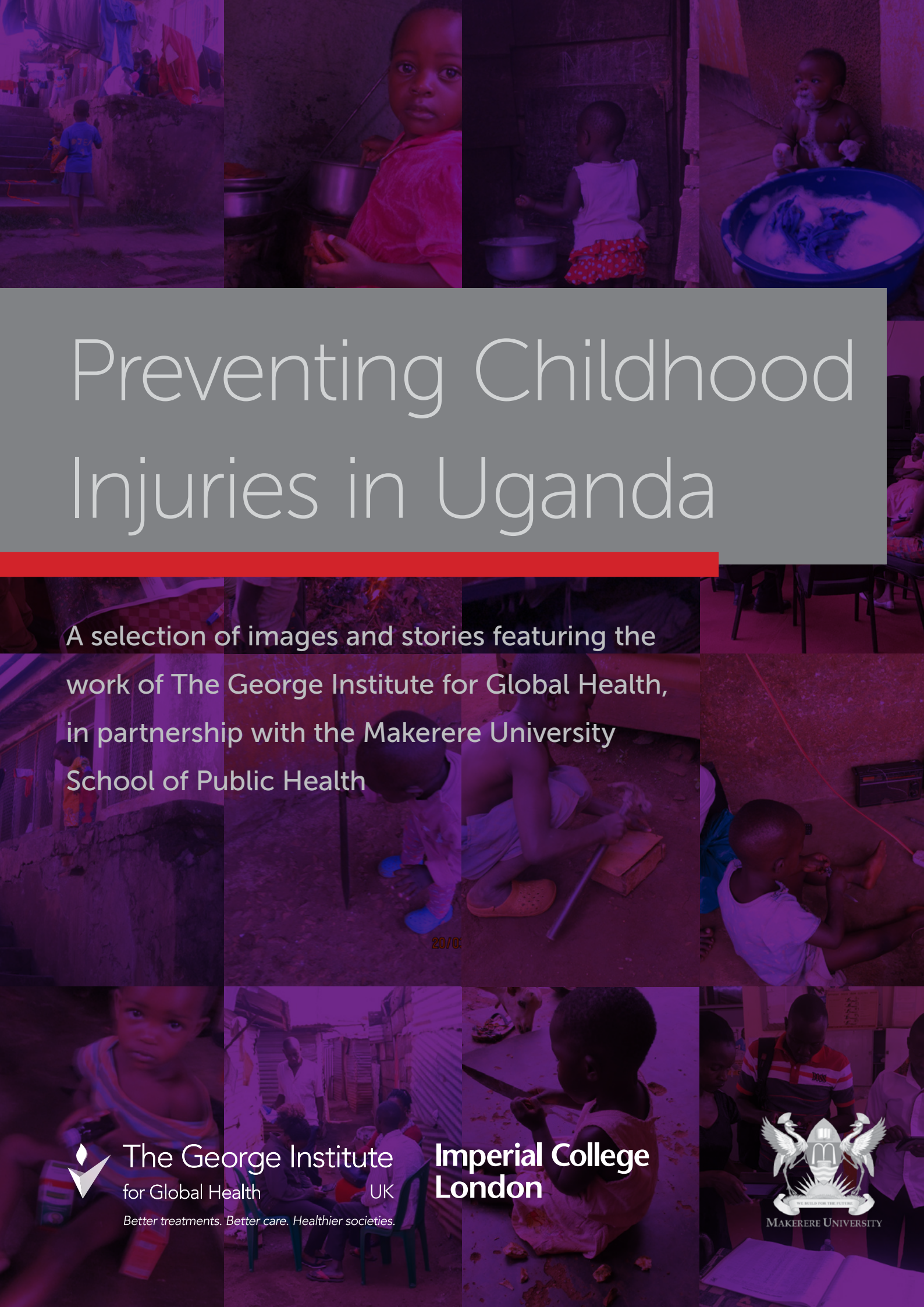

Preventing Childhood Injuries in Uganda

A selection of images and stories featuring the work of The George Institute for Global Health, in partnership with the Makerere University School of Public Health

The George Institute for Global Health UK

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Understanding the burden of child injury

Globally, more than 270,000 children under the age of 5 years lose their lives every year to injuries. More than 70% of these injuries are unintentional - the vast majority of which can be prevented through the provision of low-cost, subsidised or free safety equipment, coupled with parental education (according to findings from studies conducted in high-income countries). In many high-income countries, new mothers receive safety kits that include items such as plug outlet covers, bath thermometers and table corner protectors.

Sub-Saharan Africa has the highest proportion of under-5 deaths in the world, with the majority of injuries occurring in or around the home environment (from burns, drowning, falls, cuts, poisoning). This research project set out to understand the burden of unintentional injuries within the home to under-5s in Jinja, Uganda, to explore the views and current practices of parents and to explore opportunities for scale-up of a bespoke safety kit and educational intervention across other low-income contexts.

The project is planned over two phases:

- Phase 1 which, as of Spring 2022 is largely completed, contextualised the child injury burden through a community-based participatory approach using mixed methods (in-depth interviews, focus group discussions, market surveys, and PhotoVoice) through which members of the community documented and reflected on injury risks in their home environments and used this information to develop prototype safety devices and educational material/training;
- A later Phase 2 is proposed to test, through a cluster randomised trial, an appropriate child safety kit (developed through co-design to reflect differing risk profiles, cultural appropriateness and availability/affordability, against traditional education).

Across the following three sections, this photobook will take you through the research process, key findings, and insights from the community.

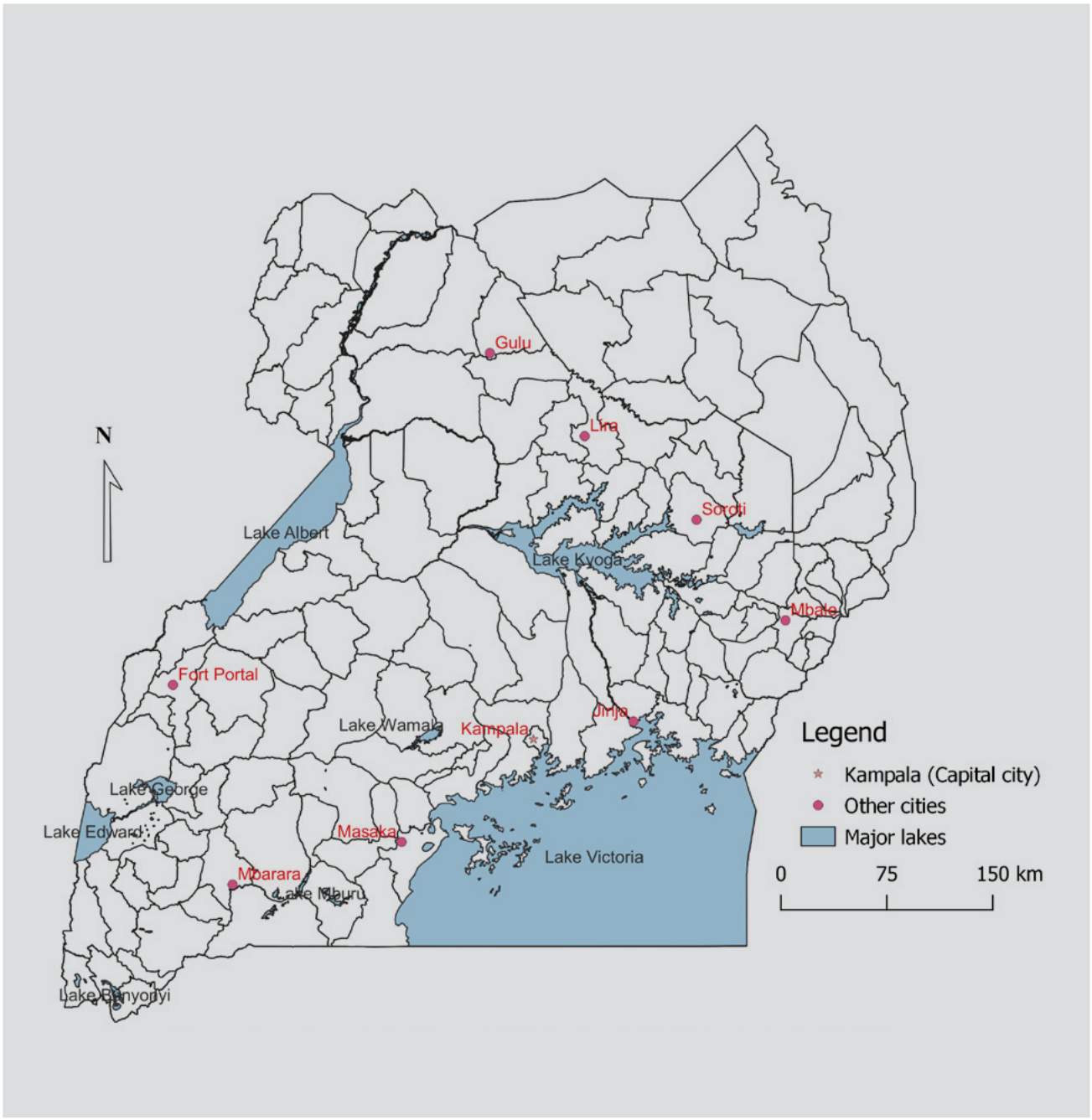
- ***Understanding the burden of child injury***
- ***Ways of seeing: identifying risks***
- ***Raising awareness and community-led solutions to save lives***

Image credits: Prasanthi Attwood; Charles Ssemugabo; Mothers/carers in Jinja

Meet the team!

Researchers from the Makerere University School of Public Health, Uganda, and The George Institute for Global Health worked with the community in Jinja to understand the burden of child injury.

Pictured here are some of the core research team along with the fieldworkers who were central to the data collection - still smiling after a 3-day training workshop in February 2020 in Jinja, Uganda. Fieldworkers were trained by senior researchers (including Prasanthi Attwood who joined from the UK) in quantitative and qualitative methods, and were given hands-on practical experience in conducting interviews, surveys, use of tablets for data collection etc.



The study was conducted in Jinja, a city located in the Eastern region of Uganda, 87km from Makerere along the Ugandan-Kenyan highway. With a population of over 72,900 across 18,936 households, 80% of residents live in poverty within large slum communities that are overcrowded, informal settlements with poor sanitation.

Jinja was selected as an old secondary city with a semblance of infrastructure and social services of primary cities, and thus representative of urban settlements in Uganda and other low-income settings.

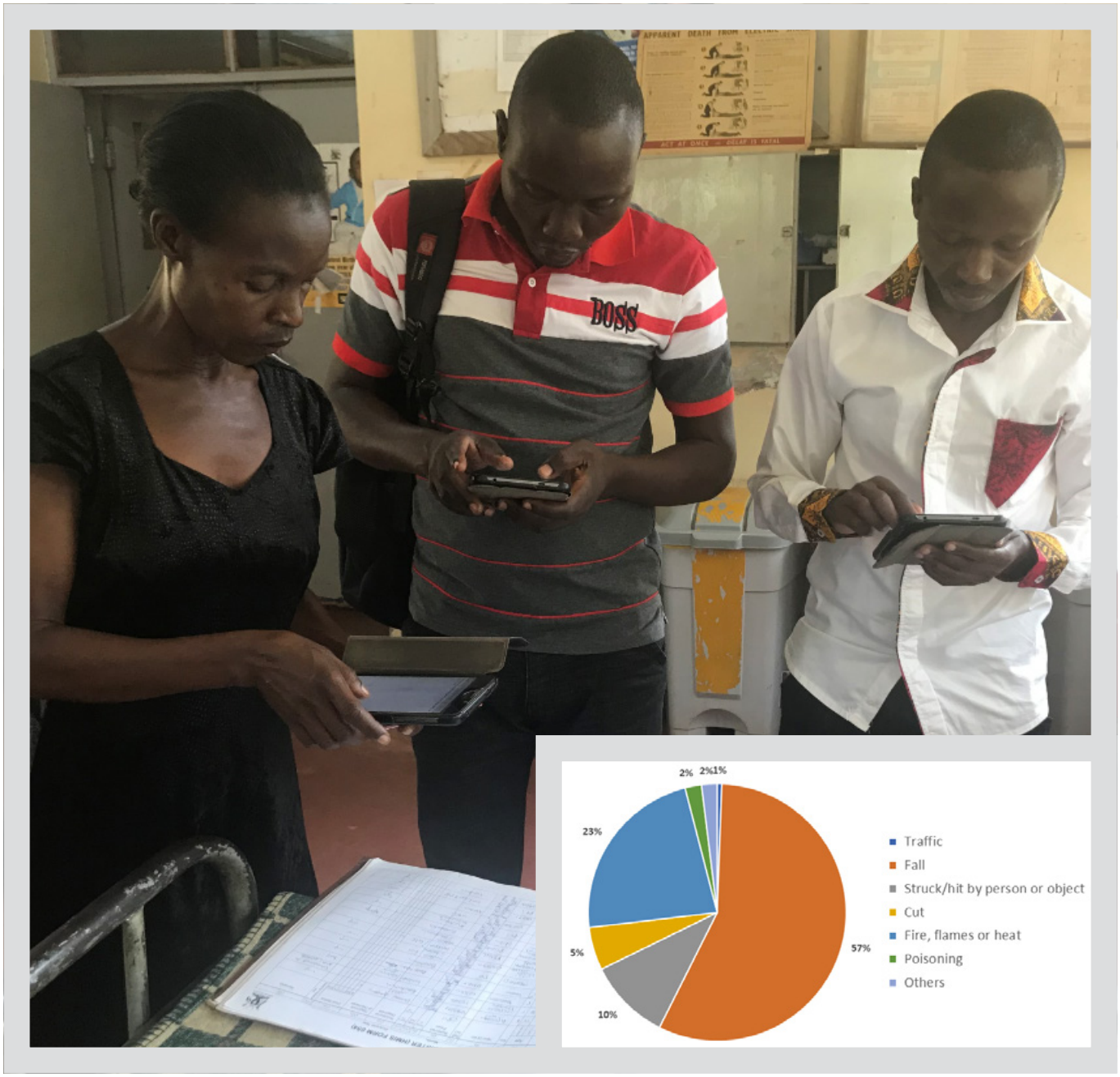
In order to capture a true representation of the population of Jinja for the household survey and risk assessment, a three stage cluster sampling method was used where fieldworkers systematically mapped all households. 615 households were randomly selected for the household survey and risk assessment resulting in a total of 879 children aged 0 to 59 months (under 5 years) from the surveyed households.

Thirteen fieldworkers were trained by the study team from The George Institute and Makerere University in all data collection aspects. Skilled fieldworkers in hospital data systems were recruited and trained to carry out the hospital data review and the remaining fieldworkers underwent a 2-day training workshop where they were walked through the community based survey questionnaire, given training in how to use the electronic data collection form and had the opportunity to practice conducting surveys in pilot communities.

Four fieldworkers were specifically trained in qualitative focus group moderation and were given the opportunity to hold practice focus groups in order to refine their moderator skills and probe respondents on unintentional child injuries. In total, 10 focus groups were held with a variety of participants including mothers, maids, health workers, teachers, community leaders, and councillors.

An additional PhotoVoice component was included in the study whereby 10 mothers were selected from the initial focus groups and asked to participate in a photo-based study. Mothers were given digital cameras and asked to take pictures of situations and their environment that they perceived to be related to unintentional child injuries within the home. The mothers were then invited back as a group to discuss their photos and use them as talking points for further discussion. This component of the study was initially delayed due to the COVID-19 pandemic but was pursued once restrictions eased. Many of the photos captured via this method are displayed following.

Uganda faced strict restrictions when COVID-19 hit the country which resulted in school closures for just under two years (the longest lockdown closure globally according to the United Nations). These restrictions had a direct impact on the research resulting in significant delays to the PhotoVoice component necessitating a reassessment of fieldworker and participant safety. The research teams in both the UK and Uganda sought advice from the respective ethics boards as well as the Medical Research Council and put in place several risk mitigation procedures in order to maximise the safety of the teams including social distancing, wearing of masks, and hand sanitising routines.



Results of the study: Quantitative

The hospital record review returned 235 unintentional injury cases amongst children under-5 over a 6-month period. Of these, 34% were due to burns, 19% cuts and 16% concussions from falls. The majority (96%) recovered from their injury and were discharged home. There were seven deaths as a result of injuries sustained and one child was left with permanent disability.

The survey of 615 households yielded 524 children under the age of 5 who sustained a total of 871 unintentional injuries. The majority (53%) occurred within the courtyard of the household and were predominantly (57%) due to falls (either from bunk beds or verandas outside) or burns (23%) from stoves. The risk analysis of the homesteads indicated that there was a significant association between fall injuries and the absence of protective surfaces (e.g. carpets) under where the children slept and a significant association between the ability to separate the kitchen from the main living area and burn injuries. The findings from the quantitative work were subsequently explored in more depth through the focus groups and PhotoVoice research components.

Ways of seeing: identifying risks

The images in this section are the result of the innovative PhotoVoice method. The captions reflect key quotes from the group discussion held with the 10 mothers once all photos were collated. They reflect the power of visuals to bring spoken reports and prevalence statistics to life, as well as offering valuable insights into what mothers identified as posing risks to children in their homes – and what might be done to reduce the impact of these.

Image credits: PhotoVoice participants [2020]. Permission to reproduce pictures was gained from all mothers.

Through this approach, a word cloud was produced to highlight common emerging requirements of a child safety 'kit' in the Jinja community. Whilst there are some similarities between the perceived safety requirements of mothers in Jinja and the safety devices that have been traditionally included in child safety kits in high-income countries e.g. bath thermometers, the overriding challenges and needs that emerged from this study demonstrate the wider social determinants at play in many low-income settings and the notion that potential solutions may not neatly fit "inside a kit" as originally proposed.

> If a child has nowhere to play, it is likely to get into trouble

Mother 4 comments on lack of space and the risk of fall injuries.

Falls—off beds—were the most cited nature of injury during the focus group discussion, and is especially common among those who sleep on double or triple decker beds with no guard rails. Bunk beds are a necessity for larger families where sleeping space is limited and most are built without guard rails. However, even where rails are present they are seen to be a hazard and have caused injury climbing into bed.

> The child tried to touch the holes and the electricity shocked him. The child licks his fingers. So when he came from there, remember he is ignorant, he just put his finger like this and electricity shocked him. He first stayed there for some time and then later the mother took him to a health facility.

– Mother 4 describes electrical burns caused by a child playing near plug sockets and exposed wires.

“That child is trying to imitate how the mother cooks. The mother had just left and the child went next to the charcoal stove with another charcoal stove nearby. The child just picked a saucepan and started cooking … I think she has little space and doesn’t have any other place where she can cook from.”

– Mother 5 highlights the difficulties in separating the cooking and play areas and the associated risks of burn injuries with children able to easily access hot stoves, a common form of reported injury raised during the focus group discussions. Such injuries were attributed to lack of or limited supervision by the parents and caregivers, or through children mimicking their mothers by throwing charcoal from one stove to another.

Mother 6 captures this photo of a hungry child about to scoop porridge out from a hot urn with their hands, risking a burn injury.

Mother 10 captures this image of a child playing with a bucket of soapy water. Ingesting soap and playing near water were identified as possible poisoning and drowning hazards.

“Now this baby, when it came across it, that size of children, whatever it comes across, it just puts in the mouth. So I found it when it has got the ointment tube and putting it in the mouth thinking that it is... something edible.”

– Mother 5 reflects on the poisoning risk posed when children play with medicines without safety caps. During the focus group discussion, participants flagged a combination of poor storage, unsafe practices and misuse of drugs in some homesteads as being responsible for a few cases of poisoning.

“They started their game of burning rubbish. So when I barked at them ‘what are you doing?!!’ Some of them ran away. So one ran, he dropped some rubbish which had fire.”

– Commenting on this photo of children playing with exposed flames in a courtyard, Mother 8 highlights burn risks.

"I found the child playing with a knife. The child was busy cutting something. I would say it is the parent to blame for not keeping such sharp objects out of reach of children."

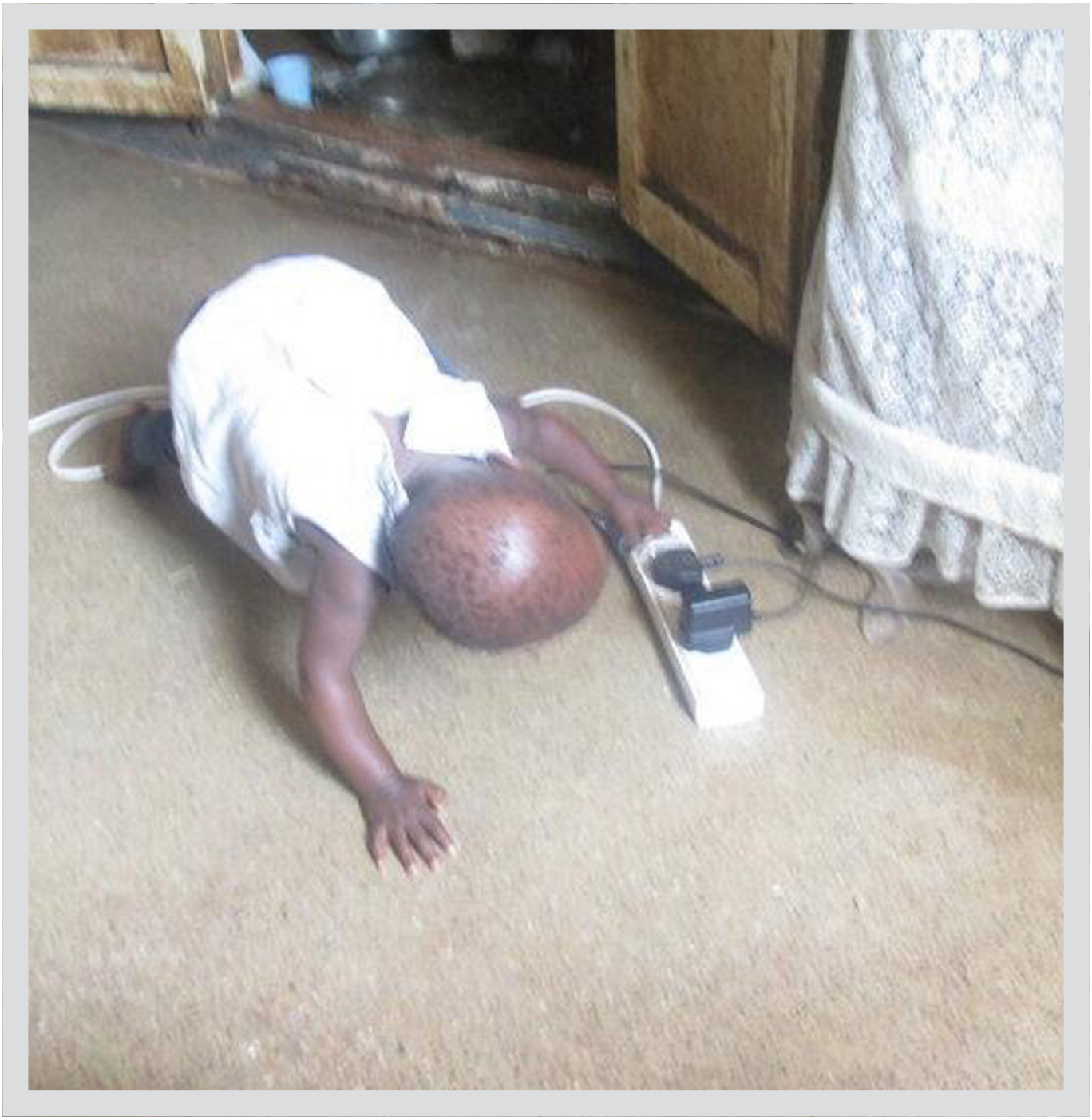
– Mother 8 highlights how children often mimic their parents to help prepare food, and underlines the risks sharp objects such as knives pose to children.

> He can easily hit himself causing an injury to himself. But the parent knows that the child is busy playing and he or she is not bothered.

– Highlighting another sharp object and injury risk, Mother 8 highlights that children will play with anything that they can find.

> The children ... they chase one another, a child can slide and fall because there is no guard rail on the balcony... I see that the children are playing not knowing that they easily fall and get fractures.

– Mother 2 identifies a potential source of fall injuries from children playing on verandas and raised platforms without safety rails or protective barriers.



“If I were the one, I would first look for an electrician in the area to help me shift it from there to a higher place where children can’t reach.”

– Electrical burn injuries among children are often caused by low level wires and sockets, as Mother 7 describes here.

> The yard is where the children play but also where motorcycles are parked. Burns from touching the hot engine or crush injuries if the vehicle falls on top of them are common.

– Outside of the house, Mother 2 highlights that motorcycles can pose dual threats to children through crushing and burn injuries from hot engines.

“The child was playing with a panga. The mother had just cut firewood, she had dropped it there to take the firewood, then the child also picks the panga trying to make a hole.”

– Mother 3 comments on the risk sharp implements or tools pose to children who often play with whatever they find in the courtyard and home environment.

Raising awareness and community-led solutions to save lives

The themes of social determinants and inequalities (lack of space, unsafe playing spaces, unsafe energy for cooking and lighting, poverty), environmental limitations, awareness of child behaviour and parent-centred behaviours (inadequate supervision and poor storage of hazardous items) which emerged from the community participation research component needed further exploration and a more intersectoral approach to consider what would help alleviate the burden of unintentional injuries among this population.

Image credits: Mothers/carers in Jinja; Design without Borders, Uganda

> Like me, I have left a child of 6 months with a child of ten years - just because she is joining senior does not mean that she is old enough.

– Mother 2 describes how supervision of children is often not possible or is neglected.

This emerged as a key theme which highlighted the inability of families to afford appropriate childcare while the mothers/carers were juggling jobs as well as looking after their families. The responsibility that was placed on older children to help supervise their younger siblings increased during the lockdown restrictions imposed by the COVID-19 pandemic as schools were closed for almost two years meaning that children were home much more and needed full-time care.

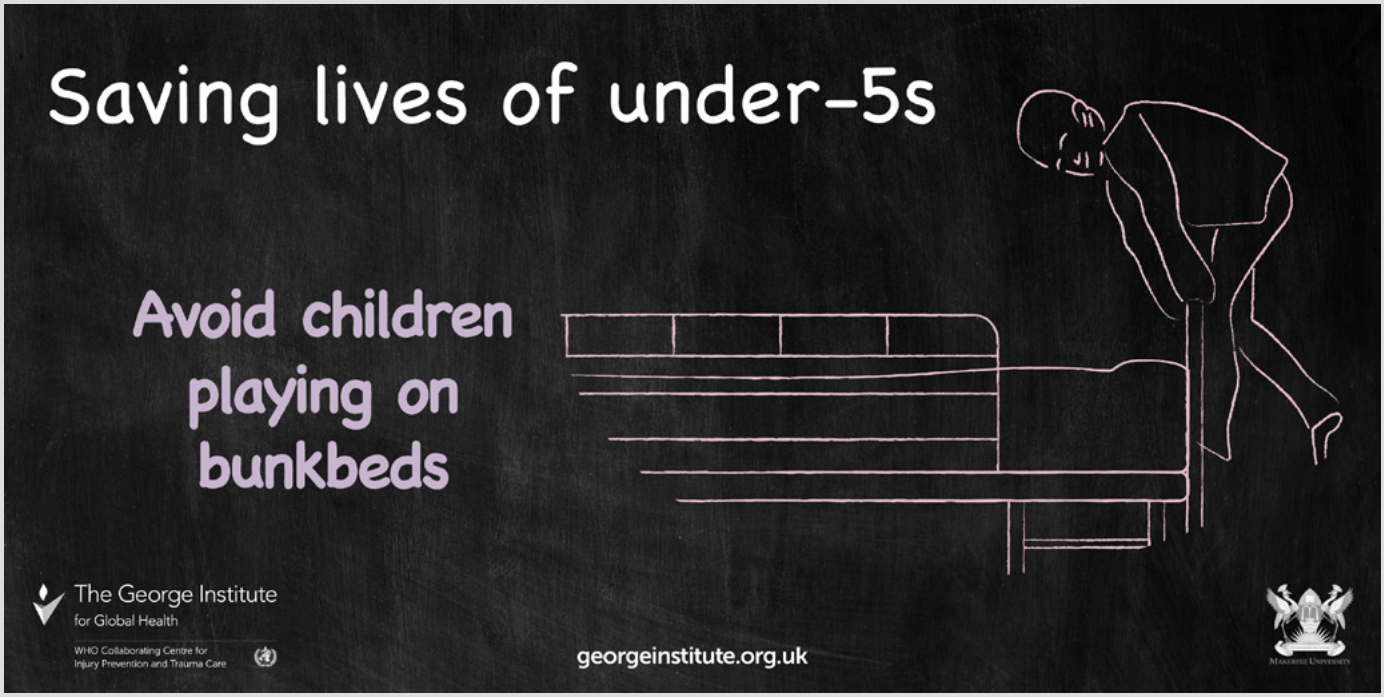
> ...the parents didn't know where the children were playing and maybe playing with who? And they couldn't find the child - the child had fallen into an open pit that was for a latrine and it was injured badly.

– Mother 5 describes an environment that poses hazards and uncertainties to caregivers and children alike.

Limited living spaces and the open nature of many of the communities in which the research was conducted meant that children were often forced to play in areas that were not safe for young children and were frequently unsupervised or out of the eyeline of a responsible adult.

“The research has exposed the nature and extent of injury risk faced by children under five in this and similar communities. This knowledge should feed into studies to determine what prevention strategies work, and how communities can be supported to adopt them. That the interventions are not the ‘kit’ we set out to define is a major learning from this study.”

Olive Kobusingye, Director of the Trauma, Injuries and Disability programme at the Makerere University School of Public Health in Kampala, Board Chair of The Road Traffic Injuries Research Network, co-founder of The Great Outdoors, Uganda, and Distinguished Fellow at The George Institute for Global Health



An important component of community-based participatory research is being able to feed the research back into the community and disseminate the information in a way that is meaningful and useful for those involved.

It was clear from the PhotoVoice insights that young children were taking part in different risky behaviours and that carers were often not aware of the dangers that surrounded them.

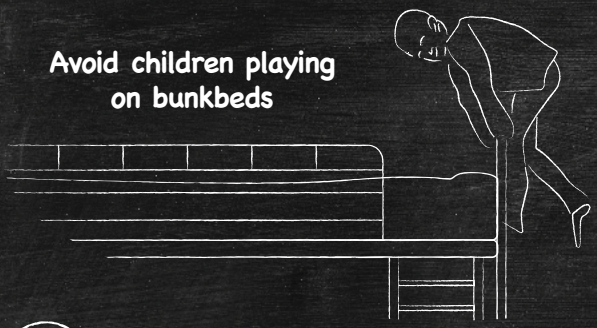
In order to support the local community to better understand the local risks to child injury, and to effectively mitigate them, we developed a set of targeted awareness-raising and informational messaging directly based on the photos that were taken by the mothers themselves. A communications and design team comprising of members from the research partner organisations worked together to translate the photos into awareness-raising messages and graphics.

These targeted messages were shared on Twitter and Facebook in English and Lusoga (the local language) over the festive period, a time when we know injury hazards in the home are likely to be increased.

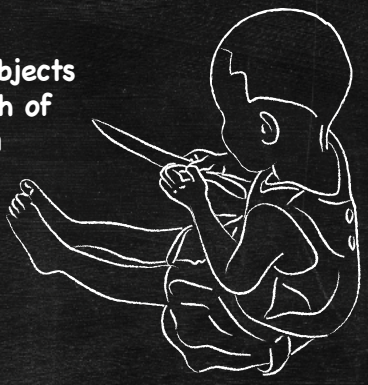
The above image is an awareness-raising message, based on the PhotoVoice image taken by Mother 4, identifying the potential hazards of children playing on bunk beds owing to limited alternative options for play.

Saving lives of under-5s

Avoid children playing on bunkbeds



Keep sharp objects out of reach of children

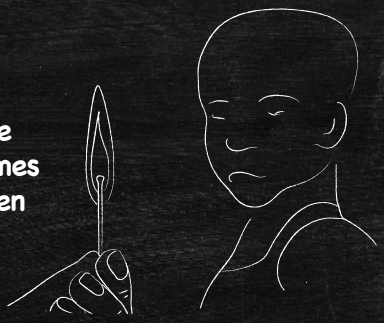


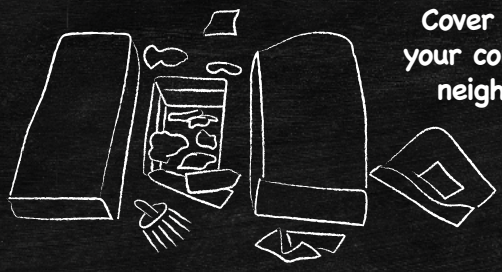
Don't allow children in the cooking area

Keep chemicals and medicines away from children

Make sure raised verandas have protective rails

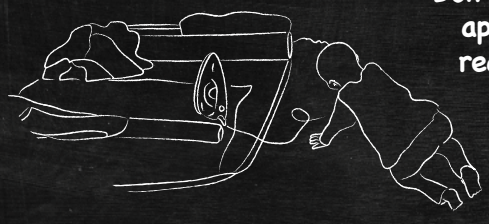
Don't leave exposed flames near children





Cover pits within your compound and neighbourhood

Don't leave electrical appliances within reach of children



Avoid electrical sockets being within reach of children

Don't leave children alone on wet surfaces or within reach of water sources

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> Children use things in ways that we as adults could not imagine
>
> **– Mr Lawrence Okoth, Design Without Borders, Uganda**

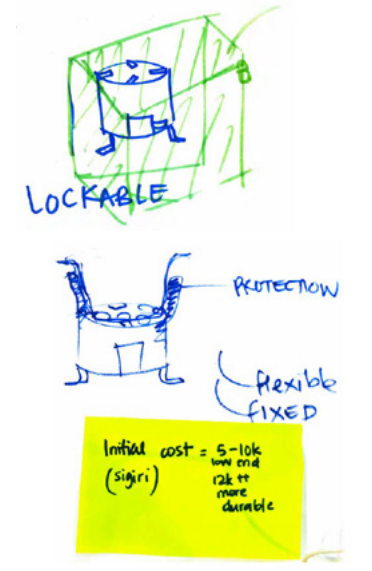
The next step was to engage with a group of local engineers - Design Without Borders (DwB) - who used their skills and experience in working with local communities to explore these emerging issues further with the mothers/carers and started to develop a set of prototypes of safety devices. Through a series of co-creation sessions with mothers and site visits to communities in rural areas of Jinja, DwB was able to take on board what the community were saying in terms of the on-the-ground realities of daily life and worked in close conjunction with them to develop a series of potential safety devices.

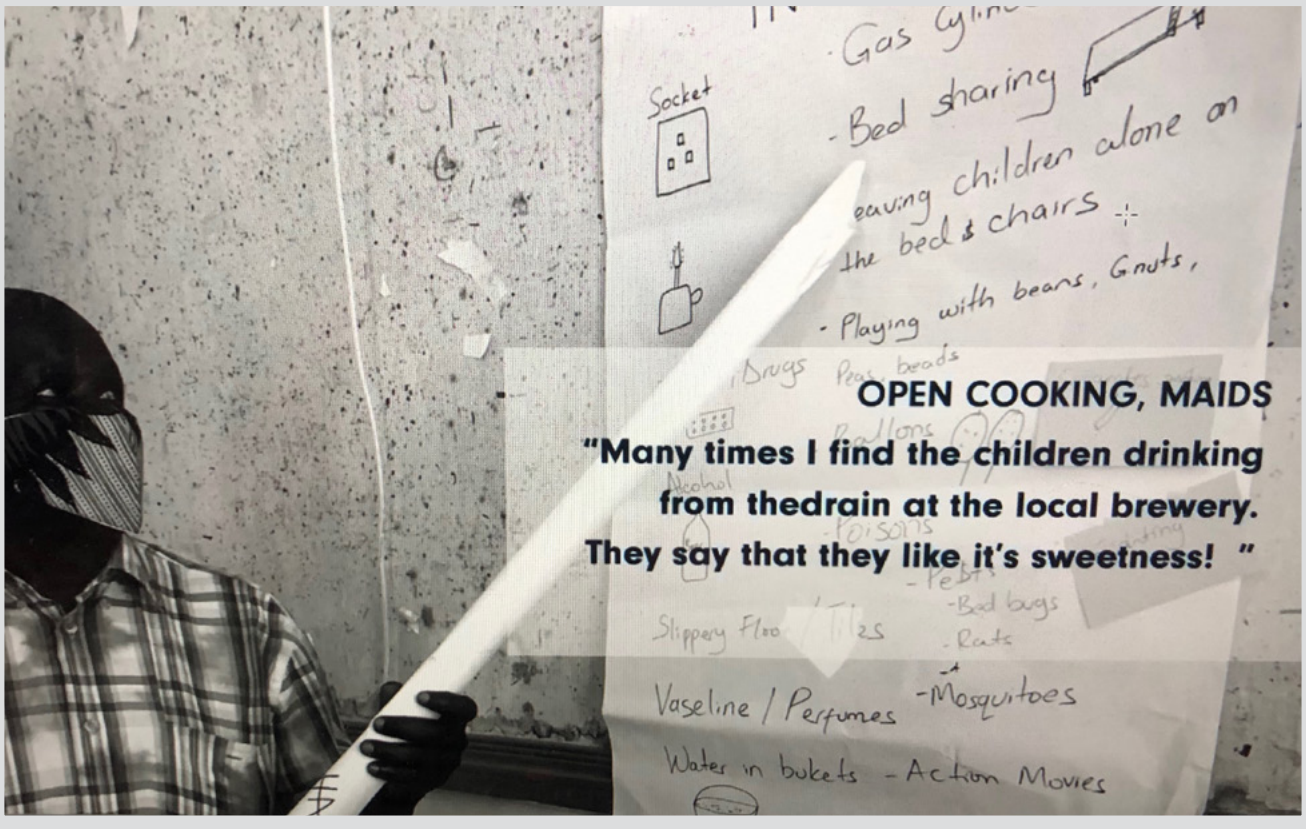
This collaborative approach between the researchers, engineers and community enabled us to go beyond the findings from the quantitative and qualitative work already undertaken and gain greater insight into the social determinants of unintentional injuries that were emerging.

These photos were taken by the engineers when in the community and clearly highlight some of the issues faced by parents/carers and children in Jinja, such as over-crowded living spaces, open cooking areas and differing responsibilities of children within the households.

Co-creation sessions with the community were held whereby the engineers asked the community to come up with ideas and solutions to various risk factors that had been identified through previous engagement and research. The engineers worked closely with the mothers/carers to sketch out their ideas and brainstorm the potential solutions that may be feasible within their setting.

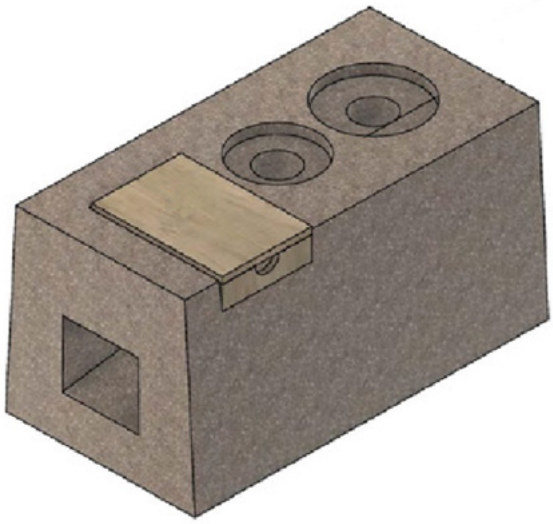
These pictures show one of the engineers talking through safety issues with the mothers in one such co-creation session and the subsequent drawings that were sketched through these sessions.





Together, the engineers and mothers came up with a list of potential safety items that included a bespoke designed cooking area, play baskets, a form of protective matting to reduce injuries from falls and a safety box for sharp tools. The premise was that the community would be able to source materials locally and potentially produce these using the skills of local basketweavers and carpenters.

Pictured opposite, is one of the DwB team members working with local metal workers to determine affordable materials for a fixed cooking stove. Prototypes were developed (pictured below) and then models were given to mothers/carers during feedback sessions (pictured above).



To date, the project has identified the predominant causes of injury among children under 5 years in Jinja as falls and burns with risk increasing significantly when there is no separate kitchen or play area.

The journey from conceptualisation to development of prototypes has forced researchers to think laterally and adapt both the research methods and the original notion of a safety kit to reflect the community-based participation and therefore the needs of the mothers and carers.

It was quickly apparent that devices that have been proven to be effective safety interventions in high-income countries were not appropriate or accessible in this low-income context. The role that social determinants of health played in the prevention of unintentional injuries in these settings needed to be explored further.

This study provides a good example of how community-based participation can truly guide the research process, demonstrating how affordable and socially acceptable interventions for the children and parents of Jinja were co-developed through the triangulation of quantitative and qualitative data and the collaboration with the community, local tradespeople and engineers.

Watch this space!

The planned second phase of this project – a randomised control trial to test the effectiveness of the home environmental modifications – will proceed once further funding is secured and the local COVID-19 situation has stabilised.

In the meantime, researchers will continue to distribute the awareness-raising messaging to members of Ugandan cities similar to Jinja, and will formally publish the findings from this first phase.

This research was funded through the UK Medical Research Council Development Grant (MR/T003480/2)

Ethical approval: 21IC7050 (Imperial College London), HREC572 (Makerere University) and SS5208 (Uganda National Council for Science & Technology)

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Reference: Attwood P, Ssemugabo C, Alden A, Kobusingye O, Peden M. (2022) Preventing childhood injuries in Uganda: A selection of images and stories from the work of The George Institute in partnership with the Makerere University School of Public Health [Photobook]. London: The George Institute UK.

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