

## Handwashing questionnaire

This text is a copy of Step 2.1 in the case study 'Design, Implementation and Evaluation of a Handwashing Campaign in Harare, Zimbabwe' which can be found in the RANAS folder of this webpage.

### Key actions

#### *Develop a questionnaire*

As decided during Phase 1, our project aimed to raise the frequency of handwashing with soap at key handwashing times among primary caregivers and children. Consequently, we designed our questionnaire to obtain self-reported frequencies of handwashing with soap and the corresponding behavioral factors. To measure the behavior of caregivers, we used the items in the following table.

#### Behavior

In the following situations, how often do you wash your hands with soap and water?

Please tell us in how many out of 10 times you wash your hands with soap and water in the following situations...

- *Before eating?*
- *Before preparing/cutting food?*
- *Female respondents with young children: before breastfeeding a child?*
- *Respondents with young children: before feeding a child?*
- *After urinating?*
- *After defecating?*
- *Respondents with young children: after cleaning a child's bottom?*
- *After other contact with stool?*

Subsequently, psychosocial factors potentially steering caregivers' behavior were assessed.

#### Risk factors

**Health knowledge** We assessed *Health knowledge* using three items in the format of open questions with given responses (see Tool 2.1.1). Data collectors recorded which of the prespecified and correct answers the respondent mentioned. Health knowledge was computed as the number of correct answers given divided by the number of total

prespecified and correct answers. The items were:

What are the consequences of diarrhea?

- *Loose, watery stool / frequent toilet use*
- *Loss of water/ salt from the body,*
- *Loss of weight/ underweight*
- *Fever, weakness, body/ stomach ache*
- *I don't know*
- *None of the previous points mentioned*

What are typical ways you can get diarrhea?

- *Don't wash hands with soap before handling food*
- *Don't wash hands with soap after contact with stool*
- *Consume contaminated food (germs, rotten)*
- *Consume contaminated drinking water*
- *I don't know*
- *None of the previous points mentioned*

What can you do to not get diarrhea?

- *Wash hands with soap before handling food*
- *Wash hands with soap after contact with stool*
- *Don't consume contaminated food/ Boil, wash, peel, cover food*
- *Don't consume contaminated water/ Treat drinking water, consume only safe water*
- *Use toilets / cover toilets*
- *I don't know*
- *None of the previous points mentioned*

#### Vulnerability

We assessed *Vulnerability* using four items, with two items each asking for vulnerability with regard to stool and food related handwashing. The items for stool-related handwashing were:

If you **always** wash your hands with soap and water after contact with stool, how high do you feel is the risk that you contract diarrhea?

	<p>If you <b>never</b> wash your hands with soap and water after contact with stool, how high do you feel is the risk that you contract diarrhea?</p> <p><i>No risk at all / Little risk / Medium risk / High risk / Very high risk</i></p>
<b>Severity</b>	<p>Imagine you contracted diarrhea, how severe would be the impact on your daily life?</p> <p><i>Not severe at all / Little severe / Medium severe / Very severe / Extremely severe</i></p>

Attitude factors	
<b>Beliefs about costs and benefits</b>	<p>We surveyed <i>Beliefs about costs and benefits</i> using four items, with two items each for food and stool-related handwashing. The items for stool-related handwashing were:</p> <p>How effortful do you think is always washing hands with soap and water after contact with stool?</p> <p><i>Not effortful at all / A little effortful / Medium effortful / Very effortful / Extremely effortful</i></p> <p>How certain are you that always washing hands with soap and water after contact with stool prevents you from getting diarrhea?</p> <p><i>Not certain at all / A little certain / Medium certain / Very certain / Extremely certain</i></p>
<b>Feelings</b>	<p>We assessed <i>Feelings</i> using four items, with two items each for food and stool-related handwashing. The items for stool-related handwashing were:</p> <p>How much do you like washing hands with soap and water before handling food?</p> <p><i>I don't like at all / I like a little / I quite like / I like it a lot / I like very much</i></p> <p>How disgusting do you think is it to not always wash hands with soap and water before handling food?</p> <p><i>Not disgusting at all / A little disgusting / Medium disgusting / Very disgusting / Extremely disgusting</i></p>

Normative factors	
<b>Others' behavior</b>	<p>We assessed <i>Others' behavior</i> using four items, with two items each for food and stool-related handwashing. The items for stool-related handwashing were:</p> <p>How many people in your <b>household</b> always wash hands with soap and water after contact with stool?</p> <p><i>(Almost) nobody / Some of them / Half of them / Most of them / (Almost) all of them</i></p> <p>How many people in your <b>community</b> always wash hands with soap and water after contact with stool?</p> <p><i>(Almost) nobody / Some of them / Half of them / Most of them / (Almost) all of them</i></p>
<b>Other's (dis)approval</b>	<p>We assessed <i>Other's (dis)approval</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>People who are important to you, how much do they think you should always wash your hands with soap and water after contact with stool?</p> <p><i>Not at all / A little / Medium / A lot / Very much</i></p>

Ability factors	
<b>How-to-do knowledge</b>	<p>We assessed <i>How-to-do knowledge</i> similarly to health knowledge using two items. How-to-do knowledge was computed as the number of correct given answers divided by the number of correct total answers. The items were:</p> <p>What are the different steps for good handwashing?</p> <ul style="list-style-type: none"> <li>- <i>Wet hands with water</i></li> <li>- <i>Put soap</i></li> <li>- <i>Rub hands (general)</i></li> <li>- <i>Rub the palm of the hand</i></li> <li>- <i>Rub between the fingers</i></li> <li>- <i>Rub under the finger nails</i></li> <li>- <i>Rub the finger tips</i></li> <li>- <i>Rub the back of the hands</i></li> <li>- <i>Rub for at least 20 seconds</i></li> <li>- <i>Rinse hands with water</i></li> </ul>

	<ul style="list-style-type: none"> <li>- <i>Dry hands with a clean towel / air dry hands</i></li> <li>- <i>I don't know</i></li> </ul> <p>In which situations is it critical to wash hands with soap?</p> <ul style="list-style-type: none"> <li>- <i>After defecating</i></li> <li>- <i>After cleaning a child's bottom</i></li> <li>- <i>After other contact with stool</i></li> <li>- <i>Before breastfeeding a child</i></li> <li>- <i>Before feeding a child</i></li> <li>- <i>Before preparing food</i></li> <li>- <i>Before handling drinking water</i></li> <li>- <i>Before eating</i></li> <li>- <i>I don't know</i></li> </ul>
<b>Confidence in performance</b>	<p>We assessed <i>Confidence in performance</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>How confident are you that you can always wash your hands with soap and water after contact with stool?</p> <p><i>Not at all confident / A little confident / Quite confident / Very confident / Extremely confident</i></p>
<b>Confidence in continuation</b>	<p>We assessed <i>Confidence in continuation</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>How confident are you that you can always wash hands with soap and water after contact with stool, even if circumstances are difficult?</p> <p><i>Not at all confident / A little confident / Quite confident / Very confident / Extremely confident</i></p>
<b>Confidence in recovering</b>	<p>We assessed <i>Confidence in recovery</i> using one item:</p> <p>Imagine you have stopped always washing hands with soap and water before handling food and after contact with stool for several days, for example because there was no water or soap for handwashing. How confident are you that you will start washing hands again?</p> <p><i>Not at all confident / A little confident / Quite confident / Very confident / Extremely confident</i></p>

<b>Action planning</b>	<p>We assessed <i>Action planning</i> using six items, with three items each for food and stool-related handwashing. The items for stool-related handwashing were:</p> <p>Do you have a plan which device you use to dispense water for washing hands after contact with stool?</p> <p><i>Yes / No</i></p> <p>Do you have a plan to always wash your hands with soap and water after contact with stool at a specific location?</p> <p><i>Yes / No</i></p> <p>Do you have a plan where you keep the soap for handwashing after contact with stool?</p> <p><i>Yes / No</i></p>
<b>Action control</b>	<p>We assessed <i>Action control</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>How aware are you of your goal to wash hands with soap and water after contact with stool?</p> <p><i>Not aware at all / A little aware / Quite aware / Very aware / Extremely aware</i></p>
<b>Barrier planning</b>	<p>We measured <i>Barrier planning</i> using three items with open response format without given responses. The three items were:</p> <p>Do you have a plan how to avoid forgetting to always wash hands with soap and water before handling food, and after contact with stool?</p> <p>Do you have a plan how you can wash your hands with soap and water before handling food and after contact with stool, even if you are in a hurry?</p> <p>Do you have a plan how you can wash your hands with soap and water before handling food and after contact with stool, even if there is no soap at home?</p>
<b>Remembering</b>	<p>We assessed <i>Remembering</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>When you think about the last 24 hours, how often did it happen that you intended to wash hands with soap and water after contact with</p>

stool and then forgot to do so?

These items investigated a frequency. The same answer format, ranging from “0 out of 10 times” to “10 out of 10 times”, as for behavior was used.

**Commitment** We assessed *Commitment* using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:

How committed are you to always washing your hands with soap and water after contact with stool?

*Not committed at all / A little committed / Quite committed / Very committed / Extremely committed*

#### Additional items

**Hindrance** Lack of soap and water as hindrances of handwashing were assessed with two items:

How often does it happen that you want to wash your hands with soap and water before handling food or after contact with stool, but there is no water at home?

How often does it happen that you want to wash your hands with soap and water before handling food or after contact with stool, but there is no soap at home?

Whether being in a hurry or not feeling like washing hands prevented participants from handwashing was assessed using four items with two items each for food and stool-related handwashing. The items for stool-related handwashing were:

After contact with stool: How often does it happen that you do not wash your hands with soap and water because you don't feel like doing it?

After contact with stool: How often does it happen that you do not wash your hands with soap and water because you are in a hurry?

These items investigated a frequency. The same answer format, ranging from “0 out of 10 times” to “10 out of 10 times”, as for behavior was used.

#### Develop an observation protocol

Self-reported data are subject to biases. Consequently, handwashing behavior was also surveyed through 3-hour structured observations. The observation protocol was as follows:

#### Observations

What key situation happens?

*Household member uses toilet / Household member changes diaper / Household member has other contact with stool / Household member eats / Household member drinks / Household member prepares food (direct food contact) / Household member prepares food (no direct food contact)*

Which household member was it?

*Primary caregiver / Index child / ...*

For food-related handwashing situations: Immediately before contact with food, did the person wash hands?

*Yes / No / Could not see*

For stool-related handwashing situations: Immediately after contact with stool, did the person wash hands?

*Yes / No / Could not see*

If hands were washed, how did the person wash hands?

*Rinsed only the right hand with water / Rinsed only the left hand with water / Rinsed both hands with water / Washed only the right hand with soap / Washed only / the left hand with soap / Washed both hands with soap / Washed both hands with soapy water / Took a bath / I am not sure / could not see*

In addition to the direct observations of behavior, we performed spot checks to survey the presence of soap and water. First, this served as a proxy measure for handwashing behavior. Second, we wanted to find out how readily available the handwashing infrastructure was in the target households. The spot-check protocol was as follows.

#### Spot checks

Ask: Does this household have a water tap?

Yes / No
Is there water?
Yes / No
Ask: Is there a specific place for handwashing before handling food?
Yes / No
Where is the place for handwashing before handling food?
<i>Inside the house / Outside the house</i>
What kind of handwashing facility is it?
<i>Tap from running water / Tap from reservoir / Bowl to dip hands / Small vessel, e.g. bowl, jug to pour water on hands / Jerry can / Other</i>
Is it accessible from the house without walking in the rain?
Yes / No
Is there water?
Yes / No
Is there soap?
Yes / No
If yes, what kind of soap is there?
Yes / No
Ask: Is there a specific place for handwashing after contact with stool?
Yes / No
... Same items as for food-related handwashing facility.

To measure the handwashing behavior of children, we used the following items.

#### Behavior

- Do you wash your hands with soap and water before eating at school?
- Do you wash your hands with soap and water after using the toilet at school?

*Not at all / a little / a medium amount / a great deal*

Subsequently, psychological factors potentially steering children's' behavior at school were assessed. The response categories of all closed questions were the same. Only four response categories were used, and they read as follows:

*Not at all / a little / a medium amount / a great deal*

To assist children in choosing the appropriate answers, we wrote them on cards, which were placed in front of the children during the interview. Children could answer questions either by speaking their response or by pointing to the appropriate card.

#### Risk factors

##### Health knowledge

We assessed *Health knowledge* using three items in the format of open questions with given responses (see Tool 2.1.1 of *Systematic Behavior Change*). Interviewers recorded which of the pre-specified and correct answers the child mentioned. Health knowledge was computed as the number of correct given answers divided by the number of total pre-specified and correct answers. The items were:

What are the consequences of diarrhea?

- *Loose, watery stool / frequent toilet use*
- *Loss of water/ salt from the body,*
- *Loss of weight/ underweight*
- *Fever, weakness, body/ stomach ache*
- *I don't know*
- *None of the previous points mentioned*

Can you tell me why people get diarrhea?

- *Don't wash hands with soap before handling food*
- *Don't wash hands with soap after contact with stool*
- *Consume contaminated food (germs, rotten)*
- *Consume contaminated drinking water*
- *I don't know*
- *None of the previous points mentioned*

How can you protect yourself against diarrhea?

- *Wash hands with soap before handling food*
- *Wash hands with soap after contact with stool*

	<ul style="list-style-type: none"> <li>- <i>Don't consume contaminated food/ Boil, wash, peel, cover food</i></li> <li>- <i>Don't consume contaminated water/ Treat drinking water, consume only safe water</i></li> <li>- <i>Use toilets / cover toilets</i></li> <li>- <i>I don't know</i></li> <li>- <i>None of the previous points mentioned</i></li> </ul>
<b>Vulnerability</b>	Do you feel you can get diarrhea often?
<b>Severity</b>	Is it bad for you if you get diarrhea?

Attitude factors	
<b>Beliefs about costs and benefits</b>	<p>Do you have a better health if you wash your hands before eating?</p> <p>Do you have a better health if you wash your hands after toilet use?</p> <p>Does washing hands with soap and water take a lot of time?</p> <p>Is it hard for you to wash your hands with soap and water before eating at school?</p> <p>Is it hard for you to wash your hands with soap and water after toilet use at school?</p>
<b>Feelings</b>	<p>Do you like to wash your hands with soap and water?</p> <p>Do you feel dirty if you don't wash your hands before eating?</p> <p>Do you feel dirty if you don't wash your hands after using the toilet?</p>

Normative factors	
<b>Others' behavior</b>	<p>We assessed <i>Others' behavior</i> using four items, with two items each for food and stool-related handwashing. The items for stool-related handwashing were:</p> <p>Do other children at school wash hands with soap and water after toilet use?</p> <p>Do your family members wash hands with soap and water after toilet use?</p>

<b>Other's (dis)approval</b>	<p>We assessed <i>Others' (dis)approval</i> using four items, with two items each for food and stool-related handwashing. The items for stool-related handwashing were:</p> <p>Do your teachers think you have to wash your hands with soap and water after toilet use?</p> <p>Do people who look after you think you have to wash your hands with soap and water after toilet use?</p>
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Ability factors	
<b>How-to-do knowledge</b>	<p>What do you need to wash your hands?</p> <p><i>Wet hands with water</i></p> <ul style="list-style-type: none"> <li>- <i>Water</i></li> <li>- <i>Soap</i></li> <li>- <i>Ash</i></li> <li>- <i>Mud</i></li> <li>- <i>I don't know</i></li> </ul> <p>In which situations is it critical to wash hands with soap?</p> <ul style="list-style-type: none"> <li>- <i>After defecating</i></li> <li>- <i>After cleaning up a child's bottom</i></li> <li>- <i>After other contact with stool</i></li> <li>- <i>Before breastfeeding a child</i></li> <li>- <i>Before feeding a child</i></li> <li>- <i>Before preparing food</i></li> <li>- <i>Before handling drinking water</i></li> <li>- <i>Before eating</i></li> <li>- <i>I don't know</i></li> </ul>
<b>Confidence in performance</b>	<p>We assessed <i>Confidence in performance</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>Are you sure that you can always wash your hands with soap and water after toilet use at school?</p>
<b>Confidence in continuation</b>	<p>Imagine you are very hungry. It is lunchtime or break at school. Your schoolmates are already eating. Are you sure, that in this situation, you will wash your hands with soap and water before eating?</p> <p>Imagine you need to go to the toilet at school, but your friends are waiting for you. They will not wait long. You are in a hurry! Are you</p>

sure that, in this situation, you will wash your hands with soap and water after toilet use?

#### Self-regulation factors

<b>Action control</b>	<p>We assessed <i>Action control</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>Do you pay attention to always wash your hands with soap and water after toilet use?</p>
<b>Remembering</b>	<p>We assessed <i>Remembering</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>Do you always remember to wash your hands with soap and water after toilet use?</p>
<b>Commitment</b>	<p>We assessed <i>Commitment</i> using two items, with one item each for food and stool-related handwashing. The item for stool-related handwashing was:</p> <p>Is it important to you to wash your hands with soap and water before eating?</p>

#### *Develop an observation protocol*

In addition to the self-reported measures, handwashing was also observed for two consecutive days in each school. It was not possible to perform individual observations with children; these would have allowed us to track children during their day at school and record the key handwashing situations in which they washed their hands. Further, particular handwashing facilities for food-related handwashing were not present. Consequently, it was not possible to determine whether children washed hands before eating during the lunch breaks, and behavioral observations were only conducted for stool-related handwashing.

#### Observations

Did the child wash hands when leaving the toilet building?

Yes / No / Could not see

If yes, how?

*Rinsed hands with water / Washed hands with soap and water/ Rinsed hands with soapy water / Could not see*

Similar to the household survey, we performed spot checks to survey the presence of handwashing facilities, soap and water. Spot checks were conducted before the breaks, when the majority of key handwashing events occurred.

#### Spot checks

Is there a specific facility for handwashing **after contact with stool**?

Yes / No

How many facilities for handwashing after contact with stool are there?

*(Open question)*

Where are the handwashing facilities located?

*Outside, on the compound of the school / Inside the building / Inside the toilet/ latrine building*

What kind of handwashing facilities are there?

*Running water from a tap / Water containers with a valve and a collection vessel / Vessels to pour water and vessels to collect water / Vessels to pour water without vessels to collect water / Bowls or basins to dip hands / Other*

Is there soap?

*Yes, in all cases / Yes, in most cases / Yes, in half of the cases / Yes, in some cases / No, in none of the cases*

Is there water?

*Yes, in all cases / Yes, in most cases / Yes, in half of the cases / Yes, in some cases / No, in none of the cases*

Are there handwashing facilities inside or just outside the classrooms?

*Yes, in all cases / Yes, in most cases / Yes, in half of the cases / Yes, in some cases /*

<i>No, in none of the cases</i>
What kind of handwashing facilities are there? <i>Running water from a tap / Water containers with a valve and a collection vessel / Vessels to pour water and vessels to collect water / Vessels to pour water without vessels to collect water / Bowls or basins to dip hands / Other</i>
Is there soap? <i>Yes, in all cases / Yes, in most cases / Yes, in half of the cases / Yes, in some cases / No, in none of the cases</i>
Is there water? <i>Yes, in all cases / Yes, in most cases / Yes, in half of the cases / Yes, in some cases / No, in none of the cases</i>

