

INNOVATING FOR SAFER FOODS

EATSAFE IN NIGERIA'S APPROACH TO DESIGNING CONSUMER INTERVENTIONS IN TRADITIONAL MARKETS



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SUMMARY

Improving the safety of food in low- and middle-income countries (LMICs), and particularly in the traditional markets where most consumers shop, is essential for improving overall health and well-being. While consumer demand has been a major driver of safer food in high-income countries, there have been very few attempts to leverage this force for improved food safety in LMICs. The USAID-funded Feed the Future Initiative EatSafe: Evidence and Action Towards Safe, Nutritious Food (EatSafe) programme aims to fill this gap by generating knowledge on the potential for increased consumer demand for safe food to improve the safety of nutritious foods in traditional market settings. This working paper describes the process used by EatSafe in Nigeria to identify and design innovative interventions to do so.

This design process began with defining the problem through a series of formative research activities, including global and local, and primary and secondary research. Next, the EatSafe consortium drew on this knowledge to brainstorm interventions via an iterative human-centred design (HCD) approach, resulting in prototypes for five interventions. In the third step of the process, these interventions were pilot-tested with their target audiences, while in the last step the details of the intervention design and steps needed to support it were finalised, dropping one intervention idea in the process. The process ended with a set of four novel interventions ready to take to the target communities, which are now being implemented and studied. As Nigeria was EatSafe's first-ever intervention country, the design process also yielded lessons about how best to approach intervention design. Based on these insights, the process is now being streamlined and improved for use in EatSafe's second intervention country, Ethiopia—which will likely also result in iterative improvements to the process for designing of food safety interventions.

KEY MESSAGES

- EatSafe used a novel design process to identify innovative interventions for leveraging consumer demand to improve the safety of nutritious foods in traditional market settings.
- To define the problem, a set of global and local, primary and secondary, formative research was undertaken; this then fed into an iterative and inclusive HCD process.
- The ideas emerging from this process were prototyped with their intended target audiences and refined, again through an iterative process, to reach four final interventions.
- While the Human Center Design process had a number of strengths—particularly being inclusive, flexible, and leveraging evidence—it also had weaknesses and needed streamlining. The lessons learned were used to strengthen the approach, which will be tested further in future EatSafe activities and geographies.

BACKGROUND AND OBJECTIVE

Improving the safety of food¹ in low- and middle-income countries (LMICs) is essential for improving overall health and well-being. There are numerous causes of unsafe food, including viruses, bacteria, moulds, protozoa, helminths (worms), physical contaminants, and chemicals. These contaminants can enter the food supply at various stages, from production to home preparation, and cause acute illness or injury as well as raise the risk of long-term, chronic disease (2–4). Foodborne disease is responsible for an estimated 600 million illnesses and 420,000 premature deaths annually (2). The majority of this burden falls on those living in LMICs (5,6), who make up about 75% of deaths from foodborne illness. Foodborne illness also interacts with and reinforces malnutrition: it is one potential cause of malnutrition, exacerbated by pre-existing malnutrition, and linked to many of the same underlying drivers as malnutrition (e.g., poor sanitation infrastructure, poverty) (7). In settings with large burdens of both foodborne disease and malnutrition, addressing food safety would thus likely help to improve nutrition (and vice versa).

Much of Africa falls into this category. The per-capita burden of foodborne disease in sub-Saharan Africa is the highest in the world, about 27 times that of Europe or North America (2). This is mostly caused by diarrheal disease agents, followed by helminths (2). The continent also houses over one-third of the world's undernourished people (8). Nigeria, the focus of the approach described in this paper, offers a prime example of this double-burden: 36.8% of children under age 5 are stunted and 18% are wasted (9), and it is estimated that there are 173 million cases of diarrhoea and about 33,000 deaths caused by foodborne illness annually (10). Foodborne disease is thus an important issue to tackle in the country, both in its own right and to improve nutrition.

While it is not possible using available data to distinguish what portion of foodborne disease is caused by contamination occurring outside the home versus within it, it is clear that many foods in LMICs are contaminated in the food supply chain, before reaching the end consumer. In Nigeria, studies have found prevalence of bacteria and toxins of 15-60% of raw vegetables in traditional markets, 14-22% of beef in abattoirs, 2-10% of dairy products in traditional markets, and 100% of smoked fish in traditional markets (10). Traditional markets merit particular attention both because they are where a large share of consumers in LMICs purchase their foods (11) and because they can be especially risky for foodborne pathogens due to factors such as inadequate infrastructure and potable water (12), less-than-hygienic conditions (13,14), and poor storage practices (15).

In high-income countries, food safety risks are usually mitigated through systems of regulation, control, and enforcement, but many LMICs have limited food safety management capacities, making such 'top down' approaches difficult to implement (5,16). For example, while Nigeria has several policies on food safety, many of them are imperfectly implemented and enforced, with inadequate inspection, surveillance, and coordination amongst agencies (17). Over 95% of relevant local government authorities in Nigeria cannot undertake adequate collection, analysis, and dissemination of food safety data, and few have adequate systems to respond to outbreaks or investigate food contaminants (18).

¹ Food safety is defined as the assurance that food will not cause harm (chronic or acute) to the consumer when it is prepared or eaten according to its intended use (1).

There is thus a need to identify, at least as an interim solution, more bottom-up approaches that can improve food safety without the need to rely on government systems – e.g., by engaging both the supply-chain actors that handle food from production until it is sold to consumers and the consumers themselves. Along the supply chain, retail vendors are a particularly important target audience, both because they interface with the consumer (and thus the actor most likely to be influenced by consumer preferences and demand) and because their actions can negate any steps taken earlier in the supply chain. Consumers are equally essential, as their demand helps to shape the market and their advocacy as citizens influences higher-level government action; indeed, consumer demand has been a major driver of safer food in middle- and high-income countries (19–21). At present, however, few or no consumer organizations in LMICs advocate for improved food safety. Consumer education on food safety is limited in most LMICs, including Nigeria, and many food handlers receive no or inadequate training (10,17). Studies of Nigerian vendors and consumers have shown mixed results regarding food safety knowledge but have frequently found practices to be inadequate (22).

There have been very few attempts to leverage the consumer-vendor interface as a force for improved food safety in Nigeria or in other LMICs. Globally, most interventions have focused on education and awareness raising, particularly through media and group-based trainings and with a focus on children in schools and on food handlers (23,24). Most interventions used to improve food safety in Nigeria have centred on training to vendors or food handlers (e.g., (25–27)). The EatSafe: Evidence and Action Towards Safe, Nutritious Food (EatSafe) programme aims to fill this gap by generating knowledge on the potential for increased consumer demand for safe food to improve the safety of nutritious foods in traditional market settings. The programme is funded by USAID Feed the Future through a consortium led by the Global Alliance for Improved Nutrition (GAIN) that includes the International Livestock Research Institute (ILRI), Pierce Mill Education and Media, and Busara Center for Behavioral Economics. The programme, first launched in Nigeria in 2019, seeks to identify, develop, and test a set of evidence-based intervention to leverage consumer demand to improve food safety in traditional markets, focusing in Birnin Kebbi and Sokoto, in the northwest of the country.

This working paper, based on a review of programme documents and the reflections of programme staff, describes the process used by EatSafe in Nigeria to identify and design these innovative interventions. This is presented as a case study of one approach used within one EatSafe country, while the overall EatSafe programme will pilot diverse approaches in multiple countries. In the next section, we explain the principles underlying the design approach. The subsequent section details the specific process used. We also describe the research activities undertaken to understand the context. We then explain the ‘design sprint’ approach used to identify promising interventions, the pilot testing used to refine them, and the transition from promising ideas to implementable approaches. Finally, we discuss some of the lessons learned from the approach, which were used to further improve upon and refine the approach for use within EatSafe—which remains an ongoing and iterative process.

PRINCIPLES FOR DESIGN: HUMAN-CENTRED DESIGN AND BEHAVIOURAL ECONOMICS

Human-centred design (HCD) is an approach that seeks to create innovations (i.e., interventions) that are useful to the end user. HCD’s core focus is on the end-users, but it can also be important to consider secondary users—those who might influence uptake and usage of interventions (28). For EatSafe there are two primary users: the vendors and consumers in the traditional market settings.

The secondary users are the local market administrators and vendor associations, whose buy-in is a prerequisite for intervention adoption. Input from users early in and throughout the design process is critical factor for success (28).

The EatSafe in Nigeria design process also drew on the principles of behavioural economics. Behavioural economics is a field of study that applies psychology to economic decision making, with a specific focus on consumer choice (e.g., preference and decision making) and market events (e.g., selection, purchases). Behavioural economics seeks to explain why individuals make the choices they do by examining the cognitive, emotional, social, and cultural determinants of choice and preference.

Fusing this behavioural economics thinking into the overall HCD approach, EatSafe in Nigeria used a design methodology centred on three principles:

- 1. Human-Centric:** We prioritised thoughtfulness, empathy, and hands-on involvement of our end-users. Ultimately, the success of an intervention depends on positive human interaction with it, which is why intentional design is key. This also allows for generative and inductive reasoning: by bringing end-users into the solution testing process, HCD is bottom-up and therefore optimised to produce user-driven, contextually relevant intervention elements may not emerge from only evaluative or academically grounded methods (i.e., those asking ‘does a mechanism work or not’).
- 2. Contextually Grounded and Environment-Oriented:** A deep understanding of the ecosystem around the user, rather than a focus on a specific behavioural problem, allowed us to consider the user’s affiliation with the physical, material, and social environment at large and what an intervention needed to do in that context to be effective.
- 3. Informed by Impact and Feasibility:** We measured the prototypes² both quantitatively (experimental tests on likelihood of behaviour change) and qualitatively (insights about the user experience related to feasibility, accessibility, and usability) to provide a comprehensive assessment and insight for further adaptation for user’s needs.

Applying these principles, the EatSafe in Nigeria programme team went through a series of key steps that characterise the design approach: defining the problem, prototyping, and testing. As is typical for HCD, the prototyping and the testing were done in rapid, successive steps to refine the idea, from low-fidelity to mid-fidelity, and then to the final design. These steps are described in detail in the next section.

THE DESIGN PROCESS

EatSafe in Nigeria consisted of two phases: (1) formative research and intervention design and (2) intervention implementation and assessment. This paper covers this first phase, which consisted of four steps, as shown in Figure 1: defining the process through formative research; brainstorming and prototyping; testing and revision; and preparing for implementation.

² A prototype is preliminary version of an idea, often presented in visual or in a physical form.

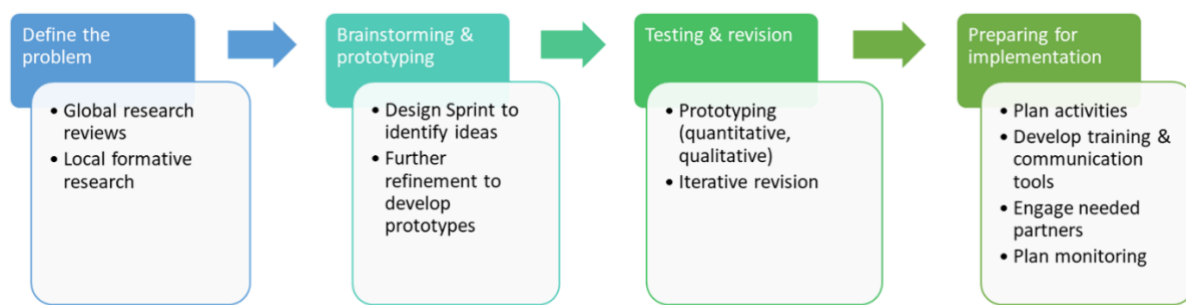


Figure 1. Summary of the EatSafe in Nigeria Design Process

STEP 1: FORMATIVE RESEARCH TO DEFINE THE PROBLEM

EatSafe in Nigeria’s formative research was conducted in two parts, lasting approximately two years, with delays introduced due to it occurring during the COVID-19 pandemic. First, a set of literature reviews was undertaken to map out what research had already been undertaken, using what methods, and with what general results. One of these reviews focused on linkages between food safety and nutrition (29), resulting in a new perspective on how the two issues could be tackled in an integrated way (7) – which guided the later focuses of the project. Another review considered interventions that had been undertaken globally to improve consumers’ food safety knowledge and/or practices (24). This was complemented by review of interventions implemented in selected countries in Asia and Africa, with a focus on traditional markets and their consumers (23), as well as a study analysing how interventions applied in traditional market settings impact foodborne zoonoses (i.e., animal diseases, some of which can potentially be transmitted to humans) (30). Two other reviews focused on mapping the knowledge, attitudes, and practices of food vendors and consumers at the global level (31), with a third focusing specifically on insights from research undertaken using ethnographic methods (32). These reviews generally confirmed that there was limited diversity in how the topic of food safety in LMIC traditional markets had been studied and in how it had been addressed through programming.

Five reviews focused specifically on Nigeria. One examined existing food safety policy documents, identifying gaps and recommendations, another assessed Nigeria’s food safety legislation and its implementation (33), and a third examined prior investments in food safety in Nigeria (34). A fourth review scoped prior research in Nigeria on knowledge, attitudes, and practices of food vendors and consumers (22), and the fifth examined existing evidence on foodborne disease hazards in food and beverages in the country (35). Finally, a stakeholder mapping exercise identified and categorised stakeholders relevant to the project’s focus region, Kebbi State (36). These Nigeria-focused reviews served clear practical purposes of mapping priority areas for future research, identifying policies to complement and support through eventual interventions, and generating a list of stakeholders that would need to be engaged to ensure the programme was not only successful but also sustainable.



Figure 2. A Beef Seller Engaged through the ‘Story Sourcing’ Study. Source: (29) .

In the second part of the formative research, primary data were collected and analysed through a set of interrelated studies. One of these used remote interviews to gather stories from practitioners in the field of social behaviour change communication media worldwide, aiming to guide more effective media design as part of the eventual EatSafe interventions (37). The remainder of the research was all conducted in the city chosen as the initial focus for the intervention, Birnin Kebbi, the capital of Kebbi State. Sokoto State was added later in the program for intervention implementation. One of these field studies utilised the ‘story sourcing’ methodology to provide critical insights from vendors in the city’s traditional markets about their lives, livelihoods, motivations, and experiences related to food safety (see Figure 1). This was meant to help inform the content and tone of any future media interventions, to ensure they ‘spoke’ to and effectively engaged the target audience (38).

Another study used a risk-based approach to understand the risk posed by key hazards frequently found in foods sold in traditional markets in Birnin Kebbi and to help identify appropriate mitigation strategies to reduce foodborne disease (39). It included food sampling and analysis and a survey of 400 consumers to understand handling and preparation practices; its quantitative risk assessment specifically considered risks posed by *Salmonella* and aflatoxins. A focused ethnographic study was also carried out; through in-depth interviews with consumers and vendors and cognitive mapping techniques, it sought to understand their beliefs and perceptions related to food safety, such as which foods they saw as ‘safe’ or ‘unsafe’ and how this influenced their decisions (40–42). Finally, a cross-sectional survey of consumers and vendors, including observations of vendors, was carried out to understand their current knowledge, perceptions, and practices as related to food safety (43).

STEP 2: INTERVENTION DESIGN - HCD SPRINT AND PROTOTYPING

STAKEHOLDER ENGAGEMENT

In parallel to the research process, the EatSafe in Nigeria team worked to solicit feedback from key local stakeholders in Birnin Kebbi on local food safety issues and potential interventions. The stakeholders consulted included the State Committee on Food and Nutrition (SCFN), Ministries of Health, Agriculture, Budget and Economic Planning, Women Affairs, Information, Commerce, Animal Health and Husbandry, Local Government and Chieftaincy Affairs), market authorities, leaders of the Market Vendors Association, researchers, other development projects, regulatory agencies, and civil society groups. The consultation covered multiple steps, beginning with understanding stakeholders' thoughts on the state of food safety in local traditional markets and areas in need of improvement. After this broad consultation, a Core Stakeholders Group was formed, consisting of key representatives from the organisations outlined above; this served as a sounding board for ideas and was asked to recommend potential areas of intervention. It also nominated representatives to attend the Design Sprint, discussed in the next section. The process of stakeholder engagement continued throughout the intervention design process as well as during implementation.

DESIGN SPRINT

Once the formative research was undertaken, the knowledge generated was fed into a 'Design Sprint' process using the HCD principles noted above. The Design Sprint is a time-limited, intensive, and interactive process to brainstorm a range of potential solutions and decide on the most promising amongst them. This process was divided into two parts: the first part was facilitated by a consulting organisation, Food Systems Foresight, and culminated in low-fidelity prototypes (i.e., highly simplified representations of the possible intervention), while the second part was led by consortium partner Busara and culminated in mid-fidelity prototypes (i.e., more developed and detailed versions).

The EatSafe in Nigeria Design Sprint took place over one week in August 2021, but the consortium partners began working towards it about a month earlier. Internal webinars were organised and focused on three of the primary research studies, allowing the researchers to present their results to the broader programme team, to respond to their questions, and to jointly consider the implications of the results for intervention design. In parallel, a series of online 'Learning Labs' was run. These consisted of a set of short podcasts featuring EatSafe research, in the words of the researchers, as well as discussions via a LinkedIn webpage. Jointly, these efforts sought to consolidate the knowledge generated to date through the studies summarised in the prior section and begin to translate them into actionable insights.

As an input into this design sprint, an ‘Innovation Inspiration Tool’ was developed by reviewing existing human-centred interventions and tactics; this drew on applications in all fields but with a focus on the agri-food sector. This tool categorised innovations into three types depending on how they engaged users: *configurations*, or methods and practices for the user; *offerings*, or core products and services provided to the user; and

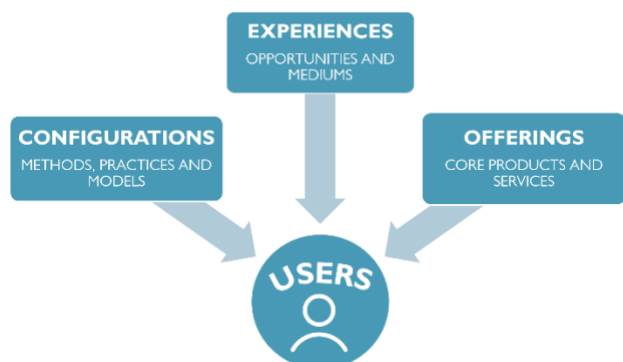


Figure 3. A User-centred Approach to Innovation

experiences, or opportunities for the user (see Figure 3). The tool included 116 innovation tactics as well as 20 example innovations and sought to inspire the team’s thinking going into the Sprint.

The Sprint itself took place over the course of one week. Due to the COVID-19 pandemic, the sprint used an all-virtual approach using video conferencing and online mind-mapping software. Twenty-eight members of the

programme staff – including researchers in different disciplines, programme implementation experts, media experts, and specialists in human-centred design – were joined by a set of local stakeholders from the Birnin Kebbi market community and facilitators from Food Systems Foresight. Working in four small groups over the course of the week, the teams each went through a structured design process of choosing a target audience; brainstorming solutions; selecting one of them; and developing and testing a prototype of it (see Figure 4).

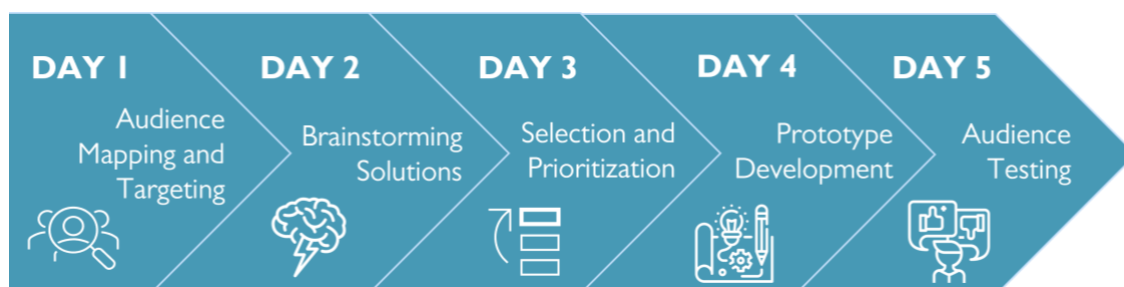


Figure 4. Human-Centred Design Sprint Process.

At the end of this intensive process, four potential interventions were identified: a market stand that would educate consumers and vendors about food safety issues and motivate them to take action; a food safety brand that could be used to identify ‘safe’ vendors in the market; a radio show that would use drama to interest consumers and vendors alike in food safety and motivate them to seek out more information about it; and a festival that would serve as an interactive and engaging event to bring consumers and vendors together and spark interest in food safety (perhaps in connection with a specific commodity). On the last day of the week, initial, basic prototypes for each of these ideas were quickly tested with stakeholders to obtain their initial feedback.

This one-week Design Sprint process thus delivered ‘low fidelity’ prototypes: basic, general ideas of the interventions. It was also decided that the implementation of these four EatSafe in Nigeria interventions would be supported by a Food Safety Alliance, which would bring together stakeholders in the local traditional markets to act for food safety. Further work was needed, however, to develop mid-fidelity prototypes that could be tested with the target audiences.

Once the Design Sprint was completed, the EatSafe team and the stakeholder representatives who attended the workshop presented the low-fidelity prototypes back to a larger stakeholder group in Birnin Kebbi for their input. While the stakeholders were generally satisfied with the proposed interventions and engaged to collaborate on their implementation, they also gave critical feedback that was used to refine them further. For example, they noted the importance of referring explicitly to ‘safe food’ in the names of the Alliance and Stand, as opposed to the proposed ‘clean food’ term, as food being ‘clean’ did not necessarily mean that food was safe. These changes were integrated in the final design of the interventions.

PROTOTYPING

The second part of the EatSafe in Nigeria design process also used a week-long process, per intervention, which consisted of two design sessions and two reviews. The first session was used to discuss the impact objectives, outputs, intervention parameters, and behavioural mechanisms, aiming to ensure alignment amongst the consortium partners. Following this discussion, the Busara team built a mid-fidelity prototype, drawing on the low-fidelity prototype developed from the design sprint. During the second session, the prototype was presented to solicit feedback from the team and agree on the final intervention idea. Two rounds of review were done with consortium members who were not part of the design team to ensure intervention’s logic and core components were feasible and appropriate for the EatSafe programme and the local context. In total, we conducted four weeks of prototype design sessions to develop four mid-fidelity prototypes.

STEP 3: PILOT TESTING AND REFINEMENT

Because each intervention consisted of multiple components, which could be implemented in various ways, pilot tests were needed to identify which intervention components were more likely to succeed in an in-market setting, and in what form. For example, for the Food Safety Stand, the team needed to determine what it would be called; what it would look like; who would staff it; and what activities and materials it would offer.

Pilot testing consisted of both qualitative and quantitative tests. The qualitative test had three aims: to examine feasibility (i.e., is the idea realistic to implement), likability (i.e., how does the target audience feel about the various elements in the interventions), and audience preferences (i.e., which specific variation of each element does the target audience prefer and why do they prefer that). The quantitative tests aimed to define which of the core intervention components could affect behaviour change and using which mechanisms. Some of the mechanisms tested included ‘message framing’ (e.g., risk, fear, time, collaboration, or norms), ‘messenger’ (i.e., who is best placed to deliver the message), and message content, including form of delivery (e.g., checklist versus pamphlet). In the quantitative test, each intervention component was tested using either a randomised experiment or a choice experiment. For the randomised experiment, participants were randomly exposed to one treatment per intervention component. In the choice experiments, participants were exposed to multiple variations of an intervention element to define their preferences. The outcome measures were the participant’s interest and confidence with regards to a specific behaviour, such as willingness to give out of an endowment to subscribe to food-safety related messages, or the participant’s confidence in discussing food safety with others. Outcomes were measured using incentive-compatible choices—that is, approaches that would incentivise the participant to behave as they would in the real world, by putting in place costs and benefits similar to those they would face in the

real world. This helped create higher-stakes situations for participants, encouraging more accurate responses.

The pilot testing was conducted in one market in Birnin Kebbi and one in Sokoto. The qualitative tests were completed first, followed by the quantitative tests a few weeks later. The qualitative tests consisted of semi-structured interviews with 68 participants (either consumers, vendors, or both, depending on the primary target audience for the intervention). A mobile computer laboratory was set up in both markets for the quantitative test. 600 consumers and 300 vendors, split equally across the two states, participated in the mobile lab sessions. The tests are summarised in Table 1.

Table 1. Summary of Pilot Testing

| Research | Description |
|--------------------------|--|
| Qualitative test | <ul style="list-style-type: none"> • In-depth interviews with visual prototypes of the intervention elements to generate feedback on the audience's receptiveness to the intervention, likability of the intervention elements and their design preferences for each element. |
| Quantitative test | <ul style="list-style-type: none"> • A mobile lab test to assess the potential of the intervention components to drive behavioural change. This enabled control of different variations of the intervention components and used outcomes tied to real incentives to elicit accurate feedback on the audience's preferences compared to self-reported data. • A mix of randomised and choice experiments were used to understand the optimal mechanisms (message theme, messenger, message structure, intervention name) to deliver interventions to consumers and vendors. |

Once pilot testing was completed, the consortium met twice to review results for all four interventions, then divided into four teams, each focusing on one of the interventions. Each team was given their intervention's specific impact pathway, pilot testing results, research findings, and stakeholder feedback. They were tasked with recommending to the consortium the final design of the intervention. The final design encompassed everything from intervention name to tone and general design of the communication assets, target audience, engagement activities, key indicators, and logistics of implementation. Over approximately a three-week period, the teams discussed their assigned interventions separately before presenting their recommendations to the consortium. After two meetings lasting two hours each, the consortium was fully aware and in agreement on the design of the interventions. The design process was thus highly iterative and inclusive, with multiple moments for feedback from stakeholders both internal to the consortium and those integral to the local food system.

STEP 4: PREPARING FOR IMPLEMENTATION

Once the design of the interventions was set, the EatSafe in Nigeria consortium divided up roles and responsibilities to operationalise the interventions. Operationalising took a different form for each intervention but generally included an implementation plan with set activities and a timeline, the development of communication tools and training strategy (as needed) to support those activities, identifying local service providers to execute the strategies, engaging local market stakeholders to

agree on key points (e.g., identifying a physical space or key champions for interventions), and finalising a monitoring and evaluation plan.

For example, to operationalise the Food Safety Market Stand, the EatSafe team first worked closely with market officials to identify a space in the market for the planned stand. It was important that the Stand be centrally located and accessible to as many consumers shopping in the market as possible, and it also needed enough space to accommodate consumer engagement and host quick food safety demonstrations. EatSafe agreed with market officials to lease a stand and hire local staff to engage with consumers and vendors. Once the Stand staff was hired, they needed to be trained on basic food safety principles and how to communicate food safety to consumers. Additionally, the team needed to produce consumer-facing communication materials, such as the stand sign and commodity-specific food safety pamphlets. To execute both the training and the communication aspects of the Stand intervention, EatSafe developed a communication and training strategy and hired local service providers to further refine and execute the strategies. The stand was then ready to be launched, in coordination with the newly created Safe Food Association.

While the operationalisation process helped further refine and improve most of the interventions, it also sometimes called into question their feasibility. This was the case for the planned Festival intervention. EatSafe's research and design process emphasised that the festival would be most impactful if attached to an existing cultural or religious event and that it should take place in the market itself. However, it became clear that there was no cultural event in with Kebbi or Sokoto States that would create the desired celebratory environment, that there was not enough space in the market to hold a large event, and that the cost of trying to introduce a new festival that consumers and vendors would want to attend would make the intervention unsustainable. As a result, the EatSafe team agreed to remove the Festival as an intervention; instead, it was decided to work with the Food Safety Association to incorporate some smaller celebratory activities on World Food Safety Day.

DISCUSSION AND CONCLUSION

The EatSafe programme seeks to generate knowledge on how increased consumer demand for safe food can be used to improve the safety of nutritious foods in traditional market settings. This paper has described how EatSafe used an HCD-based approach, drawing on principles of behavioural economics, to identify potential interventions for doing so in Nigeria (as a case study within the broader EatSafe programme). This process began with defining the problem through a series of formative research, including some global reviews of existing research but primarily focusing on generating new knowledge about food safety risks in markets in Nigeria and how consumers and vendors make decisions related to them. Next, the EatSafe consortium drew on this knowledge to brainstorm interventions, narrowing them down and refining them through a week-long Design Sprint followed by a series of more in-depth design sessions. This resulted in 'mid-fidelity prototypes' for four interventions (plus a supporting Alliance). In the third step of the process, these interventions were pilot tested with their target audiences, while the final step worked to work out the details of the intervention design and steps needed to support it, dropping one intervention idea in the process.

The process thus ended with a set of four novel interventions ready to take to the target communities: the market stand, the food safety brand, the radio show, and the food safety alliance. The next

(currently ongoing) phase of EatSafe in Nigeria involves implementing these interventions within the local communities to learn which work best, and why. But as Nigeria was EatSafe's first-ever intervention country, the process of developing the intervention ideas was itself a learning opportunity: a chance to understand and test which processes worked for problem definition, brainstorming, selecting, and designing these interventions. This learning will continue as the interventions are implemented: monitoring data, implementation research, and impact assessment will be used to understand what works well and what needs to be changed, issuing recommendations for future interventions.

A number of the aspects of the EatSafe in Nigeria design process worked well and could be taken forward by EatSafe in subsequent countries, or by similar future interventions. First, the design drew upon the knowledge and experience of a wide and diverse set of Consortium members, including experts in multiple fields (e.g., food safety, nutrition, media, behaviour change) from both the global and Nigeria-focused teams. This allowed for different ideas to be infused into the process and helped to 'stress test' the ideas from diverse perspectives. Second, the process integrated the views of local stakeholders and end users throughout its steps, ensuring that the interventions reflected—and could work within—the local reality. Third, the team collectively undertook a significant amount of primary research and synthesised numerous bodies of existing scholarship, forming not only a useful basis for the design of the interventions in Nigeria but also a lasting contribution to knowledge on food safety. Finally, the process was iterative and adaptive, allowing for both improving on ideas and deciding that some were not viable and should not be taken forward—as demonstrated by the experience with the eventually dropped Festival intervention. Identifying non-viability of ideas through prototyping and discussion, rather than actual implementation, resulted in a much more efficient use of resources, as they were not spent on a non-viable intervention.

At the same time, there were several weaknesses to the approach that made it less efficient, or less effective, than it could have ideally been. Embodying the 'Collaborating, Learning, and Adapting' ethos of the project³, the EatSafe team undertook a 'Pause and Reflect' review of the design process used in Nigeria, aiming to identify how it could be improved in the future. This event was timed before a similar design process began in Ethiopia, aiming to inform that work, and flagged several challenges. First, it was difficult to synthesise the large amount of research undertaken, particularly when it came to reconciling different results across different studies and to determine the practical implications of more abstract research, and likely not all research was truly needed to design the interventions. This was exacerbated by the short time available to transition from the research component to the design component: as research was delayed by the COVID-19 pandemic, there was limited time to internalise and reflect upon research results before beginning the design process, or to ensure that the interventions were all supported by that evidence. Secondly, the Design Sprint forced a very rapid (less than one day) narrowing from a long list of ideas to just four interventions to take forward, which likely eliminated some viable possibilities. Third, there was some tension between ensuring an inclusive process, with representation from all Consortium partners as well as local and national stakeholders and making sure that process was efficient and could move quickly. It was particularly challenging to ensure representation of consumers as a stakeholder group, given that they did not

³ <https://usaidlearninglab.org/cla/cla-toolkit/understanding-cla>

have an organised association. Overall, the design process extended for about a year, a length that would be infeasible for many projects.

Based on these lessons learned, the EatSafe in Nigeria design process was adapted for the second EatSafe intervention country, Ethiopia. These adaptations focused on shortening and accelerating the process; moving more quickly to prototyping; ensuring more synthesis of the research work as well as better leveraging it to improve design; and including more ideas in the process for longer, rather than quickly narrowing to a select few. This revised process is currently being tested and will no doubt result in further lessons learned, and further iterative improvements—which we look forward to sharing in the future. For now, EatSafe in Nigeria, as one case study within the EatSafe project, offers a useful example of an initial attempt at an evidence based, HCD process for designing food safety interventions; leveraging its strengths, and learning from its weaknesses, can help to improve such approaches in the future.

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