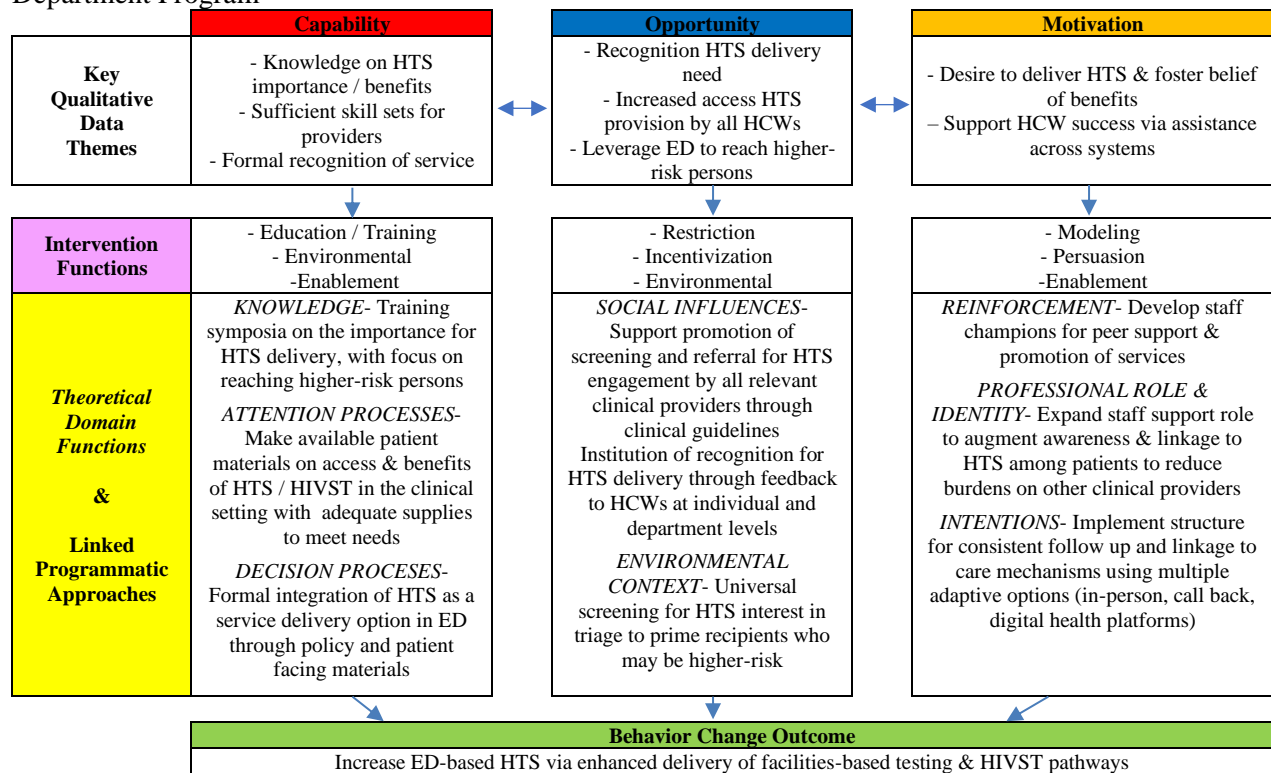


Supplements

Supplement 1. HIV Enhanced Access Testing in Emergency Departments Program

Based on prior data from the Kenyatta National Hospital (KNH) study setting demonstrating potential to improve emergency department (ED) HIV Testing services (HTS) delivery, particularly among injured persons seeking care, qualitative studies were undertaken with healthcare provider and patient stakeholders. The qualitative research aimed to evaluate challenges and facilitators for HTS programming within the KNH ED. The Capability-Opportunity-Motivation Behavioral Model (COM-B), which examines health behaviors through three interrelated lenses, was utilized as a framework to overlay the key findings of the thematic analysis, and the Theoretical Domains Framework (TDF) was used to identify intervention functions to inform approaches to enhance ED-HTS programming. Following the initial design phase feedback sessions with healthcare and administrative personnel from the KNH setting were held to review and refine the design. This step resulted in the addition of external training from the Kenya National AIDS and STIs Control Programme (NASCOP) pertaining to Key Populations (KPs) for the ED-HIV services personnel. The HEATED program components across the COM-B model are shown and described below. All aspects of HEATED program were initiated during the implementation period (17-30 April 2023), except for the change made to the standard triage process in which a screening question on interest in learning about HTS during ED care was added at the start of the pre-implementation data collection period (6 March 2023). The implementation strategy was based on Expert Recommendations for Implementing Change and was multipronged and included micro-strategies aiming to change infrastructure, supporting clinicians, providing interactive assistance, train and educate stakeholders, develop stakeholder relationships, and engaging patients. This approach was used to provide an evidence-based program with components which were locally appropriate and feasible to be implemented.

Capability-Opportunity-Motivation Behavioral Model For the HIV Enhance Access Testing in Emergency Department Program









HCWs – Health Care Workers, Pts - Patients, HTS HIV Testing Services, PITC provider-initiated testing and counseling, HIVST - HIV Self-Testing, KP Key Populations

Capability

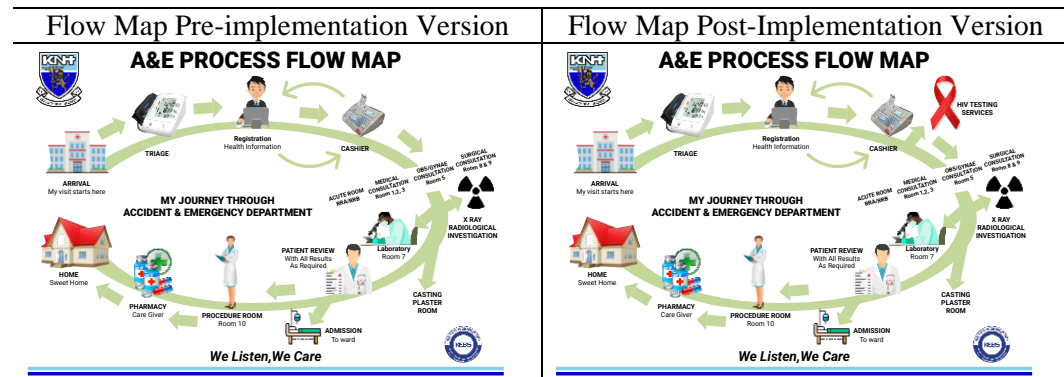
The domain of capability refers to an individual's physical and psychological ability to engage in a health behavior of increasing HTS delivery with a focus on higher-risk persons in the ED setting. The key intervention functions for capability were education and training, environmental restructuring and enablement. Components for the HEATED program for Capability were:

- **Sensitization symposia:** These training sensitized and provided educational information on the role and importance of HIV services in the ED setting and were held with staff inclusive of nurses, physicians, administrators and HIV services personnel. The content used NASCOP materials on HTS recommendations and policies as well as data from the study setting focusing on the local HTS landscape and how there exists opportunities to engage higher-risk persons for HIV services during emergency care, especially for injured persons. The sessions also provided an overview of the overall HEATED program and its components. These symposia were completed through multiple sessions and across varying venues in the ED. There were two sessions lasting 90 minutes in duration held through standard ED meeting mechanisms for continuing education and training, which were approved for professional development credit via KNH procedures. To help ensure support sensitization text messages on the program were sent to provider groups of nurses and physicians using their established communication list-serves with the ability to engage in discussion and clarification as needed with the healthcare champions who were nurse and physician members of the ED-staff. Additionally, four brief (15 minute) sessions were given during meetings with clinical staff in the ED space. The content was delivered by a combination of study team members and local HTS training personnel. During all sessions there was time allocated for questions and open-forum discussion.
- **HIV Services Personnel Engagement Training:** Based on the observed low engagement of injured persons during ED care and the overlap of this population with higher-risk groups (i.e. KPs, young adults and men) a focused training on engaging such persons was provided to the HIV services personnel. The training utilized existing materials and facilitators from NASCOP which are designed to train up healthcare providers around engagement of target persons for HIV testing and care. Within this training there was also dedicated sessions on engaging the ED injury population for HTS. The training sessions were held over two three-day periods to accommodate flexible attending for all HTS personnel.
- **Targeted advertising:** Prior to program implementation in the ED there existed minimal signage and written information on the availability of HTS. Using NASCOP resources awareness material in the form of signs and educational pamphlets were placed in six locations in the ED at strategic points to enhance patient knowledge on HTS.

Targeted Advertising (Kiswahili)	Targeted Advertising (English)
 <p>KUNA HUDUMA ZA KUPIMA VVU BILA MALIPO KATIKA A&E, NA VIPAJI VYA KUJIPIMA VYA UKIMWI BURE.</p>	 <p>THERE ARE <u>FREE</u> HIV TESTING SERVICES IN THE A&E, & <u>FREE</u> HIV SELF-TEST KITS.</p>
 <p>ULIZA MFANYAKAZI YOYOTE KATIKA A&E IKIWA ANAPENDEZA.</p> 	 <p>ASK ANY STAFF PERSON IN THE A&E IF INTERESTED.</p> 

- **HTS Integration:** Although the HTS services existed within the KNH ED space and care delivery system lack of coherent services integration was identified as a challenge to HTS. To address this

the three ED flow maps, which provide a throughput overview of a patients' ED care, were revised to include HTS (see figure). These replaced the existing versions in the clinical space.




- HIVST Supply chain:** Based on an identified need to ensure continuous access to HIV self-test (HIVST) kits the supply chain was supported during the assessment phase. This was done such that HIVST kits were only provided by study resources in the case that there was an interruption in the standard supply chain. Over the full assessment period an average of 22 HIVST kit per week were supplied to augment access. As increased access for HIVST kit delivery was in alignment with goals from NASCOP the augmentation of this resource within the implementation assessment was deemed to be consistent with the national trajectory for HTS in Kenya.

Opportunity

The opportunity domain refers to factors affecting the provision of the behavior ED-HTS delivery based on the physical and social environment that the behaviors must occur within. The primary intervention functions for opportunity to improve HTS were modeling, incentivization and education. Components for the HEATED program for Opportunity were:

- Promotion of HTS Patient Engagement:** To improve the engagement of healthcare workers and patients, and as such the opportunity for HIV services, a single universal screening question was added to the triage process with the goal of ensuring that all patients have an interaction with a care provider on the topic (Triage forms shown below). The question assessed for interest in learning about HTS during the ED care period and encompass a binary (yes or no) response. During the sensitization symposia the healthcare personnel were provide example language on how to ask this however, a standard script was not provided. The patient's response to this question was be noted in the standard triage documentation which the patient carries throughout their ED course and is reviewed by their clinical care team.

Updated Triage Form for HTS Interest Screening



KHNH/ A&E/ 2/18
ACCIDENT AND EMERGENCY DEPARTMENT
TRIAGE CHART

PATIENT'S NAME _____ AGE _____ SEX _____ Track NUMBER _____

CHIEF COMPLAINT _____

EMERGENCY SIGNS? YES TAKE STRAIGHT TO RESUSCITATION AREA.
 NO PROCEED TO VITAL SIGNS AND TEWS CALCULATION BELOW:

VITAL SIGNS: Blood Pressure: _____ HR: _____ RR: _____ Temp: _____ SPO₂ _____

LMP _____

TRIAGE EARLY WARNING SCORE (TEWS): Circle the appropriate box
 (Pediatric TEWS Charts on Back)

ADULT TEWS (OVER 12 YEARS)									
Adult TEWS*	3	2	1	0	1	2	3		
Mobility:				Walking	With Help	Stretcher/Im mobile			
Resp Rate:		Less than 9		9-14	15-20	21-29	More than 29		
Heart Rate:		Less than 41	41-50	51-100	101-110	111-129	More than 129		
Systolic BP (mmHg):	Less than 71	71-80	81-100	101-199		More than 199			
Temperature (C°):		Cold OR under 35		35-38.4		Hot OR Over 38.4			
AVPU:		Confused		Alert	Reacts to Voice	Reacts to Pain	Unresponsive		
Trauma?				No	Yes				
Subtotal:	_____	+	_____	+	_____	+	_____	+	_____

Total TEWS = 7 → **If TEWS is 7 or More, patient is an Emergency**

ADDITIONAL INVESTIGATIONS
 RBS _____ Urine _____ ECG _____ PDT _____
 Interested in HIV Testing Y N Other _____

TRIAGE CODE: FROM THE SATS TRIAGE CHART AND/OR CALCULATION OF TEWS, CIRCLE THE APPROPRIATE TRIAGE LEVEL BELOW

EMERGENCY VERY URGENT URGENT ROUTINE

TRIAGED BY _____ SIGN _____ DATE _____ TIME _____

Disposition From Triage:

Acute Room <input type="checkbox"/>	OBS/GYN Room <input type="checkbox"/>	Clinic <input type="checkbox"/>
Room 6 <input type="checkbox"/>	Labor Ward <input type="checkbox"/>	Isolation Room <input type="checkbox"/>
Trauma Ward <input type="checkbox"/>	PEU <input type="checkbox"/>	Ward 42 (Mass Casualty) <input type="checkbox"/>
Surgical Area <input type="checkbox"/>	NBU <input type="checkbox"/>	Other <input type="checkbox"/>
Medical Area <input type="checkbox"/>	IDU <input type="checkbox"/>	

- **Longitudinal Feedback:** To improve the social environment and opportunity for HTS the HEAT program provided feedback to normalize and promote HTS at departmental and individual provider levels. This feedback provided updates on HTS metrics including but not limited to: provision of HTS (including HIVST), identification of PLHIV and linkage to care. The feedback was disseminated via digital communication to established ED provider groups on WhatsApp™ every two weeks during the post-implementation period. The feedback was framed in a positive manner and sent by the respective program champions to the nurse, physician and ED-HTS services personnel

Motivation

Motivation domain refers to the automatic and reflective processes that affect the stakeholders desire and ability to engage in the health behavior of ED-HTS. The main intervention functions in this domain to improve HTS were healthcare workers drive to deliver HTS (inclusive of conceptual barriers) and patients' perceptions of the impacts of HTS. Components for the HEATED program for motivation were:

- **Healthcare Worker Champions:** To support motivation and engagement in the HEAT program clinical personnel working in the ED were identified who were willing to provide peer-to-peer support within the clinical setting as needed. And through digital communication to ED provider groups on WhatsApp™. This included discussing HTS with ED staff and answering questions that peers may have. For healthcare champions there was one nurse, one physician and the facility director of HTS, these persons were provided a one hour additional training session with the study coordinator to ensure understanding of the HEATED program component and goals.
- **Linkage Peers:** A challenge identified for ED-HTS was the difficulty of HIV services personnel to be able to identify patients interested in testing due to overall volume. To support connection of those interested in HTS with the personnel able to provide testing access two linkage peers were placed in the clinical setting for 12 hours a day (7am-7pm). will be placed in the A&E to assist with patient-to-HTS-provider linkage. These personnel were primarily tasked with interacting with

patients to review and answer questions about their interest in learning about HTS, and if desired by the patient support their connection to the existing standard ED-HIV services personnel for HTS as appropriate. Although this specific role did not exist in the ED setting prior to the HEATED program there are in place peer-mentors who function primarily to assist with linking patients that test HIV positive to further care. As such the linkage peer role was deemed not to be a substantial alteration in the care delivery process of HTS and was accepted by the KNH HTS program.

- **HIVST Follow up Support:** During the qualitative study that there is Substantial attrition of follow up contact for persons who given HIVST kits was identified as a challenge to ED programming. To address this any person receiving HIVST kits were given a NASCOP created and approved informational packet which provides follow up options and mechanisms (see pamphlet below). Additionally, the healthcare worker champion from HTS services provided prompts on follow up goals and department level follow up metrics at standing meetings for the ED-HIV services personnel.

HIVST Kit Information Pamphlet

About HIV Self-Testing FAQs

any of you interpret a reactive (positive) result, you must visit a HIV Testing service provider at the facility/community for HIVST.

- I'm HIV positive. Can I use the HIV Self-Testing kit to test my child?**
You should never use the HIV self test kit on babies. For children, it is recommended to take them to the health facility for HIV testing.
- What should I do if someone wants to force me to take a test?**
The HIV prevention and control Act 2006 prohibits compulsory testing and therefore HIV testing without your consent is illegal. You have the right to refuse to take a HIV test or stop the procedure at any time if you feel not ready to know your status.
- Where can I get more information on HIV prevention, care and treatment?**
You can visit the nearest health/community facility or call the helpline for more information. You can also visit www.nascop.org for more information.

Remember

Testing for HIV is the only way to be sure your HIV status. HIV self-testing allows you to do this in private and in your own time

an initial positive result must be confirmed by qualified healthcare provider.

NASCOP
National AIDS and STD Control Program (NASCOP)

Ministry of Health, Kenya
P.O. Box 1934-00200
Nairobi, Kenya
Tel: 254 20 272549-9502
Call: 077 209 297
Email: head@nascop.or.ke

BE SELF SURE

introducing the easy, safe and confidential way of HIV testing.

THE HIV SELF-TESTING KIT.

Know your HIV status at your own comfort and in your own privacy.

FAQS

About HIV Self-Testing FAQs

- What is HIV self-testing?**
HIV self-testing is a process whereby a person checks to see if he or she has HIV using a self-test kit. You can do this privately and in your own time.
- Is HIV self-testing the right option for me?**
HIV self-testing is the only way of knowing your HIV status. This is important in making informed choices about your health and lifestyle. HIV self-testing allows you to test yourself privately and at your own convenience. HIV self-tests are not suitable for those who are taking antiretroviral (ARV). If you think you have been exposed to HIV or are at risk of infection, HIV self-testing offers an opportunity for you to determine your status.
- Which HIV self-test kits are available?**
At present, there are two types of HIV self-test kits available, which detect the HIV virus using either a blood or oral fluid (saliva) sample.
- How reliable are HIV self-test kits?**
When used according to the manufacturer's instructions provided, both the blood and oral HIV self-tests are accurate.
- Where can I get a HIV self-test kit?**
Approved HIV self-test kits are available at most pharmacies and private health facilities. You can also visit www.nascop.org for more information on where to get a HIV self-testing kit.
- How do I conduct an HIV self-test?**
Follow instructions as provided by the manufacturer and the service provider.
- What should I do if my test result is reactive (positive)?**
If you interpret a HIV reactive (positive) result, it is important that you get a HIV test at a facility/community offering HIV Testing Services by a qualified health provider to know your status.
- What should I do if I test HIV negative?**
Remember that it can take up to 3 months after exposure to HIV for detect a HIV infection. Therefore, if you were exposed to HIV less than 3 months ago, you need to test again after 3 weeks to be sure that your status is truly negative. However, if you have not been exposed to HIV over the past 3 months and you conducted the test as instructed, then it is highly likely a negative result means you do not have HIV. If you continue to be at risk of HIV infection, you should continue to be tested every 3 months. You should also visit to a health provider about other HIV prevention options.
- If HIV cannot be transmitted through saliva, urine or sweat, HIV can be transmitted through contact with blood, vaginal and rectal fluids, and breast milk from an infected person.**
HIV self-tests detect if your body has been previously exposed to HIV. If it has, your body will have produced antibodies specific to HIV to defend itself against the virus. These antibodies can be detected from oral fluids (as well as in blood). The HIV self-test does not detect the actual virus.
- Can my partner and I test as a couple? If so, what will happen if one of us tests HIV positive?**
You and your partner can test together in your privacy. Each of you should use separate test kits and conduct the test as instructed. If one of you tests a positive result, it means

Supplement 2. Emergency Department HIV services personnel Continuing Professional Development- Reaction Assessments Across Study Periods

Construct	Item	Pre-implementation (March 6 - April 16)		Post-Implementation (Period 1: May 1 - June 26)		P- Value	Post-Implementation (Period 2: June 27 - August 20)		P- Value
		Item mean (+SD)	Construct median (IQR)	Item mean (+SD)	Construct median (IQR)		Item Mean (+SD)	Construct median (IQR)	
Intention	I1	6.1(1.1)	6.3	6.1(2.1)	6.5	0.682	6.1(2.3)	7.0	0.309
	I2	6.3(0.7)	(5.8-6.8)	6.4(0.7)	(6.0-7.0)		6.7(0.5)	(6.5-7.0)	
Social influence	SI1	2(1.4)	4.3 (3.0-4.7)	3.8(1.8)	5.2 (4.3-5.8)	0.013	4.3(1.1)	5.5 (5.0-6.0)	0.014
	SI2	4.8(1.2)		5.8(0.9)			5.9(0.7)		
	SO3	5.0(1.7)		5.4(1.7)			6.1(0.9)		
Beliefs about capabilities	BCa1	6(1.1)	5.2 (4.7-5.7)	6.6(0.5)	6.0 (5.8-6.3)	0.012	6.9(0.4)	6.7 (6.3-6.7)	0.012
	BCa2	3(0.9)		5.1(0.8)			5.9(0.7)		
	BCa3	6.3(0.9)		6.5(1.1)			6.9(0.4)		
Moral norm	MN1	5.4(1.4)	6.0 (5.5-6.0)	6.5(0.8)	6.8 (6.0-7.0)	0.014	6.9(0.4)	6.8 (6.5-7.0)	0.011
	MN2	5.9(0.4)		6.6(0.6)			6.7(0.5)		
Beliefs about consequences	BCOL1	6.5(0.8)	7(6.3-7.0)	6.9(0.4)	7.0 (6.8-7.0)	0.461	7.0(0.1)	7.0 (7.0-7.0)	0.253
	BCOL2	6.8(0.5)		6.9(0.4)			6.9(0.4)		

Supplement 3. Healthcare Worker Open-ended Feedback on the HIV Enhanced Access Testing in the Emergency Department Program

Vocational Role	Feedback Responses (Selected)
Nurse	"Identify better resources for (HIV) testing and supporting the manpower helped the emergency department"
Nurse	"By sensitizing staff in department on the program of (HIV) testing of the patients the program improved care to those needing it"
Nurse	"Testing was easier with the HEAT work, as well as diagnosis and treatment"
Nurse	"The program helped get early diagnosis and early treatment hence better outcomes"
Physician	"I think that more newly diagnosed HIV patients were captured with the program in the emergency department"
Nurse	"HIV testing among trauma patients although improved was not consistent enough"
Physician	"The program was implemented but not all the staff were fully sensitized and engaged"