

Integrating WASH and Food Hygiene in Malawi: Formative Research

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Background

Diarrhoea continues to be the second leading cause of death in children under five, and Malawi is no exception. Despite the understanding that food safety and hygiene play an important role in reducing and controlling diarrhoeal disease, particularly in children under the age of five, there has been little advocacy for improved practices in low-income countries. Global advocacy for exclusive breastfeeding until 6 months, and provision of nutritious weaning foods has failed to ensure the inclusion of key hygiene messages, and poor food hygiene practices could be responsible for more diarrhoeal disease transmission than exposure to contaminated water (Lanata, 2003).

As such it is imperative that we understand the potential impact of hygienic weaning foods on diarrhoeal disease reduction, and how these practices can be effectively integrated with other standardized interventions on water, sanitation and hygiene and nutrition. These interventions must also take into consideration the potential barriers and triggers to success, and be context driven in terms of practices, and environmental, social and cultural factors affecting households and child care.

Objectives

The purpose of this formative research was to:

- Identify potential sources and pathways for diarrhoeal disease in the sample population of children under five, as well as the number and type of pathogens present in complementary foods and WASH-related surfaces before the intervention;
- Identify key intervention points and behaviours
- Develop food hygiene and combined WASH and food hygiene community-based interventions to target these.

Methods

The intervention was developed through 4 key stages conducted between January and August 2017:

- Literature review
- Formative research
- Baseline data collection
- Triangulation of literature, formative and baseline data, stakeholder analysis and prior experience to form an intervention outline.

BRIEFING NOTE



Figure 1: Toilet facility in rural southern Malawi



Figure 2: Handwashing facility recorded at toilet (latrine)

Written by:
Tracy Morse
Kondwani Chidziwisano
Save Kumwenda
Elizabeth Tilley

Formative research (n=75) was conducted outside the recruited population, and baseline data collection was undertaken within the recruited population (n=1000). A summary of the results for both the formative and baseline populations are reported here (see Figure 3). Microbiological samples were examined for: *E coli*, *E coli* 0157, *Salmonella*, *Shigella*, *Campylobacter*, *Staphylococcus*, *Adenovirus*, *Rotavirus*, *Hookworm*, *Ascaris*, *Cryptosporidium* and *Giardia*.

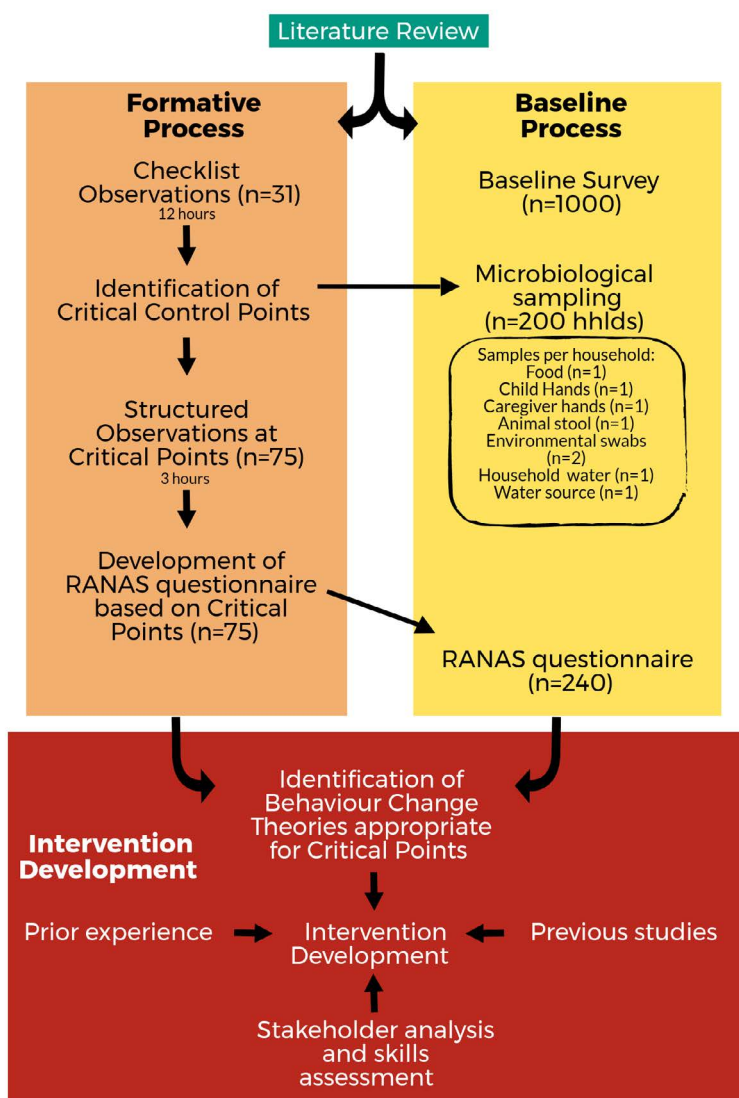


Figure 3: Overview of methodology

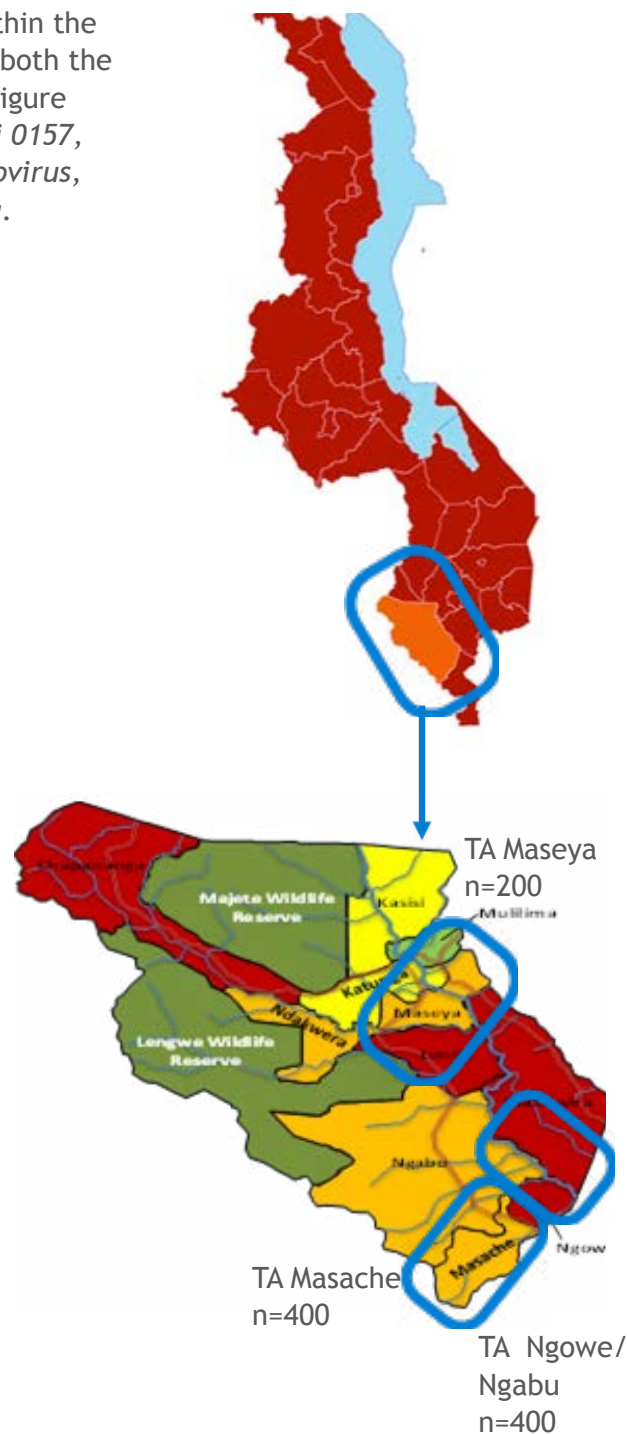


Figure 4: Research area

Summary of research findings

In Chikwawa District (Southern Malawi), four Traditional Authorities were targeted in the formative and baseline work (Masache, Ngowe, Ngabu and Maseya) (Figure 4). All children participating in the formative and baseline studies were aged between 4 - 94 weeks. 51.2% of the sample population were female. Findings are summarised here with a specific focus on critical points identified for behaviour change to reduce diarrhoeal disease.

Disease Prevalence and Weaning Foods

Disease prevalence was self reported by caregivers as outlined in Table 1. Reporting of diarrhoeal disease was significantly higher than the national average of 22%, and will be monitored throughout the intervention study to determine the true prevalence rate from the control population.

Vaccination rates were recorded from child health passports, with a steady decline in compliance noted after the initial 14 week programme.

Children under 6 months:
100% breastfed
54% drinking water
35% eating solid food.

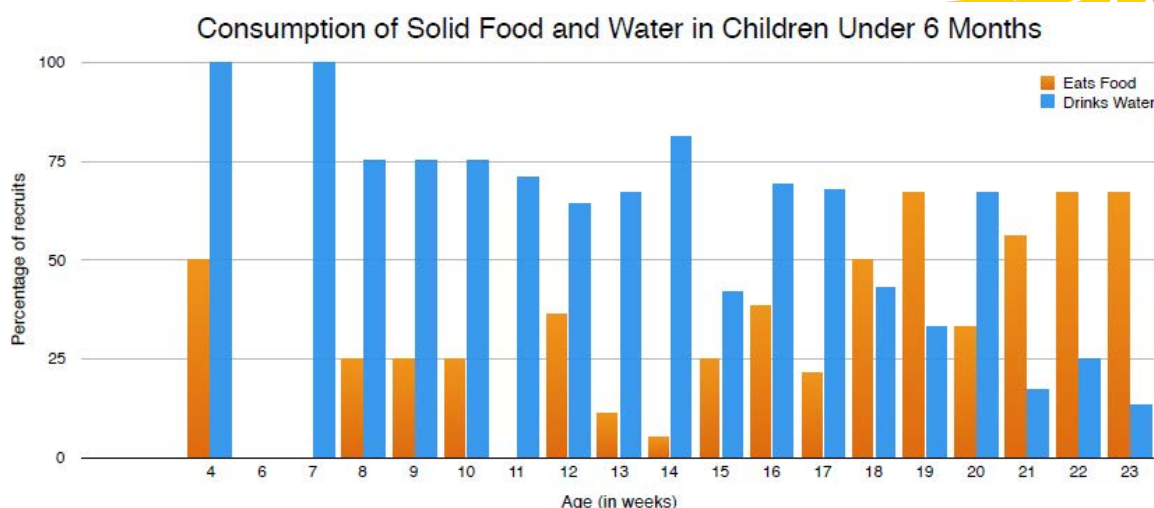


Figure 5: Consumption of Sold Food and water in Children under 6 months

Identification of critical points for control

Critical points were identified and examined through:

- Checklist observations (n=31, for 12 hours each)
- Structured observations using hazard analysis principles (n=75 for 3 hours each)
- RANAS approach questionnaire (n=315)
- Household questionnaire (n=1000)
- Microbiological sampling (n=200)

The findings identified 5 critical control points, which are now being used to frame the development of the integrated WASH and hygiene of weaning foods intervention.

Current WASH and food hygiene practices

100% of households included in the study had a pit latrine. However, only 26% of households reported having handwashing facilities, which was prioritised for washing clothes. 78% of these were handmade and located at the toilet, but many were observed to be out of use (Figure 2). At the time of the survey 60.3% of households had soap available (observed). Only 57% indicated they used it for handwashing. Handwashing methods observed were suboptimal; use of water only, ineffective rubbing hands, use of the same water

Table 1: Self reported disease prevalence

Self reported disease	Percent (%)
Diarrhoea in last 2 weeks	44.4
Treated for diarrhoea	71.9
Respiratory disease last 14 days	58.5
Treated for respiratory disease	72.4
Skin infection	18.0
Eye infection	4.2
Ringworm	1.1
Schistosomiasis	0.3

for multiple family members. These observations were supported by the microbiological results for hands which indicated that both carers and children had faecal contamination on their hands at critical times.

Critical control points identified in observations for target interventions

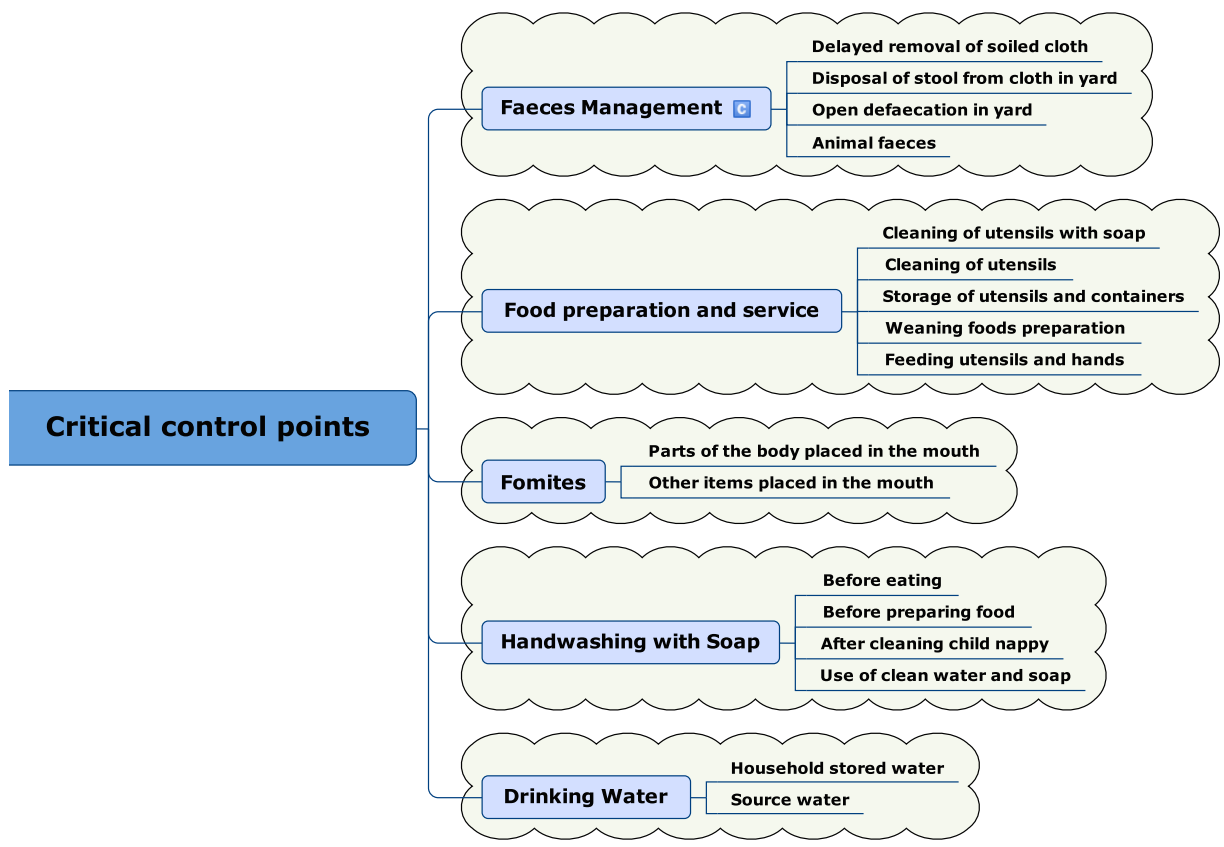


Figure 6: Critical control points identified in observations for target interventions

Faeces Management

There was a lack of correlation between the reported method of disposal and observed practices, indicated knowledge without the associated behavior change. Observations identified open defaecation in the yard followed by removal with a garden hoe (used for multiple activities); delayed washing of cloths from children (allowing faecal contact with children and animals); and no handwashing with soap.

Management of animals and animal faeces was also of concern, as there was significant potential for zoonotic disease transmission. Microbiological results for both child and animal stools reinforce the need for strict control of their distribution in the environment and contact with children and items which may provide an indirect route of transmission (e.g. fomites, food, etc) will be taken into consideration in the development of the intervention programme.

Food Preparation and Service

Observations identified 2 key meals provided to under five

Table 2: Self reported disease prevalence

Disposal of child stools (self reported)	Percent (%)
Around the house	44.4
In the garden	71.9
In the pit latrine	58.5
Various	72.4
Other	18.0

children: (1) freshly prepared maize porridge specifically for the child; (2) family prepared meals consisting of maize (nsima) and relish (vegetables, beans, etc.) which may be freshly prepared or stored for later consumption with or without reheating (Figure 7).

Observations also identified the key behaviours and potential routes of contamination which the intervention would need to consider when improving hygienic feeding practices in the home.

These findings were supported by the microbiological results which showed contamination with *E coli*, *Staphylococcus aureus* and *Salmonella* in weaning foods.

88.5%
of stored household drinking water is contaminated with *E coli*.

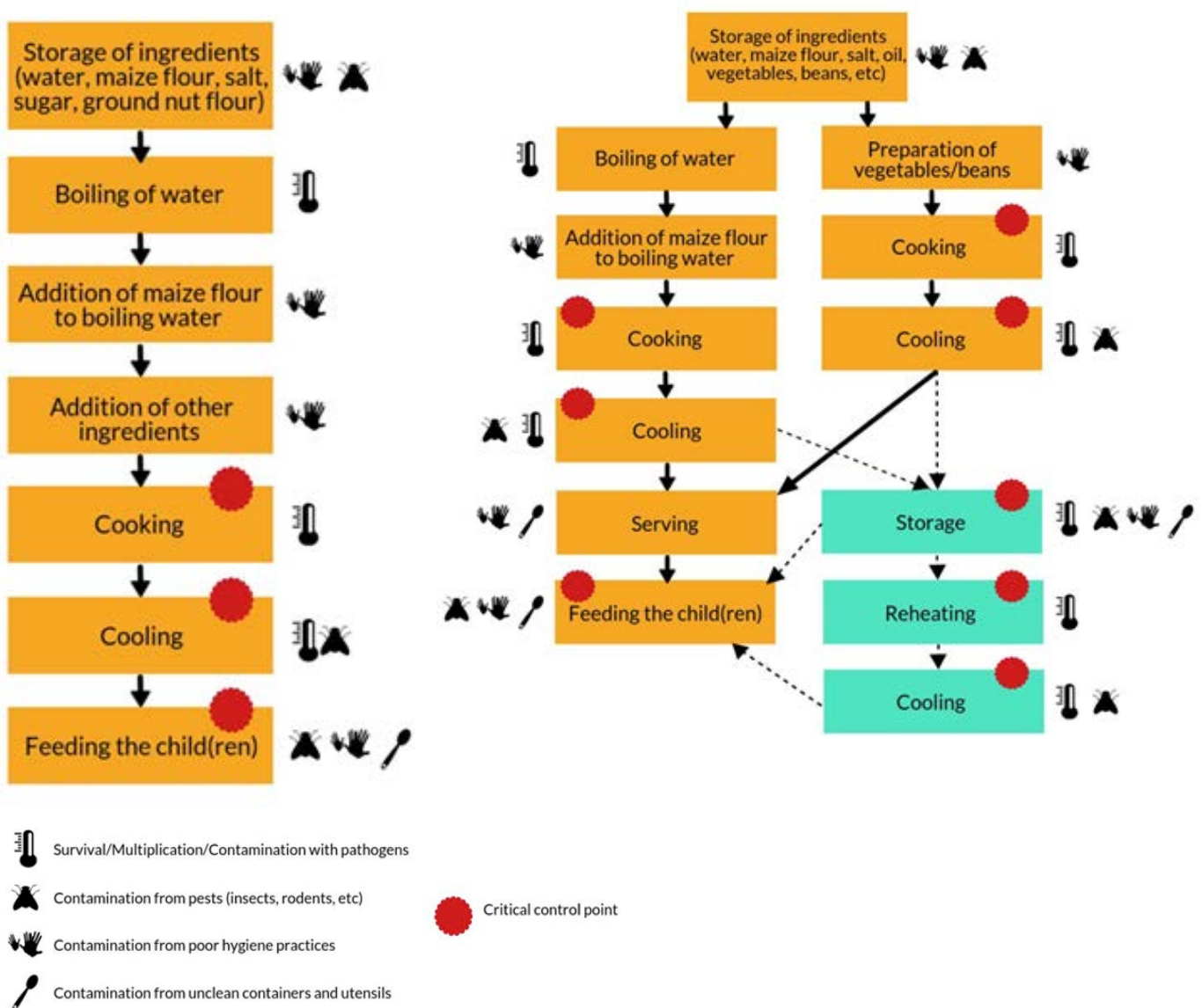


Figure 7: Summary of process flow diagrams of food preparation and service.

RANAS Approach and Behaviour Change Techniques

The observational, baseline and microbiological data allowed us to focus the Risks, Attitudes, Norms, Abilities, and Self-regulation (RANAS) approach on eight key practices (Table 3). This approach to behaviour change is an established method for designing and evaluating behaviour change strategies that target and change the influencing factors of a specific behaviour in a specific population.

The questionnaire was completed for 315 households and examined for doer and non-doers for each practice to isolate key behavior change factors and techniques to be targeted.

Table 3: Summary of behavioural factors and behaviour change techniques identified for 8 key practices.

Target behaviour	Behavioural factors and behavior change techniques				
	Risk	Attitude	Norm	Ability	Self-regulation
	Information	Persuasion	Norm	Infrastructure, skills & ability	Planning and relapse prevention
Handwashing with soap					
Washing utensils with soap before use					
Safe storage of utensils					
Hygienic feeding practices					
Temperature control of food					
Safe disposal of child faeces					
Animal control					
Water management					

Next steps

The findings of this formative and baseline stage are now informing the development of the Banja la Ukhondo (Hygienic Family) intervention. This programme (aimed to include all household decision makers) will be implemented and evaluated from November 2017 - September 2018 in the three target populations (Table 4). The intervention will test the relative and absolute impact of two interventions (Food Hygiene only and Integrated WASH and Food Hygiene) on the incidence of diarrhoea in children under five and on targeted behaviours pertaining to WASH and food hygiene in 4 packages (Figure 8).

The intervention will be implemented through a series of mediums including community cluster forums (Macheza a amai; Macheza a abambo), household visits, open days/mass media and localised

prompts. The involvement of Government of Malawi staff at District level, and the integration of the intervention to existing community structures will be essential for the success, sustainability and scale up of this intervention. As such a full stakeholder analysis and skills assessment has been undertaken at baseline, and the intervention will include necessary capacity building to ensure effective delivery.



Figure 8: Four packages of Banja la Ukhondo programme (Food hygiene only intervention will use 1 & 2 only)

<p>No intervention: Control group TA Maseya n=200</p>
<p>Food hygiene intervention: Treatment group 1 TA Ngowe/Ngabu n=400</p>
<p>Combined WASH and food hygiene intervention: Treatment group 2 TA Masache n=400</p>

Figure 4: Implementation of planned intervention



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Contributors