Handwashing Promotion

MONITORING AND EVALUATION MODULE

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Handwashing Promotion: Monitoring and Evaluation Module

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Handwashing Promotion

MONITORING AND EVALUATION MODULE

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October 2013

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How to Use This Guide

WHAT THIS GUIDE CAN DO FOR YOU...

This guide will walk you through planning and implementing monitoring and evaluation (M&E) for your handwashing promotion programme. Programmes that promote handwashing are diverse and vary in scope. The content of this module is designed to be adapted to a variety of programmes. In this guide, you will be introduced to:

- The 7 major steps of monitoring and evaluating handwashing promotion.
- Choosing indicators appropriate to the programme's objectives.
- Collecting the necessary data, and sample questions for indicators relevant to handwashing advocacy, education and behaviour change.
- Health impact measurement and caveats for the inclusion of health impact assessment as part of an M&E plan.

HOW TO USE THIS GUIDE IF...

...you are just beginning to conceptualize/plan your handwashing promotion programme

Scenario 1: Conceptualization

Read through Sections 1 and 2 to review basic background information about handwashing with soap and the basics of M&E.

All 7 steps of M&E are applicable in this scenario but you may not be ready to carry out all of them at this early stage. Review all the M&E steps (Section 3) to understand what M&E will entail and how to start incorporating it now into the programming.

Since your programme is not planned yet, formative research could be used to design the handwashing intervention by identifying the motivators, barriers and channels of communication among your target population. This manual will not describe how to carry out formative research.

Use Section 4 and Annex 8 to learn details about the indicators you could consider and how you can put these indicators in to place.

Use Section 5 and Annexes 6 and 7 if you need to review basics of data collection for evaluation and assistance with field staff training.

...you have developed your programme, plan to implement it soon, and want to establish a monitoring and evaluation plan

Scenario 2: Implementation in the near future

Read through Sections 1 and 2 to review basic background information about handwashing with soap and the basics of M&E.

Your opportunity to collect baseline data will depend on how soon you plan to implement your programme and the budget that can be allocated to M&E. Baseline data collection is necessary to measure any changes that your programme could make.

- If you currently have 3 or more months before implementation, you can collect baseline data from a portion of your target population. Continue reading the steps under this scenario.
- If you are rolling your programme in fewer than 3 months, you may not be able to collect baseline data if the programme is rolled out at the same time in all target populations (ex. GHD). Read the steps in Scenario 3.
- If you are rolling out your programme in fewer than 3 months but are targeting a large population and plan to roll out in phases, you can collect baseline data from the portion of the target population that will be exposed to the programme in later phases. Continue reading the steps under this scenario.

Start from step 1 described in Section 3 but keep the time limitations in mind.

Use Section 4 and Annex 8 to learn details about each potential indicator you are considering and how you will operationalize the indicators you have chosen.

Use Section 5 and Annexes 6 and 7 if you need to review basics of data collection for evaluation of handwashing promotion programmes and assistance with field staff training.

...you are in the process of implementing your programme or have finished your programme

Scenario 3: Implementation underway or complete

If the programme is underway and no baseline data was collected, you can use a population that was not a part of the programme or was not exposed to any part of the programme (control group) as basis of comparison to a population that was exposed to the programme. See section 3, step 3 for considerations regarding the selection of this group.

You can start from step 1 of the 7 M&E steps described in section 3; however, you may not be able to evaluate all objectives since baseline data is not available. Use Annex 8 to identify your indicators but also to identify which of your objectives/ indicators are possible to evaluate. You cannot carry out step 4 and may be severely limited to plan for programme monitoring (step 2).

Evaluating change/impact of a programme after its completion is difficult especially if no baseline data is available.

- If the programme has recently finished, it is possible to measure change if a population that was not a part of the programme or was not exposed to any part of the programme (control group) is also included in the evaluation. See section 3, step 3 for considerations regarding the selection of this group. In this case, start with step 1 but skip steps 2 and 4 in section 3.
- If it has been several months since the project finished, you will have to consider whether evaluation at this point is valid, since time can introduce variation in the data you collect.

We will refer to back to these scenarios at the end of each step outlined in Section 3. At the end of each step you will find a brief description of the relevance of that step for each of the scenarios described above.

WHY PROMOTE HANDWASHING WITH SOAP?

WHY PROMOTE HANDWASHING WITH SOAP?

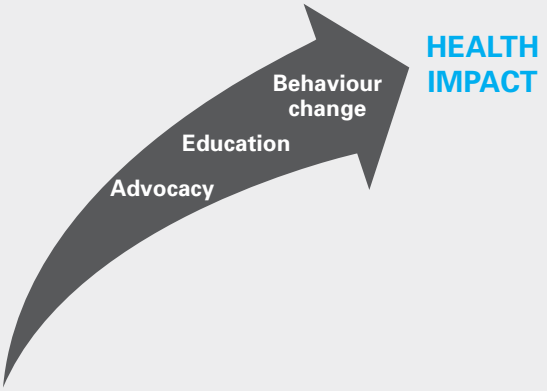
Handwashing with soap (HWWS) has been shown to reduce risk of leading causes of child mortality. Pneumonia accounts for 17% of the 6.6 million deaths of children under 5 years of age and diarrhoea accounts for 9% [1]. Over 750,000 deaths during the neonatal period (babies under 28 days old) are estimated to occur annually because of infectious syndromes such as sepsis, acute respiratory infection, neonatal tetanus, and diarrhoea[2]; many of these can be prevented by handwashing with soap. Research studies have demonstrated that the risk of diarrhoea can be reduced by 42 to 47% through handwashing interventions [3]. Promotion of HWWS has been shown to reduce the risk of acute respiratory infection by half in children < 5 years old [4]. One study found that neonatal mortality was significantly lower among children of mothers who reported washing their hands [5]. Handwashing promotion campaigns are increasingly being implemented as part of an effort to improve child survival.

WHAT ARE THE MAJOR GOALS OF PROMOTING HANDWASHING WITH SOAP?

There are 4 major goals of handwashing promotion (Figure 1). Programmes may target one or more. Table 1 shows examples of target audiences and activities for a programme with each of the 4 goals.

FIGURE 1

Major goals for programmes that promote handwashing with soap



Advocacy of handwashing with soap refers to activities that influence public policy and funding decisions that affect how handwashing with soap programmes are prioritized. The audience for handwashing advocacy campaigns is stakeholders in the programme, including implementing agencies, funding agencies, the Ministries of Health, Water, and/or Finance, and the community.

Education (or awareness) about handwashing with soap refers to knowledge of the benefits of soap, proper handwashing technique and critical times for handwashing. Education is often achieved by teaching about the need for handwashing, how to wash hands, the benefits of handwashing, and critical times for handwashing.

Behaviour change/build-up refers to the increase of good handwashing behaviour and sustaining good handwashing behaviour. Without handwashing behaviour change, health impact should not be expected.

Health impact (for example, reducing disease such as diarrhoea and respiratory infections) is the ultimate goal of handwashing promotion. Annex 1 outlines the steps and requirements, and challenges, to measure health impacts.

TABLE 1

Description of purpose, audience and examples of each major goal of handwashing promotion programmes

Goal	Purpose	Examples of target audience	Examples of activities
Advocacy	Influence public policy and resource-allocation decisions that affect prioritization of programming appropriated to handwashing with soap	Stakeholders Funders Implementers Health Ministry General community	Radio/TV ads promoting handwashing with soap Billboards, pamphlets Celebrity events
Education	Increase knowledge of benefits of using soap for hand washing and critical times for handwashing.	Caregivers Children Schools Health workers Food handlers General community	School assembly relaying benefits of soap or critical times Education related inter-school competitions Community education events Interpersonal communication with household members about benefits of soap use and critical times for handwashing
Behaviour Change/ Build-up	Increase, improve and/or sustain good hand washing behaviour and form good handwashing habits	Caregivers Children Schools Health workers Food handlers General community	Door-to-door visits by community hygiene promoters at the household level, community level, and/or institutional level (schools, health facilities) and simultaneous social marketing using same messaging
Health Impact	Improve child health through prevention of diarrhoea and respiratory illness	Caregivers Children Schools Health workers Food handlers General community	Any activity that changes or builds up handwashing behaviour

Section Two

WHAT IS MONITORING & EVALUATION AND WHY IS IT NECESSARY?

We often think of monitoring and evaluation as interchangeable terms. However, monitoring and evaluation have different objectives and thus different purposes for your programme.

WHAT IS MONITORING AND EVALUATION?

Monitoring is the routine assessment of a programme's activities and processes with the primary objective of measuring whether activities are carried out as planned. The goal of monitoring is to answer the question: Is the programme being carried out as planned? Typically, monitoring data is programme level data, meaning it describes attributes of the programme but not necessarily what effect, if any, that programme had on its target population.

Evaluation is the systematic assessment of whether a programme has made the intended difference. The goal of evaluation is to answer the question: Has the programme achieved its proposed objective? Typically, programmes that promote handwashing have objectives that aim to improve or alter knowledge, behaviour and/or health of specific populations; therefore, evaluation of programme can reveal what effect, if any, that programme had on the population it sought to reach.

WHY IS MONITORING AND EVALUATION NECESSARY?

Programmes aim to impact a specific community/audience and are often designed to build on themselves, improve or increase stakeholder buy-in, and possibly implement at scale. The purpose of M&E is to provide evidence of achievement, strengths, weaknesses, and effectiveness to do just that. Increasingly, M&E is becoming an expectation of donors and

other stakeholders because of its evidence-based approach. M&E will help show the value of the programme to stakeholders and potentially allow for scalability and sustainability.

WHAT SHOULD BE MONITORED AND/OR EVALUATED?

A programme has 5 components: inputs, process, outputs, outcomes and impact (Table 2). Typically inputs, processes and outputs are monitored (continuously) and outcomes and impacts are evaluated (at discrete times). The measures that describe inputs, processes and outputs are describing the programme implementation (programme-based measures), while measures that describe outcomes and impacts are describing the potential effects of the programme on the population who was meant to receive the programme, or the "target population" (population-based measures).

Published data from evaluations of previously implemented handwashing promotion programmes is limited. However, several programmes have reported their findings and helped shape the implementation and evaluation process described in this document. Examples of evaluation of various handwashing promotion programmes are described in Annex 3. While these examples provide an overview of programmes with varying scopes, durations and goals, even similarly designed programmes should select indicators based on their unique features, using methods outlined in this module.

TABLE 2

Description and examples of programme components [6]

Input	Core human and financial resources required to develop and/or implement the programme	E.g. Number of hygiene promoters hired
Process	Activities and efforts implemented to achieve programme goals	E.g. Advertisements played on radio twice a week (as scheduled)
Output	Direct results of the efforts/ processes at the programme level	E.g. Number of television advertisements aired promoting soap use for handwashing
Outcome	Effects of the outputs measured at the population level	E.g. Increased number of mothers who know critical times for HW
Impact	Effects of outcome(s) on broader health and well-being of the population attributable to the programme	E.g. Reduced risk of diarrhoeal disease

Section Three

STEPS FOR MONITORING AND EVALUATION

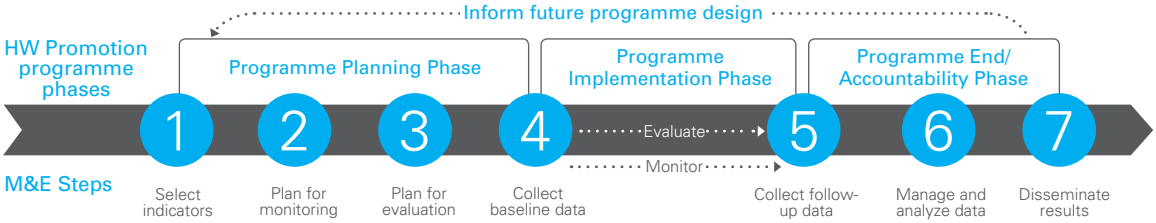
In this section, we have outlined seven general steps for monitoring and evaluation. Figure 2 shows the ideal timing for each step within the context of the programme development timeline.

It is important to consider and plan for M&E in early phases of programme planning in order to obtain the most robust and complete information on the programme.

If your programme is in the programme planning phase (Scenarios 1 or 2) you will be able to follow the steps in sequence starting with Step 1. If your programme is being implemented currently or has completed (Scenario 3) you will not be able to follow the steps exactly as outlined. At the end of the description of each step, we will summarize the relevance of that step to each of these scenarios.

FIGURE 2

Programme phases and M&E activities



STEPS FOR MONITORING AND EVALUATION

1. Select indicators
2. Plan for monitoring
3. Plan for evaluation
4. Collect baseline data
5. Collect follow-up data
6. Manage and analyze data
7. Disseminate results

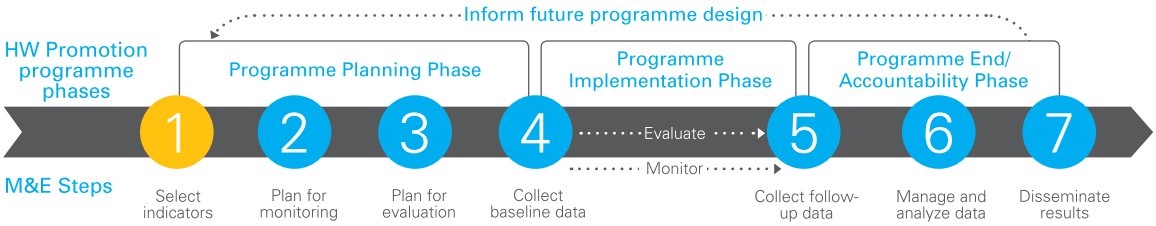
In addition to the timing of your decision to do M&E relative to the programme phase, the M&E plan will be shaped by:

Programme goals – the goals for the programme may determine the which indicators are selected, how data is collected, number and skill level of field staff and management, duration of M&E.

Programme scale – the size of the programme may determine the size of the sample for M&E, duration of monitoring and data collection, skill level of field staff and management needed for M&E.

Human resources – availability of skilled field staff, availability of skilled management.

Financial resources – funds available to support the desired monitoring and evaluation plans.



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STEP 1: SELECT INDICATORS

This step outlines important considerations for selecting appropriate indicators to measure the achievement of each objective. One objective may be evaluated using multiple indicators. Section 4 and Annex 8 contain indicators that have been used to measure handwashing behaviour, education related to handwashing and advocacy of handwashing messages. While indicators that can be used for M&E are not restricted to this list, the advantage of the provided list is that each indicator has been used or tested.

Considerations for selecting indicators

1. Align objectives, activities and messages

The purpose of this step is to align programme objectives, programme activities and handwashing messages in order to understand which indicator(s) is most appropriate to use for evaluation of each specific objective. Use Annex 2 to outline this process. Using this document will help…

- List all objectives pertaining to handwashing promotion that are to be monitored and evaluated (second column in Annex 2). Write a clear statement of each objective to indicate the type of change that is sought (what), among which population (who), the location (where) and the time frame (when). Use Annex 3 for guidance on how to state clear and explicit objectives. Each objective should be in a separate line because each could be assigned a different indicator.
- Describe handwashing promotion activities to be undertaken to achieve each objective (third column in Annex 2).
- Identify the main messages that will be delivered through each activity (fourth column in Annex 2). Listing handwashing messages associated with each activity can fine-tune the selection of indicators. For example, a programme that promotes handwashing with soap before feeding a child to mothers of young children can choose to assess the mother's overall handwashing behaviour (at any critical time) but would also benefit from looking at her handwashing behaviour at that specific event (before feeding a child) in order to understand the impact of that programme.
- Use the outline created in the steps above, Section 4 and Annex 7 to identify relevant indicators and list them in fifth column of Annex 2.
- Finally, it may be necessary to select a subset of your relevant indicators based on your funding, timeline and human resource capacity (list in sixth column of Annex 2). (see example 1)
- Monitoring indicators are dependent on the activities carried out by the programme. Since activities vary from programme to programme, it is not possible to provide a concise set of indicators that are widely applicable.

EXAMPLE 1

Objective	Increase the practice of handwashing with soap before feeding a child, and after defecation among caregivers of young children in 3 target districts over a 1 year period
Activities	1) Door-to-door visits by hygiene promoters to discuss with caregivers the role of handwashing in nurturing children 2) Set-up of a handwashing place at a convenient location with soap and water
Messages	1) Every mother/caregiver wants to take good care of, and protect her children. Your own hand hygiene help you do this 2) Use soap to cleanse your hands especially after toileting and before you feeding your child(ren) or touch the food you will feed them

Output Indicator	Number of hygiene promoter visits to the household
Outcome Indicator	Promotion of critical events where the primary caregiver was observed to wash his/her hands with soap and water
Impact Indicator	Prevalence of diarrhoea among children less than 5 years old living in the target population

2. Select SMART indicators

Indicators should be SMART - specific, measurable, achievable, relevant and time-bound. **Specific** indicators are precise and unambiguous. Each indicator should be **measurable**, suggesting that there are reasonable techniques to measure the indicator. Indicators should be **achievable**, in that the financial and logistical cost of measuring the indicator should be acceptable for the programme. Indicators that are **relevant** provide information about the conditions or events they are intended to measure. Finally, **time-bound** indicators have a clear unit of time or period assigned.

3. Seek input from stakeholders and partner organizations

Stakeholder input is an important consideration for building the enabling environment. In addition to the indicators you identify, seeking input from programme stakeholders about information of importance to them or that would contribute to sustaining the programme, scaling-up the programme or achieving buy-in, is important to consider. Generally, health impacts and cost effectiveness are desirable metrics to prove the value of a programme. Programmes may not have the capacity to measure health impacts at scale and, thus, programme managers and stakeholders should come to agreements about the indicators that will be used to evaluate programme progress and impact.

4. Ongoing data collection from MICS and DHS surveys

Many countries collect Multiple Indicator Cluster Survey (MICS) or Demographic and Health Surveys (DHS). Both MICS and DHS have incorporated a brief set

of handwashing indicators. Since these data are collected every several years in nationally representative samples, their data may complement the information collected under specific M&E plans. Consider including MICS/DHS indicators for handwashing in order to have data that can be compared over time within the country and between countries. MICS/DHS indicators for handwashing are included in Annex 8.

BOX 1

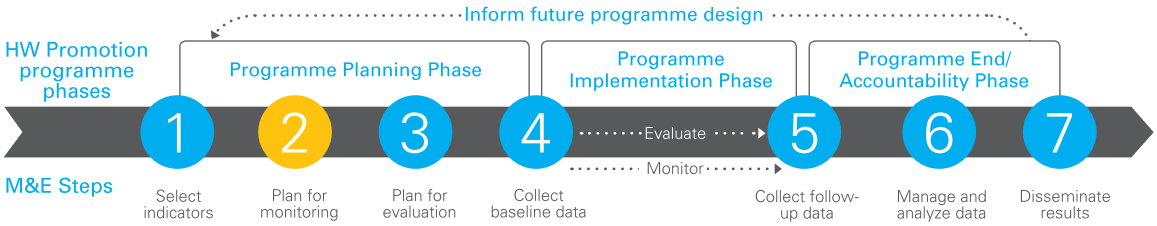
Situation Analysis for Step 1

Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

Scenario 3: Implementation underway or complete

Step 1 is followed regardless of the timing of the decision to evaluate the programme. Programmes in Scenarios 2 and 3 may not have the opportunity to include inputs on indicators from stakeholders because of their shortened timelines.



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STEP 2: PLAN FOR MONITORING

Monitoring answers the question: Is the programme being carried out as planned?

Which components of the programme can be monitored?

Typically, programme inputs, process and outputs can be monitored. Figure 3 provides details on the information gathered, and the purpose and timing of gathering that information for the sake of monitoring each programme component. To address the primary goal of monitoring, you should aim to measure programme outputs at minimum. The schedule of programme activities may suggest distinct benchmarks for monitoring; however, maintaining a regular schedule is important for routine and systematic assessment.

Planning for Monitoring

In order to develop a monitoring plan, the programme planner/evaluator should be clear about the human and financial resources required to perform monitoring. S/he should develop a schedule for routine monitoring and a tool to collect monitoring data. Since monitoring informs efforts for programme improvement, the programme planner / evaluator should develop a practical strategy to report monitoring results within the programme staff and, as needed, to other stakeholders.

1. *Human and financial resources required to perform routine monitoring*

Three main components that determine the monitoring plan:

- Frequency of programme activities: How often monitoring activities will occur?
- Available or attainable human resources: How many staff are needed to perform monitoring that matches the need outlined by the frequency of programme activities? Monitoring can be performed by senior programme staff as well as field implementers.
- Financial resources: How much funding is available to carry out the necessary monitoring tasks?

2. *Develop monitoring schedule*

- Use the programme activities/ timeline as a foundation to develop the monitoring schedule.
- Choose a time unit for monitoring (ex. weekly, bi-weekly, monthly, bi-monthly, quarterly) that is appropriate for the programme duration and within the limits of available resources.
- Set specific goals for each time point during the programme planning/ implementation at which monitoring will occur.

3. *Develop a data collection tool*

Since data for monitoring will come mostly from programme records, simple check lists or reporting forms can be used to collect the necessary information. These reporting forms should be easily populated

FIGURE 3

What questions can be answered by monitoring?

	Inputs	Process (Activities)	Outputs
Definition	Core human and financial resources required to develop and implement the programme	Activities and efforts implemented to achieve programme goals	Direct results of the efforts/processes at the programme level
What is measured	Number of personnel hired Number behaviour change materials developed/purchased Funding spent on each input	Activities needed to produce the outputs Whether activities are carried out by target date	Direct results of the processes Number of outputs produced Whether outputs are produced by target date
Why	Inform future programme requirements Increase programme efficiency	Ensure activity target dates and scale of efforts are being met Track progress	Track what are the results of the implementation efforts Increase programme efficiency
When	Before implementation (during planning) During implementation as additional resources are added	As implementation is occurring	As implementation is occurring After implementation is complete

and transferable to official programme reports. See Appendix 4 for a sample monitoring form.

4. *Develop a practical strategy to report monitoring results*

Once the data is collected, reporting the findings is the next step.

- Each programme must decide on who needs to be provided the results of monitoring and how the results should be distributed. Typically, the report is internal and intended for the country team; however, regional and other senior staff, or funding agency staff, may be included.
- Ideally, the monitoring data collection sheet should be easily transferable to a report. Therefore, the structure of both documents should be closely related.
- Typically, summary statistics, which are basic descriptors of the data, are reported. Examples of basic descriptors are simple counts (e.g. 12 hygiene promotes hire), or percentages/ proportions (e.g. 98% of households received a visit by a hygiene promoter). Refer to step 6 in this section for specific details and instructions on data entry and management.

BOX 2

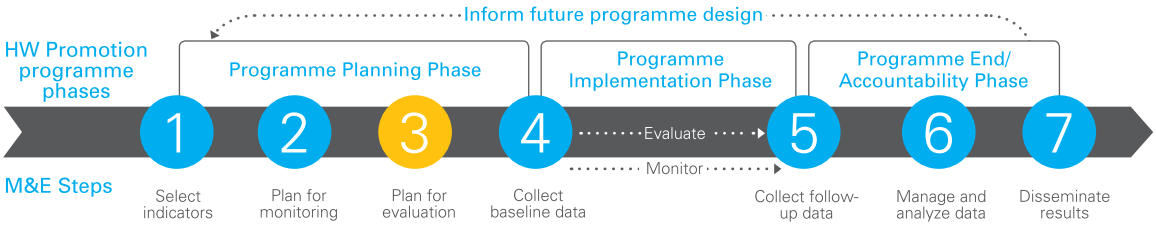
Situation Analysis for Step 2

Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

Scenario 3: Implementation underway or complete

- Programmes in Scenario 1 and 2 have the opportunity to monitor a large spectrum of programme components. Since the main goal of monitoring is to routinely assess whether the programme is being carried out as planned, monitoring will be of low utility to the programmes in Scenario 3 since the programme is either underway or completed.
- We recommend trying to capture available data within reason for programmes in Scenario 3.



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STEP 3: PLAN FOR EVALUATION

Evaluation answers the question: Did the programme achieve its proposed objectives? Which components of the programme should be evaluated?

Which components of the programme should be evaluated?

What is evaluated largely depends on the programme objectives. Typically, evaluation examines programme outcomes and impact. However, if the objectives of a programme are output based, the output should be included in the evaluation plan. Otherwise, programme outputs should be monitored to track what is actually being delivered by the programme, compared to what was planned (see Figure 4).

Types of Evaluations

Generally, two types of evaluations can be carried out: (1) comparison of a group to itself, with data collected before the programme, and after or during the intervention/programme, and (2) comparison of two groups, one of which was exposed to the intervention/ programme, and the other not exposed (control or a comparison group). The first will allow for a descriptive evaluation but will limit understanding the effects of the programme because changes seen within the group may not be attributable only to the intervention/programme but, rather, to other events that might occur during the same time as the programme. In the second type of evaluation, the comparison of the intervention group to the comparison group typically demonstrates the effects of the programme, assuming that the two groups are comparable to each other with respect to baseline characteristics, such as socioeconomic status.

Planning for Evaluation

1. *Outline needs, timeline, and capacity to perform data collection for evaluation: human and financial resources*

In general, there are three stages of data collection: baseline, midline and endline. Some programmes do also build in repeated visits in order, for example, to evaluate ongoing changes in behaviour or to have sufficient sample sizes to detect changes in health outcomes. Typically, one baseline data collection visit is needed in order to establish knowledge, attitudes, and behaviours before the intervention is implemented. Midline data collection frequency can be scheduled as often as needed but may be limited by person-power, financial constraints, logistical constraints and respondent reactivity (the change in behaviour of the respondent due to the presence of an interview). The total number of data collection visits for evaluation may vary; however, to measure a change in the target population, a minimum of two data collection visits are needed (one before and one after the intervention). In some cases, a comparison/control group (a group that is not exposed to the programme/ intervention) may serve as the basis of comparison; even though it is ideal to have

baseline data to ensure similarity between intervention and comparison/control groups with respect to demographics, knowledge, and attitudes towards handwashing, this is not realistic in situations where the programme is already underway and M&E is not in place (no baseline was collected).

2. Determining how many people to include and how to select respondents

Since many programmes target a large population, it is neither feasible nor necessary to include every person from that target population in an evaluation. The evaluator may choose to take a representative sample from the target in order to capture the effects from the programme. Suggestions for carrying out systematic sampling are included in Section 5. If the programme intends to include every person from the target population in the evaluation, a sampling strategy is not needed.

3. Develop data collection schedule

If the programme objectives include measuring change then at least two time points for data collection must be included in the data collection schedule. Also, if the programme intends to measure long term changes then the duration between data collection visits must be considered. Based on the timing of the programme activities and the considerations below, choose target dates or a date range for each data collection point.

FIGURE 4

Which programme components should be evaluated?

	Outputs (if applicable)	Outcomes	Impact
Definition	Direct results of the efforts/processes at the programme level	Effects of the outputs measured at the population level	Effects of outcome(s) on broader health and well-being of the population attributable to the programme
What is measured	Direct results of the processes Number of outputs produced	Typically, change in knowledge, and/or handwashing behaviour, but others can be evaluated depending on the programme objectives	Change in handwashing behaviour Impact on health
Why	Evaluate objectives that address programme reach Increase programme efficiency	To understand what effect the programme had on the population it is trying to reach	To understand what effect the programme had on the population it is trying to reach
When	As implementation is occurring After implementation is complete	As implementation is occurring After implementation is complete	As implementation is occurring After implementation is complete

4. *Consideration for measuring changes within one group or between two groups*

Data can be collected in multiple ways. Cross-sectional surveys capture the conditions at one specific time but cannot be used to measure changes over time. In order to measure change resulting from the intervention, indicator data must be collected either from a control (comparison) group or from the intervention group before exposure to the intervention. A control or comparison group is a group that is similar to the intervention population in as many ways as possible, except that it does not get exposed to the intervention. Preferably, whether the evaluation uses a control group or whether the evaluation is examining change within the same population, information about handwashing knowledge, attitudes, and practices should be measured at baseline. Data from the control group and the intervention group should be collected at the same time. If the programme has intention of expanding, the control groups can be considered as potential communities for expansion and will already have baseline data.

5. *Considerations for measuring long term effects*

To measure whether a programme has resulted in sustained, or long-lasting change in knowledge, attitudes, or behaviours, it is important to plan for a data collection visit well after the intervention is complete. The timing of this late data collection visit may vary and should be based on programme goals as well as the funding and timeline of the project. Assessing the retention of a message or behaviour will require data collection after a specified amount of time has passed since the intervention. Long term behavioural impacts from handwashing promotion programmes have been measured between several weeks to several years after the intervention was implemented in order to assess sustained outcomes [7].

6. *Develop data collection tools, conduct field testing and train field staff*

Data collection tools: After deciding which indicators to include, data collection tools can be constructed using and adapting the information for each indicator outlined in Annex 8. In addition to handwashing indicators, information on demographics of the population involved in the evaluation should be included in the baseline survey (at minimum). Use Annex 6 for basic guidelines on developing data collection tools.

Field Testing: The main objectives of field testing are to confirm and/or improve upon the clarity and language of questions, and to ensure that data collection tools are relevant to field conditions, comprehensible, and complete. The field team will be able to evaluate whether questions and answer choices are challenging to understand or are being misinterpreted. While many suggestions may come up, the responsibility of the trainer is to maintain focus on the objectives of field testing and not to alter questions so much that the integrity of the question is lost. Field testing should be done in a relatively similar population as the one in which the evaluation will be done. At a minimum, each question and the answer choices for each question should be tested with about 5 different respondents representing the target population. In addition to helping ensure accuracy and comprehensibility of the data collection tools, field testing is an opportunity for the field staff to gain familiarity with questions and answers and build confidence in their ability to properly

administer each survey and observation.

Training of Field Staff: Training of field staff will vary for every data collection tool. Training considerations for individual indicators are outlined in Annex 8. Plan to commit at least 1 week and up to 4 weeks for staff training. Constructing a training manual or a guide is strongly recommended. A training manual typically includes the training schedule, conduct rules and guidelines, and data collection tools and related explanations. Generally, during training the team goes through read-throughs with the guidance of the trainer, practices asking questions through role-playing with other trainees then field tests the surveys and observations.

Field staff must have sufficient interaction skills to build rapport with strangers since the ability to build rapport is critical for recruitment and successful data collection. During training, strategies and appropriate language and etiquette should be discussed and role-played. We have included general guidelines for training of field staff to evaluate handwashing promotion programmes (Annex 7).

7. *Obtaining ethics approval for research with human subjects*

Evaluators should protect the rights of the participants, i.e. the human subjects, of their evaluation activities. Consideration should be given to the risks and benefits of participation in evaluation activities, and the process of maintaining respondent privacy as well as confidentiality of information given by respondents. Evaluators should consider whether to obtain approval for evaluation activities from an accredited human subjects research review board (searchable at http://ohrp.cit.nih.gov/search/search.aspx?styp=bsc, accessed October 7, 2011). Some agencies have the policy that evaluations of public health programmes do not always require human subjects research review. Such policies should be well understood by the evaluator and, where appropriate, requests should be made in order to obtain non-research status for the evaluation.

BOX 3

Situation Analysis for Step 3

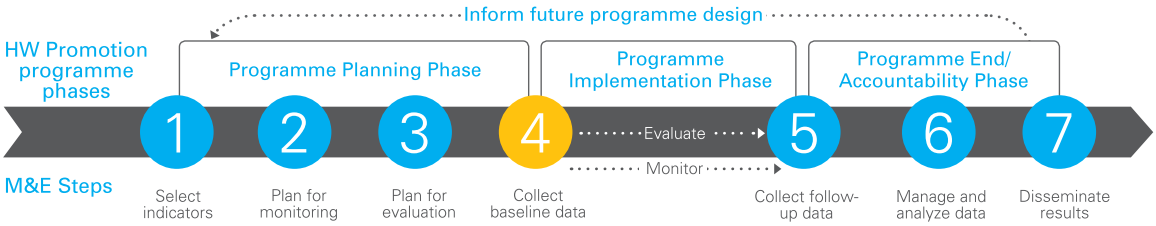
Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

Scenario 3: Implementation underway or complete

- All scenarios require this step, however not all parts of this step can be used in all scenarios. For programmes in scenarios 1 & 2, plan for a baseline, midline (if needed), and endline.
- Programmes in Scenario 3 do not have the opportunity to collect baseline data and therefore do not need to plan baseline data collection. Only an "endline" survey is possible at this point which should compare groups that received the programme and groups that did not.

  This type of evaluation is methodologically "weaker" than following and comparing two groups from baseline to endline. However, these programmes may still be able to understand the outcomes of your programme on the target population.



4

STEP 4: COLLECT BASELINE DATA

Data collected before an intervention is implemented (i.e. at baseline) provides a basis of comparison for assessing changes resulting from the programme. For handwashing promotion programmes, baseline data can describe the knowledge, attitudes or practices in the population that exist before the intervention is applied.

1. *Obtaining voluntary consent from participants*

Obtaining verbal or written voluntary consent for participation from each person is essential human subjects research practice. Consent forms describe the data collection activities that will involve the respondent, the risks and benefits of participation, the respondent's rights if he/she chooses to participate and contact information of the evaluator or his/her representative.

2. *Logistics and support*

By the time baseline data collection is underway, most logistical issues related to carrying out the evaluation should have been identified and addressed. Such logistical issues include timing needed per household/unit of the target audience to administer the intervention/programme, travel time, transportation costs, ease of interaction with target population, etc. During this time the field staff supervisor should be available for assistance with issues and decisions that must be made in the field. Additional adjustments of data collection tools may be necessary. Close monitoring of issues is recommended to avoid problems that could persist through time and affect data collection procedures and/or the quality of the data.

3. *Formative research*

Prior to collecting baseline data, you may consider formative research in order to inform the intervention/programme. While formative research is beyond the scope of this module, in Figure 5 we answer some basic questions regarding formative research including how formative research differs from baseline data collection.

Using Baseline data for programme planning

Baseline data that is collected in advance enough for the data to be analyzed, interpreted and reported can inform programme planning. Based on the findings from baseline data, programme leaders can understand the current status of the target population with respect to handwashing measures. This information can shape decisions regarding the programme itself, as well as details for programme implementation (ex. target communities, scale, etc.)

FIGURE 5

Formative Research: What is it and how does it differ from baseline data?

What is formative research?
Formative research consists of qualitative and quantitative methods to assess motivators and barriers to handwashing with soap), and to identify appropriate communication channels, messages and messaging approaches.

How does formative research differ from baseline data?
The goal of formative research is to inform intervention design, including the content and the channels of communication. In contrast, baseline data collection is intended primarily to serve as the basis of comparison for determining whether and the extent to which the intervention results in change related to handwashing. Baseline data can sometimes yield information that is useful to intervention design and such information should be sought in the data collection and interpretation process.

When should formative research be done?
In order to inform the programme/intervention design, formative research should be done early in the programme planning phase. Even if not done prior to intervention deployment, formative research may still be beneficial to improve upon the ongoing programme.

How can formative research benefit our programme?
If formative research was done prior to baseline data collection then it may not be necessary to repeat it. However, if formative research was not completed, baseline data collection is an opportunity to identify some motivators and barriers to handwashing with soap. This information can be used to modify or fine-tune the programme/intervention. For programmes with behaviour change objectives, identifying motivators of and barriers to good handwashing behaviour and proper communications channels could be crucial to the ability of the programme to be effective.

BOX 4

Situation Analysis for Step 4

Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

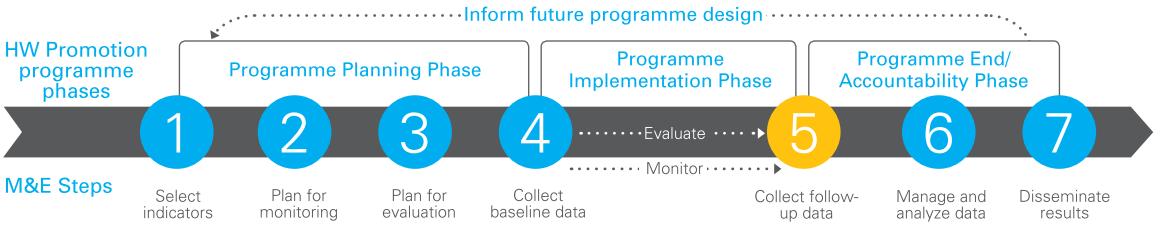
Scenario 3: Implementation underway or complete

- Programmes in Scenario 1 and 2 have the opportunity to collect baseline data and are strongly recommended to do so. In evaluation where the goal is to compare before and after the intervention among the same population, baseline data is crucial.

  In evaluation where two separate groups (intervention group and control group) are followed from baseline through endline, baseline data allows you to compare the characteristics of these groups.

  Ideally they should be similar; however, it could happen that the way each was sampled created inherent difference between the groups.

- Programmes in Scenario 3 do not have the opportunity to collect baseline data and should skip this step.



5

STEP 5: COLLECT FOLLOW-UP DATA

Follow-up data is data collected at midline, and/or endline or any additional visits after the baseline data collection. The follow-up data collection tool provides opportunity to collect information about and evaluate exposure to programme messages in addition to the handwashing indicators. The same indicators and data collection methods included at baseline should be included at follow-up in order to measure change.

1. When to conduct follow up visits

Frequency of follow-up visits depends on the length of the programme, the length of M&E, and the programme objectives. In order to evaluate certain programme objectives, a greater number of follow-up visits are required (e.g. To measure diarrhoeal episodes, several repeated visits are needed) while other may only require one (e.g. Post GHD evaluation). Follow-up visits are done a specified period of time after baseline (e.g. 4-6 months). For longer programmes, training re-freshers every 4-6 months are needed especially for observations.

2. Obtaining voluntary consent from participants

Voluntary consent should be obtained for all follow-up data collection visits. Consent can be obtained during the baseline visits if notification of each follow-up visit is included in the consent form. Wording should be as similar as possible to that at baseline.

3. *Choosing participants for follow-up data collection*

When possible, returning to the same respondents that participated in baseline may reduce the number of participants required to demonstrate differences between baseline and follow-up. A survey of new respondents for follow-up data will require a larger number of participants overall in order to identify differences between pre- and post-intervention groups with statistical significance. The wording of the questionnaires should be identical or as consistent as possible with the baseline in order to allow for appropriate comparisons. Finding the same participants after certain periods of time can be a challenge since participants can move homes or migrate. It is difficult to predict how many participants will not be found or available for follow-up data collection. One way to ensure enough people are included in your evaluation is to "over sample", meaning include more participants than needed with the expectation that some of them will not be a part of follow-up data collection (e.g. Include 110 participants if you target number is 100 participants).

BOX 5

Situation Analysis for Step 5

Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

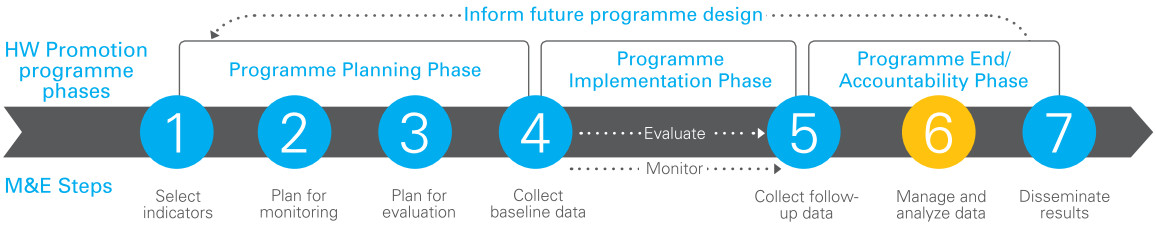
Scenario 3: Implementation underway or complete

- Programmes in Scenario 1 and 2 have the opportunity to collect data from one or multiple follow-up visits and are recommended to do so.

  In evaluation where the goal is to compare before and after the intervention, at least 1 follow-up visit is crucial.

  In evaluation where two groups are followed from baseline through endline, at least 1 follow-up (per group) data is needed in order to compare these groups.

- Programmes in Scenario 3 can only collect "endline" data and should follow this step. Since baseline will not be collected, you should collect basic demographic information and information on household assets in order to be able to account for socio-economic status.



6 STEP 6: MANAGEMENT AND ANALYSIS OF DATA

1. Basics on data organization and entry

Data can be entered, stored and managed in several different computer-based programmes. Microsoft Access and Microsoft (MS) Excel are examples of data management programmes that are useful for such purposes. For the purpose of this module, MS Excel is used in examples and instructions. Paper-based questionnaires are used often in the field, although Personal Digital Assistants (PDAs) have also been used for data collection. This module will not provide additional instructions for the use of electronic techniques to collect data. However, the guidance provided in this step may be used for either type of data collection.

Assigning variable names and giving a unique identification number to each participant

- Give a unique identification (ID) number to each respondent from whom you are collecting data. Using the unique identification number is the simplest way to organize your data. If multiple respondents from the same household are included, give a unique ID for each respondent and a unique ID for each household.
- On each questionnaire, label each answer field with a unique label (variable name). If data from the two surveys are going to be combined to create a single dataset, and the same questions are asked in both surveys, they must have different variable names.

Mistakes in data entry can arise when data is manually entered. Such issues can be addressed by quality control checks and data cleaning. Information entered into the database should be double-checked for a sample of questionnaires (e.g. 10%) after entry is complete.

2. Basics on cleaning data

Data cleaning is the process of checking the data for mistakes and ensuring the coding is coherent. Data cleaning should occur before starting data analysis. The most common mistakes are:

- Answer choices that do not fit into the range of answer choices for that question.
- Data point/fields that are missing but should not be. This could indicate a missed data entry point at that point or a previous point that has caused all the answer choices to shift by 1 in placement.
- Answer choice is incorrectly transferred from the data collection tool to the electronic file.

3. How to analyze and interpret data

Data analysis methods range in complexity. Descriptive statistics describe selected characteristics of the population under study. While useful to understand the current status, descriptive statistics are

not enough to determine whether an intervention has resulted in change. In this module, we explore simple descriptive statistics. Formulas in MS Excel can calculate these using simple calculations. More sophisticated statistical analysis, which is often required and performed using software such as STATA, SAS or SPSS, should be undertaken by persons with experience in statistics and research.

- Count: The number of items, events, people fitting a condition. When monitoring the programme usually counts are reported and/ tabulated.

  E.g. 150 households with soap and water at a handwashing station

- Proportion: A proportion is a number of items, events, or people fitting a given condition divided by the number of the total units from that population. A proportion must have a numerator and a denominator. Proportions should be reported per unit, for example 57 deaths per 1,000 live births. A proportion can also be reported as a percentage (by multiplying the proportion by 100).

  E.g. 56% of children know after defecation is a critical time for handwashing with soap

- Means (also referred to as an average): The mean is computed by adding all the values and dividing this sum by the total number of values added. Means, however, are sensitive to outliers (data points that are extremely high or low).

  E.g. Average of 116 households have soap and water at a handwashing place among the 20 villages

In order to determine whether descriptive statistics (for example, the percentage of people that know the benefits of handwashing) are significantly different between two groups or between two time points specific statistical tests are required. This is beyond the scope of this module. We recommend discussion of such issues with persons that have sufficient experience in statistics and research.

BOX 6

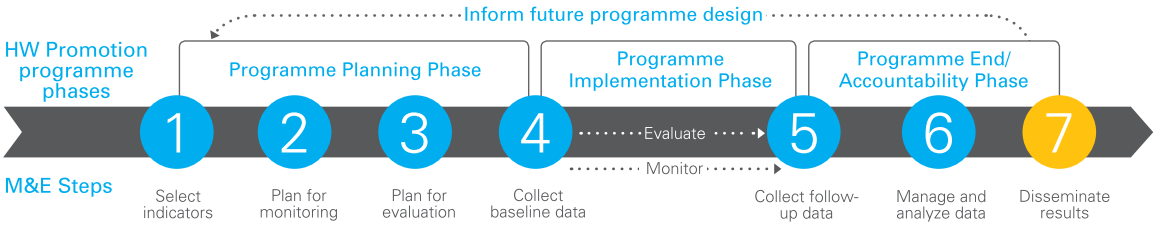
Situation Analysis for Step 6

Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

Scenario 3: Implementation underway or complete

Programmes in all three scenarios will follow this step. However, the complexity of data analysis can vary depending on how the evaluation was designed.



7

STEP 7: DISSEMINATE RESULTS

Report writing is a common way to disseminate findings to concerned parties. Consider your audience and other groups that may benefit from your report (internal and external).

Groups to consider:

- Direct (internal) project staff (leadership and field team)
- Headquarters leadership
- Regional leadership
- Local and national government leadership
- UNICEF WASH teams in other countries
- Funders, potential funders
- Community that participated (The community that received the programme shares an interest in the information they contributed to and should always be considered.)
- National, regional, and international audiences in the WASH sector

Reporting all (positive and negative) results:

Both positive and negative results are informative and can inform future programmes and activities. Negative results tend to go unreported. While some perceive negative results as programme failure, there is valuable information in negative results that may benefit other programmes and the broader WASH sector. Timelines for dissemination of results are important to consider. After completion of analysis, data should be disseminated as soon as possible to maintain relevancy.

Reporting formats:

Results may be reported in agency standard annual report, publication in peer-reviewed journals, presentations, webinars, or simple pamphlets/information cards. The reporting format should be appropriate for the target audience. Reports should include descriptions of the methodology, the target population, detailed results, limitations of the data and/or data collection methods, areas for improvement and future directions. Reports meant for public or community distribution should be simplified and highlight the main findings. UNICEF Country staff can choose to include results as part of the Country Office Annual Report, under the "innovations" or "studies undertaken" sections.

BOX 7

Situation Analysis for Step 7

Scenario 1: Conceptualization

Scenario 2: Implementation in the near future

Scenario 3: Implementation underway or complete

Programmes in all three scenarios will follow this step.

INDICATORS

In step 1, we aligned programme objectives, activities and messages to guide selection of indicators. In this section, we describe a number of indicators appropriate for use in the monitoring and evaluation of handwashing promotion programmes. Table 3 (Page 32) provides a list of indicators that can be used for M&E. For each of these indicators, we provide the rationale, definition, calculation, data collection method, strengths, limitations, model questions/data collection tools, training considerations and related definitions, and how to analyze and interpret the indicator (see Annex 8).

Handwashing behaviour indicators presented here are the best measures that are available at this time; however, it is important to know ***there is no perfect measure of handwashing behaviour***. Like measurement of other health-related behaviours, handwashing behaviour measurement is challenged by the complexities of human behaviour. It is important to consider the strengths and limitations of each indicator when interpreting results and/or making conclusions.

DIRECT VS. PROXY INDICATORS TO MEASURE HANDWASHING BEHAVIOUR

Direct indicators describe measurement of the actual behaviour of interest. For example, for handwashing, structured observation yields observed frequency of handwashing with soap. Direct indicators of handwashing behaviour are evaluated through structured observation or self-report of handwashing. Structured observations are person-time intensive, require a considerable skill level to execute and are subject to reactivity that may result in alteration of behaviour. Still, structured observation yields a rich level of detail regarding the context of handwashing behaviour. Observed handwashing after fecal contact and before food preparation has been shown to be associated with reduced risk of diarrhoea in children less than 5 years old [8]. Several

studies demonstrated that self-reported handwashing behaviour over estimates actual handwashing behaviour (observed in a structured observation) [9-12].

Proxy indicators measure a condition that is related to the behaviour of interest. For example, whether or not a household has soap at the place they wash hands most often, suggests that appropriate materials are available and convenient to use for handwashing by household members. However, it does not reveal how often, or when hands are washed. By definition, proxy measures yield information that is an approximation of true handwashing behaviour, but many of them are more efficient to collect than direct structured observation and more objective than self-report methods.

Measuring the level of microbiological contamination of hand is a proxy measure of handwashing with soap because it suggests hand cleanliness. Since this is a relatively expensive method that requires skilled personnel, it will not be discussed further in this document.

GENERAL GUIDELINES FOR ADAPTING INDICATORS TO INDIVIDUAL PROGRAMMES

The indicators listed in Table 3 may need to be adapted for individual programmes since each programme is different and each setting is different. Each indicator is presented separately; however, several indicators can be measured using one data collection tool. Refer to Annex 6 for considerations when constructing a data collection tool. Field testing will play a crucial role in identifying components that require adaptation. Instructions, answer choices and considerations for how to administer a particular indicator are areas that require attention.

The guidelines for adapting indicators are as follows:

1. Test whether instructions for both the enumerator and the respondent are clear and appropriate
2. Field test answer choices to make sure the answer choices reflect a full range of possible answers
3. Test whether the conduct/interaction required for observations are culturally acceptable
4. Ensure that adaptations to the question retain the integrity of the original content of the question

TABLE 3

Sample indicators for evaluation of programmes that promote handwashing

GOAL	PROGRAMME	INDICATORS	DATA COLLECTION METHOD
Advocacy	**Outputs**	(A1) Number of handwashing promotion advertisements distributed/broadcasted	Programme records/ Media tracking
		(A2) Number of handwashing promotion events	Programme records/ Monitoring
		(A3) Number of participants at handwashing promotion event(s)	Programme records/ Monitoring
		(A4) Number of stakeholders introduced to benefits of handwashing with soap	Programme records
	Outcomes	(A5) Recall of the event/advertisement	Survey
		(A6) Recall of the main message(s) from an event/ advertisement	Survey
	Impact	(A7) Progress toward commitments	Programme records
		(A8) Number of commitments (funding, sponsorship, participation)	Programme records
Education	**Outputs**	(E1) Number of education related events	Programme records
	Outcomes	(E2) Knowledge of the benefits of handwashing with soap	Survey
		(E3) Knowledge the critical times for handwashing	Survey
		(E4) Soap use during a handwashing demonstration (also a proxy indicator of Behaviour Change)	Rapid observation
	Impact	(B2-6) Behaviour change as measured by indicators listed below	(see below)
Behaviour Change	**Outputs**	(B1) Number of behaviour change communication events	Programme records
		(B2) Number of participants at behaviour change communication events	Programme records
	Outcomes	*(Proxy indicators)* (B3) Soap and water present together at a handwashing place	Rapid observation
		(B4) Soap present in the household	Rapid observation
		(B5) Hand cleanliness score (visual inspection of hand cleanliness)	3-pt. hand inspection
		(Self-reported behaviour) (B6) Self-reported handwashing with soap at any critical event/at specific critical event	Self-report
		(Direct observation of behaviour) (B7) Observed handwashing with soap and water at any critical event/at a specific critical event	Structured observation
	Impact	Prevalence of illness during the 72 hours preceding interview (e.g. diarrhoea, or respiratory illness)	Survey of disease symptoms and signs

Section Five

DATA COLLECTION METHODS

Several methods of data collection can be used to evaluate handwashing promotion. This section provides an overview of each method, methods of sample selection, basic sample size calculations, and a short outline on who can perform data collection.

DATA COLLECTION METHODS

Questionnaires/Surveys

Questionnaires/surveys are a common method of obtaining data. Both open-ended questions (respondent can give any answer, typically used in qualitative data collection) and closed- ended questions (respondent must choose from a list of answer choices, typically used in quantitative data collection) can be included in questionnaires/surveys. In this module, we focus on quantitative evaluations and present mostly closed-ended questions for each indicator. Information about demographic characteristics, knowledge, attitudes and self-reported practices can be efficiently collected using questions in surveys. Suggestions on questionnaire organization and structure are described in Annex 6.

Rapid observations

Rapid observations are quick assessments that reveal clues about handwashing behaviour. Indicators measured by rapid observation are typically proxy measures of handwashing behaviour. They require some but not extensive training of field staff, are relatively low cost, and are efficiently conducted. Since rapid observation measures are typically observed, they are objective. Another advantage of rapid observation is they can be easily incorporated into multipurpose surveys, such as the Multi-indicator Cluster Surveys (MICS) or Demographic and Health Surveys (DHS). This is very useful for

handwashing promotion programmes that are nested within larger WASH, nutrition or education programmes. Adequately or minimally funded handwashing promotion programmes can use rapid observations because they require less human/financial support in comparison to structured observations. Indicators that are collected by rapid observation include soap use during a handwashing demonstration, presence of soap and water together at a handwashing place, and availability of soap in the household.

Structured (direct) observations

A structured observation is a continuous, direct observation of behaviour using a standardized format for identifying and recording events of interest and other related details. Structured observations provide a direct measure of handwashing behaviour and can capture rich detail about handwashing behaviour. Structured observations are used to measure behaviour directly because self-report of handwashing behaviour is not reliable. Structured observations are not perfect; the person being observed may change his/her behaviour in order to please the data collector. These observations also require several hours of the data collector's time and highly trained staff. Due to high person-time demands, minimally funded programmes may not be able to employ this measure in sufficiently large population.

SAMPLING METHODS

Sampling methods are the ways in which those who will be the respondents in data collection are selected to participate. Ideally, potential respondents should be representative of the target population that was meant to be exposed to the programme. Including everyone in data collection from the target population, especially for at-scale programmes, is not feasible. The following are ways to select a portion of the population to participate as respondents in data collection:

Convenience sampling

This is selection of individuals, households or communities by approaching those who pose the least logistical challenges to data collection. While often perceived as random, convenience samples (e.g. Approaching people at a marketplace) may not be random since only a certain demographic of people may be present in those areas and, thus, able to answer the question. For example, the demographic of people may be decided by the time of day of the interview, the location, and the gender or the interviewer and interviewee. Data collected by convenience sampling is not generalizable since participants were not chosen at random and we cannot be sure inherent biases do not exist.

Systematic random sampling

This method of selection of respondents provides a random sample of people but the sample is based on using a fixed pattern. To employ this method of sample selection, a pattern (e.g. every fifth household) is selected based on the size of the population and the size of the sample to be collected. This method minimizes bias that is introduced by convenience sampling because this method depends only on the pattern that is number based and cannot introduce biases that come from sampling only those who agree to participate. However, this method does not eliminate bias but allows for any biases that may be occurring to be equally distributed among those who were selected as respondents and those who were not

sampled. This method of sampling is simple and is highly recommended.

Examples of systematic random sampling schemes

1. Divide the total number of units (e.g. People, households, villages) within your target population by the number of units that you want to include in your evaluation.

   E.g. There are 3500 households within your target area and you decide to include 500 households in your evaluation (3500 ÷ 500 = 7). Choose a random starting point (e.g. center of village, or site of weekly market) and approach every 7th household for participation. Since some households will choose not to participate or cannot participate you may choose to sample every 6th household to ensure adequate sample size. If you are not able to approach anyone from the 7th household to approach, visit the next 7th household, not the household immediately adjacent.

2. If the households that you plan to approach for evaluation are already enumerated in a database (e.g. Listed in MS Excel by a unique identifier), you can use a random number generator to randomly assign numbers to each of the households. This can be done in programmes like MS Excel with the use of formula (=RANDBETWEEN). You will still have to consider the number of units within the target population that you want to include in the evaluation with respect to the total number of units in the target population. Based on this number you can choose which number (and subsequently which units) to sample (e.g. Approach households with even number assignments).

Calculating sample size

Selecting a subpopulation that is representative of the target population allows for feasible and efficient data collection. Sample size calculations can provide an estimate of how many people should be included in the data collection based on a few assumptions. Below we provide a calculation to estimate the number of respondents that are need in order to measure prevalence (proportion) of an outcome or characteristic. This calculation does not estimate the number of respondents need to detect differences between groups, e.g. between intervention and control groups, or between the same group pre- versus post-intervention of a given outcome or characteristic. Instructions for sample size calculations to detect differences between groups or at different time points can be complicated and are beyond the scope of this module. Such calculations can be done by statisticians or those with experience in research.

FIGURE 6

Calculating Sample size (adapted from[13])

Formula for calculating base sample size	$n= (t^2 \times p(1-p)) / m^2$
Definition of components	n= sample size t= confidence level at 95% (standard value of 1.96) p= estimated prevalence of desired trait/practice in the programme area m= margin of error at 5% (standard value of 0.05)
Example	**The estimated prevalence of handwashing with soap in community A is 65% (0.65)** $n= (t^2 \times p(1-p)) / m^2$ t=1.96, p= 0.65, m=0.05 $n= (1.96^2 \times 0.65(1-0.65)) / 0.05^2$ n= (3.842 x 0.2275)/ 0.0025 n= 0.874 / 0.0025 n= 349.6 **~ 350**
Considerations	• **Comparing data from the same person before and after the intervention is called clustering, and must be adjusted for in the calculation.** n x (# samples in cluster per person) = 350 * 2 = **700** people total • **Allowing for loss to follow up/non-response by increasing about 5%** n x 1.05 = 700 x 1.05 = **735**

WHO CAN COLLECT DATA FOR MONITORING AND EVALUATION?

Programme field staff who participated in implementation of the intervention

This field team will be familiar with the target community/population, the programme that was implemented and the related logistics. However, there is a risk of bias in data collection, analysis, or interpretation because of a desire for positive results or positive reflection of their work. This is the least recommended method.

Field staff from the same organization but not involved in implementation of the intervention

This field team may be familiar with the goals of the programme and the organization. There is less potential for biased reporting than field staff who implemented the programme. Also, since these field staff belong to the same organization, they can build off of their colleagues' rapport with the community. Potential for biased reporting still may be influential (over reporting of positive results).

Third party evaluation team

This field team is not a part of the implementing organization(s) and did not implement the handwashing programme activities. This is an independent evaluator and is assumed to be more objective. A third party evaluator may bring additional skills and may be appropriate for sophisticated analyses. Hiring of third party evaluators may be more costly and may impose less control over the timeline for M&E activities. However, this can produce more objective evaluations and is a recommended method.

Annexes

Annex 1

WHAT ABOUT MEASURING HEALTH IMPACTS?

Diarrhoeal disease and respiratory disease are key health concerns targeted by handwashing promotion. While the primary interest of a programme may be to advocate for handwashing, provide education regarding handwashing or change handwashing behaviour, ultimately handwashing is promoted to improve health by preventing disease. Measuring health impacts requires additional time, funding and expertise. Complete coverage of the approaches to measuring diarrhoea or respiratory illness is beyond the scope of this document. Here, we provide some of the challenges underlying health impact assessment as part of routine monitoring and evaluation of handwashing promotion programmes.

Measurement of disease-specific morbidity or mortality may require substantial expertise in order to properly classify the disease of interest. Self-report of symptoms, along with clinical features such respiratory rate, are typically used to identify incidence or prevalence of disease in individuals in the study population. Incidence is defined as the number of episodes of a particular illness during the time frame of interest. Prevalence is the proportion of surveillance time complicated by illness (i.e. # days of illness divided by # days of observation). Incidence can be more difficult to measure than prevalence. Whereas MICS and DHS typically capture two-week prevalence of diarrhoea and respiratory symptoms, recent evidence suggests that it is most efficient, and likely most accurate, to capture 72 hours or one week prevalence of disease.

Typically, large sample sizes are required in order to detect differences in disease outcomes between comparison groups, such as intervention and control groups. Often, these large sample sizes are achieved by repeated visits to the target population, as well as measurement of disease among all eligible individuals (e.g. all children under 5) within a given household. Such an approach requires complex statistical analysis in order to take the clustering of disease within a given child and within a given household.

The large sample sizes and/or repeated follow-up over a protracted period of time can require substantial funding and pose logistical challenges beyond those experienced with the administration of cross-sectional surveys.

Given the challenges described above for measuring health impact, country programmes are advised to seek expert epidemiologic and statistical guidance if interested in measuring the health impact of their handwashing promotion programmes.

Annex 2

WORKSHEET FOR ALIGNING OBJECTIVES ACTIVITIES, MESSAGES AND INDICATORS

Goal Type: Identify each objective as advocacy, education, behaviour change/ build-up, or health impact	**Objective:** List each programme objective separately. Make sure objectives are written clear and specific (see Annex 3)	**Activities:** List all activities mean to address the objective	**Main Message(s):** List all messages each activity will use to promote handwashing	**Relevant Indicators:** Use Table 3 (Page 32) to identify which indicators are relevant for the listed objective	**Selected Indicators:** Of the indicators identified in the previous column, select indicators that are within the scope of resources dedicated to M&E
(example) Behaviour change/ build-up	*(example)* Increase good handwashing behaviour among primary school children in 50 primary schools over 1 year	*(example)* Hold monthly classroom meetings for students and teachers to relay educational and behaviour changes messages Set up a handwashing station equipped with soap and water near latrines and eating area.	*(example)* Handwashing with soap can protect you from illness, keep you clean and look nice. Handwashing with soap is an expected practice in your school	*(example)* (output) Number of classroom meetings (output) Number of students present at each meeting (outcome) Percentage of schools with soap and water at a handwashing place (outcome) Percentage of critical events where students washed hands with soap (outcome) Percentage of times where students washed hands after using the toilet (impact) Prevalence of diarrhoea during the 72 hours preceding interview among students	*(example)* (output) Number of classroom meetings (output) Number of students present at each meeting (outcome) Percentage of schools with soap and water at a handwashing place (outcome) Percentage of critical events where students washed hands with soap (outcome) Percentage of times where students washed hands after using the toilet

Annex 3

WRITING CLEAR, EXPLICIT PROGRAMME OBJECTIVES

Write a clear statement of each objective to indicate what change is sought (what), among which population (who), the location (where) and the time frame (when).

EXAMPLE 1

Programme Objective 1 ☒

Increase knowledge about handwashing with soap

→

Programme Objective 1 ☑

Increase knowledge about the benefits of handwashing with soap among primary school-aged children in 100 primary schools within 1 year

---

Each objective should be in a separate line because each will be assigned a different indicator.

EXAMPLE 2

Programme Objective ☒

Increase knowledge about handwashing with soap and the number of school children that wash their hands before eating

→

Programme Objective 1 ☑

Increase knowledge about the benefits of handwashing with soap among primary school-aged children in 100 primary schools within 1 year

Programme Objective 2 ☑

Increase the number of primary school-aged children that wash hands with soap before eating in 100 primary schools within 1 year

SAMPLE MONITORING SHEET

Monitoring sheets/reports can be set-up in various ways. Below is a simple example of a monthly output monitoring sheet for a programme involving interpersonal communication of handwashing messages with individuals (at the household level). The specific monitoring sheet will vary based on the activity.

MONTHLY MONITORING REPORT				
For the month ending:			mm/dd/yy	
	This month	**Cumulative to date**	**% of yearly target**	**Data Source**
INPUTS				
# community health workers (CHWs) hired	5	8	50%	Programme records
# soap bars purchased	50	75	25%	Programme/ logistics records
PROCESS				
# CHW trainings completed	2	4	50%	Programme records
# of messages developed to go along with soap distribution	3	3	100%	Programme records
OUTPUTS				
# home visits completed by CHWs	15	30	30%	Programme records
# handwashing stations set up in schools	2	5	10%	Rapid observation

Annex 5

EXAMPLES OF EVALUATION OF VARIOUS HANDWASHING PROMOTION PROGRAMMES

Programme or Study	Scope	Duration	Target population	Key HW promotion activities	
SHEWA-B [14]	National	5 years	>100,000 households in rural or urban slums in multiple districts & communities throughout Bangladesh	Community hygiene promoters deliver hygiene education programmes over 2 years Provision of sanitation and water hardware	
Burkina Faso [15]	Sub-National	3 years	Primary: Mothers, sisters, maids and school aged children Others: Family, neighbors, opinion leaders, decision-makers, funders	Neighborhood hygiene commissions with house-to-house visits Discussion groups in health centers and community Street theatre Local radio spots and programmes Hygiene curriculum in primary schools	
Global Handwashing Day, UNICEF-Mali (unpublished data)	Community and school-based advocacy campaign	1 day	Community members living in Banconi district of Bamako 83 households	Various community and school-based activities related to handwashing advocacy and knowledge	
SWS and hand hygiene promotion in primary schools, Kenya [16]	School-based	1 year	45 primary public schools in 3 districts within Nyanza Province	Training of teachers in SWS and proper handwashing technique Teachers teach SWS and hygiene to students, encourage students to teach parents and form safe water clubs. Provided water containers, Water guard, soap and set up HW stations in central location near latrine	
Malawi Antenatal Care Study [17]	Facility-based	1 year	330 women visiting one of 15 health facilities in 2 districts for antenatal care	Provision of free hygiene kits (water storage container with tap, WaterGuard, bar of soap, 2 sachets of ORS at first ANC visit	
Dhaka peer hygiene promoter pilot [18]	Community-based	1.5 years	> 100 families living in slum in Dhaka	Peer hygiene promoters delivered hygiene messages regarding diarrhoeal disease preventions by use of SES and proper handwashing techniques	

	Key indicators	Data Collection Methods	Major findings
	% of times where caretakers washed both hands with soap or ash (observation & self-report) Presence of soap/ash & water together at HW place Morbidity from diarrhoea and pneumonia among children <5 years old	1) Structured observation 2) Rapid Observation 3) Cross-sectional survey	Data from interim evaluation (not all indicators reported at this stage) No difference in handwashing with soap practices between intervention and control groups % of people washing both hands with soap or ash after cleaning a child's anus improved from 22% to 36% in intervention group (significant improvement compared to control group) Diarrhoea and respiratory illness was not different between intervention and control groups
	% of mother that could recall 2 main messages after 3 years Proportion of times where the mother cleaned a child's bottom then washed hands with soap Proportion of times mothers used the latrine and washed hands with soap afterwards	1) Structured observation 2) Rapid Observation 3) Cross-sectional survey	50% of mothers recalled both messages at follow-up 18% increase in mothers who were observed to wash hands with soap after cleaning child's bottom 16% increase in mother who were observed to wash hands with soap after using latrine
	Recall of GHD	1) Cross-sectional survey	24-39% recalled GHD after 1 year
	% of students reporting washing hands at 2 critical times Student soap use during HW demo Student absenteeism from school % of parents reporting changing handwashing behaviour because their child talked about it % of parents reporting washing hands at 3 critical times Soap present in home	1) Cross-sectional Survey 2) Rapid Observation	Children reporting handwashing before eating increased by 7% and after using the latrine increased by 17% Students that used soap during a HW demo was 57% compared to 7% at baseline who reported using soap Absenteeism decreased by 35% 25% of parents reported changing handwashing behaviour because their child told them about handwashing Parents reported handwashing before eating increased by 17%, after defecation increased by 23%, and before food preparation by24% Soap present in home increased by 16% ($p<0.05$)
	Soap observed in home Uses soap during HW demo Lathers hands completely with soap during HW demo	1) Rapid Observation	10% increase in soap observed in home 46% increase in use of soap during HW demo 10% increase in lathering hands completely with soap during HW demo
	HH has designated HW place Presence of soap & water together at HW place	1) Rapid Observation	20% increase in HH with designated HW station 51% increase in soap and water at HW place

Annex 6

STRUCTURE AND ORGANIZATION OF DATA COLLECTION TOOLS

FORMAT

Easy to use, legible, at minimum 10pt font with clear demarcation between questions.

CONTENT

Include basic demographic information and socioeconomic status measures for all surveys, whenever possible. This may include age, race, sex, household characteristics, occupation, household/family assets, education level and income. Based on identification of programme-appropriate indicators, include questions to measure those indicators after appropriate adaptation to the programme location and other contextual factors.

NUMBERING

Numbering should be logical, and easy to follow. Minimize the length of numbering assigned to sub-questions. For example, avoid numbering questions that are under question 1, 1.2 or further 1.2.5.

ORDER OF QUESTIONS

Consider if any question asks sensitive information that may cause the respondent to react and perhaps answer other questions differently. Data to measure objective indicators should be collected before self-reported indicators (ex. Rapid observations should come before self-reported handwashing behaviour indicators) in order not to compromise objectives measures, which tend to be more reliable indicators of behaviour. Also, in our experience, questions regarding handwashing are typically not of a sensitive nature. But, questions regarding socioeconomic status may be more sensitive. Those types of questions may be unavoidable and should be placed toward the end of the document.

LENGTH

Be conscious of the respondent's time. Excessively long or repetitive questionnaires can result in frustration for both the respondent and the data collector. Tolerance for lengthy questionnaires varies from one cultural setting to the next and field-testing of tools should be done in order to assess local tolerance.

TRANSLATIONS

Ideally, translations should be done by a native speaker and at a level of complexity that is easily comprehended by persons with minimal education. To ensure question quality, translated questions should be back-translated by a person other than the original translator. Even after these important steps, some questions may not be understood easily by the target population. It may be helpful to solicit input from data collectors in rewriting questions based on their field testing experience.

CONSISTENT CODING

A number of questions throughout the survey may have similar answer choices (ex. Yes, No, Don't know). Answer choices should have consistent code throughout the document (ex. Yes=1, No=0, Don't know =7). Also the method for marking the answer choice should be the same for those questions that have the same format (ex. circling the answer, filling the answer code in a blank line, etc.). Ensure that skip patterns, if they are needed, are clearly marked and understood by all.

Annex 7

TRAINING GUIDELINES

Field teams should be well-versed in the primary objectives of the evaluation design and its methods. Other important topics to cover include: agency policies and procedures, research ethics, communication and gender awareness, and field safety.

DEFINING DATA COLLECTION ROLES AND RESPONSIBILITIES

Be sure each person's roles and responsibilities are clearly defined. For data collection purposes, there are two distinct roles: those who collect the data and those who check the quality of the data. While data collectors should review their own work for completeness and accuracy, another person should also check the quality of the document as reinforcement.

TRAINING ENVIRONMENTS

Training typically starts in an office setting. Each member of the field team learns what his/her role will be in the study. The first session(s) typically focus on the introduction and review of the data collection tools. After sufficient office-based training has occurred, it is best to do field practice. There are significant differences between hypothetical scenarios presented in office training and real-life scenarios encountered in the field. Field-based training will require much troubleshooting and ingenuity as problems are faced.

EXAMPLES OF OFFICE-BASED EXERCISES

Each data collection tool should be introduced and reviewed by the group, who can then practice by administering the questionnaires to one another.

Exercise #1: Group Reading

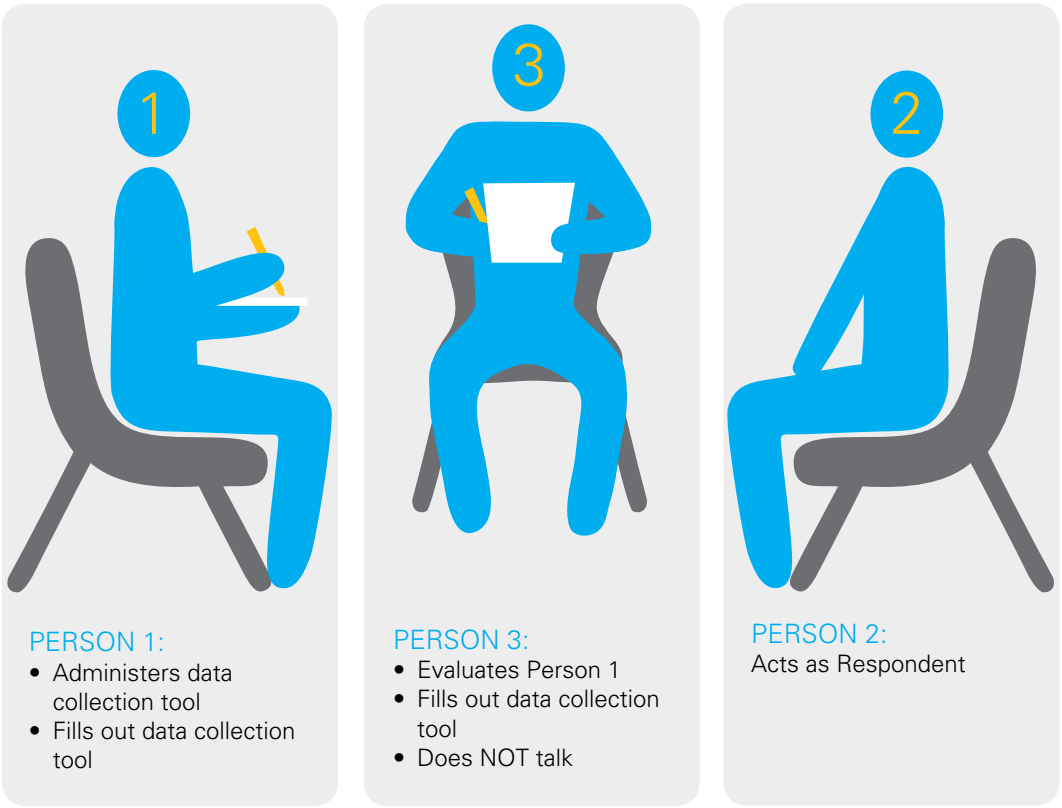
1. Read the questionnaire/data collection tool (verbal and non-verbal/observation questions) out loud as a team. Go around the room, allowing each field team member to read a question, and any corresponding instructions and answers.
2. As each question is read, ask the team to tell you what the purpose of each question is and what primary information is being collected.
3. Allow the team to raise any concerns they have and troubleshoot as necessary.

Exercise #2: Triad Practice

1. Break into groups of 3. Have Person #1 administer the data collection tool to Person #2. Person #1 should complete the data collection tool as s/he administers it. Person #2 acts solely as a respondent and does not write anything. Person #3 can simultaneously evaluate the way in which Person #1 administers the data collection tool AND complete the tool based on Person #2's answers. Person #3 should not ask any questions but allow Person #1 to be the sole interviewer. When this is finished, the group should read through the questionnaire together. Person #1 and Person #3 should compare answers and resolve any coding differences. Person #2 and Person #3 can comment on the way that Person #1

asked the questions. Everyone can work together to troubleshoot any issues.

2. When Round 1 is complete, each person within a group can take a different role, continuing to take turns until each person has played each role.
3. When the exercise is finished, everyone should talk as a group about problems they encountered or things that they learned.



Exercise #3: Group-level Mock Interviews

1. Gather together as a group. Similar to when the data collection tool questions were read out loud, the field team members will take turns reading the questions. This time they will read only the questions (not the instructions) just like they did during the triad practice (to simulate field conditions). All questions should be directed towards the facilitator(s).
2. As the training facilitator(s) answers the questions, each member of the study team should fill out a blank form. The team members should also be encouraged to write down questions that they have along the way to ask later. The key to this exercise is to answer the questions in ways that will not only test basic coding knowledge and ability, but will also occasionally challenge the field team to face ambiguous or confusing situations.

Exercise #4: Practicing Observation Questions

For questions that are not asked aloud but rather observed by the data collector, here is an option for training and for testing enumerator knowledge:

Create a PowerPoint presentation with pictures or diagrams depicting field conditions, e.g. type of water source or housing construction material. Use the slide presentation during group reading of the data collection tool. Have the field team members record their observations, compile and review.

EXAMPLE OF A FIELD-BASED EXERCISE

Exercise #5: Dyad Practice for Verbal Questions

This exercise is modeled after the office-based Exercise #2 "Triad Practice" but is intended for practice in communities resembling the target population of interest.

1. Break into pairs. Have Person #1 administer the questionnaire/data collection tool to a respondent in the field. Person #1 should fill out the questionnaire/data collection tool as he/she administers it. Person #2 can simultaneously observe and evaluate how Person #1 is asking the questions AND fill out a questionnaire/data collection tool himself/herself based on the respondent's answers. Person #2 should not talk. Person #1 and Person #2 should NOT be able to see each other's questionnaire/data collection tool and should make sure to fill them out based only on the respondent's responses.
2. When the pair finishes, they can return to the field office and review their questionnaires together, resolving any coding differences, reviewing how the questions were asked, and troubleshooting any complications. During this time, they can also ask questions of the training facilitator(s).
3. Then the pair can switch roles, find a new respondent, and repeat Steps 2 and 3.

INDICATORS

Each of the indicators listed in Table 3 (main module) are outlined in detail in this section. These indicators represent a sample of indicators that may be used in monitoring and evaluation of handwashing promotion programmes. We show here a limited number of output-related indicators since outputs are programme dependent and can vary widely.

The range of outputs, outcomes, and impacts relevant to programmes with advocacy objectives may be broader than the indicators included here since advocacy can have multiple target groups, a wide range of approaches of implementation, and a broad set of objectives. Many of the outcome and impact indicators relevant to M&E of education and behaviour change included in this section have been used in evaluation and/or research. A detailed discussion of these measures of handwashing behaviour can be found in the Water and Sanitation Programme working paper "Practical Guidance for Measuring Handwashing behaviour: 2013 Update" (http://www.wsp.org/sites/wsp.org/files/publications/WSP-Practical-Guidance-Measuring-Handwashing-Behaviour-2013-Update.pdf) [19].

Handwashing behaviour indicators presented here are the best measures that are available at this time; however, it is important to know *there is no perfect measure of handwashing behaviour*. Like measurement of other health-related behaviours, handwashing behaviour measurement is challenged by the complexities of human behaviour. It is important to consider the strengths and limitations of each indicator when interpreting results and/or making conclusions.

INDICATORS RELEVANT TO MONITORING AND EVALUTATION OF ADVOCACY

A1. **OUTPUT INDICATOR:** NUMBER OF HANDWASHING PROMOTION ADVERTISEMENTS DISTRIBUTED/BROADCAST

EXAMPLE

Objective	Increase awareness of importance of handwashing with soap among mothers using a regional broadcasting campaign over a 3 month period
Activities	Broadcast radio advertisements 3 times a day advocating the importance of handwashing with soap to protect the health of children
Messages	1) Using soap will help you keep your family and home clean 2) Handwashing with soap helps you protect your family from illness
Output Indicator	Number of advertisements broadcast

Rationale

The number of advertisements distributed or broadcast to the target population reveals how many times the advocacy message was presented by the programme through this channel of communication. While this measure does not indicate how many people heard the message, it does indicate the number of opportunities for the message to be heard or seen.

Definition

Quantity of advertisements distributed or broadcast

Calculation

Sum of the advertisements distributed or broadcast

Data collection method/source

This data is typically collected through programme monitoring and/or from media tracking which is usually done by the distributer or broadcaster.

Strengths

This measure is efficient and straightforward

Limitations

This is an output indicator and cannot account for any effects at the population level

Model data collection tool

No specific data collection tool is needed for this indicator. The number of advertisements distributed or broadcast should be tracked by distributer or broadcaster at regular intervals (e.g. daily, weekly, and monthly, etc.).

Training considerations

If advertisements are being distributed by programme staff they should keep record of quantities in the same way. The frequency of reporting will depend on the frequency of advertisements distributed/broadcast. The unit of reporting should be consistent (e.g. daily, weekly, biweekly).

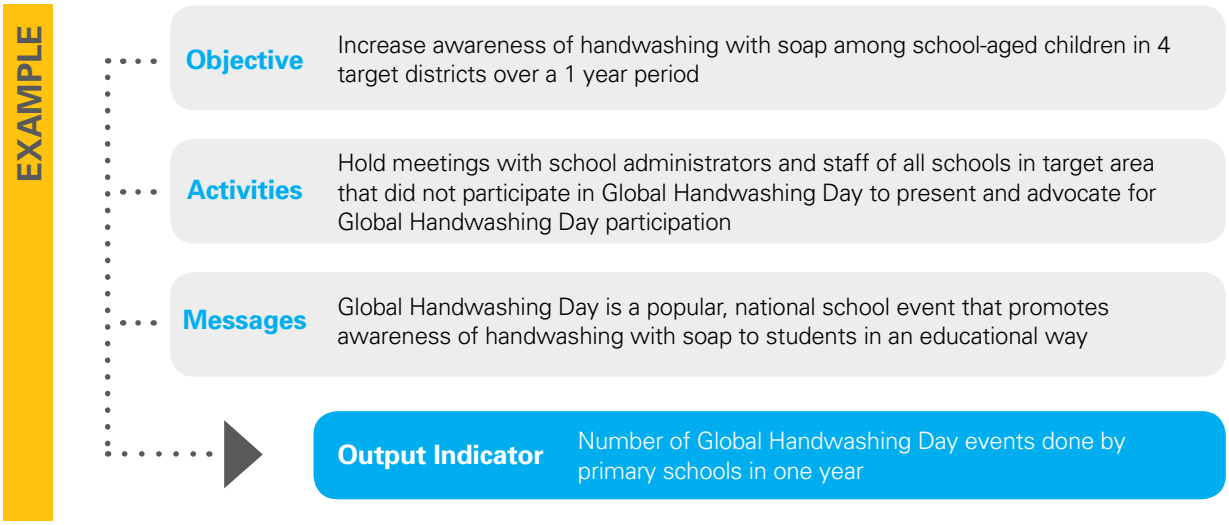
Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

Analysis required to derive the indicator:

- SUM of all advertisements distributed/broadcast within a specified time period

A2. **OUTPUT INDICATOR:** NUMBER OF HANDWASHING PROMOTION EVENTS



Rationale

The number of events offered to the target population reveals how many times the message was presented by the programme.

Definition

Quantity of events completed within a specified time

Calculation

Sum of events completed within a specified time

Data collection method/source

This data is typically collected through programme monitoring.

Strengths

This indicator is efficient and straightforward

Limitations

This indicator cannot account for any effects at the population level

Model data collection tool

There is no specific data collection tool for this indicator. The number of events completed and the number of people attending each event should be obtained from programme monitoring.

Training considerations

Those tracking the number of events should have a clear definition of the event of the interest. If multiple programme staff or external evaluators are tracking the number of events, they should have the same or similar reporting/monitoring sheets. Consistency in data collection methods can decrease errors due to differences in reporting.

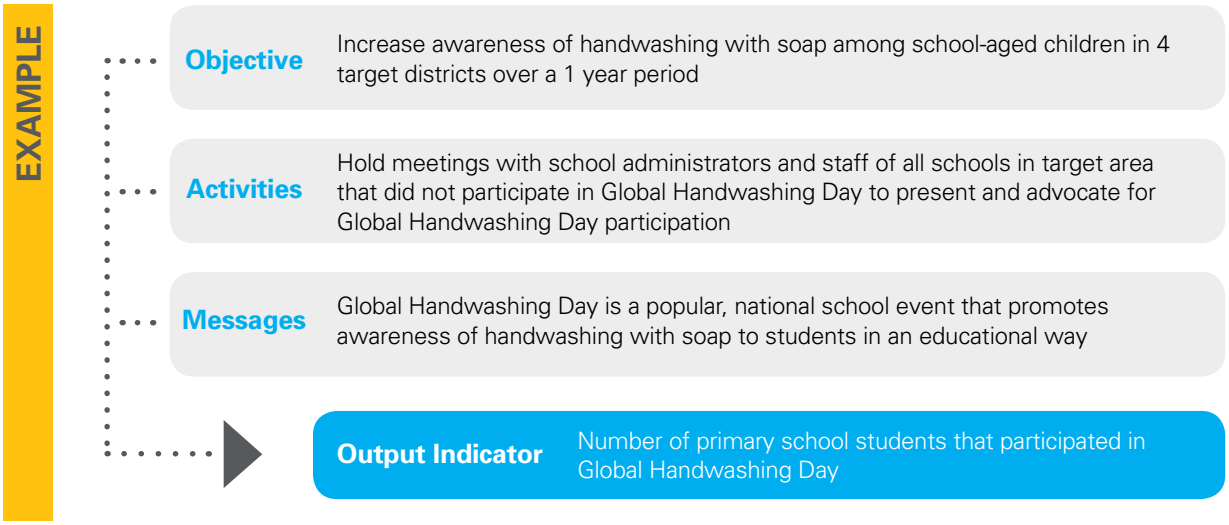
Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

Analysis required to derive the indicator:

- SUM of all handwashing promotion events within a specified period of time

A3. **OUTPUT INDICATOR:** NUMBER OF PARTICIPANTS AT HANDWASHING PROMOTION EVENT(S)



Rationale

The number of participants at the event(s) reflects the number of people who were exposed to the message directly through the event(s).

Definition

Number of people present at each event or all events

Calculation

Sum of people present at each event or all events

Data collection method/source

This data is typically collected through programme monitoring.

Strengths

This indicator is efficient and straightforward

Limitations

This indicator cannot account for any effects at the population level

Model data collection tool

There is no specific data collection tool for this indicator. Counting the number of people attending each event will depend on the size of the event and the expected number of attendees. For small events where a small number of people are expected to attend, those

leading the event can record the number of attendees on a simple report or monitoring sheet. For larger events, event leaders can implement digital counting systems, or a systematic way to manually count attendees (e.g. collect ticket stubs at each entry point then count the number of ticket stubs).

Training considerations

If multiple programme staff or external evaluators are tracking the number of people attending an event or events under evaluation, they should have the same or similar reporting/monitoring methods and reporting sheets. Consistency in data collection methods can decrease errors due to differences in reporting.

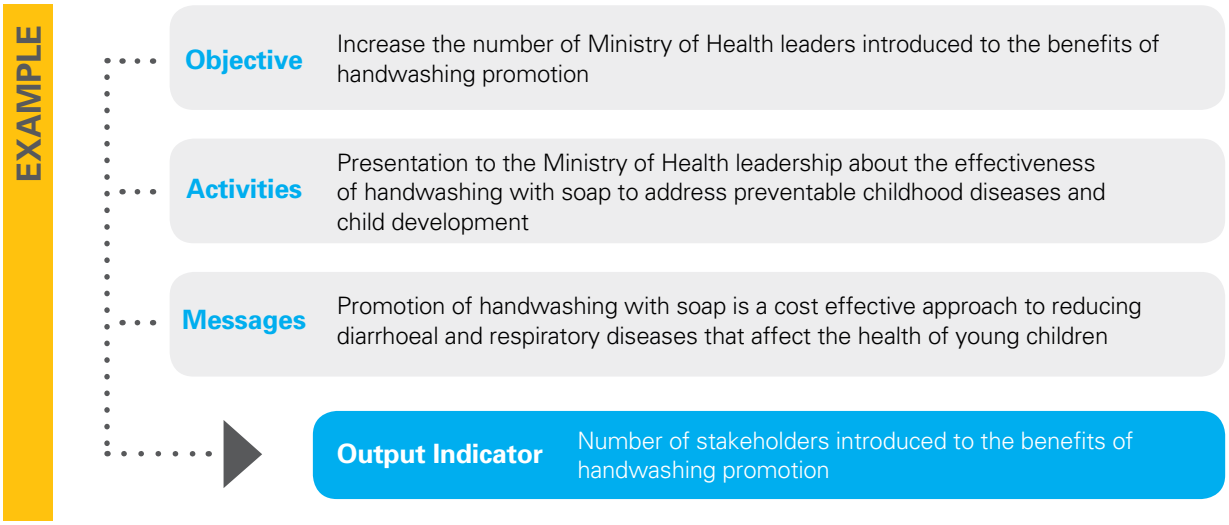
Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

Analysis required to derive the indicator:

- Number of participants **(PPT_COUNT1)** = SUM of all people attending the event
- Repeat the count of participants for every event of interests if there are multiple events (**PPT_COUNT2, PPT_COUNT3…)**
- Total number of participants at all events within specific period of time **(PPT_TOTAL) = PPT_COUNT1 + PPT_COUNT2 + PPT_COUNT3 + …**

A4. **OUTPUT INDICATOR:** NUMBER OF STAKEHOLDERS INTRODUCED TO THE BENEFITS OF HANDWASHING PROMOTION



Rationale

Building the enabling environment for a handwashing promotion programme and/or building programming capacity requires support from various stakeholders. Introducing stakeholders to evidence and facts of hand washing with soap, and the goals and benefits of a programme provides a foundation for establishing such partnerships.

Definition

Quantity of stakeholder introduced to benefits of handwashing promotion

Calculation

Sum of individual stakeholders introduced to benefits of handwashing promotion

Data collection method/source

This data is typically collected through programme monitoring.

Strengths

This indicator is efficient and straightforward

Limitations

This indicator cannot account for any population level effect.

Model data collection tool

There is no specific data collection tool model for this indicator. The data required to derive this

indicator should be available from programme records or communication with staff who liaise stakeholder relationships. For example, during meeting or forums with stakeholders keep a record of who attended and what organization, region, village, etc. each stakeholder represents.

Definition of terms

Stakeholders are any entities who share an interest in the programme, support the programme and programme goals. E.g. Ministry of Health, Funding agencies, Community leaders, community receiving the programme, implementing agencies/partners.

Training considerations

The enumerator should be trained to collect accurate and complete records.

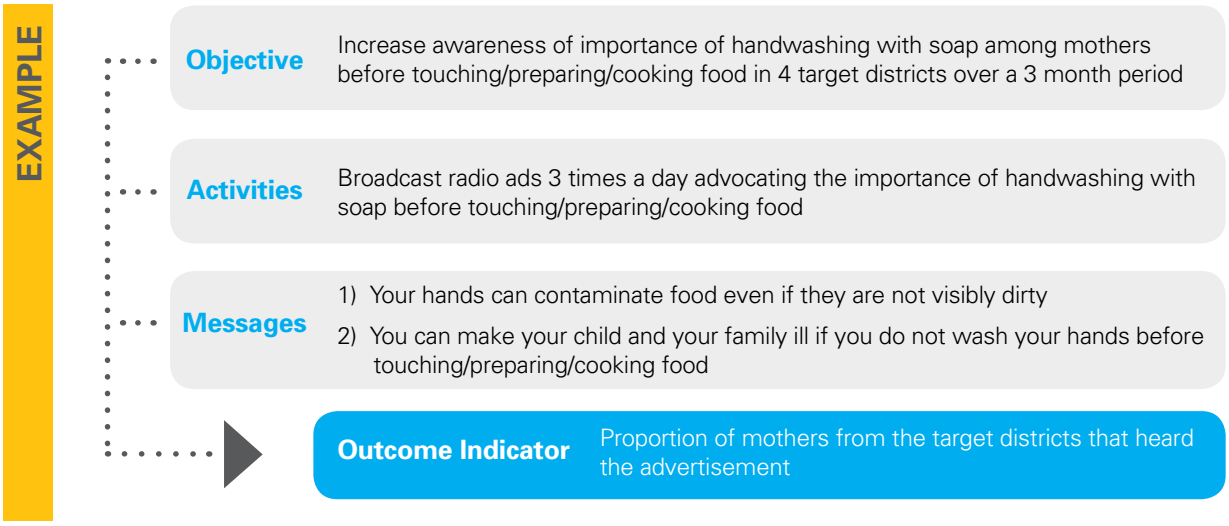
Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

Analysis required to derive the indicator:

- SUM of all stakeholders actively introduced to benefits of handwashing promotion

A5. **OUTCOME INDICATOR:** RECALL OF THE EVENT/ADVERTISEMENT



Rationale

The proportion of individuals from the target population that recall the event or the advertisement can reveal the extent to which the handwashing promotion message was disseminated.

Definition

Proportion (or percentage) of individuals from the target population that recall the event/ advertisement in relation to the total number of people that were surveyed.

Calculation

$$\frac{\text{Number of people that recall the event/advertisement}}{\text{Total number of people surveyed}}$$

Data collection method

This indicator can be collected by administering a simple survey among the target community. If the target population is larger and/or cannot be surveyed in full then a sample of the target community can be surveyed to collect this data. In order to select the appropriate sampling method refer to "Sampling Methods" in Section 5 of the main module.

Strengths

This is efficient and straightforward.

Limitations

The respondents are asked to recall something that may have happened after an extended period of time and, thus, may be unable to recall accurately whether or not they had seen or heard of the event or advertisement. Thus, the measure may underestimate the true exposure.

Model data question for collection tool

5. Do you recall seeing or hearing of [event/advertisement] between [Month] and now?	**5.** _____ 1… Yes 0… No

Definition of terms from data collection tool

Recall can be defined as remembering or knowing about the event or advertisement. The programme should decide if sources other than first-hand witness are acceptable. For example, if a person says he/she recalls the event because her neighbor told her about it, this would be a second-hand source. If it is important to understand the source of the information then consider adding a question in the survey asking for the source of information.

Training considerations

Enumerator should administer the question exactly as written. Reword the question or "saying it in your own words" may pose a different question or a different understanding of the question by the respondent than the intended question. If the respondent is confused by the meaning the enumerator must repeat the question. The field team can agree on alternative wording of the question(s) as a back-up in case the question is not understood by the respondent.

Analysis/interpretation

This indicator is a proportion and can be reported as a percentage. This is an outcome indicator that reflects the effects of the programme outputs on the target population.

Analysis required to derive the indicator: **Proportion of people that recall the event/ advertisement**

To calculate the numerator – Number of people that recall the event/advertisement **(RECALLED)**

- Add all people with who which the answer choice "1" to question 5

To calculate the denominator – Total number of people surveyed **(RECALL_Total)**

- **RECALL_Total** = total number of people that answered the survey

To calculate indicator – divide RECALLED (numerator) by RECALL_Total (denominator)

- To calculate percentage multiply the final proportion by 100

A6. **OUTCOME INDICATOR:** RECALL OF THE MAIN MESSAGE(S) FROM AN EVENT/ADVERTISEMENT

EXAMPLE

Objective	Increase awareness of importance of handwashing with soap among mothers before touching/preparing/cooking food in 4 target districts over a 3 month period
Activities	Broadcast radio ads 3 times a day advocating the importance of handwashing with soap before touching/preparing/cooking food
Messages	1) Your hands can contaminate food even if they are not visibly dirty 2) You can make your child and your family ill if you do not wash your hands before touching/preparing/cooking food
Outcome Indicator	Proportion of mothers from the target districts that recall the main messages from the advertisement

Rationale

The number of people that recall the main messages can reveal whether the message(s) were absorbed by the target population.

Definition

Proportion of individuals from the target population who recall the main message(s) in relation to the total number of people surveyed

Calculation

$$\frac{\text{Number of people that recall the main message(s)}}{\text{Total number of people surveyed}}$$

Data collection method

This indicator can be collected by administering a simple survey among the target community. If the target population is larger and/or cannot be surveyed in full then a sample of the target community can be surveyed to collect this data. In order to select the appropriate sampling method refer to "Sampling Methods" in Section 5 of the main module.

Strengths

This is efficient and straightforward.

Limitations

The respondents are asked to recall something that may have happened after an extended period of time and, thus, may be unable to recall accurately whether or not they had seen or heard of the event or advertisement and/or the messages from that event/advertisement. Thus, the measure may underestimate the absorption of the message(s).

Model data question for collection tool

Typically, this indicator is coupled with the previous indicator (A5) in a sequence. In such a case, the model questions here would be skipped if the respondent indicates that he/she does not recall the advertisement/event responsible for disseminating the message(s). It would not make sense to ask whether the respondent remembers the message(s) if they do no recall the event/advertisement first. Similarly, if the respondent indicates he/she does not recall the message(s) from the event/advertisement (questions 6) then it would not make sense to ask what specific message(s) the respondent remembers.

6. Do you recall the message(s) of the [insert name of event/advertisement]?	**6.** _____ 1… Yes 0… No → stop
7. Please tell me the message(s) that you recall [open-ended question] Do not read responses (messages). Write responses on the space above then mark the correct code below (1= Yes, 0= No). After the respondent stops listing messages, ask "Do you recall any other messages?" Keep asking this question until the respondent indicates there are no other messages. _____ _____ _____	
For each message below mark "1" if the respondent recalled this specific message, or mark "0" if the respondent did not list this message when asked the question above	
7a. (example message) *"Hands can contaminate food even when they are not visibly dirty"*	**7a.** _____ 1… Yes 0… No
7b. (example message) *"I can make my child or family ill if I do not wash my hands before touching, preparing, or cooking food"*	**7b.** _____ 1… Yes 0… No

Definition of terms from data collection tool

Recall can be defined as remembering or knowing about the event or advertisement. The programme should decide if sources other than first-hand witness are acceptable. For example, if a person says he/she recalls the event because her neighbor told her about it, this would be a second-hand source. If it is important to understand the source of the information then consider adding a question in the survey asking for the source of information.

Training considerations

Enumerator should administer the question exactly as written. Reword the question or "saying it in your own words" may pose a different question or a different understanding of the question by the respondent than the intended question. If the respondent is confused by the meaning the enumerator must repeat the question. The field team can agree on alternative wording of the question(s) as a back-up in case the question is not understood by the respondent.

Analysis/interpretation

This indicator is a proportion and can be reported as a percentage. This is an outcome indicator that reflects the effects of the programme outputs on the target population.

Analysis required to derive the indicator: **Proportion of people that recall the messages**

If there are multiple messages, a few definitions can be considered. The most conservative measure is the proportion of people that recall all main messages. A more inclusive measure is the proportion of people that recalled at least one main message. Below is the analysis for the latter definition.

To calculate the numerator – Number of people that recall at least 1 main message **(sum of RECALLED_1)**

- Add values for 7a, and 7b for each person to create variable **Q7_SUM**
- If **Q7_SUM** ≥1, then set RECALLED_1 = 1 for that person
- If **Q7_SUM** =0, then set RECALLED_1 = 0 for that person
- Add the values of RECALLED_1 for all the people surveyed

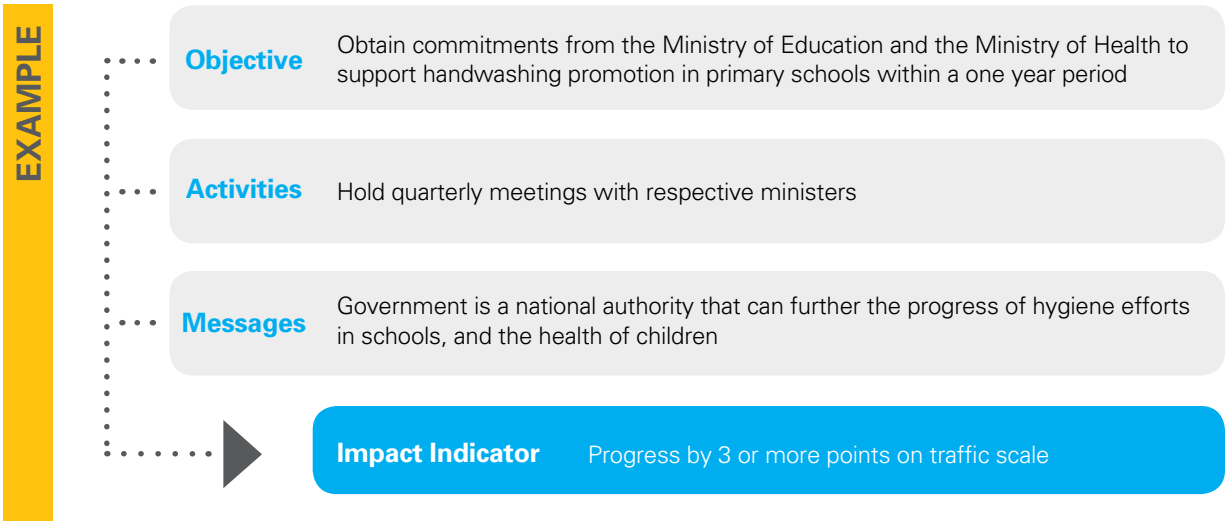
To calculate the denominator – Total number of people surveyed **(RECALL_Total)**

- **RECALL_Total** = count of number of people that answered the survey

To calculate indicator – divide RECALLED_1 (numerator) by RECALL_Total (denominator)

- To calculate percentage – multiply the final proportion by 100

A7. **IMPACT INDICATOR:** PROGRESS TOWARD COMMITMENTS



Rationale

Commitments from the public and private sector partners are goals of many advocacy programmes. Eventually, the programme may be expected to be sustainable and owned by the major stakeholders of health in that country. The traffic light system was set up to track progress toward these commitments.

Definition

Number of green or yellow traffic lights on 5 main support opportunities from the local government. The 5 main areas are 1) establishment of a private-public partnership, 2) having a principal accountable institution to take leadership, 3) having 1 coordinating body involving all stakeholders, 4) having a public section budget line for handwashing promotion and 5) having budget line from private sector partner for handwashing promotion.

Calculation

Number of points increased from starting point

Data collection method

Programme records

Strengths

This indicator is efficient and can be used to track progress on multiple commitments

Limitations

A step to the yellow or green lights may not be the same effort for each commitment and thus may not reflect the extent of the progress accurately.

Model data collection tool

The 5 areas of progress defined below are similar to sanitation commitments made at AfricaSan. To gather data required to fill out the progress sheet below, use programme records or collaborate with stakeholders/stakeholder liaisons. The amount of progress should be should be categorized by comparing the status of each area between a specific point in time (e.g. 1 year after implementation) and the status at baseline (before implementation).

Green = Good Progress (2 points)

Red = Insufficient Progress (0 points)

Yellow = Some progress (1 point)

Grey = No data

	Region 1	Region 2	Region 3	TOTAL
Establishment of a private-public partnership				
Establishment a principal accountable institution to take leadership				
Establishment of 1 coordinating body involving all stakeholders				
Inclusion of handwashing promotion activities in a public section budget line				
Inclusion of handwashing promotion budget line from private sector partner				
TOTAL (for each region)				

[adapted from eThekwini commitments on sanitation from AfricaSan]

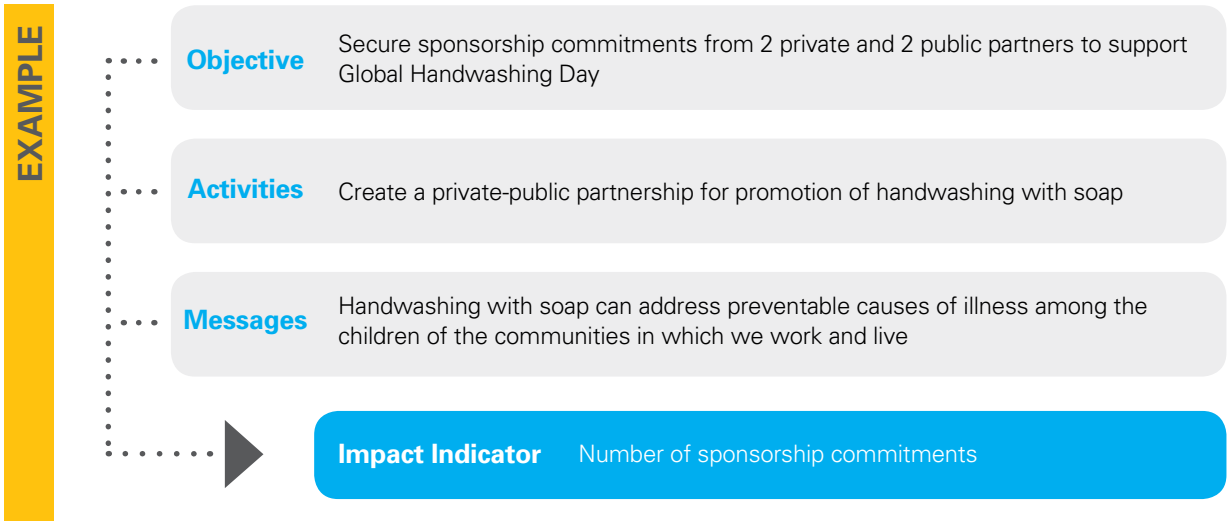
Analysis/interpretation

The 5 areas included above indicate progress for handwashing promotion programmes at a large scale. These commitments require significant stakeholder contribution from both public and possibly private partners. The number of commitments represents the extent to which advocacy efforts influence stakeholders enough to make such commitments to the handwashing promotion. The type and level of commitments will vary among different stakeholders and thus interpreting the number of commitments may not reflect the full value of those commitments.

Analysis to derive the indicator:

- Add the points down each column (for each region) and compare to amount of points collected baseline
- If a specific area is targeted across all regions then add the points across the row and compare to the amount of points collected at baseline.

A8. **IMPACT INDICATOR:** NUMBER OF SPONSORSHIP COMMITMENTS



Rationale

Usually, a fundamental goal of advocacy programmes is to influence resource-allocation decisions that affect prioritization of promotion of hand washing with soap. Obtaining commitments from various stakeholders for funding, sponsorship, or active participation in the programme is the foundation of influencing resource allocation decisions for handwashing programming.

Definition

Quantity of commitments resulting from a handwashing promotion programme or from preparation for/anticipation of a handwashing programme

Calculation

Sum of commitments made to the programme regarding resource-allocation or support for handwashing promotion activities

Data collection method

Programme Records

Strengths

This measure is straightforward and easily obtainable from programme records

Limitation

This measure will only capture those commitments of which advocacy programme staff become

aware within a defined time frame and, thus, may result in an underestimate. Advocacy may contribute to increased awareness and commitment to handwashing promotion programmes well beyond the programme's defined time frame. Also, commitments may vary substantially in scope, some of which are of limited budget or short time frame or others that are large in scale and time frame.

Model data collection tool

There is no specific data collection tool for this indicator. The number of commitments acquired should be kept in programme records. If formal contracts or agreements are kept then those can be used as records.

Definition of terms from data collection tool

Commitments include contracts, signed agreements or verbal agreements to provide support for the programme. Support could be financial, physical, sponsorship, marketing, advocacy or agreement of participation.

Analysis/interpretation

The main goal of advocacy is to influence decisions regarding resource allocation by stakeholders. The number of commitments represents the extent to which advocacy efforts influence stakeholders enough to make commitments to the programme. The type and level of commitments will vary among different stakeholders and thus interpreting the number of commitments may not reflect the full value of those commitments. The indicator can be made more specific to the programme goals by specifying the type of commitments advocacy efforts are attempting to achieve (e.g. Funding commitments)

Analysis required to derive the indicator:

- SUM of all commitments to the program

INDICATORS RELEVANT TO MONITORING AND EVALUTATION OF EDUCATION

E1. **OUTPUT INDICATOR:** NUMBER OF EDUCATION-RELATED EVENTS

EXAMPLE

Objective	Improve knowledge of the benefits of HWWS among primary school children in 100 primary schools within 1 year
Activities	1) Train teachers to deliver monthly hand hygiene lessons 2) Hold competitions between schools on knowledge regarding HWWS
Messages	1) Your hands can be unclean even if they do not look it. You must use soap to ensure your hands are clean 2) Knowing about the benefits of HWWS makes you smarter and can make you healthier
Output Indicator	Number of hygiene lessons delivered

Rationale

The number of educational events reveals the quantity of opportunities extended by the programme to educate a target audience about key handwashing facts.

Definition

Quantity of education events that relay facts about the benefits of handwashing with soap and/or critical times to wash hands. In general, educational events teach specific facts regarding the importance of handwashing with soap or technical instructions.

Calculation

Sum of all education events completed within a specified period of time

Data collection method

Programme records or through a survey

Strengths

This measure is efficient, straightforward, and can obtained from programme records

Limitations

This output indicator provides a quantitative description of the programme-level results but does

not indicate the quality or exact content of the information delivered, or any effect at the population level

Model data collection tool

There is no specific data collection tool for this indicator. Implementers of each event should record and report every event deemed relevant to reach their objective. Ideally, this should be a part of the programme monitoring schedule and should not require additional data collection other than the scheduled monitoring.

Definition of terms from data collection tool

Education events are activities (e.g. Teacher-led lessons, student-lead lessons, presentations, performances, etc.) that relay facts about 2 main themes regarding handwashing with soap: (1) the benefits of washing hands and using soap, and (2) technical aspects of handwashing (critical times, proper technique). Events that relay the message that "handwashing is important" but do not provide any facts mentioned above would be considered advocacy or awareness rather than educational.

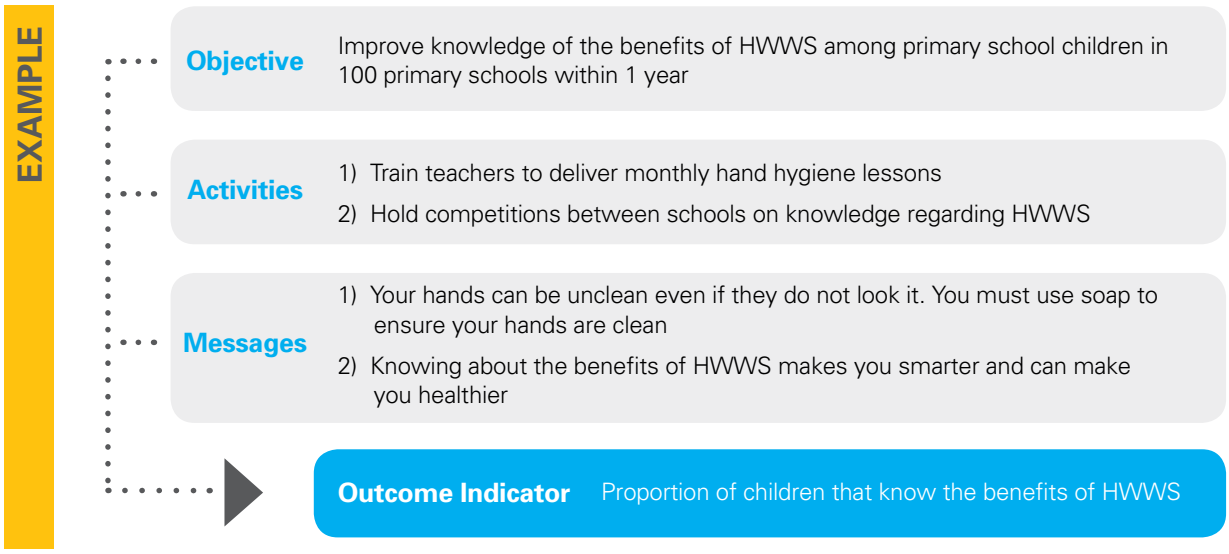
Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

Analysis required to derive the indicator:

- SUM of all education events resulting from the program within a specified period of time

E2. **OUTCOME INDICATOR:** KNOWLEDGE OF THE BENEFITS OF HANDWASHING WITH SOAP



Rationale

Testing knowledge will reveal how many people know the correct facts about the benefits of hand washing with soap.

Definition

The number of people that know the benefits of soap in relation to the total number of people that were surveyed

Calculation

People that knew the benefits of soap

Total number of people surveyed

Data collection method

Survey

Strengths

This is a direct, objective indicator of knowledge.

Limitations

Correct knowledge of benefits of handwashing with soap does not reflect handwashing practices. There is no evidence that supports an association between handwashing related knowledge and handwashing behaviour or improved health outcomes. Knowledge can be

considered necessary to improve or change handwashing practices but is often considered insufficient to do so.

Model data collection tool

KNOWLEDGE: ILLNESS PREVENTION	
1. Can washing your hands with soap prevent diarrhoea?	**1.** _____ 1… Yes 0… No 9… Don't know
2. Can washing your hands with soap prevent respiratory illness?	**2.** _____ 1… Yes 0… No 9… Don't know
3. Can washing hands with soap prevent people from transferring illness to each other?	**3.** _____ 1… Yes 0… No 9… Don't know
KNOWLEDGE: PURPOSE OF SOAP	
4. Some of these materials, like germs, cannot always be removed by water alone. You need soap to remove them completely.	**4.** _____ 1… Yes 0… No 9… Don't know

Training considerations

The enumerator should ask the question exactly as written. Rewording the question or "saying it in your own words" may pose a different question or a different understanding of the question by the respondent than the intended question. If there are confusing terms in the question, the team should decide on the definition of these terms and use the same language to describe the terms to respondents. If the respondent is confused by the meaning the enumerator should repeat the question and/or explain confusing terms in the question by using the agreed-upon definitions.

Analysis/interpretation

This is an outcome indicator that reflects the effects of the programme on the target population. The proportion alone does not reflect the effects of the programme; some people from the target population may already know the benefits of soap prior to the intervention. In order to

know the effects potentially attributable to the programme the proportion of people that know the benefits of soap or critical times to wash hands collected after the programme should be compared to the proportion of people that know the benefits of soap before the programme (baseline data) or those who were not exposed to the programme. This indicator is a proportion and can be reported as a percentage.

This indicator can be analyzed in multiple ways. The most conservative measure would be the proportion of people that know all facts. A more lax and inclusive measure is the proportion of people that know at least one fact. The analysis below is an example of the latter.

Analysis required to derive the indicator:

To calculate the numerator (People that knew the benefits of soap)

- Create a variable called **correct_ans** that equals the sum of questions 1-4 for each respondent
- Create another variable called **correct_atl1**

  If **correct_ans** ≥1, then set correct_atl1 = 1 for that person

  If **correct_ans** =0, then set correct_atl1 = 0 for that person
- The numerator is the sum of respondents with **correct_atl1** is 1

To calculate the denominator (Total number of people surveyed)

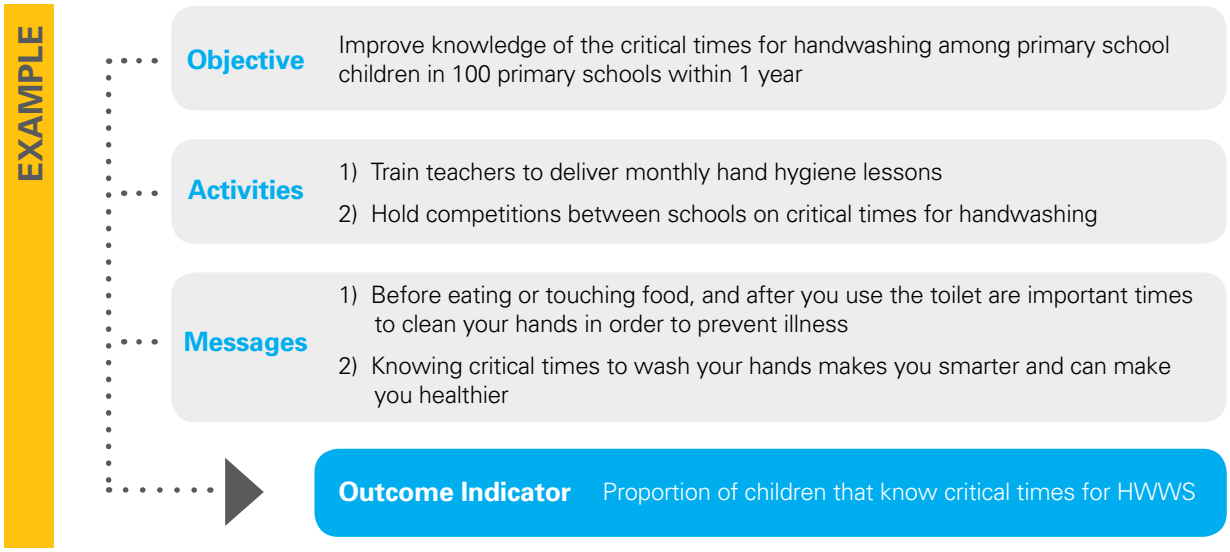
- **survey_total** = sum of respondents that answered the survey

To calculate indicator – divide the sum of respondents that have correct_atl1 =1 by survey_total

- To calculate percentage – multiply the final proportion by 100

In order to assess whether there was a change in knowledge, compare to percentages pre and post programme or those exposed to those not exposed to the programme. Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

E3. **OUTCOME INDICATOR:** KNOWLEDGE OF THE CRITICAL TIMES FOR HANDWASHING



Rationale

Testing knowledge will reveal how many people know the critical times to wash hands.

Definition

The number of people that know the critical times to wash hands in relation to the total number of people that were surveyed

Calculation

$$\frac{\text{People that knew the critical times for handwashing}}{\text{Total number of people surveyed}}$$

Data collection method

Survey

Strengths

This is a direct, objective indicator of knowledge.

Limitations

Correct knowledge of critical times to wash hands does not reflect actual handwashing practices. There is no evidence that supports an association between handwashing related knowledge and handwashing behaviour or improved health outcomes. Knowledge can be

considered necessary to improve or change handwashing practices but is often considered insufficient to do so.

Model data collection tool

This model question is an open-ended question (respondent is allowed to answer freely, and not from a specified set of answer choices). Posing these questions in a closed-ended manner (respondent has a specified set of answer choices) can be leading and bias the response. In other words, a respondent may answer 'yes' if asked "Do you think it is important to wash your hands before feeding a child?" because the mere mention of the question suggests that this is something they should consider important.

Depending on the objective of the programme, both question 6 and question 7 may not be necessary. However, we recommend understanding both in order to know both general and soap-specific knowledge regarding critical times.

The critical times listed in questions included in this model data collection tool are commonly promoted. Additional critical times can be chosen that reflect the programme objective, activities, or messages (for example, after disposing of child's faeces) can be added.

KNOWLEDGE: CRITICAL TIMES FOR HANDWASHING

This is an open-ended question. Do not read responses. Write responses on the space above then mark the correct code below for each critical time of interest (1= Yes, 0= No). After the respondent stops listing times, ask "Are there any other situations where it is important to wash your hands?" Keep asking this question until the respondent thinks there are no other times.

6. In what situations is it important to wash your hands?

_____

_____

	(1… Yes, 0… No)
6a. After toileting	**6a.** _____
6b. After defecation	**6b.** _____
6c. Before eating	**6c.** _____
6d. Before preparing food	**6d.** _____
6e. Before cooking food	**6e.** _____
6f. Before feeding a child	**6f.** _____

This is an open-ended question. Do not read responses. Write responses on the space above then mark the correct code below for each critical time of interest (1= Yes, 0= No). After the respondent stops listing times, ask "Are there any other situations where it is important to wash your hands?" Keep asking this question until the respondent thinks there are no other times.

7. In what situations is it important to <u>use soap</u> to wash your hands?

_____

_____

	(1… Yes, 0… No)
7a. After toileting	**7a.** _____
7b. After defecation	**7b.** _____
7c. Before eating	**7c.** _____
7d. Before preparing food	**7d.** _____
7e. Before cooking food	**7e.** _____
7f. Before feeding a child	**7f.** _____
7g. Other (specify)	**7g.** _____

Definition of terms from data collection tool

Definitions of each of the listed critical times are provided under behaviour change indicator B7.

Training considerations

The enumerator should ask the question exactly as written. Rewording the question or "saying it in your own words" may pose a different question or a different understanding of the question by the respondent than the intended question. If there are confusing terms in the question, the team should decide on the definition of these terms and use the same language to describe the terms to respondents. If the respondent is confused by the meaning the enumerator should repeat the question and/or explain confusing terms in the question by using the agreed-upon definitions.

Analysis/interpretation

This is an outcome indicator that reflects the effects of the programme on the target population. The proportion alone does not reflect the effects of the programme; some people from the target population may already know critical times to wash hands prior to the programme. In order to know the effects attributable to the programme, the proportion of people that know the critical times to wash hands collected after the programme should be compared to the proportion of people that know the critical times to wash hands before the programme (baseline data) or those who were not exposed to the programme.

This indicator can be analyzed in multiple ways. The most conservative measure would be the proportion of people that know all facts. A more lax and inclusive measure is the proportion of people that know at least one fact. The analysis below is an example of the latter. Choose any number of critical times that are specific to the programme.

Analysis required to derive the indicator:

To calculate the numerator (People that knew critical times for handwashing)

- Create a variable called **correct_ans** that equals the sum of questions a-f for each respondent
- Create another variable called **correct_atl1**

  If **correct_ans** ≥1, then set correct_atl1 = 1 for that person

  If **correct_ans** =0, then set correct_atl1 = 0 for that person
- The numerator is the sum of respondents with **correct_atl1** is 1

To calculate the denominator (Total number of people surveyed)

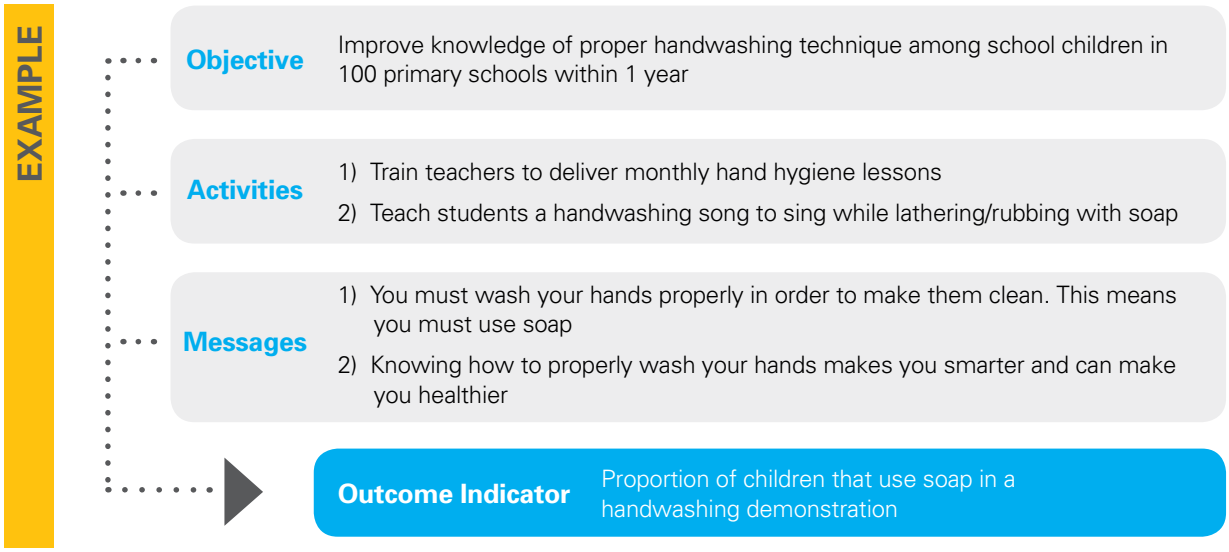
- **survey_total** = sum of respondents that answered the survey

To calculate indicator – divide the (sum of respondents that have correct_atl1 =1) by (survey_total)

- To calculate percentage, multiply the final proportion by 100

In order to assess whether there was a change in knowledge, compare to percentages pre and post programme or those exposed to those not exposed to the programme. Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

E4. **OUTCOME INDICATOR:** SOAP USE DURING A HANDWASHING DEMONSTRATION



Rationale

Demonstration of handwashing reveals what the respondent knows about the proper handwashing technique. The main objective is to observe whether the respondent used soap during the demonstration.

Definition

Proportion of people that used soap and water to cleanse hands during a demonstration

Calculation

$$\frac{\text{People that used soap and water during a handwashing demonstration}}{\text{Total number of people that demonstrated handwashing}}$$

Data collection method

Rapid Observation

Strengths

This measure is efficient and is objective for measuring whether or not respondents knew to use soap when handwashing. It also may be used as a proxy indicator of handwashing behaviour. One study done in rural Bangladesh showed children of mothers that use soap to wash hands during a handwashing demonstration had less diarrhoea compared to mothers who did not use soap during the demonstration [20].

Limitations

If no soap is available at the time of the demonstration, the results of the demonstration will not reflect whether the person knows to use soap. Asking for a demonstration of hygiene-related practices, such as handwashing, may cause the respondent discomfort or to feel judged. Also, asking the respondent to demonstrate how he/she washes his/her hands may result in reactivity and, thus, altered handwashing behaviour. We have specified this as an indicator of education but this indicator has been used as a proxy indicator of handwashing behaviour. Like other proxy indicators, this indicator cannot determine how often the respondent uses soap to wash his/her hands, or at which times.

Model data collection tool

1. Can you show me how you usually clean your hands after defecation? Please do this as you would if I were not here. *If respondent must go to another room/place, go with him/her.* 1… Demonstrated 0… Does not clean hands after defecation 8… Could not demonstrate/Refused	**1.** _____
Observe the demonstration and record materials used for hand cleansing *If the respondent cannot demonstrate mark '8' (Not Applicable) for questions 2-4*	1… Yes 0… No 8… N/A
2. Water	**2.** _____
3. Soap	**3.** _____
4. Other (specify) **4a.** _____	**4.** _____

Other cleansing agents (such as mud or ash) commonly used by the target population can be listed in addition to water and soap so the enumerator has an easier time recording the actual materials used. However, the main objective of the indicator is to assess the use of soap as a cleansing agent.

Training Considerations

Asking a respondent to demonstrate may cause him/her to feel discomfort. If discomfort of the respondent is sensed by the enumerator, he/she should reiterate the demonstration is just to learn about practices at the home.

Analysis/Interpretation

The main objective of this measure is to assess whether or not the respondent knew to use soap to demonstrate how he/she cleanses his/her hands after a critical event (after defecation). The proportion alone does not reflect the effects of the programme; some people from the target population may already know to use soap to wash hands prior to the programme. In order to know the effects attributable to the programme, the proportion of people that use soap to

wash hands after the programme should be compared to the proportion of people that use soap to wash hands before the programme (baseline data) or those who were not exposed to the programme.

Analysis required to derive the indicator:

Respondents would be categorized according to not washing at all or washing with water alone, and washing with water and soap.

To calculate the numerator – People that used soap and water during a handwashing demonstration **(DEMO_soap&water)**

- Create a variable called **soap&water_used** that will have the following values:
- Code 1 for **soap&water_used** if 1 is recorded for questions 1 **and** 2
- Code 0 for **soap&water_used** for all other combinations of answer combinations 1 and 0. If the respondent did not demonstrate or refused to demonstrate (marked by '8') then code ".", which stands for missing. These respondents will not be included in the numerator.
- Add up all the people that have the value 1 for **soap&water_used** to calculate **DEMO_soap&water**

To calculate the denominator – Total number of people that demonstrated handwashing **(DEMO_Total)**

- **DEMO_Total** = total number of people that demonstrated handwashing (marked '1' for question 1). If the respondent did not demonstrate or refused to demonstrate (marked by '0' for questions 1) then code ".", which stands for missing. These respondents will not be included in the denominator.

Divide DEMO_soap&water (numerator) by DEMO_Total (denominator)

- Multiply by 100 to calculate the percentage of people who used soap and water during a handwashing demonstration.

Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

INDICATORS RELEVANT TO MONITORING AND EVALUTATION OF BEHAVIOUR CHANGE

B1. **OUTPUT INDICATOR:** NUMBER OF BEHAVIOUR CHANGE COMMUNICATION EVENTS

EXAMPLE

Objective	Increase the practice of handwashing with soap after defecation among school children in 150 primary schools over a 1 year period
Activities	1) Create and train student-led hygiene clubs in each school 2) Weekly discussions with students led by hygiene club members 3) Monitoring of facilities, and student hand cleanliness by hygiene club members
Messages	1) Handwashing with soap is the practice of a responsible, smart student 2) We are expected to wash our hands with soap after using the toilet because we are responsible for preventing the spread of illnesses to one another
Output Indicator	Number of discussions held

Rationale

The number of events that aim to change handwashing behaviour quantifies the opportunities extended by the programme to turn poor hand washing behaviour to good handwashing behaviour or reinforce good handwashing behaviour.

Definition

Quantity of events that used behaviour change communication provided by the programme within a specified period of time.

Calculation

Sum of events completed within a specified period of time

Data collection method

Programme records

Strengths

This measure is efficient and straightforward

Limitations

This indicator provides a quantitative description of the direct output of the programme. It does not indicate the quality or exact content of the information delivered, and does not reflect population-level effects of the programme.

Model data collection tool

There is no specific data collection tool for this indicator. The number of events completed by the programme within a specified period of time should be reported on the monitoring sheet (programme records).

Training considerations

Those tracking the number of events should have a clear definition of the event of the interest. If multiple programme staff or external evaluators are tracking the number of events, they should have the same or similar reporting/monitoring sheets. Consistency in data collection methods can decrease errors that can be caused by different methods of recording the data.

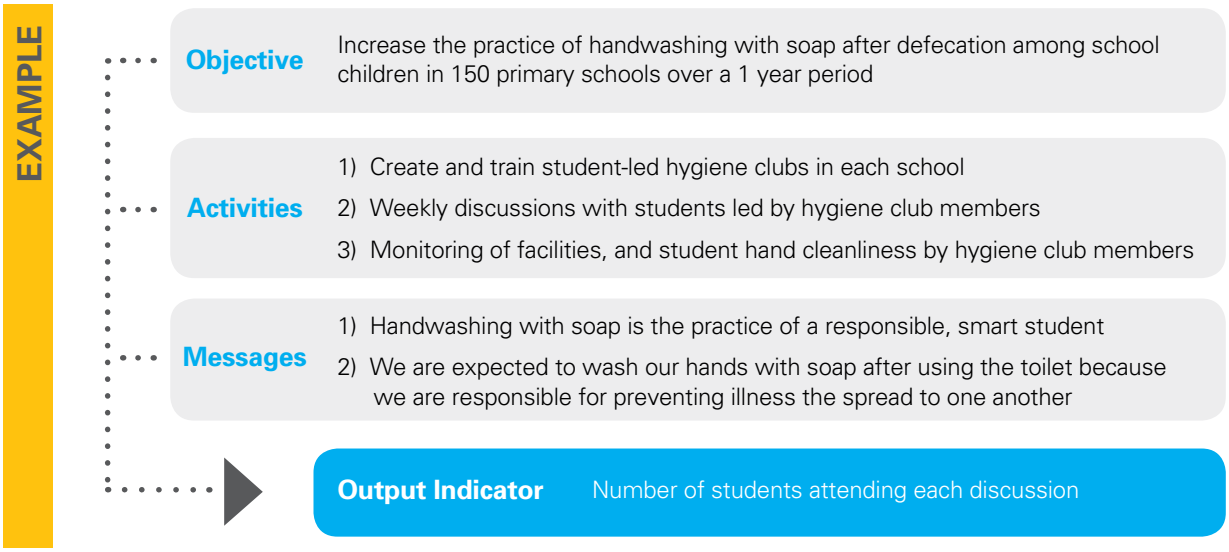
Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

Analysis required to derive the indicators:

- SUM of all BCC events resulting from the programme within a specified period of time

B2. **OUTPUT INDICATOR:** NUMBER OF PARTICIPANTS AT BEHAVIOUR CHANGE COMMUNICATION EVENTS



Rationale

The number of participants at the event(s) reflects the number of people who were exposed to the message directly through the event(s).

Definition

Total number of people from the target population that attended each event.

Calculation

Sum of people attending each event (or total number over a specified number of events)

Data collection method

Programme records

Strengths

This measure is efficient and straightforward

Limitations

This indicator provides a quantitative description of the direct output of the programme. It does not indicate the quality or exact content of the information delivered, and does not reflect population-level effects of the programme.

Model data collection tool

There is no specific data collection tool for this indicator. How to go about counting the number of people attending each event will depend on the size of the event and the expected number of attendees. For events where a small number of people are expected to attend, those leading the event can record the number of attendees on a simple report or monitoring sheet. For larger events, event leaders can implement digital counting systems, or a systematic way to manually count attendees (e.g. collect ticket stubs at each entry point then count the number of ticket stubs).

Training considerations

If multiple programme staff or external evaluators are tracking the number of people attending an event or events under evaluation, they should have the same or similar reporting/monitoring methods and reporting sheets. Consistency in data collection methods can decrease errors due to differences in reporting.

Analysis/interpretation

This indicator measures the number of opportunities directly extended by the programme for handwashing messages to be heard, but does not indicate whether or not, or to what extent these opportunities affected the target population.

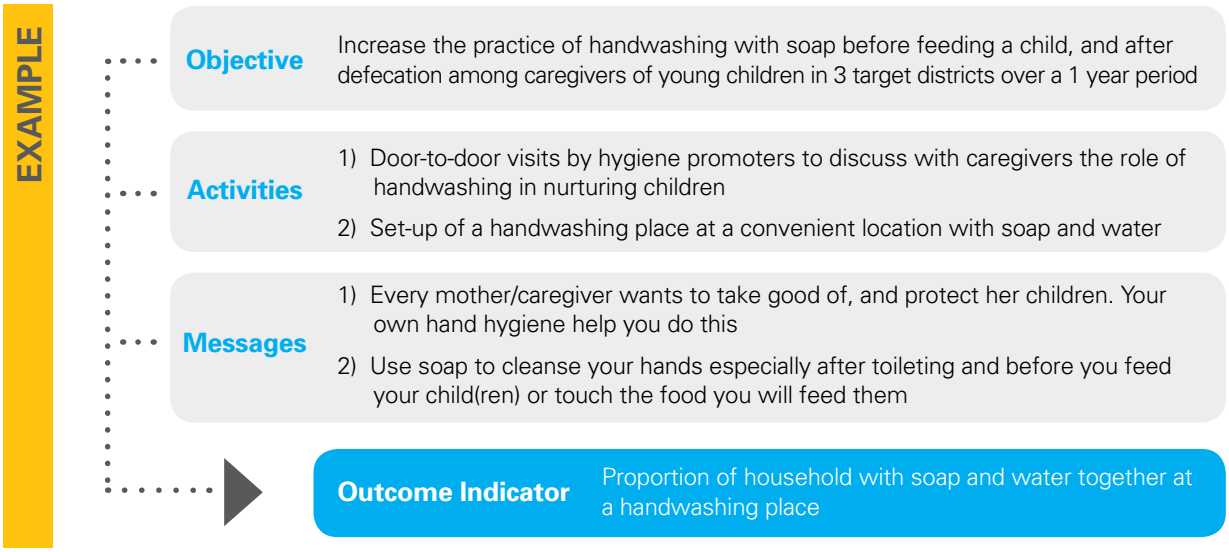
Analysis required to derive the indicators:

- Number of participants **(PPT_COUNT1)** = SUM of people attending the event
- Repeat for every event (**PPT_COUNT2, PPT_COUNT3…)**

Total number of participants at all events within specific period of time

- **(PPT_TOTAL) = PPT_COUNT1 + PPT_COUNT2 + PPT_COUNT3 + …**

B3. **OUTCOME INDICATOR:** SOAP AND WATER PRESENT TOGETHER AT A HANDWASHING PLACE



Rationale

Observing whether or not soap and water are present together at a location specified as the handwashing place indicates whether or not the hardware to wash hands is available and accessible for a person to practice the behaviour if they choose to do so. We can use it as a proxy (indirect) indicator for handwashing behaviour.

Definition

Proportion of people that have soap and water present together at a handwashing place

Calculation

$$\frac{\text{People that have soap and water at a handwashing place}}{\text{Total number of people surveyed}}$$

Data collection method

Rapid Observation

Strengths

This indicator is collected through rapid observation and is therefore time efficient and easily incorporated in multipurpose surveys. It is also a MICS indicator and, thus, can be used to compare to MICS data. Researchers have demonstrated that having soap and water present at a handwashing station (as collected by this indicator) is associated with the practice of handwashing with soap and water observed that was directly observed (in a structured

observation) [19, 21]. There is some evidence that the presence of materials at a designated handwashing place is associated with health benefits among children; research from Bangladesh showed that children living in households that had water available at a handwashing place had less episodes of respiratory illness compared to children in household that did not have water at the handwashing place [20].

Limitations

This is a proxy measure for actual handwashing behaviour. While research has shown that having soap and water together at a handwashing place is associated with the practice of handwashing with soap (through direct observation), this measure cannot reveal the frequency or consistency of handwashing by individuals. In rural Bangladesh, one study found that presence of soap at a handwashing place can vary within a given household when that household is visited multiple times within a short period [22].

Model data collection tool

1. Please show me where members of your household most often wash their hands	1… Observed 2… Not observed, not in dwelling/plot/yard 3… Not observed, no permission to see 4… Not observed, other reason	**1.** _____
2. Observe presence of water at the specific place for handwashing *Verify by checking the tap/pump, or basin, bucket, water container or similar objects for presence of water*	1… Water is available 2… Water is not available	**2.** _____
3. Record if soap or detergent is preset at the specific place for handwashing. Mark 1… Present 2… Not Present	Bar soap	**3a.** _____
	Detergent (Powder / Liquid / Paste)	**3b.** _____
	Liquid soap	**3c.** _____
	Ash / Mud / Sand	**3d.** _____
	None	**3e.** _____

Training Considerations

In order to identify the primary handwashing place consistently between different households, the enumerator should always ask the question as written and should not assume the primary handwashing place is what is immediately visible. The enumerator should be standing at the handwashing place in order to record each observation. The enumerator should look for handwashing materials at each handwashing place without asking to be shown any of these materials. This is an observation and no searching is necessary.

Water is marked present if the enumerator can observe water or a functional water source ≤2

meters away from the handwashing place. If water is stored in a closed container or a water source is present, the enumerator must determine water is actually available/present by opening the closed container or operating the water source if the water is not free flowing.

Two questions are answered by this indicator: (1) whether or not the respondent has a designated place to wash hands, and (2) whether or not soap and water are available at this place. In some contexts a designated place for handwashing is not in a fixed place. In other words, someone may have a place they wash their hands but that place is "constructed" by bringing materials together, such as a bucket for rinse water and a pitcher of water. In such cases, observing the presence of materials at a handwashing place becomes difficult. This variation has still to be understood in research. Currently, we recommend that implementers working with target populations where this scenario is common to add a question to this indicator and record whether the handwashing place is "fixed" or "mobile". A fixed handwashing place is defined as having a water source that cannot be transported regularly or easily. This includes a water tap, faucet, water pump, a tippy tap or a large container of water that cannot be moved. A mobile handwashing place is defined as having a water source is an easily movable source of water. This can include a basin, water bottle, pitcher, or any container that can transport water for handwashing or other washing purposes. The observation should still be carried out as described regardless of the fixed or mobile handwashing place.

Some household many have multiple places where handwashing is practiced. Soap can be used for multiple purposes, such as washing dishes, laundry, bathing, in addition to handwashing. Therefore, it is reasonable that the soap moves around the household to accommodate these activities if they take place in different parts of the home. In such settings, we recommend asking to observe a secondary handwashing place and recording the same data as the primary handwashing place (repeat the questions above).

Analysis/Interpretation

This indicator is a proxy measure for handwashing behaviour and must be interpreted accordingly (please refer to the limitations section above).

To derive the indicator of "soap and water present together at a handwashing place", a respondent would be considered as having soap present if at least one type of soap is present at the handwashing place. Both water and at least one type of soap must be present at the same handwashing place. This indicator will be analyzed as a proportion of people or households that have soap and water together at a handwashing place. The proportion alone does not reflect the effects of the programme; some people/households from the target population may have a handwashing place that has both soap and water prior to the intervention. In order to know the effects attributable to the programme the proportion of people that have soap and water and a handwashing place measured after the intervention should be compared to the proportion of people that had soap and water at a handwashing place before the intervention (baseline data) or those who were not exposed to the programme. Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

Analysis required to derive the indicator:

Presence of soap and water together at the primary handwashing place (**SOAPWATER1**)

Create a variable called **SOAPWATER1** and give values for each person or household according to the following:

- Code 1 for **SOAPWATER1** if 1 was recorded for question 2 and 1 was recorded for 3a or 3b or 3c
- Code 0 for **SOAPWATER1** for all other answer combinations

If the observation considers the presence of a secondary handwashing place, repeat this analysis for the secondary handwashing place with the variable name **SOAPWATER2** and using the corresponding question numbers instead of questions 2 and 3.

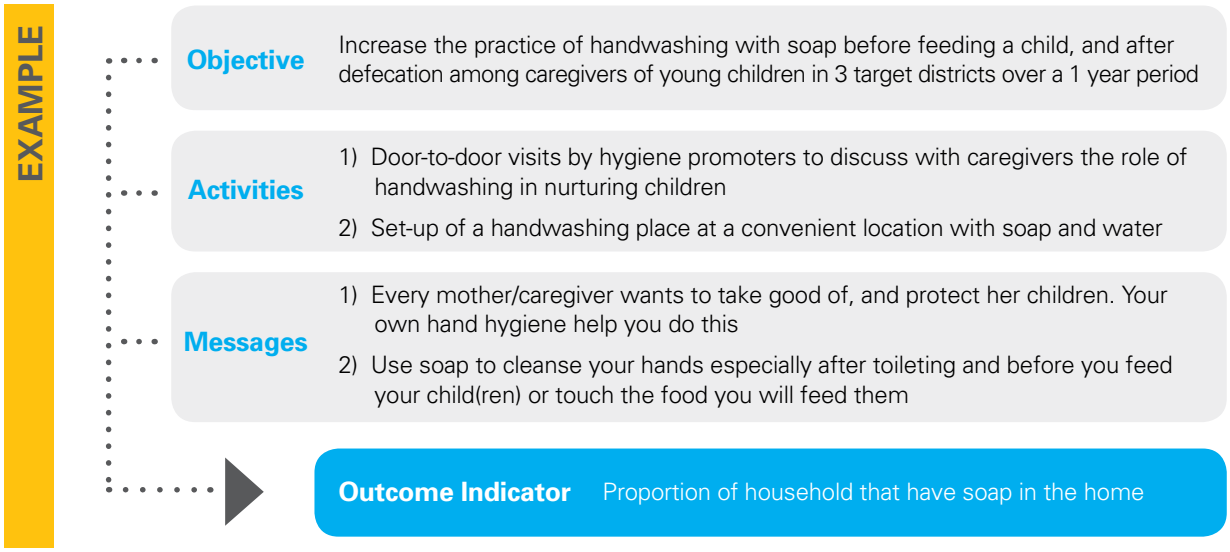
Presence of soap and water together in at least one handwashing place (**SOAPWATER_ANY**)

- Code 1 for **SOAPWATER_ANY** if 1 is recorded for **SOAPWATER1 or SOAPWATER2**
- Code 0 for **SOAPWATER_ANY** if 0 is recorded for **SOAPWATER1 and SOAPWATER2**
- If **SOAPW_ANY=** 1, soap and water were present together at any handwashing place; if **SOAPW_ANY**= 0, soap and water were not present together at both handwashing places.

To calculate the proportion of people or households that have soap and water together at a handwashing place divide **SOAPWATER1** by the total number of households observed (multiple by 100 to calculate percentage).

To calculate the proportion of people or households that have soap and water together at any handwashing place divide **SOAPWATER_ANY** by the total number of households observed (multiply by 100 to calculate percentage).

B4. **OUTCOME INDICATOR:** SOAP PRESENT IN THE HOUSEHOLD



Rationale

The availability of soap may alter whether or not a person uses soap to wash hands.

Definition

Proportion of households that have soap in the home at the time of observation

Calculation

$$\frac{\text{Households that show they have soap}}{\text{Total number of households asked to show soap}}$$

Data collection method

Rapid Observation

Strengths

This indicator is collected through rapid observation and is therefore time efficient and easily incorporated in multipurpose surveys. This indicator is also a MICS indicator and may be compared to other MICS data. In emergency settings, presence of soap in the dwelling was protective against childhood diarrhoea, and in one study specifically against cholera [23, 24]

Limitations

This indicator is a proxy measure for actual handwashing behaviour; it cannot reveal frequency or consistency of handwashing and does not reflect individual-level behaviour since, in most

households in resource-poor settings, soap is a household good, not an individual good. The presence of soap in the home may reflect availability of soap but may not reflect the accessibility of soap. In other words, soap may be present in the household but may be stored in a locked cabinet, or it may be far from the handwashing place.

Model data collection tool

1. Do you have any soap or detergent in your household for washing hands?	1… Yes 0… No → Finish	**1.** _____
2. Can you please show it to me? Mark for each 1… Yes (shown) 2… No	Bar soap	**2a.** _____
	Detergent (Powder / Liquid / Paste)	**2b.** _____
	Liquid soap	**2c.** _____
	Ash / Mud / Sand	**2d.** _____
	Not able/ Does not want to show	**2e.** _____

Definition of Terms & Training Considerations

This indicator can be done sequentially with the previous indicator (B3- Soap and water together at a handwashing place). In that case, add the model question for this indicator after the questions for the previous indicator (B3). Since indicator B3 requires observation of soap at the handwashing place, the presence of soap in the home may already be answered by this indicator if soap is observed. Either way, the enumerator should ask questions 1 and 2 for this indicator to remain consistent in the way the data is obtained.

Analysis/Interpretation

Assessment of soap availability is a proxy measure for handwashing behaviour. It cannot describe frequency or consistency of handwashing with soap. This indicator will be analyzed as a proportion of people that have soap in the household. However, the proportion alone does not reflect the effects of the programme; some people/households from the target population have soap for handwashing in the home prior to the programme. In order to know the effects attributable to the programme this proportion should be compared before (baseline data) and after the programme, or between those who were and were not exposed to the programme. Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

Analysis required to derive the indicator:

To calculate the numerator – Add all the households that have "1" marked for question 2a or 2b or 2c.

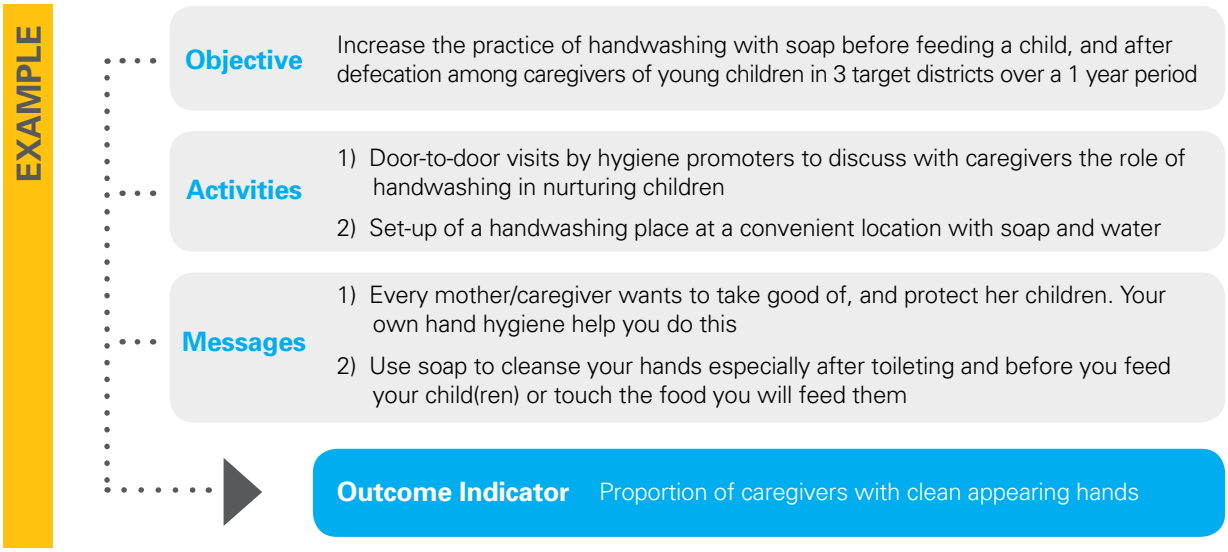
To calculate the denominator – Add all the households asked to show soap

To derive the indicator – Divide the numerator by the denominator. Multiply by 100 to calculate percentage of people

Other considerations:

Another variation of this indicator that has been used includes timing of the retrieval. The time it takes to retrieve soap and bring it to the handwashing place may indicates accessibility of soap if the respondent chose to use it at the place they commonly wash hands. Bringing the soap to the handwashing place within a minute of request has been used; however, the time frame of one minute is arbitrary and my not reflect a diversity of living conditions. Recent analysis of endline data from WSP Impact Evaluation of Global Scaling Up Handwashing project indicates conflicting outcome with regarding to validity when compared to observed handwashing behaviour [19].

B5. **OUTCOME INDICATOR:** HAND CLEANLINESS SCORE (VISUAL INSPECTION OF HAND CLEANLINESS)



Rationale

The appearance of hands indicates physical presence of visible contaminants (such as dirt or food). Handwashing can decrease physical presence of visible contaminants. This indicator measures the number of people that have clean-appearing hands as assessed by the 3-point hand inspection in relation to the number of people whose hands were observed.

Definition

Proportion of people with clean-appearing hands

Calculation

People that have clean-appearing hands

Total number of people whose hands were observed

Data collection method

Three-point hand inspection

Strengths

This measure is efficiently collected. Visible dirt on palms and fingerpads, or under nails is associated with increased microbiological contamination of hands [25]. In recent analysis of endline data from WSP Global Scaling up of Handwashing Project, a high hand cleanliness score was associated with the practice of handwashing with soap after fecal contact events (directly observed behaviour) in Peru and Vietnam [19]. One study found that a child observed

to have visibly clean finger pads was associated with reduced diarrhoea prevalence; however, cleanliness of mother's hands did not affect their child's diarrhoea risk [20].

Limitations

This indicator is a proxy measure for handwashing behaviour and like other proxy measures it cannot reveal frequency or consistency of handwashing practice. If this measure is repeated several times, reactivity might increase. Some respondents may be embarrassed or uncomfortable if asked to show his/her hands. In some cultural contexts, hand inspections have been deemed inappropriate and unacceptable. Mothers of young children usually have many responsibilities that involve having their hands in water (washing clothes, dishes, bathing their children, cleaning, etc.) frequently during the day. Such activities may affect the observed cleanliness of their hands as well as the results of the three-point hand inspection.

Model data collection tool

Observe the hands of the mother/primary caregiver during the interview. Do not ask for the respondent's hands to be shown. Ask to observe the hands of the child.

Record the description that best describes the definitions the level of cleanliness based on the definitions below.

DEFINITION OF APPEARANCES:	PRIMARY CAREGIVER	
1… Visible Dirt (Dirt/mud/soil/ash or any other material is visible)	**1a.** Finger nails	_____
	1b. Palms	_____
2… Unclean appearance (No dirt is visible on this part of the hand but, in general, this part of the hand appears unclean)	**1c.** Finger pads	_____
	CHILD	
	2a. Finger nails	_____
3… Clean (Observed part of the hand is clean as would appear after someone washes hands or a bath)	**2b.** Palms	_____
	2c. Finger pads	_____

Definition of Terms and Training Considerations

Fingernails include under the nail, the nail, and the skin directly surrounding the nail (cuticles). **Palms** are the insides of the hands not including the fingers. **Finger pads** are the top portions of each of the fingers where a finger print would be taken.

We recommend the enumerators observe the mother's/primary caregiver's hands surreptitiously during the course of the interview. The enumerator can ask to observe the respondent's hands but it's possible that the participant will refuse or feel uncomfortable. In some cultural contexts, the hand inspections have been deemed inappropriate and unacceptable. During pilot testing, the programme should decide whether hand inspections are acceptable in the local context. During training, use photos, other pictorials or directly observe people's hands to practice identifying each of the three types of appearances. The enumerators should compare

and discuss reasons for variations in coding and attempt to achieve consistent coding. The programme should decide which child's hands should be observed, whether the index child or an older sibling. If a respondent will be asked to demonstrate handwashing as a part of the evaluation then observation of hands must occur before the demonstration.

Analysis/Interpretation

This indicator will be analyzed as a proportion of people that have clean appearing hands. The proportion alone does not reflect the effects of the programme; some people from the target population may already have clean appearing hands. In order to know the effects attributable to the programme the proportion of people with clean appearing hands measured after the intervention should be compared to the proportion of people that have clean appearing hands before the intervention (baseline data) or those who were not exposed to the programme. Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

While there is some evidence for validity for this indicator, this is not yet a well-established indicator. Therefore, we have flexibility in the analysis. Below are two ways in which respondents may be categorized with respect to observed hand cleanliness.

2 Categories

Respondents categorized as "Clean" if all three parts of the hand are observed to be clean, or "Unclean" if any of the three parts are observed to be "unclean" or have "visible dirt".

3 Categories

Respondents categorized as "Clean" if all three parts of the hand are observed to be clean, as "at least 1 part visibly dirty/unclean" if at least 1 but not all parts are unclean or at least 1 part is visibly dirty, or as "Unclean" if all of the three parts are observed to be "unclean". If the programme does not specifically instruct to clean under the fingernails, the analysis may only focus on palm and finger pad cleanliness.

Analysis required to derive the indicator:

(The analysis provided below assumes all three parts of the hand are included. Both 2 and 3 category derivations are listed below.)

To derive the numerator – Number of people with clean hands divided into 2 categories

- Create a variable called **CLEAN_HANDS** with the values for each person as follows:
- Code 1 for **CLEAN_HANDS** if 3 recorded for 1A, **and** 1B, **and** 1C
- Code 0 for **CLEAN_HANDS** for all other combination of answers for 1A, 1B and 1C
- Numerator = sum of people who have **CLEAN_HANDS** =1
- If this observation is repeated for multiple people then repeat the analysis above and give a unique name to each variable (ex. CLEAN_HANDSM for mother, CLEAN_HANDSC for child)

To derive the numerator with 3 categories use the code below instead:

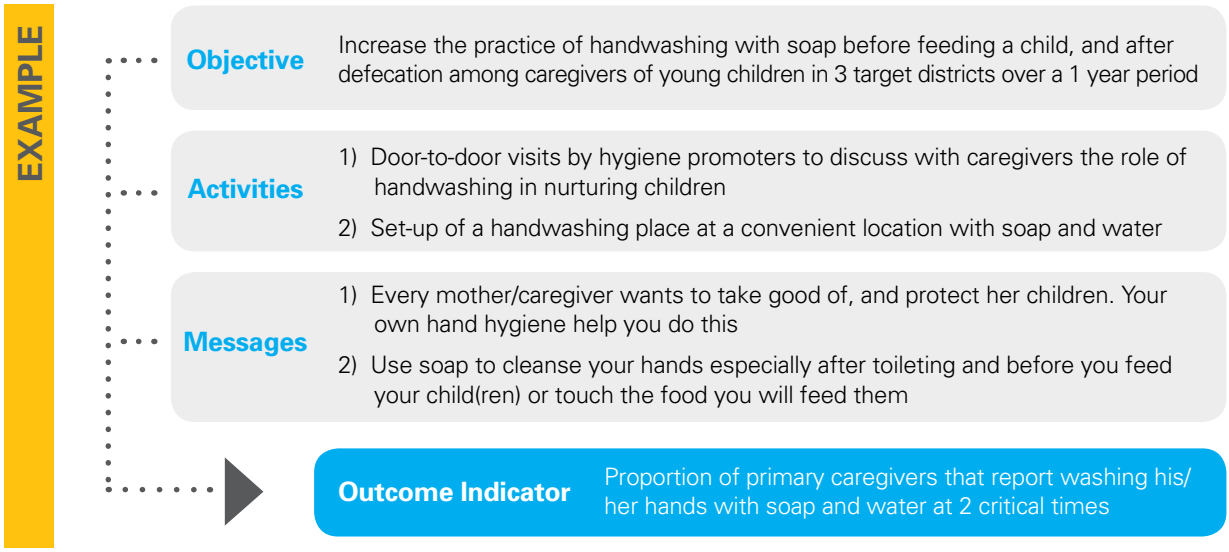
- Code 2 for **CLEAN_HANDS** if 3 recorded for 1A, **and** 1B, **and** 1C
- Code 0 for **CLEAN_HANDS** if 1 recorded for 1A, **and** 1B, **and** 1C
- Code 1 for **CLEAN_HANDS** for all other combinations for answers 1A, 1B and 1C
- Mother will be categorized as having "unclean hands" if **CLEAN_HANDS =**0, "At least 1 part visibly dirty/unclean" if **CLEAN_HANDS** =1 and "clean hands" if CLEAN_**HANDS** =2
- Numerator = sum of people who have **CLEAN_HANDS** =1

To derive the denominator – Total number of people observed (same for either categorization)

- **HANDOBS_TOTAL** = sum of all people whose hands were observed

Proportion of people with clean appearing hands = (sum of all people with **CLEAN_HANDS =1**) ÷ **HANDOBS_TOTAL**

B6. **OUTCOME INDICATOR:** SELF-REPORTED HANDWASHING WITH SOAP AT ANY CRITICAL EVENT, OR AT SPECIFIC CRITICAL EVENTS



Rationale

The simplest way to measure handwashing behaviour is to directly ask the respondent about his/her handwashing behaviour around critical events of handwashing. A "critical event" is a specific occurrence that poses a potential health risk which could be prevented by handwashing with soap such as after defecation and/or toileting, before eating and before food preparation.

Definition

Proportion of people that report washing their hands with soap and water any critical time

[OR]

Proportion of people that report washing their hands with soap and water at specific critical times

Calculation

Number of people that said they wash hands with soap at water at a critical time

---

Total number of people surveyed

Data collection method

Survey or questionnaire

Strengths

This indicator is efficiently collected and is a direct measure of handwashing behaviour. One

study reported that self-reported handwashing behaviour is associated with reduced risk of neonatal mortality [5] but did not adequately account for confounders, like socioeconomic status which correlated with handwashing behaviour. Recently, an observational study in Bangladesh found that children of mothers who reported washing hands with soap before feeding a child had less diarrhoea compared to children of mothers do did not report washing hands with soap at that time [20].

Limitations

Several studies demonstrated that self-reported handwashing behaviour over estimates actual handwashing behaviour (observed in a structured observation) [9-12].

Model data collection tool

This is an open-ended question. Do not read the answer choices.

Ask: In what situations do you wash your hands with soap?

After the respondent stops listing times, ask "Are there any other situations where you wash your hands with soap?" Keep asking this question until the respondent thinks there are no other times. Mark "1" if the respondent mentioned the critical time and "0" if the respondent did not mention that critical time]

	1… Mentioned 0… Not mentioned
1. Before preparing food	_____
2. Before cooking food	_____
3. Before eating	_____
4. Before feeding a child	_____
5. Before breastfeeding	_____
6. After cleaning a child's anus	_____
7. After changing a baby's nappy	_____
8. After disposing of children's faeces	_____
9. After you defecate	_____
10. After using the latrine for any purpose	_____
11. Other (specify)	_____

The questions provided here are open-ended. The range of critical times of interest will depend on the programme objectives. Asking the question in an open-ended manner will allow for a broader range of answer choices, which is useful if the goal is to understand the fuller spectrum of when the behaviour occurs. Asking the question in a closed-ended manner (e.g. Do you

wash your hands with soap after defecation?) will limit which critical events are reported to be accompanied by handwashing with soap. Asking closed-ended questions allows for a more direct question with respect to the information sought (such as at a specific critical time) but can result in affirmative responses given that handwashing is a socially desirable behaviour.

Training considerations

Definitions for each critical time are provided in indicator B7 (below). If asking closed-ended questions consider only asking about the critical times of interest.

Analysis/Interpretation

This indicator is analyzed as a proportion (see definition or calculation above). Since there are multiple critical times, there are multiple ways to analyze this indicator. We recommend assessing each critical time separately. Grouping of certain critical times (ex. after any fecal contact, before food handling events) is another useful approach if it matches the objectives of the programme. The proportion alone does not reflect the effects of the programme; some people will report washing hands with soap at a critical time before they introduced to the programme. In order to know the effects attributable to the programme this proportion should be compared before (baseline data) and after the programme, or between those who were and were not exposed to the programme.

Analysis required to derive the indicator:

To calculate the numerator (Sum people that reported they wash hands with soap at water at a critical time)

- Add the number of respondents that have "1" coded for the critical time of interest

To calculate the denominator (Total number of people surveyed)

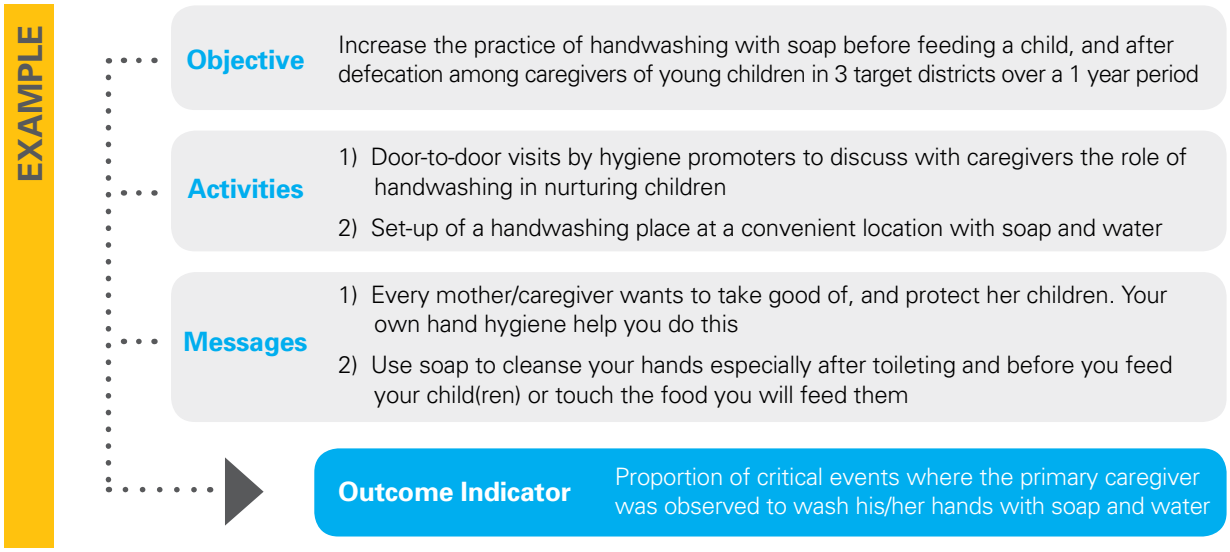
- **survey_total** = sum of respondents that answered the survey

To calculate indicator – divide the sum of respondents that have "1" marked for the critical event by survey_total

- To calculate percentage- multiply the final proportion by 100
- Repeat for each critical event of interest

Use a t-test to determine if the proportions are statistically different from each other (formula is available in MS Excel).

B7. **OUTCOME INDICATOR:** OBSERVED HANDWASHING WITH SOAP AND WATER AT ANY CRITICAL EVENTS, OR AT SPECIFIC CRITICAL EVENTS



Rationale

Since self-reported handwashing behaviour often over estimates actual practice, direct observation of handwashing behaviour over a specified time period is a more objective measure of actual handwashing behaviour. Currently, direct observation of handwashing behaviour is the most objective measure of handwashing behaviour that is available.

Definition

Proportion of (any) critical events where soap was used to cleanse hands

[OR]

Proportion of specific critical events where soap was used to cleanse hands

Calculation

$$\frac{\text{Events where handwashing with soap and water occurred}}{\text{Total events where handwashing with soap and water should have occurred}}$$

Data collection method

Structured observation: A structured observation is a continuous, direct observation of behaviour using a standardized format for identifying and recording critical events and handwashing behaviour. The observer (enumerator) is in place in a home or school for an extended period of time (3-7 hours) and observing the respondent's behaviour.

Strengths

This indicator is objective and allows for direct observation of handwashing behaviour. This method of data collection captures rich detail about handwashing behaviour. Observed handwashing after fecal contact and before food preparation has been shown to be associated with reduced risk of diarrhoea [8].

Limitations

Observation of individuals can result in reactivity because of the presence of the observer [26]. The validity of this method has been called into question because the behaviour of the respondents can be altered. Reactivity is also suspected to be differential by socioeconomic status or components of socioeconomic status that mediate awareness of social expectations of this behaviour. This method is time intensive; typically structured observation last 3-5 hours and additional time for travel, preparation, and interaction with the family may limit the enumerator to one household per working day. Well trained field staff and field testing are required in order to carry out this method successfully.

Model data collection tool

At minimum information in columns 1-6 (see model data collection instrument, over) should be recorded in order to derive this indicator. However, additional details can be collected, such as those in columns 7 and 8, if they serve the interest of the programme or are needed to evaluate objectives that include these details.

CODE FOR: EVENT TYPE (COLUMN 3)

Fecal contact Events:	**Food Handling/Feeding Events**	**Respiratory Events:**	
1… After toileting	3… Before preparing food	7… After coughing/sneezing	9… Other (specify)
	4… Before serving food		
2… After contact with human/animal faeces	5… Before eating	8… After blowing nose	
	6… Before feeding child/breastfeeding		

Start Time: I__I__I:I__I__I Break 1 Start time: I__I__I:I__I__I Break 1 End time: I__I__I:I__I__I Break 2 Start time I__I__I:I__I__I Break 2 End time: I__I__I:I__I__I

1. Line No.	**2. Time (24 hr: HH:MM)**	**3. Event type:**	**4. Person:**	**5. Were hands cleansed?**	**6. Hand cleansing materials:**	**7. How were hands dried?**	**8. Location**	**9. Comments:**
		SEE ABOVE	1.. Primary Caregiver, F 2.. Primary caregiver, M 3.. Other Adult, F 4.. Other Adult, M 5.. Child (≤15yrs), F 6.. Child (≤15yrs), M	1.. Yes, one hand 2.. Yes, both hands 0.. No 9.. Could not observe *If 0 or 9 move to next event*	1.. Water only 2.. Soap and Water 3.. Ash 4.. Other, Specify 9.. Could not observe	1.. Not Dried 2.. Air dried 3.. Towel/Cloth (not clothing) 4.. Clothing 5.. Other, Specify 9.. Could not observe	1.. In/near main house (≤2m to entrance) 2.. In/near latrine (≤2m to entrance) 3.. In/near cooking area (≤2m to entrance) 4.. >2m away from main house, latrine and cooking area	
01	:							
02	:							
03	:							
04	:							
05	:							
06	:							
07	:							
08	:							
09	:							
10	:							

CODE FOR: EVENT TYPE (COLUMN 3)

Fecal contact Events:	**Food Handling/Feeding Events**	**Respiratory Events:**	
1… After toileting 2… After contact with human/animal faeces	3… Before preparing/serving food 4… Before eating	5… After coughing/sneezing 6… After blowing nose	7… Other (specify)

Start Time: I__I__I:I__I__I Break 1 Start time: I__I__I:I__I__I Break 1 End time: I__I__I:I__I__I Break 2 Start time I__I__I:I__I__I Break 2 End time: I__I__I:I__I__I

1. Line No.	**2. Time (24 hr: HH:MM)**	**3. Event type:**	**4. Person:**	**5. Were hands cleansed?**	**6. Hand cleansing materials:**	**7. How were hands dried?**	**8. Location**	**9. Comments:**
		SEE ABOVE	1.. Child 5-10yrs, F 2.. Child 5-10yrs, M 3.. Child 11-16yrs, F 4.. Child 11-16yrs, M 5.. Adult, F 6.. Adult, M	1.. Yes, one hand 2.. Yes, both hands 0.. No 9.. Could not observe *If 0 or 9 move to next event*	1.. Water only 2.. Soap and Water 3.. Ash 4.. Other, Specify 9.. Could not observe	1.. Not Dried 2.. Air dried 3.. Towel/Cloth (not clothing) 4.. Clothing 5.. Other, Specify 9.. Could not observe	1.. In/near latrine (≤2m to entrance) 2.. Near water source (≤2m) 3.. Other, inside (specify) 4.. Other, outside (specify)	
01	:							
02	:							
03	:							
04	:							
05	:							
06	:							
07	:							
08	:							
09	:							
10	:							

DEFINITION OF TERMS FOR DATA COLLECTION TOOL

LINE (Column 1)

This column will be filled in prior to the observation. Each event should be recorded in temporal order.

Only one event should be recorded per line.

TIME (Column 2)

In this column record the time the event took place in military time (e.g. 2:15pm is 14:15)

EVENT TYPE (Column 3)

These are critical events or events when handwashing is observed that should be marked in Column 3. A "critical event" is a specific occurrence that poses a potential health risk which could be prevented by handwashing with soap. Commonly identified critical events are after defecation and/or toileting, before eating and before food preparation. Below is a broader list of critical times with specific definitions of each term. Not all critical events may be of interest to the programme. Additional critical events may be added to account for diverse practices and/or reasons for these practices.

- **After toileting**: The respondent returns from using a toilet facility or from the bush. The primary goal is to understand handwashing behaviour after defecation. However, activities inside a toilet facility or in the bushes will not be directly observed and therefore determining whether the respondent defecated or urinated is difficult.
- **After contact with human or animal faeces:** The respondent has touches or performs and activity that allows for potential contact with human or animal faeces. Concrete examples are:

  After cleaning a child's anus: The respondent cleans a child who after the child has defecated either in a nappy or potty, or on the ground. The primary goal is to observe the handwashing behaviour of the person who cleans the child after this event.

  After removing child's faeces from the yard: The respondent removes from the yard faeces from the place the child defecated. The primary goal is to observe the handwashing behaviour of the person that is disposing of the faeces.

  After contact with animal dung: The respondent has come into contact (purposefully or accidentally) with animal faeces.

- **Before preparing food:** The respondent is cutting, preparing, or cooking food either with her hand or using utensils. The primary goal is to understand handwashing behaviour before touching food. Preparing food does not having to be solely before preparing a meal but can also be observed in between meal (e.g. Cutting of fruits for a snack)
- **Before serving food:** The respondent is serving food for others to eat either with her hands or using utensils. The primary goal is to understand handwashing behaviour before food is given to other people.

- **Before eating:** The respondent is eating food (snack or meal). The primary goal is to understand handwashing behaviour before feeding oneself.
- **Before feeding a child/breastfeeding:** The respondent is feeding a child by spoon or by hand, or is breastfeeding a baby for any amount of time. The primary goal is to understand handwashing behaviour before feeding a child.
- **After coughing or sneezing:** The respondent coughs or sneezes into her hands or wipes/blows her nose using her hands or the respondent cleans a child's nose from respiratory secretions. The primary goal is to understand handwashing behaviour after contact with respiratory secretions.
- **After blowing nose:** The respondent wipes/blows his/her nose using her hands or the respondent cleans a child's nose from respiratory secretions. The primary goal is to understand handwashing behaviour after contact with respiratory secretions.
- **Other:** The respondent washes his/her hands at a circumstance that is not any of the previously described event (is not an identified critical time). When "other" is marked, the enumerators must always describe the event in the comments section and the temporal order of handwashing in relation to the event. "Other" events are not events the enumerator speculates hands should be washed but events which result in handwashing that do not fit any of the other options. Examples of frequent "other" events from previous work are:

  After eating: The respondent finishes eating her meal. This is a common time for handwashing because the hands may become soiled from eating, especially in cultures where eating with hands is common practice.

  After handling livestock: The respondent comes in to contact (purposely or accidentally) with livestock. The primary goal is to understand handwashing behaviour after touching or having contact with animals.

  After cleaning or sweeping inside or outside the house: the respondent is cleaning or sweeping either inside home our outside in the yard. The primary goal is to understand handwashing behaviour after potential contact with physical dirt.

PERSON (Column 4)

In this column record which member of the household was observed for the each event. Use the "Person Index" to assure correct categorization. If the behaviour of specific household members are of interest, such as the grandmother, or children younger than 5 years old, those answer choices can be added to this column. Answer choices must remain mutually exclusive (a given household member should not fit the definition of more than one answer option).

- **Primary Caregiver, F** is the primary female caregiver, usually the mother of the index child
- **Primary Caregiver, M** is the primary male caregiver, usually the father of the index child
- **Other adult, F** is any female person > 15 years old and is not a primary caregiver
- **Other adult, M** is any male person > 15 years old and is not a primary caregiver

- **Child (≤15 yrs), F** is any female child that is 15 years or old or less
- **Child (≤15 yrs), M** is any male child that is 15 years or old or less

For school based observations:

The ages of the school children should be adjusted according the age range of the children that attend the school. If the primary focus of the observation is the children, then observation of adults (teachers and other staff) can be omitted

WERE HANDS CLEANSED? (Column 5)

In this column mark "1" for yes, the person cleansed one hand, "2" for yes, the person cleansed both hands, "0" for no, the person did not cleanse their hands or "9" if hand cleansing could not be observed

If "0" or "9" are marked then the rest of the fields for that line are left blank and the enumerator should continue observation for the next critical event

HAND CLEANSING MATERIALS (Column 6)

In this column mark the materials used to cleanse hands. The categories are mutually exclusive so only one answer should be marked. If there are other materials (for example, mud) which are not listed above but are commonly used among the target population, add these answer choices to column 6.

HOW WERE HANDS DRIED? (Column 7)

In this column mark the materials that were used for drying hands after hand cleansing.

- **Not dried** means the person observed does not attempt to remove the water from his/her hands
- **Air dried** means the person shakes his/her hands into the air after handwashing
- **Towel/Cloth (not clothing)** means the person observed uses a towel or any cloth material that is not the clothing he/she are wearing to remove water from his/her hands after handwashing
- **Clothing** means the person observed dries his/her hands by rubbing it on the clothing he/she is presently wearing.
- **Other (specify)** means the person observed use things other than those above to dry their hands. The enumerator must specify what was used next to the code.
- **Could not observe** means the enumerator could not see if and what the person observed used to dry his/her hands. This option should not be marked if the enumerator is uncertain whether the person observed fully dried his/her hands using one of the above answer choices but only when the view is obstructed

LOCATION (Column 8)

The location categories identify where the handwashing place is in relation to 3 main places in or around the home where critical HW events occur. Only 1 choice should be marked. If more than 1 choice describes the location and 1 of those choices cannot be confidently inferred, the first definition that fits the description of the location should be recorded.

In/near the main house means the handwashing place is any place inside the main house or ≤2 meters away from main entrance to the house (directly outside).

In/near the latrine means the handwashing place is inside the latrine or ≤2 meters away from the latrine entrance. If the household does not have a latrine the enumerator should probe for the *most common* place for defecation.

In/near the cooking area means the handwashing place is inside the kitchen/cooking area or ≤2 meters away from the entrance to the cooking area. If the cooking area has multiple entrances the enumerator should determine the main entrance. If the cooking are is open or has no walls, the enumerator should observe the shortest distance.

>2m away from the main house, latrine and cooking area means the handwashing place is anywhere that is more than 2 meters away from the main house and the latrine, and the cooking area. This could be in the respondents courtyard, in another courtyard or any place else.

For school-based observation:

Near water source (≤2m) means the handwashing place is near the water source (water pump, faucet, bucket) or within 2 meters.

COMMENTS (Column 9)

In the space provide the enumerator should write notes pertaining to the observation. They could be details regarding the behaviour or references in the instance of uncertainty that could be discussed with the team. Notes are not mandatory for every observation.

Training Considerations

Placement and conduct

- The enumerator is expected to be objective and record what he/she sees. The information recorded must be free of personal feelings, opinions, and interpretations. The greatest effort should be made to visualize the behaviour of interest. Concentration and alertness must be at their peak throughout the multi-hour observation that behaviours and events are not missed.
- Effort to visualize the handwashing behaviour should be balanced with minimizing the effects of the enumerator's presence on the target respondent and the rest of the household as much as possible.
- Maintaining a positive tone is important for minimizing negative effect of the enumerator's presence.

- "Best place to sit" is where you can see an optimal number of critical events. We accept we will miss events; however, we try to do this so we do not disproportionately miss specific events (e.g. inside the home vs. outside the home). The enumerator must feel comfortable to move around and also do this in a way that is minimally disruptive. During training, the team should discuss where this place is in the compound and field test a few suggestions.
- The respondent's behaviour may be impacted if the observer is in the way of daily activities, engaged in frequent conversation or is obtrusive to the respondent or any of the other household members. In such cases the respondent will be constantly reminded of a strangers/outsider is in their home or may lead to negative feelings toward themselves or the entire study team.
- If the respondent interacts with the enumerator (chat, offers food or beverages, etc.), he/she sound encourage the respondent to go about her daily activities. Different actions are considered best for cultural settings were refusal is considered offensive. The enumerator should use his/her best judgment to balance good rapport with the respondent and minimal interaction during the observation.

Memorization of event types

- Once the team decides on the list of event types, the enumerators should memorize them and their code. The enumerators should be quizzed on this knowledge before data collection begins.

Consistency

- When critical events occur in a sequence (e.g. a mother uses the latrine, washes her hands then goes straight to cooking lunch), we must decide which event was the motivator for the behaviour. Exposure events can be "prioritized" with respect to pathogen transmission to provide more consistent recording between enumerators.
- Suggested prioritization: fecal contact events, food handling/preparation events, feeding/eating events, and then all other events.

Analysis/Interpretation

Structured observations have been using considerably in handwashing research. This tool has been the most effective way to understand numerous components of handwashing behaviour thus far. Since the data is collected by event, the indicator is also reported as a proportion of events where handwashing with soap occurred and not as a proportion of people that wash hands with soap.

Analysis required to derive the indicator:

There are several ways to analyze structure observation data. The variables below are suggestions for deriving proportions.

PROPORTION OF ALL EVENTS THAT WERE FOLLOWED BY HANDWASHING WITH SOAP

To derive the numerator – Number of events preceded or followed by handwashing with soap

- Create a variable called **HW_ANYCE** and give each event a value based on the following:
- Code 0 ("not washed") for **HW_ANYCE** if 0 was recorded for Column 5
- Code 1 ("washed with water only") for **HW_ANYCE if** 1 was recorded for Column 6
- Code 2 ("washed with soap & water") for **HW_ANYCE if** 2 was recorded for Column 6

This indicator can also be categorized dichotomously (in two categories) where codes "0" and "1" are collapsed into one category. Those who washed their hands with water only would be in the same group as those who did not wash their hands at all.

To derive the denominator – Total number of events observed

- **EVENTS_TOTAL** = Sum of all events observed during the structured observation

Proportion of all event followed by handwashing with soap= (sum of events with **HW_ANYCE = 2**) ÷ **EVENTS_TOTAL**

PROPORTION OF FECAL CONTACT EVENTS THAT WERE FOLLOWED BY HANDWASHING WITH SOAP

To derive the numerator – Number of fecal contact events followed by handwashing with soap

- Create a variable called **HW_FCE** and give each event a value based on the following:
- Code 0 ("not washed") for **HW_FCE** if 1 **or** 2 was recorded for Column 3 (Exposure) **and** 0 recorded for Column 5 (Hands cleansed?)
- Code 1 ("washed with water only") for **HW_FCE** if 1 **or** 2 was recorded for Column 3 (Exposure) **and** 1 was recorded for Column 6
- Code 2 ("washed with any soap & water") for **HW_FCE** if 1 **or** 2 was recorded for Column 3 (Exposure) **and** 2 was recorded for Column 6

This indicator can also be categorized dichotomously (in two categories) where those with codes "0" and "1" for **HW_FCE** are collapsed into one category and coded as 0.

To derive the denominator – Total number of fecal contact events observed

- **fcEVENTS_TOTAL** = Sum of all events with code 1 and code 2

Proportion of fecal contact events followed by handwashing with soap= (sum of events with **HW_FCE = 2**) ÷ **fcEVENTS_TOTAL**

PROPORTION OF FOOD PREPARATION EVENTS THAT WERE PRECEDED BY HANDWASHING WITH SOAP

To derive the numerator – Number of food preparation events preceded by handwashing with soap

- Create a variable called **HW_FPE** and give each event a value based on the following:
- Code 0 ("not washed") for **HW_FPE** if 3 was recorded for Column 3 (Exposure) **and** 0 recorded for Column 5 (Hands cleansed?)
- Code 1 ("washed with water only") for **HW_FPE** if 3 was recorded for Column 3 (Exposure) **and** 1 was recorded for Column 6
- Code 2 ("washed with any soap & water") for **HW_FPE** if 3 was recorded for Column 3 (Exposure) **and** 2 was recorded for Column 6
- This indicator can also be categorized dichotomously where those with codes "0" and "1" for **HW_FPE** are collapsed into one category and coded as 0.

To derive the denominator – Total number of food preparation events observed

- **fpEVENTS_TOTAL** = Sum of all events with Event type=3

Proportion of food preparation events preceded by handwashing with soap= (sum of events with **HW_FPE = 2**) ÷ **fpEVENTS_TOTAL**

PROPORTION OF FEEDING EVENTS THAT WERE PRECEDED BY HANDWASHING WITH SOAP

To derive the numerator -Number of feeding preparation events preceded by handwashing with soap

- Create a variable called **HW_FDE** and give each event a value based on the following:
- Code 0 ("not washed") for **HW_FDE** if 4 **or** 5 (**or** 6 for community based) were recorded for Column 3 (Exposure) **and** 0 recorded for Column 5 (Hands cleansed?)
- Code 1 ("washed with water only") for **HW_FDE** if 4 **or** 5 (**or** 6 for community based) was recorded for Column 3 (Exposure) **and** 1 was recorded for Column 6
- Code 2 ("washed with any soap & water") for **HW_FDE** if 4 **or** 5 (**or** 6 for community based) was recorded for Column 3 (Exposure) **and** 2 was recorded for Column 6
- This indicator can also be categorized dichotomously (in two categories) where those with codes "0" and "1" for **HW_FPE** are collapsed into one category and coded as 0.

To derive the denominator – Total number of feeding events observed

- **fdEVENTS_TOTAL** = Sum of all events with Event type=4 or Event type=5 (of event type=6 for community based structured observations)

Proportion of feeding events preceded by handwashing with soap= (sum of events with **HW_FDE = 2**) ÷ **fdEVENTS_TOTAL**

Each of the proportions described above are calculated per household/school. The proportion alone does not reflect the effects of the programme; some people from the target population may have already practice handwashing with soap at these critical times. In order to know the effects attributable to the programme the proportion of events that are preceded or followed by handwashing with soap measured after the intervention should be compared to the proportion of events preceded or followed by handwashing with soap before the intervention (baseline data) or those who were not exposed to the programme.

Caveat: If the number of critical events observed in households in the evaluation sample is highly variable, the proportion of events when hands are washed may be misleading. For example, the measure of handwashing in a household in which 5 events are observed may be less precise than in a household in which 50 events are observed.

INDICATORS RELEVANT TO MONITORING AND EVALUTATION OF HEALTH IMPACTS

H1. **IMPACT INDICATOR:** PREVALENCE OF ILLNESS DURING THE 72 HOURS BEFORE INTERVIEW

EXAMPLE

Objective	Increase the practice of handwashing with soap before feeding a child, and after defecation among caregivers of young children in 3 target districts over a 1 year period
Activities	1) Door-to-door visits by hygiene promoters to discuss with caregivers the role of handwashing in nurturing children 2) Set-up of a handwashing place at a convenient location with soap and water
Messages	1) Every mother/caregiver wants to take good of, and protect her children. Your own hand hygiene help you do this 2) Use soap to cleanse your hands especially after toileting and before you feed your child(ren) or touch the food you will feed them
Impact Indicator	Prevalence of diarrhoea among child/children less than 5 years old living in the household

Rationale

The ultimate goal of promoting handwashing with soap is to prevent disease. The two major causes of death in young children living in resource-poor settings are diarrhoea and respiratory disease, both of which are preventable by handwashing with soap. Measuring the prevalence of diarrhoea and/or respiratory illness/symptoms can reveal the proportion of people that have had the illness (within the 72 hours before the interview). Comparing the prevalence between two time points or between two groups of people can reveal whether the programme has made health impacts. However, there are several factors that can contribute to difference in prevalence of disease and must be "adjusted for" in the analyses. Therefore, analysis of health impacts should be done by those with significant experience in data analysis of health impacts data. SEE ANNEX 1.

Data collection method

Morbidity Survey

Strengths

This measure is efficient and can be incorporated in multipurpose surveys. This indicator measures the ultimate goal of handwashing promotion.

Limitations

Self-report of illness relies on the participant's ability to recall the event. Symptoms for diarrhoea, for example, are subjective in nature.

Analysis/interpretation

The difficulties and limitations of analyzing health impacts are discussed in Annex 1. A third party with expertise in health data analysis should analyze the data for difference in disease risk. In general the prevalence of self-reported diarrhoeal disease is compared between two time points or two groups.

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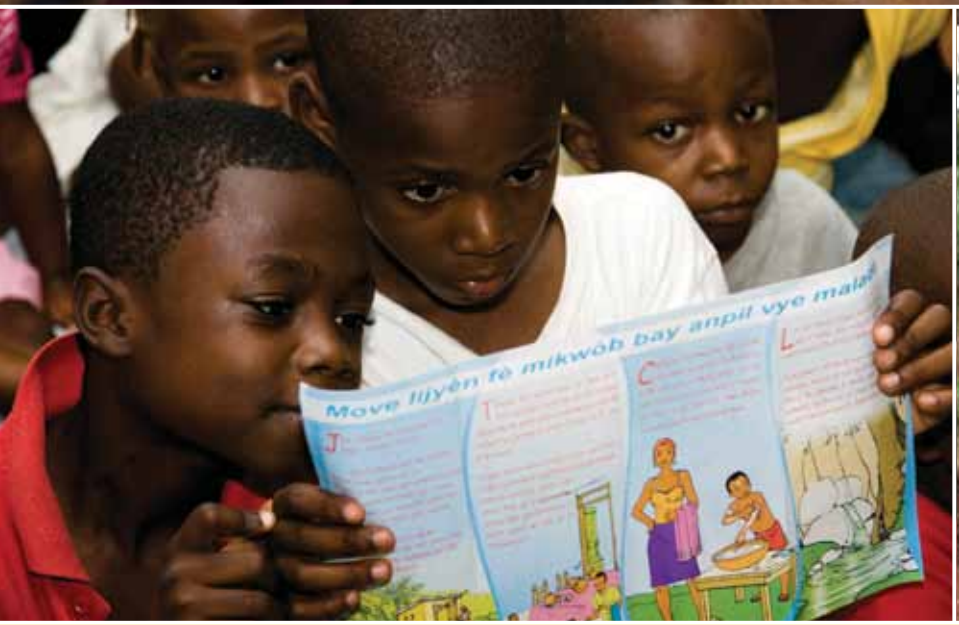
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