RAcE Household Survey and Final Evaluation Methodology

RAcE 2015 Programme

Multi-Country Results Dissemination Meeting

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Household Survey Methodology

Household Survey Objectives

- The objective of the RAcE endline household survey was to assess care-seeking behavior for sick children, iCCM coverage, and caregiver knowledge, attitudes, and practices related to pneumonia, diarrhea, and malaria in the RAcE intervention areas.

- The household survey collected 21 key indicators related to caregiver knowledge of CHWs and child illnesses; caregiver perceptions of CHWs; and sick child care-seeking, assessment, treatment, referral adherence, and follow-up.
- The survey also collected information on household and caregiver characteristics and household decision-making.

Sampling Overview (1)

- **Sampling Frame**
  - Entire RAcE project area = iCCM-eligible areas located ≥ 5 km from a health facility.

- **Target population**
  - Primary caregivers of children who were sick with diarrhea, fever, or cough with rapid breathing in the two weeks preceding the survey.

- **Multi-stage cluster sampling to obtain a sample representative of the project area. Three stages:**
  1. Randomly selected clusters using probability proportional to size sampling
  2. Randomly select the first house in each cluster
  3. Randomly select respondents in each household (if multiple eligible)

Sampling Overview (2)

- **Household Selection**
  - Use the “nearest door rule”[1]: select the nearest door to the first house. And subsequently, the nearest door to the second house, etc. *(DRC, Mozambique, Niger, Nigeria)*
    - Least resource intensive
    - Introduces a design effect, and our sample size was calculated conservatively, in consideration of that anticipated design effect.

OR

  - Visit the area in advance and map it to create a household list and then pre-select the households in advance. *(Malawi Only)*
    - Resource intensive

OR

  - Obtain a household list and randomly pre-select households.
    - These household lists rarely exist

[1]Davis, R., Luna, J., Rodrigues, A., Sarriot, E. 2009 Rapid Health Surveys: Principles and sampling Design Handbook. ICF Macro: Calverton, MD.

Sample Size

- **Population of interest:**
  - Caregivers of children 2-59 months who were sick with diarrhea, fever, and/or cough with difficult or rapid breathing in the two weeks preceding the survey

- **Sample size:**
  - 900 illness cases total, 300 cases of each illness
  - 30 clusters; 30 sick child cases per cluster (10 per illness)*
  - Powered to detect a 20% difference in the sick child indicators that included all children with a specific illness (fever, diarrhea, or cough with difficult or fast breathing)

Reasons for Using Multistage Cluster Sampling of Recently Sick Children's Caregivers

- It is reliable and cost-efficient.
- It can be used to demonstrate an improvement over time in knowledge, practices, or coverage, from the baseline levels in the project area.
- Given the prevalence of the 3 illnesses, knowledge and behaviors of caregivers of recently sick children should not be significantly different from that of other caregivers.
- The survey was not designed to calculate illness prevalence.

What do the estimates represent?

- The survey results are representative of caregivers of children under 5 in RAcE target areas.

- The sample size was calculated to detect changes in sick child indicators for which all selected children with an illness were included in the denominator.

Survey Materials, Training, and Analysis

- ICF developed:
  - Standardized questionnaire
  - Data collector and supervisor training materials
  - Data entry tool and data entry training materials

- ICF worked with grantees and partners* to adapt questionnaires, data entry tool, and training materials to the local iCCM program and country context
- Grantees and partners recruited and selected data collectors, supervisors, and data entrants.
- Survey training was conducted by grantees and collaborating organizations, with technical support from ICF

- ICF analyzed the survey data using Stata v14 and Microsoft Excel.

*National statistics offices/institutes, Ministries of Health

Final Evaluation Methodology

Final Evaluation – Main Objective

The objective of the final evaluation of RAcE was to determine whether the project goal of improved diagnostic and treatment coverage was reached in RAcE project areas, and to describe the plausible contributions of RAcE to any changes observed in coverage.

Final Evaluation – Specific Objectives

1. **Assess changes in outcome and coverage indicators** including care seeking, source of care, and iCCM treatment coverage.
2. **Assess equity of iCCM coverage** via a wealth quintile analysis of RAcE project areas using household survey data to determine in which of the country-specific wealth quintiles the RAcE project target populations falls.
3. **Assess potential gender differentials in iCCM treatment** by examining differences in treatment coverage over time between male and female children ages 2-59 months, using baseline and endline household survey data.
4. **Estimate the change in child mortality in RAcE project areas using Lives Saved Tool (LiST) modeling.**
5. **Document contextual factors** that may have influenced child health in the project areas.
6. Make a plausibility argument to **demonstrate the plausible contribution of RAcE to any changes in treatment coverage and estimated mortality change**.

Assess changes in outcome and coverage indicators

Data Sources

- RAcE baseline and endline household survey data
- Grantee routine monitoring data
- Data quality assessment reports

Analytic Plan

- Comparison of data from the baseline and endline surveys using a Pearson's chi-squared test and a significance level of 0.05.
- Trend analysis of routine monitoring data.
- Review of data quality assessment (DQA) reports and quality of care (QoC) assessment/audit reports.

Assess equity of iCCM coverage

Data Sources

- RAcE baseline or endline household survey data
- DHS data

Analytic Plan

- Principal component analysis of household characteristics and asset ownership variables to create summary wealth measures for caregivers interviewed in the RAcE surveys using DHS wealth index results.
- Classification of caregivers into a nationally representative wealth quintile to determine whether the RAcE project successfully targeted the poorest households in the country.

Assess potential gender differentials in iCCM treatment

Data Sources

- RAcE baseline and endline household survey data
- Monitoring data captured using lot quality assurance sampling (LQAS) (Nigeria only)

Analytic Plan

- Assessment of differences in outcome indicators by child's sex using a Pearson's chi-squared test with a significance level of 0.05.
- Analysis of routine monitoring data collected using LQAS data by child's sex using a Pearson's chi-squared test with a significance level of 0.05 (Nigeria Only).

Estimate the change in child mortality using the Lives Saved Tool (LiST) (1)

LiST calculates impact using an algorithm that combines change in intervention coverage, effectiveness of the intervention, and the affected fraction.

- Effectiveness is the percent of deaths due to a specific cause that are reduced by the intervention.
- Affected fraction is proportion of cause-specific deaths that can be averted by the specific intervention.

Effectiveness and affected fractions are determined by the Child Health Epidemiology Reference Group.

Estimate the change in child mortality using LiST (2)

- The baseline RAcE model was created in the LiST using:
  - The total population in the RAcE project areas at baseline (start of project)
  - DHS and/or HMIS data
  - RAcE baseline household survey data for treatment of pneumonia, fever with ACT within 48 hours, treatment of diarrhea with ORS, and treatment of diarrhea with zinc

- Endline (2016) data points inputs were:
  - RAcE endline household survey data
  - DHS, projected DHS, or HMIS data

- Values were linearly interpolated from 2013 to 2016 for each indicator.
- The model considers the coverage increase (difference) from baseline to endline in the algorithm to estimate impact on mortality.

Estimate the change in child mortality using LiST (3)

Model outputs:

- Under-five mortality rates for each year.
- Number of lives saved per year, among children under 5 years of age
- Number of lives saved per year by intervention

- Lives saved by malaria, pneumonia, and diarrhea treatment were adjusted proportionally to the percentage of cases treated by CHWs.

Document Contextual Factors

Data Sources

- Routine HMIS/MOH data, gathered by WHO from the MOH.
- Grantee project reports
- Key informant interviews

Analytic Plan

- Trend analysis of routine health service data in RAcE project areas.
- Grantee project reports were reviewed to gather information on the project context and external factors that may have influenced project implementation.
- Key informant interviews with purposely selected respondents to gather contextual information on (1) the presence of other child health programs operating in the project area at the same time as RAcE; (2) outbreaks, natural disasters, security or other factors that may have had an influence on access or coverage of health services in the project areas; and (3) other contextual information that may have affected child mortality in the project area.

Demonstrate the plausible contribution of RAcE

Data Sources

- Results from objectives 1–5

Analytic Plan

- Triangulation and summarization of results (objectives 1-5) to describe RAcE project achievements and discuss whether the RAcE project plausibly contributed to the measured changes in coverage and mortality.

Limitations

- Used a non-experimental before and after design with a plausibility argument.
- Were not designed to directly attribute changes in outcomes or impact to the RAcE projects.
- Focused on RAcE project activities implemented by grantees, not the entire contribution of the RAcE project in each country or state.
- Does not estimate effects on morbidity.
- Did not assess the larger community health system within which the RAcE project operated.
- LiST does not account for:
  - mode of delivery or source of care (with the exception of facility birth)
  - changes in diagnostics
  - quality of care
  - timeliness of pneumonia and diarrhea treatment
  - referrals made or completed.

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Thank You!