WASH Baselines in Cholera Hotspots

Centers for Disease Control and Prevention
Emergency Response and Recovery Branch
WASH Team

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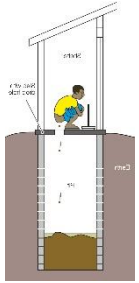
Overview

- Objectives of the baseline assessments
- Review of existing WASH assessments
  - What assessments have been conducted?
  - Geographic areas included
  - Methodology and sampling strategies
  - WASH indicators included
    - Water
    - Sanitation
    - Hygiene
    - Water quality
- Review proposed methodologies
- Discussion topics
- Next Steps



Objectives of WASH Baselines in Cholera Hotspots

- **Create baseline estimates** for WASH coverage in cholera hotspots
  - Linked to other activities such as costed cholera plans or OCV coverage surveys
- **Monitor progress in WASH coverage over time** as WASH infrastructure is developed
- **Demonstrate progress on Cholera Roadmap**
  - Link with preventative OCV campaigns

Existing WASH Assessments and Tools

- Multiple Indicator Cluster Surveys (MICS)
- Demographic Health Surveys (DHS)
- Joint Monitoring Program (JMP)
- REACH WASH Assessments
- IFRC Baseline Assessments
- CDC & WHO Oral Cholera Vaccine Coverage surveys with WASH Questions
- USAID WatSan Project Baseline- Haiti
- The Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS)
- Household Water Insecurity Experiences (HWISE)
- Rapid Assessment of Drinking Water Quality
- UNICEF & ESA Costed Cholera Plan (Baseline)
- Others?

WASH Assessment	How Frequent	Geographic Area	Key Informant	Focus Group Discussion	HH survey	Sampling	Sample Size
Multiple Indicator Cluster Surveys (MICS)	Every 3-5 years	National			x	Multi-stage cluster, enumeration areas selected PPS, HH selection (systematic or SRS from HH listing)	~4,000-55,000 HHs
Demographic Health Surveys (DHS)	Every 5 years	National			x	Two-stage cluster, census units selected PPS, HH selection (systematic from HH listing sometimes after segmentation)	~5,000-30,000HHs
Household Water Insecurity Experiences (HWISE)	ad hoc	Specific to locations targeted			x	simple randomized or cluster-randomized sampling strategy	Minimum per site 250 HHs
REACH WASH Assessments – Nigeria (Borno State), Bangladesh (Cox's Bazar)	ad hoc	Specific to locations targeted		x	x	Simple random sampling or systematic sampling	Ex: 2,748 HHs in Borno state (across 8 areas), Nigeria
IFRC Baseline Assessments	ad hoc	Specific to locations targeted	x	x	x	KII with health staff DHAs, unclear sampling	1.5% of estimated HHs in area
USAID WatSan Project Baseline- Haiti	Baseline, mid-line, and endline	Specific to locations targeted	x		x	PPS selection of households from 5 communes targeted of overall sample size. Unclear how households were selected in communes.	measure change between the baseline, mid-line and endpoint. 274 HH per area for total of 1,370 HHs
CDC & WHO Oral Cholera Vaccine Coverage surveys- DRC (Kasai Oriental), Zimbabwe (Harare), Bangladesh (planned Cox's Bazar)	After vaccine campaign(s)	Specific to locations targeted			x	Two stage cluster, census units selected PPS, HH selection (systematic or SRS from HH listing. Sometimes after segmentation)	~900-1,465 HHs
UNICEF ESA Costed Cholera plans Baseline- Goma, DRC	ad hoc	Specific to locations targeted			x	Systematic sampling within selected case & non-case areas	581 HHs (384 HH cholera case HHs +197 non-case HHs)

Rapid Assessment	Water Indicators	Sanitation Indicators	Hygiene Indicators	Water testing (Free residual chlorine and/or E.Coli)
Multiple Indicator Cluster Surveys (MICS)	X	X	X	X
Demographic Health Surveys (DHS)	X	X	X	X*
Household Water Insecurity Experiences (HWISE)	X	X	X	
REACH WASH Assessments – Nigeria (Borno State), Bangladesh (Cox's Bazar)	X	X	X	X#
IFRC Baseline Assessments	X	X	X	
USAID WatSan Project Baseline- Haiti	X	X		
CDC Oral Cholera Vaccine Coverage surveys with WASH- DRC (Kasai Oriental), Zimbabwe (Harare), Bangladesh (planned Cox's Bazar)	X	X	X	X
UNICEF ESA Costed Cholera plans	X	X	X	X^

*Water quality testing (e. Coli, TC) starting soon

#When requested, ex: FRC in Cox's Bazar camps or FRC in Harare as part of the OCV survey

^ paired samples from 10% of households (source and household water)

Questions and Indicators

- **Non-standardized questions**

  - **Example 1: Water sources**
    - Where does your household get most of its drinking water?
    - What has been the main source of drinking water for you and your household in the last week?
  - **Example 2: Water availability**
    - During the last 3 months, were there times when drinking water was not available at your primary source?
    - How many days has the water from your primary source been unavailable in the last 2 weeks?

Assumptions and Goals for Proposed WASH Baseline

- **Cholera hotspot is pre-defined**
- **Representative sampling is used**
  - Random or cluster sampling (no convenience sampling)
- **Include standard WASH questions to allow comparisons across surveys and comparisons over time**
- **Standard methodology**
- **Powered for comparison of surveys over time**
  - Baseline, midline, endline
- **Can be conducted by local institutions with minimal external support**

Proposed Methodologies

- **Scenario 1: Cholera hotspot(s) with planned OCV campaign**
  - Include WASH questionnaire in OCV coverage survey
  - OCV coverage survey is often a multi-stage cluster survey
    - **Paired water quality samples** could be taken from a proportion of households in each cluster from stored household drinking water and source water
    - Pre-plan to ensure **sample size is powered** enough to make WASH coverage estimates by hotspot(s) included
      - Ex: Bangladesh OCV survey 2020
        - 65 clusters 17 HHs in each cluster (535 HHs in Ukhia, 535 HHs in Teknaf)
        - ~4 HHs per cluster selected for paired source and drinking water samples
        - Powered to provide a WASH coverage estimate for both Uhkia and Teknaf individually

Proposed Methodologies

- **Scenario 2: Cholera hotspot(s) with no planned OCV campaigns**
  - Select hotspot to be assessed
    - Potentially focus on portion of defined hotspot
    - Potentially combine hotspots in one assessment
  - Use representative sampling methodology
    - Simple random sample (smaller hotspots)
      - Assumptions: 80% power, 95% CIs, 10% non-response, proportion 50%
      - Sample size: 430 households is powered to make an estimate and detect at least a 10% difference between survey rounds
    - Multi stage cluster survey (larger hot spots)
      - Assumptions: Default design effect of 1.5, 80% power, 95% CIs, 10% non-response, proportion 50%
      - Sample size: 698 households is powered to make an estimate and detect at least a 10% difference between survey rounds

Proposed Methods Continued

- **Use standard WASH questionnaire**
  - Based on JMP tools
  - Additional information can be collected beyond base information
- **Paired water quality samples collected from a proportion of households and water sources of those households**
  - Free chlorine residual
  - Fecal coliforms/E. coli

Service type	Core questions	New JMP service ladders	
Drinking water			
1. Improved or unimproved; surface water	W1	SAFELY MANAGED	Drinking water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination
2. Basic and limited services	W2, W4	BASIC	Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing
3. Safely managed services		LIMITED	Drinking water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing
3a – accessibility	W3	UNIMPROVED	Drinking water from an unprotected dug well or unprotected spring
3b – availability	W5	SURFACE WATER	Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal
3c – quality	W6		

Sizes of Cholera Hotspots- Zimbabwe

Table 6: Cholera Hotspot classification

Province	District	Ward Number	Area	Population	Mean Annual incident/100 000	Proportion of weeks with cholera(%)	Classification	Types
Mashonaland West	Chegutu	4	Chegutu T/Ship	8379	69.9	3.1	HIGH	**T1**
Manicaland	Mutare City	6	Dangamvura	5845	169.3	2.7	HIGH	**T1**
	Mutare City	1	Sakubva	8718	111.2	2.3	HIGH	**T1**
Harare	Harare	33	Budiriro 1	64452	681.4	5.8	HIGH	**T1**
	Harare	43	Budiriro 4,5	65529	199.8	3.5	HIGH	**T1**
	Harare	24	Highfield	31615	62.6	3.1	HIGH	**T1**
	Harare	4	Mbare	40124	69.0	5.4	HIGH	**T1**
	Harare	39	Dzivaresekwa	13930	69.6	3.1	HIGH	**T1**
	Harare	34	Mufakose	19869	62.0	3.5	HIGH	**T1**
	Harare	27	Glen Norah	34747	182.0	4.6	HIGH	**T1**
Harare	Harare	30,31,32	Glenview	121894	694.4	6.5	HIGH	**T1**
TOTAL POPULATION				**415102**				

*T1 Mean annual incidence >60/100,000 persons (80th percentile), high annual incidence and high persistence

Sizes of Cholera Hotspots- Kenya

Table 2: Cholera Hot Spot Classification

Type of hotspot	Sub-counties	Population	Mean Annual Incidence/100,000	Proportion of years with cholera (%)
T1	Rangwe	121,711	109.07	75
	Wajir South	93,625	178.91	75
	Wajir East	81,030	739.23	75
	Dadaab	109,767	865.01	100
Total for Type 1		**406,133**		
T2	Alego Usonga	228,477	39.94	100
	Gachoka	144,107	43.54	75
	Starehe	261,455	47.71	100
	Kibra	323,477	51.09	100
	Embakasi West	247,948	52.23	75
	Ugunja	113,934	58.37	75
	Nithi	141,790	59.77	75
	Tharaka	141,790	74.94	75
	Embakasi East	258,013	94.96	100
Total for Type 2		**1,860,991**		

*T1 Mean incidence >98/100,000 persons, High Mean Annual Incidence and High Persistence

T2 Mean incidence ≤98/100,000 persons, Low Mean Annual Incidence and High Persistence

Discussion Questions

- Should there be one baseline per hotspot or should nearby hotspots be merged for baselines?
  - Example: according to hotspot mapping Harare, Zimbabwe has 8 tier 1 high risk hotspots. Should each hotspot have its own baseline or should they be merged?
- Should we redefine a cholera hotspot if only a portion of the district is reporting cases (hotspot within a hotspot)?
- Should we include WASH in healthcare facilities within hotspot as an additional module?
- What level of change do we expect to see or want to be able to detect?

- How to balance rigorous data collection with cost of data collection?

Next Steps

- Upon agreement, develop draft methodology document
- Review of methodology document by baseline Working Group
- Pilot draft methodology in several cholera hotspots
  - Rural & urban hotspots
  - Document costs of data collection
- Compare pilot WASH estimates to modeling estimates for WASH coverage in hotspots
  - IHME

Thanks