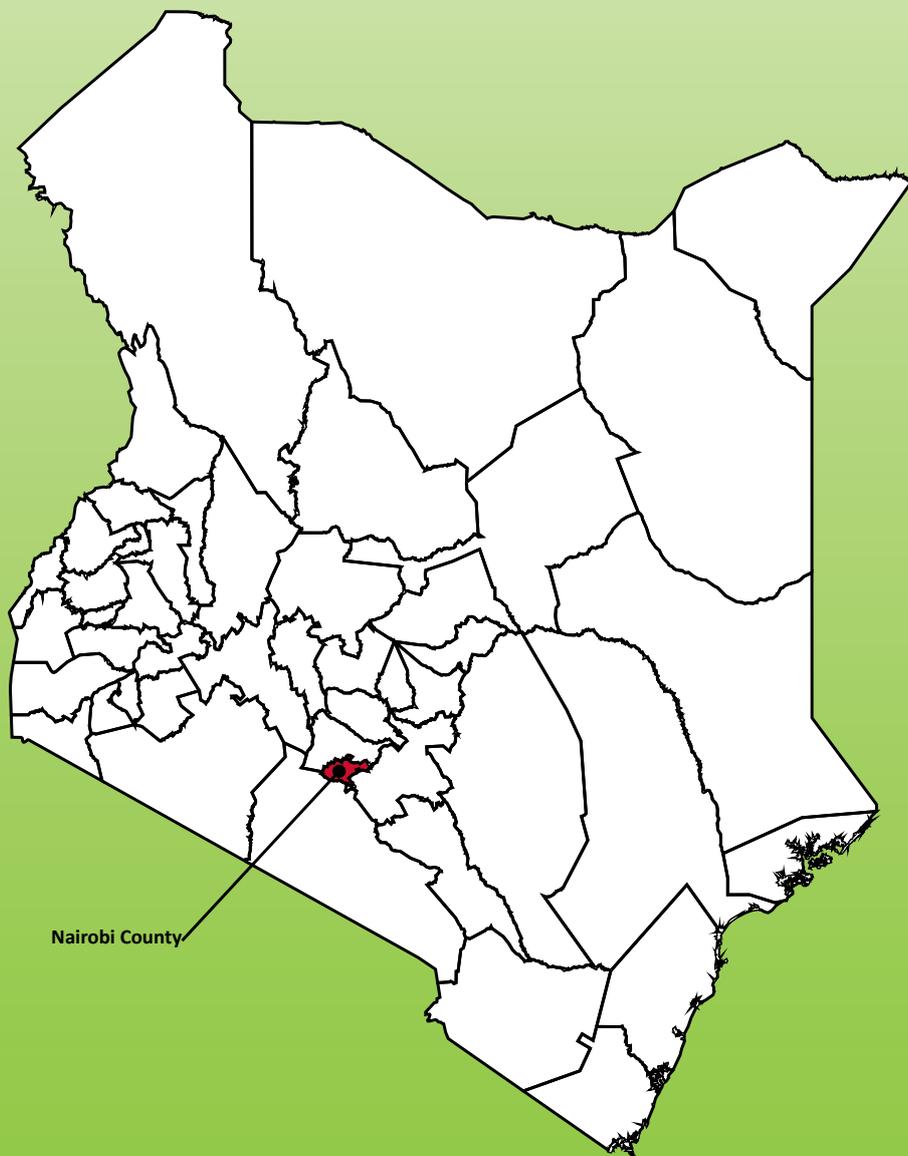




STRENGTHENING OF INFECTION PREVENTION AND CONTROL DURING COVID-19 PANDEMIC IN NAIROBI COUNTY, KENYA.



REPUBLIC OF KENYA



MINISTRY OF HEALTH

Project title

Strengthening of infection prevention and control during COVID-19 pandemic in Nairobi County, Kenya.

Attribution of support

This project has been supported by the President's Emergency Plan for AIDS Relief (PEPFAR) through the Centers for Disease Control and Prevention (CDC) with funding from COVID-19 International Task Force (ITF) and Coronavirus Aid Relief and Economic Security (CARES) Act October 1 , 2020, to September 30, 2021 under the terms of NU2GGH001962.

Disclaimer

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the funding agencies.



Strengthening of infection prevention and control during COVID-19 pandemic in Nairobi County, Kenya, Version 1, February 24th 2022

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ABBREVIATIONS

AMREF	African Medical Research Foundation
CDC	US Centers for Disease Control and Prevention
CME	Continuous medical education
CI	Confidence intervals
COVID-19	Coronavirus Disease of 2019
CQI	Continuous quality improvement
DQA	Data quality assessment
HIV	Human immunodeficiency virus
HCWs	Health care workers
IEC	Information, education, and communication
IPC	Infection prevention and control
KQMH	Kenya Quality Model for Health
NMSHMT	Nairobi Metropolitan Services Health Management Team
NTLDP	National Tuberculosis, Lung and Leprosy Diseases Program
PACT	Partnership for Advanced Care and Treatment
PDSA	Plan-Do-Study-Act
PEPFAR	President's Emergency Plan for AIDS Relief
PPE	Personal protective equipment
QI	Quality improvement
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
SCIPCFP	Sub-county IPC focal persons
SCTLC	Sub-county TB and leprosy coordinators
SCMLT	Sub-county medical laboratory technologists
TB	Tuberculosis
TB-IPC	Tuberculosis infection prevention and control
TOT	Trainer of trainers
UMB	University of Maryland, Baltimore
WHO	World Health Organization

INVESTIGATORS AND ROLES AND RESPONSIBILITIES

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Responsibilities of principal investigators (PIs) include: Coordination and oversight of protocol development, facilitating internal and external monitoring of project implementation and activities, creating and monitoring project budgets, and assisting with data collection, analysis, and dissemination.

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Responsibilities of Co-Investigators Include: Oversight of project activities and assisting PIs with data collection, analysis, and dissemination.

CDC staff will not have access to participants and clients and their personal identifiable information.

1.0 PROJECT BACKGROUND

Effective infection prevention and control (IPC) programs are critical for safe, high-quality, people-centered, and integrated care with the emergence of new pathogens such as COVID-19. Between October 1st 2020 and September 30th 2021, the University of Maryland, Baltimore (UMB) received funding from COVID-19 International Task Force (ITF) and Coronavirus Aid, Relief, and Economic Security (CARES) Act (2020) through the United States Centers for Disease Control and Prevention (CDC) to provide IPC services and comprehensive HIV prevention, care, and treatment services in 49 public health facilities in Nairobi Kenya. This project was built on the existing tuberculosis (TB) IPC framework (1) implemented in President's Emergency Plan for AIDS Relief (PEPFAR) programs to integrate TB and COVID-19 IPC practices and establish ongoing monitoring and evaluation systems. As there was limited research on implementing IPC programs in Kenyan health facilities during the COVID-19 pandemic, it was critical to evaluate this project to understand potential gaps, develop better solutions and ultimately provide timely information that would be beneficial to improving IPC programming and service quality for effective patient management.

Project goal and objectives

The overall objective of this project was to strengthen the Nairobi County health system's capacity for ongoing and sustainable implementation, monitoring, and improvement of IPC measures to prevent healthcare-associated transmission of infectious diseases. The project used existing TB-IPC and continuous quality improvement (CQI) platforms to enhance health system preparedness using multi-modal interventions¹ in 49 UMB-supported health facilities between October 2020 and September 2021.

The sub-objectives were:

- i. To support the integration of IPC guidelines, IPC training modules/curriculum, and IPC assessment tools for implementation of the IPC program at both the national and county levels.

¹ World Health Organization's Multimodal strategies for IPC: 1 the system change needed to enable IPC practices, including infrastructure, equipment, supplies and other resources; 2 training and education to improve health worker knowledge; 3 monitoring and feedback to assess the problem, drive appropriate change and document practice improvement; 4 reminders and communications to promote the desired actions, at the right time, including campaigns; 5 a culture of safety to facilitate an organizational climate that values the intervention, with a focus on involvement of senior managers, champions or role models.

- ii. To strengthen the capacity of Nairobi County to own, provide oversight, and effectively plan for sustainable delivery and management of the IPC program with minimal external technical support.
- iii. To train a pool of trainer of trainers (TOTs) within Nairobi County to cascade the training to staff at the facility level, thereby institutionalizing IPC training/continuous medical education (CMEs) in healthcare facilities. Furthermore, this project aimed to strengthen the capacity and increase the workforce of IPC practitioners.
- iv. To institutionalize a culture of CQI practices in delivering IPC programs and other healthcare-related services to ensure long-term desired population health outcomes and spread implementation and sustenance of best practices.
- v. To set up 10 IPC model health facilities for training, benchmarking, and cross-learning for sustainability.

2.0 BACKGROUND

Kenya recorded its first COVID-19 cases (caused by SARS-CoV-2) on March 12th, 2020, and as of September 30th, 2021, reported 249,434 confirmed cases with 5,123 deaths (2), with Nairobi accounting for 40% of the total confirmed cases (3). Nairobi County accounted for approximately 15% of TB cases notified in the country (4). As a result of the COVID-19 pandemic, essential healthcare services, including human immunodeficiency virus (HIV) and TB care, were negatively impacted by widespread strikes by healthcare workers due to inadequate personal protective equipment (PPE) and inadequate training of healthcare workers on IPC measures. The curfew and lockdowns imposed further negatively impacted essential health services. Thus, implementing multi-modal IPC measures, covering multiple infectious diseases and epidemics, was critical to ensure continuous service delivery.

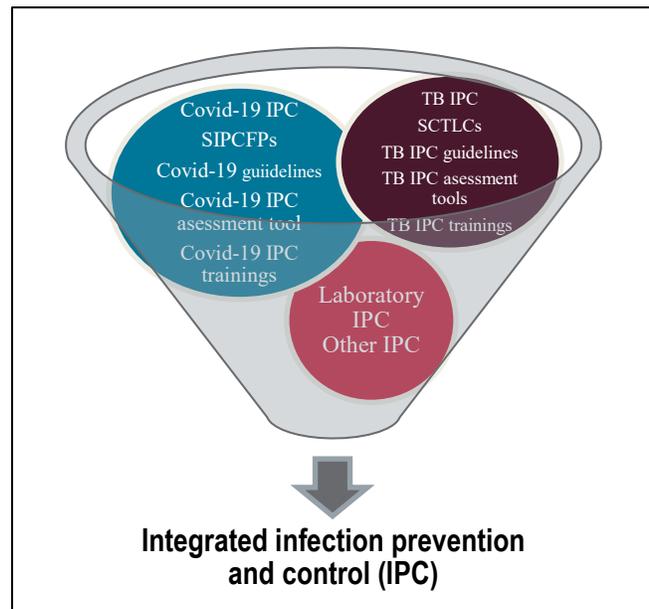


Figure 1. Infection prevention and control program delivery model
 *SIPCFFP: sub-county infection control focal persons; SCTLC: sub-county TB and leprosy coordinators

The Kenya Ministry of Health and PEPFAR has been keen to make IPC a significant component of patient and healthcare worker (HCW) safety in HIV and TB programs. The Government of Kenya, with support from implementing partners, had developed multiple guidelines on IPC, including TB in 2014 (1), laboratory bio-safety and biosecurity in 2018 (5), and interim IPC recommendations for COVID-19 in health care settings in 2020 (6). However, the guidelines were implemented in silos focusing on specific diseases. This project adopted an integrated approach illustrated in Figure 1, equipping the Nairobi Metropolitan Services Health Management Team (NMSHMT)², health facilities, and communities to respond to outbreaks and prevent the spread of infectious diseases, including TB, COVID-19, and other respiratory infections. This was achieved by facilitating integration of guidelines (i.e., the COVID IPC guidelines) into existing TB IPC guidelines, combining the assessment/audit tools into one, and conducting joint audit and supervision visits.

3.0 EVALUATION DESIGN AND METHODS

3.1 EVALUATION OBJECTIVES

Main objective

To evaluate the outcomes of IPC interventions across UMB-supported health facilities in Nairobi County.

Specific Objectives

1. To evaluate the uptake of administrative, environmental, and respiratory protective IPC measures across 49 UMB-supported health facilities in Nairobi over time
2. To evaluate the implementation of CQI practices in IPC and their outcomes

3.2 EVALUATION DESIGN AND SETTING

² The NMSHMT comprises of the county and subcounty focal persons heading various health departments (curative, preventive and Promotive, policy) under the leadership of the Director Health NMS. IPC in NMSHMT is under the supervision of the county and sub-county infection control focal persons (S/CIPCFP), county and sub-county TB and leprosy coordinators (S/CTLC), and county and sub-county medical laboratory technologists (S/CMLT).

Objective 1: To evaluate the uptake of administrative, environmental, and respiratory protective IPC measures, we used a cross-sectional study design from October 2020 to September 2021 in 49 health facilities in Nairobi County.

Objective 2: We conducted a cross-sectional study of CQI processes and outcomes aimed at improving IPC measures from October 2020 to September 2021 in 49 health facilities in Nairobi County.

3.3 SUMMARY OF STAKEHOLDER ENGAGEMENT

UMB worked closely with the National Tuberculosis, Leprosy, and Lung Diseases Program (NTLDP) and the NMSHMTs to support IPC implementation as per the national guidelines. This evaluation aligned with the scope of work of PACT Endezeza, a CDC-funded program in Nairobi City County that aimed at delivering enhanced and integrated HIV prevention and treatment services. UMB engaged CDC Kenya, NTLDP, and NMSHMT while preparing and conducting this evaluation, from protocol conceptualization and development to collecting data and reviewing results. UMB promoted a data-driven feedback loop to communicate results across all health system levels, including at the facility level. The team held monthly meetings with the participating facilities and other stakeholders to discuss and share data on program performance and ongoing evaluations.

3.4 ETHICAL CONSIDERATION

The protocol was approved by the AMREF Ethics and Scientific Review Committee (AMREF-ESRCP1022/2021) and the University of Maryland, Baltimore IRB (HP-00098491). The protocol and the associated documents were also reviewed in accordance with the U.S. Center for Disease Control and Prevention (CDC) human research protection procedures and was determined to be research, but the CDC investigators did not interact with human subjects or have access to identifiable data or specimens for research purposes.

3.5 EVALUATION POPULATION

The study population consisted of 49 urban government care and treatment facilities in Nairobi County receiving PEPFAR support for HIV and TB services. This project targeted patients

receiving care and their caregivers at PEPFAR-supported sites for any medical condition, as well as all healthcare workers providing services to patients. Among the 49 facilities, 12 were high-volume (1,000 or more clients on antiretroviral therapy for HIV), while the majority, 25, were mid-volume (between 100 and 1,000 clients on antiretroviral therapy).

3.6 EVALUATION SAMPLING

All 49 PACT Endezeza-supported sites in Nairobi County with existing HIV services were included in the interventions and analysis.

3.7 INTERVENTIONS

Assessment and monitoring of IPC measures

In October 2020, we developed an integrated assessment tool (Appendix A) using the WHO IPC Readiness Assessment Framework, the Kenya national TB IPC assessment tool, and the COVID-19 health facility assessment tool. The county and sub-county teams were oriented to the integrated assessment tool used to conduct a baseline assessment during quarter one between November and December 2020. Based on the gaps identified, facilities were supported to develop IPC work plans, reactivate IPC committees, and appoint facility-specific IPC focal persons. Furthermore, we worked with the national TB program to integrate COVID-19 and other respiratory disease IPC into the TB-IPC guidelines and training curriculum, which were used to train a pool of TOTs who later cascaded the training to trainers and other healthcare workers.

We supported monthly facility CMEs and IPC review meetings and quarterly supportive supervisory visits with county and sub-county teams. Facilities were supported to create triage areas that were equipped for COVID-19 and TB screening, and HCWs were trained on triaging and screening procedures. We provided facilities with policies; guidelines; information, education, and communication materials; SOPs; minor facility structural improvements; and PPE. The integrated assessment tool was administered quarterly to monitor facility improvements.

CQI activities for IPC

Between March 2021 and September 2021, we supported facility-based CQI teams to implement CQI projects to address gaps identified during the assessments. Of the 49 PACT Endezeza-supported sites, 38 facilities implemented IPC projects at the time of this analysis. The omitted eleven

facilities were newly supported facilities that had no existing CQI platforms, and had not implemented IPC-specific CQI projects by the end of the study period. Each participating site followed four significant steps (Figure 2) per the Kenya Quality Model for Health (KQMH) standards (7) as follows:

1. **Problem Identification.** This step involves identifying the gap between the current (problem) state and desired (goal) state. We supported the CQI teams to retrospectively review the gaps identified in the assessment reports and develop a facility-specific problem statement.
2. **Root Cause Analysis.** We held the first joint facility brainstorming session with facility CQI teams to identify the origin of the problem. We used the fishbone diagram to analyze the root causes and adopted the 5-whys approach in determining potential root causes of the identified gaps. Each identified root cause was subjected to further questioning a minimum of five times, ensuring an exhaustive analysis of all contextual root causes in an orderly manner.
3. **Developing Solutions and an Aims Statement.** CQI teams from the facilities developed goal statements and objectives to generate change ideas based on the identified root causes.
4. **Implementation of improvement changes.** The Plan-Do-Study-Act (PDSA) cycle was used to implement the practical measures as guided by the KQMH guidelines.

CQI activities were entered into a UMB-developed digital platform with a real-time dashboard for monitoring progress in service delivery. Facility staff were trained to use the CQI digital platform and electronically upload and monitor their IPC projects. The facility IPC lead, and sub-county CQI and IPC leads were able to monitor IPC CQI activities in facilities remotely through the CQI dashboard and prioritize sites for providing support. Facility staff also participated in best practices sharing forums for cross-learning.

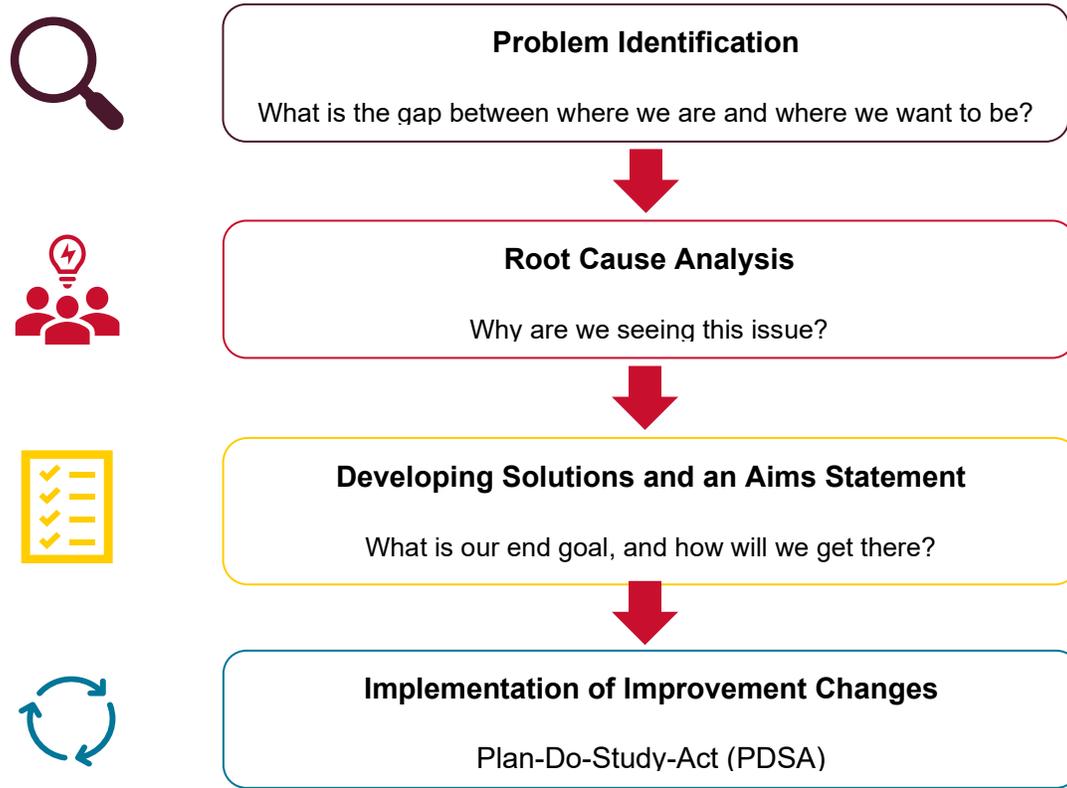


Figure 2. Steps of the continuous quality improvement process following the Kenya Quality Model for Health (KQMH) standards

3.8 OUTCOMES

Outcomes of interest included:

Objective 1: Uptake of administrative, environmental, and respiratory protective IPC measures

Indicators were measured across eight domains which originated from an amalgam of categories from the assessment tools (Kenya National TB IPC assessment tool and COVID-19 assessment tool) described in Section 3.7 interventions.

Domain 1: Policy coordination and training

1. Proportion of facilities with IPC policies and guidelines accessible to staff
2. Proportion of facilities with an IPC focal person
3. Proportion of facilities with an active IPC committee

4. Proportion of facilities with approved procedures for screening and triage of patients and healthcare workers
5. Proportion of facilities with training and educational materials on screening and triage
6. Proportion of facilities with IPC work plans addressing gaps identified during IPC audits
7. Proportion of facilities with IPC work plans displayed

Domain 2: Patient screening and triage

1. Proportion of facilities with a designated space for screening and triage
2. Proportion of facilities with designated staff to screen and triage patients
3. Proportion of facilities with necessary supplies and equipment to screen and triage patients
4. Proportion of facilities with training and education material on screening and triage
5. Proportion of facilities carrying out active patient screening for COVID-19

Domain 3: HCW screening and triage

1. Proportion of facilities with designated staff to screen healthcare workers
2. Proportion of facilities with a designated space for screening and triage of healthcare workers
3. Proportion of facilities with necessary supplies and equipment to screen healthcare workers
4. Proportion of facilities with training and education material on screening of healthcare workers
5. Proportion of facilities carrying out active healthcare workers screening for COVID-19

Domain 4: TB clinic measures

1. Proportion of facilities with health talks given to waiting clients about TB, COVID-19, and other respiratory infections
2. Proportion of facilities with patients screened for cough at the outpatient department (OPD)
3. Proportion of facilities with a separate area for presumptive TB and COVID cases
4. Proportion of facilities carrying out screening of healthcare workers for TB
5. Number of healthcare workers screened for TB in the last 1 year
6. Proportion of facilities with N-95 masks available and in use by staff in high-risk service areas

Domain 5: Laboratory measures

1. Proportion of facilities with TB, COVID-19, and other respiratory diseases informational signage displayed
2. Proportion of facilities with laboratory staff trained on General Laboratory Biosafety
3. Proportion of facilities with updated biosafety manuals/SOPs
4. Proportion of facilities with adequate and appropriate PPE for laboratory staff
5. Proportion of facilities with up-to-date certification of biosafety cabinet/hood
6. Proportion of facilities with a final waste holding area

Domain 6: Injection safety

1. Proportion of facilities with aseptic technique in use
2. Proportion of facilities not recycling needles/syringes
3. Proportion of facilities with sharps containers available
4. Proportion of facilities with PEP protocols available

Domain 7: Environmental cleaning and disinfection

1. Proportion of facilities with the following disinfectants available: chlorine 0.5% or 70% ethyl alcohol
2. Proportion of facilities with evidence of daily preparation of bleach dilution
3. Proportion of facilities with documented evidence of cleaning and disinfection of high touch surfaces three times daily
4. Proportion of facilities practicing disinfection of patient care medical devices

Domain 8: Device reprocessing

1. Proportion of facilities with policies, procedures, and manufacturer reprocessing instructions for reusable medical devices
2. Proportion of facilities with documented evidence of cleaning, reprocessing, and maintenance of medical devices as per manufacturers' instructions
3. Proportion of facilities with SOPs that guide healthcare workers on how to confirm achieved sterility/disinfection
4. Proportion of facilities discarding single-use devices

Objective 2: Implementation of CQI practices in IPC and their outcomes

IPC CQI outcomes:

1. Proportion of facilities implementing quality improvement projects to address gaps in IPC.
2. Proportion of completed projects that achieved their set targets.

3.9 DATA COLLECTION

Assessment and monitoring of IPC measures

UMB, through CDC funding, developed an integrated IPC site capacity assessment tool (Appendix A), designed to assess the overall IPC practices and to support improvement through providing an understanding of facility needs and gaps in IPC. The integrated IPC assessment tool was used for routine data collection to establish baseline strengths and identify gaps in the systems in eight domains: Patient and HCW triage and screening, policies and training, supplies, TB clinic, laboratory, injection safety, environmental cleaning, and device processing. This information was used to refine the support strategy for the facility by defining priorities, objectives, and providing targeted technical assistance and support. Quarterly facility assessments using the IPC tool allowed the program to monitor progress in the improvement in service delivery.

The trained program technical team, NMSHMT, and facility staff conducted joint data collection. The data was then entered into an IPC database for analysis. COVID-19 measures were adhered to during data collection. Data quality assurance (DQA) measures included built-in validation rules and checks.

CQI activities for IPC

The data on CQI projects was extracted from the CQI digital platform housed at the UMB servers in Kenya. Run charts were used to track routine process data over time to monitor trends and patterns in implementation and to determine when changes led to improvement in the achievement of indicators.

3.10 MONITORING

The UMB team met quarterly, or as needed, with the MOH, participating facilities, the CDC, and other stakeholders to discuss the timeline, data collection and analysis, and monitoring and oversight on the evaluation.

3.11 STATISTICAL ANALYSIS

Objective 1: Uptake of administrative, environmental, and respiratory IPC measures

To describe the assessment outcomes, we derived frequencies and proportions for the binary assessment outcomes per domain for each period of review. We further derived the average domain score from all assessment scores for each period. Chi-square tests or Fisher's exact tests, where applicable, were used to test for an association between period and assessment results. All tests were done with 95% confidence levels.

Objective 2: Implementation of CQI practices in IPC and their outcomes

We derived proportions and frequencies to describe overall CQI project types and uptake. Time to completion of projects was described using median and the corresponding interquartile range (IQR) and mean and corresponding standard deviation (SD).

4.0 RESULTS

4.1 UPTAKE OF IPC MEASURES DURING THE EVALUATION PERIOD.

Overall, the uptake of IPC measures across the 8 domains improved between October 2020 and September 2021 with the policy, coordination, and training domain showing the greatest seven-fold increase in coverage from 15% at baseline (Quarter 1) to 100% at endterm (Quarter 4) (Figure 3).

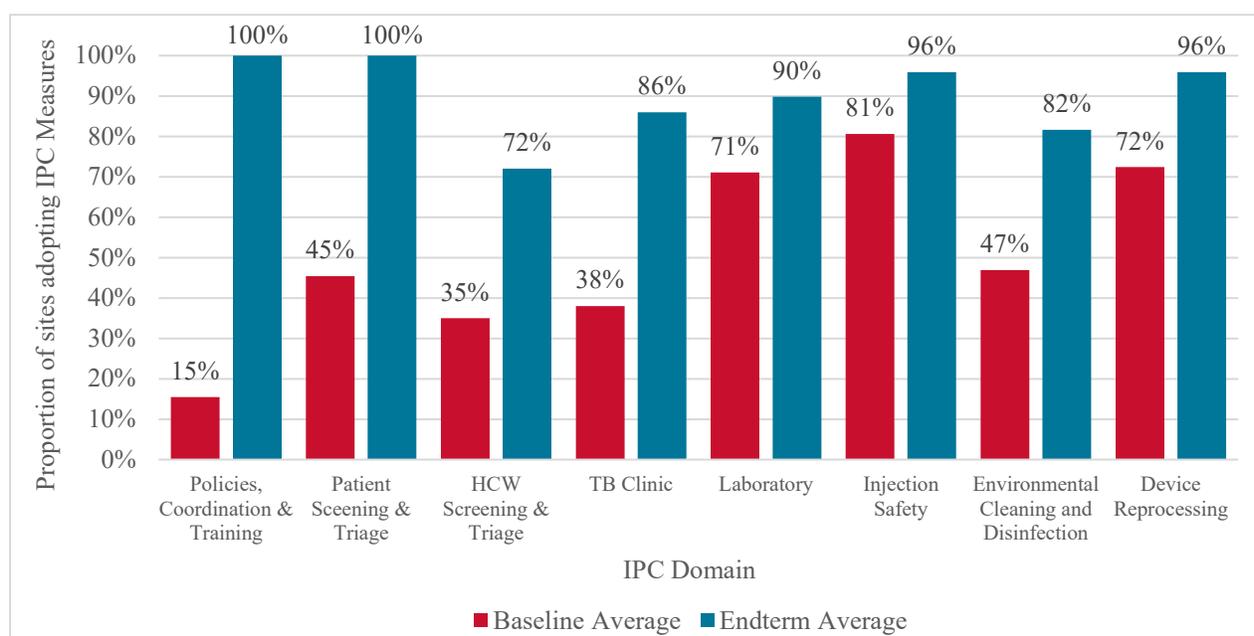


Figure 3. Proportion of sites adopting infection prevention and control (IPC) measures by domain at baseline compared to the end of the project, October 2020 (baseline)-September 2021 (end of the project) (N=49 facilities).

4.1.1. Policy, coordination, and training

At baseline, only 15% of the facilities had in place policies and coordination structures for IPC. By end of quarter four, all 49 facilities had appointed an IPC focal person and had an active IPC committee, all facilities had established screening and triaging procedures and had IPC guidelines and facility work plans in place (Table 1).

Table 1. Assessment results for Policies, Coordination & Training IPC by quarter, October 2020-September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Is there an IPC focal person in place?			
Quarter 1	21	43%	
Quarter 2	48	98%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Is there an active IPC Committee?			

Quarter 1	9	18%	
Quarter 2	40	82%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Are there approved procedures for screening and triaging?			
Quarter 1	3	6%	
Quarter 2	47	96%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Are there training and educational materials on screening and triage?			
Quarter 1	3	6%	
Quarter 2	5	10%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Are there IPC policies and guidelines?			
Quarter 1	9	18%	
Quarter 2	48	98%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Is there an IPC work plan in place addressing the gaps identified during IPC audits?			
Quarter 1	4	8%	
Quarter 2	47	96%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Is the IPC work plan displayed in a location accessible to staff ?			
Quarter 1	4	8%	
Quarter 2	47	96%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	
Average assessment scores			
Quarter 1		15%	
Quarter 2		82%	N/A

Quarter 3	100%
Quarter 4	100%

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.2 Patient screening and triaging

Ninety percent of facilities at the beginning of the project had screening equipment for COVID-19 and TB (PPE, thermogun, waste disposal bins); however, less than a third had any dedicated triage staff and space. This improved more than two times from 45% to 100% at the end of September 2021 (Table 2).

Table 2. Assessment results for Patient Screening & Triage IPC by quarter, October 2020-September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Are there designated staff to screen and triage patients?			
Quarter 1	14	29%	
Quarter 2	45	92%	< 0.001 (Chi-square)
Quarter 3	49	100%	
Quarter 4	49	100%	
Is there a designated space for screening and triage?			
Quarter 1	16	33%	
Quarter 2	43	88%	< 0.001 (Chi-square)
Quarter 3	49	100%	
Quarter 4	49	100%	
Does your facility have the necessary supplies and equipment to screen and triage patients including Thermogun?			
Quarter 1	44	90%	
Quarter 2	49	100%	< 0.001 (Chi-squared)
Quarter 3	49	100%	
Quarter 4	49	100%	
Are there training and educational materials on screening and triage?			
Quarter 1	3	6%	< 0.001

Quarter 2	5	10%	(Fisher's exact)
Quarter 3	49	100%	
Quarter 4	49	100%	
Does the facility conduct outpatient screening and triage?			
Quarter 1	15	31%	
Quarter 2	44	90%	< 0.001
Quarter 3	48	98%	(Chi-square)
Quarter 4	49	100%	
Average assessment scores			
Quarter 1		45%	
Quarter 2		92%	N/A
Quarter 3		99%	
Quarter 4		100%	

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.3 Healthcare worker screening and triage for COVID-19

This domain was among the lowest at baseline (35%) with only three facilities having a documented procedure for HCW screening. Over the four quarters, we were able to increase the number of facilities with procedures, dedicated staff, and space for screening, and screening equipment to 72%. The number of facilities carrying out active health care worker screening for COVID-19 remained below 50% and the data for the number of healthcare workers screened for COVID-19 was not easily accessed. (Table 3). One hundred and nineteen HCWs from all facilities were trained on TB/COVID-19 IPC.

Table 3. Assessment results for Healthcare Worker Screening & Triage IPC by quarter, October 2020 - September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Number of facilities with Procedures for HCW_Screening			
Quarter 1	3	6%	
Quarter 2	46	94%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	

Number of facilities with designated staff to screen and triage healthcare workers

Quarter 1	4	8%	
Quarter 2	41	84%	< 0.001
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	

Number of facilities with dedicated space to screen and triage healthcare workers

Quarter 1	20	41%	
Quarter 2	47	96%	< 0.001
Quarter 3	49	100%	(Chi-square)
Quarter 4	49	100%	

Number of facilities with necessary supplies and equipment to screen and triage healthcare workers

Quarter 1	44	90%	
Quarter 2	49	100%	0.003
Quarter 3	49	100%	(Fisher's exact)
Quarter 4	49	100%	

Number of facilities carrying out active healthcare workers screening for COVID 19

Quarter 1	1	2%	
Quarter 2	11	22%	0.007
Quarter 3	7	14%	(Fisher's exact)
Quarter 4	3	6%	

Average assessment scores

Quarter 1	35%	
Quarter 2	78%	
Quarter 3	80%	NA
Quarter 4	72%	

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.4 TB clinic

The TB assessment domain consisted of screening patients for cough, as well as assessment of staff training and use of N95 masks. At baseline, 38% of the facilities had IPC measures in place in the TB clinic with 2% of facilities having screened healthcare workers and 76% giving health talks to clients (Table 4). At the end of the project, the TB domain improved by 48% on the average score (from 38% to 86%) with all facilities implementing the IPC measures. The number of healthcare workers screened for TB improved from 23% (301 of 1,311) at baseline to 73% (957 of 1311) at the end of the project

Table 4. Assessment results for the TB Clinic IPC by quarter, October 2020-September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Health talks are given to waiting clients about TB/COVID and other respiratory infections, symptoms, and diagnoses.			
Quarter 1	37	76%	
Quarter 2	47	96%	< 0.001
Quarter 3	47	96%	(Fisher's exact)
Quarter 4	47	96%	
Patients are screened for cough at OPD			
Quarter 1	14	29%	
Quarter 2	41	84%	< 0.001
Quarter 3	46	94%	(Chi-square)
Quarter 4	47	96%	
TB /COVID suspects/patients are separated from other patients			
Quarter 1	19	39%	
Quarter 2	41	84%	< 0.001
Quarter 3	45	92%	(Chi-square)
Quarter 4	47	96%	
The facility screened all the HCWs for TB in the last 1 year			
Quarter 1	1	2%	
Quarter 2	3	6%	< 0.001
Quarter 3	11	22%	(Fisher's exact)

Quarter 4	19	39%	
N95 respirator/masks are used by staff in high-risk services (e.g., TB & Lab)			
Quarter 1	27	55%	
Quarter 2	42	86%	< 0.001
Quarter 3	44	90%	(Chi-square)
Quarter 4	47	96%	
Average assessment scores			
Quarter 1		38%	
Quarter 2		73%	N/A
Quarter 3		81%	
Quarter 4		86%	

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.5 Laboratory

This domain had a score at baseline of 71% with an improvement of 19% by the end of the project. The area with the greatest improvement was the TB/COVID-19 signage availability (76%) (Table 5).

Table 5. Assessment results for Laboratory IPC by quarter, October 2020-September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
TB/COVID -19 & other respiratory diseases Informational			
Signages on display			
Quarter 1	10	20%	
Quarter 2	43	88%	< 0.001
Quarter 3	45	92%	(Fisher's exact)
Quarter 4	47	96%	
Laboratory staff are trained on General Lab biosafety			
Quarter 1	43	88%	
Quarter 2	44	90%	0.868
Quarter 3	44	90%	(Fisher's exact)
Quarter 4	44	90%	

The laboratory has IPC and biosafety manual/SOPs in use and up to date

Quarter 1	46	94%	
Quarter 2	46	94%	NA
Quarter 3	46	94%	
Quarter 4	46	94%	

Laboratory staff have adequate and appropriate PPE

Quarter 1	25	51%	
Quarter 2	30	61%	0.088
Quarter 3	32	65%	(Chi-square)
Quarter 4	36	73%	

Biosafety cabinet/Hood have up to date certification

Quarter 1	44	90%	
Quarter 2	44	90%	0.974
Quarter 3	44	90%	(Fisher's exact)
Quarter 4	45	92%	

Final waste Holding area available at the facility

Quarter 1	41	84%	
Quarter 2	44	90%	0.102
Quarter 3	45	92%	(Fisher's exact)
Quarter 4	46	94%	

Average assessment scores

Quarter 1		71%	
Quarter 2		85%	N/A
Quarter 3		87%	
Quarter 4		90%	

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.6 Injection safety

This domain had the highest average score at baseline (81%), improving by 15% at end of the project across the four assessed areas (Table 6).

Table 6. Assessment results for Injection Safety IPC by quarter, October 2020-September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Aseptic technique in use			
Quarter 1	46	94%	
Quarter 2	47	96%	0.495
Quarter 3	48	98%	(Fisher's exact)
Quarter 4	49	100%	
No recycling of Needles / Syringes			
Quarter 1	47	96%	
Quarter 2	47	96%	0.521
Quarter 3	48	98%	(Fisher's exact)
Quarter 4	49	100%	
Sharps containers available			
Quarter 1	47	96%	
Quarter 2	47	96%	0.521
Quarter 3	48	98%	(Fisher's exact)
Quarter 4	49	100%	
PEP Protocols available			
Quarter 1	18	37%	
Quarter 2	43	88%	< 0.010
Quarter 3	48	98%	(Fisher's exact)
Quarter 4	49	100%	
Average assessment scores			
Quarter 1		81%	
Quarter 2		94%	N/A
Quarter 3		95%	
Quarter 4		96%	

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.7 Environmental cleaning and disinfection

All assessed facilities at baseline had disinfectant available; however, only 2% documented disinfection of highly touched surfaces and medical devices. At the end of quarter 4, this

improved to 49% disinfection of highly touched surfaces and 86% disinfection of medical devices (Table 7).

Table 7. Assessment results for Environmental Cleaning and Disinfection IPC by quarter, October 2020-September 2021 (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Availability of disinfectant (chlorine 0.5%] or 70% ethyl alcohol)			
Quarter 1	47	96%	N/A
Quarter 2	47	96%	
Quarter 3	47	96%	
Quarter 4	47	96%	
Is fresh dilution of bleach for disinfection with chlorine solution prepared daily?			
Quarter 1	43	88%	0.275 (Fisher's exact)
Quarter 2	47	96%	
Quarter 3	47	96%	
Quarter 4	47	96%	
High touch surfaces are appropriately cleaned and disinfected at least 3x daily			
Quarter 1	1	2%	<0.001 (Fisher's exact)
Quarter 2	9	18%	
Quarter 3	23	47%	
Quarter 4	24	49%	
Patient Care Medical Devices including blood pressure, Stethoscope, and others) are cleaned and wiped with 70% Ethyl Alcohol after every patient's use			
Quarter 1	1	2%	<0.001 (Fisher's exact)
Quarter 2	26	53%	
Quarter 3	39	80%	
Quarter 4	42	86%	
Average assessment scores			
Quarter 1		47%	N/A
Quarter 2		66%	

Quarter 3 80%

Quarter 4 82%

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.1.8 Device reprocessing

At baseline, three (6%) of the facilities had policies and procedures available on device reprocessing and 45 (92%) of the facilities practiced medical device cleaning, reprocessing, and sterilization based on the manufacturer’s recommendation. At the end of the project, there was a 23% improvement across the assessed areas with all facilities adhering to the measured IPC standards for device reprocessing (Table 8).

Table 8. Assessment results for Device Reprocessing IPC (N=49 facilities)

Assessment question and quarter*	Yes	%	p-value (test)
Policies, procedures, and manufacturer reprocessing instructions for reusable medical devices used in the facility are available to staff in the reprocessing area(s).			
Quarter 1	3	6%	
Quarter 2	37	76%	< 0.001 (Chi-square)
Quarter 3	41	84%	
Quarter 4	47	96%	
Reusable medical devices are cleaned, reprocessed (disinfection or sterilization), and maintained according to the manufacturer's instructions.			
Quarter 1	45	92%	0.242 (Fisher’s exact)
Quarter 2	47	96%	
Quarter 3	47	96%	
Quarter 4	47	96%	
Autoclave tape used to check for endpoint of sterilization of reusable devices			
Quarter 1	47	96%	NA
Quarter 2	47	96%	
Quarter 3	47	96%	
Quarter 4	47	96%	

Single-use devices are discarded after use and not used for more than one patient unless they have been appropriately reprocessed.

Quarter 1	18	37%	
Quarter 2	43	88%	<0.010
Quarter 3	46	94%	(Chi-square)
Quarter 4	47	96%	

Average assessment scores

Quarter 1	72%	
Quarter 2	91%	NA
Quarter 3	93%	
Quarter 4	96%	

*Quarter 1: October 2020-December 2020 (baseline); Quarter 2: January 2021-March 2021; Quarter 3: April 2021-June 2021; Quarter 4: July 2021-September 2021

4.2 UPTAKE OF CQI IPC PROJECTS

4.2.1: Proportion of facilities with CQI projects

Overall, the uptake of CQI for IPC increased from zero facilities to 38 facilities (78%) between October 2020 and September 2021 (Figure 4).

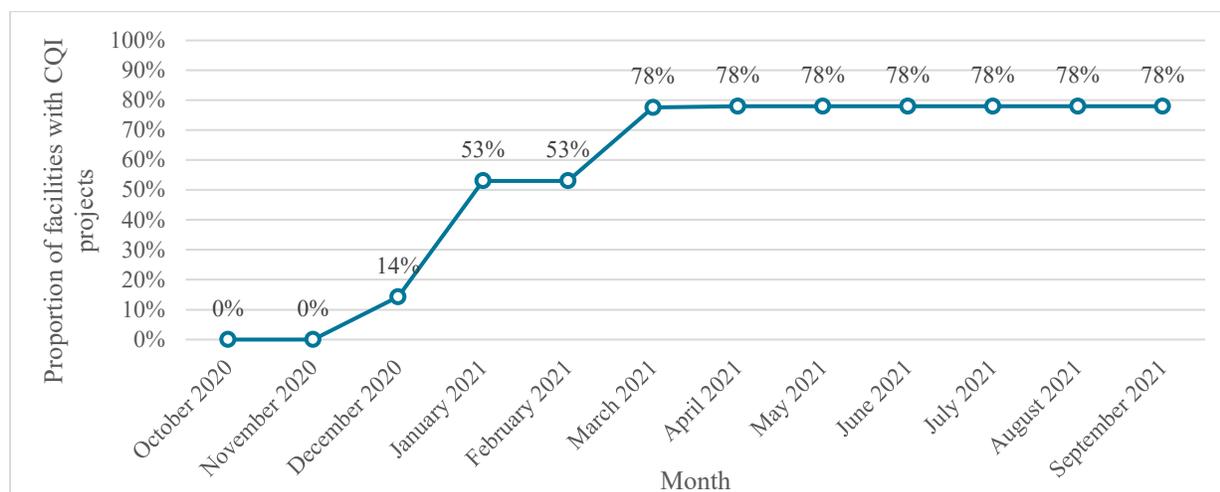


Figure 4. The proportion of facilities with infection prevention and control CQI projects in UMB-supported facilities by month, Nairobi County, October 2020-September 2021 (N=38 facilities).

4.2.2: Number and type of CQI projects

A total number of 103 projects on HCW screening, patient triage, hand hygiene, and waste segregation and management were implemented across 38 facilities, with the majority of facilities implementing more than one CQI project (Figure 5).

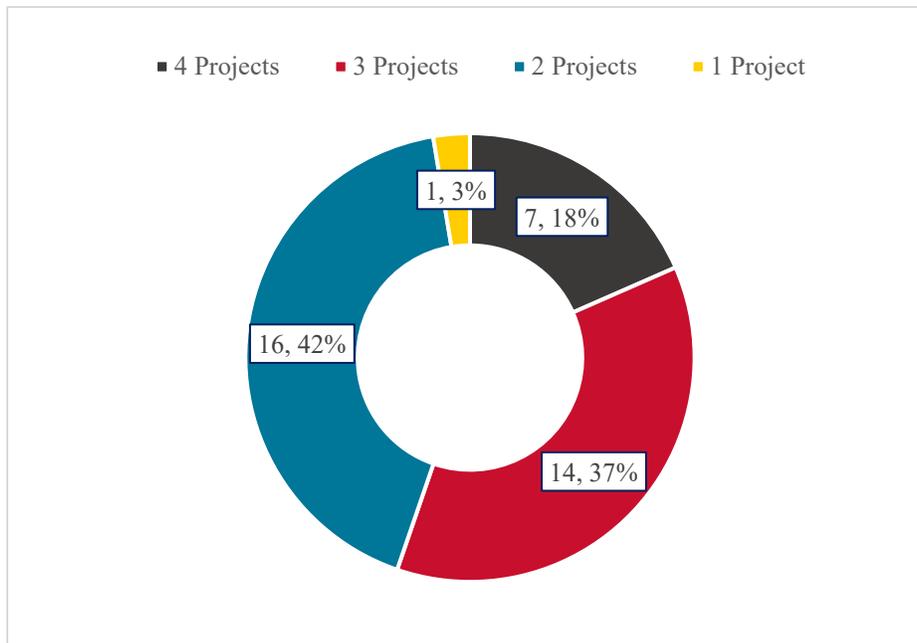


Figure 5. Distribution of facilities by the number of IPC CQI projects implemented in UMB-supported facilities, Nairobi County, March-September 2021 (N=38 facilities, 103 projects).

Facility-implemented CQI projects were based on quality improvement team member votes with the majority of CQI projects being on patient triage and HCW screening (Figure 6).

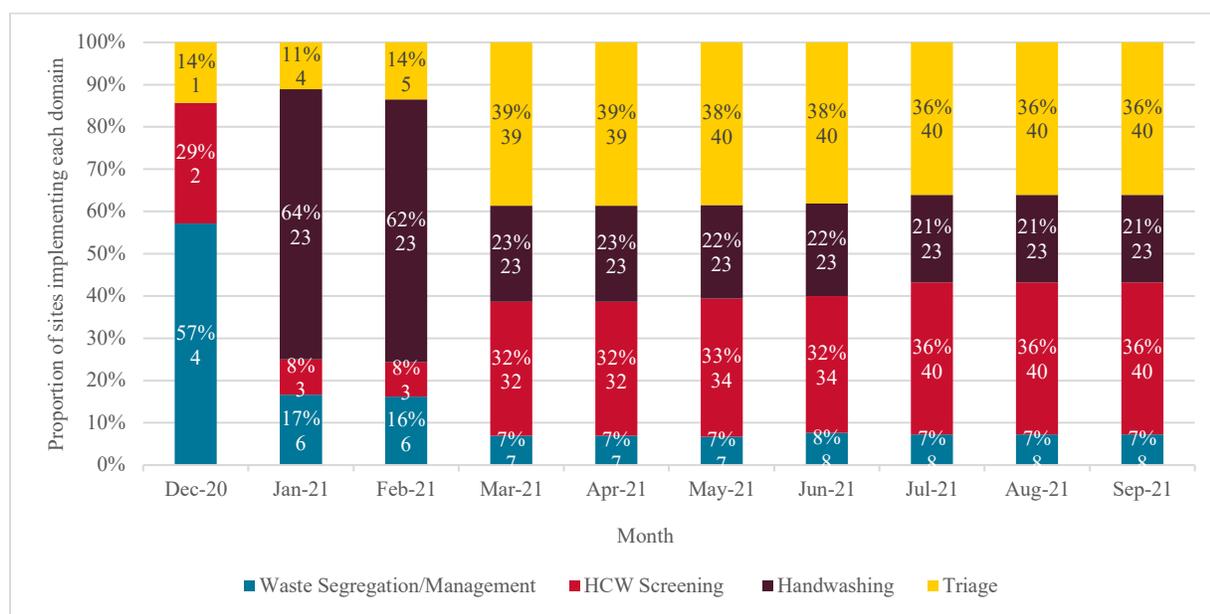


Figure 6. Distribution of IPC CQI project domains by month, December 2020-September 2021 (N=38 facilities).

4.3 OUTCOMES OF CQI IPC PROJECTS IMPLEMENTED

4.3.1 Time to completion of projects

Of the 103 projects, 99 (89%) were completed by the end of the study period, with the remaining continuing beyond September 2021. The average time of completion of the CQI projects was six months but differed between the domains (Table 9), with a median time to completion of the CQI project of 6.8 (interquartile range (IQR), 5.7 – 6.8) months across all projects.

Table 9. Time to completion (months) of IPC CQI projects, March-September 2021 (N=38 facilities)

CQI Project	Number of completed projects	Median (months)	IQR (months)	Mean (months)	Standard Deviation (months)
HCW Screening	32	6.8	(6.8 – 6.8)	6.6	1.1
Hand hygiene	23	5.7	(5.7 – 5.7)	5.7	0.0
Triage	37	6.8	(5.0 – 6.8)	6.1	1.1
Waste segregation and management	7	4.7	(3.7 – 5.7)	4.7	1.1

4.3.2 Proportion of CQI projects that achieved their targets

According to KQMH, facilities set their own targets based on their current status versus the desired. Among the 99 completed projects, only projects focusing on HCW screening did not meet their targets, with 41% (13/32) of completed projects achieving their targets (Figure 7).

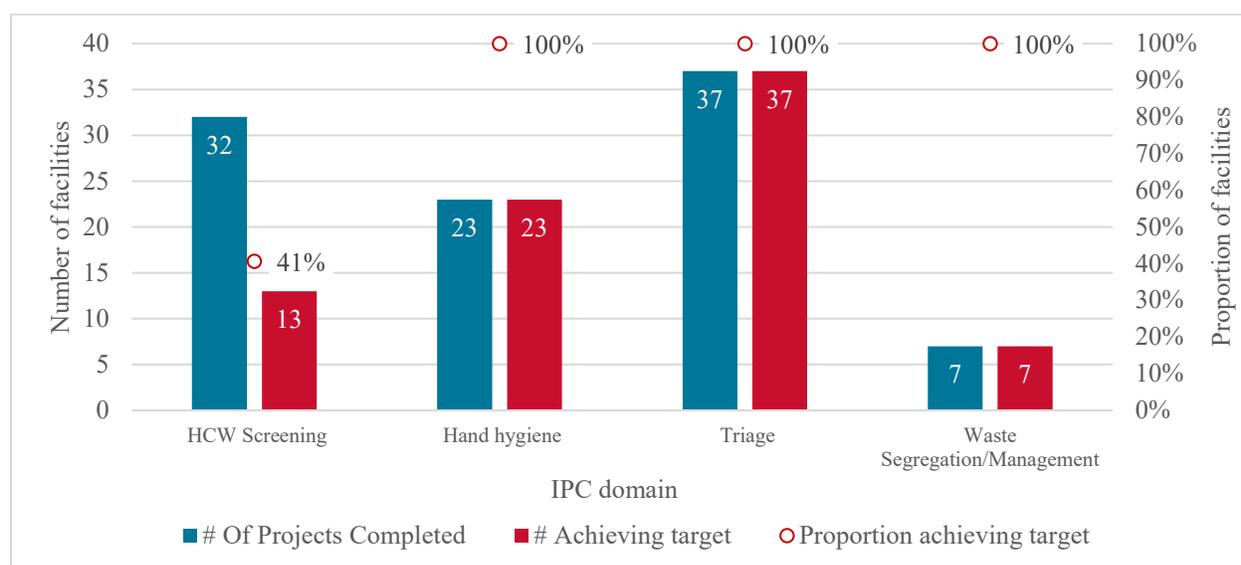


Figure 7. Proportion of complete CQI projects achieving targets, March-September 2021 (N=38 facilities).

5.0 LIMITATIONS

There was a potential bias in HCW screening because the implementers were also the target population of the intervention. Future studies should investigate barriers to HCW screening such as stigma or fear to address the poor uptake noted in screening and also non-completion of HCW screening CQI projects. Behavior change communication would have been critical in addressing healthcare workers' concerns and fears on screening and this was not factored in the intervention. Despite IPC implementation in 49 facilities, CQI was implemented in only 38 facilities. There was no qualitative data analysis to enhance the knowledge on integrated IPC measures in the facilities.

6.0 KEY CONSIDERATIONS

Based on the findings from this evaluation, we propose the following considerations for continuous improvement of the implementation and operationalization of IPC:

Strengthening of infection prevention and control during COVID-19 pandemic in Nairobi County, Kenya, Version 1, February 24th 2022

1. Institutionalization of CQI in IPC at all levels of implementation, national, county, sub-county.
2. Institutionalization of IPC at all service delivery points to routinize IPC measures and make it practice.
3. Adoption of the integrated IPC assessment tool and quarterly IPC assessments to enhance IPC measures at national, county, sub-county, and facility levels.
4. Evaluate the impact of IPC measures on public health outcomes.
5. Capacity building of HCW on the integrated IPC curriculum, with a focus on HCW screening, Disinfection of reusable medical devices.
6. Integration of HCW behavior change interventions as part of IPC improvement strategies to improve HCW uptake of screening interventions.
7. Conduct a comparative analysis between facilities that conducted CQI with those that did not have CQI projects.
8. Lobby for more resources to meet the need for PPE.

7.0 DATA DISSEMINATION

This evaluation report will be posted on a publicly accessible website within 90 days of clearance. Additionally, abstracts for presentation at scientific meetings and/or manuscripts for publication in peer-reviewed journals will be written on the findings from this evaluation report.

8.0 CONCLUSION

In collaboration with the NMSHMT, CDC, and UMB, the program successfully integrated and implemented IPC in 49 UMB-supported facilities in Nairobi County. This resulted in improvement in all 8 domains of IPC. Critical to implementation was the capacity building of healthcare workers using the integrated IPC curriculum and the institutionalization of CQI to routinize IPC measures. Guided efforts are required to address screening of healthcare workers.

9.0 CONFLICT OF INTEREST

THE AUTHORS AND INVESTIGATORS DECLARE NO CONFLICT OF INTEREST.

10.0 PROJECT TIMELINE

Items	2021				2022		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1. Development of protocol	X	X					
2. Submission of protocol to CDC, KEMRI and UMB							
3. Data collection	X	X	X	X			
4. Data analysis and review				X	X		
5. Writing reports					X	X	X
6. Dissemination of findings							X

*According to United States government fiscal year. Q1: October –December; Q2: January-March; Q3: April-June; Q4: July-September.

11.0 REFERENCES

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12.0 APPENDICES

APPENDIX A: INTEGRATED IPC ASSESSMENT TOOL

INFECTION PREVENTION CONTROL FACILITY ASSESSMENT TOOL

1.0 Introduction

Healthcare facilities are ideal settings for the transmission of infections. Patients have infections they can transmit to other patients and healthcare workers however sick patients are more susceptible to infections. Procedures also increase patient risk of infection and Hospital Acquired Infections affect patients, healthcare workers, their families and the communities.

An Infection Prevention and Control Program addresses reduction of risks of transmitting infections to the patient and to the environment.

2.0 Scope

This checklist specifies requirements for Infection Prevention and Control measures aimed to improve facility, staff, and patient safety. The elements of this checklist are based on IPC Policy Guidelines 2015, TB Policy guidelines, COVID-19 Interim Policy guidelines and other related documents.

3.0 Parts of the Audit

This IPC audit checklist consists of three parts:

Part I: Facility Profile

Part II: Facility Audits

Evaluation of Facility safety standards, operational procedures and practices.

Part III: Summary of Audit Findings

Summary of findings of the IPC audit and action planning worksheet

SCORING CRITERIA

Each element marked will be assigned a point value:

- Items marked “Yes” receive 1 point each.
- Items marked “Partial” receive 0.5 point each.
- Items marked “No” receive 0 point each.

Total points scored for each section should be tallied and recorded at the end of the section.

Audit Score	
<i>Section</i>	<i>Total Points</i>
Section 1: ADMINISTRATIVE POLICIES, COORDINATION & TRAINING	20
Section 2: SUPPLIES	10
Section 3: INFRASTRUCTURE (TRIAGE & CLINICAL AREAS)	36
Section 4: TB CLINIC	34
Section 5: LABORATORY	14
Section 6: INJECTION SAFETY	14
Section 7: ENVIRONMENTAL CLEANING	10
Section 8: DEVICE REPROCESSING	8
Section 9: ISOLATION FACILITIES PROVIDING CARE TO PATIENTS WITH SUSPECTED OR CONFIRMED COVID-19	24
TOTAL SCORE	170

PART I: FACILITY PROFILE		
Facility Name:	MFL Code	
County	Sub County	
Ownership of facility	<input type="checkbox"/> Public Health <input type="checkbox"/> Faith Based <input type="checkbox"/> Private	
Date of Assessment	Previous Assessment Scores	
Name of IPC focal person	Mobile Number	Email Address

Staffing Summary		
Cadres	Total Number	
Clinicians (Doctors/Clinical Officers)		
Nurses		
Pharmacists		
Laboratory Staff		
PHOs		
Counsellors		
Support Staff		
Others (Nutritionists, Physiotherapists, Radiographers etc.		

2.2	Facility performs an inventory of PPE supply at least once a month	Yes	No	
2.3	There is a focal person responsible for managing IPC supply.	Yes	No	
2.4	There is process to request additional supplies from national or County authorities	Yes	No	
2.5	There is adequate stock for 2 weeks at the time of the assessment for the following supplies: <i>Gloves, Utility gloves, Gowns, Aprons, Eye protection, Face masks, N95, FFP2 or equivalent respirators, alcohol-based hand rub, liquid soap, Sodium hypochlorite.</i>	Yes	No	
Total Scores (Maximum=10)				
Comments				

3. INFRASTRUCTURE (TRIAGE AREA & CLINICAL AREAS)				SCORES
During infectious disease outbreaks, triage is particularly important to separate patients likely to be infected with the respiratory pathogen of concern.				
3.1	Visual alerts (signage) are posted at the entrance of the facility and in strategic areas to guide patients with respiratory symptoms to immediately report to the registration desk.	Yes	No	
3.2	Well-spaced sitting area (> 1.5m between persons)	Yes	No	
3.3	A register/document to capture all those visiting the facility (Both patient's non-patients and staff) Details capture in the records: (Name, Phone No, Residence and Sub county)	Yes	No	
3.4	The following are available at registration desk:			
	i. HCW has appropriate PPE	Yes	No	
	ii. Facemasks (Or patients have own mask)	Yes	No	

	iii. Adequate hand hygiene stations (water and soap)	Yes	No	
	iv. Hand washing area signage	Yes	No	
	v. Cough Etiquette protocols and signage	Yes	No	
	vi. TB/COVID -19 Informational Signage's	Yes	No	
3.5	Screening tools available including thermogun and screening checklist	Yes	No	
3.6	Health care workers change gloves between patients	Yes	No	
3.7	Hand hygiene program			
	i. The facility implements a hand hygiene program that includes either handwashing, hand rubbing (e.g., using an alcohol-based hand rub. <i>(Note: Liquid soap in by all public hand wash basin preferably.)</i>)	Yes	No	
	ii. HCP are educated regarding appropriate indications for hand washing with soap and water versus hand rubbing with alcohol-based hand rub <i>(Note: Soap and water should be used when bare hands are visibly soiled (e.g., blood, body fluids) or after caring for a patient with known or suspected infectious diarrhea (e.g., Clostridium difficile or norovirus). In all other situations, alcohol-based hand rub may be used.)</i>	Yes	No	
	iii. There are posters demonstrating proper hand hygiene technique by the hand washing sinks and wall mounted alcohol –based hand rub.	Yes	No	
	iv. The facility periodically monitors and records adherence to hand hygiene and provides feedback to personnel regarding their performance	Yes	No	
3.8 Waste management				
	i. The facility implements procedures for collection, storage, and disposal of infectious waste to prevent exposures to workers,	Yes	No	

	patients, and the public. <i>(Note: Procedures include segregation of infectious waste, posted waste disposal guidance, and secure storage of infectious waste)</i>			
	ii. Waste is stored in a secure area, inaccessible to unauthorized persons	Yes	No	
	Total Score (Maximum=34)			
Comments				

4	TB CLINIC	SCORES			
4.1 Supporting structures and activities to ensure implementation of TB infection control interventions.					
4.1.1	Health talks is given to waiting clients about TB/COVID and other respiratory infections, symptoms and diagnosis.	Yes	Partial	No	
4.1.2	Maintenance activities were undertaken during the last 1 year on structures which improve TB infection control where applicable (e.g. air conditioning, fans, UVGI fittings)	Yes	Partial	No	
4.2. Administrative controls: Strategies to reduce generation of infectious aerosols:					
4.2.1	Patients are screened for cough at OPD	Yes	Partial	No	
4.2.2	Patients are educated in cough hygiene at OPD	Yes	Partial	No	
4.2.3	TB /COVID suspects/patients are separated from other patients	Yes	Partial	No	
4.2.4	TB/COVID suspects are given priority to ensure shorter waiting times in outpatient facilities	Yes	Partial	No	
4.2.5	There are separate and ventilated facilities for sputum collection for patients with presumptive TB .	Yes	Partial	No	
4.2.6	Turn-around time for sputum AFB/microscopy results in the last one month	> 48 hours	24 – 48 hours	< 24 hours	
4.2.7	Facility screened all the HCWs for TB in the last 1 year	Yes	Partial	No	
4.2.9	Posters displaying cough hygiene are prominently displayed	Yes	Partial	No	
4.3. Environmental controls: Strategies to remove infectious aerosols after generation:					
4.3.1	Windows in your facility are able to open	Yes	Partial	No	
4.3.2	Windows in your facility are kept open during working hours	Yes	Partial	No	
4.3.3	Do you know the direction of airflow in each consultation room in your facility?	Yes	Partial	No	
4.3.4	Staff in consultation rooms sit with their back towards the direction of airflow	Yes	Partial	No	
4.4. Staff or personnel risk reduction strategies to reduce inhalation of infectious aerosols:					
4.4.1	Number of staff trained on TB disease in the last 1 year	None	1	2 or more	
4.4.2	N95 respirator/masks are available this month	Yes	Partial	No	
4.4.3	N95 respirator/masks are used by staff in high risk services (e.g. TB & Lab)	Yes	Partial	No	

	Total score (Maximum = 34)			
Comments				

5 LABORATORY				SCORES
5.1	The Lab has a hand hygiene program for monitoring hand hygiene compliance by all cadres of healthcare workers	Yes	No	
5.2	Cough Etiquette protocols and signage are available and posted	Yes	No	
5.3	TB/COVID -19 & other respiratory diseases Informational Signages are available	Yes	No	
5.4	Laboratory staff are trained on General Lab biosafety	Yes	No	
5.5	The laboratory has IPC and biosafety manual/SOPs in use and up to date	Yes	No	
5.6	Laboratory staff have adequate and appropriate PPE	Yes	No	
5.7	Biosafety cabinet/Hood have up to date certification	Yes	No	
5.8	Final waste disposal facilities available at the site	Yes	No	
	Open burning _____ Incineration: _____ Outsourced Service:			
	Total score (Maximum = 16)			
Comments				

6.INJECTION SAFETY				SCORES
Injection safety: Review all areas handling injections and sharps in the facility				
6.1.	Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids or contaminated equipment.	Yes	No	
6.2	Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens).	Yes	No	
6.3	Single dose (single use) medication vials, ampules, and bags or bottles of intravenous solution are used for only one patient.	Yes	No	
6.4	All sharps are disposed of in a puncture-resistant sharps container.	Yes	No	
6.5	Filled sharps containers are disposed of in accordance with state regulated medical waste rules.	Yes	No	
6.6	Post Exposure Protocols are available at the site	Yes	No	
6.7	Post Exposure prophylaxis available at the site at all the times (Verify)	Yes	No	
	Total score (Maximum =14)			

Comments

7. ENVIROMENTAL CLEANING AND DISINFECTION				SCORES
7.1	Availability of disinfectant (chlorine 0.5%] or 70% ethyl alcohol)	Yes	No	
7.2	Is fresh dilution of bleach for disinfection with chlorine solution prepared daily?	Yes	No	
7.3	All required cleaning supplies are available (3 buckets, mop-2 per area, designated cleaning clothes, cleaning detergent, disinfectant solution (chlorine 0.5%)	Yes	No	
Environmental Cleaning of High Touch Surfaces				
7.4.	High touch surfaces are appropriately cleaned and disinfected at least 3x daily <i>Most frequently touched surfaces (doorknobs, keyboards, tabletops, handrails) should be cleaned and disinfected three times daily</i>	Yes	No	
7.5	Patient Care Medical Devices including blood pressure, Stethoscope and others) are cleaned and wiped with 70% Ethyl Alcohol after every patient use	Yes	No	
Total Score (Maximum=10)				
Comments				

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8. DEVICE REPROCESSING				SCORES
8.1	Policies, procedures, and manufacturer reprocessing instructions for reusable medical devices used in the facility are available in the reprocessing area(s)	Yes	No	
8.2	Devices are thoroughly cleaned according to manufacturer instructions* and visually inspected for residual soil prior to sterilization.	Yes	No	
8.3	Reusable medical devices are cleaned, reprocessed (disinfection or sterilization) and maintained according to the manufacturer instructions.	Yes	No	
8.4	How do you confirm you have achieved sterility/disinfection?			
8.5	Single-use devices are discarded after use and not used for more than one patient unless they have been appropriately reprocessed.	Yes	No	
Total Score (Maximum Score=8)				
Comments				

9.0 IPC POLICY and PRACTICES FOR HCWs and PATIENTS WITH SUSPECTED OR CONFIRMED COVID-19				SCORES
9.1	Facility has a hand hygiene program for monitoring hand hygiene compliance by all cadres of healthcare workers	Yes	No	
9.2	Gowns, gloves, face masks, respirators, and eye protection are available for all units providing care to patients with suspected or confirmed COVID-19	Yes	No	
9.3	Patients with suspected or confirmed COVID-19 are housed in single rooms	Yes	No	
9.4	If single rooms are not available, patients with suspected or confirmed COVID-19 are cohorted in a well-ventilated area	Yes	No	
9.5	Facility has provided standard and transmission-based guidance and	Yes	No	

	SOPs for use by HCWs caring for patients with suspected or confirmed COVID-19			
9.6	Facility has an airborne infection isolation room or other adequately ventilated room for performing aerosol generating procedures	Yes	No	
9.7	N95, equivalent, or higher-level respirators are available for HCWs performing aerosol generating procedures	Yes	No	
9.8	Facility has written guidelines on waste management in relation to disposal of waste generated when caring for patient with suspected or confirmed COVID-19	Yes	No	
9.9	Facility knows its maximum capacity in the event of a surge (to be based on availability of physical space, human resources, intensive care capabilities, ventilator support, etc.)	Yes	No	
9.10	Facility has developed a plan to stop non-essential services (e.g., elective or non-urgent procedures) in the event of a surge	Yes	No	
9.11	Facility has identified additional space that can be used to expand the number of patients that can be treated (assuming adequate human resources, supplies, etc. are available)	Yes	No	
9.12	Facility has estimated consumption rates for critical supplies, including PPE, in the context of a surge scenario	Yes	No	
	Total Scores (Maximum=24)			
Comments				

APPENDIX B: EXAMPLE OF IPC CQI PROJECT

Example of an IPC CQI project at Umoja 1 Health Centre



UMOJA 1 HEALTH
CENTRE IPC CQI PRC

APPENDIX C: PROJECT BUDGET

	<u>Cost Category</u>	<u>Budget</u>	
		<u>COVID 19 ITF (USD)</u>	<u>COVID CARES ACT (USD)</u>
1	Salaries	9,801	4,500
2	Fringe Benefits	3,127	1,436
3	Travel and Transportation	6,900	3,320
4	Equipment	0	22,000
5	Supplies	0	32,124
6	Consultancy	0	0
7	Sub Contracts	139,874	57,944
8	Other Direct Costs	67,574	53,903
9	Indirect Costs	22,725	24,773
	<u>Total</u>	<u>250,000</u>	<u>200,000</u>

APPENDIX D: ACKNOWLEDGEMENTS

The PACT Endeleva project team members are deeply appreciative of the diverse and valuable contributions made by the healthcare workers, Nairobi Metropolitan services Health management teams, National TB and Lung Disease program who assisted with this evaluation. We are also grateful to the leadership of the CDC Kenya and the COVID 19 IEI team whose assistance was essential to the success of this project.