

Final Report

Exploring Childhood Drowning in Bangladesh



This report captures the highlights of the recently completed study, “Exploring childhood drowning in Bangladesh”. The study was conducted jointly by JHU and ICDDRB over a 4 year time frame and comprised two phases.

Phase 1: Review and Formative Work

A review of existing data from ICDDRB and DHS surveys revealed that:

- up to 60% of child deaths 1-4 years in Matlab, and 29% of 1-4 deaths nationally may be attributed to drowning.
- This provided the rationale for considering drowning prevention as a key child survival strategy in Bangladesh.

This finding was published as a scientific paper (Hyder AA et al, 2003) and a letter (de Francisco A et al 2003).

Results from the formative (phase I) research of this study showed that:

- mothers ranked drowning as the 4th (behind diarrhea, fever and pneumonia) most common perceived cause of childhood deaths.
- Certain factors were also associated with drowning deaths, including time of day (drowning incidents are more common before noon time when most mothers are busy with household chores or work outside the home), season of the year, household proximity to ponds or ditches, and age (children aged 12-23 months at highest risk).
- Since drowning deaths are common, people have developed explanatory models for the event (e.g. evil spirits enticed the child to go to the water body and/or made the mother forget about the child).
- Additionally, locally constructed beliefs and practices influence behaviors that increase the risk of drowning deaths. For instance responses to a drowning incident might include mothers searching for children around the households rather than in bodies of water; the mother calling other people to help instead of trying to rescue the child; and attempts to extract water that might be harmful (such as by spinning the child or applying pressure to the stomach).
- These findings have implications for strategies to prevent drowning. For example such interventions must target all family members involved in the provision of childcare. While mothers are perceived to be the primary care provider, other household members may assist with childcare.

Findings from this formative work were written and the paper is being reviewed by a journal currently (Blum L et al 2008).

Phase 2: Pilot Trial

Efforts were undertaken to assess the feasibility, cultural acceptability and effectiveness of preventive measures. To this end, an innovative pilot intervention (phase II) was initiated to test three approaches with the community (door barrier with education, playpen with education, and education only). Each potential strategy was implemented in two villages (6 total) with approximately 100 children in each strategy. A baseline and

an end-line survey (at 6 months) were conducted, as well as home-based observations of children and families.

Early results indicate that playpens were well accepted and used by the community (more so than door barriers). Also educational messages can be conveyed and are understood by mothers and family members using Community Health Workers. As a result, playpens might be a potentially effective drowning prevention intervention for young children.

Findings from Phase II are being written up as 3 papers:

- *Analysis of the baseline survey for risk factors relevant to child drowning; which will be submitted for publication by Nov 2008;*
- *Analysis of the changes in community perception utilization and feedback during the 6 months of the pilot study; which will be submitted for publication by Dec 2008; and*
- *Analysis of home-based observations for community practices and behaviors related to child drowning risks; which has been submitted for publication.*

Associated/Additional Work

In reviewing information on child drowning, we also:

- Reviewed data on child injuries in not only Bangladesh but also South Asia; this has been published (*Hyder AA et al, 2008*); and
- Analyzed 10 years of data from HDSS in Matlab for trends in drowning mortality; this is being written up for publication.

Preparing for the Future

The main thrust of our future work is to prepare for a major breakthrough trial in the field of drowning prevention for children using the results of this work. As a result, the JHU-ICDDR,B collaboration on drowning prevention is working on a research proposal for a definitive field trial in Bangladesh for drowning prevention using playpens. Our capacity to secure funds for the trial from a diversity of donors, both international and bilateral, will determine when it can be implemented.

Products

Existing Papers:

Blum L, Khan R, Hyder AA, Arifeen S, Baqui A. An indepth exploration of childhood drowning in Bangladesh: examining community perceptions and practices. 2008 (submitted)

Hyder AA, Borse NN, Blum L, Khan R, El Arifeen S, Baqui A. Childhood drowning in low- and middle-income countries: urgent need for intervention trials. *Journal of Paediatrics and Child Health*, 2008;44:221-227.

Hyder AA, Wali S, Fishman S, Schenk E. The burden of unintentional injuries among the under-five population in South Asia. *Acta Paediatrica*, 2008; 97:267-275.

Hyder, AA; El-Arifeen, S; Begum, N; Fishman, S; Wali, S; Baqui, A. Death from Drowning: Defining a New Challenge for Child Survival in Bangladesh. *International Journal of Injury Control and Safety Promotion*, 2003;10(1):-

de Francisco, Hyder AA, El-Arifeen, S, Baqui,A. The dangers of childhood (letter). *The Lancet*, 2003;361:361.

Papers in Progress:

Borse N, Hyder AA, Streatfield K, Arifeen S, Baqui A, et al. 10 year review of child drowning mortality in Matlab, Bangladesh.

Borse N, Hyder AA, Khan R, Arifeen S, Baqui A. Risk factors for child drowning in Bangladesh.

Borse N, Hyder AA, Khan R, Arifeen S, Baqui A. Community perceptions and acceptability of potential interventions for child drowning prevention in Bangladesh.

Presentations:

Abstracts, posters and oral presentations of this study have been presented at various stages in the following meetings/conferences:

- 9th World Conference on Injury Prevention and Violence Prevention, Mexico, 2008
- National Health Science Research Symposium, Pakistan, 2008
- 8th World Conference on Injury Prevention and Violence Prevention, South Africa, 2006
- Global Forum for Health Research, China, 2007
- ASSCOD, Bangladesh, 2007
- Child Health Priorities, London, 2006

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