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Provision of basic swimming and water safety skills in low-resource environments: barriers and facilitators of use of WHO practical guidance

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ABSTRACT

Introduction WHO guidance supports implementation of drowning prevention interventions. This study aimed to examine barriers and facilitators of use of WHO guidance on basic swimming and water safety skills in low-resource settings, gathering insights into inform codesign of technical resources.

Methods Mixed methods were used comprising WHO guidance gap analysis, participant surveys and thematic analysis of workshop discussions (17 participants and 13 countries). WHO document analysis and analysis of pre-workshop survey responses were combined to identify topic areas where additional guidance was required. Inductive thematic analysis of workshop discussions spanned current practice, challenges and opportunities. Postworkshop anonymous evaluation forms were also analysed.

Results Four topic areas were identified that required additional technical guidance to support implementation: Site Safety Auditing; Medical Screening of Participants; Informed Consent and Emergency Action Planning. Barriers broadly spanned a lack of trained personnel and equipment as well as a lack of community understanding and varying support from external agencies. Opportunities identified included partnering with local organisations with specific expertise (ie, medical, emergency planning), improving programme administration and challenging traditional community practices (ie, informed consent, superstitions). Participants agreed the workshop would lead to changes in practice, however this remains to be confirmed.

Discussion Additional technical resources to address gaps and support implementation were suggested and should now be developed, implemented and evaluated.

Conclusion This study identified additional technical resources and the development of a community of practice to support effective teaching of school age children swimming and water safety skills in low-resource settings.

INTRODUCTION

Drowning has been identified as a global public health threat, with an estimated 300 250 lives lost due to drowning in 2021.¹ Over 90% of these deaths occur in low and middle-income countries (LMIC), where people are regularly exposed to bodies of water while conducting essential daily activities.² Children are at particularly high risk, and in many Southeast Asian countries, drowning

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Drowning is a significant cause of mortality and morbidity, particularly in low and middle-income countries (LMICs).
- ⇒ Teaching basic swimming and water safety skills to school-aged children is one intervention evaluated as being successful in prevention.
- ⇒ To support implementation, the WHO has developed practical guidance for basic swimming and water safety skill programmes.

WHAT THIS STUDY ADDS

- ⇒ Using mixed methods, we identified barriers and facilitators of use of the WHO's practical guidance for the provision of basic swimming and water safety skills from workshop participants in 12 LMIC.
- ⇒ Additional guidance was identified as being needed across Site Safety Auditing; Medical Screening of Participants; Informed Consent and Emergency Action Planning.
- ⇒ Barriers facing organisations tasked with implementation in LMICs include a lack of technical expertise, a need to improve programme administration and overcome long-held community beliefs and practices.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ This study is the first to examine utility of WHO guidance for the development and implementation of community-based drowning prevention interventions.
- ⇒ Policymakers or drowning prevention agencies could support development of technical resources to address gaps in practical guidance as well as research to evaluate their utility in the field.
- ⇒ We identified an opportunity to establish a community of practice for those in LMIC settings tasked with implementing such programmes.

is a leading cause of death in children over the age of 1 year.³

The provision of basic swimming and water safety skills training to school aged children (defined as age 6 years and older) has been recommended by the WHO as 1 of 10 key actions to prevent drowning.^{1,4} Although limited, evidence indicates associations between receiving swimming lessons,⁵ or naturally

acquired swimming ability,^{6,7} and decreased drowning risk. Research also shows reduced fatal drowning among school-age beneficiaries of the SwimSafe programme in rural Bangladesh.⁸ Programmes are encouraged to focus on survival swimming, that is, the acquisition of basic water survival skills such as breathing, floating and moving forward, as opposed to the development of competitive swimming strokes.⁹

In acknowledgement of the value of such water safety interventions, both the 2022 UN General Assembly¹⁰ and 2023 World Health Assembly Resolutions¹¹ on drowning prevention call for coordinated scale-up of these interventions, particularly in LMIC settings where the burden of drowning is greatest.² Despite this call to action, there is limited capacity for delivery of this intervention, and no established community of practice between practitioners working in low-resource settings.

In 2022, the WHO published practical guidance on the implementation of basic swimming and water safety skills,⁹ providing guidance on what organisations should do to deliver safe and effective programmes. The practical guidance covers 12 areas across pretraining, during training and post-training phases considering appropriate targets, selection and recruitment as well community and other stakeholder engagement.⁹

Although helpful, the guidance that is provided is high level in nature and lacks specificity on application in the field. With few opportunities for cross-learning, and a lack of standardised resources for implementation, there is a risk that organisations implement interventions ineffectively or inefficiently.

To identify relevant gaps in the current guidance of swimming and water safety skills for low-resource settings, there is a need to collect insights from those working in the community provision of such programmes. Working with stakeholders from low-resource settings, this study aimed to identify gaps in the WHO guidance as well as barriers and opportunities where the guidance could be actioned. Through surveys and workshops, the goals of the research were to inform codesigned resources to better support implementation in such settings.

A secondary aim was to evaluate the perceived effectiveness of the participatory approach and the increase in knowledge of participants.

METHODS

Study design

This study used a mixed methods approach comprising a content analysis to identify gaps, participant surveys and thematic analysis of workshop discussions. Throughout the workshops, we used participatory methods that prioritise the value of experiential knowledge of our participants.¹²

Analysis of WHO guidance

An analysis was conducted by two researchers (authors JB and TM) working independently to identify areas where the WHO practical guidance on basic swimming and water safety skills⁹ was not supported by references to practical application in low-resource settings (eg, references to technical resources or case studies of implementation), or where resources referenced had not been adapted to the specific context of survival swimming. Results were compared between the two researchers with any disparities in gaps identified resolved via consensus.

Identification of study participants

Organisations delivering survival swimming programmes in low-resource settings were identified through relevant networks, including the Royal Lifesaving Society Commonwealth, global

Table 1 Country representation at workshop

Country	Organisation
Sudan	Sudanese Sea Scouts
Sri Lanka	Sri Lanka Lifesaving Association
Kenya	Kenya Lifesaving Federation
Thailand	Thai Life Saving Society
Vietnam	Hue Help
South Africa	National Sea Rescue Institute
Cameroon	RLSS Cameroon
India	Rashtriya Life Saving Society
Bangladesh	Centre for Injury Prevention and Research Bangladesh
Mozambique	Marine Mega Fauna Foundation
Malaysia	Life Saving Society Malaysia, Penang
Tanzania	Arusha Swimming Club
Tanzania	The Panje Project

leadership networks of the Royal National Lifeboat Institution and snowballing contacts through global experts in the field. An expression of interest form was circulated to potentially relevant organisations, with inclusion criteria set out for organisations and participants. Inclusion criteria included questions related to practitioner experience and prior knowledge. Initially, 19 organisations expressed interest in attending the workshop, and 23 participants completed the application process. After screening, 16 participants representing 12 countries were selected for attendance at the workshop, with one participant withdrawing due to childcare challenges (table 1).

Pre-workshop survey

A pre-workshop questionnaire was designed and sent out to all workshop participants via e-mail, with a 1-month response window. Participants were asked about their organisations current practice and implementation challenges relating to each of the WHO guidelines for basic swimming and water safety skills. Specifically, the questionnaire sought to identify key barriers to implementation, what organisations would like to do differently and what stops them from doing so and identify the existence of existing policy/process on each of the guidelines.

Gap analysis and identification of topic areas

Findings from the WHO documentation analysis and the pre-workshop survey (PWS) responses were then cross-referenced to identify topic areas where the WHO guidance lacked details on practical application, and where organisations reported implementation challenges related to the lack of guidance on practical application.

Topic areas were then triaged by an expert working group consisting of experienced practitioners from LMIC and high income country (HIC) settings and policymakers. A consensus was reached among the working group on topic areas considered ‘critical’ to the safety of survival swimming participants. Five topic areas were identified that required additional technical guidance to support implementation: Site Safety Assessment; Site Safety Auditing; Medical Screening of Participants; Informed Consent and Emergency Action Planning (table 2).

Workshop

A 5-day in-person facilitated workshop for participants was held in Zanzibar, Tanzania in October 2022. For each topic area, time was allocated for discussion to reach consensus on current practice and barriers to implementation, identify resources that

Table 2 The guidance areas from the WHO Practical Guidance on provision of basic swimming and water safety skills programmes which formed the focus of this research

Number	Topic Area	Guidance
2	Medical Screening	Screen potential child participants targeted for basic swimming and water safety skills training for medical conditions or disability, and any necessary accommodations. Where possible this should be done by medically trained staff. Parents and guardians should be included in the screening process.
3	Informed Consent	Gain documented, verbal or written informed consent for children to participate in basic swimming and water safety skills lessons from parents or guardians.
4	Site Safety Assessment	Perform a safety assessment using a checklist each time a swimming training site is used for a lesson, to ensure the site: adheres to relevant regulatory frameworks; is in clean, preferably clear, water; is in shallow water of a known depth; has secure, highly visible boundaries; has known, low speed-flow characteristics if the training site is in open water where flow currents occur (eg, tidal flows, possibility of rip currents, river flow etc.); is free of sharp or blunt underwater objects, dangerous animals and microbial hazards as per WHO's recreational water quality guidelines ²⁶ ; is at a safe temperature for basic swimming and water safety skills training.
7	Emergency Action Planning	Develop an emergency action plan that lays out the procedures to be followed in the event of any emergency during training (beyond standard operating procedures ensuring routine safe operation).
11	Site Safety Auditing	Conduct site-safety audits regularly and ensure that monitoring is carried out for quality assurance purposes.

would help organisations overcome these barriers and finally develop draft resources.

Four topics were discussed, with each participant working on two of the four topics. At any one time, two groups were working on a topic each with group sizes ranging between 8 and 10 people. Each session had a facilitator and administrator, and key discussion points were captured. Following group discussion, key discussion points were shared in a 'plenary session' with the rest of the group, allowing for peer feedback and wider group input into the topic. Plenary sessions were audio recorded and transcribed.

Analysis

The PWS responses, workshop documents and plenary session transcripts were analysed by three researchers (TM, JB, JFA). Inductive methods were employed to classify responses and points of discussion, aiming to pinpoint challenges in implementation and uncover opportunities for improvement.

Evaluation

An anonymous paper-based evaluation form was distributed to participants at the end of the workshop to evaluate the perceived effectiveness of the participatory approach, measure the increase in confidence of participants regarding implementation of guidelines in their particular setting, and the overall value of the workshop outcomes.

The form included a series of 4-point Likert Scale multiple-choice questions for participants to self-evaluate their understanding of the WHO practical guidance, the effectiveness of the workshop in exchanging key learning between participants, likelihood of changing practice in the topic areas discussed in the workshop and quality of workshop content. Likert responses were graded 'great', 'reasonable', 'limited', 'none'. Open questions were used to identify key changes or actions that the participants planned to make after the workshop, and illicit suggestions for workshop improvements.

Analyses were conducted by the Royal National Lifeboat Institute (RNLI) Monitoring and Evaluation Advisor, who was not involved in the planning or running of the workshop.

Patient and public involvement

Community practitioners running basic swimming and water safety programmes for children in low-resource settings were directly involved in data collection via survey responses and

workshop participation. The public were not directly involved in this research, however, young children and their families in low resource environments are likely to benefit from the findings of this research through the improvement of practical guidance for safer and more effective programmes, which contribute to reducing drowning risk.

RESULTS

Pre-workshop and workshop

The PWS was completed by 12 respondents (75% response rate) within the 1-month response period. The workshop was attended by 16 participants. Table 3 summarises responses for the five guidelines that formed the focus of the workshop grouped under challenges, opportunities for improvement and suggestions for additional technical resources, derived from the PWS and the workshop discussions.

A lack of training among programme staff emerged as a barrier across several topics, namely medical screening of participants and emergency action planning. Suggested opportunities for improvement included partnering with those individuals or organisations with technical expertise as well as the need for standardised tools (such as health screening) and procedures (for specific conditions or disabilities, site safety audits and developing emergency action plans) due to inconsistent approaches between organisations as identified in the WD (table 3).

Developing standardised tools and procedures was identified as an opportunity for overcoming challenges around traditional community practices. Participants identified a need to challenge parental and community superstitions around medical conditions and swimming as well as the importance of provisions of consent for caregivers and school staff, and a means of identifying risks while also highlighting mitigation measures to minimise non-involvement due to parental concerns about safety (table 3).

A lack of process and procedure was also identified around site identification and safety auditing, whereby participants identified a lack of supervision and accountability on pre-lesson safety checks by teachers as well as challenges around follow-up of actions identified during checks, or to resolve issues with infrastructure owned by a third party. Proposed suggestions for improvement included standardised checklists for site safety and audit tools for peer review (table 3).

Table 3 Challenges, opportunities for improvement and suggestions for additional technical responses identified from the pre-workshop survey (PWS) and during discussions at the workshop (WS)

Guidance number	Challenges	Opportunities for improvement	Suggestions for additional technical resources
2—Medical screening of participants	<p>Lack of trained personnel to conduct medical screening (PWS & WS)</p> <p>Lack of a consistent medical screening assessment framework (PWS & WS)</p> <p>Concerns regarding discrimination of participants due to medical issues identified (PWS)</p> <p>Lack of investment in training and equipment for medical screening (PWS)</p> <p>Lack of training on how to adapt programmes for children with disability (PWS & WS)</p>	<p>Partner with local medical practitioners/ organisations for screening (PWS & WS)</p> <p>Develop a standardised health screening tool, and procedure to respond to different medical conditions (PWS & WS)</p> <p>Incorporate health screening questions into participant consent forms for completion by caregivers (PWS & WS)</p> <p>Training instructors on how to adapt programmes and environment to ensure inclusion (PWS & WS)</p> <p>Challenge parental and community superstitions (PWS)</p>	Standardised medical screen tool specifically designed for swimming programmes in LMIC settings
3—Informed consent	<p>Lack of availability of caregivers to give consent (PWS & WS)</p> <p>Unclear who can provide consent (PWS & WS)</p> <p>Caregiver lack of understanding of the consent form (multiple languages and low levels of literacy (PWS & WS)</p> <p>Non-completion by those responsible (PWS)</p> <p>Inconsistency in informed consent approach between sites (PWS & WS)</p> <p>Worry that communicating the risks may discourage people from attending (WS)</p>	<p>Consistent processes implemented between sites (PWS & WS)</p> <p>Engagement with caregivers on the importance of consent (PWS & WS)</p> <p>Engagement with school authorities on importance of consent (WS)</p> <p>Improve the administration system (PWS & WS)</p> <p>Provide options for different forms of consent (written/verbal/thumb print) (PWS & WS)</p> <p>Make informed consent forms available in multiple languages (PWS & WS)</p> <p>Appropriate mitigation measures in place to reduce risks and provide assurances to caregivers (WS)</p>	Standardised informed consent tool to clearly communicate risks and benefits to caregivers, and guidance on how consent could be recorded
7—Emergency action planning	<p>No clear understanding of what an Emergency Action Plan (EAP) is, or how it should be developed (PWS & WS)</p> <p>EAPs may vary for the different environments - often difficult to manage and update (WS)</p> <p>EAPs may rely on external agencies, which fluctuate in capacity (particularly in LMIC settings), making it difficult to keep the EAP current (WS)</p> <p>EAPs are sometimes verbally communicated with nothing in writing (WS)</p> <p>Lack of comprehensive incident reporting and analysis, so difficult to know if EAP is working (WS)</p> <p>Lack of training on how to develop an EAP (PWS)</p>	<p>EAPs should be developed and regularly reviewed in consultation with key stakeholders for example, staff, emergency responders, community members (PWS & WS)</p> <p>Training (including scenario planning) should be conducted with staff and key stakeholders (PWS & WS)</p> <p>Develop an incident reporting procedure, and feedback mechanisms that ensure review of EAP after an incident (PWS & WS)</p>	Tool to provide guidance on how to develop an EAP
<i>Examination of the pre-workshop survey revealed that there was considerable overlap in the implementation processes for Site Safety Assessment and Site Safety Auditing (Guidance 4 and 11). Consequently, for the workshop, these two subject areas were combined into one cohesive topic titled 'Site Identification and Safety Auditing'.</i>			
11 & 4—Site Identification and Safety Auditing	<p>Inability to check for microbial hazards (PWS)</p> <p>Teachers not undertaking checks prior to lessons taking place (PWS)</p> <p>Changing site conditions mean site safety checks are quickly out-of-date (WS)</p> <p>No standardised site safety audit process (PWS & WS)</p> <p>No clear lines of accountability, particularly when using infrastructure owned by a third party (WS)</p> <p>Lack of process to follow-up on actions identified during site safety audits (WS)</p> <p>Capacity to conduct audits amid expanding of activity (PWS)</p>	<p>Development of Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART) safety indicators for a site safety check tool, with regular review (PWS & WS)</p> <p>Supervisory process put in place to ensure peer review, with clear lines of accountability (PWS & WS)</p> <p>Improve reporting systems to ensure required actions are recorded and monitored (PWS)</p> <p>Tools should be simple and suitable for people with low levels of literacy (WS)</p> <p>Collaboration with key stakeholders when developing and conducting a site audit (PWS & WS)</p>	Standardised checklists for site safety, and audit tools for peer review
LMIC, low and middle-income country.			

Table 4 Participant responses to statements (rated on a 4-point Likert Scale)

	Great	Reasonable	Limited	None
Increase in understanding of WHO guidelines	n=13 (87%)	n=2 (13%)	n=0	n=0
Effectiveness of the workshop in exchanging key information	n=13 (87%)	n=2 (13%)	n=0	n=0
Likelihood of participants changing their current practice in the guidance areas discussed	n=11 (73%)	n=3 (20%)	n=1 (7%)	n=0
Extent of interaction and learning from other participants	N=12 (80%)	n=2 (13%)	n=1 (7%)	n=0

Workshop evaluation

The evaluation was completed by 15 of the 16 workshop participants. One person did not complete the survey because they left the workshop due to other work commitments, prior to the evaluation being conducted.

Participant feedback shows high levels of satisfaction with the workshop (table 4). Specifically, 87% of respondents reported a 'great' increase in their understanding of the WHO guidelines, and 93% of respondents reporting a 'great' or 'reasonable' likelihood that they would change their current practice in the guidance areas discussed.

The workshop provided an opportunity for participants to network and share ideas. 87% of participants thought the workshop was 'great' in its effectiveness at exchanging key information, and 80% thought the extent of interaction and learning from other participants was 'great'.

Thirteen (87%) of those that completed an evaluation included information of actions or changes they plan to make to their own organisations' policies or procedures because of learning from the workshop. A third of participants planned to review, update or introduce procedures for informed consent and plans for emergency evaluation. Table 5 provides a summary of the planned changes or actions.

DISCUSSION

The provision of basic swimming and water safety skills training to school aged children is a child-drowning prevention intervention with evidence of effectiveness.⁸ There are few examples of successful scale-up of this intervention in LMIC settings^{8 13 14} and limited opportunities for organisations to share good practice.

In this context, guidance to support further implementation of such programmes is valuable;⁴ however, it must be actionable and appropriate for LMIC settings where the drowning burden is highest.¹² Our research has identified barriers to following the guidance when implementing such programmes in low-resource settings across Asia and Africa. Findings from our survey and workshop show inconsistent approaches between organisations, with common challenges including a lack of training, limited tools and few standardised procedures. Our gap analysis of the WHO guidance⁹ highlighted limited references to supplementary practical information to support organisations with implementation. The absence of such information may lead to programme

implementation, that is suboptimal, both with respect to not only safety but also effectiveness.¹⁵

Participants at the workshop provided suggestions for additional technical resources to support implementation of safety critical areas of the WHO guidance and mitigate these risks. In future, codesigning these resources with practitioners will enhance their utility. Following resource development, pilot implementation and evaluation across a diversity of settings should be conducted before wider implementation.

The development of such resources, and the process of identifying best practice to include within them, could provide an impetus for the creation of a community of practice in this field, provide foundational guidance for organisations and reassure donors of programme quality. The recently formed Global Alliance for Drowning Prevention¹⁶ recently established by the WHO (responding to the World Health Assembly Resolution 76.18 'Accelerating Action on Drowning Prevention') could provide a platform for such a collaborative approach.¹¹

The process of bringing together practitioners from different contexts resulted in rich discussion about challenges and opportunities for improvement, and the need for solutions to be context specific. Although basic swimming skills are commonly taught within formal settings in high-resource areas,^{17 18} the adoption of process, policy and resources used in these settings is not always suitable for low resource areas.¹⁹ Our research shows that adaptations need to consider the limited nature of existing regulatory frameworks, the availability of infrastructure (such as swimming pools or ponds), the availability and quality of supporting services (such as medical and emergency services), variable levels of literacy and differing languages among trainers, participants and parents, and availability of personnel with specialist training.

Furthermore, workshop attendees identified challenges in implementing processes across multiple training sites. Given the often-rural nature of low-resource settings, this may include operating across large distances. This may present challenges in ensuring operating standards remain consistent, and site safety audit processes have adequate oversight and are fully achieved. Organisations may need to consider alternative mechanisms for monitoring implementation, such as the use of digital tools that enable remote assessments.

Table 5 Planned actions by participants following the workshop

Planned action	% of participants who reported the planned change/action (N=13)
Update process for informed consent	33%
Review emergency action plans	33%
Undertake site safety audits	27%
Develop risk assessments for safe implementation of activities	13%
Train instructors in medical screening	13%
Provide guidance to other implementors on how to implement swimming programmes for drowning prevention	6%
Develop daily site safety checklists	6%

The multistaged process used in this research, including a gap analysis and use of a PWS, meant that discussion at the workshop was focused on topic areas that had been identified as requiring additional support. It also meant that workshop facilitators had an understanding of current practice prior to the workshop, enabling them to draw out areas of consistent practice, differing practice and reach consensus on best practice. Results from the workshop evaluation show that participants considered this format to be effective at enabling interaction between participants, and knowledge exchange. The high proportion of participants noting that they would undertake changes to their programming following the workshop also suggests that the process was successful in identifying topic areas where organisations lacked established processes. We recommend follow-up research to identify and document any changes in practice, any unforeseen challenges in enacting these changes and the impacts of those changes on programme delivery and participant outcomes.

The need to adapt and localise global normative guidance is not unique to drowning prevention.²⁰ It is highly likely that the participatory approach used in this study to interrogate the guidance and identify gaps and solutions would be applicable to other public health issues. Based on our experiences, the normative guidance issued by the WHO is unlikely to be taken up in settings more vulnerable to drowning without further guidance and adaptation to suit the local context. Participatory approaches to drowning prevention are rare,^{21 22} particularly in low-resource settings.^{23 24} However, we encourage those working in drowning prevention to apply these principles to ensure interventions are designed and implemented from the bottom up, avoiding assumptions around the homogeneity of communities and cultures, thereby enhancing likelihood of success.²⁵

Strengths and limitations

This study is the first to explore the practical application of the WHO guidance, and the first to specifically focus on low-resource environments where drowning burden is greatest. A strength of this approach was the diversity of participants from varying geographical locations and contexts. Building on this diversity, a participatory approach that prioritises the values of experiential knowledge ensured that these diverse views were heard and captured.¹² The multistage process (initial surveys followed by more detailed discussion during the workshop) provided an opportunity to gain a more nuanced understanding of the issues raised in the survey. Study findings will assist in improving future guidance and may lead to more and improved implementation of drowning prevention interventions in such settings. There are, however, some limitations that must be considered. Although we tried to get a diverse sample of participants, the application to take part in the survey and subsequent workshops may not have reached all relevant organisations. In addition, due to budget and capacity limitations, we were unable to accept all applications (70%) and therefore we may not have had representation from all contexts. Although we designed the workshop to encourage open and reflective discussion between participants, it may be possible that not all views were reflected in our findings. Survey responses are self-reported and therefore may be biased. Despite the surveys and workshops being focused on the WHO practical guidance for the provision of basic swimming and water safety skills, the extent of the participants understanding of the guidance prior to the workshop was unknown. While the post-workshop evaluation survey was anonymous, the preworkshop was used to identify relevant participants and organisations, and

therefore was not anonymous. As such there may be some social desirability bias in responses to this survey. Further interrogation of responses was conducted at the workshop.

CONCLUSION

Further technical guidance to support wider implementation of interventions known to be effective at reducing child drowning would be helpful, enhancing the safety of the interventions. This includes across low-resource settings where organisations face unique challenges in the practical application of the current WHO guidance. Our findings have highlighted the need to develop specific tools to overcome gaps in WHO practical guidance for the provision of basic swimming and water safety skill training programmes in low resource settings. This study encourages the cocreation of LMIC community-level technical guidelines with a focus on Site Safety Assessment, Site Safety Auditing, Medical Screening of Participants, Informed Consent and Emergency Action Planning. In addition, the process of cocreation and the implementation of drowning prevention interventions in LMIC would benefit from a community of practice.

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Contributors TM, JB, SB and AEP conceptualised the study and designed the research tools. TM, JB, SB, MS and AR captured data during the workshop. TM, JFA, JB and MS performed data analysis. TM and AP created the first draft of the manuscript. All authors reviewed and revised the manuscript. All authors approved the submitted version. AEP is the guarantor.

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Competing interests TM is an employee of the RNLI, and JB is a former employee of the RNLI. The RNLI is one of the funders of this work. The funder had no role in the drafting of the manuscript.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval Human research ethics approval for this study was provided by the University of Southern Queensland Human Research Ethics Committee (HREC) (Approval number: ETH2023-0294). All participants gave informed consent before taking part. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer-reviewed.

Data availability statement Data are available upon reasonable request. Data will be made available upon reasonable request via email to tom_mecrow@rnli.org.uk.

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