

MCSP Ghana: Lessons from a Competency-Based Infection Prevention and Control (IPC) Training Approach

Key Findings and Recommendations Brief

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Authors: Amos Asiedu, Jacob Ayetey, Charles Agblanya, Rachel Favero, Alishea Galvin, & Kofi Asare

Introduction and Background

The recent outbreak of the Ebola virus disease in West Africa highlighted the vulnerability of health systems in the region to implement effective infection prevention and control (IPC) procedures to protect health care workers and patients. The epidemic underscored how actions in health care facilities can contain or intensify the threat of an infectious disease. The absence of basic IPC infrastructure and knowledge both in the health system and community led to the unprecedented outbreak. Within the scope of Ghana's Ebola preparedness work, the Ghana Health Service (GHS)—through its Institutional Care Division (ICD)—launched initiatives to enhance and reinforce IPC practices throughout the country. These initiatives include conducting whole-site IPC training events in targeted hospitals in each region. The Maternal and Child Survival Program (MCSP) supported the GHS to implement these initiatives aimed at improving the technical competence of health care workers to routinely practice rigorous IPC in targeted health facilities. The IPC competency-based training was implemented in 59 out of 87 total health facilities across five MCSP-supported regions of the country: Ashanti, Brong Ahafo, Eastern, Upper East, and Upper West Regions (see Figure 1). MCSP worked in close collaboration with the GHS and the United States Agency for International Development's Systems for Health Project to develop a competency-based training model appropriate for Ghana (see Figure 2). The onsite

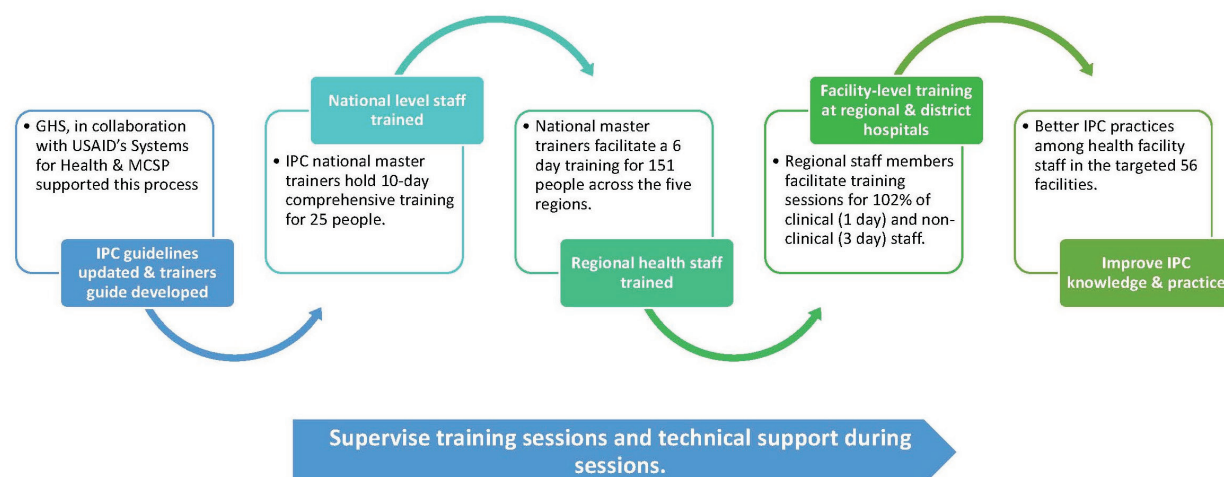
Figure 1: Implementation regions for the competency-based IPC training approach



competency-based training model¹ was designed to allow learners to demonstrate concrete skills rather than to encourage learners to be passive recipients of abstract knowledge. The approach incorporated frequent practice sessions amongst the theory based learning modules and encouraged students to actively participate through flip charts, learning aids and other methods that enable an environment of discourse and dynamic learning.

MCSP contributed to the development of the National IPC Policy and Guidelines, the IPC facilitator's guide, training session plans, pre- and post-training assessment questionnaires, and checklists for IPC procedures. In addition, MCSP assisted GHS to design a training framework that aims to build the knowledge and skills of hospital staff members to follow the new national IPC guidelines. The framework relies on a training-cascade approach: national-level master trainers teach regional health staff members, who in turn roll out competency-based skills at IPC training sessions for staff members at regional and district hospitals. MCSP administered grants to each region with clear targets and milestones for implementing the training across hospitals in selected districts in the five regions, effectively allowing regions to take control of implementation and use existing regional and district systems, processes, and resources, facilitating sustainability of the training approach. This brief presents lessons learned and from the implementation of MCSP's competency-based IPC training approach that occurred from October 2015 through February 2018 through USAID's Pillar IV Ebola funding.

Figure 2: Infection prevention and control competency-based training model in Ghana



Methods and Sampling

MCSP conducted key informant interviews to gather information on stakeholder perceptions of the competency-based IPC training approach. The program analyzed pre- and post-training assessment scores of trainees to better understand the competencies of staff pre- and post- IPC training. MCSP also conducted facility assessments to determine hospital compliance with the World Health Organization's (WHO's) standards for IPC and water, sanitation, and hygiene (WASH).

Key informant interviews were conducted with a total of 24 respondents. Two trainees each were selected from one regional and one district hospital in four MCSP-supported regions² (Ashanti, Brong Ahafo, Upper East, and Eastern) for a total of 16 respondents from eight sampled hospitals (selected through convenience

¹ Competency-based training (CBT) is distinctly different from traditional educational processes. It is "learning by doing," rather than learning by simply acquiring new information, and focuses on developing the specific set of competencies needed for quality job performance. Practical application of new knowledge, skills and attitudes on the job is emphasized. CBT requires the clinical trainer to "facilitate learning" as a mentor/coach, rather than function solely as an instructor or lecturer.

² The fifth MCSP supported region wasn't included because Upper East and Upper West have similar characteristics and the study team had to prioritize resources.

sampling due to time and resource constraints).³ Eight regional trainers from the same four regions were also selected through convenience sampling to participate in key informant interviews. The majority of the 24 respondents were female (62%) and between the ages of 20 and 39 years (74%). About half of the participants had 11 or more years of work experience.

From October 2015 to February 2018, GHS trainers, who were trained by MCSP at the national level, trained 10,276 clinical staff members and 3,964 nonclinical staff members at 58 regional- and district-level hospitals in five regions (see Table 1). All clinical staff members who received training (i.e., medical doctors, midwives, and nurses) completed pre- and post-training assessments to evaluate change in their knowledge about IPC and WASH.

Table 1: Participants trained by region

| Region | Clinical trainees | Nonclinical trainees |
|--------------------|-------------------|----------------------|
| Ashanti | 3,405 | 964 |
| Brong Ahafo | 2,824 | 936 |
| Eastern | 2,038 | 1,302 |
| Upper East | 1,286 | 510 |
| Upper West | 723 | 252 |
| Total | 10,276 | 3,964 |

After training sessions were conducted in the targeted regions, MCSP conducted facility assessments in the eight sampled hospitals in Ashanti, Brong Ahafo, Upper East, and Eastern Regions to determine adherence to WHO IPC standards.⁴ The assessment tool, which is a validated WHO standard assessment tool,

evaluates facilities on five major IPC categories, comprised of eight WHO standards: IPC administration, screening and isolation, WASH (hand hygiene), waste management, and IPC supplies. Research instruments were developed, pre-tested, and modified to address the specific objectives of the assessment.

“...after the training, [we learned to discard our gloves] after [attending to] each patient. [Previously, staff were sharing] for two or more patients, but after the training, we discard [or] wash [hands] or use the hand sanitizer before...[we] move to the next [patient].”

—Clinical staff member

Key Findings

Feasibility and Acceptability of Training Approach

Perceptions of Acceptability of Intervention

Respondents stated that they were able to adhere to IPC and WASH standards in the ward and in their homes after receiving the training, and they continued to practice to become proficient in their skills. Stakeholders reported that the agency and confidence built during the trainings made them feel competent and motivated to keep practicing their new skills to prevent infections. In addition, new staff members on rotation became trained on IPC and WASH standard practices, which respondents believed would lead to sustaining IPC practices as a norm at their facilities.

“Yes...the students [and the national service personnel], when they come for clinical practice, we take them through what we learnt...how to do proper handwashing, disinfection of instruments, how to process them and the washing.”

—Trainer

³ The eight sampled hospitals were Upper East Regional Hospital and WAA (WAR) Memorial Hospital and Navrongo in Upper East Region; Holy Family Hospital and Techiman and Bechem Government Hospital in Brong Ahafo Region; Suntreso Government Hospital and Tafo Government Hospital in Ashanti Region; Suhum Government Hospital and Eastern Regional Hospital in Eastern Region.

⁴ http://www.who.int/gpsc/5may/tools/evaluation_feedback/en/

Perceptions of Intervention Effectiveness in Changing IPC Practices

Key informants described the IPC competency-based training approach as practical, rather than theory oriented, and noted the use of equipment, supplies, teaching aids, and materials (flip charts, personal protective equipment, etc.) during the training sessions. They preferred the competency-based approach over traditional training approaches, such as hotel-based training, stating that the new approach allowed them to practice and become competent, which enabled them to adhere to the IPC standards.

“Management...are in support of [IPC] and they even have focal persons...to make sure we are doing what is expect[ed] of us...so when we have any challenge within their reach they help us to overcome it.”

—Clinical staff

Respondents opined that having the training session on site (i.e., in their facility) allowed both clinical and nonclinical health workers to participate, resulting in almost 80% of staff members enrolling in a training session. This contributed to whole-team learning in multiple ways by facilitating a team-centered approach

“...Previously, [health workers] were not supplying us with the [cleaning supplies] for our work...now after the IPC training, we now have regular supply [that] we need for our work...As soon as you send your request, you are supplied. This give me confidence that they have accepted IPC within the hospital.”

—Nonclinical staff

to addressing challenges, and fostering a sense of equality among staff members in reducing the need for management to select participants. This high number of hospital staff members participating in the training session made it easier to translate the IPC learning to practice because everyone was trained in the same content areas and skills and could support each other to improve adherence to IPC standards in their hospitals.

Respondents noted a tremendous change in IPC practices at health facilities after the training session. In particular, they mentioned improvements in hand hygiene, disposal of sharps, use of protective cloths, disinfection of instruments, and waste management. Clinical and nonclinical health workers emphasized that before the training, they did not know the importance of wearing gloves for all procedures and that handwashing stations and waste segregation were insufficient. After the training, they reported knowing the correct IPC precautions to observe when providing services and how to segregate waste before disposal. Before the training, staff members were told all waste was the same. After learning the importance of adhering to IPC standards, hospital management now understands that different colors of supplies and equipment are used for collecting different types of waste, and management is now procuring the correct IPC supplies and equipment for staff members to use.

Finally, participants reported a perceived reduction in infections in patients and health workers because of the knowledge acquired through the competency-based training, though this was not confirmed through record review.

These changes in observed IPC practices and the perceived health outcomes have resulted in positive perceptions and acceptance of the competency-based training among health workers and other stakeholders involved in the program. The increased knowledge of IPC practices of providers after receiving the training can contribute to reductions in infections at the facility level and reductions in other negative health outcomes associated with poor IPC practices.

Perspectives on Sustainability and Scalability

The development of a cohort of national and regional trainers was paramount to the success and sustainability of the program. Interviews with trainers revealed that they served as training facilitators, role models, and mentors for health workers by providing support and encouraging them to adhere to the IPC standards. They provided on-going in-person and remote supportive supervision to facility level staff. Trainers also worked with facility management to advocate the procurement of IPC and WASH supplies and equipment. Members of the GHS IPC and WASH teams also conducted on-site supportive supervision.

Trainers were highly confident in their ability to continue to carry out the training using the competency-based approach without technical support from MCSP. They also emphasized their willingness to continue to serve as regional trainers for the GHS. Some have already started facilitating additional training sessions.

Respondents noted that facility management accepted the training and that most provided logistical support after the training to meet equipment, supply, and other resource needs. Regional trainers stated that the competency-based approach was acceptable, sustainable, and scalable because it had been able to develop and deploy a skilled cadre of master trainers to conduct training sessions in additional regions and facilities. Regional trainers recognized the reduced cost per participant and the whole-team approach to capacity-building as two benefits of the onsite competency-based training approach. Current and future health workers who rotate through the facilities will be trained by facility-level trainers, which is intended to improve ongoing IPC practices at the facility level.

“The training has helped me a lot...previously we will leave...vomit/blood on the floor for some time [while looking for cleaning supplies], and by the time you return other patients might have stepped in it and spread [the] infection...the way we used to clean it made us transfer some of the infection to the mop. But after the training, we [learned to] pour chlorine on the vomit and cover it with the duster and wipe it first before we use the mop. This ensures that the mop is ‘free’ of infections. Previously...we were using the mop directly to do the cleaning...”
—Nonclinical staff

Changes in Provider Knowledge of IPC Practices

Among the 10,276 clinical staff members who participated in the training assessment, the average score increased by 36 percentage points, from 45% at pre-training to 81% at post-training (see Table 2). This significant improvement in training assessment scores, which surpass a passing score of 80%, reaffirms perceptions of hospital staff members that the competency-based training approach contributed to increased knowledge and skills on IPC practices. Trainers and staff hope that consistent practice will continue to improve provider knowledge and skills.

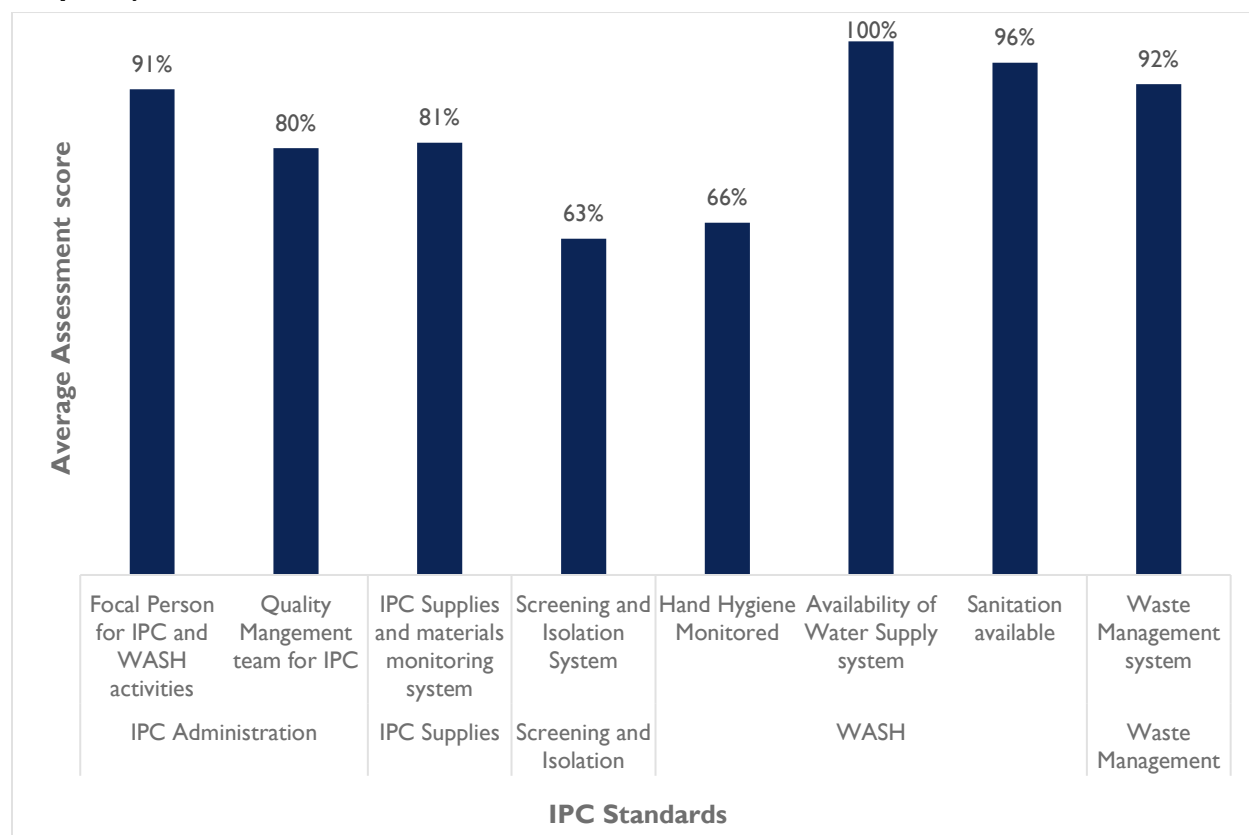
Table 2: Clinical health workers improvement in IPC knowledge after training (n = 10,276)

| Region(s) | Mean pre-training score (%) | Mean post-training score (%) | Mean difference (%) (pre-training/post-training) |
|----------------------|-----------------------------|------------------------------|--|
| Ashanti | 45 | 85 | 40 |
| Brong Ahafo | 43 | 83 | 40 |
| Eastern | 45 | 76 | 31 |
| Upper East | 40 | 72 | 32 |
| Upper West | 45 | 75 | 30 |
| All regions combined | 45 | 81 | 36 |

Hospital Adherence to the WHO IPC Standards

Eight hospitals were assessed against the WHO IPC standards using a validated WHO IPC standards tool. Each standard was scored across several categories and criteria. Some hospitals excelled in some areas (such as availability of WASH facilities) yet struggled in others (such as availability of a screening and isolation system) (see Figure 3).

Figure 3: Average assessment scores of hospital adherence to WHO IPC standards (n = 8 hospitals)



Note: infection prevention and control (IPC); water, sanitation, and hygiene (WASH)

IPC Administration

Facility level IPC administration assigns responsibility, accountability, and authority to a focal point or quality management team (QMT) to manage IPC and WASH activities and ensure continued success of IPC capacity building and implementation. The six hospitals assessed in Ashanti, Brong Ahafo, and Eastern Regions have a focal person responsible for both IPC and WASH activities. The two hospitals in the Upper East Region did assign a WASH focal person, but this person did not have the responsibility, accountability, and authority to manage WASH activities. The two Upper East hospitals did not assign an IPC focal person. Moreover, hospitals in Brong Ahafo and Upper East have QMTs in place, but they meet only as needed instead of on a monthly basis. The regional hospitals in Eastern and Upper East did not have QMTs in place, and while the district hospitals had created QMTs, there were no meeting minutes to prove the teams were active. Facility staff members in Eastern Region indicated that there were plans to activate their dormant quality improvement teams and incorporate IPC and WASH into it.

IPC Supplies

IPC supplies are essential to the implementation of IPC practices and are essential to both non-clinical and clinical staff at the facility level. Both hospitals in the Upper East Region had adequate IPC supplies and materials, with no reported stock-outs in the 3 months prior to the assessment. Hospitals in Ashanti, Brong Ahafo, and Eastern Regions experienced some stock-outs of IPC and WASH supplies and materials in the last 3 months prior to the assessment. Respondents commented that their procurement teams now understand the importance of ordering waste bins in different colors. Respondents also stated that IPC and WASH supplies are now available in stores, though sometimes there are still stock-outs.

Screening and Isolation System

Screening and isolation systems are critical for the control of infectious patients. Hospitals in Ashanti and Brong Ahafo Regions screened all persons entering the hospitals but do not have space to isolate suspected or confirmed infectious patients. While hospitals in the Eastern and Upper East Regions had dedicated isolation spaces, people entering the facility were not screened or isolated, IPC supplies were not available, and there was no space for donning and doffing personal protective equipment. However, patients who were identified as having an active cough did complete sputum tests.

WASH

Hand hygiene and hand washing is the single most important way to prevent infection. Hospitals in Ashanti and Brong Ahafo Regions had functional hand hygiene stations available in or near the toilets (within 5 m) but did not have any quarterly records of monitoring and auditing hand hygiene compliance. Hospitals in Upper East and Eastern Regions were also not auditing hand hygiene compliance. Some of the hospitals in those two regions had hand hygiene stations but not at all points near the toilets. Qualitative interviews with trained clinical staff revealed that handwashing had improved in some hospitals and staff members' homes after the training. Despite understanding the importance of hand hygiene, this practice had not improved in some facilities after the training due to staff members' reluctance to change.

A water supply system is essential to many infection prevention processes at all levels of the health system. All hospitals assessed had reliable drinking water points that were accessible to patients, care givers, and staff members at all times. Water was also available in all hospitals for use in IPC and WASH activities. Qualitative interviews with trained nonmedical staff members, such as cleaners, revealed that “[before training] there were problems with hand towels, and then carbolic soap...[was] not available; but after the training, it’s constantly being supplied by stores, even...hand towels and the soap...I can confirm consulting rooms have enough now and stocked.”

Waste Management

Waste management systems and supplies help enable environments that are free from infection causing agents. All hospitals assessed had adequate waste management systems in place, including the availability of leak-proof, covered, and labeled waste bins and impenetrable sharps containers at all points of use; safe treatment and disposal of infectious and sharps waste; and functional waste disposal structures. Staff members interviewed commented that waste management had improved after the training. For example, hospital waste was no longer kept in open spaces, waste was segregated properly, and disposal was completed within 24 hours—which was not the practice prior to trainings.

Recommendations and Next Steps

The competency-based training approach was designed to foster learning and retention of concrete skills and to increase the competency of IPC standards among hospital staff members. The approach was considered highly effective among health care workers, hospital management, master trainers, and other stakeholders. The whole-team approach to learning, coupled with the onsite, practical nature of the trainings built the capacity of hospital staff to comply with IPC standards and guidelines and enhance quality of care. MCSP therefore recommends adopting a competency-based approach for all in-service training for health workers across all regions of the country.

To maximize the effectiveness of the trainings, hospital administration should provide copies of IPC and WASH policies, guidelines and job aids in all wards, ensure effective implementation through ongoing supervision, and ensure adequate supplies of IPC materials and equipment. In addition, hospitals should reactivate IPC and WASH committees, incorporate regular supportive supervision and mentorship with providers and conduct regular audits to enhance compliance and implementation of IPC practices, especially in facilities in the Eastern Region. All new staff should be oriented on proper IPC practices when they begin their post. Availability of a reliable water supply will support hospitals institute urgent and strict handwashing

practices. GHS should provide leadership, routine performance monitoring and resources for all components of the ongoing implementation of IPC policies and practices at the facility level. Furthermore, additional work is needed to institutionalize IPC administration.

Conclusion

Health workers reported that the competency-based training approach built their knowledge and confidence and contributed to improved IPC practices by facilitating the maintenance and translation of knowledge and skills into routine service delivery in their hospitals. The whole-team approach built a positive team ethos, enabled the transfer of learning to clinical practice, and allowed all participants enough time for hands-on practice during the training, which built their confidence. By building a highly skilled cadre of government master trainers who can continue training and monitoring, there is less cost to continue the approach in existing sites. Because the competency-based approach embeds a trainer in all regional hospitals and most district hospitals, staff members can avail themselves of opportunities for ongoing professional development and skills building. Moreover, trained hospital staff members can reinforce IPC practices within their hospitals and can train new staff members. These improved skills and practices in IPC can contribute to reductions in infections and other health outcomes associated with poor infection prevention and control. However, some funding for facilitation and the purchase of materials is needed to expand the new approach to new sites.

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