A Mobile Data Collection Tool Using Android Tablets for In-Home Observations in Sierra Leone Improves Data Quality

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BACKGROUND & OBJECTIVE

The Food Aid Quality Review project of Tufts University aims to answer important questions that will improve nutrition among vulnerable people receiving food aid (https://www.foodaidquality.org).

In an ongoing trial assessing the effectiveness and cost-effectiveness of 4 specialized foods used for treatment of moderate-acute-malnutrition (MAM), In-Home Observations (IHOs) are being conducted to help understand behaviors surrounding use of supplementary food rations in the household. Paper-based methods used in prior studies were prone to data quality issues. We describe a tablet-based IHO data collection tool developed by the Food Aid Quality Review Project.

STUDY SETTING & METHODS

- **Pujehun District, Southern Region, Sierra Leone**
- **Cluster-Randomized Clinical Effectiveness trial** comparing 4 foods used for treatment of MAM: CSB+, CSWB, SC+ w/A, RUSF
- **Target of 3,344 children, age 6-59 months with MAM (mid-upper arm circumference 11.5 < MUAC < 12.5cm), sub-samples of caregivers randomly selected for IHOs (target sample size of ~400)**
- **IHOs are conducted over 5 consecutive days on participating households using a newly developed mobile data collection tool**
  - Created using Open Data Kit and Enketo Webforms
  - Records information about ration porridge preparation, consumption of the ration & other foods, breastfeeding, giving away or selling the ration, household visitors, other uses of the ration
  - Records activity durations using timestamps
  - Captures durations of multiple activities occurring at the same time through a repeat function
  - Allows questions about each corresponding activity by selecting a separate button
  - Stores data in a web browser to allow for offline data collection (data are uploaded to the server at the end of the observation when internet is available)

Snapshots of the In-Home Observation Mobile Data Collection Tool

- **Benefits**
  - Easier collection of activity durations, allowing for a larger sample size
  - Reduced error through a simplified form with built-in logic
  - Improved data management by avoiding cumbersome double data entry
  - A raw dataset requiring fewer manipulations
  - User friendly
  - Device malfunction and freezing of tablets requires replacements in the field and makes linking of cover sheet and activity data more difficult

- **FINDINGS**

- **Immediate access to data allows the team to troubleshoot more effectively and manage issues during data collection for better quality control**

- **Challenges & Lessons Learned**
  - Device malfunction and freezing of tablets requires replacements in the field and makes linking of cover sheet and activity data more difficult
  - Detailed notes must be handwritten
  - Unique device ID is recorded differently in Enketo Webforms and KoboCollect App, requiring a separate linking form to be completed manually

CONCLUSIONS

Use of a tablet-based offline platform for IHOs facilitated data collection and improved data quality. The tablets had a number of benefits over paper forms used in our prior studies. With experience, further improvements are possible.

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