



WASH Conditions Assessment Tool



Implementation Toolkit: A Guide for WASH Assessments in Healthcare Facilities

July 2017



GE Foundation



EMORY
SCHOOL OF
PUBLIC
HEALTH

CGSW
Center for Global Safe WASH

Leading and
Learning in WASH

Table of Contents

ABBREVIATIONS	4
ACKNOWLEDGEMENTS	5
CONTRIBUTING AUTHORS	5
CHAPTER 1: INTRODUCTION	6
<p>This implementation toolkit is intended to be used by a high-level implementer or team lead who can use the document to enhance their training program and objectives to efficiently carry out WASH assessments within HCFs. It is important to read through this document in its entirety and then provide the appropriate sections to the relevant parties of your team (i.e. enumerators, lab techs, training facilitators).</p>	
1.1 Summary	6
1.2 JMP’s Approach to WASH in HCF	8
1.3 Frequently Asked Questions.....	9
CHAPTER 2: THE WASHCON ASSESSMENT TOOL	11
2.1 Tool Functionality	11
2.2 Mobile Data Collection Recommendations and Policies.....	16
2.3 Frequently Asked Question	16
CHAPTER 3: IMPLEMENTATION GUIDE	17
3.1 Personnel Requirements	17
3.2 Stakeholder Engagement & Scope of Work	18
3.3 Water Quality Testing Considerations.....	19
3.4 Budgeting for the Assessment.....	20
3.5 Ethical Approval	22
3.6 Engagement with Healthcare Facilities	22
3.7 Selection and Training of Enumerators	22
3.8 Collection Form Revisions	23
3.9 Data Collection Plan	23
3.10 Data Management Plan.....	24
3.11 Frequently Asked Questions	24
CHAPTER 4: TRAINING MANUAL FOR FACILITATORS	26
4.1 Purpose of Training	26
4.2 Training Part I: Overview of WASH in HCF and WASHCon Assessment Tool	26
4.3 Training Part II: Enumerator Training	27
4.4 Frequently Asked Questions.....	27
CHAPTER 5: ENUMERATOR GUIDE	29
5.1 Pre-Assessment Guidelines	29
5.2 Arrival at a Healthcare Facility.....	30
5.3 Interview with the Director	30
<p>This form is a continuation of the director’s interview, asking questions related to the management of the HCF. Many of the questions have been taken directly from the WASH FIT tool, in order to better integrate the findings of the WASHCon assessment with the prioritization of WASH FIT. Refer to the annotated management form found in Appendix V (pg x).</p>	
	31

5.5 Administrative Data Form	31
5.6 Ward Observation Checklist	32
5.7 Toilet Facility Observation Checklist.....	32
5.9 Water Quality Assessment Form.....	33
5.10 Frequently Asked Questions	33
CHAPTER 6: WATER QUALITY TESTING.....	34
6.1 Selection of a Suitable Laboratory	34
6.2 E. coli Testing Methods	36
All of the testing options require that the samples be incubated at a controlled temperature for 16-24 hours , depending on the reagent. In low resource settings, consistency of power can be a challenge. We recommend that you evaluate the power availability prior to the collection of samples and troubleshoot based on availability. See Appendix X for troubleshooting help.	
6.3 Chlorine Testing Methods There are multiple methods for chlorine residual testing. These include swimming pool testing kits, color wheels and digital colorimeters. Chlorine testing should be completed based on the selected method and processed immediately. Samples that are processed more than two hours after collection will no longer have accurate results. Chlorine residual testing is only recommended if the HCF source of water is from a municipal source or is treated onsite with chlorine. It is recommended that the water be tested right where the sample is collected. The water sample may be collected directly from the tap into the testing container (tube or cup) or into a transfer container such as a Whirl-Pak bag. Do not use a sodium thiosulfate tablet for chlorine residual samples, as this will inactivate the chlorine.....	37
6.4 Water Sample Collection	37
6.5 Troubleshooting Recommendations	38
6.6 Water Quality Testing Mobile Form	39
6.7 Water Quality Results Interpretation.....	39
CHAPTER 7: FROM DATA TO ACTION - HOW TO USE WASHCON FINDINGS	41
7.1 Overview of Data Collected.....	41
7.2 Next Steps	42
7.3 Frequently Asked Questions.....	43
APPENDIX I: GLOSSARY OF TERMS.....	44
APPENDIX II: FACILITATOR LESSON PLANS & DOCUMENTS	47
Training Part I - Introduction to WASH in HCF	47
Training Part II – Enumerator Training	49
APPENDIX III: WASHCON MOBILE DATA COLLECTION OVERVIEW	51
Android Basics	51
Phone Setup	52
Using CommCare.....	54
APPENDIX IV: ENUMERATOR SITE COMPLETION CHECKLIST	60
APPENDIX V: Collecting Your Feedback.....	61

List of Tables

TABLE 1: JMP's WASH in HCF Core Indicators for Outpatient Settings	8
TABLE 2: WASHCon Domains & Sub-Domains	12
TABLE 3: Traffic Light Scorecard Definitions	13
TABLE 4: Description of Personnel Requirements.....	17
TABLE 5: Water Quality Testing Parameters & Requirements.....	20
TABLE 6: Costs of Conducting the WASHCon Assessment	21
TABLE 7: Selection Criteria for Enumerators.....	22
TABLE 8: Example Data Collection Plan.....	23

List of Figures

FIGURE 1: JMP Recommended Service Ladders.....	9
FIGURE 2: WASHCon Tool Development.....	11
FIGURE 3: Sample Scoring Metric.....	13
FIGURE 4: WASHCon Assessment Tool Architecture.....	14
FIGURE 5: Sample Traffic Light Dashboard.....	14
FIGURE 6: Sample Graphical Output of Traffic Light Scores.....	15
FIGURE 7: Sample Mapping of WASH Conditions in HCF	15
FIGURE 8: Sample WASHCon Dashboard	41

ABBREVIATIONS

CGSW	Center for Global Safe Water, Sanitation and Hygiene
HCF	Healthcare facility
JMP	WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation
IPC	Infection Prevention and Control
IRB	Institutional Review Board
MOH	Ministry of Health
NGO	Non-governmental organization
SARA	Service Availability and Readiness Assessment
SDG	Sustainable Development Goals
SDI	Service Delivery Indicators
SPA	Service Provision Assessment
UNICEF	United Nations Children’s Fund
WASH	Water, sanitation and hygiene
WASHCon	WASH Conditions Assessment Tool
WASH FIT	WASH Facility Improvement Tool
WHO	World Health Organization

ACKNOWLEDGEMENTS

This publication was made possible due to support from the General Electric Foundation, Assist International, and the Center for Global Safe Water, Sanitation, and Hygiene at Emory University.

CONTRIBUTING AUTHORS

Christine Moe
Habib Yakubu
James Michiel
Joanne McGriff
Katharine Robb
Lindsay Denny
Marisa Gallegos
Samantha Lie-Tjauw



Photo Credit: <http://www.washinhcf.org/home/>

CHAPTER 1: INTRODUCTION

This implementation toolkit is intended to be used by a high-level implementer or team lead who can use the document to enhance their training program and objectives to efficiently carry out WASH assessments within HCFs. It is important to read through this document in its entirety and then provide the appropriate sections to the relevant parties of your team (i.e. enumerators, lab techs, training facilitators).

1.1 Summary

Universal access to basic drinking water and sanitation has been adopted as an urgent priority within Sustainable Development Goal (SDG) 6 in the 2030 Agenda for Sustainable Development.¹ Meanwhile, the Wellbeing Goal, SDG 3, includes an indicator addressing the reduction of morbidity related to unsafe water, sanitation and hygiene (WASH). The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) are expanding beyond the household, incorporating institutions such as healthcare facilities (HCFs) in their own agenda of safe WASH coverage for all. The 2015 WHO and UNICEF global landscape report on WASH in HCF in 54 countries found that 38% of HCFs lack a water source within 500m, 35% lack soap or alcohol-based hand rub for handwashing, and nearly 20% lack improved sanitation.² In addition, subnational data analyses reveal significant disparities in WASH coverage between HCFs in certain districts within a country or between urban and rural regions, in general.

In order to advocate for improved WASH in HCFs in low- and middle-income countries, researchers and health practitioners need to develop an evidence base that documents the WASH infrastructure, resources and service conditions within HCFs and help prioritize and track evidence-based interventions and improvements.

To address this need, the Center for Global Safe Water, Sanitation, and Hygiene at Emory University (CGSW) developed an assessment tool to evaluate WASH conditions within HCFs in low- and middle-income countries. This tool is known as the WASH Conditions Assessment Tool, or simply **WASHCon**.

The tool is designed to:

1. Develop a comprehensive overview of the status of WASH conditions, infrastructure and resources in a given HCF.
2. Provide real-time data to inform and prioritize programmatic activities to improve WASH in HCFs.
3. Contribute to the evidence base for advocacy and action in the area of WASH in HCFs.

General Description of WASHCon

¹ United Nations Statistical Commission. (2016). *Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators*. United Nations, Geneva

² WHO, UNICEF. (2015). *Water, sanitation and hygiene in healthcare facilities: status in low and middle income countries and the way forward*. World Health Organization, Geneva

The WASHCon assessment tool evaluates WASH conditions across five domains. These domains are guided by the indicators for WASH in HCF as defined WHO/UNICEF Joint Monitoring Programme (JMP)³. **The WASHCon domains are:**

1. Water supply
2. Sanitation facilities
3. Handwashing facilities
4. Cleaning routines
5. Waste management

Three types of data collection methods are used for the WASHCon: **surveys, observational checklists and water quality testing**. The assessment is conducted by trained enumerators using a mobile device and generally takes less than four hours per HCF site to complete (depending on the size of the facility) with two enumerators. Once the data are collected, the information will be uploaded from the mobile device into a pre-programmed dashboard via a cellular or wireless internet network.

A dashboard is a data visualization tool that allows users to view analyzed and filtered data. **The WASHCon dashboard calculates evaluation scores on a scale of 1 - 3 for each of the WASH domains**, as well as an overall score that is an average of all the domains. The scores are determined based on the responses to the survey questions, observation checklists, and water quality testing results. The scores are then color coded either **red, yellow or green** (like a “traffic light”) **to indicate the WASH status of the HCF. For example**, a score of 3 (or **green**) indicates that the HCF has met basic WASH in HCF service requirements while a score of 1 (or **red**) demonstrates unimproved or no services. In addition, the dashboard displays how the WASHCon scores compare to the JMP’s WASH in HCF indicators.







Data from the tool can be used to provide a baseline of the current status of the conditions in a variety of HCF. **From this baseline, stakeholders are able to prioritize the different WASH domains**. By using in combination with WASH risk assessment tools, like WHO’s WASH Facility Improvement Tool (WASH FIT), stakeholders can take a targeted approach to the improvement of WASH conditions and allocate resources responsibly. WASHCon may also function as a progress check, helping stakeholders to track improvements over time. Using the JMP indicators dashboard, data collected from WASHCon can inform progress towards the Sustainable Development Goal of WASH coverage for all by 2030.

This training resource is meant to serve as an introduction to WASH in HCF as well as guide for implementation and training of the WASH Conditions Tool. If used properly, this tool will quantify the WASH conditions within HCF by assigning a score to each HCF assessed. This score can be used to identify areas for improvement within HCF as well as detect similarities between multiple

³ WHO/UNICEF Joint Monitoring Programme for water supply and sanitation. (2016). *Expert Group Meeting on Monitoring WASH in Health Care Facilities in the Sustainable Development Goals*. World Health Organization, Geneva

facilities. This tool is intended to use collected data to drive programs as well as provide evidence for policy changes at local and national levels.

In this document, you will find:

-  An overview of the assessment tool,
-  A guide on planning for implementation,
-  Steps for technical setup and data collection,
-  A training manual of enumerators,
-  Annotated survey forms, and
-  Recommendations on how use the data.

1.2 JMP's Approach to WASH in HCF

In June 2016, JMP's Monitoring Task Team for WASH in HCF convened an expert panel to discuss indicators. The subsequent meeting report published in August 2016 provides **definitions of the core indicators (Table 1)** and associated questions, recommended service ladders (Figure 1) and draft expanded indicators questions. An additional indicator, cleaning routines, was proposed but has been left on the draft expanded indicators while experts discuss how it should be monitored. CGSW has ensured that all language matches that of JMP and the core indicator questions are included in the tool.

TABLE 1: JMP's WASH in HCF Core Indicators for Outpatient Settings

Indicator	Definition
Water	Water from an improved source is available on premises.
Sanitation	Improved sanitation facilities are available and usable, separated for patients and staff, separated for women and allowing menstrual hygiene management, and meeting the needs of people with limited mobility.
Hand Hygiene	Hand hygiene materials, either a basin with water and soap or alcohol hand rub, are available at points of care and toilets.
Health Care Waste	Waste is safely segregated into at least three bins in the consultation area and sharps and infectious wastes are treated and disposed of safely.

FIGURE 1: JMP Recommended Service Ladders⁴

	Water	Sanitation	Hygiene	Health Care Waste
	Advanced service <i>(to be defined at national level)</i>	Advanced service <i>(to be defined at national level)</i>	Advanced service <i>(to be defined at national level)</i>	Advanced service <i>(to be defined at national level)</i>
SDG Target	Basic service Water from an improved source on site is available at time of survey	Basic service Improved facilities, separated for patients and staff, for men and women, and useable by those with limited mobility	Basic service Hand hygiene facilities are available at points of care and toilets	Basic service Waste is segregated into bins, and sharps and infectious wastes are safely treated and disposed.
	Limited service There is an improved source, but off premises or not available at time of survey	Limited service There are improved facilities, but not usable or do not meet the needs of specific groups	Limited service Hand hygiene stations at some, but not all, points of care and latrines	Limited service Waste is segregated but not disposed of safely, or bins are in place but not used effectively
	No service No improved water source	No service No improved toilets or latrines	No service No hand hygiene stations with soap and water or alcohol based handrub	No service Waste is not segregated or safely treated and disposed

1.3 Frequently Asked Questions

What is the purpose of the WASH Con Assessment Tool?

The purpose of the tool is to: **1)** Develop a comprehensive overview of the status of WASH conditions, infrastructure and resources in a given HCF; **2)** provide data to inform and prioritize programmatic activities to improve WASH in HCF; and **3)** contribute to the evidence base for advocacy and action in the area of WASH in HCF.

Who should use WASHCon?

The tool is designed for individuals and groups interested in understanding the current status of WASH conditions, infrastructure, and resources within a given HCF or across multiple HCFs.

Where should the tool be used?

The tool is designed for use in HCF in low- and middle-income countries. It can be adapted for large hospitals or smaller facilities like health centers or health posts.

Where has WASHCon been used in the past?

WASHCon was developed and tested in Cambodia and Uganda. Based on those experiences, the tool was revised and used with partners in Zambia. The final iteration of the tool came about from feedback from the field team in Zambia as well as the new WHO indicators.

What are the WASHCon domains?

⁴ WHO/UNICEF Joint Monitoring Programme for water supply and sanitation. (2016). *Expert Group Meeting on Monitoring WASH in Health Care Facilities in the Sustainable Development Goals*. World Health Organization, Geneva

The tool is comprised of five domains: water supply, sanitation facilities, handwashing facilities, cleaning routines, and waste management. The majority of questions are categorized into these domains. Additional data is collected to provide context and demographics. The domains are based on the JMP's indicators for WASH in HCF.

How are the results used?

The tool may be used to provide a baseline assessment of the WASH conditions, infrastructure, and resources in HCF as well as a progress check to track WASH improvements. The data may also bring attention to inadequate conditions within HCF and contribute to the evidence base for advocacy and informed action.

What are the costs associated with WASHCon?

The main cost considerations include: person-time, transportation to the sites, water quality testing, and mobile devices. To calculate personnel cost (excluding travel), we estimate that two enumerators will take approximately four hours per site to complete the assessment. The cost of water quality testing will depend on the size of the HCF; a range between three to eight water samples may be collected per site for *E. coli* testing. Chlorine should also be tested if the water is chlorinated or from a municipal source. Other costs include one mobile device per enumerator.

What are the human resource requirements?

Data collection should be performed by trained enumerators who have undergone WASHCon training using the Enumerator Guide (pg. 26). A Training Manual for Facilitators to train enumerators can be found in Chapter 4 (pg. 24). Data collection at each HCF can be performed with one enumerator, however, two enumerators are recommended. Contracting enumerators with experience in WASH, working within a health setting, experience using mobile data collection is highly recommended, but not necessary. In addition to enumerators, a coordinator is required to manage the various activities while on site and to manage the data collection and upload. Lab technicians may be required to assist with water sampling.

What are the technical requirements?

Tablets or mobile phones are required to administer the survey. A cellular or wireless network is required to configure the mobile data collection platform and to upload the data. Microsoft Excel is needed to open the data dashboard. The mobile forms were created using CommCare HQ (www.comcarehq.org).

What are the water sampling requirements?

Each site will require three to eight water samples for *E. coli* testing, depending on the HCF size. HCF with municipal water or onsite water chlorination should also test for chlorine residual. These tests may be performed onsite or in an external laboratory.

How was the tool developed?

The tool was developed drawing from over four years of experience by the CGSW in evaluating WASH in HCF in Rwanda, Ghana, Honduras, Cambodia, as well as Uganda, and through discourse at global meetings regarding the key gaps and indicators needed to improve WASH in HCF.

CHAPTER 2: THE WASHCON ASSESSMENT TOOL

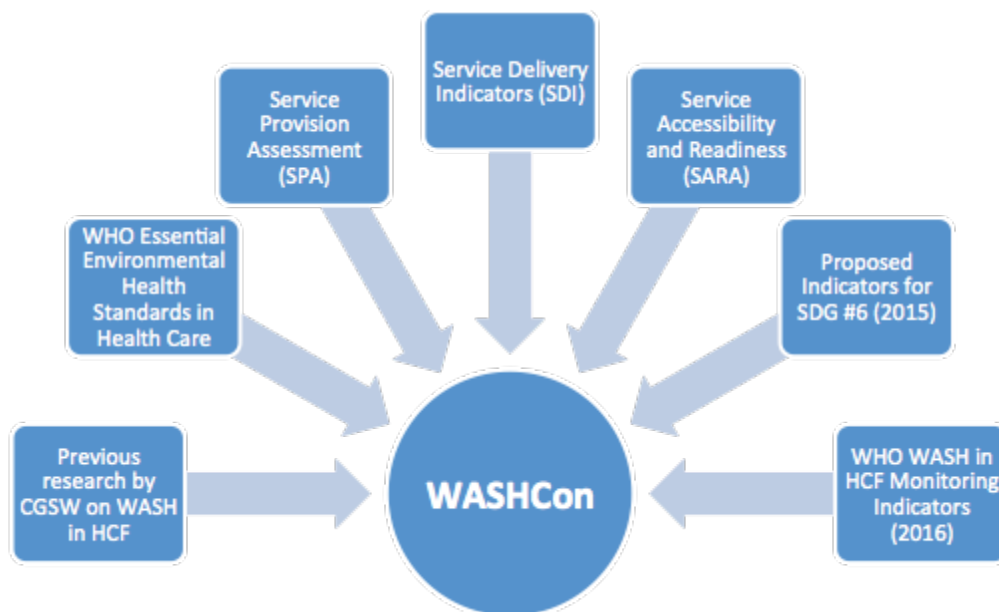
2.1 Tool Functionality

This section details the development of WASHCon, the tool's architecture, the scoring metric and the dashboard outputs. It is beneficial for both implementers and enumerators to understand how the data collected translate into WASHCon scores.

WASHCon Development

WASHCon was developed by drawing from over four years of CGSW experience evaluating WASH in HCF in Rwanda, Ghana, and Honduras and through discourse at global meetings regarding the key gaps and indicators needed to advance the status of WASH in HCF. The tool includes modules on water, sanitation, hygiene, infection prevention & control (IPC), cleaning routines, waste management, wastewater, electricity, and accessibility of WASH resources. WHO's Essential Environmental Health Standards in Health Care (2008) and the proposed indicators for the 2015 Sustainable Development Goals (SDGs) were used as a guide to develop many of the survey questions and observations. In addition, WASH-related questions and observations from several large-scale hospital assessments were compared and adopted for use in WASHCon. These assessments include WHO's Service Availability and Readiness Assessment (SARA), USAID's Service Provision Assessment (SPA), and World Bank's Service Delivery Indicators (SDI). **Figure 2 shows the guidelines, tools, and monitoring mechanisms that were used to develop the tool.**

FIGURE 2: WASHCon Tool Development



From these various sources, questions on the WASH conditions in HCF were compiled, forming the basis of the tool. Four of these domains were broken down further into sub-domains. **Table 2 explains the domains and their definitions.** The tool also includes questions that do not fall into these domains, such as questions about electricity, healthcare services provided, etc. These questions provide context and additional information about factors that may affect WASH in HCF. The questions that fall outside of the domains also facilitate comparisons across HCFs.

TABLE 2: WASHCon Domains & Sub-Domains

Domains/Sub-Domains	JMP Definition of “Basic” WASH in HCF Services
Water Supply <ul style="list-style-type: none"> ● Access & Source ● Quality ● Quantity 	Water from an improved source is available on premises.
Sanitation Facilities <ul style="list-style-type: none"> ● Access ● Quality ● Quantity 	Improved sanitation facilities are available and usable, separated for patients and staff, separated for women and allowing menstrual hygiene management, and meeting the needs of people with limited mobility.
Handwashing Facilities	Hand hygiene materials, either a basin with water and soap or alcohol hand rub, are available at points of care and toilets.
Cleaning Routines⁵ <ul style="list-style-type: none"> ● Equipment & Supplies ● Cleaning Practices 	Facilities where all toilets, floors and surfaces are cleaned, at least once a day or when soiled, with water or detergent.
Waste Management <ul style="list-style-type: none"> ● Segregation ● Disposal 	Waste is safely segregated into at least three bins in the consultation area and sharps and infectious wastes are treated and disposed of safely.

From the assessment, **CGSW developed a scorecard to objectively evaluate the data collected.**

First, each response to a question is assigned a score of 1 to 3.

- A score of a 1 indicates unimproved or no service
- A score of a 2 indicates limited service
- A score of a 3 indicates basic service

The scores from the individual questions are then averaged to determine the sub-domain scores, which are in turn averaged to calculate the domain score. Each subdomain is weighted equally within the domain. The final HCF score is an average of the five domain scores. **Figure 3 provides an example of the scoring metric for one domain.**

⁵ Moved from JMP’s final WASH in HCF core indicators to the draft expanded indicators. CGSW has retained cleaning routines as one of WASHCon’s domains.

FIGURE 3: Sample Scoring Metric

Domain	Sub-Domain	Indicator	Indicator Score	Sub-Domain Score	Domain Score
Water Supply	Source & Access	What is the main source of water? Where is it located?	2	1.7	2.1
		Is an alternative water source available?	2		
		Is water assessable to all users at all times?	1		
	Quantity	Is water available from the main source at the time of the survey?	3	2.5	
		How often is the main water source unavailable?	2		
	Quality	Is drinking-quality water purchase or produced for patients?	3	2.0	
		Does water meet chlorine residual guidelines?	2		
		Does water meet microbial guidelines?	1		

The scores are then color coded either red, yellow or green (like a “traffic light”) to illustrate the status of conditions. The dashboard displays a traffic light color for each of the domains, as well as the HCF as a whole - in total six traffic light colors per HCF. Table 3 describes the meaning of each of these scores. The traffic light color allows for easy representation of the status of WASH conditions in a large number of HCF. Figure 4 shows the architecture of the tool, including the process of data collection and scoring.

TABLE 3: Traffic Light Scorecard Definitions

Score	Traffic Light	Criteria
1.7 – 1.0	Unimproved or No Service	HCF has made little or no progress toward achieving the target / low level of WASH infrastructure and resources
2.7 – 1.8	Limited Service	HCF has made some progress toward achieving the target but is <i>not</i> on track to achieve it / moderate level of WASH infrastructure and resources
3.0 – 2.8	Basic Service	HCF has achieved the WASH in HCF targets or is on track to achieve them / high level of WASH infrastructure and resources

FIGURE 4: WASHCon Assessment Tool Architecture

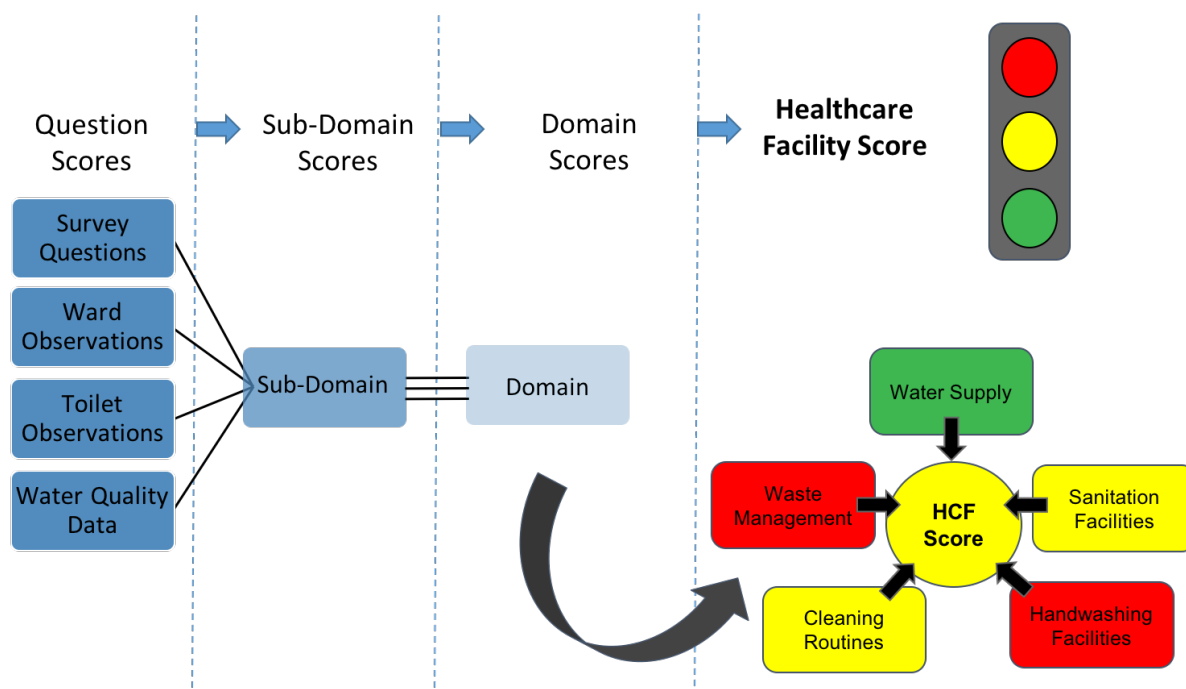


Figure 5 shows a basic example of a traffic light score dashboard. The dashboard is automatically populated based on the data collected. The score card aids in the development of a comprehensive overview of the status of WASH conditions in HCF and provides data to prioritize programmatic activities to improve WASH in HCF.

FIGURE 5: Sample Traffic Light Dashboard

Domain	Score
Water Supply	1.7 ●
<i>Source and Access</i>	2.1
<i>Quantity</i>	1.4
<i>Quality</i>	1.6
Sanitation Facilities	2.6 ●
<i>Access</i>	2.6
<i>Quantity</i>	3.0
<i>Quality</i>	2.1
Cleaning Routines	1.8 ●
<i>Equipment and Supplies</i>	2.0
<i>Cleaning Practices</i>	1.5
Handwashing Facilities	2.8 ●
Waste Management	2.0 ●
<i>Segregation</i>	2.4
<i>Disposal</i>	1.6
Overall	2.2 ●

Traffic Light Scoring Legend	
Red	1.0 - 1.8
Yellow	1.9 - 2.7
Green	2.8 - 3.0

WASHCon can also be used to track changes over time within a HCF or across a region. Figure 6 shows the summary graphical output for a single HCF. Figure 7 shows an example of how the data can be used to assess WASH conditions in HCF across a region or country.

FIGURE 6: Sample Graphical Output of Traffic Light Scores

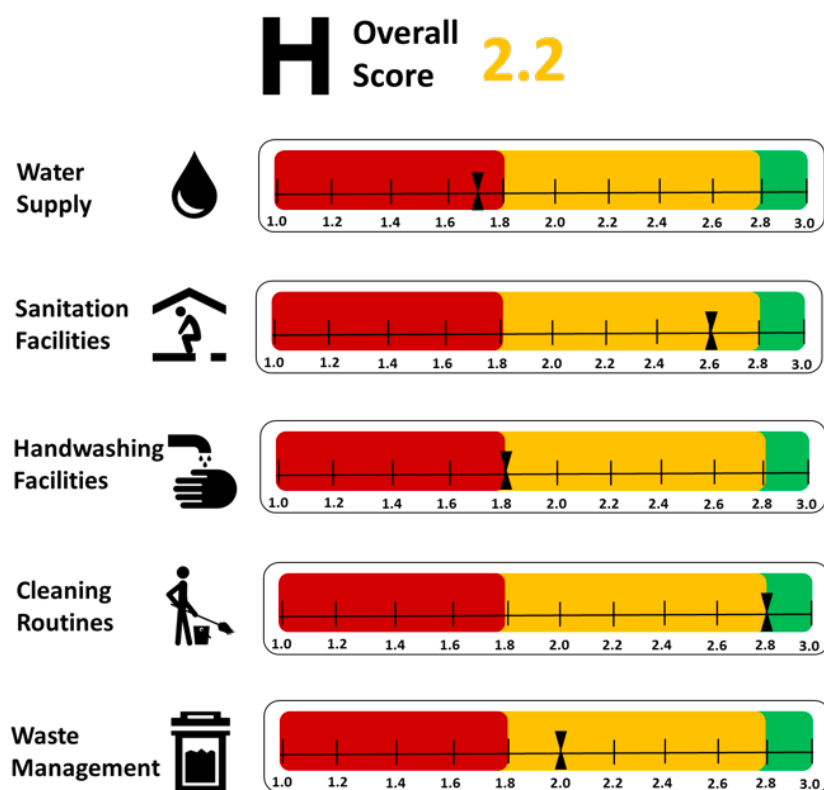
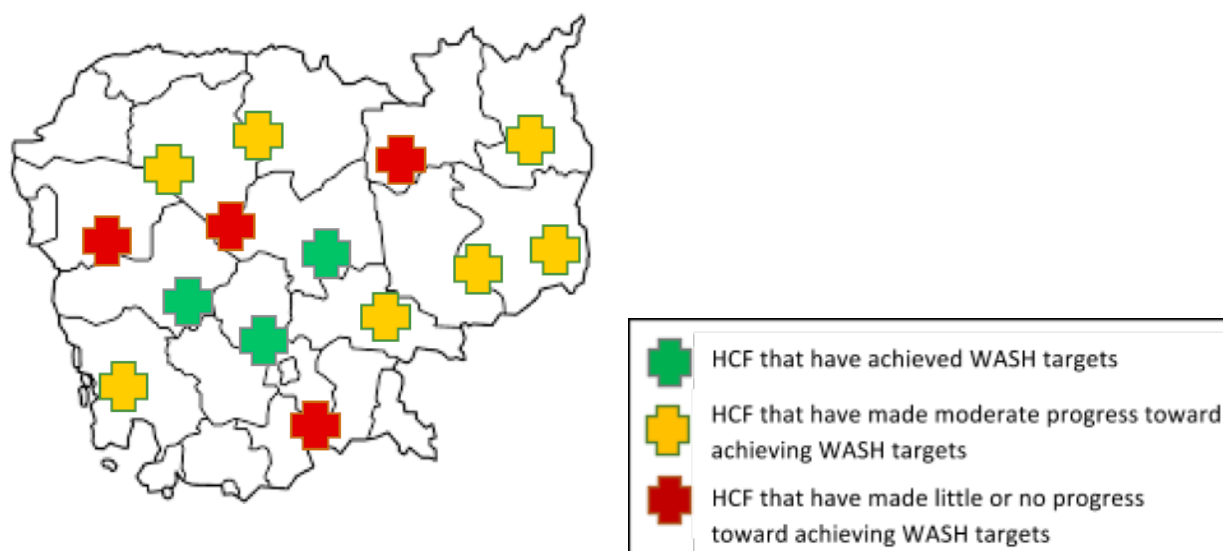


FIGURE 7: Sample Mapping of WASH Conditions in HCF



2.2 Mobile Data Collection Recommendations and Policies

- Charge your phone to 100% before heading into the field.
- If possible, carry an extra battery pack or phone charger in case you run low on battery power.
- Do not use devices for anything other than data collection—using other apps such as email, internet, and games can slow the phone down so that you will be unable to collect data. Your use on this device (including internet searches) is visible to program administrators.
- If you want to go back and edit the forms, make sure you don't finalize the forms. Instead, save as incomplete. Once forms have been finalized, you cannot make changes – they will be uploaded the next time you sync your mobile device.
- Follow any additional policies as set by the group conducting the assessment.

2.3 Frequently Asked Question

How was the WASHCon tool developed?

WASHCon was developed by CGSW's extensive experience evaluating WASH in HCFs. The tool pulls from many resources from WHO's Essential Environmental Health Standards in Health Care (2008) and the proposed indicators for the 2015 Sustainable Development Goals (SDGs). In addition, WASH-related questions and observations from several large-scale hospital assessments were adopted for use in WASHCon. These assessments include WHO's Service Availability and Readiness Assessment (SARA), USAID's Service Provision Assessment (SPA), and World Bank's Service Delivery Indicators (SDI).

What are the five main WASHCon domains?

WASHCon questions are associated with five domains and several subdomains, based on the JMP core and expanded indicators for WASH in HCF. **These five main domains include;** water supply, sanitation facilities, handwashing facilities, cleaning routines, and waste management.

What happens after the assessment is complete?

The assessment scores from the indicator questions are then averaged to determine the sub-domain scores, which are in turn averaged to calculate the domain score. The final HCF score is an average of the five domain scores. The scores are then color coded either **red**, **yellow** or **green** (like a "traffic light") to illustrate the status of conditions. **Red** (**low** level of WASH infrastructure and resources), **yellow** (**moderate** level of WASH infrastructure and resources), and **green** (**high** level of WASH infrastructure and resources).

CHAPTER 3: IMPLEMENTATION GUIDE

This chapter provides a reference on how to initiate and plan for the implementation of the WASHCon Assessment Tool. **It is intended for those who are organizing and overseeing the assessment.** Specifically, it will help you plan for:

- Personnel requirements
- Scope of work
- Stakeholder & HCF engagement
- Budgeting
- Obtaining ethical approval
- Water quality testing
- Selection and training of enumerators
- Summary of data collection forms
- Data collection and management

3.1 Personnel Requirements

Conducting an effective and well-organized assessment will require a variety of skillsets to form the WASHCon Implementation Team. These personnel fall into four categories, as outlined in Table 4.

TABLE 4: Description of Personnel Requirements

Personnel	# Needed	Description
Project Coordinator	1	<ul style="list-style-type: none"> - Responsible for all data collection activities, from the beginning to the end of the assessment. - Coordinates with the HCF, enumerators, laboratory, data manager and if applicable MOH and partner organizations to facilitate a smooth and effective implementation process. - Reports results from lab and uploads to server. - Requires an understanding of WASH and water quality. - Can also be an enumerator, lab technician or the data manager.
Enumerator	Team(s) of 2	<ul style="list-style-type: none"> - Responsible for collecting survey and observation data at HCF using a mobile device and uploading to the server. - May collect water samples and/or test for chlorine residual. - If evaluating many HCF, it will be most time-effective to have several teams of enumerators. - The Enumerator Guide can be found in Chapter 5 (pg. 27).

Laboratory Technician	1 - 2	<ul style="list-style-type: none"> - Responsible for testing water samples for <i>E. coli</i>. - May collect water samples and/or test for chlorine residual (if not done by enumerators). - May test samples at a centralized lab or at HCF, depending on testing methodology. - If evaluating many HCF, it will be most time-effective to work with multiple lab techs. - Water Quality Testing information can be found in Chapter 6 (pg. 31)
Data Manager	1	<ul style="list-style-type: none"> - Responsible for monitoring the uploaded data to ensure all surveys are completed per the agreed schedule. - May also analyze data if analyses beyond the traffic light scores are desired. - May provide technical support during implementation.

3.2 Stakeholder Engagement & Scope of Work

1. Engage and coordinate with Ministry of Health

If your group is not already working with the MOH, it is recommended you inform them of the assessment and encourage them to become involved. **The MOH's active engagement in the process, from planning to data analysis, may increase their ownership of the data as well as give credibility to your findings.** The 2015 WHO and UNICEF global landscape report on WASH in HCF highlighted that many countries and their respective MOH do not know the current conditions of WASH within their HCF. **When speaking with the MOH, you may want to:**

- Demonstrate the need for further research, project implementation, and advocacy related to WASH in HCF by sharing the 2015 SDGs, the WHO/UNICEF Status of WASH in HCF Report, and the WHO WASH in HCF Indicators.
- Review the purposes of the WASHCon tool and explain how this assessment will help to identify the extent to which HCF meet the indicators for basic WASH services.
- Highlight the potential uses of the data, including as a baseline and progress check towards the achievements of the SDGs.

2. Engage with other in-country organizations

It may not be feasible for one group to address all the WASH issues identified using the WASHCon tool. It is beneficial to identify additional stakeholders and create an engagement plan for before, during, and after data collection. This plan should clearly outline the roles and responsibilities of each stakeholder, including the MOH, in order to prevent duplication of efforts, create transparency, and provide a feedback mechanism for accountability.

3. Determine the size, location, and number of HCF

It is important to have agreement regarding the scope of the WASHCon assessment prior to

implementation. If not already determined, stakeholders should together decide whether the assessment will be national or regional and whether it will include all HCF in the geographic region or only a subset (or sample). If choosing a sample, consider the representativeness of the sample if achieving representativeness is important to your aim. Lastly, it will be important to decide which types of HCF (e.g. hospital, health center, health post) will be included in the assessment and their respective locations. A rough budget may be a determining factor in how many facilities can be included. See Section 3.4 for more information on budget considerations.

4. Engage local stakeholders

Once the HCF have been selected, stakeholders in the target area should be engaged. This may include the regional government, such as district health officials, and key stakeholders within the HCF, such as facility directors. Roles and responsibilities of each should be clearly stated in order to determine how each of the stakeholders will be involved with the assessment and subsequent data dissemination.

3.3 Water Quality Testing Considerations

At each HCF, three to eight water samples will be collected. At smaller HCF with few water access points, like at health centers, three samples may be sufficient to get an adequate assessment of the water quality. At larger HCF, like hospitals, it is recommended that you take samples from all of the surveyed wards as well as any drinking water taps, up to eight.

Water samples will be tested for: 1) *E. coli* and 2) chlorine residual, if the HCF has chlorination treatment or uses a municipal water source that could be chlorinated. If you are testing for both parameters, two separate water samples will be required. If the HCF are located in an area where other water contaminants (such as arsenic) are often found, it is recommended to test for additional contaminants. **Table 5 provides an overview of the water testing parameters and requirements to consider.**

To test for *E. coli*, you will need 100mL sterile containers. If the water is chlorinated, it is necessary to add sodium thiosulfate to halt the action of any chlorine in the water. Sterile and disposable containers such as Whirl-Pak bag with sodium thiosulfate have been used in previous work. The samples should be kept in a cooler on ice or in a refrigerator until they are tested. Analysis should ideally occur within six hours of sample collection for the most accurate results, though can occur up to 24 hours after sample collection.

There are many methods to test for *E. coli*. A method that quantifies the concentration of *E. coli* (rather than a presence/absence test) is strongly recommended. A quantifiable result is much more valuable, allowing you to gage the health risks and implications. Samples can be analyzed by a local laboratory or in a mobile field laboratory. If you are working with a local laboratory, costs and logistics of transporting the samples to a lab within the timeframe need to be considered. It is also important to choose a laboratory with a proven track record of quality work. If setting up a field laboratory, it may be necessary to have a consistent power source for the incubation of the samples.

It is also necessary to plan fieldwork around the 18- to 24-hour incubation period and allow sufficient time for analyzing samples.⁶

To test for chlorine residual, a second sample will be required and should **not** be collected in sodium thiosulfate bags. Testing for chlorine residual should occur at the same time as water sample collection, using portable chlorine test kits. The test should be completed as soon as possible to get the most accurate reading of chlorine, at the latest within two hours of sample collection.

Further details on water quality testing can be found in Chapter 6 (pg. 31).

TABLE 5: Water Quality Testing Parameters & Requirements

	<i>E. coli</i>	Chlorine Residual
Purpose	Indicator of fecal contamination	Indicator of chlorine for water treatment
Sampling Requirements	100mL sterile containers with Sodium thiosulfate ⁷	N/A
Testing Method Options	- Most probable number (MPN) - Membrane filtration - Colony Count *Presence/Absence not recommended	Portable chlorine test kit ⁸
Transport Requirements	In a cooler, on ice	N/A
Testing Timeframe	Ideal: As soon as possible (within 6 hours) Accurate: Up to 24 hours ⁹	Ideal: Immediately Accurate: Up to 2 hours

3.4 Budgeting for the Assessment

Once the size, location, and number of HCF have been agreed upon, the final budget can be determined. **Table 6 walks through the cost considerations for conducting the WASHCon Assessment.** If the assessment is being undertaken by multiple partners, consider how each may contribute to the budget.

⁶ Incubation differs depending on test and reagent used but generally requires at least 18 hours and up to 24 hours of incubation.

⁷ Whirl-pak bags with sodium thiosulfate tablets can be found here:

<https://us.vwr.com/store/product/4595708/whirl-pak-bags-with-sodium-thiosulfate-nasco>

⁸ In the past chlorine color wheels have been distributed and used for testing. They can be purchased here:

<http://www.hach.com/free-chlorine-color-disc-test-kit-model-cn-66f/product?id=7640219520>

⁹ Laboratory technicians should record the time at which the sample is collected, tested and the result is read.

TABLE 6: Costs of Conducting the WASHCon Assessment

Item		Requirement	Notes
1	Mobile Collection Devices	Android phone or tablet 1 device/enumerator	Does not need to be new
2	Internet or Mobile Data Service	In office or on device	Mobile devices will require internet connectivity to download survey forms & upload results
3	Staff Remuneration	Per Staff	For enumerators, allocate for 5-7 days of training + 0.5 day per HCF with 2 enumerators ¹⁰ For project coordinator and data manager, consider a rate for the project. For lab technicians, may consider per sample.
4	Per Diem	Per Staff	For enumerators, allocate for 5-7 days of training + 0.5 day per HCF with 2 enumerators. ⁶ If lab technicians collect the samples, include their days in the field.
5	Transportation & Lodging	Per Staff	Dependent on HCF locations. Consider whether water samples will be collected during the assessment or at another time.
6	Water Testing for Chlorine Residual	3 – 8 samples/facility, depending on HCF size	Only if water is chlorinated or is from a municipal water source
7	Water Testing for <i>E. coli</i>	3 – 8 samples/facility, depending on HCF size	Dependent on testing method
8	Ethical Review Board Application	1 per project	May not be required. Cost varies by country.
9	Translation of Forms	4 Forms	If the surveys will be conducted in another language, the survey forms need to be translated. ¹¹

¹⁰ This time estimation does not account for travel time between HCF.

¹¹ There are 4 data collection survey forms plus the water quality data collection form, a total of 5 forms. The water quality data collection form was not included in the translation count because it is assumed that it will not need to be translated.

3.5 Ethical Approval

Depending on the national ethics laws regarding human research, it may be required to obtain approval before beginning the assessment. **Check with the local institutional review board (IRB) about whether this assessment needs to undergo ethics review.** Typically, the assessment will not be considered human subjects research; however, a local IRB should make this determination. The IRB committee may only meet periodically, so be sure to allow plenty of time to apply and receive approval.

3.6 Engagement with Healthcare Facilities

It is important to make contact with the HCF in order to receive permission to conduct the assessment. **If the sites are public HCF,** it is recommended that initial contact is made through MOH or the regional health department. **If it is a private facility,** consider contacting and involving the HCF management team in the assessment plans. Explain to the HCF the purpose of the assessment, the scope of the data collection, what you are asking of the HCF staff, and the benefits of participation. The enumerator and laboratory personnel may be required to have a staff member escort them during the assessment.

3.7 Selection and Training of Enumerators

When selecting enumerators, **consider the criteria listed in Table 7.** If you are unable to find individuals with these kinds of experiences, it is possible to train less qualified individuals. However, you should allow an extra three or four days to cover gaps in background knowledge and run extra practice assessments. It is highly recommended that enumerators practice data collection at one to two test HCF prior to initiating the assessment. If you are including both health centers and hospitals in the assessment, it would be beneficial for them to experience both in advance.

TABLE 7: Selection Criteria for Enumerators

Recommended	Advantageous
<ul style="list-style-type: none"> - Previous experience with data collection - Prior knowledge of WASH 	<ul style="list-style-type: none"> - Previous experience in healthcare setting - Previous experience using a smartphone - Previous experience with mobile data collection

All enumerators, regardless of their previous experiences, should receive training on the WASHCon Assessment Tool prior to data collection. This training should be carried out by someone who is knowledgeable of WASH in HCF and the WASHCon tool. In this guide, this person is referred to as the Training Facilitator. **The training should include** a briefing about WASH concepts in HCF; an in-depth review of the data collection forms; training on water sample collection; and field-testing prior to the start of data collection. See Chapter 4 which includes training information (pg. 25) and

Appendix II, where you can find lesson plans (pg. 40).

3.8 Collection Form Revisions

Prior to implementation, all data collection forms, including those for water quality, should be reviewed in order to ensure that the questions and responses are applicable to the context. If the data collection forms will be conducted in a language other than English, it is also crucial that the documents are translated to ensure that the questions are being asked in the same way by enumerators. It is possible to alter the phrasing or wording within CommCare. It is strongly recommended that only language changes be made in CommCare, as changing other tool components can impact the validity of the scorecard and compromise the integrity and comparability of the dataset. **CGSW mHealth staff will assist the process of editing forms and incorporating translated versions into CommCare.**

3.9 Data Collection Plan

Once the resources and personnel are in order and the HCFs have been selected, the data collection plan can be determined. Consider the geographical location of the sites in relation to one another, the size of the HCF, and the time frame for collection. If a field laboratory will be used for water sample testing, it is important to factor in the logistics and timing for sample processing and incubation. **Table 8** below is a short example data collection plan where laboratory technicians are collecting water samples.

TABLE 8: Example Data Collection Plan

	Enumerator Plan	Laboratory Technician Plan
Day 1	Morning: Assess HCF 1 (HC) Afternoon: Assess HCF 2 (HC)	
Day 2	Morning: Assess HCF 3 (Hospital) Drive to new province	Morning: Collect samples from HCF 1-3 Drive back to lab Afternoon: Test samples
Day 3	Morning: Assess HCF 4 (HC) Afternoon: Assess HCF 5 (Hospital)	Morning: Collect samples from HCF 4-5 Drive back to lab Afternoon: Test samples
Day 4	Drive to further HCF Assess HCF 6 (HC)	
Day 5	Morning: Drive to new province Afternoon: Assess HCF 7 (Hospital)	Morning: Collect samples from HCF 6 Drive back to lab Afternoon: Test samples
Day 6		Morning: Collect samples from HCF 7 Drive back to lab Afternoon: Test samples

3.10 Data Management Plan

The data will be collected on mobile phones. Internet or mobile data service is necessary to first download the data collection forms and then to upload the completed survey forms to the server. It is not necessary to be connected to the Internet to actually use CommCare to collect the data, so long as you can connect prior and after. The coordinator should keep track of the dashboards, ensuring that the data have been uploaded from all of the sites. IT support should be available to troubleshoot any issues with the phones.

Additionally, the water quality data collection form will be completed only after the samples have finished the incubation step. Someone from the Implementation Team should be assigned to enter the data into the appropriate HCF's water quality form once it becomes available.

3.11 Frequently Asked Questions

What are some things to keep in mind while making personnel decisions?

Remember that creating an effective team will need a variety of skillsets. Additionally, certain individuals can take on multiple roles. For instance, a program coordinator could also be an enumerator or data manager.

Why is it important to engage outside organizations in our work?

It is recommended you inform the Ministry of Health of your assessment and encourage them to become involved. Their engagement can increase the sustainability of a project, and add credibility to the work that is being conducted. If done well, community involvement and partnership can bring new ideas, knowledge, and adds increased accountability.

What is the general purpose/process for collecting water quality samples?

At most HCF, three to eight water samples should be adequate to ascertain the water quality. You will be testing for *E. coli* and chlorine residual (if the HCF has chlorination treatment or uses a municipal water source that could be chlorinated).

E. coli is an indicator of fecal contamination, and must be collected in 100mL sterile containers with Sodium thiosulfate. There are several quantitative methods that can be used to test for *E. coli*. However, presence/absence tests are not recommended. Transportation must be carried out quickly and temperatures must be controlled by use of a cooler or ice. Testing should ideally be done within 6 hours, but must be completed within 24 hours maximum.

Chlorine residual is used as an indicator of chlorine treatment. These should **not** be collected in sodium thiosulfate bags. Testing for chlorine residual should be done using portable chlorine test kits. The samples do not need to be on ice or cooled. Testing should be done immediately, or within 2 hours maximum.

What do we need to ensure before starting an assessment?

Depending on the national ethics laws regarding human research, you may need to obtain approval before beginning the assessment. Check with the local institutional review board (IRB) about whether this assessment needs to undergo ethics review. Additionally, it is also important to make contact with the HCF to receive permission before carrying out an assessment. Explain to the HCF the purpose of the assessment, the scope of the data collection, what you are asking of the HCF staff, and the benefits of participation.

What should I think about when recruiting enumerators?

If possible it's ideal to find candidates with previous data collection experience and prior WASH knowledge. However, if you're unable to find individuals with these prior experiences remember that all enumerators should receive training on the WASHCon Assessment Tool prior to data collection.

CHAPTER 4: TRAINING MANUAL FOR FACILITATORS

Note for Training Facilitators

This chapter serves as a guide for training facilitators who will be educating on the use of the WASH Conditions Assessment Tool (WASHCon). WASHCon was developed by the Center for Global Safe Water, Sanitation, and Hygiene at Emory University (CGSW). It aims to:

1. Develop a comprehensive overview of the status of WASH conditions, infrastructure and resources in a given HCF.
2. Provide real-time data to inform and prioritize programmatic activities to improve WASH in HCF.
3. Contribute to the evidence base for advocacy and action in the area of WASH in HCF.

You can learn more about this tool by reviewing this entire Implementation Toolkit.

4.1 Purpose of Training

There are two purposes of the WASHCon training, which will be delivered in two parts. The first is to introduce the Implementation Team and additional stakeholders to WASH in HCF, leading a discussion on how the data collected may be best utilized in the local context. **Training Part I will take one day.**

The second purpose is to orient the enumerators on the WASHCon Assessment Tool. **Training Part II will require approximately three days with experienced enumerators.** An additional one to two days should be allocated when working with enumerators who have not used mobile devices for data collection or who have little previous knowledge of WASH and HCF. Sample lesson plans for both trainings can be found in Appendix II.

During training, it is strongly recommended that the enumerators practice data collection at test a HCF (not HCF that are to be a part of the assessment). If the assessment is done in both health centers and hospitals, the enumerators should practice in at least one of each to understand the differences. You should obtain permission prior to conducting the practice assessment.

4.2 Training Part I: Overview of WASH in HCF and WASHCon Assessment Tool

To encourage ownership and action related to the findings of the tool, it is recommended that the assessment be introduced with a one-day training for the Implementation Team along with additional stakeholders, such as HCF directors, MOH or regional health department staff, and NGO partners. This training should focus more generally on WASH in HCF and the local context. **Key topics to discuss within the training include:**

1. Introduction to WASH in HCF
2. Opportunities/Challenges for WASH in HCF

3. Overview of the WASHCon Assessment Tool
4. Summary of Plan for WASHCon Tool Use, Data Collection, and Results Dissemination
5. Data to Action: Possible Uses of the WASHCon Data
6. Next Steps

4.3 Training Part II: Enumerator Training

To orient the enumerators on WASHCon, approximately three days are needed to review the tool and practice data collection on mobile devices. The enumerators should be familiar with the questions of the tool and their organization prior to data collection. In order to keep the enumerators focused on the content and not distracted by technology, it is recommended you have the enumerators practice with the paper tool first.

Once the enumerators have a good understanding of the questions, training on the mobile version can be completed. If enumerators have already been trained with mobile data collection, this step may be unnecessary. For each section, you can reference the Enumerator Guide in Chapter 5 (pg. 27).

Key topics to discuss within the training include:

1. Review of WASHCon Assessment Tool and Data Collection in HCF
2. Review of the glossary of terms
3. Interview with the Director (annotated forms)
4. Interview Techniques
5. Administration Form (annotated forms)
6. Ward Observation Checklist (annotated forms)
7. Toilet Facility Observation Checklist (annotated forms)
8. Mobile Data Collection
9. Questions and Final Discussion
10. **Optional: Water Sampling**¹²

Each of the four data collection forms should first be practiced at the training site. For example, use the toilets at the facility to practice the Toilet Facility Observation Checklist. Then, once enumerators are familiar with the content, organization and components of the mobile tool, they can then move onto test HCF.

4.4 Frequently Asked Questions

How long does training typically take?

Training usually lasts around 4 days. However, this is flexible depending on training requirements and needs to adequately prepare your stakeholders and enumerators. The training is delivered in

¹² Include in training if the enumerators will be collecting *E. coli* or chlorine residual samples

two parts. **The first part** will take a day and is designed to introduce the Implementation Team and additional stakeholders to WASH in HCF, leading a discussion on how the data collected may be best utilized in the local context. **The second part** will take about three days with experienced enumerators, and is focused on training your enumerators on using the WASHCon Assessment tool and mobile data collection.

What are the major topics to be covered in the four-day training?

Part I will give an overview of the WASHCon Assessment Tool to stakeholders and enumerators, and should touch upon the following topics:

7. Introduction to WASH in HCF
8. Opportunities/Challenges for WASH in HCF
9. Overview of the WASHCon Assessment Tool
10. Summary of Plan for WASHCon Tool Use, Data Collection, and Results Dissemination
11. Data to Action: Possible Uses of the WASHCon Data
12. Next Steps

Part II Enumerator training will cover these major topics:

11. Review of WASHCon Assessment Tool and Data Collection in HCF
12. Review of the glossary of terms
13. Interview with the Director (annotated forms)
14. Interview Techniques
15. Administration Form (annotated forms)
16. Ward Observation Checklist (annotated forms)
17. Toilet Facility Observation Checklist (annotated forms)
18. Mobile Data Collection
19. Questions and Final Discussion
20. **Optional: Water Sampling**

CHAPTER 5: ENUMERATOR GUIDE

This section guides enumerators through the process of efficient and successful data collection using the WASHCon Assessment Tool. The tool evaluates **WASH conditions that fall into five domains:** water supply, sanitation facilities, handwashing facilities, cleaning routines, and waste management. The questions and domains are based off the JMP's WASH in HCF monitoring indicators. The tool is comprised of four on-site data collection surveys as well as a water quality assessment to be completed after water quality testing.¹³ **The tool is broken down into the following sections, each referred to as a survey:**

1. Interview with the HCF director
2. Management form
3. Administrative data form
4. Ward observation checklist
5. Toilet facility observation checklist
6. Sanitary inspection form
7. Water quality assessment¹⁴

The length of time required to conduct the survey varies by size of the facility. **Health centers take less than two hours per site to complete while larger hospitals will require approximately four hours.** In both cases, it is recommended that you conduct the assessment with two enumerators, though it can be done with one.

The assessment is conducted on a mobile device, with separate sections for each survey so that enumerator teams may conduct different sections of the assessment at the same facility simultaneously. **It is suggested that both enumerators interview the director, but then they may divide the assessment and complete the remaining sections for efficiency.** See Appendix III on mobile data collection (pg. 43).

In order to obtain accurate water quality data, water samples should be collected at the time of visit or as soon as possible following survey data collection, either by an enumerator or a contracted local laboratory technician. **A total of three to eight water samples should be collected from key wards and tested for *E. coli*.** For sites with chlorine treatment, and chlorine residual should also be measured. Chapter 6 provides further information on water testing (pg. 31).

5.1 Pre-Assessment Guidelines

The following are guidelines that can help in using the tool effectively.

1. Thoroughly read each section of the surveys to understand the meaning of the questions and become familiar with questions and responses.

¹³ There are a total of five survey forms.

¹⁴ This assessment may be done by a laboratory technician. This role will be determined and assigned by the project coordinator.

2. Ensure you have a translated version of the surveys if necessary, including the glossary. Compare the English version to the translated and discuss the terminology with your team.
3. Obtain the contact information of the HCF and confirm your field visit prior to departure.
4. Ensure all logistics and equipment required for the field visit are in place prior to departure.

5.2 Arrival at a Healthcare Facility

The enumerator should be formally introduced to the director of the HCF and obtain verbal consent before proceeding with data collection. In addition, permission should be sought before the enumerator moves through the wards to conduct observations and collect water samples. It may be helpful for the administrator to assign a staff member to lead the enumerators around the HCF. See Appendix V for a **checklist for what should be completed during the site visit (pg. 52).**

The following are guidelines related to each section of the WASHCon tool assessment:

1. Follow the instructions in each section carefully. Use the annotated surveys found in Appendix V to guide surveys and observations, as needed.
2. Ask questions as they are written and avoid leading the respondent to select a particular answer
3. Listen attentively to the respondent.
4. Give respondents adequate time to respond to the questions. Respondents may be shy about answering or may need some time to decide what to say. Each time you ask a question, give them at least 10 seconds before prompting them. Once you have asked the question, silently count to 10 before you speak again.
5. Avoid spending too much time per question. Respondents may want to provide additional information that is not relevant to the survey. It is your task to gently steer them back to survey questions.
6. Should the respondent require clarification, the enumerator may rephrase the question slightly to elicit an accurate response.

5.3 Interview with the Director

The first section of the WASHCon Assessment is an interview with the director or his/her designee. The survey is comprised of modules on electricity, water supply, water treatment, hygiene, sanitation, and waste management. The annotated interview with the director form is found in Appendix V and provides more detail on each question and the set of responses (pg. 53).

Before beginning the director assessment:

1. Introduce yourself and explain the purpose of the WASHCon assessment.

2. Describe the various sections of the WASHCon tool, the areas of the facility you will need to assess during your visit and when/where water sampling will occur.
3. Explain that the assessment is conducted on a mobile device.
4. Ensure the director that his/her responses will only be used to better understand the current condition of WASH in the facility with the intention of improving these conditions through targeted action. There is no intent of reprimanding the director or the HCF for falling short. If your team received ethical approval for the assessment, acknowledge this approval.
5. Finally, ask the director if s/he is willing to be interviewed. Once receiving verbal consent, you may proceed with the interview.

The director should answer each of the questions to the best of his or her ability. If the director does not know the answer, s/he should be prompted to give their best guess or identify someone who may be able to answer the question. For some designated questions, the enumerator may select the response option “don’t know.”

5.4 Management Form

This form is a continuation of the director’s interview, asking questions related to the management of the HCF. Many of the questions have been taken directly from the WASH FIT tool, in order to better integrate the findings of the WASHCon assessment with the prioritization of WASH FIT. **Refer to the annotated management form found in Appendix V (pg x).**

5.5 Administrative Data Form

This section is completed using information gathered from HCF administrative records and through survey questions. After interviewing the director, you should provide him/her with a list of the information from the data records required. The director may assign an administrative staff member to collect the various data records. Questions related to HCF services and populations served are included in this form.

In addition to the data records section, there are is a short survey related to cleaning routines. It is possible the director will know the answer to these questions. If not, it is recommended to ask the head cleaner or the head nurse.

To save time, it may be best to print out the questions in the local language and leave it with the HCF director so s/he can gather the information while you visit the wards and toilets to conduct the observation checklists. You can return after observations to complete the data records section.

Refer to the annotated background and administrative data form found in Appendix V for more information about the questions and response options (pg. 68).

5.6 Ward Observation Checklist

This section requires you to visit up to five key wards and the kitchen and record your observations. The ward observation checklist differs from the surveys in that it is filled out multiple times at each HCF. These areas of the HCF include:

1. Surgical theatre/post-surgery ward
2. Labor & delivery/maternity ward
3. Pediatric (children's) ward
4. Inpatient ward
5. Outpatient ward
6. Kitchen

Not all HCF will have these six areas, especially if it is a smaller HCF like a health center or health post. If the HCF does not have a particular ward, you do not need to complete a checklist for it. If the HCF is missing some of these wards but has others of interest to your group, such as emergency or ICU, you may also select "other".

Should the HCF have more than one of any of the wards listed, one should be chosen at random to be observed. Additional wards may be observed by selecting "other" and filling in the name of the ward observed. The ward observation checklist includes information on IPC supplies, handwashing stations, and general hygiene conditions in each ward. **Refer to the annotated ward observation checklists found in Appendix V (pg. 73).**

5.7 Toilet Facility Observation Checklist

You will visit all toilets facilities on the HCF premises. Like the ward observation checklist, the toilet facility observation checklist is also filled out multiple times at each HCF. The observation checklist includes questions regarding the type of toilet, the type of user (gender, patient vs. staff), the number and functionality of toilets, and toilet cleanliness and accessibility (including accessibility for persons with disabilities). The checklist also includes observations on the availability of hand washing facilities and menstrual hygiene management. **It is imperative that the enumerator is familiar with the various definitions of terms to ensure consistency of results between enumerators.** Refer to the annotated toilet facility observation checklist found in Appendix V (pg. 75).

5.8 Sanitary Inspection Form

This section requires you to do a walk around the HCF premises, making observations of the environmental conditions. This form is filled out only once per HCF. Refer to the annotated sanitary inspection form found in Appendix V (pg. x)

5.9 Water Quality Assessment Form

The water quality testing should be conducted at the time of the WASHCon tool surveys or as soon as possible following data collection. **This assessment requires the collection of water samples from key wards of the HCF to test for *E. coli* and chlorine residual.** In addition, if the HCF or its adjoining community has a known history of water contamination not related to the tests recommended above, additional tests may need to be conducted. **Refer to:** Section 3.3 for more information regarding planning for testing (pg. 18), Chapter 6 for instructions on water sampling and testing (pg. 31), and Appendix V for the water quality form (pg. 81).

5.10 Frequently Asked Questions

What are your recommendation for successful data collection using the WASHCon Assessment Tool?

Spend adequate time training your enumerators through the process of completing all of the surveys that make up the WASHCon tool. Make sure that all your enumerators have worked through the **five domains and associated surveys**.

1. Interview with the HCF director
2. Management form
3. Administrative data form
4. Ward observation checklist
5. Toilet facility observation checklist
6. Sanitary inspection form
7. Water quality assessment¹⁵

How long does it take to typically complete a WASHCon Assessment?

We recommend that each HCF is visited by two enumerators for efficiency. The length of time required to conduct the survey varies by size of the facility, but typically ranges from 2 to 4 hours to complete.

¹⁵ This assessment may be done by a laboratory technician. This role will be determined and assigned by the project coordinator.

CHAPTER 6: WATER QUALITY TESTING

Water quality refers to the **chemical, physical and biological characteristics of water**. In particular, we are interested in those characteristics that may have an impact on health. At a HCF, sick patients may have weaker immune systems and therefore may be more vulnerable to bacteria and viruses like those that can be found in water. Meanwhile staff, patients and caregivers require access to safe drinking water while at the HCF. Thus, **poor water quality may have large health implications for those who work at and visit the HCF.**

For the WASHCon Assessment, you will test for one to two parameters: *E. coli* and/or chlorine residual.

- ***E. coli*** is an indicator of fecal contamination, and testing the water for this indicator determines if water has come into contact with human or animal feces. Water can become contaminated in many ways: from the source, from breaks in the pipe network and from large and small storage tanks, such as buckets used to store water in the wards. Testing for *E. coli* at the Point of Use is the best way to determine if the water within the HCF premises is safe. When water quality is quantifiably tested, *E. coli* results will determine the level of risk (high, medium or low) associated with causing diarrheal disease.
- **Chlorine residual** is the amount of chlorine in the water after initial chlorine application. In appropriate dosage, chlorine kills bacteria, protecting the water from the point of treatment to the point of consumption. Chlorine residual will only be tested if the HCF uses municipal water or if it treats water with chlorine onsite.

In addition to *E. coli* and chlorine residual, it may be beneficial to test for additional contaminants or known prevalent contaminants that have negative health effects, such as arsenic, iron or fluoride. These chemical contaminants may be found in boreholes or well water. You should contact a local laboratory specializing in water quality testing or the governing body responsible for water to determine if other contaminants should be considered in your assessment, based on the local context. These will not be included in your WASHCon scores, but can provide valuable information as you determine improvements at the HCF.

This section covers **recommendations for *E. coli* and chlorine residual testing, including:**

- In-country laboratory selection,
- Testing methods,
- Sample collection, and
- Results interpretation.

6.1 Selection of a Suitable Laboratory

If you are unable to test water samples for *E. coli* or chlorine residual, it is important to identify a reputable laboratory that follows standard protocols and quality control measures. We recommend identifying reputable laboratory by interviewing officials of a National or Municipal Water Authority,

a Standards Authority and/or a University. Additionally, it is advisable that you visit the laboratory and consider the following questions:

- 1. Does the laboratory routinely perform water testing? What method(s) do they use? Do they already use a media that is specific for *E. coli*?**
 - It is preferable to work with a laboratory that is set up to test water already.
 - Determine which methods they use and compare with the Figure X.
- 2. What methods do they use to test for chlorine residual?**
 - Chlorine testing can be performed by non-laboratory technicians, but it is useful to know if the laboratory already has supplies to do this kind of testing.
- 3. Does the laboratory have at least one incubator? Is there the ability to specify temperature? Is the incubator used for other purposes aside from *E. coli* testing that may require a different temperature setting?**
 - All recommended water-testing methods require an incubator that heats samples at a stable temperature.
- 4. Is there a backup power supply in case of a power outage?**
 - Power inconsistency is one of the major challenges with incubating samples in the field. Access to a backup power supply can significantly reduce these challenges.
- 5. If the laboratory does membrane filtration, do they have a method to sterilize the filtration equipment?**
 - If the equipment is not properly cleaned, it is possible to have contamination of samples.
- 6. Does the laboratory perform negative and positive controls with every set of tests to ensure their testing methods are clean and their equipment is working properly?**
 - In order to ensure the samples have been heated at the appropriate temperature and the reagent is active, a positive control is recommended. To ensure that testing methods did not contaminate the samples, a negative control is recommended. All reputable labs should perform negative and positive controls.
- 7. What kinds of quality assurance and quality control (QA/QC) measures are in place?**
 - Along with negative and positive controls, the laboratory should be able to...
 - The laboratory should also be able to show you their recordkeeping.
- 8. Is the laboratory environment clean? Do they sterilize the surfaces and regularly wash hands?**
 - A regular cleaning protocol and good handwashing practices speak to a hygienic and uncontaminated working environment.
- 9. How far is the laboratory from the HCF?**
 - If the laboratory is further than an hour's drive from the HCF, you will need to work out with the laboratory how they can process the samples as soon after collection as possible.
 - All *E. coli* samples need to be **processed and tested within 24 hours**, and preferably within six hours, for accurate results. It may be most expedient and cost-effective for the laboratory staff to visit the HCF themselves.

6.2 *E. coli* Testing Methods

Section 6.2 summarizes the various types of *E. coli* testing methods that are recommended. You should speak with the laboratory about the technical services they provide and compare with Figure X. It is preferable to use a method they are already familiar with. They may already have a supply chain for the required supplies.

To determine exactly how contaminated the water is and to determine the level of health risk, you will need to use a **quantitative *E. coli* testing method**. We recommend you or your identified laboratory use one of the three types of water testing that give you quantitative and semi quantitative results: most probable number, membrane filtration, and presence/absence with dilutions.

Figure X helps you to decide which testing method is best for your context. It details the requirements, costs, considerations and supply chain of twelve different products used in those three water-testing methods. All products listed are either approved by the U.S. EPA, included in the Standard Methods for the Examination of Water and Wastewater, or are an International Organization for Standardisation (ISO) standards.

All of the **testing options require that the samples be incubated at a controlled temperature for 16-24 hours**, depending on the reagent. In low resource settings, consistency of power can be a challenge. We recommend that you evaluate the power availability prior to the collection of samples and troubleshoot based on availability. See Appendix X for troubleshooting help.

6.3 Chlorine Testing Methods

There are multiple methods for chlorine residual testing. These include swimming pool testing kits, color wheels and digital colorimeters.¹⁶ Chlorine testing should be completed based on the selected method and processed immediately. Samples that are processed more than two hours after collection will no longer have accurate results.

Chlorine residual testing is only recommended if the HCF source of water is from a municipal source or is treated onsite with chlorine. It is recommended that the water be tested right where the sample is collected. The water sample may be collected directly from the tap into the testing container (tube or cup) or into a transfer container such as a Whirl-Pak bag. **Do not use a sodium thiosulfate tablet** for chlorine residual samples, as this will inactivate the chlorine.

6.4 Water Sample Collection

Before starting water sample collection, speak with the director at the HCF. Explain what you will be testing the samples for and where you'd like to take the samples. Your team should decide which of the wards to sample from prior to beginning data collection. **It is recommended that you take samples from the same wards as those in which you completed the Ward Observation Checklist.** You may additionally want to sample from drinking water taps or the water source.

Water samples being tested for *E. coli* **must be collected and stored in sterile containers, such as Whirl-Pak bags with sodium thiosulfate.** The samples need to be stored in a cooler on ice or in a refrigerator until they are analyzed. **All *E. coli* samples need to be tested within 24 hours, preferably within six hours, for accurate results.** *E. coli* samples should be handled with extreme care to avoid external contamination.

To systematize your water quality sampling, provide each water sample collected with a unique sample ID. Consider a three- to four-digit sampling ID, numbering each of the HCF and then add a letter alphabetically for each water sample (XX-A, XX-B).

¹⁶ http://www.cdc.gov/safewater/publications_pages/chlorineresidual.pdf

If collecting a water sample from a tap:

1. Label a 100ml sterile container with a predetermined sample ID. If you are sampling chlorinated water for *E. coli* testing, the container should have a sodium thiosulfate tablet inside.
2. Turn the tap on and let the water run freely for about 30 seconds.
3. After 30 seconds, unscrew or open the container carefully, without touching the inside of the cap or the mouth of the container.
4. Fill the container carefully to slightly above the 100mL mark.
5. Close or seal the sampling container and carefully apply the cap. Make sure that the container is completely closed and not leaking (turn it upside down to check).
6. Place the container in the ice chest with frozen ice packs, ensuring the label is still legible.
7. Record the time, date, sample ID, sample location and any notes on the Water Quality Record Log.
8. Ensure sample is processed as soon as possible, no later than 24 hours after sampling collection.

If sampling a water sample from a bucket, cistern or other water container without a tap:

1. Label a 100ml sterile container with a predetermined sample ID. If you are sampling chlorinated water for *E. coli* testing, the container should have a sodium thiosulfate tablet inside.
2. Dip the sterile container into the water source to collect water, filling slightly above the 100mL mark.
3. Place the container into the ice chest with frozen ice packs, ensuring the label is still legible.
4. Record the time, date, sample ID, sample location and any notes on the Water Quality Record Log.
5. Ensure sample is processed as soon as possible, no later than 24 hours after sampling collection.

Upon completion of water quality testing, be sure the laboratory technician records the water quality results in the Water Quality Record Forms located in Appendix VI (pg. 83).

6.5 Troubleshooting Recommendations

Power inconsistency:

- Power adapters and surge protectors
- Car charging
- Generator running for constant power
- Fuel purchasing for car or generator, depending on method
- Breadwarming

IDEXX:

- Body temperature warming for IDEXX
- Ironing (need full protocol)

- Sealer fuse popping and repairing
- Switching the sealer on and off to jolt the tray through the sealer if lacking voltage.
- Wearing rubber sneakers when processing to avoid being shocked.

Supply Chain:

- Ice
- UV lights

6.6 Water Quality Testing Mobile Form

After laboratory technicians have tested the water samples and recorded the results in the Water Quality Record Form, the **project coordinator should fill out the Water Quality Survey on the mobile device**. In this section, the results are reported as a percentage meeting standards. See Appendix V for the annotated Water Quality Form (pg. 81).

6.7 Water Quality Results Interpretation

Figure X indicates the four risk categories related to *E. coli* based on WHO's Guidelines for Drinking Water Quality¹⁷. Water with < 1 *E. coli* CFU or MPN per 100mL is considered safe. Consuming water between 1 and 10 CFU or MPN per 100mL is associated with an intermediate risk of an adverse health outcome. Water between 11 and 100 CFU or MPN per 100mL carries a high risk of an adverse health outcome. Finally, highly contaminated water above 100+ CFU or MPN per 100mL has a very high risk and is categorized as unsafe.

Figure X: *E. coli* Risk Categories

Health Risk Categories	<i>E. coli</i> CFU or MPN per 100mL
Safe	< 1
Intermediate Risk/Probably Safe	1 – 10
High Risk/Probably Unsafe	>10 – 100
Very High Risk/Unsafe	>100

¹⁷ WHO. (2011). *Guidelines for Drinking-Water Quality*. World Health Organization, Geneva.

6.8 Frequently Asked Questions

Can *E. coli* samples be collected without using sodium thiosulfate tablets?

It is important that the sampling container for *E. coli* contains sodium thiosulfate which removes residual chlorine from the sample and allows for an accurate estimate.

What is the timeframe for processing *E. coli* samples?

For accurate results *E. coli* samples should ideally be processed/incubated within 6 hours of being sampled and the results read within 24 hours.

Can the same Whirl-Pak bags that contain sodium thiosulfate be used for chlorine samples?

No. Samples being tested for residual chlorine cannot come in contact with **sodium thiosulfate**, as this will inactivate the chlorine.

What if a chlorine residual sample wasn't processed within 2 hours, can we still use the results?

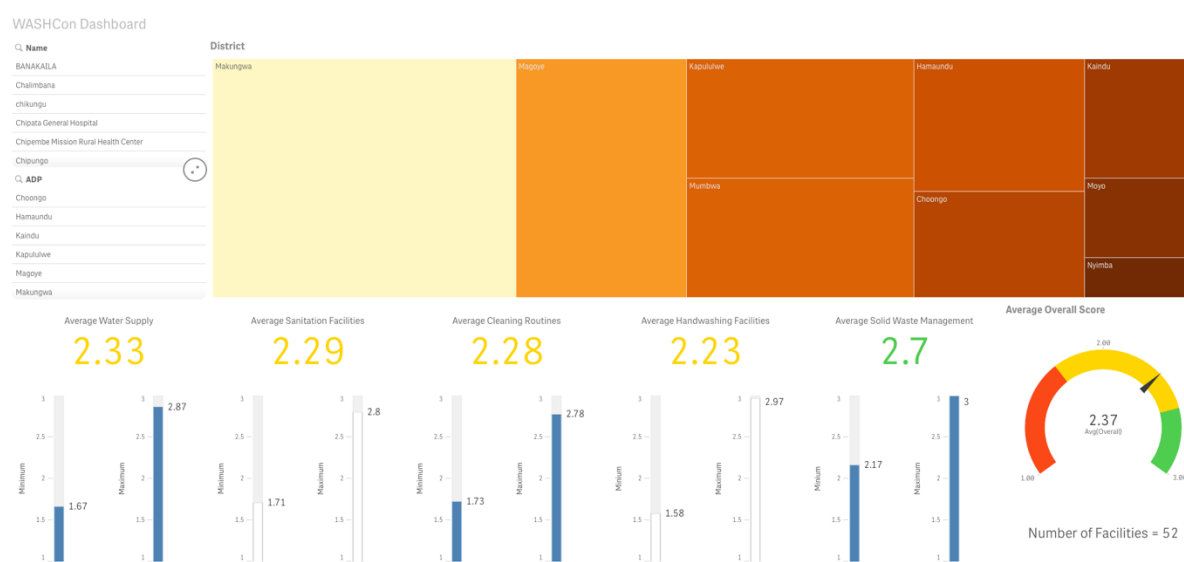
No. Chlorine residual samples should be processed immediately or within 2 hours. Samples that are processed more than two hours after collection will no longer have accurate results, and cannot be reported.

CHAPTER 7: FROM DATA TO ACTION - HOW TO USE WASHCON FINDINGS

7.1 Overview of Data Collected

The purpose of WASHCon is to give a broad overview of the current WASH conditions across a number of HCFs. The straightforward and accessible dashboard allows users to toggle between HCFs to view overall traffic light scores and scores per domain. Additional tabs provide more detailed information about the sub-domain scores each facility received. See Figure 8 below with an example of the dashboard.

FIGURE 8: Sample WASHCon Dashboard



Summary statistics compare the facilities assessed by geographic region and facility size, based on overall traffic light scores and indicator scores, including range and mean. Attention is given to key issues in WASH in HCF, such as menstrual hygiene management and disability access. Additional analysis on specific sub-indicators may also be done (i.e. analyzing toilet accessibility data, comparing staff access to patient access).

The data collected by WASHCon can be used in two ways:

1. Baseline Survey

The data compiled from the WASHCon provide a broad overview of the status of WASH conditions in HCF.

Using these data, stakeholders are able to prioritize activities, so that there is a targeted approach to the improvement of WASH conditions. Interventions to improve WASH in HCF may be misguided if there is not a systematic assessment of the WASH conditions and identification of the most pressing needs. WASHCon allows users to manipulate the data to

identify the greatest needs and therefore allocate resources accordingly. The data may be viewed in several ways:

- **By indicator:** After looking at all HCF and comparing the mean scores for each indicator, implementers may select the indicator(s) most in need of improvement to invest resources.
- **By facility type:** In comparing the data by different levels of care, like hospitals versus health centers, implementers may decide different courses of action.
- **By location:** By viewing the data by province or comparing rural to urban HCF, implementers may choose to focus on the geographical location most in need of improvement.
- **By percentile or traffic light score:** Implementers may choose to focus on all facilities with red scores or all facilities in the bottom 25th percentile.

2. Progress Check

Once a baseline assessment has been conducted, future assessments can track the progress of the JMP's WASH in HCF indicators overtime on a macro-level. For organizations planning to implement programs, a regular annual assessment can act as a progress check towards program goals as well as the SDGs.

7.2 Next Steps

WASHCon provides the overview of current conditions within the evaluated HCFs and allows implementing groups to determine how to best allocate resources. The WASHCon Assessment Tool outlines which HCFs have the poorest WASH conditions, however, the tool does not determine which infrastructure improvements are needed to improve the WASH conditions at each facility.

One option for guiding the improvements within the facility is WHO's WASH Facility Improvement Tool, known as "WASH FIT." It is a facility needs assessment tool that can be paired with WASHCon for groups interested in facility-level improvement. **Initially, WASHCon is used to collect a broad overview of WASH conditions and identify levels of WASH service across five domains as well as assess progress towards SDG #6. If facility-level improvement is indicated as the next step, WASH FIT can be used at the facility level to determine how to best plan for those improvements.**

WASH FIT is described as "a field guide to improving WASH in health care facilities in low- and middle-income countries as part of broader quality of care improvements" by providing "a framework to assess, prioritize and implement a plan to improve WASH services." The WASH FIT is a self-assessment for HCF, designed to be completed by HCF leadership, staff, and community stakeholders. It uses a step-wise, risk assessment approach to HCF improvement. Due to the more nuanced and qualitative nature of the WASH FIT, it is less amenable to implementation on a large scale or for making comparisons across HCF. However, it serves an important role at the HCF-level.

The following example highlights how a group might use the WASHCon and the WASH FIT tool.

An organization wants to focus on one WASH domain throughout their target areas. Using the WASHCon data collected by the Ministry of Health, it determines that sanitation is the indicator most in need of improvement across the country. The organization works with each facility to develop a WASH FIT team and conduct an abbreviated WASH FIT assessment, focusing only on the sanitation section. Through this two-step assessment, the organization both knows the status of all of their facilities broadly and the particular status of sanitation in order to develop an implementation plan. WASH FIT helps to guide the facility through the process of prioritizing needs and planning for implementation and follow up evaluation.

7.3 Frequently Asked Questions

How is the WASHCon data/findings useful?

WASHCon provides a quick overview of the current conditions within the evaluated HCF and allows implementing groups to determine how to best allocate resources. The WASHCon Assessment Tool outlines which HCF have the poorest WASH conditions, and in what domains improvements can be made.

Are there any limitations?

The tool does not determine which infrastructure improvements are needed to improve the WASH conditions at each facility, it only offers indications of where improvements need to be made.

APPENDIX I: GLOSSARY OF TERMS

Aseptic techniques	Set of specific laboratory practices and procedures performed under carefully controlled conditions with the goal of minimizing contamination by other microorganisms.
Chlorination	A method of water treatment in which chlorine is added to the water to disinfect it.
Clinical Staff	Any staff member who is involved with the direct treatment of patients. May include: doctors, nurses, midwives, physician/medical assistants, dentists, physical therapists.
Distillation	A process which involves boiling the water and then condensing the steam into a clean container to remove impurities. Distillation equipment is often found in healthcare facility laboratories.
Director	The head of or person responsible for managing the healthcare facility.
Limited/Reduced mobility	A toilet is considered accessible to persons with limited mobility if it can be accessed without steps or stairs, has handrails for support, has a door that is at least 80cm wide and has a door handle and seat are within reach of people using wheelchairs or crutches/sticks.
Electric autoclave	A pressure chamber used to sterilize equipment and supplies by subjecting them to high pressure saturated steam at 121 °C (249°F) for around 15–20 minutes using electric power.
Electric boiler/steamer	A type of boiler used to sterilize equipment where the steam is generated using electricity, rather than through the combustion of a fuel source.
Electric dry heat sterilizer	Utilizes hot air that is free from water vapor and where this moisture plays a minimal or no role in the process of sterilization, using electric power.
Environmental disinfectant	A cleaning agent used to disinfect healthcare facility surfaces, such as chlorine or alcohol.
General waste	Non-infectious waste materials such as polythene bags and kitchen scraps.
Filtration	Removes impurities from water by means of a fine physical barrier; may be a chemical or a biological process.
Functionality	A handwashing station, toilet or shower may be considered functional if it can be used for its designed purpose during the observation (e.g. a sink is considered a functional handwashing station if it has enough water flowing from the tap to wash hands).

Hand hygiene facility	A facility with either 1) water access and place for water disposal or 2) alcohol hand sanitizer. This may include a sink, bucket, or jerry can. A functional hand hygiene facility without hand sanitizer must have water and soap accessible at the time of observation.
Hygiene	Conditions and practices that help to maintain health and prevent the spread of diseases, especially through cleanliness.
Implementation team	Implementation team refers to the project coordinator and enumerators
Improved water source	A water source that, by nature of its construction, is adequately protected from outside contamination, in particular fecal matter. It is expected to provide water of better quality and with greater convenience than traditional “unimproved” sources. Examples include: unprotected dug well, surface water, tanker trunk.
Incinerator	A furnace or apparatus for burning waste material at high temperatures until it is reduced to ash. In a healthcare setting, it is used to safely dispose of infectious waste, including sharps. Two chamber incinerators can reach temperatures of 850-1000°C while brick incinerators are lower.
Infectious waste	Waste material that contains viable (live) microorganisms, or toxins which may cause disease in humans. Infectious waste that is not in sharp form such as: bandages, clothing, plastics, or other items contaminated with human blood or other potentially infectious materials.
Inpatient	A patient who stays at the health facility full time, including at night, while receiving treatment.
Menstrual Hygiene Management	Separate sanitation facilities for females that provide privacy; soap, water and space for washing hands, private parts and clothes; and places for changing and disposing of materials used for managing menstruation.
Non-Clinical Staff	Staff members who work at the health facility is a capacity which does not involve the treatment of patients. May include: administrative staff, laboratory staff, cleaners, maintenance staff, drivers, security guards, cooks.
Outpatient	A patient who visits a health facility for treatment, without staying overnight.
Sanitation	The provision of facilities and services for the safe disposal of human urine and feces.
Sharps waste	Waste contaminated with human blood or other potentially infectious materials with the potential to penetrate skin if not properly handled, such as: syringes, needles and broken glass.

WASH

A group of interrelated public health issues that are of particular interest to international development programs and is concerned with safe water, sanitation and hygiene.

APPENDIX II: FACILITATOR LESSON PLANS & DOCUMENTS

Training Part I - Introduction to WASH in HCF

Activity	Description	Time
Welcome & Individual Introductions	Welcome group to the training. Review the objectives of the training. Allow everyone a chance to introduce themselves and their role in the partnership.	20 min
	Icebreaker with a big group.	15-30 min
Introduction to WASH in HCF	<i>Discussion:</i> What do you think of when you hear “WASH in HCF”? What are examples of WASH resources and programs needed in HCF? How are WASH conditions and needs in HCF different from other settings, such as schools or communities?	20 min
	<i>Presentation:</i> Introduce topics included in WASH in HCF. Review the global WASH in HCF initiative and the justification for WHY WASH in HCF. Review JMP indicators and SDGs.	45 min
	<i>Discussion:</i> What previous experiences (personal or professional) do you have related to WASH programming or research in HCF?	10 min
Opportunities/Challenges for WASH in HCF	<p><i>Group Activity:</i> Break into smaller groups and create a list of the challenges and the opportunities for improving WASH in HCF in the local context. Have groups present their lists.</p> <ul style="list-style-type: none"> • Example of a challenge: Low prioritization of WASH/environmental health at the hospitals • Example of an opportunity: Existing national standards of infrastructure for HCF 	1 hour
Review of WASHCon	<i>Presentation:</i> Summarize the purpose, methodology, and structure of the tool. Highlight how the tool addresses the JMP indicators.	30 min
	<i>Presentation:</i> Walk through how the tool works, giving examples of questions, scoring and the dashboards.	30 min
	<i>Group Activity:</i> Using a few questions from the paper surveys, break the participants into groups of 2 and ask them to practice collecting data. Discuss how results could lead to programming and policy changes.	30 min
Summary of WASHCon Plan	<i>Presentation:</i> The project coordinator presents his/her data collection plans, including target area(s), number and type of facilities and general timeline.	15 min

Use of the Data	<p><i>Group Activity:</i> Break up into smaller groups to answer questions about the use of the findings. Discuss and record responses.</p> <ol style="list-style-type: none"> 1. How would you use the data? Should certain activities be prioritized? 2. Who should be consulted or have access to the data? 3. If the data is being shared, how can groups work together to use this data to improve WASH in HCF? 4. What policies/protocols/guidelines already exist that can guide the use of the data? 5. Are the policies/protocols/guidelines adequate to guide the use of the data? If not, what is needed? 6. What next steps are necessary after the data has been collected and analyzed? 	1 hour
Next Steps	<p><i>Group Discussion:</i> Come to a consensus as a group on what next steps are required. Clearly outline roles and responsibilities. Set a timeline for follow up on the results and dissemination of results.</p>	30 min
Questions & Comments	<p><i>Discussion:</i> Allow the group to ask questions and comment on the discussions and lessons from the day.</p>	15 min
Feedback	<p><i>Optional Activity:</i> If time permits, request the participants to fill out a sheet with feedback on the facilitation of the training.</p>	10 min
TOTAL TIME ALLOTTED		6.5 hours

Training Part II – Enumerator Training

Day One		
Activity	Description	Time
Introduction to WASHCon Tool and Data Collection in HCF	<i>Discussion:</i> Discuss objectives of the data collection, what to expect when collecting data in HCF and how to protect yourself. Review the process of data collection for WASHCon.	20 min
Glossary of Terms	<i>Read & Discuss:</i> Review the glossary term by term and discuss any confusion.	20 min
Data Collection Surveys	<i>Read & Discuss:</i> As a group, read through each of the annotated forms (Appendix V) in the order in which the collection is completed, carefully listing the reasons why the questions are asked and how the question relates to the overall score. Clarify any confusion over question meaning.	2 hours
Interview Techniques	<i>Presentation:</i> Review best practices for interviewing participants. Consider using organization-specific guidelines or reference the Enumerator Guide (pg. 26) for best practice recommendations for this tool.	20 min
Practice Data Collection at Training Site	<i>Group Activity:</i> In groups of 2 using the paper forms, ask the enumerators to practice interviewing other members of the Implementation Team who will not be collecting data or fellow enumerators. If the teams for the assessment have been decided, split into these groups.	2 hours
	<i>Group Activity:</i> In groups of 2, enumerators can also practice the Toilet Facility Observation Checklist with toilets at the training facility.	1 hour
Review of Day One	<i>Discussion:</i> Talk about the topics covered in the previous day's training and clarify any questions or concerns.	30 min
Day Two		
Activity	Description	Time
Mobile Data Collection ¹⁸	<i>Presentation:</i> Introduce mobile data collection, policies and procedures. Discuss what to do and not to do.	30 min
	<i>Individual Activity:</i> Pass out mobile devices and explain how they work. Allow the enumerators time in the classroom to play around with the tool to get oriented with the device and the data collection setup.	30 min
	<i>Group Activity:</i> In groups of 2 using the mobile devices, have the enumerators practice with the four main data collection surveys. Significant time should be spent on the interview.	

¹⁸ Do not begin mobile data collection until enumerators are comfortable with the survey content.

Water Quality Sampling	<i>Group Activity:</i> If enumerators are responsible for collecting water samples, have them practice collecting samples from the training site.	
Day Three		
Activity	Description	Time
Practice Data Collection at Test HCF	<i>Group Activity:</i> Travel of a local HCF not included in the assessment and practice all sections of the data collection. Bring the glossary of terms along to walk through ward and toilet checklists and ensure all enumerators can identify the items on the list. If the assessment is in both health centers and hospitals, practice in both, if possible.	
Questions and Final Discussion	<i>Discussion:</i> Gather group together to share questions as well as findings from today's data collection. Give them your contact information so if they have a question regarding the tool they can contact you directly.	

APPENDIX III: WASHCON MOBILE DATA COLLECTION OVERVIEW

The WASHCon Assessment Tool is built in **CommCare**, a mobile data collection application that runs on Android phones and tablets. The directions below were written specifically for a Nexus 5 device, but should be applicable for any device running Android. If any questions arise, please ldenny@emory.edu.

Android Basics

To turn on the phone

- Hold power button on right hand side of device until device powers on.

To turn off the phone

- Hold power button on left hand side of device until “Power Off” appears at the center of the screen. Tap this button if you would like to power off, or touch elsewhere if you do not want to turn the phone off.

“Locking” the phone

- For security reasons, please “lock” the phone when you are not using it by pressing the power button once so that the screen goes blank.

“Unlock” the phone

- If the screen is not active, press the power button to activate the screen.
- “Swipe” up from the padlock icon at the bottom the screen to unlock the phone.

Home screen icons

At the bottom of the main home screen that you see when you turn on your device (and many other screens), you will see three icons that will help you navigate the Android device.

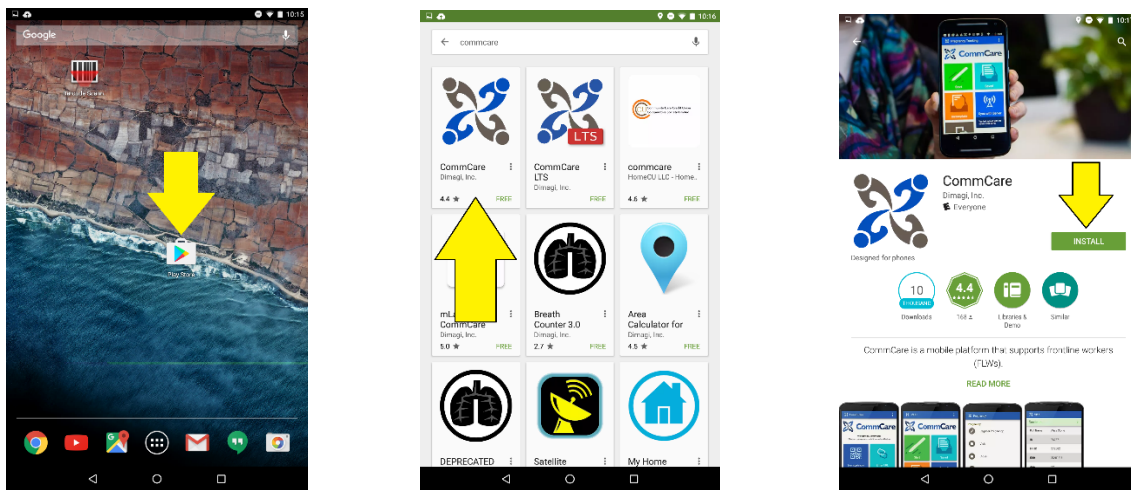
- **Triangle:** touch this icon to return to the previous screen or to hide the keyboard, depending on which screen you are in.
- **Circle:** this icon will always bring you back to the home screen.
- **Square:** This button opens up the multi-tasking screen. To close apps from this screen, swipe them either left or right, or tap the X to close them.

Phone Setup

To use the WASHCon Tool, the CommCare app must first be installed on your Android mobile device. Then, the WASHCon surveys must be loaded into CommCare. Please note that this guide assumes that your device has been updated to the Android Gingerbread (2.3) operating system or later and that you have signed in with a valid Google account (if you have questions on this, please consult your technical manager). **For the following steps you must also have data on your phone (3G or better) or a WiFi connection.**

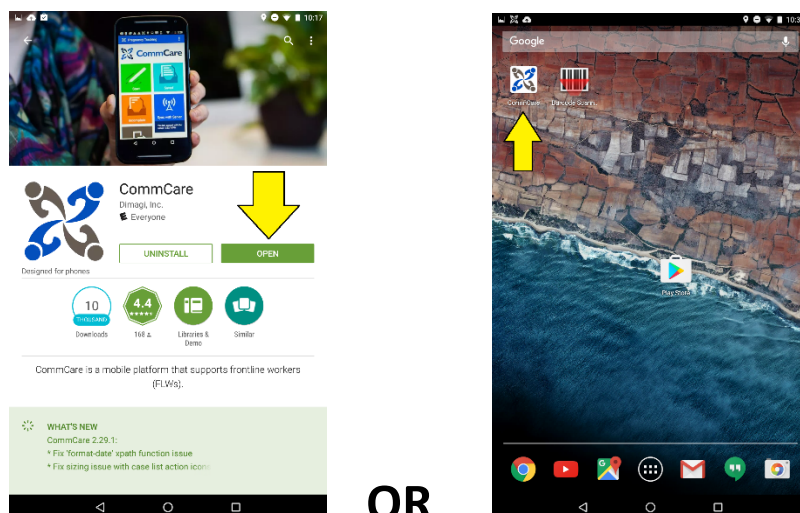
Step 1: Install CommCare App

- From the Google Play Store (or Android Market) on your device, search for and select “CommCare.”
 - If more than one “CommCare” app shows up, select the app by “Dimagi, Inc.”
- Select “Install” and wait for the app to download and install.

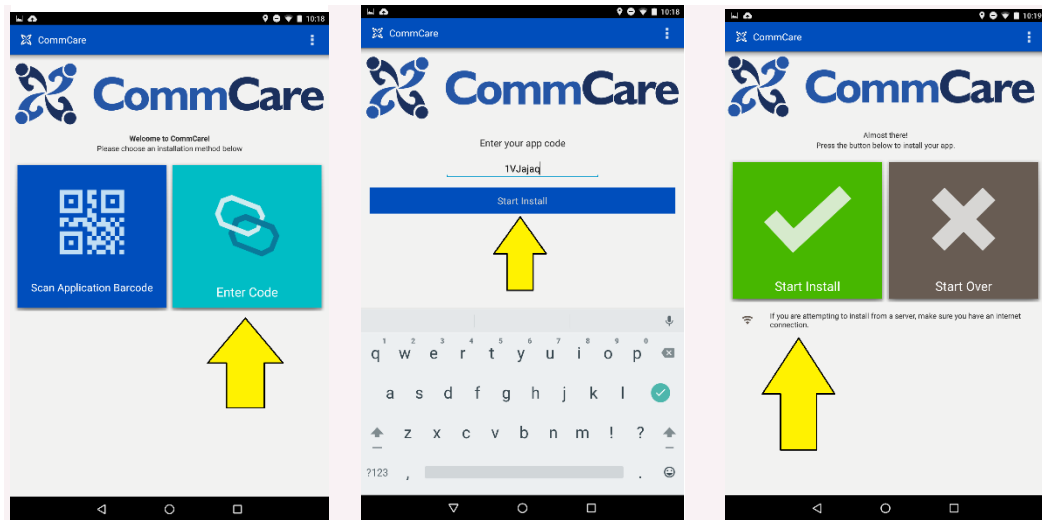


Step 2: Download WASHCon Surveys to the CommCare App

- Open the CommCare app (the icon should either be on your home screen or in the applications menu that can be reached by tapping the center circle at the bottom of the screen).



- Select “Enter Code”
 - Enter the following code on the next screen: **1VJajaq** and click “Start Install.”



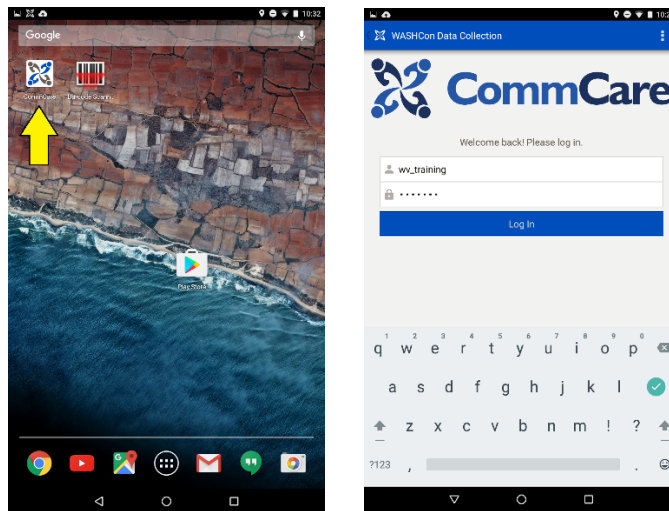
- Please note that older versions of CommCare ask for a web address on this screen. If this happens, please go to the Google Play Store, search for CommCare and then select “Upgrade” from the app screen.
- When prompted for login information, use the following for training:
 - User: **wv_training**
 - Password: **washcon**

Using CommCare

Step 1: Open the App

Tap the CommCare icon to open the app. Please enter your credentials if you are asked to do so. For training purposes, please use the following login credentials:

- User name: **wv_training**
- Password: **washcon**



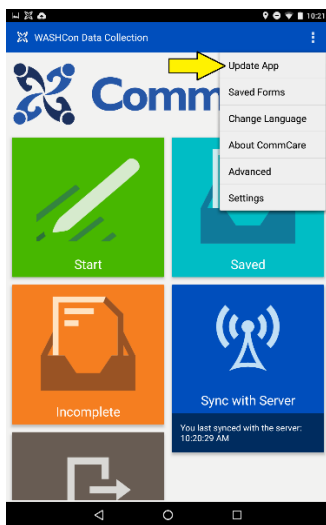
Step 2: Make sure that you have the most updated forms on your device

The following procedure should be done each day you use the app

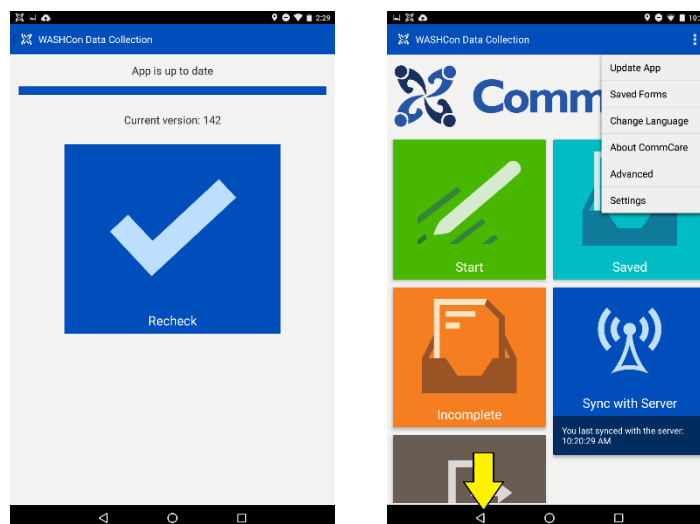
1. From the CommCare home screen, tap the three vertical dots in the upper right hand corner of the screen.



2. Select “Update App.”



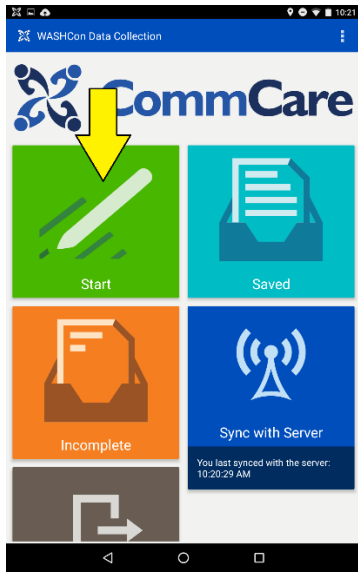
3. If a message displays that the app is up to date and does not need an update, tap the triangle “back button” at the bottom of the screen to go to the main CommCare menu.



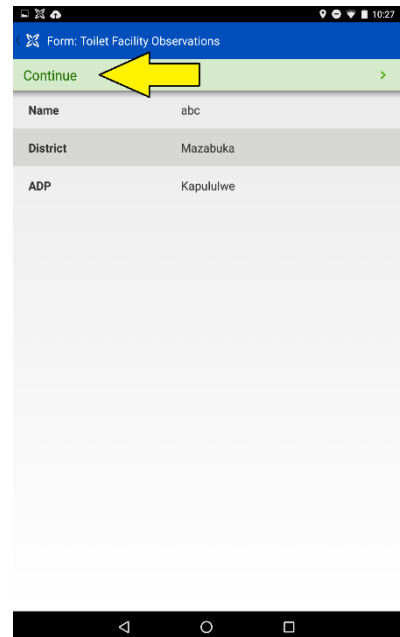
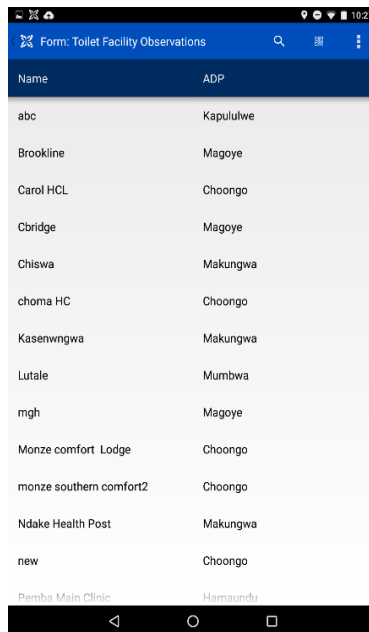
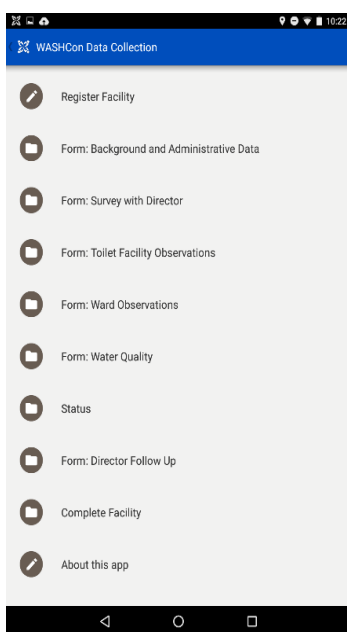
4. If a new version is available, tap the green checkmark to update. You may be asked to log in again after the app has updated.

Step 3: Begin filling out the survey forms

1. From the CommCare home screen, tap the “Start” icon in the upper left corner.

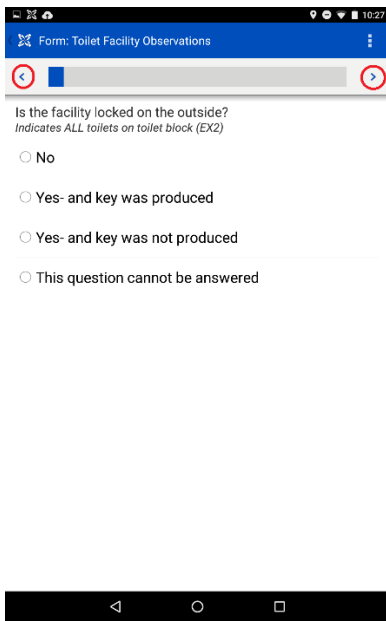


2. Select the survey you would like to fill out, select your facility and tap “Continue.”



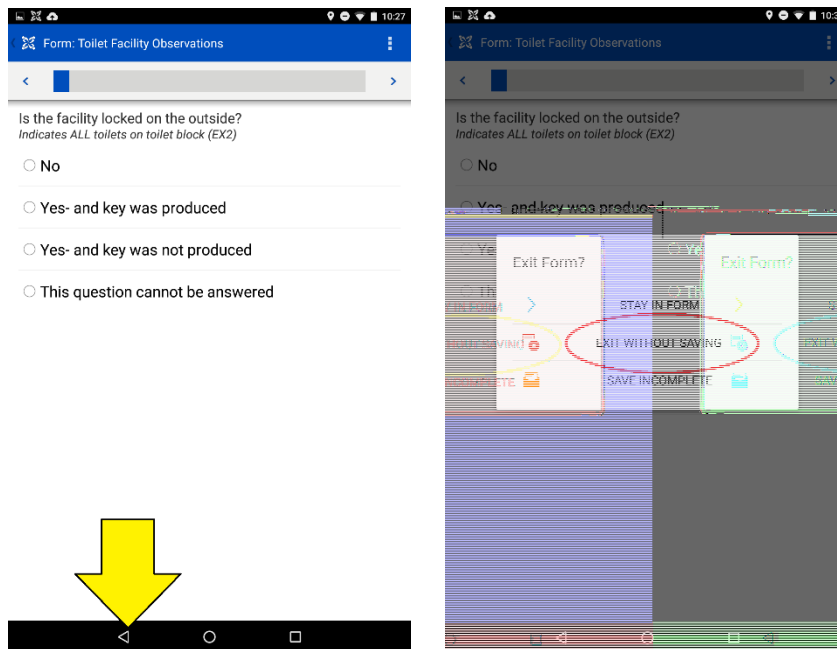
3. To navigate the form:

- “Swipe” right or left to navigate the different questions.
- Most questions are required and will not let you proceed without providing an answer.

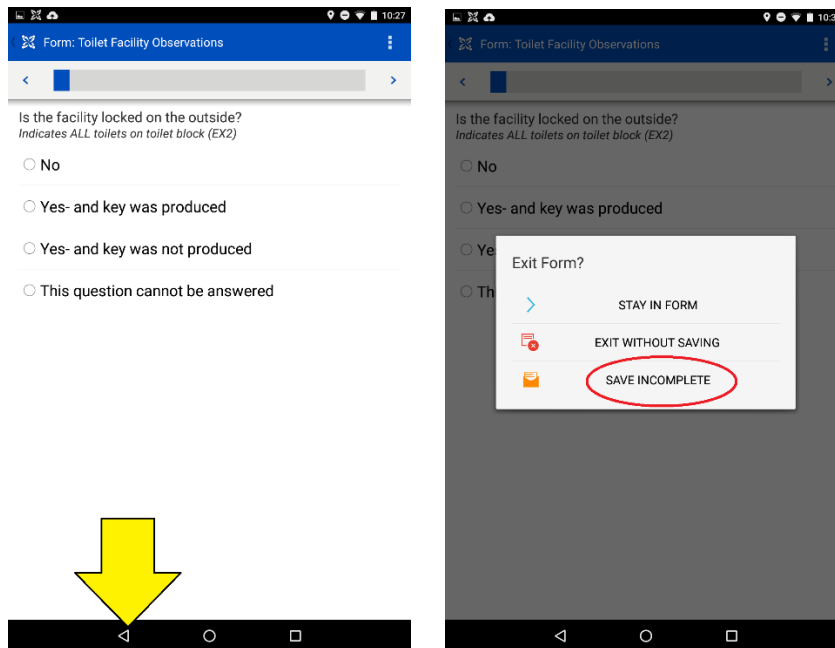


Step 4: Saving survey forms

1. If you would like to exit without saving, tap the triangle button and select “Delete and Exit.”

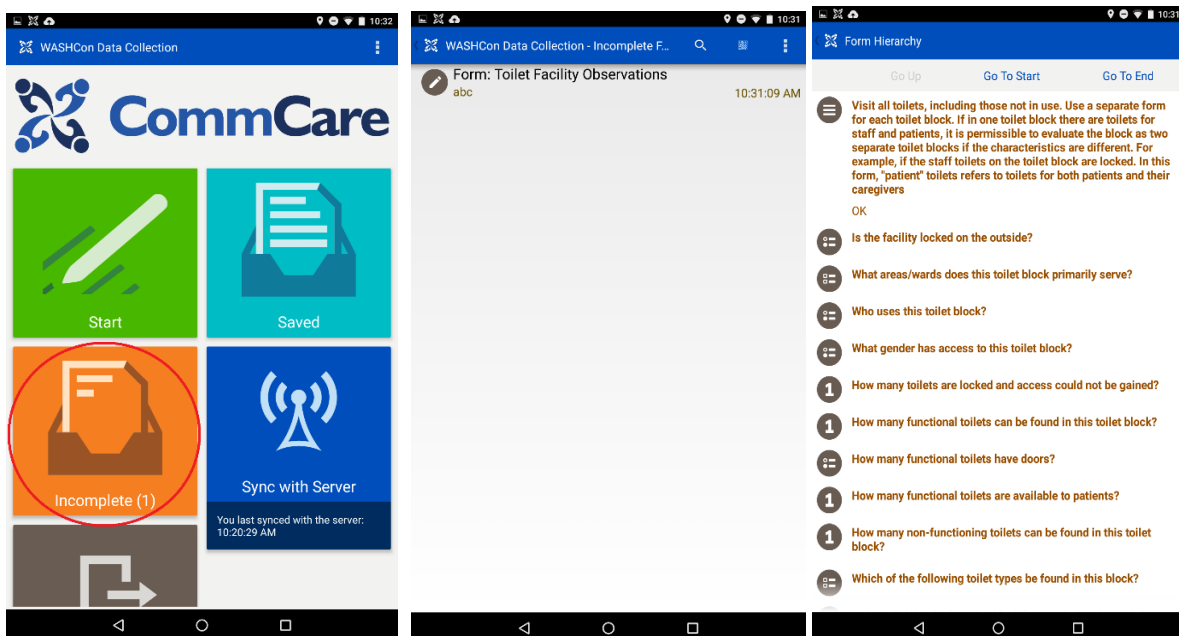


- If you need to save the form and finish later, tap the triangle icon at the bottom of the screen and select “Save Incomplete.”



2.a. Re-opening a saved survey

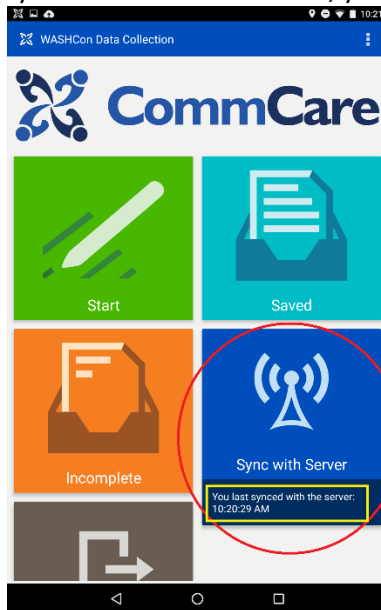
- From the CommCare home screen, tap incomplete.
- If you have saved forms, you will be able to select them from this screen.



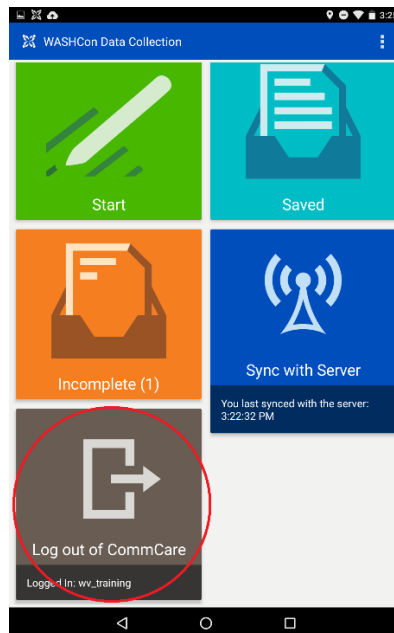
Step 5: What to do when you are done collecting data for the day

Normally, forms are uploaded to the server immediately after completion (unless you do not have a mobile data or internet connection). To ensure that all forms have been uploaded, please manually sync at the end of each day of data collection

1. From the CommCare home screen, tap “Sync with Server.”
2. If successful, you will see a brief message that tells you when the phone was last synced.
- **Please note:** you must be connected to phone data or wifi for the survey forms to be uploaded to our database. If you are unable to connect, you may try again the next morning.



3. Log out by pressing the log out button.



APPENDIX IV: ENUMERATOR SITE COMPLETION CHECKLIST

Enumerator Site Completion Checklist

Step 1:

Before starting your work at the hospital have you, the enumerator completed the following activities?

Activity	Check the box if the activity has been:	
	Yes, proceed to collect data	No
Have you introduced yourself to the head of the healthcare facility (medical director/hospital administrator)?	<input type="checkbox"/>	
Have you received verbal consent from the head of the healthcare facility?	<input type="checkbox"/>	

Step 2:

You have ended your day at the hospital. Have you, the enumerator completed and uploaded the following forms?

Activity	Check the box if the activity has been:	
	Completed	Uploaded
Survey with the HCF director	<input type="checkbox"/>	<input type="checkbox"/>
Survey with the HCF director	<input type="checkbox"/>	<input type="checkbox"/>
Ward Observation Checklist	<input type="checkbox"/>	<input type="checkbox"/>
Toilet Observation Checklist	<input type="checkbox"/>	<input type="checkbox"/>
Microbial Water Sampling/Testing	<input type="checkbox"/>	N/A
Microbial Water Results	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX V: Collecting Your Feedback

This document was developed as a field resource for the training and implementation of the WASHCon tool. However, we'd love to hear from you and your colleagues about potential ways to improve this resource. After using this document, answer the following questions and send them to ldenny@emory.edu. Feel free to elicit feedback from your enumerators and trainees and include their feedback as well.

Training Feedback Questionnaire:

(Country of training session)
(Date)

Was the content of this training document useful for you and your enumerator training? Y N

Did the materials provided make training more effective and efficient? Y N

Please rate the quality of this document in meeting your WASHCon training objectives. 1 2 3 4 5
(1 = unacceptable; 5 = outstanding)

Were their resources that were missing, i.e. activities, lesson plans, additional information, that could have made this document more effective and useful?

Please rate the following the elements of this WASHCon document:
(1 = unacceptable; 5 = outstanding)

Quality of information	1 2 3 4 5
Organization and presentation of sections	1 2 3 4 5
Were explanations clear and understandable	1 2 3 4 5
Were appendices and attached training outlines useful	1 2 3 4 5

Do you have any suggestions and or additional comments to improve this WASHCon training document?

Thank you. We appreciate your feedback!