

INFECTION PREVENTION AND CONTROL (IPC) AND SCREENING OF SUSPECTED EBOLA CASES

National strategy implemented through a partnership between the Centers for Disease Control and Prevention (CDC), Ebola Response Consortium (ERC), Ministry of Health and Sanitation (MoHS), and UNICEF



BACKGROUND

An outbreak of the Ebola virus disease (EVD) was initially identified in Guinea in March 2014 and spread to Liberia, Nigeria, and Sierra Leone. The outbreak was declared by the Sierra Leone Ministry of Health and Sanitation (MoHS) on 26 May 2014. The Ebola outbreak in West Africa is unprecedented in scale and in the response required. No previous outbreak has had as many confirmed cases, as wide of a geographic spread, or major hot spots in urban areas. There are three main modes of transmission: 1) exposure through unsafe burial practices, 2) community/household transmission, and 3) nosocomial¹ transmission in health facilities. In the first three months of the outbreak in Sierra Leone, the outbreak was centralized in Kailahun and Kenema districts in the Eastern Region of Sierra Leone. In Kenema, the Lassa Fever Unit was transformed into the first Ebola Treatment Unit in Sierra Leone in June 2014. Nosocomial transmission exacerbated the EVD outbreak and fears among communities about transmission within health facilities and reduced the utilization of primary health care services.

In August 2014, the International Rescue Committee (IRC) worked with the World Health Organization (WHO) and the District Health Management Team (DHMT) in Kenema to pilot a project in Kenema District with the objective of controlling the spread of EVD, by targeting nosocomial transmission in the 120 Peripheral Health Units (PHUs) in the district, and linking community sensitization and referral protocols with Community Health Workers (CHWs). Under this pilot project, a rapid training was provided by the IRC and DHMT to the clinical staff from 120 PHUs. A presentation of findings, lessons learned, and recommendations for further implementation showed that PHUs lacked disinfection systems, had poor screening capability, and lacked adequate supplies and waste management facilities.

In September 2014, seven partners of the Ebola Response Consortium (ERC) - Action Contre la Faim (ACF), Concern Worldwide, GOAL, the IRC, Marie Stopes Sierra Leone, Medicos del Mundo, and Save the Children - partnered with the Centers for Disease Control and Prevention (CDC), UNICEF, and MoHS to scale up infection prevention and control (IPC) trainings at all PHUs in the country. Through this partnership a standardized training package was developed from the Kenema pilot, and a national implementation plan was developed. Approved by the Emergency Operations Center (EOC) and the Chief Medical Officer at the national level in October 2014, the training package covered identification, isolation, and referral of suspected EVD cases, as well as infection prevention and control.

This was a strategic priority both to stop the chain of transmission within health facilities, and also to save the lives of health workers. The loss of health workers has been a significant blow to an already weak health system because of their key role during the EVD outbreak, the need for health workers in the recovery period, and their role in long term health care. Further, with the closure of medical training schools because of the Ebola outbreak, there will be a delay of over one year before a new cadre of health professionals will be certified and available to work in health facilities in Sierra Leone. The death of one health worker impacts access to health care for thousands of Sierra Leoneans.

As of January 2015, preliminary data suggested that 65% of Health Care Worker (HCW) infections occurred among HCWs employed in non-Ebola care facilities, while 11% of HCW infections occurred among those employed in Ebola care facilities (MoHS/CDC, unpublished data). This highlights the urgent need for IPC practices to be reinforced. Of all HCW infections, 23% occurred at the PHU level. The most commonly reported likely exposure within the health facility was that the HCW did not use the recommended personal protective equipment (PPE), while outside the health facility the most likely exposure was caring for a sick person without PPE (MoHS/CDC, unpublished data).

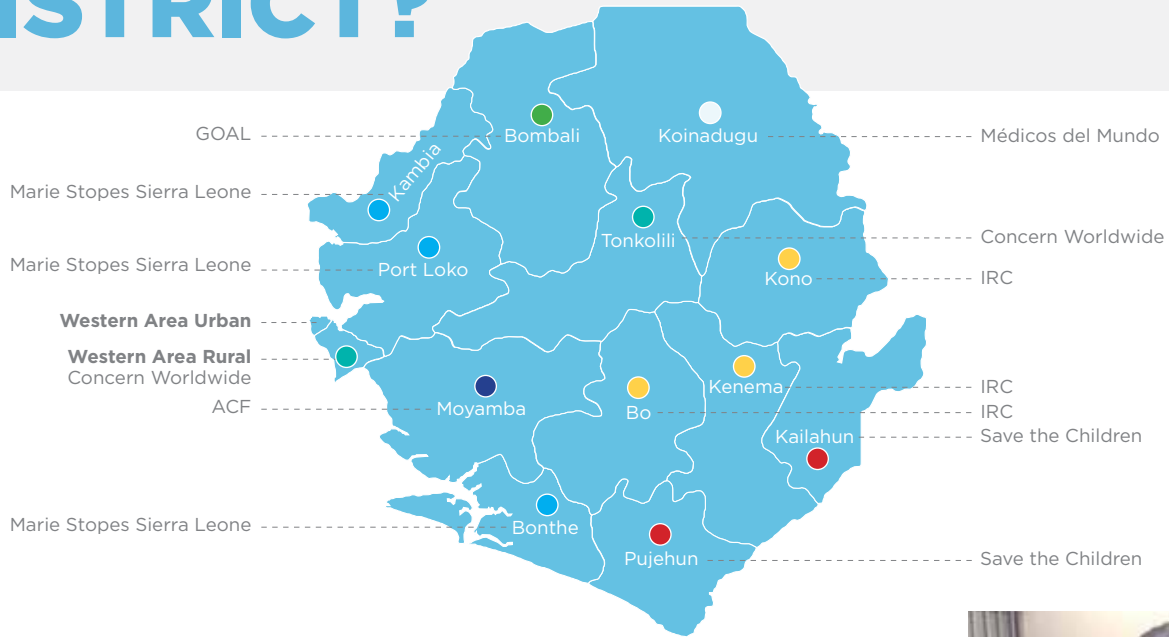
The death of one health worker **impacts the access to health care for thousands of Sierra Leoneans.**



¹ Nosocomial infections are infections that are acquired in hospital or other healthcare facilities.

> The IPC in PHUs trainings project is implemented nationwide.

> WHAT ERC PARTNER IS SUPPORTING WHAT DISTRICT?



> **Success Story: Mabel**

“I thank God IRC brought us aprons I used to protect me...I was afraid. She was from the Ebola zone. I had it at the back of my mind. **Everything I was doing I was doing with care...The training really helped me to know how to protect myself and I thank God that I did not forget.**”

Mabel Momoh

Maternal and Child Health Aid at Konta Community Health Post in Kenema.

Mabel Momoh has been a Maternal and Child Health Aid (MCHA) at Konta Community Health Post (CHP) in Kenema for the past seven years. Not long after her PHU received IPC training and supplies, a pregnant woman from a quarantined community suffering from bleeding visited the clinic. Remembering her training, Mabel called a CHW in the town for more information and learned the woman’s husband had died of Ebola. Upon learning this, she immediately called the alert line to inform them. Mabel brought the woman to the labor ward and assessed her without touching her. During the assessment, the woman miscarried onto the bed. Wearing the universal gloves and apron which the IRC had provided, Mabel washed her hands in chlorine and disposed of the fetus and the wet linen and clothes into a bucket of chlorine. She soaked a piece of cloth in chlorine and cleaned the woman before washing her hands again, then dressing the woman in new clothes and feeding her. “I thank God IRC brought us aprons I used to protect me...I was afraid. She was from the Ebola zone. I had it at the back of my mind. Everything I was doing I was doing with care...The training really helped me to know how to protect myself and I thank God that I did not forget.” Mabel and the two Traditional Birth Attendants (TBAs) who had been supporting her throughout the incident were placed under 21 days observation for Ebola. After 21 days, they were still Ebola free. Thanks to the supplies and the trainings they received, Mabel and her team were successfully able to protect themselves from Ebola, and Mabel was able to continue providing health care services to the community she serves.



PROJECT DESCRIPTION

26 Master Trainers

300 District Trainers

1,180 PHUs Level Trainings

IN 8 WEEKS: 4,264 HEALTH CARE WORKERS WERE TRAINED IN IPC

Additionally, 3,101 support staff at PHUs were trained on IPC practices

In order to rapidly train staff in all 1,180 PHUs, a pyramid training model was used.

The MoHS with technical and financial support from CDC, ERC, UNICEF and DFID conducted a national two-day training of 26 Master Trainers in Freetown. Master Trainers then divided into teams and traveled to the districts to train approximately 300 District Trainers. District Trainers then divided into pairs which usually included one ERC clinical staff and one DHMT clinical staff. District training pairs were equipped with visual aids, posters, and laminated guides to facilitate on-site trainings at all PHUs in their district. Each pair was responsible for conducting trainings and delivering IPC supplies to approximately 10 PHUs. The first full day at each PHU was spent assessing the facility, providing recommendations, and training HCWs. PHU staff were trained directly in their PHU, as opposed to the cascade method that is traditionally used for health training within Sierra Leone. The teams returned one week later to perform a follow-up quality assurance assessment, provide additional feedback, and perform needed remedial trainings.

Trainings at the PHU level began in Western Area in October, with the rest of the districts starting in November when PPE materials supplied by UNICEF arrived in country. By the end of December a total of 1,180 PHUs had received training, covering 4,264 HCWs and 3,101 support staff (e.g., cleaners, security staff).

TOTAL NUMBER OF PHU STAFF TRAINED



Success Story

using the new IPC protocols, the supervising Health Officer identified the family as suspected EVD patients

An example of early project success occurred when eight sick family members, seven of whom were children, presented to a PHU in Freetown two days after the first IPC training at the facility. Under the PHU's routine, pre-training procedures, the family would have awaited care in a crowded room and been attended to by a health worker without proper PPE. However, using the new IPC protocols, the supervising Health Officer identified the family as suspected EVD patients, isolated them, instituted a "no-touch" policy for their care, and immediately notified the EVD emergency call line. The family was later confirmed to have EVD, yet no HCW at the clinic became ill. Although anecdotal, this example affirms that infection control training can have an immediate effect in the PHU context.

- > What was the IPC curriculum based on?

> 6

INFECTION CONTROL PRINCIPLES:

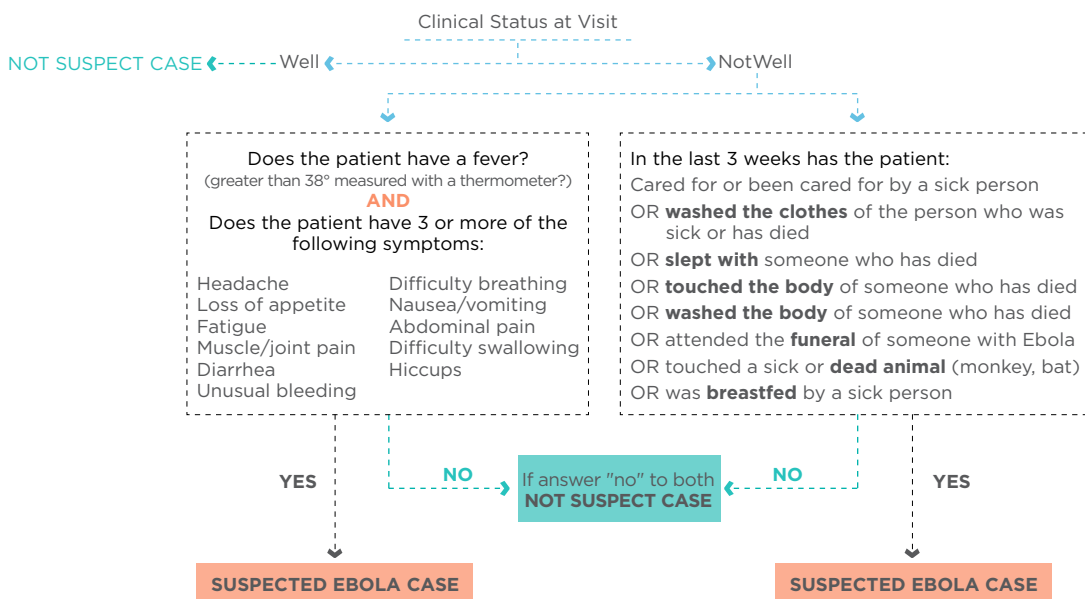
- SOCIAL DISTANCING**
- HAND WASHING**
- SCREENING**
- ISOLATION**
- WASTE DISPOSAL**
- CLINIC MANAGEMENT**

Social distancing refers to a policy of maintaining at least a 1.5 meter distance between HCWs and patients until each patient has been adequately screened for EVD. Hand hygiene was based on WHO guidelines. A standard EVD screening algorithm was based on the national EVD case definition and WHO guidelines.

Isolation of patients with suspected EVD emphasized physical separation of suspected cases from staff, visitors, and other patients, the use of PPE appropriate for contact and droplet precautions, and rapid referral to an Ebola care facility. Waste disposal and cleaning protocols included the preparation and use of chlorine solutions, appropriate PPE use, and disposal methods for contaminated waste. These principles were demonstrated using clinic management simulations that helped trainees consider physical layout, patient flow, and waste disposal methods.

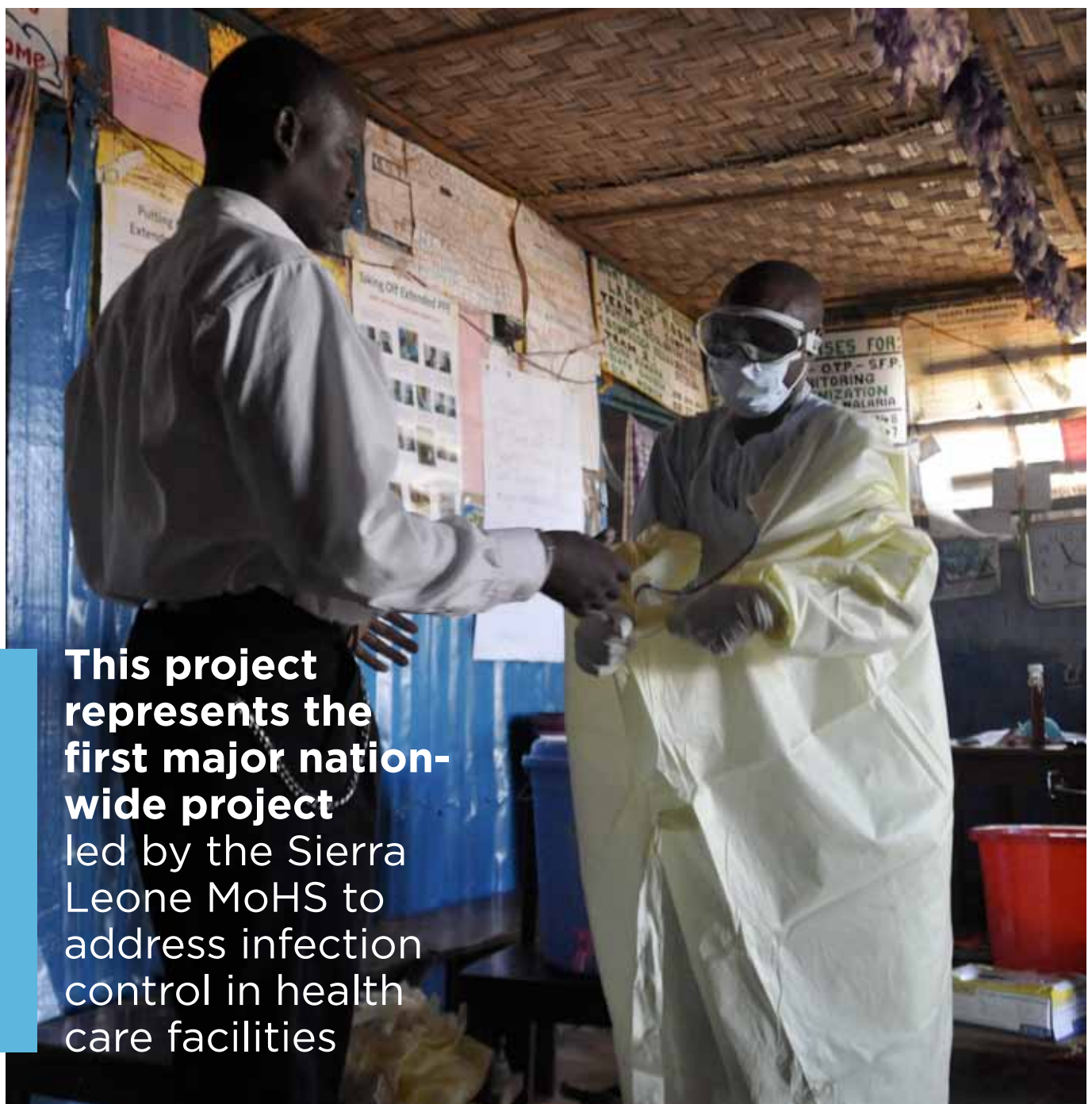
The use of full containment PPE, such as that used in Ebola Treatment Centers by WHO, was not practical in the context of a decentralized PHU system where practitioners often work alone or with minimal support. Instead, emphasis was placed on isolation and 'no touch' care for suspected EVD patients, which included the provision of oral rehydration solutions and oral medications, but discouraged invasive procedures such as blood draws and intravenous fluid resuscitation. PPE recommended for screeners included gloves and equipment to protect the eyes, nose, and mouth (e.g., face shield or goggles and a face mask, and boots). PPE for HCWs attending an isolated suspect EVD patient added a second pair of gloves and a gown. PPE for cleaners added an apron and thick rubber gloves.

Screening Flowchart for Ebola



Based on the unique needs of PHU staff, IPC kits containing a preliminary stock of key IPC supplies were pre-packaged in Freetown by UNICEF and sent to all districts for onward distribution to the PHUs. These kits contained infrared thermometers, as well as regular thermometers in order to properly screen patients before allowing them entry into the PHU. Goggles, face masks, disposable aprons, disposable gloves, disposable gowns, and rubber boots were provided so that HCWs and support staff could be protected while screening, seeing patients, and cleaning. Thick reusable rubber gloves, disposable towels, cotton wool, and chlorine were provided to facilitate proper, safe cleaning. Buckets with taps were provided for hand washing stations at PHU entry points and for PPE removal areas. Waste buckets, water buckets with lids, and a chlorine foot bath were also included.*

What separates this project from other IPC initiatives is that PHU staff were trained on PPE and were also provided the PPE to use during the training. Some PHU staff mentioned being previously trained on PPE and IPC procedures, but had no materials to implement the practices when back in the PHU. Additionally, most trainings in Sierra Leone were conducted through a cascade method, where only one health worker was trained per facility, and often these health workers did not train their other colleagues at the facility. This project covers both training and provision of supplies as you can't have one without the other. This project represents the first major nationwide project led by the Sierra Leone MoHS to address infection control in health care facilities. It was implemented by multiple cooperating governmental and non-governmental agencies. In an epidemic that was defined early by loosely organized local responses, this type of centralized, standardized project created a path forward toward better interagency coordination during and after the Ebola outbreak response.



This project represents the first major nationwide project led by the Sierra Leone MoHS to address infection control in health care facilities

* Refer to annex at the end of this report for a full list of kit contents.

ENGAGEMENT OF COMMUNITIES

One of the major impacts of the EVD outbreak in Sierra Leone was a decline in health service utilization due to fears in the community that they would contract EVD from the facility. In many communities PHU staff were seen as carriers of EVD, which made the community reluctant to seek out services. On the other hand, there were also fears among HCWs that they would be infected by patients seeking treatment, which made HCWs less likely to offer complete services. Therefore, engagement and education of the community was an integral part of this national strategy. The partners working on this project knew that working with PHUs, their structures, and the surrounding communities are all key to improving IPC practices, leading to increased confidence in, and utilization of the health system. In order to gain a better understanding of factors that might have contributed to declines in routine maternal and newborn health service use in Kenema from May to June 2014, the Kenema DHMT collaborated with the IRC and CDC to assess attitudes and perceptions regarding the risk for Ebola and health facility use among health workers and pregnant and lactating women. In September 2014, focus group discussions with HCWs and support staff were held at six primary health care facilities, and four focus group discussions were held with pregnant and lactating women.²

! the primary reason for decreased use of health facilities was fear of contracting Ebola at a facility

The results from the focus group discussions showed consensus among facility staff and pregnant and lactating women that the primary reason for decreased use of health facilities was fear of contracting Ebola at a facility, including outpatient facilities. All participants reported knowing at least some persons in their communities who continued to refuse to seek care at health facilities because of ongoing fear related to misconceptions. The health staff reported a reduction in fear of Ebola among community members since their IPC training, although they noted gaps in the provision of infection prevention supplies. Fear among and for Traditional Birth Attendants (TBAs) by nurses and midwives was particularly strong, because they did not receive the trainings and did not have access to PPE such as gloves, aprons, and masks.

In Western Area, Concern Worldwide also recognized the importance of engaging PHUs and CHWs in IPC sensitization at the community level. Community Health Officers (CHOs) were invited to speak with CHWs about the IPC training and answer questions on IPC and on quality of care issues at facilities. This allowed CHWs to immediately have answers and to be able to share this information with the communities they serve. CHWs shared the messages of improved IPC practices at PHUs during a house to house campaign. Following this, many PHUs saw a dramatic increase in the number of patients seeking services. Engaging CHOs and other senior level PHU staff to convey information on new IPC practices at the PHUs proved to be an effective way to both allay fears about the health facility and to strengthen the interaction between community structures and the PHU going forward. This method was used most often in hotspot communities to enable the community to understand that there was high EVD transmission and to encourage women and parents to return to the health facility.

Before the Ebola IPC training for PHUs began in Moyamba, ACF organized meetings in each of the 100 PHUs to explain the importance of IPC at the PHU level and to engage the community. The ACF team continues to visit and encourage the participation of the paramount chief, town chiefs, and others leaders during their IPC follow-up visits. In Ebola affected communities, ACF community mobilizers conduct house to house visits by setting up a team to be able to be mobilize in a short time. Before house to house activities begin, community leaders are visited and sensitized in order to accept and facilitate the work of the team.



² Perceptions of the Risk for Ebola and Health Facility Use Among Health Workers and Pregnant and Lactating Women — Kenema District, Sierra Leone, September 2014 (2015, January 2). MMWR: Morbidity and Mortality Weekly Report 63(51), 1626-1227.

RESULTS**

Training teams conducted an initial facility quality assurance (QA) assessment of infection control practices at each PHU. For this, teams used a quantitative QA tool designed for ongoing use by ERC and DHMT teams for assessment purposes. The tool was also used by the PHU staff for self-monitoring. The tool looks at three key areas of IPC: inventory, structures, and practices. The QA tool identifies breaches in infection control and identifies areas for targeted reassessment and remedial trainings. The same tool was used again in a follow-up visit 5-7 days after the initial visit and training.

This national strategy was implemented in the middle of the emergency, and so there were many challenges with the implementation of the QA tool and the data management. The fact that 1,075 PHUs were trained in one month illustrates how quickly this project was rolled out (105 PHUs in Western Area had been trained earlier). As a result of this speed there was some initial confusion as two districts were unable to complete a baseline before conducting initial trainings (Kailahun and Pujehun), and two districts were unable to collect follow-up data a week after the training (Bo and Kambia – the follow up was conducted, but not within the one week period). Another district is missing because the data is still not clean (Koinadugu). Data in this report are for the districts of Bombali, Bonthe, Kenema, Kono, Moyamba, Port Loko, Tonkolili, and Western Area.

Quality Assurance Part I: IPC Inventory

The first part of the QA tool looked at IPC inventory at the PHU. A score of 0 to 8 was assigned based on minimal IPC inventory, which includes: 2 boxes of examination gloves, 2 pairs of goggles, 25 face masks, 2 pairs of rubber boots, 5 disposable gowns, 2 disposable aprons, 2 pairs of rubber gloves, and a one week supply of liquid or powder chlorine. At baseline only 19% of PHUs surveyed had the minimum supply of all eight items, which gave an inventory score of 8. One week later, 91% had an inventory score of 8. Before training and the distribution of PPE supplies, PPE inventory items in stock at PHUs surveyed ranged from 43% to 70%; one week later, this increased to 96% to 99%. Notably, Kenema had the highest percentage of PHUs with minimum IPC stocks in place before training. This is likely due to the fact that Kenema was one of the first two districts to register cases, served as a pilot for this project, and the IRC was supporting the Kenema PHUs with basic IPC supplies since late August. After training all districts had 90% or more of their PHUs with minimum stock levels, except for Western Area. This variation in Western Area is likely due to the fact that the transport company used to distribute the IPC supplies failed to follow distribution notes, resulting in an ad-hoc distribution. As a result some PHUs received 12 goggles, while others received none. This situation was rectified by staff when the problem was noted during the one week follow-up visit.

Quality Assurance Part II: IPC Structures

Part II of the QA tool looked at IPC structures present in the PHU. This section looked at whether hand washing posters were present at hand washing stations, and if PPE donning and doffing posters were present in their respective areas. Screening areas were also assessed, as were whether isolation areas or isolation processes had been established. This section also assessed waste management. A score between 0 – 31 was possible in this section, with a score of 0-17 indicating urgent action was required, 18-24 indicating action was needed, and a score of over 25 indicated continued monitoring and that the facility was doing well overall. Before training, 7% of PHUs surveyed had a score of over 24 on the IPC structure section, while one week after the IPC training this had risen to 48%. Scores varied by district as well, with Kenema having the highest pre-training IPC structure scores, and Kono and Bonthe the lowest. One week later, Bombali had the highest scores, followed closely by Bonthe, Kenema, and Kono. Nationally, screening stations went from being present in 30% of PHUs surveyed at baseline to being present in 86% of PHUs; having a designated screener rose from 27% to 85%, and PHUs with an isolation area or process for isolation in place rose from 23% to 72%.

IPC Inventory

➤ **72% INCREASE**

in PHUs with minimum IPC stock

- › What is minimum stock?
- 2 Boxes of examination gloves
- 2 Pairs of goggles
- 25 Face masks
- 2 Pairs of rubber boots
- 5 Disposable gowns
- 2 Disposable aprons
- 2 Pairs of rubber gloves
- 1 Week supply of liquid or powder chlorine

IPC Structures: Screening

56% INCREASE
Nationally, screening stations went from being present in 30% of PHUs surveyed at baseline to being present in 86% of PHUs

** Refer to annex at the end of this report for results graphs.

At the district level, most districts, except for Kenema, Port Loko, and Western Area had very few PHUs with a screening station present before the IPC training. At the first follow-up visit, the percentage of PHUs in Bombali, Bonthe, Kenema, Kono, Moyamba, Port Loko, Tonkolili, and Western Area with a screening station present ranged from 63% to 99%. The same trend is visible with designated screeners and isolation areas/processes, with Kenema having the highest percentage of PHUs with these structures in place, followed by Western Area and Port Loko, before training occurred.

Quality Assurance Part III: IPC Practices

Part III of the QA tool focused on IPC practices in the PHU. This section looked at the cleaner's waste management practices, how both HCWs and cleaners put on and took off PPE, as well as screening practices. In this section, a score from 0 – 6 was assigned, with a score of 0-3 requiring urgent action, a score of 4 requiring action, and 5-6 continued monitoring. PHUs with an IPC practice score of 5-6 rose from 20% pre-training to 61% one week later. PHUs with IPC practices scores of 0-3 fell from 81% to 22% after training.

Data was also analyzed by type of PHU, to see if there were any differences between Community Health Centers (CHCs), Community Health Posts (CHPs), and Maternal Child Health Posts (MCHPs). No differences were found between PHU type with regards to IPC inventory, IPC structures, or IPC practices.

41% INCREASE
PHUs meeting IPC
practice standards
rose from 20% to 61%



Success Story

“I thank God that I had been trained on IPC and received all the necessary protective materials, **otherwise it would have been one of those cases where a health worker is infected on line of duty.**”

Mr. Blango

Community Health Officer in charge of Gbangbatoke health facility in Moyamba District.

On the 28th of November 2014, a patient with a high fever (38.5 degrees centigrade) was admitted at the health facility and immediately attended to by Mr. Blango. Based on Mr. Blango's previous training on IPC, he immediately noted that the patient met the basic signs of a suspected Ebola case. This prompted Mr. Blango to ensure he was well protected using the PPE that had been supplied during the training. The patient was placed in the isolation area of the health facility, and the information was relayed to the national 117 line. The patient was eventually referred to the Moyamba Treatment Center, where the case was confirmed positive.

“I thank all who have helped me to feel better again... may God bless you” were the words uttered by the 24-year-old survivor on the day of her discharge from the treatment center. Part of the successful recovery of the patient was attributed to the timely diagnosis and supportive treatment care provided.

LESSONS LEARNED

The biggest strength of this project is the fact that it is implemented by multiple cooperating governmental and non-governmental agencies. This allows coverage of the whole country using a standardized approach that is implemented by partners with long standing relationships in their respective districts. Multiple districts reported that IPC training was necessary and timely as most PHU staff, especially support teams, had little or no idea how to put on and take off PPE. Most PHUs had no PPE available at their PHU before this project, despite Sierra Leone being over 5 months into the EVD outbreak.

! The biggest strength of this project is the fact that it is implemented by multiple cooperating governmental and non-governmental agencies.

One of the biggest challenges was the delay in the receipt of PPE supplies in the districts due to the global shortage created by an increased demand for PPE supplies. This caused trainings to be pushed back to the end of November, and created the need for refresher trainings for those who went ahead with training before the materials had arrived. PPE items arrived in the districts pre-packaged in kits, which eased some of the sorting burdens on partners, but some kits had items missing or contained the wrong quantities. The same kit was given to all PHUs. This presented some challenges, because there are three different levels of PHUs, with different numbers of health workers and catchment populations. Because of this, many districts reported that the quantity of IPC materials received at the highest level facilities (CHCs) would not last the 3 months until the next stock refill. A specific monitoring tool was developed for IPC material in PHUs, to allow PHU staff to assess their stock of IPC materials on a daily basis and request replenishment if necessary before the next round of supply.

The fact that there are high financial expectations from communities as IPC is linked with Ebola was a challenge in some communities. Some partners have commented that community members feel everything related to Ebola brings money. Some communities initially refused to erect the triage and isolation rooms at facilities. However, this is not the case in all districts. In Kono, some communities came

together around several PHUs to build temporary screening and isolation areas. A great example of this is at Woama PHU, where a temporary structure with 4 rooms was built. The first room serves as the screening area, the next room is where PPE is put on, the third room is the isolation area, followed by the fourth room where PPE will be taken off. The worry of the communities is what will happen to these temporary structures once the rains begin.

Another challenge has been getting the ERC monitoring and evaluation (M&E) systems up and running. Tools were created in a rush without the opportunity for proper pre-testing as the trainings needed to roll out as soon as possible. Large amounts of data were collected from all over the country, but at that point the ERC did not have the staffing capacity or systems in place to clean and analyze the data. As staffing levels have increased and as M&E systems have been developed, this has become less of an issue.



▶ Triage and isolation structure at Woama PHU in Kono.

NEXT STEPS



! With continued supervisory and quality assurance visits at the PHUs, the basic elements of IPC can be expanded and adapted as needs evolve

The ERC is now in the second phase of the project, which has three main components. The first is regular supportive supervision, mentoring and coaching of PHU staff. The ERC partners are conducting 1-3 supervision visits per month at all PHUs, and the DHMT are participating in at least one supervision per quarter per PHU. The second component is to provide the PHU with financial support to physically set up a screening station at the PHU. The third component is to train and incentivize three CHWs per PHU to work as screeners at the PHU entrance. The second phase of the project is supported by the Office of U.S. Foreign Disaster Assistance (OFDA), and Medicos del Mundo is not receiving funding through this partnership, but is continuing the project (that is why the number of PHUs has reduced from 1,180 to 1,096 in the second phase).

A new addition to this phase of the project is the mobile data collection that is being rolled out in all districts. The goal of the mobile data collection is to improve the timeliness of data collection as well as data availability. Once data from a PHU supervision is entered on the mobile phone, it will be uploaded into the DHIS2 server. Districts will then be able to log into the system and view real-time data regarding IPC indicators in order to see where weaknesses lie and which PHUs need the most attention.

In this phase of the project, the ERC will work with the MoHS, CDC, and UNICEF to reinforce this initial training by ensuring that health workers at PHUs receive regular mentoring and supervision on basic IPC, and receive timely on-the-job trainings on revised IPC and Maternal, Newborn and Child Health (MNCH) guidelines. At each PHU, there will be 1-3 monthly supervisions and quality assurance by ERC staff. The on-the-job mentoring and quality assurance visits supported by this project are further meant to immediately identify and correct areas of weakness.

The ERC partners all have a well-established presence in the districts in which they work, and their clinical staff can provide ongoing support both in the PHUs and their communities. The ERC is developing a strategy on reinforcing fundamental IPC approaches, in line with the initial assessments. With continued supervisory and quality assurance visits at the PHUs, the basic elements of IPC can be expanded and adapted as needs evolve. For example, the developing crisis around primary health care necessitates training specifically in how to provide care which ensures the safety of the health workers and maintains the quality of service delivery for patients. By providing ongoing supportive supervision, and on-the-job training based on identified areas of weakness of health worker IPC and screening practices, the ERC partners will work with the DHMTs in each district to ensure health workers feel confident in continuing to safely provide health care to their communities, and will also be able to take necessary steps to immediately correct any mistakes as they are identified. Health facilities that demonstrate weak IPC practices will receive additional support according to need, until they have improved IPC and screening practices. The MoHS staff will be invited to join these monthly supervisions, but due to competing priorities arising from the EVD outbreak, we anticipate that joint supervision is likely to occur only one third of the time.

The ERC members will also provide support to improve screenings at all PHUs (outside Freetown, where they are already in effect) in Sierra Leone. This will include training and a monthly financial incentive for CHWs/TBAs to do screening at the PHUs, as well materials to set up proper screening stations in front of the PHUs.

IMPLEMENTING PARTNERS

The Ministry of Health and Sanitation, Directorate of Primary Health Care (MoHS/DPHC)

The DPHC is charged with the responsibility of coordinating primary health care nationwide. The directorate also provides oversight and coordination of all PHUs nationwide and as such was instrumental in ensuring that the IPC trainings were cascaded with good quality.

The Ebola Response Consortium (ERC)

The ERC was created in August 2014 to support the MoHS in the EVD response in Sierra Leone. The ERC is now comprised of 11 international non-governmental organization (INGO) partners - ACF, CARE, Concern, eHealth, the IRC, GOAL, Save the Children, Marie Stopes, Medicos del Mundo, Kings Sierra Leone Health Partnership, and Welbodi Partnership - that work together to support the MoHS in a coordinated INGO response to the outbreak. All ERC partners were in Sierra Leone before Ebola, stayed throughout the response to support the MoHS, and are committed to staying throughout the recovery period.

UNICEF

UNICEF continues to support child survival and development programs nationwide in Sierra Leone. As part of its support, UNICEF provides technical and financial support for capacity building of health workers. Functionality of health facilities through provision of drugs and essential supplies to hospitals and PHUs nationwide is also a key area of support.

Centers for Disease Control and Prevention (CDC)

CDC provides scientific expertise and technical assistance to the Ebola response in Sierra Leone for training healthcare workers in infection prevention and control, efficient and rapid Ebola testing, airport exit screening, health promotion and education for the public and health care workers, and the establishment of the National Emergency Operations Center.

ACKNOWLEDGEMENTS

The partners of the project - ERC, UNICEF, and MoHS - want to first thank the donors that made this work possible. The first phase of this project was supported by UK aid from the UK government, and the second phase of the project is supported by the Office of U.S. Foreign Disaster Assistance (OFDA). The implementing partners want to also thank CDC and WHO for their technical support.

IPC KITS

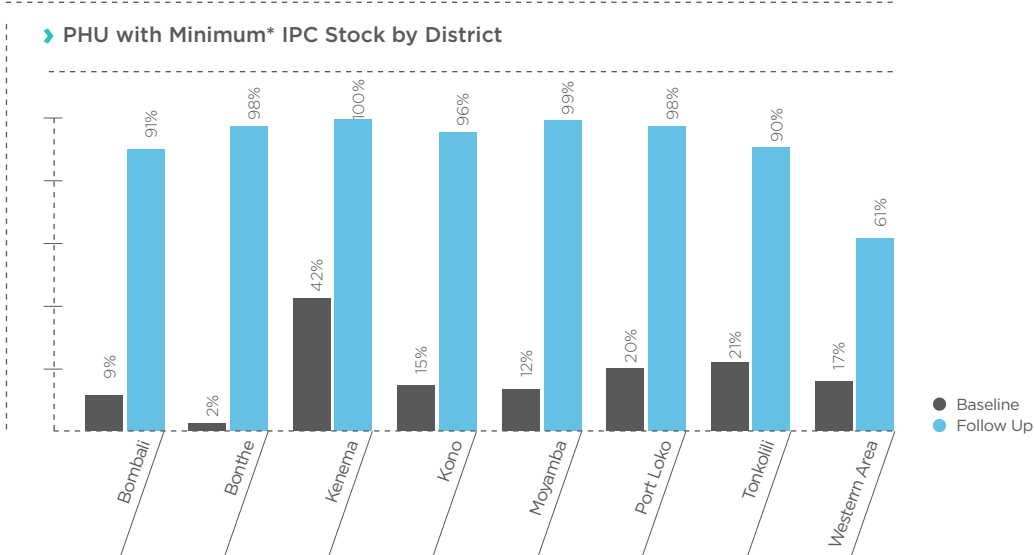
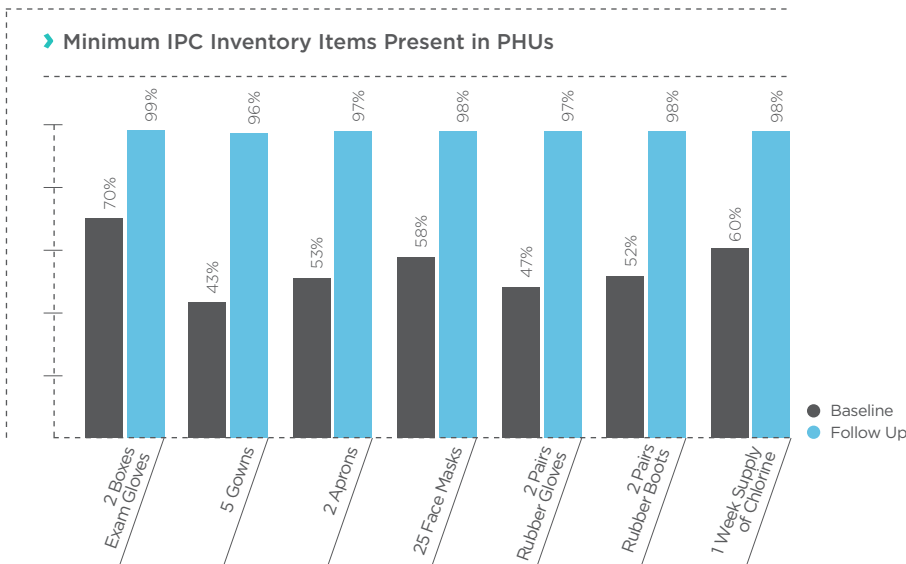
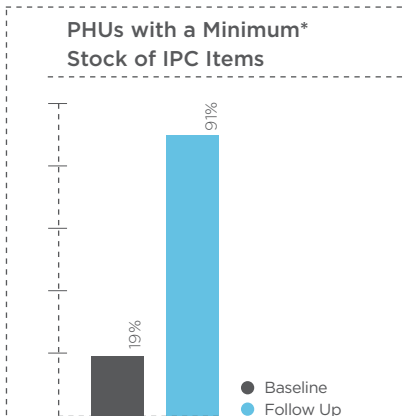
full list of contents

Item	Quantity per PHU	Frequency	Item	Quantity per PHU	Frequency
Infrared Thermometer with batteries	2	One Time	Disposable Gowns	45	Monthly
Thermometer	2	One Time	Disposable Towels	30	Monthly
Goggles	4	One Time	Rubber Boots (S)	1	One Time
Surgical Mask	450	Monthly	Rubber Boots (M)	1	One Time
Disposable Aprons	100	Monthly	Rubber Boots (L)	1	One Time
Cotton Wool	6	Monthly	Disposable Cups	300	Monthly
Thick Reusable Rubber Gloves	6	Monthly	Disposable Spoons	300	Monthly
Oral Rehydration Salts (ORS)	600	Monthly	Rubber bucket with lid	4	One Time
Disposable Gloves (S)	1,000	Monthly	Veronica Bucket with tap	2	One Time
Disposable Gloves (M)	1,000	Monthly	Plastic bowl for under Veronica Bucket	2	One Time
Disposable Gloves (L)	1,000	Monthly	Shallow Bucket for Chlorine Foot Bath	1	One Time
Plastic Bags	100	Monthly	Waste Bucket with Lid	3	One Time
1L Sprayer for Chlorine	1	One Time	Chlorine powder-70% HTH	25Kg	Monthly

! Based on the unique needs of PHU staff, IPC kits containing a preliminary stock of key IPC supplies were pre-packaged in Freetown by UNICEF and **sent to all districts for onward distribution to the PHUs.**

RESULTS: IPC Inventory

graphs

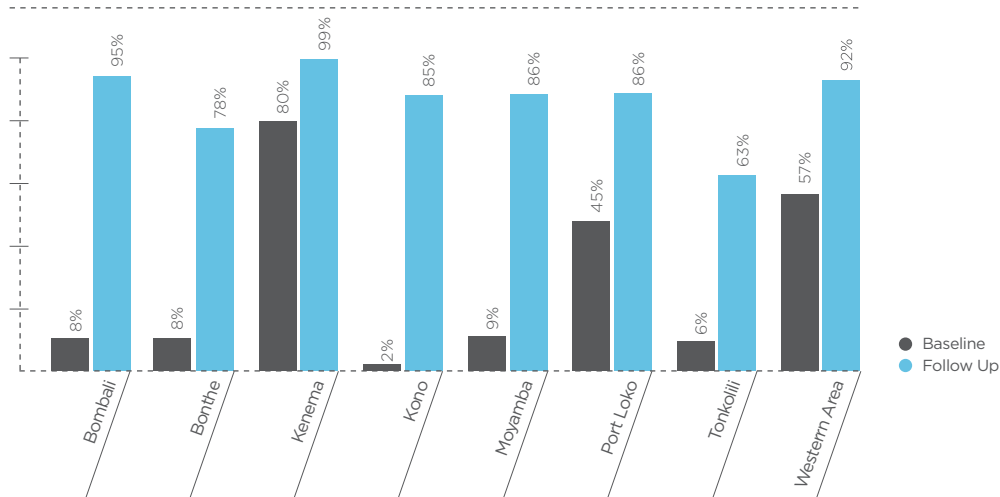


* Minimum Stock is defined as 2 boxes of examination gloves, 2 pairs of goggles, 25 face masks, 2 pairs of rubber boots, 5 disposable gowns, 2 disposable aprons, 2 pairs of rubber gloves, and a one week supply of liquid or powder chlorine.

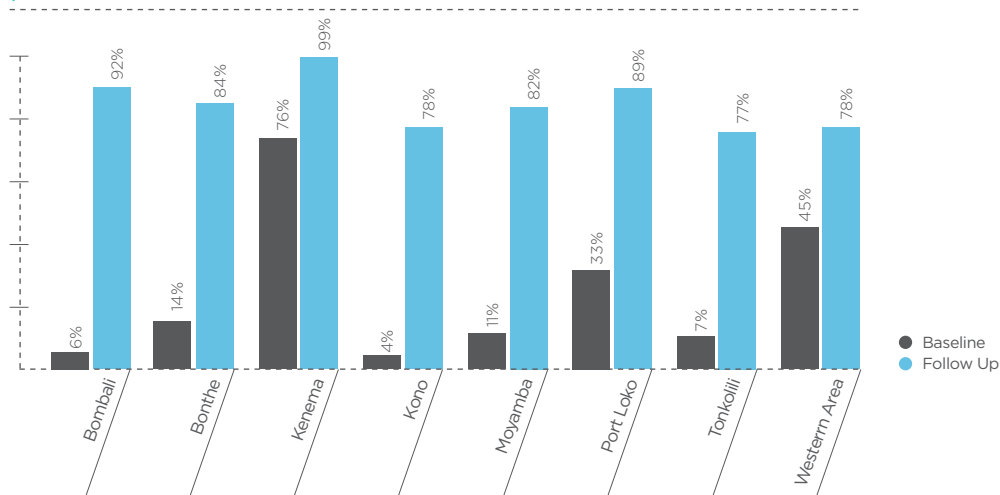
RESULTS: IPC Structures

graphs

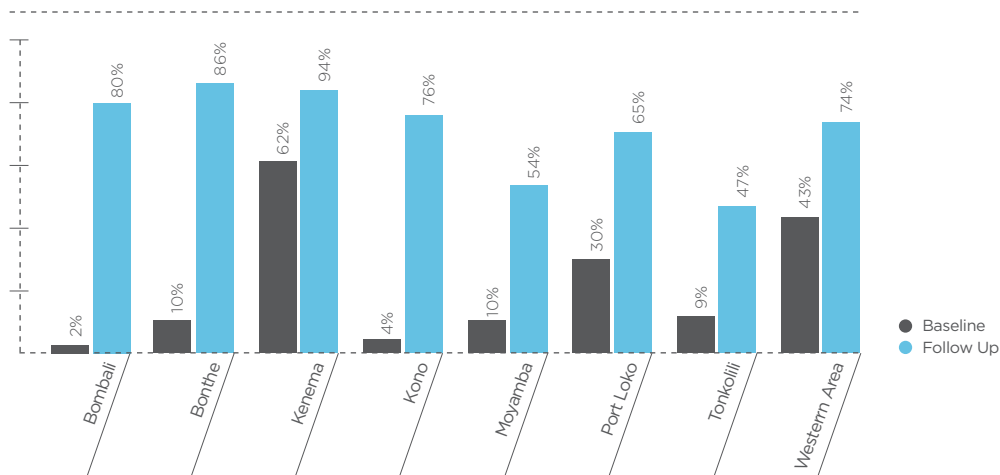
PHUs with a Screening Station by District



PHUs with a Designated Screener by District



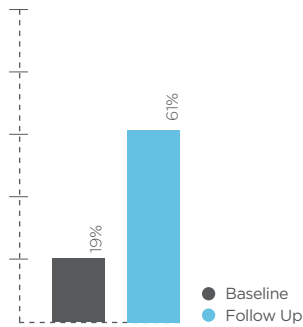
PHUs with an Isolation Area or Process by District



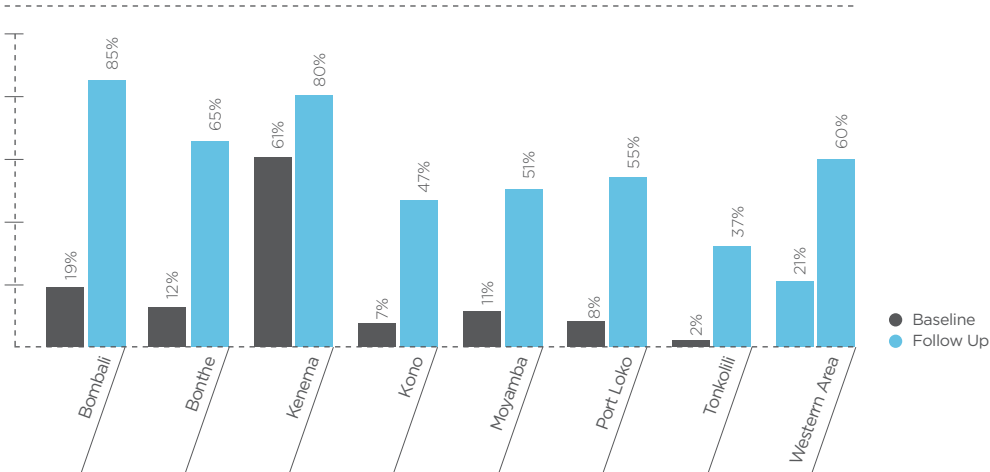
RESULTS: IPC Practices

graphs

PHUs Meeting IPC Practice Standards*



PHUs meeting IPC Practice Standards by District



* IPC Practice Standards were defined as a score of 5 or 6 on a 0-6 point scale looking at waste management practices, how HCWs and cleaners put on and took off PPE, and screening practices.