))* 716b. **If no**, how much rent do they pay **each month (30 days)**? *(Ksh)*	⌊____⌋ If yes, go to Q717, If NA, go to Q717, if no, go to Q716b.
717. Does the household have electricity? *(1=yes and 0=no)* 717b. **If yes**, what is the household main source of electricity? *(1=Community generator; 2=Solar panels; 3=Own generator; 4=Car/motorcycle battery, 5=other(specify))*	⌊____⌋ If yes, go to Q717b, if no, go to Q719.	718. How much do you pay for electricity **each month (30 days)**? *(Ksh)*	
719. Do any of the children in this household go to school? *(1=yes and 0=no)*	⌊____⌋ If yes, go to Q719b, if no, go to Q720.	720. Does the household own a TV? *(1=yes and 0=no)*	

719b. How much do you pay for school fees (including day care) **each term (3 months)**? *(Ksh)*			
721. Does the household own a radio? *(1=yes and 0=no)*		722. Does the household own an electric fan? *(1=yes and 0=no)*	
723. Does the household own a telephone? *(1=yes and 0=no)*		724. Does the household own a computer/laptop? *(1=yes and 0=no)*	
725. On a scale of 1-9 how would you rate this household's economic status within your village? *Note for enumerator: show the respondent the picture of the MacArthur ladder and explain that 1=lowest rung on the ladder and the lowest social economic status, 9=highest rung on the ladder and the highest social economic status*			

Section 8: Food access and prices

801. What is the distance to the closest food market? *(km) (one decimal place)* *(Market is the place where the household gets most of their food)*	___ ___ . ___	802. What mode of transport do you use to reach the closest food market? *(1=walking, 2=motorbike/bodaboda, 3=matatu, 4=other(specify))* *(Market is the place where the household gets most of their food)* 802b. How much does it cost you to reach this market? *(Ksh, 0 if walking)*	
803. How often do you visit the food market? *(1= daily, 2= weekly, 3= bi-weekly, 4= monthly, 5=never)* *(Market is the place where the household gets most of their food)*		804. Do you grow your own food (e.g. fruit, vegetables)? *(1=yes and 0=no)*	

	805. What are the top five food items consumed in this household on a **weekly basis (7 days)**?	806. In the **last 7 days**, how much money did you spend on each item **for the whole household**? *(Ksh)*	807. What quantity was consumed in the **last 7 days** (*Kgs)*? *(one decimal place)*	808. What is the purchase price of 1 Kg? *(Ksh)*
1			___ ___ . ___	
2			___ ___ . ___	
3			___ ___ . ___	
4			___ ___ . ___	
5			___ ___ . ___	

809. How much of the total food consumed by the household in the **last 7days** was purchased? *(percentage)*		810. How much money did you spend on food in the **last 7 days**? *(Ksh)*	
811. Have food prices increased or decreased over the **past 30 days**? *(1= increased, 2= decreased, 3= stayed the same)*		812. Do children and pregnant women receive food before other household members? *(1=yes and 0=no)*	

813. Is the household able to access the basic food items the household needs? *(1=yes and 0=no)*	⌊_____⌋ If yes, go to Section 9, if no, go to Q813b		
813b. **If no to Q813**, why not? *(1= cost of the food, 2= unavailability of the food, 3= other(specify))*			

Section 9: Household Coping Strategies

During the **last 7 days**, on how many days did this household use any of the following strategies to cope with lack of food or lack of money to buy food?	Number of days (0 to 7)
901. How many days did the household rely on less preferred and/or less expensive food?	
902. How many days did the household borrow food, or rely on help from a friend or relative?	
903. How many days did the household have to reduce the quantity of food consumed by adults to ensure that children had enough to eat?	
904. How many days did the household have to reduce the number of meals eaten per day?	
905. How many days did the household have to reduce the portion size of meals?	

	906. During the **last 30 days**, did anyone in this household have to engage in any following behaviors **due to a lack of food or a lack of money to buy food**? *(1=yes and 0=no)*	907. **If no to Q906,** please clarify: *(1 = No, because it wasn't necessary, 2 = No, because I already sold those assets or did this activity and I cannot continue to do it, NA = Not Applicable)*
a. Sold household assets/goods (radio, furniture, refrigerator, television, jewelry etc.)		
b. Sold last female animals		
c. Sent household members to eat elsewhere		
d. Purchased food on credit or borrowed food		
e. Sold productive assets or means of transport (sewing machine, wheel barrow)		
f. Borrowed money		
g. Withdrew children from school		
h. Begged		
i. Engaged in illegal income activities		

CHECK UP DATA COLLECTION TOOL

The data collection tool for the check up surveys will repeat all the questions from the baseline tool. In addition, there will be a section on nutritional counselling services received through PS Kenya, basic information on any new pregnancies within the household and additional open-ended questions on the beneficiaries' experience with the interventions.
Maswali yote yilioulizwa katika sehemu ya kwanza, yatauizwa tema wakati utafiti pamoja na sehemu mbili zifuatazo.

Section 10: Nutritional Counselling

Nutritional Counselling ***Elimu ya Lishe***			
1001. In the past month, did any community health volunteer visit your household to provide you with nutrition related information (e.g. breastfeeding practices, complementary feeding practices, diarrhoea management, etc.)? *(1=yes and 0=no)* *Mwezi uliopita, kuna wahudumu wa afya/walimu wa afya ambaye amekuja kwa boma hii kuwapa mafunzo yanayo husiana na lishe la mtoto na afya ya mtoto? (1=ndio,0=la)*		1001b. If yes, which topics were covered? *(refer to code)* *Allow multiple selection* *Kama ndio, alifunza mada ipi? (Rejea codi)*	
1002. How often did the community health volunteer return to your household for follow-up sessions in the past month? And the past 3 months? (numeric) *Mhudumu wa afya/mwalimu wa afya amerudi kwa boma hii mara ngapi? (nambari)*		1003. How long were the counselling sessions? *(hours)* *Mhudumu wa afya/mwalimu wa afya alifunza kwa muda wa saa ngapi? (saa)*	
1004. Did other household members sit in on the sessions? *(1=yes and 0=no)* *Wanakaya wengine walipata mafunzo haya? (1=ndio,0=la)*		1004b. If yes, who? *Select from HH roster - allow multiple selection* *Kama ndio, nani aliyapata? (chagua kutoka orodha ya wanakaya)*	
1005. Did you receive nutritional counselling from other organizations / CHVs? *(1=yes and 0=no)* *Je, umepokea mafunza ya lishe kutoka shirika lingine? (1=ndio,0=la)*		1006. Do feel that the information provided has changed your behaviour as a mother/caregiver in relation to nutrition related aspects? *(1=yes and 0=no)* Je, wahisi kwamba mafunzo uliopata yamesaidia kuboresha tabia zinazohusu lishe la mtoto? *(1=ndio,0=la)*	
1006b. If yes, please explain. *(text)* *Kama ndio, tafadhali eleza (andika jibu)*		1007. What are the three most important things you learnt? *(text)* *Ni vitu vipi vitatu amabavyo umeona muhimu sana kutoka mafunzo uliopata? (andika jibu)*	
1008. Were you told about the importance of hand-washing? *(1=yes and 0=no)* *Je, ulielezwa umuhimu wa kunawa/kuosha mikono? (1=ndio,0=la)*		1009. Were you told about the importance of exclusive breastfeeding? *(1=yes and 0=no)* *Je, ullielezwa umuhimu wa kunyonyesha pekee ? (1=ndio,0=la)*	

1010. Were you told about the importance of Vitamin A for children 6-59 months? *(1=yes and 0=no)* *Je, ulipata mafunzo ya umuhimu wa vitamini A? (1=ndio,0=la)*		1011. Were you told about the importance of dietary diversity (a balanced diet) for your child? *(1=yes and 0=no)* *Je, ulielezewa kuhusu umuhimu wa tofauti za utaratibu maalumu wa chakula (chakula bora) kwa mtoto wako? (1=ndio,0=la)*	
1012. Were you taught about managing diarrhoea with ORZ/zinc? *(1=yes and 0=no)* *Je, ulipata mafunzo ya ukabiliaji wa kuendesha? (1=ndio,0=la)*		1013. Were you taught about IFAS for pregnant women? *(1=yes and 0=no)* *Je, ulipata mafunzo yanayo husika na IFAS? (1=ndio,0=la)*	
1014. How could the nutritional counselling be improved? *(text)* *Je, mafunzo haya yawezaboreshwa aje? (andika jibu)*			

Counselling topics ***Mada za Ushauri***	**CODE** ***Codi***	**Counselling topics** ***Mada za Ushauri***	**CODE** ***Codi***
IFAS (including anaemia)	1	Management of diarrhoea *Ukabiliaji wa kuendesha*	6
Exclusive breastfeeding *Kunyonyesha pekee*	2	Vaccinations *Chanjo*	7
Complementary feeding practices *Kupa mtot chakula kingine pamoja na maziwa ya mama*	3	WASH practices *Matumizi mazuri ya maji na usafi*	8
Vitamins and supplements *Vitamini na virutubisho*	4	Health care *Huduma za afya*	9
Dietary diversity *Tofauti za utaratibu maalumu wa chakula*	5	Other (specify) *Ingine (eleza)*	10

Section 11: Additional Questions

1101. Have any household members discovered they were pregnant since the last survey? *(1=yes and 0=no)* *Je, kutoka utafiti wa mwisho, kuna mwanakaya amabaye amegundua ni mjamzito? (1=ndio ,0=la)*		1101b. If yes, how many members? *(numeric)* *Kama ndio, ni wanakaya wangapi? (nambari)* 1101c. For each member, what trimester is she in? *Kwa kila mwanakaya, amekuwa mjamzito kwa miezi ngapi?*	
1102. Have there been any births since the last survey? *(1=yes and 0=no)* *Je, kuna mwanamke ambaye amejifunguwa kutoka utafiti wa mwisho? (1=ndio ,0=la)*		1103. On a scale of 1-5, how would you rate the overall cash transfer programme? (1= very efficient and 5=not at all efficient) *Je, wawezakupa mpango huu alama ngapi kwa ufanisi wake kwa kipomo kutoka 1 hadi 5 (1= ufanisi wa juu na 5 ufanisi wa chini).*	
1104. On a scale of 1-5, how satisfied are you with the cash transfer programme? (1= very satisfied and 5=not at all satisfied) *Je, umeridhika kwa kiwango kipi na mpango huu, tafadhali eleza kwa kipomo kutoka 1 hadi 5 (1= umeridhika na 5=hujaridhika).*		1105. How could the cash transfer programme be improved? *(text)* *Je, mpango huu waweza boreshwa aje? (andika jibu)*	

ANNEX 5. RCT DATA ANALYSIS APPROACH

RCT Study Design

In a RCT, participants are allocated to either the treatment or control group. Those in the treatment group will receive the intervention treatment while those in the control group are not given the intervention but are still monitored. The intended effect of the treatment (the outcome variable) is measured before, during, and after treatment in both groups of participants. An observed difference in the outcome variable between the two groups is then interpreted as the measurement of the treatment effect.

One crucial assumption made in the RCT model is that the intervention is the cause of the measured difference between the two groups. To ensure that this assumption is valid, the groups must draw from similar populations that will be living similar lives during the trial period. Any differences between the two groups must be controlled for, as these differences may create causal pathways leading to a smaller/larger perceived treatment effect. These differences are called covariates, and the two participant groups should be chosen to reflect similar distributions across all covariates. Covariates should be monitored and measured before, during, and after the intervention to allow for analysis that controls for (mitigates the effects) of the covariates. Eliminating covariates as the cause of a measured difference in the outcome variable between the treatment and control groups allows for a stronger claim of causation between the intervention and the treatment effect.

RCTs have become a standard experimental design in measuring the effect of social interventions such as nutritional counselling and cash transfer programmes (Bassani et al., 2013; Bhutta et al., 2008; Fiszbein et al., 2009).

Difference In Difference Regression

A very popular regression method for RCTs is using binary (dummy) variables to calculate a difference-in-difference between the control and treatment groups. According to Gomez (2013), most studies in the literature use this type of ordinary least squares (OLS) regression (see for example Attanasio et al. (2005), Barham et al. (n.d.), Gertler (2004), Handa et al. (2016), and LopezArana et al. (2015)). Variables are inserted to describe when you collected the data (*Time*) and who you collected the data from (*Treatment)* to represent the 4 categories of study participants:

	Time = 0	*Time* = 1
Treatment = 0	Baseline control group	Post-trial control group
Treatment = 1	Baseline treatment group	Post-trial treatment group

This way only certain regression coefficients that are not suppressed with a value of 0 will be evaluated. The equation is as follows:

$$y_{ic} = \beta_0 + \beta_1 Time + \beta_2 Treatment_c + \beta_3 (Time \cdot Treatment_c) + \gamma X_{ic} + \varepsilon_{ic}$$

- Y_{ic}: the outcome variable (z-score) that varies on the individual (i) and cluster (c) levels
- $\boldsymbol{\beta}_0$: the baseline average z-score given covariates that have been unaltered by treatment
- $\boldsymbol{\beta}_1$: the mean difference between the baseline and post-trial measurements
- $\boldsymbol{\beta}_2$: the mean difference between the control and treatment groups, ignoring time
- $\boldsymbol{\beta}_3$: the mean difference-in-difference between the control and treatment groups. This is the coefficient that will record the treatment effect
- X_{ic}: the matrix of covariates that vary on the individual (i) and cluster (c) levels
- γ: the coefficients for covariates in X determined by the baseline regression
- ε_{ic}: the error for each term

We will experiment with other types of regression as well. Quantile Regression (Gomez, 2013; Paxson and Schady, 2010) would allow us to look at the heterogeneity of the treatment effect across a specific covariate such as household income. If there are issues with treatment delivery resulting in households receiving unequal amounts of cash, we could use a Continuous Treatment Regression (Aguero et al., 2006) to model the treatment as a continuous rather than a binary variable. In this set-up, we would model how the outcome variable responds across the range of treatments delivered to participants.

Growth Curve Modeling

To compare the z-score distribution at each month between 0-2 years of age, we will fit a growth curve to the treatment group both pre- and post-trial. Comparing the parameters of the growth curve model between the control and treatment groups will allow us to visualize the effect of the treatment across the distribution of ages (see Figure A3).

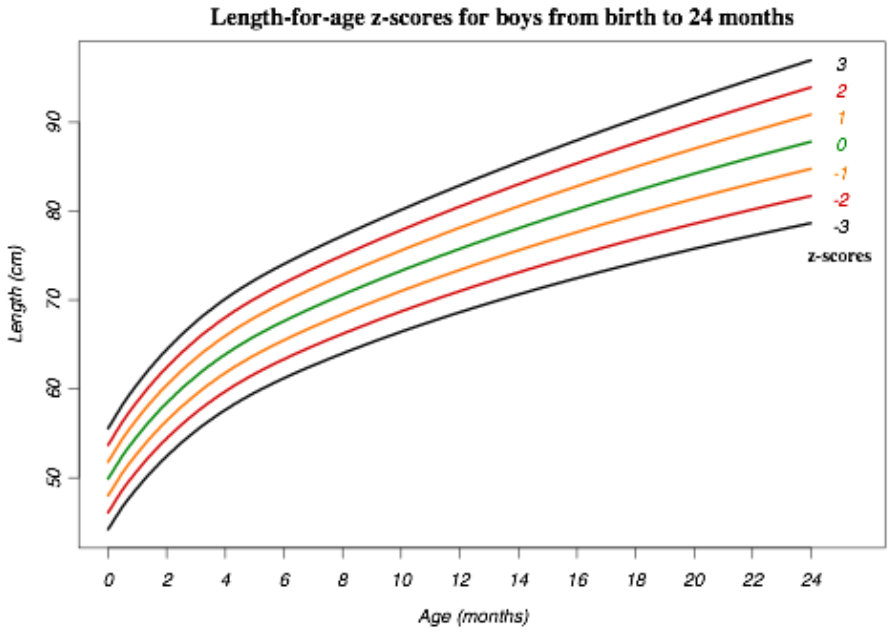

Figure A3: Length-for-age z-Scores for Boys from Birth to 24 Months

ANNEX 6. KEY VARIABLES AND COVARIATES

The key outcome measures of HAZ, WHZ and WAZ have been outlined in detail in the main text. One of the objectives is also to ensure that WHO feeding guidelines are followed. The outcome measures for achieving the minimum meal frequency will be assessed as the proportion of breastfed and non-breastfed children 6–23 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more:

- 2 times for breastfed infants 6–8 months;
- 3 times for breastfed children 9–23 months;
- 4 times for non-breastfed children 6–23 months;
- “Meals” include both meals and snacks (other than trivial amounts), and frequency is based on caregiver report.

Other indicators based on the WHO feeding guidelines (WHO, 2008) will include:

- Proportion of children born in the last 24 months who were put to the breast within one hour of birth;
- Proportion of infants 0–5 months of age who are fed exclusively with breast milk;
- Proportion of children 12–15 months of age who are fed breast milk;
- Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods.

Key WASH indicators will be calculated based on the guidelines by the WHO and UNICEF Joint Monitoring Programme (JMP) (n.d.) for Water Supply and Sanitation. These include:

- Percentage of population using an improved source with a total collection time of 30 minutes or less;
- Percentage of population reporting practicing open defecation;
- Percentage of households with children under 2 reporting hygienic disposal of the stools of children under 2;
- Percentage of households with soap and water at a hand washing facility commonly used by family members;
- Percentage of households with soap and water at a hand washing facility within or immediately near sanitation facilities;
- Percentage of households with soap and water at a hand washing facility within or immediately near the food preparation area.

The following Table (Table A5) outlines the key variables for the analysis and how they will be calculated.

Table A5: The Key Variables in the Analysis and how they will be Estimated

	Variables	Details and Explanation	Source and Calculation
Outcome variables	Height-for-Age z score for child (HAZ)	See main text	Questionnaire Section 3 on age and height of child compared to WHO standards
	Weight-for-Height z score for child (WHZ)	See main text	Questionnaire Section 3 on child general health compared to WHO standards
	Weight-for-Age z score for child (WAZ)	See main text	Questionnaire Section 3 on age and height of child compared to WHO standards
Intermediate variables	Dietary diversity of child	The mother or caregiver reports the food groups present in her child's diet and how frequently each food group is consumed.	Questionnaire Section 3 on children's feeding practices
	Dietary diversity of mother/caregiver and pregnant women	The mother/caregiver will report the food groups present in her diet and how frequently each food group is consumed.	Questionnaire Section 3 on caregiver's feeding practices and Section 4 on pregnant women's feeding practices
	Breastfeeding and complementary feeding practices of the child	WHO indicators: early initiation of breastfeeding, exclusive breastfeeding under 6 months, continued breastfeeding at 1 year, introduction of solid, semi-solid or soft foods, minimum meal frequency, bottle feeding	Questionnaire Section 3 on children's feeding practices
	Morbidity	How often is the child sick with cough, fever, diarrhoea, or malaria?	Questionnaire Section 3 on child general health
	MUAC	Measured in both the child, the mother/caregiver and the pregnant women.	Questionnaire Section 3 on child general health and caregiver general health, Section 4 on Pregnant Women
	MacArthur Ladder	How does the mother view the household's socioeconomic status?	Questionnaire Section 7: SE status and wealth indicators
	Mother's stress	How stressed is the mother about providing for her children? Stress can detract from her ability to care for her children beyond basic nutrition	Questionnaire Section 3 on general health of caregiver
	Consumption of vitamins	Does the extra cash allow mothers to buy vitamin supplements for themselves (if pregnant)?	Questionnaire Section 4 on general health of pregnant woman
	Birth weight	If recorded	Questionnaire Section 3 on child

			general health
	Vaccinations	Compliance with WHO and UNICEF standards	Questionnaire Section 3 on child vaccinations
	Caregiver's time	Time available for the care of children, house chores, and paid work	Questionnaire Section 3 on general health of caregiver
	Availability of resources for children's care	Resources available for the care of children (time and money)	Questionnaire Section 3 on general health of caregiver and Section 4 on pregnant women
	WASH practices	WHO/UNICEF Indicators: distance and time taken to reach water point, open defecation, hygienic disposal of children's faeces, availability of soap and water at hand washing facility (and its location), use of improved drinking-water sources and sanitation facilities.	Questionnaire Section 3 on caregiver WASH practices, Section 4 pregnant women WASH practices and Section 7 SE Status
	Knowledge of nutrition practices	Do the households report increased knowledge of nutrition practices following nutritional counselling received?	Questionnaire Section 10: Nutritional Counselling
	Household coping strategies	Do the households engage in negative coping strategies when there is a lack of food or lack of money to buy it?	Questionnaire Section 9: Coping Strategies
Co-variates	Child Age and Sex	Does gender or age affect health outcomes?	Questionnaire Section 2: Household Roster
	Parent Age and Sex	Does gender or age affect health outcomes?	Questionnaire Section 2: Household Roster
	Household income	Does income affect health and nutrition outcomes?	Questionnaire Section 6: Livelihoods and Income
	Household main livelihood	Does the household's main livelihood influence health outcomes?	Questionnaire Section 6: Livelihoods and Income
	Education of the parents	Does education affect health outcomes?	Questionnaire Section 2: Household Roster
	Composition of the household	How many children, other dependents, and caregivers are in the household?	Questionnaire Section 2: Household Roster
	Household ownership	Does the family own their home?	Questionnaire Section 7: SE Status and wealth indicators
	Religion	Do different cultural practices affect health outcomes?	Questionnaire Section 1: Household Details
	Disability and	Is anyone in the household	Questionnaire Section 1 and

	chronic diseases	disabled or chronically ill?	Section 3 on Child general health
	Electricity	Does the household have power?	Questionnaire Section 7: SE Status and wealth indicators
	Number of animals owned	A measure of the household's livelihood	Questionnaire Section 7: SE Status and wealth indicators
	Water source	How clean is the drinking water?	Questionnaire Section 7: SE Status and wealth indicators
	Number of hospital visits	Is the child ill or accessing health services (including check-ups)?	Questionnaire Section 3 on general health of child
	Asset holdings	A list of objects owned by the family (i.e. radio, TV, computer, fan, etc.) as a measure of wealth	Questionnaire Section 7: SE Status and wealth indicators
	Recall period	The time between the cash transfer and the interview	Questionnaire Section 5: Cash Transfers
	Cash transfer delays	Any delays in receipt of cash transfers	Questionnaire Section 5: Cash Transfers
	Village population	How does the size of the village compare to the average size in the county?	Local demographic statistics
	Average household income in the village	How does the socioeconomic status of the village compare to the rest of the county?	Combined average income for those sampled in a given village (Questionnaire Section 6: Livelihoods and Income)
	Market prices	Do changing market prices affect a family's purchasing power? Does it affect the whole village?	Questionnaire Section 8: Food access and prices
	NDVI	How does local crop health affect nutrition?	USGS Landsat Imagery
	Temperature and Precipitation	Does weather affect crop productivity and availability?	MERRA Reanalysis Model
	Accessibility	How remote is the village? How close is the nearest market? How much do families pay to travel to the market?	Google Maps/ OpenStreet Maps/ Information from the questionnaire
	Healthcare proximity	Is healthcare close and accessible?	Questionnaire Section 7 SE status and wealth indicators
	Other programme participation	Is the household receiving cash or counselling from any other governmental agency or NGO?	Questionnaire Section 1: Household Details