Strengthening National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini under the President's Emergency Plan for AIDS Relief (PEPFAR)

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Disclaimer

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CDC	US Centers for Disease Control and Prevention
CMM	Capability Maturity Model
CoAg	Cooperative Agreement
CSO	Central Statistics Office
CRVS	Civil Registration and Vital Statistics
DGHT	Division of Global HIV and TB
EDCU	Epidemiology and Disease Control Unit
EHHRRB	Eswatini Human Health Research Review Board
EHRIS	Eswatini HIV Recent Infection Surveillance
ENAP	Eswatini National ART Program
ESoP	Evaluation Standard of Practice
GCP	Good Clinical Practice
GKOE	Government of the Kingdom of Eswatini
HMIS	Health Management Information System
IDSR	Integrated Disease Surveillance and Response
IP	Implementing Partner
ISAD	ICAP in Eswatini Aggregate Database
KII	Key Informant Interview
MCCOD	Medical Certification Cause of Death
MOEPD	Ministry of Economic Planning and Development
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
NERCHA	National Emergency Response Council for HIV and AIDS
NHRA	National Health Research Agenda
NHRID	National Health Research and Innovation Department
PEPFAR	President's Emergency Plan for AIDS Relief
PITT	Project Implementation Task Team
PY	Program Year
RITA	Recent Infection Testing Algorithm
RTRI	Rapid Test for Recent Infection
SID	Strategic Information Department
SOP	Standard Operating Procedure
TWG	Technical Working Group
UNAIDS	United Nations Program on HIV/AIDS
VACS	Violence Against Children and Youth Survey
WHO	World Health Organization

1 EXECUTIVE SUMMARY

Program background: Despite the severity of the HIV epidemic in Eswatini, the country has made remarkable progress towards the global targets for treatment and viral suppression. To sustain these gains, Eswatini's National Multi-Sectoral Strategic Framework for HIV and AIDS 2018-2023 calls for continuous health systems strengthening to increase domestic capability for tracking, monitoring, and responding to the HIV epidemic. On September 30, 2020, ICAP in Eswatini (ICAP) in collaboration with the U.S. Centers for Disease Control and Prevention (CDC) and the Government of the Kingdom of Eswatini (GKoE), commenced implementation of a five-year program called "Strengthening National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini under the President's Emergency Plan for AIDS Relief (PEPFAR)" (the program). The project is funded by PEPFAR through CDC, under cooperative agreement number (CoAg) U2GGH002291 and will end on September 29, 2025. The program aims to support and strengthen four government institutions in Eswatini to improve the tracking, monitoring, and response to the HIV epidemic. The government institutions supported under this program include the Epidemiology and Disease Control Unit (EDCU), the National Health Research and Innovation Department (NHRID), Eswatini Health and Human Research Review Board (EHHRRB), and the Central Statistical Office (CSO). This report presents the processes, findings, conclusions, and recommendations of the mid-term evaluation of the program, which focused on the first two years of implementation. The primary audiences for this report are the Government of the Kingdom of Eswatini (GKoE) and its stakeholders, including CDC/PEPFAR, implementing partners for HIV programmes in Eswatini, and multinational agencies.

Evaluation purpose and questions: This mid-term evaluation aimed to generate findings that could guide efforts to improve the program's effectiveness and efficiency; and promote accountability and transparency by making stakeholders aware of the program's progress. In this regard, the evaluators sought to assess the program's performance and understand the extent to which the intended program objectives had been achieved in the first two years of program implementation (i.e., from September 30, 2020, to September 29, 2022). The evaluation was guided by four cross-cutting evaluation questions that applied to all four program strategic objectives. The cross-cutting evaluation questions covered aspects of process evaluation (i.e., the extent to which the program operated as intended by the end of Year 2) and outcome evaluation (i.e., the extent to which program activities achieved the intended outcomes by Year 2).

Evaluation methods: The evaluation design was guided by an evaluation protocol approved by EHHRRB on 9 May 2023 (Ref EHHRRB064/2023) and approved by the Associate Director for Science, Division of Global HIV/TB (DGHT) at CDC. This evaluation used a mixed-methods design incorporating both quantitative and qualitative data collection. At the end of data analysis, the evaluation team triangulated all sources of information to develop findings and conclusions.

- From August 23, 2023, to September 15, 2023, the evaluation team reviewed program data to assess the program's progress with key performance indicators and annual work plans. The evaluation team reviewed program documents provided by ICAP for each strategic objective, including work plans, program reports, online program dashboards, and project performance monitoring plans (PMPs). The evaluation team computed achievements for each objective and summarized them as proportions against set performance targets. Where relevant, qualitative data obtained from narrative reports was used to aid interpretation of quantitative findings from the reviewed program documents.

- From August 24, 2023, to September 7, 2023, the evaluation team conducted 32 key informant interviews (KIIs) with participants from the supported government institutions, implementing partners, CDC, and ICAP. The goal of the KIIs was to explore key informants' experiences and perceptions relating to implementation processes and outcomes, as well as factors that may have hindered or supported the implementation of program activities. Data were analysed in NVivo 13 (QSR International), and thematic analysis of qualitative data was used to identify, analyze, and report on themes related to participant experiences and views of program implementation.

- From August 23, 2023, to August 30, 2023, four trained evaluation staff conducted site assessments to evaluate the quality of HIV recency testing implementation at health facilities, community testing points, and laboratories providing viral load testing services. The site assessments were conducted in four regional hospitals, four health centres, four

clinics, two non-fixed community testing sites, and 12 laboratories. The sites were purposively selected to represent high-volume HIV testing sites and diversity by rural and urban status. The laboratories were distributed by region and were high-volume sites providing recent infection and viral load testing services.

- From August 23, 2023, to September 8, 2023, four evaluation staff surveyed 63 healthcare workers implementing HIV recency testing across the same health facilities, community sites, and laboratories included in the site assessments. Statistical analyses were conducted using STATA 16 software (STATA Corp. College Station, Texas, USA). Continuous variables were summarized using medians and interquartile ranges, and categorical variables were summarized using frequencies and proportions.

Key findings and recommendations by strategic objective

A. The first strategic objective of the program is to develop/strengthen the capacity of EDCU to implement disease surveillance systems, including HIV surveillance.

Under this objective, ICAP supported the EDCU with (1) implementation of the Eswatini HIV-1 Recent Infection Surveillance (EHRIS) among persons newly diagnosed with HIV Infection; and (2) strengthening integrated disease surveillance and response (IDSR) systems. Regarding EHRIS, ICAP planned to develop/strengthen EDCU's capacity to (1) implement and maintain EHRIS activities, (2) mentor and supervise EHRIS activities, (3) report EHRIS data, (4) analyze EHRIS data, (5) facilitate the interpretation, dissemination, and utilisation of EHRIS data by ENAP and its stakeholders to design and implement HIV prevention interventions for identified hotspots of recent HIV cases. For IDSR, the program planned to build EDCU's capacity to (1) strengthen strategic planning, (2) develop HCWs to implement and sustain IDSR activities, (3) monitor IDSR activities, and (4) disseminate IDSR findings. In addition, ICAP planned to collaborate with CDC-Eswatini and MOH to develop a concept/protocol for a HIV case-based surveillance system.

To a large extent, the capacity-building activities set out in ICAP's annual work plans for the program's first two years were implemented as planned. Further, EHRIS was implemented to expected quality standards concerning HCW competencies, frequency of proficiency testing, and turnaround times for viral load test results, which were vital to completing the recent infection testing algorithm (RITA). While capacity-building activities for HCWs were mostly implemented as planned, several MOH stakeholders were concerned about the fate of officers seconded to EDCU at the end of the program and the extent to which transference of skills to government-funded EDCU officers occurred in the first two years of the program. In particular, the lack of transference of data analysis skills emerged as a dominant theme, and this also aligned with the lack of evidence regarding data analysis workshops planned in the program's first two years. Stakeholders felt they were well engaged in the planning and implementing activities and that capacity-building activities had improved EDCU's strategic direction and HIV program planning for ENAP.

Participants from EDCU, Eswatini National AIDS Program (ENAP), Implementing Partners, and CDC felt that they were well-engaged by ICAP in designing and implementing EHRIS and IDSR activities. These stakeholders highly valued ICAP's consultative, transparent approach to stakeholder engagement.

ICAP's support strengthened EDCU's strategic direction, improving its 'visibility' as the custodian of epidemiologic surveillance systems in Eswatini. Further, through capacity-building efforts from this program, ENAP staff were able to interpret and use EHRIS data to identify implementation gaps in routine HIV programs and develop tailored strategies to bridge these gaps. Key areas of improvement in this regard, included the development of a standard operating procedure outlining the steps of verifying if clients had previously been issued with an HIV diagnosis and started ART, and the development of patient literacy messages to empower clients to remain in care and return to care in the event of treatment interruption. In addition, strengthening coordination and collaboration between the HIV testing programmes and the various HIV Prevention Technical Working Groups (TWGs) increased the focus on HIV prevention activities, which evaluation participants perceived to have been a weakness of the Eswatini HIV programme for many

years. Improvements in linkage to PrEP and the strengthening of other HTS-related activities, such as index testing services, were highlighted in this regard.

RECOMMENDATIONS

1. It may be beneficial for ICAP to consider developing a theory of change for the secondment approach that was used to develop/strengthen the capacity of EDCU to implement disease surveillance systems in the first two years of the program. MOH stakeholders viewed the seconded officers as ICAP employees and that the approach was unlikely to sustain the gains that had been achieved by the program if skills were not transferred to government-funded staff. Developing a theory of change for this capacity-building approach may be helpful to guide discussions with supported institutions and assist with developing process indicators that adequately monitor the progress and effectiveness of the capacity-building efforts. Regarding planning for sustainable capacity-building efforts, some evaluation participants suggested that the program could target laboratory mentors and clinic managers as sustainable options for providing supervision and mentorship support in EHRIS sites. The view was that supervision and mentorship activities were closely aligned with the clinic managers' responsibilities and that clinic managers were more accessible to EHRIS staff than off-site mentors/supervisors and clinic managers.

2. The evaluation findings revealed that all 60 EHRIS Master Trainers who participated in refresher training conducted in Year 1 were employed by implementing partners. The notable absence of government-employed HCWs as master trainers points to gaps in building the government's capacity for EHRIS implementation and presents a risk to sustaining EHRIS implementation in the absence of implementing partners. In this regard, the program may consider extending the pool of EHRIS Master Trainers to include clinic managers, ENAP programme coordinators, or government-funded laboratory mentors.

3. In the first two years of the program, there appeared to be a disconnect between what the ICAP EHRIS Team perceived as the need for data analysis workshops and the felt need by MOH partners for the same workshops. While the ICAP EHRIS Team perceived that there was no need to repeat data analysis training that had been conducted in the year preceding the commencement of this program, some key informants strongly felt that there were unmet training needs in the first two years of the program to institutionalize analysis and use of EHRIS data among MOH staff in EDCU, M&E and HMIS. The evaluation team learned that data analysis workshops had been conducted in Year 3 of the program, but assessing the adequacy of these efforts was outside of this evaluation's scope.

4. While EHRIS proficiency tests were implemented as scheduled, about a third of the healthcare workers did not retest after failing a proficiency test. While the evaluation team was informed that none of the HCWs who failed proficiency testing could provide HIV recency testing services, this could not be verified by the evaluation team since no cases of HCWs who had failed proficiency testing were identified during the site assessments. There may be value in EHRIS mentors strengthening efforts to review compliance to repeat testing requirements for proficiency testing according to standard operating procedures.

5. The viral load result analytic turnaround times for RITA ranged from 0-6 days in the program's first two years. However, the program may consider setting a benchmark for this indicator to allow objective performance assessments and thresholds that can be used to trigger quality improvement efforts if there is a decline in performance.

B. The second strategic objective of the program is to develop/strengthen the capacity of NHRID to implement, disseminate and utilize research to impact public health programs.

In the first two years of implementation, the program planned to build capacities for NHRID to (1) strengthen strategic planning, (2) to implement the monitoring plan of the National Health Research Agenda 2021-2026, (3) plan and host conferences, (4) develop a health workforce that generates evidence to inform practices and is aware of the National Health Research Agenda (NHRA).

The planned capacity-building activities were largely implemented as planned. This includes capacity-building efforts that led to the development of the National Health Research Agenda and improvements in how it was monitored, hosting of conferences, developing capacity of healthcare workers to conduct research, and consistently disseminating research findings through bi-annual newsletters. Stakeholders felt they were meaningfully engaged in the planning and implementation of program activities. ICAP's engagement with NHRID was reported to be strong and characterized by high adaptability to NHRID priorities and transparency from ICAP on activities that could be accommodated within the scope of the CoAg. On the other hand, the evaluation identified opportunities for more transparency concerning disseminating findings from ICAP surveys. In this regard, some participants believed that priority was placed on sharing findings from national surveys at conferences or in publications at the expense of extensive in-country dissemination.

The evaluation findings point to the program's contribution to (1) strengthening NHRID's strategic direction through the development of the National Health Research Agenda (NHRA); (2) strengthening NHRID's governance structures by streamlining the number of TWG members; and (3) improvements in the coordination between the NHRID and EHHRRB to monitor operationalization of NHRA. Participants also provided recommendations for additional capacity-building efforts to improve organizational planning and implementation in knowledge management and substantial involvement of local entities in future national surveys.

RECOMMENDATIONS

1. It may be beneficial for ICAP to initiate discussions on the timing of external dissemination of research findings outside the country and the principles that guide the process, considering the critical role ICAP plays in building capacity for NHRID to promote the dissemination of research findings. This was a concern raised by some NHRID informants. These discussions can be initiated with the issues emerging from this evaluation and could extend to general discussions for all studies and surveys conducted in Eswatini. The existing governance and coordination structures, such as the TWGs and Study Advisory Groups, can be utilized to carry out these discussions. The challenge of a non-functional NHRID website is of significant concern and impedes the broad reach of newsletters and access to research information for healthcare workers and researchers. This issue highlights the challenges that are likely to be expected when activities are transitioned from the program to government implementers with constrained resources and competing priorities. There may be value for ICAP to consider sourcing funding for the NHRID website and develop a transition plan. The lessons learned from NHRID may also be used for the other institutions' websites supported by ICAP.

C. The third strategic objective of the program is to develop/strengthen the capacity of EHHRRB to improve the review of research protocols.

In the first two years of implementation, the program planned to build EHHRRB's capacity to (1) strengthen strategic planning, (2) to receive and review research protocols, (3) conduct post-approval monitoring, and (4) advocate for research ethics across government sectors. Additional planned capacity-building activities were also targeted at the continuous development and improvement of professional practice for EHHRRB board members.

The planned capacity-building activities to support EHHRRB were implemented mainly as planned, and stakeholders were satisfied with the level of engagement in planning and implementing activities. The EHHRB reported ownership of its institutional affairs, despite receiving support from ICAP. In addition, ICAP and EHHRRB had structured quarterly meetings that allowed for open communication channels between the two institutions. Notably, ICAP's support to EHHRRB contributed to enhancements of the electronic portal for protocol submission and review, enabling EHHRRB reviewers to achieve benchmark targets for protocol review turnaround times. Further, the rollout of post-approval monitoring activities was a key success and critical to ensuring compliance with regulations, policies, and guidelines governing study participants' protection.

RECOMMENDATIONS

While most training activities were implemented as planned in the first two years, the program had low reach (i.e., achieved 20% of the targeted reach) in sensitizing national-level staff from major government sectors on research ethics. The sensitization of staff from major government institutions outside of MOH is essential because the NHRA acknowledges how these institutions are key actors in conducting research that contributes to evidence-based practices in the country. There is value in supporting EHHRRB to explore and implement innovative approaches to increase the reach of research ethics sensitization to government staff, including pre-recorded content and online learning management systems. Such strategies may be beneficial in improving the participation of government officials who often have competing priorities to attend group meetings/trainings.

2. **The fourth strategic objective of this program is to support CSO to generate civil registration and vital statistics (CRVS) data.**

In the first two years of implementation, ICAP planned to build CSO's capacity to (1) strengthen strategic planning, (2) develop the capacity of the healthcare workforce in implementing ICD-11 coding, and (3) disseminate CRVS data. In addition, ICAP planned to assess the capacity of CSO, MOHA, and CMIS to collect and manage interoperable civil registration data.

To a large extent, the planned capacity-building activities to support CSO in the first two years of the program, were implemented as planned. Stakeholders were satisfied with the level of engagement in planning and implementing activities. Improvements in the institution's visibility and engagement with other ministries through the restructured TWGs were key successes in the program's first two years. Findings from the feasibility assessment of an interoperable CRVS system led to ICAP deprioritizing further activities due to limited funding under the CoAg required to tackle the identified barriers and investments needed to develop such a system.

The capacity-building activities implemented under this program contributed to improvements in CSO's strategic planning and resource allocation, strengthened CSO governance of structures, and improved coordination among CRVS stakeholders.

RECOMMENDATIONS

Although the activities to explore an interoperable CRVS system were subsequently deprioritized in Year 3 (outside of the scope of this evaluation), there may be value in supporting GKoE through CSO to develop a business case document that can be used to solicit buy-in from decision-makers and to explore funding opportunities. Interoperable CRVS systems play a crucial role in modern governance and public administration because they seamlessly exchange and integrate data across different platforms and systems. By linking various CRVS-related databases, government can create a comprehensive and up-to-date population registry, facilitating better planning and resource allocation in healthcare, education, and social services. Moreover, interoperable CRVS systems enhance data accuracy and reduce duplication, improving overall data quality.

Limitations of the evaluation: The evaluation had limitations identified during its inception and implementation.

Some limitations in the data collection tools were identified by the evaluation team and ICAP during the training workshops conducted in preparation for fieldwork. Notably, the knowledge, attitudes, and practices survey had only one question to assess knowledge, and no questions to determine healthcare worker attitudes towards EHRIS implementation. Therefore, the evaluation question on healthcare workers' knowledge, attitudes and practices could not be adequately addressed. In addition, the EHRIS site assessment tool had not been piloted before approval of the evaluation protocol and had limitations with internal consistency and summarizing of overall scores. For example, the site assessment tool had been

developed to generate summary scores in some domains to assess overall quality, but these could not be calculated if the evaluation staff could not observe healthcare workers providing RTRI services, or if some procedures to be assessed did not apply to the setting. While ICAP and the evaluation team acknowledged the limitations of these tools, there was consensus that obtaining approvals to amend these tools could not be achieved within the evaluation timelines. Despite these limitations, the data from site assessments was still used for triangulation with information from other evaluation sources.

The purposive and non-random selection of the sites for EHRIS site assessments and healthcare worker surveys by the evaluation team and the ICAP team was prone to selection bias. There are limitations in inferring the survey and site assessment findings outside the evaluation setting. However, these findings were not interpreted in isolation. They were triangulated with findings from other sources, including those from the EHRIS dashboard, providing a broader picture across all EHRIS implementing sites.

This mid-term evaluation focused on the first two years of program implementation. However, this evaluation was conducted in the last quarter of the third year of implementation. The evaluation team noted that narratives from KII participants also included issues related to the program's third year. Although interviewers tried to steer informants to focus on the first two years of implementation, this was not always possible. To the furthest extent possible, this evaluation report limits participant narratives on experiences or activities that fell out of the evaluation period.

Dissemination plan and use of data: The evaluation report will be submitted to CDC for approval, and ICAP will disseminate it to the program stakeholders through in-person and virtual meetings; electronically through email; and distribution of copies of the final report. The full report will be available for public access on ICAP's website. ICAP Eswatini and its program stakeholders may use findings from this report to resolve areas of capacity-building and stakeholder engagement identified for improvement. CDC Eswatini may use the evaluation findings to inform partner management and to plan for programming in the remaining years of the program period.

2 PROGRAM BACKGROUND

2.1 Program context

Eswatini bears the brunt of the HIV epidemic but is one of the few countries that has surpassed two of the three 2025 UNAIDS 95-95-95 goals[1]. The country has a population of about 1.1 million persons, and HIV prevalence is estimated at 24.8% among those who are 15 years and older: 30.4% among women and 18.7% among males. The estimated annual HIV incidence in the same age group is 0.62%: 1.11% among women and 0.17% among males. In some age groups, approximately half the population is living with HIV; for men, HIV prevalence peaks at 50.0% among those aged 45-49 years and at 57.2% among women aged 40-44 years. Despite the severity of the HIV epidemic, Eswatini has made remarkable progress towards the global targets for treatment and viral suppression. As of 2021, 94% of adults 15 years and older living with HIV are aware of their HIV status, 97% of those aware of their status are on antiretroviral therapy (ART), and 96% of people on ART have achieved viral suppression. To sustain these gains, Eswatini's National Multi-Sectoral Strategic Framework for HIV and AIDS 2018-2023[2] calls for continuous health systems strengthening to increase domestic capability for tracking, monitoring, and responding to the HIV epidemic.

2.2 Program description

On September 30, 2020, ICAP in Eswatini (ICAP) in collaboration with the Centers for Disease Control and Prevention (CDC) and the Government of the Kingdom of Eswatini (GKoE) commenced implementation of a program called "Strengthening National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini under the President's Emergency Plan for AIDS Relief (PEPFAR)" (the program). PEPFAR funds the project through CDC under cooperative agreement number (CoAg) U2GGH002291 and will end on September 29, 2025. The program aims to support and strengthen four government institutions in Eswatini to improve the tracking, monitoring, and response to the HIV epidemic. The government institutions supported under this program include the Epidemiology and Disease Control Unit (EDCU), National Health Research and Innovation Department (NHRID), Eswatini Health and Human Research Review Board (EHHRRB), and the Central Statistical Office (CSO) (Figure 1).

2.2.1 Strategic objectives of the program

The program has four strategic objectives aligned with the four supported institutions. The program's results framework is provided in Appendix A.

The first strategic objective is to develop/strengthen the capacity of EDCU to implement disease surveillance systems, including HIV surveillance. The EDCU is housed under MOH's Strategic Information Department (SID) and works alongside three other units – the Health Management Information Systems (HMIS) Unit, the Monitoring and Evaluation (M&E) Unit, and the National Health Research and Innovation Department (NHRID). The SID's role is to coordinate the collection, maintenance, and use of national health data. EDCU's role is to provide technical support for disease surveillance and outbreak investigations and interventions. In addition, EDCU serves as the point of integration, analysis, and dissemination of disease surveillance data in the country. Under this objective, ICAP supports the EDCU with (1) implementation of the Eswatini HIV-1 Recent Infection Surveillance (EHRIS) among persons newly diagnosed with HIV Infection and (2) strengthening integrated disease surveillance and response (IDSR) systems.

[1] Eswatini Population-based HIV Impact Assessment (SHIMS3), 2021. Accessed on 18September at https://phia.icap.columbia.edu/eswatini-summary-sheet-2021/

[2] Eswatini National Multisectoral HIV and AIDS Strategic Framework (NSF) 2018-2023, June 2018. Accessed on 18 September at https://hivpreventioncoalition.unaids.org/country-action/the-national-multisectoral-hiv-and-aids-strategic-framework-nsf-2018-2023-eswatini-june-2018/

EHRIS: The implementation of EHRIS started in July 2019 under a previous CDC-funded CoAg also awarded to ICAP (U2GGH001271). The implementation of EHRIS is planned to continue until the fifth year of this current CoAg. EHRIS provides continuous epidemiological surveillance data on person, place, and time of recent HIV infections amongst adults 15 years and older to inform HIV prevention and epidemic control strategies. The surveillance population includes newly tested HIV-positive clients who agree to participate in the surveillance program. In general, eligible clients identified at health facilities or community-based HIV testing services have the opportunity to opt out of taking a point-of-care (POC) rapid test for recent infection (RTRI) during the routine HIV testing process. In the case of EHRIS, the RTRI used is the Asante HIV-1 Rapid Recency Assay (Sedia Biosciences, Portland, OR). Healthcare workers who offer HIV recency services must inform eligible clients that the same clinical management will be provided regardless of their participation or test results. Clients with a recent HIV infection status on the Asante test are required to provide a venous blood sample for viral load testing, which is necessary to complete the recent HIV infection testing algorithm (RITA). Since the Asante RTRI is currently under evaluation and not yet WHO pre-qualified, the results from the RTRI or RITA are used for surveillance purposes only and are not routinely returned to clients. In addition to conducting the RTRI, healthcare workers also administer brief questionnaires that capture client demographics, behavioral risk factors and geographical location for surveillance purposes. This data is captured in the surveillance database using tablet devices allocated to EHRIS implementers. Ongoing quality control and quality assurance activities are conducted in EHRIS, including running of quality control (QC) panels at EHRIS sites to ensure test kits are performing correctly and RTRI proficiency testing for healthcare workers conducting EHRIS. Details of the activities planned by ICAP to develop/strengthen EDCU's capacity to implement EHRIS in the first two years of this CoAg are described in Section 5 of this report.

IDSR: IDSR systems are essential for monitoring, detecting, and responding to diseases and health-related events. In 2012, the Eswatini MOH adopted the IDSR system to reduce morbidity, mortality, disability, and socioeconomic losses due to disease outbreaks and other public health threats. A 2015 assessment of IDSR implementation in Eswatini identified several barriers to IDSR implementation and scale-up, including inadequate staffing, limited sharing of surveillance data (i.e., weekly IDSR reports or feedback to regional facilities/regional bodies), inadequate supervision and mentorship, and unclear case definitions for case detection. Details of the activities that ICAP planned to develop/strengthen EDCU's capacity to implement IDSR systems in the first two years of this CoAg are described in Section 5 of this report.

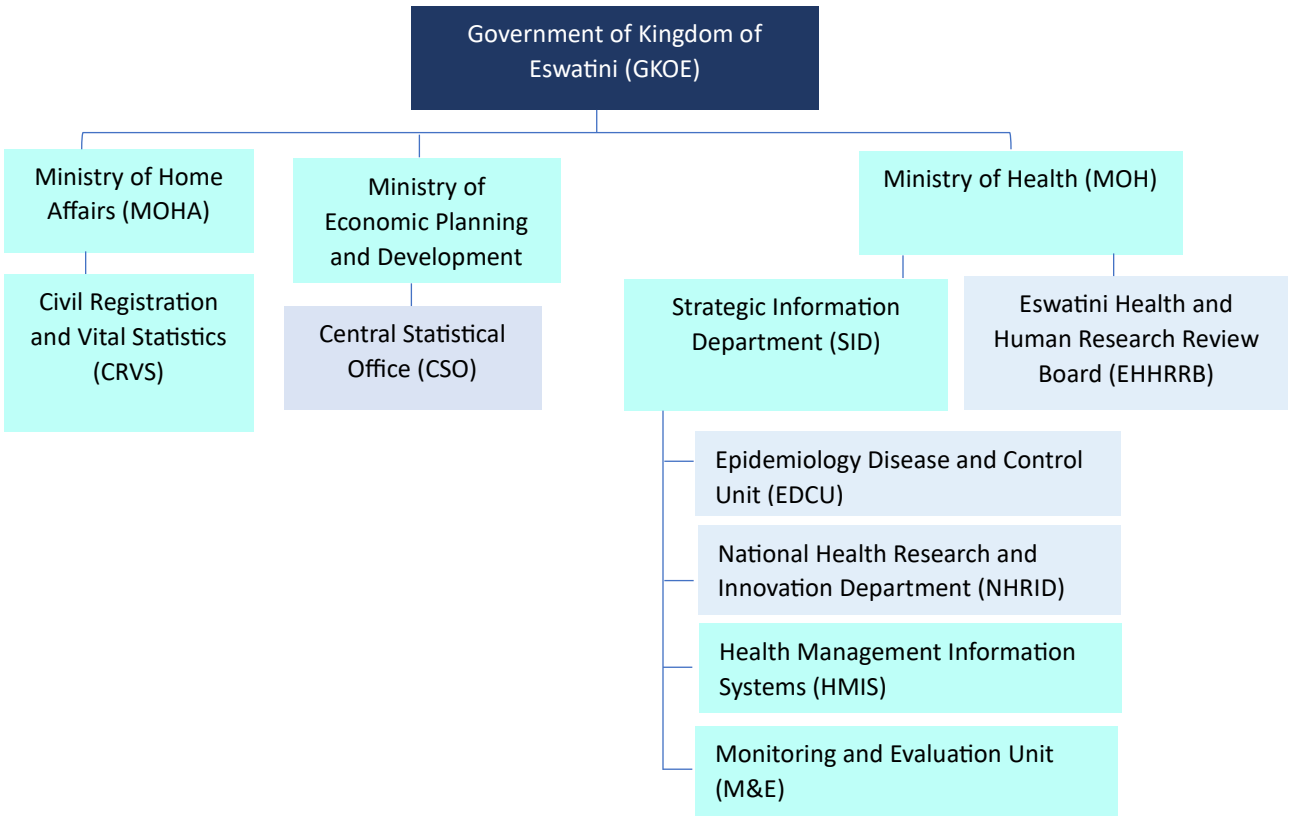
The second strategic objective is to develop/strengthen the capacity of NHRID to implement, disseminate and utilize research to impact public health programs. The NHRID is also housed under MOH's Strategic Information Department. NHRID leads the coordination and implementation of the country's health research agenda and plays a role in the capacity-building of researchers in Eswatini. Since November 2013, the NHRID has developed a National Health Research Agenda (NHRA) to guide individual and institutional researchers, such as program implementers, academic institutions, development partners and other stakeholders on health research priorities for Eswatini. Refer to Section 7 of this report for details of the activities that ICAP planned to develop/strengthen NHRID's capacity to implement and disseminate research in the first two years of this CoAg.

The third strategic objective is to develop/strengthen the capacity of EHHRRB to improve the review of research protocols. The EHHRRB is an independent institution housed directly under MOH. It is responsible for regulating health research ethics and clearing all health research undertaken in the country to keep with international health research ethics-related best practices. With oversight from a 13-member independent review board, the EHHRRB carries out its mission by building the capacity of researchers in research ethics, providing guidelines and tools, reviewing research protocols, monitoring and/or inspecting approved protocols, and performing an overall regulatory function. Since 2017, the EHHRRB has used the Research for Health and Innovation Organizer (RHInnO) system to facilitate submitting and reviewing research protocols (www.ehhrrb.rhinno.net). Section 6 of this report describes the activities that ICAP planned to develop/strengthen EHHRRB's capacity to improve the review of research protocols in the first two years of this CoAg.

The fourth strategic objective is to support CSO in generating civil registration and vital statistics (CRVS) data. The CSO is housed under the Ministry of Economic Planning and Development (MOEPD) and coordinates the national statistical system, providing high-quality statistical data and information required for evidence-based policy, planning and decision-

making. This includes the work that the CSO collaborates on with the Ministry of Home Affairs (MOHA), Ministry of Information, Communication and Technology (MOICT), and MOH to strengthen the CRVS system. A well-functioning CRVS system provides reliable and timely occurrences and characteristics of vital events such as births and deaths, including causes of death. These data are used in planning programmes and monitoring public health outcomes. Refer to Section 7 of this report for details of the activities that ICAP planned to support CSO with generating CRVS data in the first two years of this CoAg.

Figure 1: Structure of supported institutions within the Government of the Kingdom of Eswatini



3 EVALUATION PURPOSE AND QUESTIONS

3.1 Evaluation purpose

The purpose of this mid-term evaluation was to generate findings that could guide efforts to improve the program's effectiveness and efficiency; and promote accountability and transparency by making program stakeholders aware of the program's progress. In this regard, the evaluators sought to assess the performance of the program and understand the extent to which the intended program objectives had been achieved in the first two years of program implementation (i.e., from September 30, 2020 to September 29, 2022). Additional details of the scope of work are provided in Appendix B.

3.2 Evaluation questions

The evaluation was guided by four cross-cutting evaluation questions that were applicable to all four strategic objectives of the program. The cross-cutting evaluation questions covered aspects of process evaluation (i.e., the extent to which the program operated as intended by the end of Year 2) and outcome evaluation (i.e., the extent to which program activities achieved the intended outcomes by the end of Year 2) (Table 1).

Table 1: Cross-cutting evaluation questions by evaluation type

Evaluation type	Cross-cutting question
Process evaluation	**1.** To what extent did the planned capacity-building activities take place as measured and documented in the annual work plans? **2.** To what extent did planned engagement of stakeholders in designing and implementing program activities take place? **3.** To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect project implementation and how did ICAP mitigate these effects?
Outcome evaluation	**4.** To what extent did the capacity-building activities lead to improved organizational planning and implementation at supported institutions?

In addition, the evaluation also included additional process evaluation questions that were specific to strategic objectives (Table 2).

Table 2: Evaluation questions specific to strategic objectives

Strategic Objective	Targeted institution	Specific evaluation question
Strategic Objective 1	**EDCU**	- To what extent was EHRIS implemented according to quality standards? (i.e., training, quality control, proficiency testing, availability and utilization of SOPS and job aids, and reach of RTRI services) - What are healthcare workers' knowledge, attitudes, and practices about recency testing? - What are the barriers to recency implementation observed among health care providers at supported facility and community testing points?
Strategic Objective 2	**NHRID**	- To what extent did the program meet the set benchmark targets for the proportion of health research agenda activities completed?
Strategic Objective 3	**EHHRRB**	- To what extent did the program meet the set benchmark activities of the proportion of reviews completed within 45 days of submission?
Strategic Objective 4	**CSO**	- To what extent did the program meet the set benchmark activities of the number of vital statistics reports published?

4 EVALUATION DESIGN, METHODS, AND LIMITATIONS

4.1 Evaluation design

This evaluation used a mixed-methods design incorporating both quantitative and qualitative data collection. First, the evaluation team met with the ICAP technical team responsible for the program and reviewed the project documents to understand the key program stakeholders, work plans and how program performance was monitored for the evaluation period (i.e., in Years 1 and 2 of the program). After that, the evaluation team concurrently (i.e., in the same data collection phase) collected qualitative data through key informant interviews (KIIs) and collected quantitative data through EHRIS site assessments, surveys among EHRIS implementers, and further secondary data reviews. At the end of the data analysis, the evaluation team triangulated all sources of information to develop findings and conclusions. The evaluation team received logistical support for field activities (i.e., scheduling site visits, key informant interviews, and transport support) from the ICAP project staff. Abridged bios of the evaluation team members are provided in Appendix C.

4.2 Participation of stakeholders in the evaluation

At the inception of this evaluation, ICAP project staff engaged government stakeholders from the supported institutions, project partners, and CDC staff in conceptualizing and building consensus for the evaluation questions and methods. During the evaluation, the points of contact at the supported institutions were kept informed of the progress throughout the implementation process. After submitting the first draft of the report, the evaluation team met with program stakeholders to validate the evaluation findings. The stakeholders included representatives from health facilities implementing EHRIS, institutions supported by the project, project partners (government and non-governmental), donors, CDC and ICAP.

4.3 Data collection and analysis methods

Data for this evaluation was collected from August 23, 2023, to September 15, 2023.

4.3.1 Secondary data review

a. Data collection and management

The secondary data review assessed the program's progress with key performance indicators and annual work plans. The evaluation team reviewed program documents provided by ICAP for each strategic objective, including work plans, program reports, and project performance monitoring plans (PMPs) (see Appendix D for list of data sources by strategic objective). Evaluation staff verified reported activities by reviewing training reports, attendance registers, meeting minutes, activity logs, websites of supported institutions, and published reports or strategic plans. The sharing of documents for secondary data review was performed through a secure SharePoint site created by ICAP and with restricted access to the designated evaluation staff. Further, the evaluation staff also abstracted information from the EHRIS dashboard – a data visualization platform used by the program and its stakeholders to aid in the rapid identification of recent HIV infection testing quality issues and monitoring of critical epidemiological trends. Temporary login credentials for the EHRIS dashboard were granted to the evaluation team lead designated to conduct the secondary data review. All data on the EHRIS dashboard was aggregated and contained no personally identifiable information for EHRIS clients.

b. Data analysis

The evaluation team computed achievements for each objective and summarized them as proportions against set performance targets. Where relevant, qualitative data obtained from narrative reports was used to aid the interpretation of quantitative findings from the reviewed program documents.

4.3.2 Key Informant Interviews

a. Data collection and management

From August 24, 2023, to September 7, 2023, the evaluation team conducted 32 interviews with participants from the supported government institutions, implementing partners, CDC, and ICAP (Table 3). The interviews lasted for a median duration of 40 minutes (IQR: 30–55 minutes), and most (28/32) were conducted using the Zoom virtual platform.

The evaluation team interviewed key informants to explore their experiences and perceptions relating to implementation processes and outcomes, as well as factors that may have hindered or supported the implementation of program activities. ICAP project staff and the evaluation team collaboratively assembled the list of potential key informants from each organization based on their expert knowledge of the program activities and expected outcomes for the different strategic objectives. Although not all interviewees were directly employed by the four supported institutions, the participants selected for inclusion were deemed to have extensive experience and interaction with the supported institutions. Designated ICAP project staff contacted potential key informants through telephone or email to schedule times for the evaluation staff to give more information about the evaluation and obtain their consent if they were willing to participate. Private physical rooms or the Zoom ™ virtual platform were used to conduct the KIIs based on participant preferences. All interviews were conducted in English by trained evaluation staff and audio recorded. After each interview, evaluation staff uploaded the audio recordings to an encrypted password-protected electronic folder backed up daily. Evaluation staff transcribed the interviews, and transcripts were saved as Microsoft Word files with an assigned participant's unique identifier and date of the interview. Transcribers received training in text formatting, standardized notations, reviewing transcripts for accuracy and saving the transcripts. To promote the quality of transcriptions, transcribers were required to proofread all transcriptions against the audio recording and revise the transcripts accordingly. Further, to monitor the accuracy of the translation, the Evaluation Coordinator randomly selected one in every three transcripts from each transcriber to check each transcript against the audio recording. The evaluation team will delete audio files after the final evaluation report has been cleared.

Table 3: Number and type of key informant participants

Participant category	Total
EDCU	**1**
MOH - Eswatini Health Laboratory Services (EHLS)	**2**
MOH - Health Management Information Systems (HMIS)	**1**
MOH – Strategic Information Department	**1**
MOH Directorate	**1**
NHRID	**1**
EHHRRB	**1**
CSO	**1**
Ministry of Home Affairs	**1**
Eswatini National AIDS Program (ENAP)	**2**
National Emergency Response Council on HIV/AIDS (NERCHA)	**1**
Implementing partners - George Washington University; MSF; FHI 360; EGPAF; URC; The Luke Commission	**6**
Funder/technical partner – CDC	**5**
Technology partner – Data FI	**1**
ICAP	**6**
UN Agency – WHO	**1**

b. Data analysis

After collecting all data, two evaluation staff trained in qualitative data analysis read and summarized all individual transcripts to become familiar with the data and capture the context of participant narratives. A preliminary coding

structure was generated in NVivo 13 (QSR International) using the evaluation questions as an analytic framework. It was then tested on a selection of transcripts and revised to ensure that it captured relevant patterns from the narratives with minimal overlap. Thematic analysis of qualitative data was used to identify, analyze, and report on themes related to participant experiences and views of program implementation. Themes were further developed from the coded text, considering code frequency, connections between codes, and consistency with the text.

4.3.3 EHRIS site assessments

a. Data collection and management

From August 23to August 30, 2023, four trained evaluation staff conducted site assessments to evaluate the quality of HIV recency testing implementation at health facilities, community testing points, and laboratories providing viral load testing services. The assessments consisted of direct observations (where possible) or verification of documentation about staff competency (including certification of completed training, completion of quality control (QC) testing and completion of proficiency testing); adherence to standard operating procedures (including verifying that the SOPs are available); physical infrastructure (including appropriate storage of test kits, storage of electronic data collection tools); and control of site stock and supplies. At the assessment site, evaluation staff completed an assessment tool (Appendix E) with healthcare workers knowledgeable about the routinely provided HTS recency services (e.g., managers, HTS counsellors, phlebotomists, nurses, or laboratory technologists). The site assessment data were captured electronically on tablets programmed in Kobo Toolbox (Kobo) software – a web-based platform for field data collection that works both online and offline. The Evaluation Lead controlled access to the database (data entry, reporting, and extraction). The electronic data collection system included skip patterns and consistency check programming to check the validity of entered data. Access to the database and datasets was controlled through role-based permissions managed by the Evaluation Lead. Further, all staff responsible for capturing data received training in data security and confidentiality from the Evaluation Lead. They signed a confidentiality agreement affirming they would abide by data security and confidentiality principles and procedures. All electronic devices used for data capturing were password-protected, and data were automatically cleared from the electronic devices once uploaded to the Kobo Toolbox server.

The site assessments were conducted in four regional hospitals, four health centres, four clinics, two non-fixed community testing sites, and 12 laboratories. The sites were purposively selected to represent high-volume HIV testing sites and diversity by rural and urban status. The laboratories were distributed by region and were high-volume sites providing recent infection and viral load testing services.

Table 4: Sites included in EHRIS site assessments

Site type	Site names
Regional hospitals	Good Shepherd Hospital, Hlathikhulu Government Hospital, Mbabane Government Hospital, and Raleigh Fitkin Memorial Hospital
Health Centre	Matsanjeni Health Centre, Mkhuzweni Health Centre, Nhlangano Health Centre, Sithobela Rural Health Centre
Clinics	Mangweni Clinic, Mhlosheni Clinic, Siphofaneni Clinic, and Matsapha AHF
Non-fixed community sites	FHI 360 Community Sites, The Luke Commission Community Sites
Laboratories	Matsapha AHF, RFM, Mkhuzweni Health Centre Laboratory, Mangweni Lab, Matsanjeni Health Centre Laboratory, Mbabane National Molecular Reference Laboratory, Sithobela Rural Health Centre Laboratory, Siphofaneni Clinic Laboratory, Mbabane Central Lab, Hlathikhulu Laboratory, Manzini Government Hospital (Moneni Lab), and Lubombo Referral Laboratory

b. Data analysis

Statistical analyses were conducted using STATA 16 software (STATA Corp. College Station, Texas, USA). Continuous variables were summarized using medians and interquartile ranges, and categorical variables were summarized using frequencies and proportions.

4.3.4 Healthcare worker survey on EHRIS implementation

a. Data collection and management

From August 23 to September 8, 2023, four evaluation staff surveyed 63 healthcare workers implementing EHRIS across the same health facilities, community sites, and laboratories included in the site assessment. The survey aimed to document healthcare workers' self-reported knowledge of RTRI procedures, practices, and experiences in the delivery of HIV recency testing services and experiences in hotspot investigation and responses (refer to Appendix F for the survey questionnaire). When planning for survey data collection, the sampling frame for EHRIS implementers in the selected sites was comprised of 64 staff. The evaluation team employed convenience sampling to enrol and survey all 64 healthcare workers, with a target minimum sample size of 55 healthcare workers. A total of 63 healthcare workers were interviewed. One healthcare worker was on leave (vacation) during the data collection period and could not be contacted to participate in the survey. The healthcare workers surveyed included 47 HTS counsellors, five phlebotomists, eight nurses, two laboratory technologists, and one microscopist. ICAP project staff facilitated setting appointments with the participating facilities (see Appendix G for distribution across sites). In cases where healthcare providers were unavailable, three attempts were made to reschedule the appointment within the data collection period. Like the site assessments, evaluation staff captured participant responses electronically on tablets programmed in Kobo software. Similar data management and security protocols were followed, as described in Section 4.3.3.

Data analysis

Statistical analyses were conducted using STATA 16 software (STATA Corp. College Station, Texas, USA). Continuous variables were summarized using medians and interquartile ranges, and categorical variables were summarized using frequencies and proportions.

4.4 Ethical considerations

The evaluation design was guided by an evaluation protocol approved by EHHRRB on 9 May 2023 (Ref EHHRRB064/2023) and approved by the Associate Director for Science, Division of Global HIV/TB (DGHT) at CDC. A waiver of a signed informed consent was approved for the evaluation protocol. Participants in KIIs, EHRIS site assessments and EHRIS KAP surveys were asked to provide verbal informed consent. First, the evaluation staff read aloud the participant information sheet, which provided information about the evaluation, including the purpose of the evaluation, participants' role in the evaluation, measures to protect confidentiality, and their right to refuse to participate at any time. Afterwards, individuals willing to participate were asked to provide verbal consent (Appendix H and I). After participants provided verbal consent, the evaluation staff assigned a unique participant identifier, documented the name of the participant, date of consent, and signed the informed consent form. All consent forms were completed and signed electronically and kept by the evaluation team in a central password-protected and daily backed-up folder with restricted access to the evaluation staff. All evaluation staff received patient data confidentiality and security guidelines training and signed the confidentiality agreement form (Appendix J). Participants did not receive any form of incentive to participate in the study. All individual-level information reported has been de-identified.

Evaluation Findings
Strategic Objective 1

Developing/strengthening the capacity of EDCU to implement disease surveillance systems including HIV surveillance.

5 EVALUATION FINDINGS: STRATEGIC OBJECTIVE 1 (EDCU)

5.1 Implementation of EHRIS work plan activities

In the first two years of implementation, ICAP planned to develop/strengthen EDCU's capacity to (1) implement and maintain EHRIS activities, (2) mentor and supervise EHRIS activities, (3) report EHRIS data, (4) analyze EHRIS data, (5) facilitate the interpretation, dissemination and utilization of EHRIS data by ENAP and its stakeholders to design and implement HIV prevention interventions for identified hotspots of recent HIV cases. The findings in this section focus on the evaluation question – "to what extent did the planned capacity-building activities for EHRIS take place as measured and documented in the annual work plans?"

a. Building the capacity of the health workforce to implement and maintain EHRIS activities

In the program's first two years, ICAP project staff planned to conduct initial and refresher training for EHRIS master trainers, healthcare workers at EHRIS sites, and laboratory staff. To guide the setting of targets, ICAP project officers reported conducting training needs assessments at participating sites and forecasting training needs for new sites as EHRIS continued to be scaled up. At the beginning of Year 1, there were 138 EHRIS participating sites, and by the end of the year, 30 new EHRIS sites had been added. In Year 2, three new EHRIS sites were added, translating to 169 active sites by the end of Year 2.

- At the stage of developing the work plan for Year 1, ICAP planned to conduct 15 one-day EHRIS refresher training sessions for previously trained HTS counsellors, with 50 counsellors in each session (i.e., a total of 750 counsellors). However, closer to the implementation time, ICAP shifted from conducting the refresher training as a separate activity and embedded it within ongoing mentorship activities, where mentors would go to EHRIS sites once or twice a month to support continuous quality improvement efforts for EHRIS implementation. The ICAP Technical Lead for EHRIS explained that embedding refresher training within ongoing mentoring (1) minimized disruptions in HTS delivery by avoiding taking counsellors out of their workstations and (2) facilitated capacity-building efforts that were relevant to the needs of implementers at specific facility-/community sites. Programme records (i.e., EHRIS meeting reports) reviewed by the evaluation team showed evidence of mentorship support visits conducted once or twice a month in Year 1. However, they lacked sufficient detail to assess how many HTS counsellors were reached with mentorship support. In Year 2, the program's work plan did not include any planned activities for refresher training as it had been fully embedded as part of ongoing mentorship activities. In April 2022 (Year 2), the meeting reports that were used to track mentorship activities were replaced by Technical Activity Logs (Appendix K). These logs were used to capture the details of mentorship activities, including (among others) the number of counsellors who participated in mentorship activities, the technical support provided by the mentor, and action steps.
- In Year 1 and Year 2, ICAP planned to conduct one-day refresher training across 15 laboratories with 15 staff at each laboratory (i.e., 225 receiving refresher training each year). In Year 1, ICAP conducted refresher training in the 15 laboratories as planned, reaching 72% (163/225) of its training target. Similarly in Year 2, ICAP conducted training in all 15 laboratories but fell short of the target, reaching 80% of the target (175/225). ICAP staff involved in the work plan relied on laboratory managers to provide details of the number of staff requiring EHRIS refresher training. However, at the time of training, the number of staff employed at the lab and implementing EHRIS was often lower due to staff turnover (i.e., end of contracts) or staff shifting to other laboratory departments not involved in EHRIS implementation.

- In Year 1, ICAP planned to conduct initial competency training for 300 staff at new EHRIS sites and new staff joining previously activated sites. The program achieved 83% of this training target in Year 1, reaching 109 staff across 30 new EHRIS sites and 139 staff across 42 previously activated sites (total = 248/300). The targets for training new EHRIS staff were lower in Year 2 than in Year 1, with ICAP planning to train 200 new EHRIS staff across new and previously activated sites. In this regard, the program achieved 99% of the training target in Year 2, training 147 new staff across 48 previously activated sites and 51 staff from 3 newly activated sites (total = 198/200). The training of new EHRIS staff was conducted over two days, away from trainees' workstations, and combined didactic and practical sessions. This

evaluation assessed the training coverage among HCWs implementing EHRIS through a survey conducted in 12 EHRIS sites. Notably, all 63 EHRIS implementers surveyed in this evaluation had received initial competency training, and all except one had received the regular two-day training away from their workstations. The one survey participant who was an outlier reported being trained by an EHRIS mentor at their workstation. Insights from the ICAP EHRIS Technical Lead revealed that training new staff at workstations was rare but often necessitated when there were no imminent group training opportunities for new EHRIS staff. The participant further explained that the training curriculum was the same even when initial competency training was done on-site, and training was still conducted over two days.

- In Year 1, ICAP planned to conduct a refresher training with 50 EHRIS master trainers to provide refresher training on EHRIS procedures and review key indicators for mentorship and support supervision. This activity was completed in March 2021 as a half-day virtual training. Sixty master trainers participated in the refresher training, exceeding the work plan targets. Despite the activity being implemented as planned and the involvement of the ENAP HTS Coordinator as a co-facilitator, the evaluation team noted that all master trainers were employed by implementing partners. The trainees included 28 from Georgetown University, two from FHI 360, six from PSI and 24 from EGPAF. The notable absence of government-funded HCWs as master trainers points to gaps in building the government's capacity for EHRIS implementation and presents a risk to sustaining EHRIS implementation in the absence of implementing partners.

Table 5: Review of planned and implemented activities to build health workforce capacity to implement and maintain EHRIS activities

Planned activity	Target	Achievement	% Achieved
YEAR 1			
1. Update EHRIS training materials and SOPs with lessons learned from the previous fiscal year and in the COVID-19 era	Updated training package, Updated SOPs	2 Updated training packages and SOPs	100%
2. Conduct training of trainers (refresher training for existing trainers, new training for new trainers)	50 Master Trainers	Trained 60 Master Trainers (all from implementing partners)	>100%
3. Conduct refresher training and mentorship of HTS counsellors previously trained on EHRIS	750 HTS Counsellors	The number of HCWs reached with refresher training/mentorship could not be assessed due to inadequate information captured in meeting reports.	Could not be assessed
4. Conduct refresher training for previously trained laboratory staff on EHRIS and viral load testing	Training at 15 labs with 15 HCWs at each lab (Total = 225)	Training was conducted at all 15 labs. Trained 163/225 targeted staff	72%
5. Conduct training and mentorship for new EHRIS sites and new staff at previously trained sites	300 HCWs	248 HCWs trained. - 109 staff from 30 new EHRIS sites - 139 staff from 42 previously activated sites	83%
YEAR 2			
1. Conduct refresher training for previously trained laboratory staff on EHRIS and viral load testing	225 laboratory staff	Trained 179 laboratory staff	80%
2. Conduct mop-up training on recency testing targeting newly deployed staff, staffing annual change-over and staff at new testing points	200 HCWs	198 HCWs trained - 51 staff from 3 new EHRIS sites - 147 staff from 48 previously activated sites	99%

Key

Target achievement ≥ 90%
Target achievement ≥ 60% to <90%
Target achievement <60%

b. Building the capacity of EDCU and ENAP officers to mentor and supervise EHRIS activities

In the program's second year, ICAP planned to support EDCU and ENAP staff to conduct mentorship and supervision visits to EHRIS implementing sites. The planned activities sought to transfer supervision and mentorship skills to government officials as ICAP was scaling down the number of ICAP-funded staff providing support for mentorship and supervision of EHRIS implementing sites. For example, in Year 1, ICAP employed 20 HTS Officers to lead site mentorship on EHRIS procedures at the facility level, and in Year 2, only 10 Officers were retained. Similarly, the number of ICAP Surveillance Officers who also provided mentorship and supervision support was reduced from eight in Year 1 to six in Year 2.

- Despite the reductions in ICAP-funded staff, findings from the review of the program's work plans and narratives from key informants (ICAP project officers supporting EHRIS, EDCU staff, and ENAP staff) showed that the planned capacity-building activities for EDCU and ENAP to mentor and supervise EHRIS activities were not implemented as planned. Instead, ICAP HTS and Surveillance Officers continued to be the main providers of mentorship and supervision support for EHRIS activities. Key informants highlighted the shortage of human resources in EDCU and ENAP to participate in mentorship and supervision activities as the root cause for not implementing this activity as planned. Essentially, the officers from EDCU and ENAP identified for this capacity-building activity were reported as often having competing priorities that resulted in their unavailability to participate in mentorship and supervision activities.

- Some key informants identified opportunities for other government staff who could be recipients of the planned capacity-building efforts and who were well-positioned to provide mentorship and supervision capacity for EHRIS activities. One suggestion was to target laboratory mentors who routinely provide supervision and mentorship for activities related to rapid diagnostic testing in facilities and community sites and support continuous quality improvement activities for laboratory staff. Another suggestion was to build the capacity of clinic managers to conduct supervision and mentorship of EHRIS activities. The view was that (1) supervision and mentorship activities were closely aligned with the clinic managers' responsibilities, and (2) clinic managers were more accessible to EHRIS staff than off-site mentors/supervisors and clinic managers.

"I think initially the recommendation was that the in-house lab team would lead the mentoring support, but now the mentoring is more external, which may not be sustainable. There was no purposive approach to make sure that they are the ones that lead the mentoring aspects of this."

KII Participant MOH

Table 6: Review of planned and implemented activities to build the capacity of EDCU and ENAP officers to mentor and supervise EHRIS activities

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Support EDCU and ENAP to conduct mentorship and supervision visits to EHRIS implementing sites	9 Mentorship and supervision support visits	1. If the surveillance officers are viewed as being EDCU staff, then this activity was partly achieved because the EDCU surveillance officers were involved in mentorship and supervision, but there is no evidence of ENAP staff participation. 2. This activity was not achieved if the surveillance officers were not considered EDCU staff (which was the view of some MOH staff).	Requires definition of who qualifies as EDCU staff to measure achievement adequately.

c. Building the capacity of EDCU officers to report EHRIS data

In the first two years of the program, ICAP planned to provide TA to EDCU to (1) obtain reports on EHRIS indicators from implementing partners, (2) provide feedback reports on EHRIS indicators to EHRIS facilities, and (3) ensure automated reporting of data through the EHRIS dashboard.

- Overall, the planned reporting outputs were achieved with technical assistance provided by an ICAP Data Analyst and Data Manager who worked with the Database Developer seconded to EDCU. The Database Developer was responsible for DATIM reporting, data cleaning, and configuring EHRIS dashboards. However, key informants from EDCU felt that while the dashboards were functional and reporting of EHRIS data was being done on time, the activities were primarily led by ICAP staff and that the transfer of skills to EDCU staff was a major weakness. The opportunities to address this gap are discussed in the next section of this report, which speaks to the capacity-building efforts for EDCU officers to analyze EHRIS data.

- Although the targets for the facility feedback reports and DATIM reports were achieved, data quality issues emerged from the KIIs. Some implementing partners were concerned about the discrepancies between the reported numbers of RTRIs and those reported in the feedback reports from EDCU. The most common source of the reported discrepancies was the exclusion of records during data cleaning for clients who had undergone HIV recency testing, but the captured information showed that they did not meet the inclusion criteria (mostly prior ART history) or there was no documentation of a completed informed consent form. who. For example, of the 13,141 clients who were enrolled on EHRIS, 356 (2.7%) had no documented consent and 440 (4.8%) were ineligible to participate (21/13,141 (0.2%) were less than 15 years old, 344/13,141 (2.6%) were known HIV-positive status for more than 12 months, and 75/13,141 (0.6%) had a history of ART). Other sources of data discrepancies included the non-capturing of clients in the EHRIS electronic database at the reporting site and higher numbers of clients offered HIV recency testing services than the number of newly identified HIV-positive clients at the reporting site (i.e., numerator > denominator). Findings from the review of program records showed evidence of 16 data review meetings, specifically set up between the ICAP EHRIS Team and implementing partners to identify and minimize the reported data discrepancies.

Table 7: Review of planned and implemented activities to build the capacity of EDCU officers to report EHRIS data

Planned activity	Target	Achievement	% Achieved
YEAR 1			
1. Provide TA to EDCU to ensure automated reporting and dashboards by providing dashboard data and design inputs	1 live dashboard	Functional EHRIS dashboard	100%
2. Provide TA to EDCU to support implementing partners (IPs) to report on EHRIS indicators	Four quarterly DATIM reports for IPs	4 DATIM reports per IP	100%
3. Provide TA to EDCU to disseminate monthly facility reports	12 monthly facility feedback reports	12 feedback reports per facility	100%
4. Provide TA to develop statistical code and algorithms to merge, de-identify and de-duplicate EHRIS data	Cleaned data produced every quarter	Data available on the EHRIS dashboard for all quarters in the evaluation period	100%
YEAR 2			
1. Provide TA to EDCU to ensure automated reporting and dashboards by providing dashboard data and design inputs	1 live dashboard	Functional EHRIS dashboard	100%
2. Provide TA to EDCU to support implementing partners (IPs) to report on EHRIS indicators	Four quarterly DATIM reports for IPs	4 DATIM reports per IP	100%
3. Provide TA to EDCU to disseminate monthly facility reports	Nine monthly facility feedback reports	Nine feedback reports per facility	100%
4. Provide TA to develop statistical code and algorithms to merge, de-identify and de-duplicate EHRIS data	Cleaned data produced every quarter	Data available on the EHRIS dashboard for all quarters in the evaluation period	100%

d. Building the capacity of EDCU officers to analyze EHRIS data

- According to the Year 1 work plan, ICAP planned to conduct 4 data analysis workshops with 30 participants including EDCU and EHRIS investigators per workshop. The ICAP EHRIS Technical Lead explained that data analysis workshops planned in Year 1 also targeted other MOH staff working closely with EDCU and key users of EHRIS data - HMIS and M&E. However, this was not clear from the work plan. Further, the participant clarified that ICAP planned to conduct one data analysis workshop with 30 targeted people over four days instead of four separate workshops as the evaluation team had interpreted the activity. However, ICAP did not implement the workshops for the targeted group of individuals as planned in Year 1 or Year 2. The evaluation team learned from ICAP key informants that a data analysis workshop similar to the one planned in Year 1 had been conducted under the previous CoAg in the year preceding the commencement of this program. The evaluation team also learnt that the data analysis training activities planned in Year 1 were provisions for training new EDCU, HMIS, or M&E staff if the need arose –which it did not.

Table 8: Review of planned and implemented activities to build the capacity of EDCU officers to analyse EHRIS data

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Support data analysis workshops for EDCU surveillance officers and EHRIS investigators	4 data analysis workshops, 30 HCWs per workshop, one analysis workshop outcome report	No workshops were conducted, and no workshop outcome reports were produced	0%

- There appeared to be a disconnect between the perceived need by the ICAP EHRIS Team and the felt need by MOH partners. Notably, some key informants strongly felt there were unmet training needs in the program's first two years to institutionalize analysis and use EHRIS data among MOH staff in EDCU, M&E, and HMIS (see quotes below). This gap has been identified and is an opportunity to consider for future implementation.

"…when it comes to data, they have not developed the unit (EDCU) in data management."
KII Participant MOH

"The support I received may not be equal to the support that the M&E department received. There is still a lot to be done regarding that area, skills transfer, mentoring and everything regarding the use of data, how to analyze the data and all those things because quite a few issues have been identified, but I think the support has been minimal.
KII Participant MOH

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e. Building the capacity of EDCU officers to support ENAP and its stakeholders to design HIV prevention interventions for identified hotspots of recent HIV cases.

In the first two years of the program, ICAP planned to provide TA (1) for EDCU to lead hotspot detection, characterization, investigation, and reporting, (2) to support EDCU and ENAP to collaborate with HIV prevention stakeholders to develop hotspot response strategies at national level, (3) to support EDCU and ENAP to design implementation of HIV prevention interventions at local level, and (4) to support ENAP to create awareness on hotspot investigation and response strategy.

- The hotspot investigation reports from the first two years of the program and narratives from KII participants revealed that the surveillance officers seconded to EDCU and staff from EHRIS implementing partners led the cluster/hotspot detection, characterization, investigation, and reporting activities. In the view of the ICAP EHRIS team, the surveillance officers seconded to EDCU were part of MOH, so TA was successfully delivered for EDCU to lead the cluster investigations and responses. Some government stakeholders held a contrasting point of view and perceived

surveillance officers seconded to EDCU as 'external' to MOH and that minimal to no TA had been provided to government-funded EDCU officials to lead hotspot investigations and responses.

- The design of hotspot response strategies and their implementation occurred as planned. This activity was completed through various stakeholder engagement platforms, including Project Implementation Task Team (PITT) meetings, HIV Prevention Technical Working Groups (TWGs), HTS TWGs, HIV Pre-exposure Prophylaxis (PrEP) TWGs, HIV Linkages TWGs, and meetings of partners implementing HIV programs for adolescents and young adults.
- The planned activities for ENAP to create awareness on hotspot investigation and response strategies were implemented as planned and achieved through diverse platforms, including PITT meetings, TWGs, Regional HIV Semi-annual Review meetings, Regional Health Management Team (RHMT) meetings, and meetings with Eswatini's National Emergency Response Council on HIV/AIDS (NERCHA).

Table 9: Review of planned and implemented activities to build the capacity of EDCU officers to support ENAP and its stakeholders in designing HIV prevention interventions

Planned activity	Target	Achievement	% Achieved
YEAR 1			
1. Provide TA to EDCU to lead hotspot detection, characterization, investigation, and reporting	Six facility-level hotspots were identified and investigated.	- 21 facility-level clusters identified and investigated. - One above site-level cluster was identified and investigated. - two surveillance reports were disseminated to stakeholders.	>100%
2. Support EDCU and ENAP to collaborate with HIV prevention stakeholders to develop cluster response strategies at the national level	Four meetings 15 participants One response strategy	- ten surveillance cluster responses designed and shared through 11 meetings, including PITT meetings, HIV Prevention Technical Working Group (TWG) Meetings, HTS TWGs, PrEP Task meetings, HIV Linkages TWG, and DREAMS Partners meetings.	>100%
3. Support EDCU and ENAP to design implementation of HIV prevention interventions at the local level	Four meetings 30 participants At least two interventions specific to the cluster patterns		
4. Support to EDCU and ENAP to disseminate the above reports to the HIV prevention stakeholders, including TWGs	Three meetings, attended by 30 participants from various stakeholders in total	- ten meetings were held to disseminate findings (506 participants)	>100%
YEAR 2			
1. Provide TA to EDCU to lead hotspot detection, characterisation, investigation, and reporting	Two hotspots identified and investigated	- eight hotspots identified and investigated in 4 sites	>100%
2. Provide TA to the HTS program to implement response activities in the investigated cluster	One report hotspot response activity implemented	- 11 reports for hotspot response activities	>100%
3. Provide TA to ENAP to create awareness of cluster investigation and response strategy	2 PITT meetings 2 TWGs 4 Regional Health Management Team (RHMT) meetings	- Awareness was created through several platforms, including 11 PITT meetings, 12 TWGs, 2 Regional HIV Semi-annual Review meetings, 2 RHMT meetings, 2 NERCHA meetings, and 1 DREAMS meeting.	>100%

f. Building the capacity of EDCU officers to coordinate EHRIS activities and collaborate with strategic partners

In the first two years of the program, ICAP planned to (1) continue national coordination of EHRIS activities using the established governance structure led by EDCU and (2) support EDCU in conducting national multi-stakeholder surveillance data review meetings, including outcomes from cluster investigation and response activities.

- Regarding coordination structures, the program successfully met its target of EDCU convening 20 bi-weekly PITT meetings in Year 1. In Year 2, 11 PITT meetings were convened after the frequency of these meetings was reduced from being conducted every two weeks to monthly. On the other hand, only one of the two planned Core Leadership Group (CLG) meetings, which included high-level executive managers and technical leads, were convened. The second planned meeting could not be conducted due to CLG members' competing priorities in the government's response to the COVID-19 epidemic. In Year 2, the CLG expanded its mandate beyond EHRIS and met only once.
- In Year 1 and Year 2, ICAP planned to support EDCU to conduct two national multi-stakeholder surveillance data review meetings with 50 participants in each meeting (i.e., a total of 100 participants in each year). In Year 1, the two planned meetings were conducted as planned. A total of 32/50 (64% of target) people participated in the first meeting conducted in person, and 200/50 (>100% of target) people attended the second meeting conducted using a hybrid virtual and in-person attendance format. In Year 2, only one meeting was conducted, and 73/50 (>100% of target) people participated in the meeting. The second planned meeting could not be undertaken despite several attempts by the ICAP EHRIS team due to competing priorities for MOH officials and their unavailability to attend the meeting.

Table 10: Review of planned and implemented activities to build the capacity of EDCU officers to coordinative EHRIS activities and collaborate with strategic partners

Planned activity	Target	Achievement	% Achieved
YEAR 1			
1. Continue national coordination of EHRIS activities using the established governance structure led by the Ministry of Health Epidemiology and Disease Control Unit (EDCU)	20 meetings	- 20 PITT meetings (bi-weekly)	100%
	2 CLG meetings	- 1 CLG meeting	50%
2. Support EDCU to conduct national multi-stakeholder surveillance data review meetings	2 Meetings 50 participants each	- 2 Meetings - Meeting 1- 32 participants (in-person) - Meeting 2- 200 participants (in-person and virtual)	>100%
YEAR 2			
1. Continue national coordination of EHRIS activities using the established governance structure led by the Ministry of Health Epidemiology and Disease Control Unit (EDCU)	20 PITT meetings	- 11 PITT meetings (changed from bi-weekly to monthly after approval of work plan)	50%
	2 CLG meetings	- 1 CLG meeting (restructured to expand beyond EHRIS)	50%
2. Support EDCU to conduct national multi-stakeholder surveillance data review meetings	2 Meetings 50 participants each	- 1 Meeting - 73 participants	73%

5.2 The extent to which EHRIS was implemented according to set quality standards

To answer the evaluation question on the extent to which EHRIS was implemented to set quality standards, the evaluation explored the performance of quality control panel testing, proficiency testing, the reach of HIV recency testing services, and the viral load test turnaround times to complete RITA for RTRI recent clients.

5.2.1 Quality control panel testing

- Findings from the assessments conducted at the 12 health facilities and two community sites showed that the HTS counsellors were primarily responsible for leading the panel testing, and QC panels were tested once a month. All 14 sites provided documented evidence of QC panel testing (i.e., paper and electronic records).

- Findings from the review of the EHRIS dashboard showed that in Year 1, 1,707 QC panels were tested, and all sites passed. In Year 2, the 2,052/2,056 (99.8%) QC panel tests passed. Three of the four failed QC panels were samples representing a recent infection; the other one was a negative specimen.

5.2.2 Proficiency testing

- Findings from site assessments showed that all staff trained and providing recency testing services were up to date with proficiency testing; all had passed proficiency testing, and proficiency testing results were documented.

- The evaluation team also abstracted data from the EHRIS dashboard to assess compliance with repeating proficiency testing among those who had failed the initial attempt. The findings highlight that 41/119 (34.4%) HCWs did not retest after failing proficiency testing. Some reasons cited by the ICAP EHRIS Technical Lead for non-repeat proficiency testing include staff being unavailable for repeat testing due to staff rotation to other service points or the end of contracts for staff employed by the implementing partner. The ICAP EHRIS Technical Lead also highlighted that none of the HCWs who failed proficiency testing could provide HIV recency testing services. However, this could not be verified by the evaluation team since no cases of HCWs who had failed proficiency testing were identified during the site assessments.

Table 11: Overview of proficiency testing by period and retesting after a failed initial attempt

Period	Total number of testers	Testers who failed proficiency testing	Did not retest after failing proficiency test
2021 Round 1	411	27/411 (6.6%)	5/27 (18.5%)
2021 Round 2	533	35/533 (6.6%)	15/35 (14.9%)
2022 Round 1	572	27/572 (3.6%)	1/27 (3.8%)
2022 Round 2	627	30/267 (11.2%)	20/30 (33.3%)

5.2.3 The reach of HIV recency testing services

- Based on the findings from the EHRIS dashboard, there was high coverage of recency testing services. In Year 1 and Year 2, the program surpassed 90% of newly diagnosed individuals who received recency testing at PEPFAR-supported sites implementing EHRIS. In Year 1, 6,869/7,132 (96.3%) eligible clients were reached with recency testing service, and in Year 2, 6,272/6,355 (98.9%) were reached.

- The findings below from the HCW survey point to potential facilitators to the high coverage of HIV recency testing:

  a. Most participants responsible for offering recency testing (58/60; 96.7%) agreed that eligible clients were willing to participate in recency testing. The remaining two participants did not have any views on this statement.

  b. Almost all participants surveyed (61/63 (96.8%)) reported using tablets for recency data collection, and all felt equipped to use the tablets provided for recency data collection.

  c. Most surveyed participants never or rarely experienced external responsibilities that kept them from offering recency testing services (53/63; 88.4%). Among the seven staff who reported interference from competing responsibilities sometimes, often or always, cited interferences related to working at multiple service points and part-time roles as HTS counsellors (e.g., nurses, microscopists and phlebotomists).

Table 12: Survey participant responses to responsibilities that compete with offering recent HIV testing to eligible clients

How often do your other responsibilities keep you from offering recency testing to eligible clients?	Respondents (N=63) n (%)
Never	40 (66.7%)
Rarely	13 (21.7%)
Sometimes	4 (6.7%)
Often	1 (1.7%)
Always	2 (3.3%)

5.2.4 Viral load results analytic turnaround time for RITA

- In Year 1, 459 viral load samples were received at laboratories for viral load testing. Of these, 449 (98%) of the viral load results were available. The average turnaround time of results in days ranged from **1–6 days.**
- In Year 2, 350 viral load samples were received at laboratories for viral load testing. Of these, 341(97%) of the viral load results were available. The average turnaround time of results in days ranged from **0–3 days.**
- There was no evidence of setting benchmark targets for the turnaround time of viral load test results. This limited the evaluation team's interpretation of whether EHRIS quality standards were being met for this indicator.

5.3 Implementation of IDSR work activities

In the first two years of implementation, the program planned to build EDCU's capacity to (1) strengthen strategic planning, (2) develop HCWs to implement and sustain IDSR activities, (3) monitor IDSR activities, and (4) disseminate IDSR findings. In addition, ICAP planned to collaborate with CDC-Eswatini and MOH to develop a concept/protocol for HIV case-based surveillance.

a. Building EDCU's capacity for strategic planning

In Year 1 of the program, ICAP planned to support EDCU by reviewing and updating strategic documents and guidelines. In Year 2, ICAP planned to support EDCU by monitoring the implementation of the capability maturity model (CMM). All the planned strategic documents and guidelines were reviewed and updated. These included the Strategic Plan, IDSR Technical Guidelines, IDSR Case Definitions, IDSR Roadmap, and IDSR Roles and Responsibilities Guidelines. Regarding monitoring the capability maturity model, ICAP and EDCU settled on reviewing the CMM in the first and last quarters of Year 2 to allow sufficient time to implement action plans and observe changes in capability maturity.

Table 13: Review of planned and implemented activities to build EDCU's capacity for strategic planning

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Provide TA to review and update strategic documents and guidelines (strategic plan, IDSR technical guidelines, IDSR case definitions, IDSR roadmap, roles, and responsibilities)	Number of guiding documents produced	- IDSR Strategic Plan - IDSR Technical Guidelines - IDSR Case Definitions - IDSR Roadmap - IDSR Roles and Responsibilities Guidelines.	100%

b. Building the capacity for healthcare workers to implement and sustain IDSR activities

In the program's first two years, ICAP planned to conduct HCW training on utilizing the IDSR approach for facility and pre-service training for healthcare workers.

- In Year 1, the targets for IDSR training were to ensure that at least 90% of HCWs in practice attending the IDSR training achieved a ≥70% mark in their post-test assessment and that 90% of pre-service HCWs (i.e., trainee nurses) attending the IDSR training achieved a ≥60% mark in their post-test assessment. During the year, 44 HCWs in practice attended IDSR training, and half of these (22/44) met the benchmark score of 70% in their post-assessment. Further, 65 trainee nurses attended the IDSR training, and 47 (72%) completed the benchmark score of 60% in their post-assessment.
- In Year 2, the targets shifted from the proportion of trainees achieving competencies to the number of trainees reached through the capacity-building activities. ICAP planned to reach 100 HCWs in practice with IDSR training and exceeded this target by reaching 137 HCWs. Also, ICAP planned to conduct IDSR training for 50 nursing students and achieved 90% of this target (44/50).

Table 14: Review of planned and implemented activities to build the capacity for healthcare workers to implement and sustain IDSR activities

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Conduct HCW training on the utilization of the IDSR approach	90% of HCWs in practice achieving ≥ 70% mark in post-test	44 HCWs trained 22/44 (50%) achieved ≥ 70% mark in post-test	50%
	90% of pre-service HCWs achieving ≥ 60% mark in post-test	65 pre-service trainees 47/65 (72%) achieved ≥ 60% mark in post-test.	80%
YEAR 2			
Provide TA support to EDCU to conduct IDSR training for facility staff	One training 100 HCW trained	137 trained in 2 training sessions	>100%
Conduct IDSR training pre-service at training institutions	One training 50 students trained	Three pieces of training 96 students trained	>100%

c. Building the capacity for EDCU to disseminate IDSR findings

In the first two years of the program, ICAP planned to (1) conduct a SWOT analysis of the epi-bulletin production and identify improvement areas, (2) provide TA to produce epidemiologic bulletins, (3) provide TA and logistical support to conduct national and regional Public Health emergency Committee (PHEMC) meetings.

- The SWOT analysis of the epi-bulletin production was conducted in April 2021 through a full-day technical meeting.
- In Year 1, 10 monthly bulletins (out of a planned nine bulletins) and 47 weekly bulletins (out of a scheduled 40 bulletins) were produced, exceeding the set targets. Similarly, in Year 2, the program exceeded the targets from the number of planned bulletins – producing ten monthly bulletins (out of a scheduled ten bulletins) and 51 weekly bulletins (out of a planned 40 bulletins).
- The program successfully provided TA and logistical support to conduct national and regional Public Health Emergency Committee (PHEMC) meetings. All four planned Technical Working Group meetings were completed, and 5/6 (83%) planned PHEMC meetings were conducted.

Table 15: Review of planned and implemented activities to build the capacity for EDCU to disseminate IDSR findings

Planned activity	Target	Achievement	% Achieved
YEAR 1			
1. Conduct a SWOT analysis of the epi-bulletin production SOP and identify improvement areas	Reviewed epi-bulletin SOP	Epi Bulletin SOP revised	100%
2. Provide TA for addressing the above gaps and revitalizing analysis and production of surveillance data through the epidemiologic bulletins	9 Monthly Epi-bulletins 40 Weekly Epi-bulletins	Ten monthly bulletins 47 weekly bulletins	>100%
YEAR 2			
1. Support EDCU to conduct national multi-stakeholder surveillance data review meetings, including outcomes from cluster investigation and response activities	Two meetings, 50 participants	2 data dissemination meetings conducted	100%
2. Provide TA to EDCU to conduct analysis and production of surveillance data through the epidemiologic bulletins	9 Monthly Epi bulletins 40 Weekly Epi bulletins	10 Monthly Epi bulletins 51 Weekly Epi bulletins	>100%
3. TA and logistical support to conduct national and regional Public Health Emergency Committee (PHEMC) meetings.	4 TWG Six national/regional PHEMC meetings	2 National PHEMC meetings 3 Regional PHEMC meetings 4 TWGs	90%

d. Activities to collaborate with CDC-Eswatini and MOH to develop a concept/protocol for case-based surveillance

In Year 2 of the program, ICAP planned to collaborate with CDC-Eswatini and MOH to develop a concept/protocol for case-based surveillance. Initial engagements with EDCU, M&E, HMIS, and NHRID were conducted as planned to review the proposed concept note, and the meeting minutes reviewed by the evaluation team reflected proposals on the sentinel events that would be tracked and consensus in using the 2019-2020 EHRIS cohort to pilot the proposed concept.

5.4 The extent to which ICAP engaged stakeholders in designing and implementing EHRIS and IDSR activities

The evaluation identified three levels of stakeholders that were key in designing and implementing EHRIS and IDSR activities: (1) officials from MOH-supported units (EDCU and ENAP), (2) implementing partners, and (3) CDC staff.

a. ICAP's engagement with EDCU and ENAP as key MOH stakeholders

Overall, key informants from MOH valued ICAP's highly consultative and transparent approach to designing and implementing program activities. MOH participants identified the collaborative development of work plans, review of work plan progress, and the inclusion of MOH staff as co-investigators on the EHRIS protocol as crucial facilitators to effective stakeholder engagement. Also, MOH officials felt that ICAP respected the role of MOH as the custodians of the surveillance and HIV programs because the supported MOH units were always at the forefront of convening coordination and dissemination meetings (e.g., TWGs and multi-stakeholder meetings). However, they still relied on ICAP support in the background. Further, MOH officials also believed that the surveillance officers seconded to EDCU played a key liaison role that improved the communication between MOH and ICAP since some surveillance officers were based at the EDCU offices or spent some days of the week working from EDCU offices.

b. ICAP's engagement with implementing partners

Participants from implementation support partners participating in EHRIS activities also highlighted the strengths of ICAP's highly consultative approach to implementation activities. Although data discrepancies and access to individual-level EHRIS data were raised in several interviews – these issues were beyond the scope of ICAP's role in this CoAg as MOH were the custodians of the EHRIS and the surveillance data.

c. ICAP's engagement with CDC

This program was implemented under a cooperative agreement. Therefore, the CDC also had significant involvement as a technical partner in designing and implementing program activities. In the program's first two years, four CDC Eswatini country staff supported the implementation of EHRIS activities in various capacities, namely the Activity Manager, HTS Lead, Recency Lead, and Strategic Information Advisor. In both program years, ICAP and CDC had standing meetings. As partners under the cooperative agreement, they routinely organised joint field support visits to facilitate continuous engagement and alignment of implementation priorities and approaches.

5.5 The effects of capacity-building activities on organizational planning and implementation at EDCU and ENAP

The evaluation identified the effects of the program's capacity-building efforts in improving EDCU's strategic planning, expansion of EHRIS coverage, and ENAP's operational planning. Further, the evaluation identified opportunities for organisational strengthening regarding the model for skills transfer from ICAP to MOH staff.

a) Strengthening of EDCU's strategic direction

Through support from this program, EDCU defined the vision of its unit and identified its goals and objectives by developing its overall three-year strategic plan for 2021-2023 (see quote below) and other key technical documents. For example, the development of IDSR case definitions was critical to standardizing criteria for the identification of cases, which was important to ensure comparability and consistency of disease surveillance data – a weakness identified in a 2015 assessment of IDSR implementation in Eswatini. Further, the IDSR Roadmap and the IDSR Roles and Responsibilities Guidelines provided a blueprint for how the *"many mission-specific units and departments will function in support of integrated surveillance"* (extract from IDSR Roadmap page 7).

> *"This Strategic Framework will enable the EDCU to fulfil their mandate in a coordinated, streamlined way to produce high-quality data that will inform not only live-saving programming and interventions but also innovative and ground-breaking public health policies that will position Eswatini to be one of the leaders of public health in the region and continent."*
>
> ***Extract from Foreword by Dr Simon Zwane (IDSR Strategic Plan)***

Through developing and monitoring the capability maturity model, ICAP and EDCU developed staffing plans and job descriptions for the surveillance officers seconded to EDCU. This set a platform for efforts to advocate for the roles to be absorbed by MOH and sustain the gains of TA delivered through these surveillance officers.

b) Improvements in the 'visibility' of EDCU as the custodian of epidemiologic surveillance systems in Eswatini

The support EDCU received through this program to collaborate with other MOH units and HIV programme implementers and to disseminate EHRIS and IDSR surveillance findings improved its visibility as the primary custodian of epidemiologic surveillance systems in Eswatini. One informant narrated how other agencies and departments now reach out to EDCU for their epidemiologic surveillance needs, which the informant perceived as a positive step to addressing the country's fragmented approaches to epidemiologic surveillance.

c) Improvements in ENAP's operational planning for HIV testing services and HIV prevention interventions

The development of capacity for ENAP staff to use and interpret near-real-time EHRIS dashboards, the convening of regular PITT and TWG meetings, and the bi-annual review of EHRIS data with national multi-stakeholders contributed to ENAP identifying implementation gaps in routine HIV programs and develop tailored strategies to bridge these gaps. For example, EHRIS findings revealed that many clients used HTS as a re-entry point into the care continuum. In response, MOH developed strategies to curb re-testing among known HIV-positive clients, which included the development of a standard operating procedure outlining the steps of verifying if clients had previously been issued with an HIV diagnosis and started ART and the growth of patient literacy messages to empower clients to remain in care and return to care in the event of treatment interruption.

The strengthening of coordination and collaboration between the HTS programmes and the various HIV prevention TWGs increased the focus on HIV prevention activities, which informants perceived to have been a weakness of the Eswatini HIV programme for many years. Improvements in linkage to PrEP and the strengthening of other HTS-related activities, such as index testing services, were highlighted in this regard.

Some key informants from ENAP also highlighted improvements in operational planning and resource allocations for key population programs (see quote below). These improvements were attributed to the availability of EHRIS data, which was used by surveillance officers seconded to EDCU and implementing partners to characterize and respond to geographical hotspots for recent HIV infections. In addition, the EHRIS data was perceived to provide more regular data to guide operational planning, which was a shift from primary reliance on periodic bio-behavioral surveys conducted every two to three years.

"For key populations, EHRIS was an added value. First, when we do population health impact assessments such as SHIMS, it does not adequately sample people in key populations because the methodology is not likely to reach them. So, it means that we had to rely on bio-behavioral surveys. But we now have routine data that can tell us where we are having new HIV infections, and it helps us to target our response."

KII Participant ENAP

Evaluation Findings
Strategic Objective 2

Develop/strengthening the capacity of NHRID to implement, disseminate and utilize research to impact public health programs.

6 EVALUATION FINDINGS: STRATEGIC OBJECTIVE 2 (NHRID)

6.1 Implementation of work plan activities

In the first two years of implementation, the program planned to build capacities for NHRID to (1) strengthen strategic planning, (2) to implement the monitoring plan of the National Health Research Agenda 2021-2026, (3) plan and host conferences, (4) develop a health workforce that generates evidence to inform practices and is aware of the National Health Research Agenda (NHRA)

a. Building NHRID's capacity for strategic planning

- In Year 1 of the program ICAP planned to support NHRID with reviewing and updating strategic documents and guidelines. The National Health Research Agenda 2021-2026 was completed in Year 2 as planned, although it was officially launched in November 2022 (Year 3).
- In Year 2, ICAP planned supporting NHRID with monitoring implementation of its capability maturity model (CMM), and this was done in Quarter 1, 3 and 4.

Table 16: Review of planned and implemented activities to build NHRID's capacity for strategic planning

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Provide TA to review and update strategic documents and guidelines (strategic plan, health research agenda)	4 Meetings 20 participants per meeting 1 Research Agenda	6 meetings 1 Research Agenda	100%
YEAR 2			
Provide TA to NHRID to monitor implementation of capability maturity model	Percentage of NHRID Capability Maturity Model (CMM) implemented (70%)	End of year scoring on the CMM is at 67%	67%

b. Building capacity for NHRID to monitor the National Health Research Agenda

In Year 1, ICAP planned to support NHRID with monitoring of the new NHRA 2021-2026 and evaluating the superseded NHRA. The review of the previous NHRA was implemented as planned, and since the new NHRA was only released at the beginning of Year 3 of the program, no monitoring activities were conducted.

Table 17: Review of planned and implemented activities to build capacity for NHRID to monitor the National Health Research Agenda

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Provide TA to develop and implement the monitoring plan of the research agenda, starting with an evaluation of the previous research agenda	70%	Activity not completed because NHRA had not been published by the end of Year 2	0%

c. Building capacity for NHRID to plan and host research conferences

In Year 1, ICAP planned to support NHRID to host a research conference targeting emerging topical issues. This activity was completed with NHRID hosting the 5th National Health Research Virtual Conference with the theme "COVID-19,

and Emerging and Evolving Global Public Health Threat: The Role of Research." A total of 315 delegates attended the two-day conference. ICAP supported NHRID with pre- and post-abstract training of researchers, development and maintenance of the abstract submission portal, capacity-building of reviewers in abstract review, conference awareness activities including development and printing of conference flyers and posters and conference launch meeting; internet connectivity for hosting virtual options, and the writing of an abstract book and report.

Table 18: Review of planned and implemented activities to build capacity for NHRID to plan and host research conferences

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Provide technical assistance for hosting a virtual mini-conference targeting emerging topical issues	One conference	One conference	100%

d. Building capacity for NHRID to disseminate research findings

- In the program's first year, ICAP planned to support NHRID in leading regular TWG meetings for research and surveillance data dissemination. All four scheduled TWG meetings were conducted to disseminate research and surveillance data, with an average of 30 participants across the four TWG meetings.

- ICAP also planned to support NHRID to produce the bi-annual health research newsletter and disseminate research findings on their website. The bi-annual research newsletters were published as scheduled: Issues 9 and 10 were published in Year 1, and Issues 11 and 12 were published in Year 2. Despite the newsletters being published as planned, a participant from NHRID highlighted challenges with obtaining content for the newsletters on time from contributing researchers (see quote below). Further, in Year 2, the NHRID website was non-functional because the five-year subscription that ICAP had paid for in the previous CoAg had elapsed. The plans to transition the management of the website to Royal Science and Technology Park (a parastatal providing ICT support) were unsuccessful. This limited wider dissemination of the newsletters beyond the emails and TWG meetings.

"The challenge is that when you try to get these articles, people do not respond. And this could delay the production of the newsletter. We follow up on the organizations, even by phone. They will promise to send something then take their time to do that; that is the main challenge."

Key Informant NHRID

- In Year 2, ICAP supported NHRID in holding a post-international conference dissemination meeting as planned. The meeting was conducted after the ICASA conference held in Durban, South Africa, in December 2021. A total of 84 delegates attended this meeting. These meetings were highly valued by KII participants who had limited opportunities to travel for international conferences.

Table 19: Review of planned and implemented activities to build capacity for NHRID to disseminate research findings

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Support NHRID to produce the bi-annual health research newsletter and disseminate research findings on their website	Two newsletters	Two newsletters produced	100%
Support NHRID to lead regular TWG meetings for research and surveillance data dissemination	4 TWG Meetings	4/4meetings conducted	100%

Planned activity	Target	Achievement	% Achieved
YEAR 2			
Provide TA for Post International Dissemination Meeting	One virtual meeting with 50 participants	One virtual meeting with 84 participants	>100%
Support NHRID to produce the bi-annual health research newsletter and disseminate research findings on their website	Two newsletters	Two newsletters produced	100%

e. Building NHRID's capacity to raise awareness of the NHRA and develop a health workforce that uses research to inform practices

- In Year 2, ICAP planned to conduct two sensitization meetings on the new NHRA (2021-2026) with 50 HCWs and staff from health academic institutions. These sensitization meetings for the new NHRA (2021-2026) were not conducted as planned because the new NHRA was only launched on 28 November 2022 (i.e., Year 3 of the CoAg).
- In addition, ICAP also planned to capacitate at least 90 HCWs on health research skills. The program exceeded this target, training 209 people through four regional training courses, one national training course, and abstract training for authors who submitted abstracts. ICAP support the training activities by developing training materials, logistics of training venues, and facilitating the training sessions.

Table 20: Review of planned and implemented activities to build NHRID's capacity to raise awareness of the NHRA and develop a health workforce that uses research to inform practices

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Support NHRID to capacitate HCW on health research skills	100 HCWs	Two hundred nine people were reached with these training activities.	>100%
Support NHRID to lead regular TWG meetings for research and surveillance data dissemination	3 TWG Meetings conducted	3/3 meetings conducted	100%
YEAR 2			
Conduct sensitization meetings to health sectors on NHRA, including HCWs and health academic institutions.	Two sensitization meetings	Activity not completed because NHRA had not been published by the end of Year 2	0%

6.2 The extent to which ICAP engaged NHRID in designing and implementing program activities

ICAP's engagement with NHRID was reportedly strong and characterized by high adaptability to NHRID priorities and transparency from ICAP on activities that could be accommodated within the scope of the CoAg.

"ICAP has been there to support us. ICAP holds our hand in all the activities that we do as a department. And they are always there when we need help; that is very important. They are always there for us when we need help. It is not like they tell us what to do, but we tell them what we want to do, then discuss how they can support us."
Key Informant NHRID

One key informant held the view that there were opportunities for ICAP to improve engagement with NHRID around the dissemination of findings from surveys led by ICAP. The informant was concerned that, in some cases, the dissemination

of findings from national surveys was first made available at conferences or in publications before extensive in-country dissemination. For some participants, this created a perception that ICAP placed more value on scientific platforms at the expense of local audiences. Further, some participants were also concerned that dissemination of national survey findings was not reaching lower administrative levels and communities participating in the surveys. ICAP researchers who were informants in this evaluation acknowledged the tension between the scientific and programmatic worlds. They explained how, within the science world, the shelf life of "new" research or survey findings is concise. Therefore, waiting for in-country dissemination to be completed might result in missed opportunities for international recognition of the work being done in Eswatini. Evaluation findings suggest that this topic needs further dialogue between ICAP and NHRID.

6.3 The effects of capacity-building activities on organizational planning and implementation at NHRID

a. Strengthening of NHRID's strategic direction

The support provided by ICAP to NHRID led to the completion of the NHRA in Year 2 of this program. The NHRA was essential to creating a blueprint for NHRID to achieve its mandate to facilitate, coordinate, guide and build capacity for health research in Eswatini. Reviews of ICAP's minutes of meetings leading to the completion of the NHRA showed that the development process involved multi-stakeholder engagement, including government stakeholders, academic institutions, and members of civil society. A key informant from NHRID highlighted how ICAP's support in facilitating a systematic and collaborative approach to the development of NHRA strengthened NHRID's stakeholders' buy-in and built the internal capacity of NHRID staff to pursue similar activities in the future.

b. Strengthening of NHRID's governance structures

Several participants highlighted the improvements in the governance structure of the NHRID through ICAP's support. One ICAP research officer supporting NHRID noted how the capability maturity models had been instrumental in identifying the need to improve governance structures. Before the reported improvements, there were unclear terms of reference on TWG membership, and the TWGs had become large. Further, the TWGs mainly were used for presenting studies and disseminating research findings. The TWGs were restructured to a multidisciplinary team of 15 members, and research findings were disseminated to a quarterly national research dissemination meeting. Several participants perceived the current governance and stakeholder engagement structures more efficient and effective in driving the National Health Research Agenda.

"From last year, there was this tool that was introduced. It is called the CMM, Capability Maturity Model, which we have been supporting NHRID to implement. So, during the discussions, we discovered that the research technical working group needs to be restructured so that the people who participate in it also support implementation or the mandates of the National Health Research and Innovation Department."

Key Informant Seconded Officer to NHRID

Through ICAP support, new meeting platforms for engaging researchers and disseminating findings were also created. First, post-international conference dissemination meetings were established, where researchers share learnings from the conferences they attended. Further, through ICAP support, NHRID found study advisory groups (SAGs) where research organizations provided updates to NHRID and other researchers as part of dissemination or soliciting review comments to improve the research methodology.

c. Improved coordination between the NHRID and EHHRRB to monitor operationalization of NHRA

In Year 1 of the program, NHRID set goals under its CMM to strengthen its collaboration with EHHRRB, improve the operationalization of the NHRA, and monitor approved studies. By the end of Year 2, NHRID and EHHRRB had started conducting quarterly meetings as part of the action plan to improve collaboration between the two institutions. Notably, ICAP supports the planned partnership between NHRID and EHHRB by providing technical

assistance through an officer seconded to NHRID who assisted with developing the meeting agenda, documenting meeting minutes, and following up on meeting action items.

d. Recommendations for additional capacity-building efforts to improve organizational planning and implementation

A key informant from NHRID shared recommendations for the program to consider capacity-building activities for knowledge management. The suggestions included transference of skills to generate policy briefs and training master trainers to implement and sustain knowledge management systems within NHRID.

Another recommendation was made for a shift towards significant involvement of local entities in future national surveys and purposefully incorporating capacity-building activities. In addition, regarding capacity-building of junior researchers and maximizing the use of available data from studies, there were recommendations to revitalize the ICAP-supported research training/fellowship programmes. Participants who had been recipients of this support highlighted the immense benefits they had received and were also pragmatic about the high level of investment required to implement such programmes.

"The vision would be that for future surveys, there would have been some capacity built for academic institutions or government so that primary roles could be shifted to local entities."

Key Informant CDC

Evaluation Findings
Strategic Objective 3

Developing/strengthening the capacity of EHHRRB to improve the review of research protocols.

7 EVALUATION FINDINGS: STRATEGIC OBJECTIVE 3 (EHHRRB)

7.1 Implementation of work plan activities

In the first two years of implementation, the program planned to build EHHRRB's capacity to (1) strengthen strategic planning, (2) to receive and review research protocols, (3) conduct post-approval monitoring, and (4) advocate for research ethics across government sectors. Additional planned capacity-building activities were also targeted at the continuous development and improvement of professional practice for EHHRRB board members.

a. Building EHHRRB's capacity for strategic planning

- In Year 1, ICAP planned to support EHHRRB by reviewing and revising National Health Researchers Ethics Guidelines and templates. This activity was implemented as planned, with the Third Edition of the Health Research Ethics Guidelines published in September 2021. ICAP contributed to the development and review of the guidelines and supported the design and printing of the document.

- In Year 2, ICAP supported EHHRRB by monitoring the implementation of its capability maturity model (CMM). Notably, ICAP and EHHRRB settled on reviewing the CMM in the first and last quarters of Year 2 to allow sufficient time to implement action plans and observe changes in the capability of the organization.

Table 21: Review of planned and implemented activities to build EHHRRB's capacity for strategic planning

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Review and revise National Health Researchers Ethics Guidelines and templates to be consistent with revisions made on RHInnO	3 Meetings 15 participants	3/3 meetings conducted	100%
YEAR 2			
Provide TA to EHHRRB to develop and monitor the implementation of the capability maturity model	70% of the EHHRRB capability maturity model implemented	66% end of year scoring	66%

Key

Target achievement ≥ 90%
Target achievement ≥ 60% to <90%
Target achievement <60%

b. Building EHHRRB's capacity to receive and review research protocols

- In the first year of the program, ICAP planned to support EHHRRB by evaluating the RHInnO system for receiving and reviewing research protocols, enhancing the RHInnO system (based on the evaluation findings), and training researchers and reviewers on using the RHInnO system. The evaluation of the RHInnO system was completed in February 2021 through an online survey of 30 researchers, administrators (secretariat) and reviewers who volunteered to participate in the evaluation. ICAP supported EHHRRB in developing evaluation questions, analysing data, and developing a report summarizing areas of improvement.

- In the program's first two years, ICAP supported EHHRRB in reviewing protocols within 45 days of submission. In Year 1, 90 protocols were received and reviewed within 45 days of submission. In Year 2, 85 protocols were submitted, and 73 (86%) were reviewed within 45 days. Notably, the benchmark for turnaround times changed from 90% of protocol

reviews completed within 45 days of submission to 80% of protocol reviews completed within 45 days of submission. Therefore, in Year 2, the benchmark targets were met, although the bar was slightly lower than what had been set in Year 1.

Table 22: Review of planned and implemented activities to build EHHRRB's capacity to receive and review research protocols

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Conduct an evaluation of the Research for Health and Innovation Organizer (RHInnO) functionality	One meeting, 15 people One report	One meeting 30 researchers surveyed	>100%
Support EHHRRB to conduct a quick evaluation of submitted protocols	90% of reviews completed within 45 days of submission	90 protocols submitted 90 reviewed within 45 days	100%
YEAR 2			
Support RHInnO license renewal	One annual subscription license	License renewed	100%
Support EHHRRB to maintain protocol review turnaround time within a reasonable time	80% of reviews completed within 45 days of submission	85 protocols submitted 73 reviewed within 45 days (86%)	>100%

c. Building EHHRRB's capacity to conduct post-approval monitoring

- In the first two years, ICAP planned to support EHHRB with the roll-out and ongoing implementation of post-approval monitoring. The goals of the post-approval monitoring were to assess the progress of selected research studies and assess their compliance with the approved EHHRRB protocol, Standard Operating Procedures and Good Clinical Practice. As planned for Year 1, ICAP supported EHHRRB with developing the post-approval monitoring guidelines, training materials, and monitoring tools. Also, in Year 1, ICAP trained 10 Monitors, 3 EHHRRB Board Members and four staff from the EHHRRB Secretariat. In Year 2, two studies underwent post-approval monitoring as planned.

Table 23: Review of planned and implemented activities to build EHHRRB's capacity to conduct post-approval monitoring

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Build EHHRRB monitoring capacity and support field monitoring of approved studies	Six monitoring visits were conducted	3/3 meetings done 3/6 monitoring visits	50%
YEAR 2			
Provide TA to conduct post-approval monitoring activities	Two meetings 12 participants Two field monitoring visits	Two feedback meetings with monitors Two monitoring visits	100%

d. Building EHHRRB's capacity to develop a workforce that is aware of and understands research ethics

- In Year 1, ICAP had planned to conduct refresher training for researchers and reviewers on the enhanced RHInnO system. However, complete migration to the enhanced RHInnO system (RHInnO 2.2) was only completed in March 2022 (Year 2). Therefore, the activity was rescheduled and completed in Year 2. Refresher training was provided to 50 researchers, 28 reviewers, and five administrators.

- In Year 2, ICAP planned to support EHHRB in conducting training for 50 researchers on ethics topics, including Good Clinical Practice (GCP) and its implications for conducting research. Although one training was initially designed, two sessions were conducted, reaching 37 researchers and 18 EHHRRB reviewers.

- In the second year of the programme, ICAP also planned to support EHHRRB by conducting one sensitisation meeting on research ethics, targeting 10 staff from major government sectors at the national level. Although the sensitisation meeting was convened, the level of participation was below expectations - only six participants were trained. The participants represented six government ministries/sectors: the Ministry of Foreign Affairs, Ministry of Agriculture, Ministry Tinkhundla, ICT, the Deputy Prime Minister's Office and the Eswatini Economic Policy Analysis and Research Centre.

- The program planned to conduct one sensitization meeting on research ethics with 13 Regional Health Management Team (RHMT) members. The sensitization of RHMTs exceeded the intended target. Three sensitization meetings were conducted in Hhohho, Lubombo and Shisweleni, and 79 RHMT members were sensitized to research ethics principles.

Table 24: Review of planned and implemented activities to build EHHRRB's capacity to develop a workforce that is aware of and understands research ethics

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Conducting refresher training for Researchers and reviewers on RHInnO and monitoring its utilization	One training 50 trained	Not implemented in Year 1 but completed in Year 2 after completion of RHInnO enhancements.	0%
YEAR 2			
Conduct Researchers training on ethics topics, including GCP and its implication for research	One training One training report 50 researchers	Two pieces of training 55 participants	>100%
Conduct sensitization and advocacy meetings on research ethics targeting major government sectors at national level	One sensitization meeting 10 participants	One sensitization meeting 6 participants	60%
Conduct sensitization and advocacy meetings on research ethics with and RHMTs	One sensitization meeting 13 participants	Three sensitization meetings of RHMTs 79 participants	>100%

e. Building EHHRRB's capacity to develop a workforce that is aware of and understands research ethics

- In both Year 1 and Year 2 of the program, ICAP planned to support the continuous professional development of EHHRRB Board members through round table discussions on topical issues in bioethics, reviewing complex studies and emerging research concepts. In Year 1, two out of three planned roundtables were conducted. The first roundtable discussion conducted in July 2021 was on research ethics implications of web-based data collection; the second was conducted in September 2021 on issues related to the review of multi-country studies. In Year 2, both planned roundtable meetings were conducted as planned. The first roundtable meeting in Year 2 was conducted in March 2022 on qualitative research; the second one conducted in August 2022 was on the topic of informed consent forms in research. The review of program documents by the evaluation team showed that for all roundtable meetings, ICAP (1) supported the planning meetings, (2) facilitated the roundtable discussions with IRB experts from ICAP Headquarters, and (3) developed summary reports of these discussions.

Table 25: Review of planned and implemented activities to build EHHRRB's capacity to develop a workforce that is aware of and understands research ethics

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Support EHHRRB capacity-building and round table discussions on topical issues in bioethics, reviewing complex studies and emerging research concepts	Three meetings 15 members trained	2/3 meetings	66.6%
YEAR 2			
Conduct EHHRRB Roundtable meetings	Two meetings 15 participants	2/2 meetings	100%

7.2 The extent to which ICAP engaged EHHRRB in designing and implementing program activities

The EHHRB reported ownership of the institution's affairs despite receiving support from ICAP. In addition, ICAP and EHHRRB had structured quarterly meetings that allowed for open communication channels between the two institutions.

"We drive the process ourselves…We have quarterly meetings with ICAP where we share progress on the work we are doing based on the work plan we agreed on for the period. In those meetings, we also share the direction we are moving in because we are growing and not the same. So, even in the kinds of activities, we are the ones who propose to them which direction we want to go. We have had fruitful meetings, and they have appreciated the maturity they are seeing and even the initiatives we take to sort of guide where we are going."

Key Informant EHHRRB

7.3 The effects of capacity-building activities on organizational planning and implementation at EHHRRB

a) Improvements in strategic planning

EHHRB highly valued the development and monitoring of the capability maturity model (CMM) as a tool for planning sustainability and achieving optimal independence of the review board.

"The other thing I wanted to mention is that ICAP introduced the concept to us of a maturity index, which has five-year milestones to ensure if we are maturing in terms of how we are managing our work, and we found that very useful, and it's an instrument that we have adopted and we are using it to say, do we have legislation, do we have annual budgets, do we have annual work plans, do we have a monitoring tool, do we have all those kinds of things. That strategic plan is part of that maturity index framework."

Key Informant EHHRRB

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b) Sustained reliability in turnaround times for protocol reviews

Through enhancements in RHInnO and training of both researchers and reviewers, the EHHRRB was able to meet its benchmark targets of completing reviews within 45 days of submission.

"ICAP assisted us in putting a system in place, although we drove the process internally. We do not start reviews until all documentation is complete, and once it is finished, our clock starts. We count how long it should take with the secretariat before it is distributed to reviewers. We also estimate how long it takes with reviewers before they generate the first comments and then again how long it sits with the secretariat before those comments are communicated to the researchers. Then, we also track how long it sits with researchers before it returns to the secretariat and then to the reviewer so that the final decision is made. So, we try to do it every quarter."

Key Informant EHHRRB

Evaluation Findings
Strategic Objective 4

Supporting Central Statistical Office (CSO) to strengthen the civil registration and vital statistics system to inform national planning and policy updates.

8 EVALUATION FINDINGS: STRATEGIC OBJECTIVE 4

8.1 Implementation of work plan activities

In the first two years of implementation, ICAP planned to build CSO's capacity to (1) strengthen strategic planning, (2) develop the capacity of the healthcare workforce in implementing ICD-11 coding, and (3) disseminate CRVS data. In addition, ICAP planned to assess the capacity of CSO, MOHA, and CMIS to collect and manage interoperable civil registration data.

a. Building CSO's capacity for strategic planning and coordination of CRVS activities

- In Year 1, ICAP planned to support CSO in reviewing and revising CRVS guidance documents and governance structures. As planned, ICAP supported CSO in developing the terms of reference for the revised TWG and Steering Committee, which were developed and adopted. After establishing these government structures, ICAP supported CSO by convening eight TWGs and four Steering Committee meetings in Year 1. Through the officers seconded to CSO, ICAP supported the secretariat role for the TWG and Steering Committee meetings, including preparation of meeting agendas, documentation of meeting minutes, and following up on action items arising from the meetings. In Year 2, ICAP continued supporting the secretariat role of CRVS TWG and Steering Committee meetings, contributing to CSO meeting its number of coordination meetings (i.e., the target of four TWG meetings and two Steering Committee meetings).
- As planned for Year 2, ICAP supported CSO with monitoring its capability maturity model (CMM) implementation. Notably, ICAP and CSO settled on reviewing the CMM yearly to allow sufficient time to implement action plans and observe changes in the organisation's capability.

Table 26: Review of planned and implemented activities to build CSO's capacity for strategic planning and coordination of CRVS activities

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Provide TA to CSO to review and update CRVS guidance documents (TWG list and TORs, SOPs, work plan)	4 TWG meetings 1 Terms of reference (TOR) for governance structures	TOR revised 8 TWG meetings 4 Steering Committee meetings	100%
YEAR 2			
Support CSO to coordinate the implementation of CRVS activities through the conduct of quarterly TWG and bi-annual steering committee meetings	4 TWG meetings 2 Steering Committee meetings	6 CRVS TWG (67 people) 2 Steering Committee Meetings (22 people)	>100%
Provide TA to CSO to develop and monitor implementation of the capability maturity model	70% of the CSO capability maturity models implemented	61% end year ranking	61%

Key

Target achievement ≥ 90%
Target achievement ≥ 60% to <90%
Target achievement <60%

b. Supporting CSO to develop the capacity of the healthcare workforce in implementing ICD-11 coding

- In the program's first two years, ICAP planned to support CSO with capacity-building of HCWs on ICD-11 coding processes, tools, and templates. In Year 1, ICAP supported CSO with the adaptation and printing of the MCCOD form, which was essential for documenting and reporting medical causes of death in health facilities using ICD 11. As planned for Year 1, ICAP trained 50 HCWs, including medical doctors and HMIS data clerks from MOH. In Year 2, ICAP trained 113 HCWs on ICD-11, exceeding its target of 60 HCWs.

Table 27: Review of planned and implemented activities to support CSO in developing capacity of the healthcare workforce in implementing ICD-11 coding

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Conduct HCW training on ICD-11 coding processes, tools, and templates	One training 50 HCWs	Two trainings 50 HCWs trained	100%
YEAR 2			
Conduct HCWs training and mentorship on ICD-11 coding processes, tools, and reporting	Three trainings 60 HCW	One national and seven onsite trainings 113 HCWs trained	>100%

c. Building CSO's capacity to disseminate CRVS data

- In the program's first two years, ICAP planned to provide technical support to CSO to analyze and produce annual CRVS reports, including HIV-related mortality. The Vital Statistics Reports with HIV mortality data were published in 2021 and 2022 as planned.

Table 28: Review of planned and implemented activities to build CSO's capacity to disseminate CRVS data

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Provide technical support to CSO to analyze and produce annual CRVS reports, including HIV-related mortality	One yearly report with HIV mortality data	One annual report with HIV mortality data	100%
YEAR 2			
Provide Technical support to CSO to analyze and produce annual CRVS reports, including HIV-related mortality	One annual report with HIV mortality data	One annual report with HIV mortality data	100%

d. Supporting CSO with assessing the feasibility of an interoperable civil registration data system

- In Year 1, ICAP planned assess the capacity of CSO, MOHA, and Client Management Information System (CMIS) to collect and manage interoperable civil registration data. Staff from WHO also supported CSO with this activity, and to minimise duplication of effort, ICAP supported the process by coordinating consultative meetings led by the WHO mission with the targeted institutions. The key barriers identified for operationalising the envisaged interoperable system were the lack of infrastructure, the high investment required, government bureaucratic procedures on service providers, and the lack of alignment of priorities across government departments.

Table 29: Review of planned and implemented activities to support CSO's assessment of the feasibility of an interoperable civil registration data system

Planned activity	Target	Achievement	% Achieved
YEAR 1			
Conduct a needs assessment for interoperating CMIS, MOHA, and CSO for electronic reporting of CRVs.	1 Assessments report	Contributed to report writing and coordinated meetings	100%

8.2 The extent to which ICAP engaged CSO in designing and implementing program activities

CSO staff who participated in the evaluation highly valued the ICAP's 'hands-on' approach to stakeholder engagement, which was facilitated by having an officer seconded to CSO and based at CSO. This allowed for quick relay of information to and from ICAP and led to faster decision-making. In addition, one informant felt that having an officer based at CSO gave the individual an in-depth knowledge of CSO. This was important for obtaining a shared understanding of the institution's priorities and needs.

"Yes, they are very hands on because before they gave us an officer whom they had hired and was based here at the CSO, but he was being funded by ICAP. So that helped in the issues because he was our connection to ICAP, and any issues were quickly related to them. It was good that they first had someone based here at CSO so that they also get an understanding of how things are going."

Key Informant CSO

8.3 The effects of capacity-building activities on organizational planning and implementation at CSO

a. Improvements in CSO's strategic planning and resource allocation

The capacity built by ICAP for CSO to conduct costing of strategic plans emerged as a key success story.

"People who see our strategic plan always want to engage someone who was part of the team that costed our strategic our strategic plan. Come and help us, how do you cost a strategic plan."

Key Informant CSO

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b. The strengthening of governance of structures and improved coordination among CRVS stakeholders

The restructuring of the TWG created a robust platform for CSO to coordinate data sharing and collaboration with other ministries that were critical to providing data required for CRVS reports.

"I can say yes, it has improved our planning because, just like in the steering committee, it has given us a platform to voice to the other ministries and for them to understand what we are doing. In our normal circumstances, they would wait for a report and take the report but now they understand the difficulties, especially when you are collecting this data and how it needs to be as the best data as possible or the most accurate."

Key informant CSO

Evaluation Findings

Impact of COVID-19 pandemic, civil unrest and other unprecedented events that affected program implementation and how ICAP helped mitigate these effects

9 IMPACT OF COVID-19 AND CIVIL UNREST (DISRUPTION) ON PROGRAM ACTIVITIES

Given the overlapping approaches to mitigating the effects of these disruptions, this report combines findings from different strategic objectives in one section.

Program area	Disruptions	ICAP mitigation efforts
EHRIS	- The restrictions on travel coupled with clinic closures resulted in a decline in the number of people testing for HIV and the number of people with an HIV-positive diagnosis. - In-person training for new EHRIS site staff was limited, and in-person mentoring activities in the clinics were limited because of strict infection prevention and control measures.	- Training for new sites was conducted virtually, and new sites were activated. - Mentoring continued virtually - ICAP supported HCWs with data bundles for virtual participation - When travel and in-person restrictions were eased, ICAP was supported with protective personal equipment when in-person training was conducted.
IDSR	- EDCU Officers were focused on COVID-19 response activities	- ICAP supported with transport for EDCU Officers and response activities (including production of surveillance reports)
NHRID	- Scheduled in-person coordination meetings were disrupted	- ICAP provided virtual platforms for the meetings.
EHHRB	- EHHRRB had to adapt to urgent applications relating to COVID-19 research	- No mitigation efforts were noted. The EHHRRB handled all the urgent applications on the RHInnO system.
CSO	- There were concerns of misclassification of deaths due to COVID-19 when they may have not been related	- No mitigation efforts were noted. The identified issue was outside of the scope of the CoAg

Conclusions and Recommendations

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Strategic Objective 1 - EDCU

To a large extent, the capacity-building activities set out in ICAP's annual work plans for the program's first two years were implemented as planned. Notably, in the first two years of implementation, the program successfully supported EDCU in building the capacity of the health workforce to implement and maintain EHRIS and IDSR activities. In light of the shortage of staff at EDCU, the officers seconded to EDCU-led mentorship and supervision activities and cluster investigation and response activities. Notably, concerns exist around the fate of these officers at the end of the program, and the extent to which transference of skills to government funded EDCU officers occurred in the program's first two years. In particular, the lack of transference of data analysis skills emerged as a dominant theme, and this also aligned with the absence of evidence regarding data analysis workshops that had been planned in the first two years of the program. Stakeholders felt they were well engaged in the planning and implementation of activities and that capacity-building activities had improved EDCU's strategic direction and HIV program planning for ENAP.

RECOMMENDATIONS

1. It may be beneficial for ICAP to consider developing a theory of change for the secondment approach that was used to develop/strengthen the capacity of EDCU to implement disease surveillance systems in the first two years of the program. MOH stakeholders viewed the seconded officers as ICAP employees and that the approach was unlikely to sustain the gains that had been achieved by the program if skills were not transferred to government-funded staff. Developing a theory of change for this capacity-building approach may be helpful to guide discussions with supported institutions and assist with the development of process indicators that adequately monitor the progress and effectiveness of the capacity-building efforts. On the same topic of planning for sustainable capacity-building efforts, some evaluation participants suggested that the program could target laboratory mentors and clinic managers as sustainable options for providing supervision and mentorship support in EHRIS sites. The view was that supervision and mentorship activities were closely aligned with the clinic managers' responsibilities and that clinic managers were more accessible to EHRIS staff than off-site mentors/supervisors and clinic managers.

2. The evaluation findings revealed that all 60 EHRIS Master Trainers who participated in refresher training conducted in Year 1 were funded by implementing partners. The notable absence of government-funded HCWs as master trainers points to gaps in building the government's capacity for EHRIS implementation and presents a risk to sustaining EHRIS implementation in the absence of implementing partners. In this regard, the program may consider extending the pool of EHRIS Master Trainers to include clinic managers, ENAP programme coordinators, or government-funded laboratory mentors.

3. In the first two years of the program, there appeared to be a disconnect between the ICAP EHRIS Team's perceived need and MOH partners' felt need to conduct capacity-building for EHRIS data analysis. While the ICAP EHRIS Team perceived that there was no need to repeat data analysis training that had been conducted in the year preceding the commencement of this program, some key informants strongly felt that there were unmet training needs in the first two years of the program to institutionalize analysis, and use of EHRIS data among MOH staff in EDCU, M&E and HMIS. The evaluation team learned that data analysis workshops had been conducted in Year 3 of the program, but assessing the adequacy of these efforts was outside of this evaluation's scope.

4. While EHRIS proficiency tests were implemented as scheduled, about a third of the healthcare workers did not retest after failing a proficiency test. While the evaluation team was informed that none of the HCWs who failed proficiency testing could provide HIV recency testing services, this could not be verified by the evaluation team since no cases of HCWs who had failed proficiency testing were identified during the site assessments. There may be value in EHRIS mentors strengthening efforts to review compliance to repeat testing requirements for proficiency testing according to standard operating procedures.

5. The viral load result analytic turnaround times for RITA ranged from 0-6 days in the program's first two years. However, the program may consider setting a benchmark for this indicator to allow objective performance assessments and thresholds that can be used to trigger quality improvement efforts if there is a decline in performance.

10.2 Strategic Objective 2 - NHRID

The planned capacity-building activities were implemented mainly as planned. This includes capacity-building efforts that led to the development of the National Health Research Agenda and improvements in how it was monitored, conference hosting, healthcare workers developing the capacity to conduct research, and consistent dissemination of research findings through bi-annual newsletters. Stakeholders felt they were meaningfully engaged in the planning and implementing of program activities. The aspects that were highly valued were the adaptability and transparency of ICAP. Capacity-building efforts improved NHRID's strategic and operational planning.

RECOMMENDATIONS

1. Considering the pivotal role that ICAP plays in building capacity for NHRID to promote the dissemination of research findings, there may be value in ICAP initiating discussions on the timing of external dissemination of research findings outside the country and the principles that guide the process. This was a topic that some NHRID informants were concerned about. There may be opportunities to start these discussions in the TWGs and then broaden the conversation to the broader Study Advisory Groups.

2. The challenge of a non-functional NHRID website is of significant concern and impedes the broad reach of newsletters and access to research information for healthcare workers and researchers. This issue highlights the challenges likely to be expected when activities are transitioned from the program to government implementers with constrained resources and competing priorities. There may be value for ICAP to consider sourcing funding for the NHRID website and develop a transition plan. The lessons learned from NHRID may also be used for the other institutions' websites supported by ICAP.

10.3 Strategic Objective 3 - EHHRRB

The planned capacity-building activities to support EHHRRB were implemented mainly as planned, and stakeholders were satisfied with the level of engagement in planning and implementing activities. Notably, ICAP's support to EHHRRB contributed to enhancements of the electronic portal for protocol submission and review, enabling EHHRRB reviewers to achieve benchmark targets for protocol review turnaround times. Further, the rollout of post-approval monitoring activities was a key success, and critical to ensuring compliance to regulations, policies, and guidelines governing study participants' protection.

RECOMMENDATIONS

While most training activities were implemented as planned in the first two years, the program had low reach (i.e., achieved 20% of the targeted reach) in sensitizing national-level staff from major government sectors on research ethics.

The sensitization of staff from major government institutions outside of MOH is important because the NHRA acknowledges how these institutions are key actors in conducting research that contributes to evidence-based practices in the country. There is value in supporting EHHRRB to explore and implement innovative approaches to increase the reach of research ethics sensitization to government staff, including pre-recorded content and online learning management systems. Such strategies may be beneficial in improving the participation of government officials who often have competing priorities to attend group meetings/trainings.

10.4 Strategic Objective 4 - CSO

To a large extent, the planned capacity-building activities to support CSO in the first two years of the program, were implemented as planned. Improvements in the institution's visibility and engagement with other ministries through the restructured TWGs were key successes in the program's first two years. Findings from the feasibility assessment of an interoperable CRVS system led to ICAP deprioritising further activities due to limited funding under the CoAg required to tackle the identified barriers and investments needed to develop such a system.

RECOMMENDATIONS

Although the activities to explore an interoperable CRVS system were subsequently deprioritized in Year 3 (outside of the scope of this evaluation), there may be value in supporting GKoE through CSO to develop a business case document that can be used to solicit buy-in from decision-makers and to explore funding opportunities. Interoperable CRVS systems play a crucial role in modern governance and public administration because they seamlessly exchange and integrate data across different platforms and systems. By linking various CRVS-related databases, governments can create a comprehensive and up-to-date population registry, facilitating better planning and resource allocation in healthcare, education, and social services. Moreover, interoperable CRVS systems enhance data accuracy and reduce duplication, improving overall data quality.

11 EVALUATION LIMITATIONS

The evaluation had limitations identified during its inception and implementation.

1. Some limitations in the data collection tools were identified by the evaluation team and ICAP during the training workshops conducted in preparation for fieldwork. Notably, the knowledge, attitudes, and practices survey had only one question to assess knowledge and no questions to assess healthcare workers' attitudes towards EHRIS implementation. Therefore, the evaluation question on healthcare workers' knowledge, attitudes and practices could not be adequately addressed. In addition, the EHRIS site assessment tool had not been piloted before approval of the evaluation protocol and had limitations with internal consistency and summarising of overall scores. For example, the site assessment tool had been developed to generate summary scores in some domains to assess overall quality, but these could not be calculated if the evaluation staff could not observe healthcare workers providing RTRI services or if some procedures to be evaluated did not apply to the setting. While ICAP and the evaluation team acknowledged the limitations of these tools, there was consensus that obtaining approvals to amend these tools could not be achieved within the evaluation timelines. Despite these limitations, the data from site assessments was still used for triangulation with information from other evaluation sources.

2. The purposive and non-random selection of the sites for EHRIS site assessments and healthcare worker surveys by the evaluation and ICAP teams was prone to selection bias. There are limitations in inferring the survey and site assessment findings outside the evaluation setting. However, these findings were not interpreted in isolation. They were triangulated with findings from other sources, including those from the EHRIS dashboard that provided a broader picture across all EHRIS implementing sites.

3. This mid-term evaluation focused on the first two years of program implementation. However, this evaluation was conducted in the last quarter of the third year of implementation. The evaluation team noted that narratives from KII participants also included issues related to the program's third year. Although interviewers tried to steer informants to focus on the first two years of implementation, this was not always possible. To the furthest extent possible, this evaluation report excludes participant narratives on experiences or activities that fell out of the evaluation period.

12 DISSEMINATION PLAN AND USE OF DATA

The evaluation report will be submitted to CDC for approval, and ICAP will disseminate it to the program stakeholders through in-person and virtual meetings, electronically through email, and distribution of copies of the final report. The full report will be available for public access on ICAP's website. ICAP Eswatini and its program stakeholders may use findings from this report to resolve areas of capacity-building and stakeholder engagement identified for improvement. CDC Eswatini may use the evaluation findings to inform partner management and to plan for programming in the remaining years of the program period.

13 EVALUATION BUDGET

The total cost for the evaluation was $20,000.00.

Appendices

Appendix A: Logic model

Activities	Outputs	Outcomes		
		Short-term	Intermediate	Long-term
Strategy 1: Strengthen Capacity of EDCU to Implement HIV/TB Surveillance Systems.				
1.1 Update and support implementation of EDCU strategic plan and policies	EDCU strategic plans and policies updated	• Increased capacity of EDCU to implement HIV/TB surveillance systems. • Increased health workers knowledge of HIV/TB surveillance systems. • Increased review and dissemination of surveillance, research, and CRVS data • Increased coverage of rapid HIV testing and identification of recently infected people living with HIV (PLHIV)	• Improved identification of geographical areas and subpopulations with ongoing HIV transmission to target prevention and HIV testing • Improved access/use of quality HIV/TB surveillance data to inform program interventions/ decisions. • Sustained identification of geographical areas and subpopulations with ongoing HIV transmission to target prevention and HIV testing	• Increased HIV case finding and improved HIV transmission interruption • Improved national HIV response for public health prevention and control measures
1.2 Train HCW at different levels on implementation, use, and maintenance of HIV/TB surveillance systems	Number of HCW trained on implementation, use and maintenance of HIV/TB surveillance systems			
1.3 Provide TA to update and maintain sustainable key HIV surveillance systems, including HIV case-based surveillance and real-time informatics	Number of surveillance systems maintained			
1.4 Provide TA to timely analyze and disseminate surveillance data at national and international conferences	Number of informatics products disseminated Number of abstracts disseminated at national or internal conferences			
1.5 Provide TA to convene quarterly Epidemiology TWG meetings	Number of TWG meetings supported			
1.6 Develop a sustainability plan that includes capacity building for MOH to implement systems with limited external support	Number of Capability Maturity Model developed Number of CMM review meeting conducted			

Activities	Outputs	Outcomes		
		Short-term	Intermediate	Long-term
	Number of MOH staff capacitated			
Strategy 2: Strengthen the Capacity of NHRID to Implement Population-based HIV Surveys				
2.1 Update and support implementation of the NHRID's Strategic Plan	Number of NHRID's strategic plans updated	• Increased knowledge of NHRID staff to implement population-based HIV surveys • Increased capacity of the NHRID to organize and implement surveys and conferences • Increased review and dissemination of surveillance, research, and CRVS data	• Improved access/use of quality research data to inform program interventions/ decisions.	• Improved access and use of health and vital registration data to inform national planning and policy updates including HIV mortality
2.2 Provide TA to the NHRID to implement a biennial National Health Research Conference	# of national research conferences supported			
3.3 Provide TA to implement PHIA and subnational surveys	Number of HCWs trained			
2.4 Provide TA to convene quarterly research TWGs	Number of TWGs conducted			
2.5 Develop a sustainability plan that includes capacity building for NHRID to implement health research	# of HCW working on HIV- related activities and receiving any type of support from PEPFAR [HRH_CURR]			
Strategy 3: Strengthen Capacity of EHHRRB to Improve Review of Research Protocols				
3.1 Update and support implementation of EHHRRB policies and strategic plans	EHHRRB policies and plans updated	Increased capacity of EHHRRB to review and approve health research Percent of protocols reviewed within 45 days of submission	• Improved quality of health research protocol reviews conducted by EHHRRB	Sustained capacity of EHHRRB to review and approve quality health research protocol
3.2 Provide TA to update and maintain protocol submission, review, monitoring, and archiving health (including HIV) research protocols	Number of protocols reviewed			
3.3 Develop a sustainability plan that includes capacity building of the EHHRRB to review research protocols with limited external support[1]	Number of sustainability plans developed			

Activities	Outputs	Outcomes		
		Short-term	Intermediate	Long-term
Strategy 4: Support CSO, MOHA, MOICT, and MOH to Strengthen the Civil Registration and Vital Statistics System to Inform National Planning and Policy Updates				
4.1 Conduct needs assessment for interoperating CMIS, MOHA, CSO for electronical reporting of CRVS	Number of assessment reports disseminated	• Improved capacity to collect and manage interoperable civil registration data • Increased review and dissemination of surveillance, research, and CRVS data • Increased knowledge of basic national vital statistics among government and other stakeholders	• Improved quality and dissemination of national vital statistics among government and other stakeholders	• Improved access and use of health and vital registration data to inform national planning and policy updates including HIV mortality • Improved national HIV response for public health prevention and control measures
4.2 Provide TA to CSO to review and update CRVS guidance documents (TWG list and TORs, SOPs, workplan	Number of reviewed TORs			
4.3 Conduct HCWs trainings and mentorship on ICD 11 coding processes, tools, and reporting	Number of HCWs trained on ICD11			
4.4 Provide support to report on mortality.	Number of mortality reports produced.			
4.5 Provide TA to produce and disseminate Annual Vital Statistics Reports	Number of vital statistics reports published			
4.6 Develop a sustainability plan that includes capacity building for CSO, MOHA, MOICT, and MOH to implement the CRVS system with limited external support	Number of sustainability plans developed			

Appendix B: Scope of work (Inception Report)S

Evaluation goal

This is a mid-term evaluation of the first two years of a project to Strengthen National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini, implemented by ICAP under the President's Emergency Plan for AIDS Relief (PEPFAR). The goal of this evaluation is to (a) assess progress in implementing the project, (b) assess progress towards achievement of objectives or yearly benchmarks, (c) assess if activities/interventions are sufficient to reach the desired outcomes, (d) identify barriers to achievement of objectives, and (e) to provide recommendations to guide project staff and stakeholders through the remainder of the grant period.

Engaging program stakeholders

Prior to commencing field work for this evaluation, ICAP had engaged stakeholders in reviewing and refining evaluation questions, methods, and measurement tools. The evaluation team will continue working with the ICAP team to ensure that identified program stakeholders are engaged during the data collection phase; the interpretation of findings; and development of recommendations (Table 1).

Table 30: Overview of program stakeholders

Description	Contribution to the activities under evaluation
• Staff based at health facilities, community sites, and laboratories. • Laboratory technologists • Site Supervisors/Lab Managers • Nurses • Phlebotomists • Counsellors	Implementation of Eswatini HIV Recent Infection Surveillance (EHRIS) Program
• National Health Research and Innovation Department (NHRID)	Responsible for setting the research agenda and coordinating planning and implementation national health research
• Eswatini Human and Health Research Review Board (EHHRRB) Department (NHRID)	Responsible for ensuring that human health research is both planned and implemented employing scientifically sounds methods and ethically
• The Epidemiology Disease and Control Unit (EDCU) within MOH's Strategic Information Department (SID)	Responsible for coordinating implementing and reporting disease surveillance activities
• Central Statistical Office (CSO) • Ministry of Health (MOH), • Ministry of Information Communication and Technology (MOICT) • Ministry of Home Affairs	Responsible for civil registration and vital statistics analysis, report production and dissemination.
• Implementation support partners • DATA Fi, FHI 360, The Luke Commission (TLC), PSI, URC, MSF	Responsible for providing implementation support to the government in areas targeted by the ICAP CoAg.
• Development partners • CDC, World Health Organization (WHO), United Nations Program on HIV/AIDS (UNAIDS)	Responsible for funding program activities and catalytic activities in areas targeted by the ICAP CoAg.
• Information Technology Infrastructure Partners (MTN)	Responsible for providing information technology support for EHRIS

• ICAP in Eswatini staff	Responsible for program operations and implementation oversight

Overview of the program to be evaluated

Background: Over the past decade, ICAP under funding from United States Government (USG)—through the President's Emergency Plan for AIDS Relief (PEPFAR) and the Centers for Disease Control and Prevention (CDC) has been supporting the Government of the Kingdom of Eswatini (GKOE) in her response to HIV/AIDS in Eswatini and enabled rapid and remarkable scale-up of HIV prevention, care, and treatment services. To ensure that this support is informed by evidence and sustainable, the GKOE and PEPFAR/CDC have also funded capacity building initiative in epidemiology and research among institutions and the health workforce. In September 2020, ICAP was awarded a follow-on grant to continue implementing a CDC-funded cooperative agreement entitled Strengthening National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini under the President's Emergency Plan for AIDS Relief (the program).

Objectives: Specifically, the program seeks to

- Develop/Strengthen the capacity of Epidemiology and Disease Control Unit (EDCU) to implement HIV/TB (and COVID-19) surveillance systems.
- Develop/strengthen the capacity of the National Health Research and Innovation Department (NHRID) to implement population-based HIV surveys including Violence Against Children Survey (VACS) and Swaziland HIV Incidence Measurement Survey (SHIMS)1.
- Develop/strengthen the capacity of the EHHRRB to improve the review of research protocols.
- Support the Central Statistics Office (CSO), MOHA, MOICT and MOH, to strengthen the Civil registration and vital statistics (CRVS) system to inform national planning and policy updates.

Stage of implementation: The program commenced on 30 September 2020 and is in its third of a five-year period. The evaluation will focus on activities conducted from 30 September 2020 – 29 September 2021 (Year 1) and 30 September 2021 – 29 September 2022 (Year 2).

Program logic model: The program aims to strengthen national epidemiologic and research Capacity to Track the HIV/TB Epidemic and improve health outcomes in the four objectives through capacity building, technical assistance, and supportive supervision. Table 2 outlines the program logic model with a focus on the short-term outcomes for the first two years of program implementation.

Table 31: Program logic model

Activities	Outputs	Short-term outcomes Year 1–2
Strategy 1: Strengthen Capacity of EDCU to Implement HIV/TB/COVID-19 Surveillance Systems.		
• Update and support implementation of EDCU strategic plan and policies	• EDCU strategic plans and policies updated	• Increased capacity of EDCU to implement HIV/TB/COVID-19 surveillance systems. • Increased health workers knowledge of HIV/TB surveillance systems. • Increased review and dissemination of surveillance, research, and CRVS data • Increased coverage of rapid HIV testing and identification of recently infected people living with HIV (PLHIV)
• Train HCW at different levels on implementation, use, and maintenance of HIV/TB/COVID-19 surveillance systems	• Number of HCW trained on implementation, use and maintenance of HIV/TB/COVID-19 surveillance systems	
• Provide TA to update and maintain sustainable key HIV surveillance systems, including HIV case-based surveillance and real-time informatics	• Number of surveillance systems maintained	

• Provide TA to timely analyze and disseminate surveillance data at national and international conferences	• Number of informatics products disseminated. • Number of abstracts disseminated at national or internal conferences	• Improved identification of geographical areas and subpopulations with ongoing HIV transmission to target prevention and HIV testing
• Provide TA to convene quarterly Epidemiology TWG meetings	• Number of TWG meetings supported	
• Develop a sustainability plan that includes capacity building for MOH to implement systems with limited external support	• Number of Capability Maturity Models developed • Number of CMM review meeting conducted • Number of MOH staff capacitated	
• Build EDCU capacity to conduct COVID-19 sentinel surveillance	• Number of COVID-19 systems developed • Number of epidemiology workforce trained to improve COVID-19 surveillance	
Strategy 2: Strengthen the Capacity of NHRID to Implement Population-based HIV Surveys		
• Update and support implementation of the NHRID's Strategic Plan	• Number of NHRID's • strategic plans updated	• Increased knowledge of NHRID staff to implement population-based HIV surveys. • Increased capacity of the NHRID to organize and implement surveys and conferences. • Increased review and dissemination of surveillance, research, and CRVS data
• Provide TA to the NHRID to implement a biennial National Health Research Conference	• Number of national research conferences supported	
• Provide TA to implement PHIA and subnational surveys	• Number of HCWs trained	
• Provide TA to convene quarterly • research TWGs	• Number of TWGs conducted	
• Develop a sustainability plan that includes capacity building for NHRID to implement health research	• Number of HCW working on HIV-related activities and receiving any type of support from PEPFAR • [HRH_CURR]	
Strategy 3: Strengthen Capacity of EHHRRB to Improve Review of Research Protocols		
• Update and support implementation of EHHRRB policies and strategic plans	• EHHRRB policies and plans • updated	• Increased capacity of EHHRRB to review and approve health research. • Percent of protocols reviewed within 45 days of submission.
• Provide TA to update and maintain sustainable protocol submission, review, monitoring, and archiving health (including • HIV) research protocols	• Number of protocols reviewed	
• Develop a sustainability plan that includes capacity building of the EHHRRB to review research protocols with limited external support	• Number of sustainability plans developed	
Strategy 4: Support CSO, MOHA, MOICT, and MOH to Strengthen the Civil Registration and Vital Statistics System to Inform National Planning and Policy Updates		
• Conduct needs assessment to determine cost-effective and sustainable options to improve CRVS	• Number of assessment reports disseminated	• Improved capacity to collect and manage interoperable civil registration data. • Increased review and dissemination of surveillance, research, and CRVS data
• Develop a sustainability plan that includes capacity building for CSO, MOHA, MOICT, and MOH to	• Number of staff trained	

implement the CRVS system with limited external support		• Increased knowledge of basic national vital statistics among government and other stakeholders • Increased coverage in birth and death registration
• Provide TA to update data and standardize data collection tools	• Number of HCWs trained on ICD11	
• Provide support to interoperate CSO, MOH, and MOHA data management systems based on needs assessment.	• Number of interoperable data management systems for MOHA, MOH, and CSO develop and implemented	
• Provide support to report on mortality.	• Number of mortality reports • produced.	
• Provide TA to produce and disseminate Annual Vital Statistics Reports	• Number of vital statistics • reports published	

FOCUS OF THE EVALUATION

Scope

As per approved protocol, one of the program's objectives listed in the activity description (i.e., Objective 6: Implement a Violence Against Children and Youth Survey (VACS)) will not be included in this evaluation because the activity will be short term and will have internal monitoring process.

Evaluation questions

This will be a process and outcome evaluation of the four program objectives, to answer the evaluation questions outlined in Table 3.

Table 32: Evaluation questions

Broad question	Specific questions
Objective 1: To what extent did the program develop/strengthen the capacity of Epidemiology and Disease Control Unit (EDCU) to implement HIV/TB (and COVID-19) surveillance systems?	• To what extent did planned engagement of stakeholders in designing and implementing program activities take place? • To what extent did the planned EDCU capacity building activities takes place as measured and documented in annual workplans? • To what extent did capacity building activities lead to improved organizational planning and implementation at EDCU? • To what extent was EHRIS implemented according to quality standards? Including: • Training of HTS counselors/phlebotomists/lab technologists in HIV recency testing and laboratory procedures • Quality control and proficiency testing procedures and outcomes? • Whether programs' SOPs and job aids were available and were utilized at EHRIS implementing sites. • Rapid test for recent infection (RTRI) conducted and number/percentage of newly diagnosed individuals who received recency testing at PEPFAR supported sites. • Quality control samples and PT panels distributed in a timely manner according to pre-defined schedule. • Results from QC and PT panel testing analyzed and appropriate follow-up/corrective actions conducted in a timely manner

Objective 2: To what extent did the program develop/strengthen the capacity of the National Health Research and Innovation Department (NHRID) to implement population-based HIV surveys	• To what extent did planned engagement of stakeholders in designing and implementing program activities take place? • To what extent did the planned NHRID capacity building activities takes place as measured and documented in annual workplans? • To what extent did capacity building activities lead to improved organizational planning and implementation at NHRID? • To what extent did ICAP meet set benchmark targets including: • Percent of health research agenda activities completed. • To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect program implementation? How did ICAP mitigate these effects? • What were the challenges and lessons learned during the implementation of the program?
Objective 3: To what extent did the program develop/strengthen the capacity of the EHHRRB to improve the review of research protocols	• To what extent did planned engagement of stakeholders in designing and implementing program activities take place? • To what extent did the planned capacity building of EHHRRB members trained on research ethics and Good Clinical Practices take place? • To what extent did the planned EHHRRB capacity building activities takes place as measured and documented in annual workplans? • To what extent did capacity building activities lead to improved organizational planning and implementation at EHHRRB including review of protocols within 45 days? • To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect program implementation? How did ICAP mitigate these effects? • What were the challenges and lessons learned during the implementation of the program?
Objective 4: To what extent the program support the Central Statistics Office (CSO), MOICT, MOH, to strengthen the CRVS system to inform national planning and policy updates	• To what extent did planned engagement of CSO, MOICT, MOH stakeholders in designing and implementing program activities take place? • To what extent has an interoperable data management system between MOHA, MOH and CSO been developed/improved • To what extent did ICAP achieve set benchmark targets e.g., • Number of vital statistics reports published. • To what extent did the planned CSO, MOICT, MOH capacity building activities take place as measured and documented in annual workplans? • To what extent did capacity building activities lead to improved organizational planning and implementation at CSO, MOICT, MOH? • To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect program implementation? How did ICAP mitigate these effects? • What were the challenges and lessons learned during the implementation of the program?

Evaluation design

This evaluation is a non-experimental design without a comparison group or randomized assignment. The evaluation will be designed and conducted in line with Evaluation Standard of Practice (ESoP). The evaluation will triangulate information from (i) secondary data reviews, (ii) key informant interviews (iii) site assessments, and (iv) knowledge, attitudes and practices (KAP) surveys among facility and community healthcare providers conducting HIV recency testing.

Evaluation standards

Our evaluation approach will be guided by the PEPFAR Evaluation Standards of Practice (ESoP) , which outlines ten recommended standards critical for strengthening evaluation quality and transparency. Notably, ICAP has already engaged stakeholders during the planning and designing of this evaluation. The stakeholders have reviewed and refined evaluation questions, methods, and measurement tools. Further, the protocol (version 1.0 dated 15 March 2023) approved for this evaluation, addresses the required PEPFAR ESoP standard regarding the evaluation background, methodology, data collection and management, and ethical considerations. Additional information on how the PEPFAR ESoP evaluation framework will be applied to this evaluation are in Appendix A.

DATA COLLECTION AND MANAGEMENT

The evaluation will triangulate information from (i) secondary data reviews, (ii) key informant interviews (iii) site assessments, and (iv) knowledge, attitudes and practices (KAP) survey among facility and community healthcare providers conducting HIV recency testing.

Secondary data review

Overview: The purpose of the secondary data analysis is to assess the program's progress to both process and outcome targets as defined by key performance indicators and annual work plans. We will compute achievements for each objective, and these will be summarised as proportions against set performance targets. Secondary data required for the evaluation will be abstracted from ISAD and/or program documents based on performance indicators to be evaluated (Table 5). The data will be shared with the evaluation team in the form of an excel spreadsheet, or the evaluation team will populate equivalent MS Excel file template directly. The final data file will be aggregate and will not contain any personally- identifying information, it will be stored in a secure encrypted and password-protected file server, with user access levels strictly assigned for security and confidentiality.

Sampling: All available data will be reviewed/assessed.

Key informant interviews

Overview: Key informant interview guide (Appendix B) will be used to collect data on program processes and outcomes. Where necessary, probes will be added to clarify responses and ensure responses are accurately captured to obtain a comprehensive assessment of the strengths and challenges of the program implementation. ICAP will facilitate obtaining approvals from the program managers to conduct private interviews with relevant program staff. Private physical rooms or virtual platforms convenient to the participants will be used to conduct the KIIs. Participants will include diverse stakeholders beyond program staff. The participants will be asked to reflect on issues relating to implementation processes and outcomes, contextual and environmental factors that may have hindered or supported implementation of the program, and considerations for sustaining the gains achieved from the program support.

Sampling: The evaluation team will interview about 20 key informants (Appendix C). KII participants will be selected based on their expert knowledge of program activities and expected outcomes. Key informants will include people from MOH and affiliated institutions officials (i.e., EDCU, HMIS, M&E unit, NHRID, EHLS, ENAP, NERCHA) Ministry of Economic Planning and Development, IT service provider for EHRIS (MTN), development partners, PEPFAR implementing partners, non-PEPFAR community implementing partners, grant recipients (ICAP) and grant funders (CDC eSwatini) (Table 5).

Data collection and management: Interviewers will participate in an orientation session with designated ICAP staff to obtain a shared understanding of the interview guides and probes for participants to be interviewed under each objective. Most interviews will be conducted in English with options of using the local language if preferred by the participant. Some staff on the evaluation team will be multi-lingual and able to perform simultaneous translation into

local language and will practice the simultaneous translations ahead of time to ensure correct translations occur when needed.

All interviews will be audio-recorded, and evaluation staff will upload the audio recordings onto encrypted password-protected computers from digital recorders. The interviews will be transcribed, and transcripts will be saved as MS Word files with the date of the interview and participant identifier of the participant. Transcripts will be verbatim renderings of English or an English translation of local languages. Transcribers will receive training on text formatting, standardised notations, reviewing transcripts for accuracy and saving the transcripts. To promote the quality of transcriptions, transcribers will be required to proofread all transcriptions against the audio recording and revise the transcripts accordingly. Further, to monitor the accuracy of the translation, the Evaluation Coordinator will randomly select one in every three transcripts from each transcriber to check each transcript against the audio-recording. Where consensus on the required changes is not reached, the Evaluation Lead or Evaluation Coordinator not involved in the review will serve as a tiebreaker. Electronic files of transcribed MS-word data will be kept by the evaluation team in a password-protected folder. Further, an encrypted hard drive or password-word protected cloud-based folder will be used as back-up for audio files as well as transcribed data.

EHRIS site assessments

Overview: We will conduct site assessments to evaluate six quality domains in HIV recency testing implementation at health facilities, community testing point of service, and main laboratories providing viral load testing services. The assessments will consist of direct observation or verification of documentation pertaining to these domains (Appendix D). The quality domains will consist of staff training including ascertaining certification, successful completion of QC and proficiency testing. The assessment will also review documentation to assess adherence to standard operating procedures (SOPs) including verifying that the SOPs are available. We will also assess physical infrastructure including appropriate storage of test kits, storage of electronic data collection tools, client enrolment procedures and processes, and control of site stock and supplies.

Sampling: We will assess HIV recency testing procedures, regulatory files, documentation of staff competency, quality assurance processes, and storage of consumables in 12 purposively selected health facilities providing HIV recency testing. These 12 health facilities represent high volume regional facilities – four regional hospitals, four health centres, and four clinics. We will also select two non-fixed community sites, representing rural and urban settings. Further, we will also include 12 laboratories distributed by region (See Appendix E for list of selected sites). Potential participants will be providers knowledgeable about the routinely provided HTS recency services, and may include HTS counsellors, phlebotomists, nurses, or laboratory technologists.

Data collection: ICAP will facilitate setting of appointments with participating sites. In cases where the HTS provider or alternate provider are unavailable, reasonable attempts will be made to reschedule the appointment to be within the data collection timelines. Evaluation assistants will be trained on conducting the assessments and will be issued with job aids to promote adherence to the data collection procedures. At the assessment site, evaluation staff will administer the checklist to one selected participant knowledgeable about the routinely provided HTS recency services and available to participate.

The HIV recency testing site assessment data will be captured electronically on tablets programmed Kobo Toolbox (Kobo) software – a web-based platform for field data collection that works both online and offline. The evaluation team will work with ICAP to develop the database and conduct user acceptance testing (UAT) with the field team. Following training of evaluation staff, we will pilot-test data collection tools for coherence and clarity to assess internal validity of the survey tool. Access to the database (data entry, reporting, and extraction) will be controlled by designated staff from the evaluation team. Evaluation staff requiring access to the database will complete the required documentation and training before receiving the necessary username and password. The electronic data collection system will include skip pattern programming, and consistency check programming to check the validity of entered data. All electronic devices, in which the data entry system is installed and used, will be password protected. Paper-based questionnaires will only be

used as backup options in case of tablet malfunctioning and will be stored in locked cabinets at the evaluation team's offices in Mbabane for safety and confidentiality reasons. Only evaluation staff will have access to these documents for data entry and analysis. The evaluation team will exclude the facility names when sharing the final assessment data sets with ICAP for archiving.

Healthcare providers knowledge attitudes and practices (KAP) for EHRIS

Overview: We will assess knowledge and attitudes about HIV recent infection testing among healthcare providers providing HIV recency testing (HTS counsellors, phlebotomists, nurses, or community implementing partners' focal persons) at fixed (facility) and non- fixed (community) testing points. The survey will also assess practices/procedures involved in conducting HIV recency testing and hotspot investigation and response as relates to the standard operating procedures. Barriers to HIV recency implementation including hotspot investigation will also be assessed (Appendix F).

Sampling: All sites participating in site assessments except the main laboratories will participate in KAP survey (Appendix E). At the time of planning for this component, there are about 64 staff at the selected facilities involved in HIV recency testing at the participating sites (I.e., 51 HTS Counsellors, 11 Nurses, and 2 Phlebotomists). While we aim to interview all 64 staff, the minimum sample size for the KAP survey at the selected sites is 55, assuming a population size of 64 implementers, assuming 5% margin of error, 95% confidence level, 50% of study participants with desired knowledge, attitudes, and practices (i.e., the most conservative estimate giving maximum required sample size).

Data collection: ICAP will facilitate setting of appointments with the participating facilities. In cases where healthcare providers will be unavailable reasonable attempts will be made to reschedule the appointment to be within the data collection timelines. The evaluation team will complete one site at a time before moving to the next. KAPs survey data will be collected using Kobo Toolbox (Kobo) software on electronic tablets. The evaluation team will work with ICAP to develop the database and conduct user acceptance testing (UAT) with field teams. Following training of evaluation staff, we will pilot-test data collection tools for coherence and clarity to ensure internal validity of the survey tool. Access to the database (data entry, reporting, and extraction) will be controlled by designated staff from the evaluation team. Evaluation staff requiring access to the database will complete the required documentation and training before receiving the necessary username and password. The electronic data collection system will include skip pattern programming, and consistency check programming to check the validity of entered data. All electronic devices, in which the data entry system is installed and used, will be password protected. Paper-based questionnaires will only be used as backup options in case of tablet malfunctioning and will be stored in locked cabinets at the evaluation team's offices in Mbabane for safety and confidentiality reasons. Only evaluation staff will have access to these documents for data entry and analysis. The evaluation team will exclude the facility names when sharing the final assessment data sets with ICAP for archiving.

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

Secondary data analysis

Secondary M&E data will be retrieved from project documents reviewed by the evaluator in the raw format presented in the program performance summary template (Appendix G) grouping indicators (i.e., data elements/variables) under relevant project objectives. The verified results will be used to compute achievements for each objective. These will be summarized as proportions against set performance targets. Wilcoxon two-sample test for continuous variables and chi-square or Fisher exact tests for categorical variables will be used to assess for statistical differences in the distribution of responses across any two survey time points e.g., pre-post training test scores. Qualitative data obtained from narrative reports will be used to interpret quantitative findings from secondary data analysis (where relevant).

Key informant interviews

The evaluation team will use textual data to selectively code, summarize, extract meaning, and condense the data. Initially, two individuals will code the first five (5) transcripts for commonalities and generation of key themes.

Transcripts will be coded first through descriptive coding for key themes and topics, using a preliminary codebook with themes generated from the framework (framework analysis) of the KII guide.

Framework analysis will involve the following processes:

- Familiarizing with the data- the analyst gets immersed in the data through reading the transcripts and field notes.
- Identifying thematic framework –the analyst takes notes of key ideas and recurrent themes from the data. These are organized into codes that will eventually form a code book. Findings and interpretations of the data will be critically discussed until group consensus is reached on the dominant themes and meanings. The codebook will be modified accordingly.
- Indexing- identifying portions or sections of the data that correspond to a particular theme. This procedure is applied to textual data collected.
- Charting – indexed data are sorted according to the relevant themes, keeping record of the original source of data for reference and quoting during write up of the analysis report.
- Interpretation – involves analysis of key themes as laid out in textual data during charting. Theoretical notions about factors underlying dimensions of project success will be developed by analyzing themes in the context of existing knowledge, experiences and opinions related to support for scale-up and support of the laboratory strengthening program. These concepts, deductions, and associations reflect participants' views, therefore, recommendations from the analyst echo the true attitudes, beliefs, and values of the participants.

Data cleaning of KII data involves cataloguing of all available notes through processes that have been described as inscription (making mental notes before writing up notes), description (writing down field notes), and transcription. Other steps that collectively lead to systematic record of the KII and ensure that data is not lost, or the analysis, interpretation and write-up will be done expeditiously including making copies of all documents, labelling, and storing all data, and checking for missing data.

Site Assessment

Site assessment data will be analyzed to generate summary scores for each quality domains (Appendix E). The domain scores will be a continuous score generated from sub-domains counts, proportions, categorical "yes/partial/no" variables converted to numeric scores of "1/0.5/0) scores. For each of the six domains: fidelity to HIV recency implementation procedures, staff training, data quality audits, client recruitment, physical infrastructure and supply chain management, a percent score will be generated from which an overall site average percent score will be derived.

KAP survey

Statistical analyses will be conducted in STATA 16 software (STATA Corp. College Station, Texas, USA). Continuous variables will be summarized using medians (interquartile ranges), and categorical variables will be summarized using frequencies and proportions.

Triangulation of findings

Results from the secondary data, KII, site assessment, and KAP survey analyses will be triangulated by the evaluator to address key process and outcome evaluation questions, assessing the project's success in carrying out the planned activities and the project's outcomes with respect to strengthening National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in Eswatini.

Validation of findings

We will conduct an in-person validation workshop with stakeholders identified by ICAP and evaluation team, where preliminary findings will be presented, and stakeholders will be invited to participate in the interpretation and validation of the findings.

Development of the final report

This will be an iterative process between the evaluation team and ICAP. The final evaluation report will follow the ESoP guidelines (Table 5).

Table 33: PEPFAR ESoP guidelines for structuring final evaluation report

Components	Content
1. Executive Summary	• Contains evaluation purpose, evaluation questions, brief description of program being evaluated, data collection methods, analytic methods, evaluation findings, limitations, and recommendations/conclusions.
2. Program Background	• Brief description of program/program to be evaluated including dates of program implementation, total cost, geographical location, and objectives
3. Evaluation Design, Methods, and Limitations	• Overall evaluation design (i.e., evaluation type, sampling strategy, data collection methods and rationale, data handling procedure, data analysis plan, evaluation limitations) • Summary of stakeholder engagement • Ethical considerations and assurances • Deviations and adjustments (if any) from the approved SOW and/or protocol
4. Findings	• Unexpected and key findings for program improvement in relation to evaluation questions
5. Recommendations	• Actionable, feasible, and specific recommendations aligned to key findings
6. Conclusions	• Highlight the key overall insights, successes and shortcomings of the program.
7. Dissemination	• Dissemination procedures/plan
8. References	• Reports or publications cited in the report
9. Appendices	• Approved Evaluation SOW and/or protocol • Data collection instruments/tools • Informed Consent • Abridged bios of the evaluation team members including qualifications, experience, role on the team, and Ethical certifications • Conflict of interest statement • Evaluation costs • List of documents reviewed • List of respondents interviewed etc. • List of labs observed • Signed Final MTE report clearance form • Program Results Framework or Logical Framework

ETHICAL CONSIDERATIONS

Justification for Waiver of Documented Consent by Participant

This protocol is anticipated to have no more than minimal risk to key informants, survey participants, and site assessment participants. Participants will be allocated code names with no direct or indirect link to personal identifying information. Additionally, secondary data will be retrieved from existing databases and other project documents to assess process and outcome achievements as defined by key performance indicators and annual workplans, with no collection of PII. In view of this justification and according to 45 CFR 46.1172, a waiver of documentation of informed consent was approved for this evaluation.

Potential risks

There is minimal to no risk to evaluation participants. The healthcare providers participating will be asked to provide information related to their routine work. The providers may perceive this to be some sort of performance assessment, but they will be reassured that this will not be the case and that the report will not link individual respondent to the findings as such personally identifying information will not be collected. The information collected from key informants will be critical to inform regular feedback to ICAP Eswatini on an ongoing basis and in pursuit to program improvement. Sharing this information during the evaluation portends no risk to the key informants. Any quotes or text used from data records will not have identifiers such as names associated with it.

In addition, this protocol entails the analysis of routinely collected service delivery data in which the evaluators will have no information about individuals, posing no risk to the subjects.

Potential benefits

There is no direct benefit to the participants. However, the process of evaluation, including the analyses conducted as part of this protocol are likely to improve the quality of HIV and other related services implemented in countries where ICAP operates and other settings where HIV services are being scaled up.

POTENTIAL RISKS AND MITIGATION PLANS

Timely participation of selected stakeholders and access to secondary data.

To complete the work on time and quality, the evaluation team will rely on collaborative efforts with ICAP to promote the value of the evaluation among stakeholders and users selected to participate in this assessment. The support from ICAP will promote the timeliness of accessing secondary data, conducting site assessments, survey completion and scheduling of KIIs. Should COVID-19 mitigation measures be required from prevailing regulations, virtual KIIs will be conducted, with due care taken to observe ethical considerations concerning evaluation participants.

Direct electronic data capture for EHRIS assessments and KAP survey

Paper-based questionnaires will be used as backup options in case of tablet malfunctioning. All paper-based data will be stored in locked cabinets at ICAP offices in Mbabane for safety and confidentiality.

Adverse events reporting or protocol violation

Adverse incidents, including unexpected protocol violations, security incidents harming participants or evaluation staff, breaches of confidentiality, or adverse physical or mental reactions to evaluation procedures, will be reported to all relevant ethical review committees. Evaluation staff will report the incident in writing or email to the lead evaluator within 24 hours of discovering the event. The lead evaluator will determine through team consultation whether an event took place, and if so, report to the evaluation Principal Investigators within 24 hours and to ethical review committees within 5 to 10 days. The lead evaluator will complete follow-up reporting of any additional information required.

LIMITATIONS OF THE EVALUATION

A potential limitation of this study is the possibility of social desirability bias from key informants that receive direct support from ICAP through the cooperative agreement under evaluation. To limit the occurrence of social desirability tendencies, the evaluation team will use two experienced researchers who will (1) clearly explain the importance of balanced views (I.e., both the successes and challenges) during the information sharing session before the interview, and (2) continuously frame questions in an open-ended manner, giving participants an opportunity to respond openly.

Appendix C: Abridged bios of the evaluation team members

Dr Tonderai Mabuto (PhD) will serve as the Lead Consultant in the evaluation team. He is a Senior Public Health Specialist with a PhD in Public Health from the University of the Witwatersrand South Africa, an MSc (Med) Epidemiology and Biostatistics, University of the Witwatersrand and a BSc (Honours) Medical Laboratory Sciences, University of Zimbabwe. He has contributed to health systems strengthening mostly through his expertise in implementation science, program evaluations, epidemiology, and biostatistics. He has supported and evaluated the implementation of PEPFAR programs in South Africa for over 10 years and worked in the Eswatini laboratory services for about two years. For this consultancy, Dr Mabuto will apply his expertise in (1) implementing and evaluating HIV recency testing programs in South Africa, (2) laboratory expertise, (3) conducting evaluations of complex programmes, (4) conducting mixed method analyses, (5) program management of evaluation projects, and (5) development of dissemination products (including final report) according to PEPFAR ESoP. Dr Mabuto will be responsible for providing technical oversight of evaluation activities, developing SOPs, training staff, stakeholder engagement, data analysis, report writing and dissemination of evaluation findings. Dr Mabuto will work both in-country and remotely.

Mr Mandla Mehlo will serve as a Senior Consultant in the evaluation team. He is a Senior Public Health Specialist with over 18 years of professional experience in public health, health systems strengthening, community health systems, strategy development, health information systems management, monitoring and evaluation and health information systems audit in Eswatini. Mr Mehlo holds an MSc in Demography and Population Studies (Great Zimbabwe University), MSc Extension and Communication (University of Eswatini), B. Honours Development Studies (University of South Africa), and a Post Graduate Diploma in Project Management (Monitoring and Evaluation). For this consultancy, Mr Mehlo will apply his expertise in (1) conducting evaluations of complex programmes, (2) working with programme implementers and stakeholders in Eswatini (3) civil registration of vital statistics, (4) conducting mixed method analyses, (5) project management of evaluation projects, and (6) development of dissemination products (including final report) according to PEPFAR ESoP. Mr Mehlo is proficient in English and SiSwati and is a resident of Eswatini.

Ms Bongekile Temalangeni Dlamini will serve as the Evaluation Coordinator in the evaluation team. Ms Dlamini holds a Masters Degree in Monitoring and Evaluation from Uganda Technology and Management University (UTAMU), a Postgraduate Diploma in Monitoring and Evaluation (UTAMU), a Diploma in Statistics (Alison School) and a Bachelor of Nursing Science from the University of Eswatini (UNESWA). She has more than five years of experience in the healthcare field and two years of experience in project/program evaluation. She is well versed with Eswatini's Geopolitical system and experienced in conducting Key Informant Interviews.

Appendix D: List of Data Sources (evaluation matrix)

The table below provides an evaluation matrix summarising the program objective, and the relevant quantitative and qualitative data collection methods.

Table 34: Evaluation Matrix

Specific questions	Quantitative evaluation methods	Qualitative evaluation methods
Objective 1: EDCU		
To what extent did planned engagement of stakeholders in designing and implementing program activities take place? To what extent did the planned EDCU capacity building activities takes place as measured and documented in annual workplans? To what extent did capacity building activities lead to improved organizational planning and implementation at EDCU? To what extent was EHRIS implemented according to quality standards? Including:	**Performance indicators:** % of persons aged ≥15 years newly diagnosed with HIV-1 infection who have a test for recent infection result of 'recent infection' during the reporting period Analytic turnaround time for viral load results % of health facilities that have at least one staff member trained on HIV/TB/COVID-19 surveillance % of HCWs that have been trained on HIV/TB/COVID-19 Surveillance % of health facilities with HIV/TB/COVID-19 surveillance standard operating procedures % of health facilities reporting all HIV/TB/COVID-19 Surveillance Number of Surveillance reports produced Number of functional real-time surveillance systems established % of newly diagnosed individuals receiving recency testing at PEPFAR supported sites Number of HMIS reports incorporating HTS recency Number of updated Strategic plans Percentage of activities in strategic plan implemented Number of Capability Maturity Models (CMM) developed Number of CMM review meetings conducted Proportion of domains with satisfactory score (light green) **Data sources** EHRIS database, LIS, ISAD, Program documents Site Assessments KAP Surveys	**Key Informant Interviews** • MOH - EDCU • MOH - Eswatini National AIDS Program (ENAP) • MOH - Eswatini Health Laboratory Services (EHLS) • MOH - Strategic Information Department • MOH Directorate • NERCHA • URC • EGPAF • FHI360 • Data FI • MSF • WHO • TLC • Georgetown University • CDC Eswatini • ICAP in Eswatini
Objective 2: NHRID		
• To what extent did planned engagement of stakeholders in designing and	**Performance Indicators:** • Number of updated guidelines and procedures for NHRID	**Key Informant Interviews** • NERCHA • MOH - Eswatini National AIDS Program (ENAP)

implementing program activities take place? • To what extent did the planned NHRID capacity building activities takes place as measured and documented in annual workplans? • To what extent did capacity building activities lead to improved organizational planning and implementation at NHRID? • To what extent did ICAP meet set benchmark targets including: • To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect program implementation? • How did ICAP mitigate these effects? • What were the challenges and lessons learned during the implementation of the program?	• Number of national health research conferences conducted • Percent of health research agenda activities completed • Number of updated Strategic plans • Percentage of activities in strategic plan implemented • Number of Capability Maturity Models (CMM) developed • Number of CMM review meetings conducted • Proportion of domains with satisfactory score (light green) **Data sources:** Program documents	• MOH - Strategic Information • MOH Directorate • CDC Eswatini • ICAP in Eswatini
Objective 3: EHHRRB		
• To what extent did planned engagement of stakeholders in designing and implementing program activities take place? • To what extent did the planned capacity building of EHHRRB members trained on research ethics and Good Clinical Practices take place? • To what extent did the planned EHHRRB capacity building activities takes place as	**Performance indicators** • Percentage of EHHRRB members trained on research ethics and Good Clinical Practices • Number of protocols received by NHHRB within 30 days • Number of updated Strategic plans • Percentage of activities in strategic plan implemented • Number of Capability Maturity Models (CMM) developed • Number of CMM review meetings conducted • Proportion of domains with satisfactory score (light green) **Data sources:** Program documents	**Key Informant Interviews** • EHHRRB • MOH - Eswatini National AIDS Program (ENAP) • MOH - Strategic Information • MOH Directorate • NERCHA • CDC Eswatini • ICAP in Eswatini

measured and documented in annual workplans? • To what extent did capacity building activities lead to improved organizational planning and implementation at EHHRRB including review of protocols within 45 days? • To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect program implementation? How did ICAP mitigate these effects? • What were the challenges and lessons learned during the implementation of the program?		
Objective 4: CSO		
• To what extent did planned engagement of CSO, MOICT, MOH stakeholders in designing and implementing program activities take place? • To what extent has an interoperable data management system between MOHA, MOH and CSO been developed/improved • To what extent did ICAP achieve set benchmark targets • capacity building activities take place as measured and documented in annual workplans? • To what extent did capacity building activities lead to	**Performance indicators** • Number of vital statistics reports published • Number of standardized data collection tools developed **Data sources:** • Program documents	**Key Informant Interviews** • Ministry of Economic Planning and Development • Ministry of Home Affairs • MOH Directorate • NERCHA • CDC Eswatini • ICAP in Eswatini

improved organizational planning and implementation at CSO, MOICT, MOH? • To what extent did COVID-19 pandemic, civil unrest and other unprecedented events affect program implementation? How did ICAP mitigate these effects? • What were the challenges and lessons learned during the implementation of the program?		

Appendix E: Site assessment tool

Eswatini HIV Recency Infection Surveillance (EHRIS) Site Assessment Checklist							
	Visit Date						
	Region of HTS Site						
	HTS site check one	**Health facility**		**Community site**		**Laboratory**	
	Entry Points Visited (Yr 1 and 2)						
	Review Period **Depends on activation date**	**Start Date**		**End Date:**			
	Visit Conducted by						
	Date of Site Activation						
	Completion Instructions: This checklist can be used for monitoring implementation of HIV recent infection surveillance for each site or HTS point of service visited. Mark “Yes,” "Partial" or “No” or write the number (##) for each question. If a section or specific question is not applicable or not observed, mark the N/A box or indicate "N/O". Please provide comments/explanations for all sections that are marked “No.” **Scoring Instructions:** Calculate the score for each cell that is not greyed out. Use the denominator suggested in the score column. If the question is yes/no a score of 1 should be given if the response is yes and 0 if the response is no and 0.5 if the response is partial. To calculate the total score for each section add up the numbers in the score column and divide by the number of cells with a score. Do not include questions answered "NA" in the scoring.						
Part 1: Study Staff (Training and Adherence to Protocol)							
	(Use direct observation and review training logs)	***Number***		***Denominator***	***Score:*** *Calculate percent using denominator*	***Comments***	
A	Number of HTS counselors/nurses/						
	phlebotomists/laboratory technologists at facility Total number at site						
B	Number of HTS counselors/nurses/ phlebotomists/laboratory technologists at facility that attended a recency-related training Total number that have been trained				Calculate B/A		

C	Number of HTS counselors/nurses/ phlebotomists/laboratory technologists assessed via direct observation Total number assessed on day of visit							
D	Number of trained HTS counselors/nurses/ phlebotomists/laboratory technologists at facility who completed the expected number of quality control (QC) panels (i.e. as required for each cadre) since they are not doing routine testing) during the assessment period (looks at storage)							

E	Number of trained HTS counselors/nurses/phlebotomis ts and Laboratory technologists at facility who completed proficiency panels during the assessment period							
F	Number of trained HTS counselors/nurses/Phlebotomis ts/Laboratory technologists at facility who passed proficiency panels during the assessment period				Calculate F/E			
	RTRI Procedures (for QC and/or direct observation of a client enrolled)	***Yes***	***Partial***	***No***	***Score: 1-Yes, 0-No, 0.5- Partial***		***N/A N/O***	***Comments***
G	Are HTS counselors/nurses/ phlebotomists/laboratory technologists observed following protocol SOPs for testing?							
H	Are HTS counselors/nurses/ phlebotomists/laboratory technologists observed following							

	protocol SOPs for any other lab processes						
I	Are all tests with control line (C) + positive verification line (V) marked as Recent?						
J	Are all tests with all three lines marked as Long-term?						

K	Are all tests only control line marked as Inconclusive?						
L	Are all tests with control line absent OR control line and long-term line present without verification line marked as Invalid?						
M	Are HTS counselors/nurses/ phlebotomists/laboratory technologists accurately using a timer for RTRI testing?						
N	Are HTS counselors/nurses/ phlebotomists/laboratory technologists providers following the SOP for performing RTRI tests?						
	(Review Certification)	***Yes***	***Partial***	***No***	***Score: 1-Yes, 0-No, 0.5- Partial***	***N/A***	***Comments***
O	Documentation showing all HTS counselors/nurses/ phlebotomists/laboratory technologists have been trained on routine HIV rapid testing? Check certification						
P	Documentation showing all HTS counselors/nurses/ phlebotomists/laboratory technologists have been trained on RTRI Testing and QC and demonstrated						

	competency? Check certification.						

Q	Confirmation that environments are conducive HTS counselors/nurses/ phlebotomists/laboratory technologists are prepared to conduct RTRI						
R	Any staff changes since training? (e.g. departures, new staff)						
Study Staff Total Score:							
Part 2: Procedures							
	(Use direct observation and document review)	***Yes***	***Partial***	***No***	***Score: 1-Yes, 0-No, 0.5- Partial***	***N/A N/O***	***Comments***
A	SOP manual available?						
B	HTS counselors/nurses/ phlebotomists/laboratory technologists pretest counseling job aid for EHRIS activities available?						
C	RTRI Stepwise Procedure job aid available?						
D	Testing procedures job aids posted at the Lab testing point?						

	Quality Control History	***Yes***		***No***	***Score: 1-Yes, 0-No, 0.5- Partial***	***N/A N/O***	***Comments***
E	Are QCs in date? *Do not use expired controls*.						
F	Is the performance of RTRI testing kits verified using the QCs?						
G	Are appropriate steps recorded and taken when the QC results are incorrect and/or invalid?						
	Data Collection Procedures	***Yes***	***Partial***	***No***	***Score: 1-Yes, 0-No, 0.5- Partial***	***N/A***	***Comments***
Procedures Total Score:							
Part 3: Source Data							
	(Use direct observation)	***Yes***	***Partial***	***No***	***Score: 1- Yes, 0-No***	***N/A N/O***	***Comments***
A	Are standard and approved registers/logbooks/result forms the only place						

	where information is being recorded for clients within the review period?						

Part 4: Client Recruitment and Follow up Data									
	(Review Documentation)	***Number***		***Denominator***	***Score:*** *Calculate percent using denominator*		***Comments***		
A	Analytic turn-around time (TAT) in days during the previous reporting quarter (applicable for main labs)						***If the site was main lab, this is the end of the assessment***		
B	Number of persons aged >=15 years received HIV testing at service delivery point during review period *Review standard HIV Retesting Registers (HTS) Registers.*								
C	Number of persons aged >=15 years newly diagnosed with HIV at service delivery point during review period *Review standard HTS Registers.*			0	Calculate C/B				
D	Number of clients tested for recent HIV infection using								
	RTRI at service delivery point during review period								
E	Number of eligible clients at service delivery point who declined RTRI testing during review period								
F	Number of clients with documented reason for refusal of RTRI testing at service delivery point during review period			0	Calculate F/E				
G	Number of clients who have an initial RTRI recent result and have a confirmatory RITA result due during the review period								
H	RTRI Results - Number of persons aged ≥15 years newly diagnosed with HIV-1 infection who have a test for								

	recent infection result of recent infection through RTRI during the review period (MER Indicator - HTS_RECENT)						
I	RITA Results: Number of persons aged ≥15 years newly diagnosed with HIV-1 infection who have a test for recent infection result of recent infection confirmed through			0	Calculate I/H		
	RITA during the review period (MER Indicator - HTS_RECENT)						
Client Recruitment and Follow up Data Total Score:							
Part 5: Physical Facility							
	(Use direct observation and document review)	***Yes***	***Partial***	***No***	***Score: 1-Yes, 0-No, 0.5- Partial***	***N/A***	***Comments***
A	Are all test kits kept in a temperature-controlled environment conforming to the manufacturer's instructions?						
B	Are there current and past temperature recording charts? (For monitoring room temperature and refrigerator temperature)						
C	Are all kits in use and in stock within the expiry date?						
D	Is the kit storage area kept secure?						
E	Is First Expiry First Out (FEFO) being applied in using reagents?						
F	Are kits labelled with date received?						
G	Are expired kits referred to the pharmacy for proper disposal?						
I	Are paper and/or electronic tools with personally identifying information kept in a locked cabinet or secure room						

	accessible only by a limited number of authorized people?						
J	Are all electronic tools password protected?						
Physical Facility Total Score:							
Part 6: Site Supplies Site Supplies Total Score:							
	(Use direct observation and review training logs)	***Number Y/N***				***N/A N/O***	*Comments. Flag if test kits or any supplies are running low to ensure replenishment.*
A	Number of Recency RTRI tests available (Physically counting)						
B	Is the site fully stocked with RTRI tests						
C	Number of paper back-up intake forms currently available						

D	Number of HTS pretest counseling job aid for EHRIS activities available						
E	Is the site fully stocked with all required forms Select NO if site does not have enough stock on any of the forms						
	(Use direct observation, or review documentation)	***Yes***	***Partial***	***No***	***Score: 1-Yes, 0-No, 0.5-Partial***	***N/A N/O***	***Comments***
F	Are any expired supplies being used?						
G	Does the site have all QC panel available ?						
H	Are invalid tests during QC being repeated and documented?						

Appendix F: KAP Survey Questionnaire

Date of Interview: _____/_____/_____
MM DD YYYY
Name of Interviewer: _____

Site type (choose one):
ð Facility Name _____

ð Laboratory Name_____

ð Community, name of community site or Implementing Partner

#	Questions	Responses
READ ALOUD: *Thank you for agreeing to participate in this survey. The first set of questions is about your work experiences in general. Afterwards, we will move on to other topics.*		
Interviewee Background		
1.	What is your role?	HTS Counsellor Phlebotomist Nurse Lab Technologist Site Supervisor • Other, Specify:
2.	How many ***years*** have you been providing HIV testing services?	• Less than 1 year (specify: _____months) • More than 1 year (specify: _____ years)
3.	How many ***years*** have you been providing HIV **recency** testing services?	• Less than 1 year (specify: _____months) • More than 1 year (specify: _____ years)
4.	In a typical month, approximately ***how many clients do you test*** with the RTRI?	_____approximate number of clients tested in a typical month
5.	How many ***years*** have you been providing index testing services?	• Less than 1 year (specify: _____months) • More than 1 year (specify: _____ years)

6.	In a typical month, approximately how many HIV positive clients do you offer index testing services?	Approximately _____ clients are offered index testing services.
7.	In a typical month , how many HIV positive clients are able to list their contacts (sexual, social & biological children)	Approximately _____clients list their contacts.
8.	Do you feel confident in your ability to ask clients to share contacts?	• Yes-> **Skip to 11** • No
		c. Don't Know
9.	Please provide reasons why you do not feel confident. Select All that Apply:	I don't have enough time with index clients. I don't have strategies to ask about contacts from all aspects of the index client's life. I can't ensure the privacy of my index client during our conversation. I feel uncomfortable asking clients about their contacts. Other
10.	If other to Q9, explain	Explanation
11.	Do you agree with this statement? Index clients feel comfortable sharing their contacts with me.	• Yes-> **Skip to 14** • No • Don't Know
12.	What might be the reason/s that make index clients to be uncomfortable sharing their sexual or biological contacts with you? Select All that Apply:	Clients are worried about their privacy/confidentiality. Clients are embarrassed or ashamed about their contacts. Clients are worried about their physical safety. Clients don't trust healthcare providers. Other
13.	If other to Q12, explain	Explanation
14.	Did you receive training on recent HIV infection testing?	• Yes • No-> **Skip to 18** • Don't Know-> **Skip to 18**
15.	When did you receive your most recent training?	_____/_____/_____ Date Month Year
16.	What was the format of the recent infection testing training you received? Select all that apply.	2-3-day training on recent infection testing On-site training by colleagues On-site training by Recent Infection mentoring team Other,
17.	If other to Q16, explain	Explanation
18.	Did you receive specific training on the national HIV Testing algorithm and the HIV	• Yes

	recent infection testing algorithm?	• No • Don't know
19.	At what point of the national HIV testing algorithm do you conduct HIV rapid test for recent infection (RTRI)?	Following a reactive result of first rapid test of the national HIV testing algorithm (Determine) and if client meet the HIV recency testing eligibility criteria Conduct HIV rapid test for recent infection (RTRI) for all clients with reactive results to first rapid test of the national HIV testing
		algorithm (Determine) Conduct HIV rapid test for recent infection (RTRI) parallel with the second rapid test of the national HIV testing algorithm (UniGold) only to clients with reactive results in the first test (Determine) and meeting the HIV recency testing eligibility criteria A and C only Do not know
READ ALOUD: *Thank you for sharing your work experience with me. Next, I am going to ask about recent infection testing, barriers and challenges that you may face or have faced in the past.*		
Recency Implementation Barriers and Challenges		
Please select the appropriate answer for each question.		
20.	Do you feel equipped to introduce recency testing to clients during information giving sessions?	• Yes-> **Skip to 23** • No • Don't Know
21.	If no to question 20 what are your reasons? Select All that apply:	I need a refresher training on recency testing I am unsure who is eligible I don't know what to say when I approach clients I am worried about clients' response I don't have time to introduce recency testing to clients. Other
22.	If other to Q21, explain	Explanation
23.	Are you able to explain recency testing to eligible clients?	• Yes-> **Skip to 26** • No • Don't Know
24.	You indicated that you are not able to explain recency testing to eligible clients? Why do you think this is the case? Select All that Apply:	I need a refresher training on recency testing The recency testing is confusing to me. I don't know how to explain the benefits of recency testing to clients. I don't know how to explain the risks of recency testing to clients.

		I am unsure how to answer client questions about recency testing. Other
25.	If other to Q24, explain	Explanation
26.	How often do your other responsibilities keep you from offering recency testing to eligible clients?	• Always • Often • Sometimes • Rarely • Never-> **Skip to 28**
27.	Please describe how your other responsibilities keep you from offering	Comments:
	recency testing to eligible clients	
28.	Do you agree with this statement: *Most eligible clients are willing to participate in recency testing.*	• Yes- >**Skip to 30** • No • Don't Know
29.	If No to 28, explain	Explanation
30.	Do you feel equipped to use a tablet for recency data collection?	• Yes-> **Skip to 33** • No • Don't Know
31.	If no to question 30 what are your reasons? Select All that apply:	I need a refresher training on using tablets for recency data collection Data collection using tablets is very difficult for me I am worried about the additional time spent by clients during recency data collection using the tablet I don't have time to use the tablet for recency data collection Other
32.	If other to Q31 please explain	Explanation
READ ALOUD: *Let's move on to our last section. Now we're going to talk about your experiences with transmission hotspot investigation and response finding. Think about only your own personal experiences.*		
Transmission hotspot investigation and response: Only applicable to site that have met hotspot definition criteria i.e. ≥ 4 RTRI recent cases per site per month or ≥ 3 RITA recent cases per site per month		
33.	Do you know if your site has met HIV recency hotspot definition criteria?	• Yes • No -> **End** c, Don't Know -> **End**
34.	Have you participated in hotspot investigation and response activities	• Yes • No -> Skip to 36

		• Don’t Know -> **End**
35.	If yes to 34, explain your contribution in the investigation and response activities	Explanation
36.	If No to 34, please explain	Explanation
37.	Are you aware of any quality improvement plan (QIP) being implemented in your sites to address outcomes from hotspot investigation	• Yes • No • Don’t Know -> **End**
38.	If yes to 37, please briefly explain one of the QIP activities being implemented in your site	Explanation

Appendix G: Distribution of Survey Participants role and facility

Site	HTS Counsellor	Nurse	Phlebotomist	Lab technologist	Microscopist	Total
Fixed health facilities						
Good Shepard Hospital	5	0	1	1	0	7
Hlathikhulu Government Hospital	3	1	0	0	0	4
Mbabane Government Hospital	4	1	0	0	0	5
Raleigh Fitkin Memorial Hospital	5	0	1	0	0	6
Mangweni Clinic	1	1	1	0	1	4
Mhlosheni Clinic	0	0	1	0	0	1
Siphofaneni Clinic	2	2	0	0	0	4
Matsapha AHF	5	0	0	1	0	6
Matsanjeni Health Centre	3	0	0	0	0	3
Mkhuzweni Health Centre	2	0	0	0	0	2
Nhlangano Health Centre	1	0	1	0	0	2
Sithobela Rural Health Centre	2	0	0	0	0	2
Non-fixed community sites						
FHI 360 Community Sites	4	3	0	0	0	7
The Luke Commission Community Sites	10	0	0	0	0	10
Total	**47**	**8**	**5**	**2**	**1**	**63**

Appendix H: Information sheet and consent form for KIIs

Flesch-Kincaid Grade Level: 12.1

(To be read to participants by the evaluation assistant to KII, Invitation to Take Part

ICAP in partnership with key stakeholders is conducting an evaluation to assess progress and achievements gained in the implementation of President's Emergency Plan for AIDS Relief (PEPFAR) funded program for Strengthening National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini. Your decision to take part is voluntary. You may refuse, or choose to stop at any time. A decision not to take part or to stop being a part of the evaluation will not change nor threaten your employment in any way. You may refuse to answer any question on the forms.

Description of Evaluation

The assessment seeks to evaluate how key stakeholders were (or felt) engaged in the development and finalization of key activities of the program. It will also assess whether the program has been implemented as planned, and whether the program is on track to achieve (or has achieved) its performance objectives. The information gathered will provide guidance on how the program can be re-aligned to meet identified gaps if any or give recommendations that will ensure continuity of successful components.

Procedures

About 20 individuals have been recruited to participate in these key informant interviews. You will be asked questions on stakeholder engagement, program processes, and program outcomes. We will need privacy for our conversation to facilitate concentration. If you do not understand a question, please ask the interviewer to explain it to you. You can refuse to answer any question, and are free to stop the interview at any point.

The interviewer will take notes. The interview will also be audio-recorded so that we can make sure notes are complete and correct. It is a requirement of your evaluation participation that the interview be recorded. Your name and other personal information will not be collected.

Time commitment

The questions will take approximately one hour.

Risks

There is very little risk associated with participation in the evaluation. The assessment mainly focuses on your understanding of program activities. There are also a few demographic questions (e.g. key performance area and positional title). All information gathered will be kept confidential.

Benefits

You may not receive direct benefit from this evaluation. However, by taking part in the evaluation your input will assist us to develop an effective response to ongoing program activities thereby improving success of the program or to give recommendation that will ensure continuity of successful components of the program.

Confidentiality

You will not be personally identified in any reports or publications that may result from this assessment. No personal information will be collected. The information you give will only be used for the purpose of the evaluation.

Information

If you have any questions about the evaluation, please feel free to call:
Dr. Harriet Nuwagaba-Biribonwoha, Principal Investigator, who can be reached at ICAP in Eswatini

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P. O. Box 222, Eveni Mbabane H103
Tel: (+268) 2404 5797

If you have any other question/s or concerns about your rights as an evaluation participant, or if you feel that you have been harmed by taking part you should contact Ms Babazile Shongwe, Secretariat, from the Eswatini Human and Health Research Review Board who can be reached at cell:+268 76940444, Tel: +268 240407751, email: babazileshongwe@gmail.com.

Do you have any questions? *[Respond to all questions posed by the participant, provide clarifications as needed]*

Consent Statement: Now that you have read this form [OR Now that this form has been read to you] and we have discussed it, please remember that taking part is voluntary. It is your decision to take part or not take part in this evaluation. You may withdraw at any time. If you decide to take part in this evaluation a copy of this informed consent form will be offered to you.

	Agree	Disagree
Do you agree or disagree to participate in this evaluation? *[Check one according to the participant's response]*		

Participant's Code: _____

Name of Staff administering the ICF:	
Signature of staff administering ICF:	
Date ICF administered *(dd-mmm-yy)*:	

Appendix G: Information sheet and consent form for EHRIS Site Assessments

Flesch-Kincaid: 10.3

(to be read to the person(s) contacted)

Hello. My name is _____[NAME OF EVALUATION STAFF].
I work on behalf of the ICAP in conjunction with Epidemiology and Disease Control Unit, and Eswatini National ART program both from Ministry of Health is conducting an evaluation to assess progress and achievements gained so far in the implementation Eswatini HIV Recency Infection Survey (EHRIS). The United States Centers for Disease Control and Prevention and ICAP at Columbia University is also contributing to this evaluation.
I will share with you information about this evaluation and ask you to be a part of it. There may be some words that you do not understand. Please stop me if that happens. I will explain. If you have a question, please ask. If you have questions later, you can ask me or call me at this phone number: _[EVALUATION STAFF PHONE NUMBER].

You will be given a copy of the full form if you choose to receive a copy.

Title of Evaluation

Evaluation of a Program to Strengthen National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini under the President's Emergency Plan for AIDS Relief (PEPFAR). The component of the evaluation that you are participating in called Eswatini HIV recent HIV infection surveillance (EHRIS) site assessment.

Purpose of the Evaluation

EHRIS project was implemented at this health facility. We are doing this evaluation to help us know how well the project is working. You are a healthcare provider involved in recency testing and/or HTS testing activities. Your perspective on the barriers to recency testing are important. You could help guide how future activities and services are delivered.

Procedures

If you agree to participate, the assessment should take less than 30 minutes to complete.

Voluntary participation

Your participation in all or part of this evaluation is entirely voluntary. It is your choice whether to be part of it. There is no cost to you for taking part in this evaluation.

Risk

Confidentiality Risks: A risk of taking part in this evaluation is the possibility of a loss of confidentiality or privacy. Loss of privacy means that information that you have shared on the survey may be shared with someone who is not on the evaluation team and was not supposed to know your information.

- The information we collect from you will be identified by a number and not by your name. Your name and other information that could identify you will be securely kept and separated from your survey responses. Only the Principal Investigator and the evaluation staff will have access to the information we collect.

Emotional Risks: As part of the evaluation, your perceptions of recency testing and the barriers to its implementation could be uncomfortable and may cause feelings of frustration and low job-satisfaction.

- Evaluation staff will allow you to take the time you need to answer questions. If you are unable or unwilling to answer a question, the question can be skipped. You may

also end an interview at any time as your participation in the interviews and the evaluation are voluntary.

Benefits

This evaluation has no immediate benefit. However, your participation could contribute to making recency testing more accessible and available for people who are at risk for HIV- infection.

Confidentiality

We will do everything that we can to keep your taking part in the evaluation and your answers private. The information we collect from you will be identified by a number and not by your name. The information entered into the tablet will be identified only by the number. Your name will not appear when we share evaluation results. The information we collect during the survey will not be released outside of the evaluation groups listed unless there is an issue of safety.

What Questions Do You Have about the Evaluation?

Please let me know if you have any questions about this evaluation. We want you to have enough information to make an informed decision about whether to participate in this evaluation.

This program has been approved by the Ministry of Health/Eswatini Human Health Research Review Board (EHHRRB).

You may contact the following people you have any questions or concerns about this research evaluation:

- Dr. Harriet Nuwagaba-Biribonwoha, Principal Investigator, who can be reached at ICAP in Eswatini Mailman School of Public Health - Columbia University Plot 192 Somhlolo Road P. O. Box 222, Eveni Mbabane H103 Tel: (+268) 2404 5797
- Ms Babazile Shongwe, Secretariat, EHHRRB who can be reached at cell:+268 76940444, Tel: +268 240407751, email: babazileshongwe@gmail.comDo you have any questions? *[Respond to all questions posed by the participant, provide clarifications as needed]*

Consent Statement: Now that you have read this form [OR Now that this form has been read to you] and we have discussed it, please remember that taking part is voluntary. It is your decision to take part or not take part in this evaluation. You may withdraw at any time. If you decide to take part in this evaluation a copy of this informed consent form will be offered to you.

	Agree	Disagree
Do you agree or disagree to participate in this evaluation? *[Check one according to the participant's response]*		

Participant's Code: _____

Name of Staff administering the ICF:	
Signature of staff administering ICF:	
Date ICF administered *(dd-mmm-yy)*:	

Appendix I: Information sheet and consent form for EHRIS KAP Survey

Hello. My name is _____[NAME OF EVALUATION STAFF].

I work on behalf of the ICAP in conjunction with Epidemiology and Disease Control Unit, and Eswatini National ART program both from Ministry of Health is conducting an evaluation to assess progress and achievements gained so far in the implementation Eswatini HIV Recency Infection Survey (EHRIS). The United States Centers for Disease Control and Prevention and ICAP at Columbia University is also contributing to this evaluation.

I will share with you information about this evaluation and ask you to be a part of it. There may be some words that you do not understand. Please stop me if that happens. I will explain. If you have a question, please ask. If you have questions later, you can ask me or call me at this phone number: __[EVALUATION STAFF PHONE NUMBER].

You will be given a copy of the full form if you choose to receive a copy.

Title of Evaluation

Evaluation of a Program to Strengthen National Epidemiologic and Research Capacity to Track the HIV/TB Epidemic and Improve Health Outcomes in the Kingdom of Eswatini under the President's Emergency Plan for AIDS Relief (PEPFAR). The component of the evaluation that you are participating in called Eswatini HIV recent HIV infection surveillance (EHRIS) knowledge attitude and practices survey.

Purpose of the Evaluation

EHRIS project was implemented at this health facility. We are doing this evaluation to help us know how well the project is working. You are a healthcare provider involved in recency testing and/or HTS testing activities. Your perspective on the barriers to recency testing are important. You could help guide how future activities and services are delivered.

Procedures

If you agree to participate, the interview should take approximately 30 minutes to complete.

Voluntary participation

Your participation in all or part of this evaluation is entirely voluntary. It is your choice whether to be part of it. There is no cost to you for taking part in this evaluation.

Risk

Confidentiality Risks: A risk of taking part in this evaluation is the possibility of a loss of confidentiality or privacy. Loss of confidentiality means that information that you have shared on the survey may be shared with someone who is not on the evaluation team and was not supposed to know your information.

- However, the information we collect from you will be identified by a number and not by your name. Only the Principal Investigator and the evaluation staff will have access to the information we collect.

Emotional Risks: As part of the evaluation, your perceptions of recency testing and the barriers to its implementation could be uncomfortable and may cause feelings of frustration and low job-satisfaction.

- Evaluation staff will allow you to take the time you need to answer questions. If you are unable or unwilling to answer a question, the question can be skipped. You may also end an interview at any time as your participation in the interviews and the evaluation are voluntary.

Benefits

This evaluation has no immediate benefit. However, your participation could contribute to making recency testing more accessible and available for people who are at risk for HIV- infection.

Confidentiality

We will do everything that we can to keep your taking part in the evaluation and your answers private. The information we collect from you will be identified by a number and not by your name. The information entered into the tablet will be identified only by the number. Your name will not appear when we share evaluation results. The information we collect during the survey will not be released outside of the evaluation groups listed unless there is an issue of safety.

What Questions Do You Have about the Evaluation?

Please let me know if you have any questions about this evaluation. We want you to have enough information to make an informed decision about whether to participate in this evaluation.

This program has been approved by the Ministry of Health/Eswatini Human Health Research Review Board (EHHRRB).

You may contact the following people you have any questions or concerns about this research evaluation:

- Dr. Harriet Nuwagaba-Biribonwoha, Principal Investigator, who can be reached at

ICAP in Eswatini Mailman School of Public Health - Columbia University Plot 192 Somhlolo Road P. O. Box 222, Eveni Mbabane H103 Tel: (+268) 2404 5797

- Ms Babazile Shongwe, Secretariat, EHHRRB who can be reached at cell:+268 76940444, Tel:

+268 240407751, email: babazileshongwe@gmail.com.

Consent Statement: Now that you have read this form [OR Now that this form has been read to you] and we have discussed it, please remember that taking part is voluntary. It is your decision to take part or not take part in this evaluation. You may withdraw at any time. If you decide to take part in this evaluation a copy of this informed consent form will be offered to you.

	Agree	Disagree
Do you agree or disagree to participate in this evaluation? *[Check one according to the participant's response]*		

Participant's Code: ____

Name of Staff administering the ICF:	
Signature of staff administering ICF:	
Date ICF administered *(dd-mmm-yy)*:	

Appendix J: Conflict of interest statements

Confidentiality Agreement Forms_Sig

Appendix K: Technical Activity Log

TECHNICAL ACTIVITY LOG				
(Fill out this form at every site visit)				
Facility Name: Department			Date of Visit: (mm/dd/yy) _____/_____/_____	
Details of HTS Providers and EHRIS Mentors	HTS Providers		EHRIS Mentors	
	Name	Designation	Name	Designation
Technical Support	**Type of Technical Support (Tick appropriately**		Duration of Activity ()	
	QC/PT Support			
	Site-specific summary statistics			
	Distribution of implementation supplies			
	Data verification			
	Refresher session			
	Regulatory binder review			
	Quality assessment			
	Cluster investigation & response			
	Stock inventory			
	Tablet inventory			
	HTS Provider sensitization			
	Data collection forms update			
Topics/Issues discussed				
Follow-up items				
Action Steps				
Signatures	Facility Representative		Position	
	EHRIS Mentor		Position	