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COSTING KENYA'S CURRENT AND PROPOSED HIV TESTING AND COUNSELING ALGORITHMS

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Context

Knowledge of HIV status is essential for achieving universal access to HIV services. As such, HIV testing and counseling (HTC) are fundamental elements of all HIV prevention, care, and treatment programs.

In support of HTC, Kenya established a National Roadmap to Achieve Universal Access 2008/9, which serves to operationalize the National Guidelines for HTC and the Kenya National HIV/AIDS Strategic Plan II: 2009–2013. The roadmap includes a goal to reach HTC coverage of 80 percent by 2011.[2] However, the 2008/9 Kenya Demographic Health Survey (KDHS) found coverage to be only 53.6 percent, making this an ambitious target. Among HIV-positive individuals, 82 percent did not know their HIV status. Twenty percent thought they were HIV negative based on a previous test.[1] To achieve the target coverage in the face of dwindling resources, Kenya must assess how to do more with less.

One method of reducing the cost of HTC without compromising quality is to re-assess the testing algorithm. In September 2009, testing guidelines were released that recommended serial rather than parallel testing. Parallel testing involves testing all blood samples with two HIV tests simultaneously. Serial testing involves testing an initial blood sample once. If the test is positive, the sample is tested using a second, different HIV test.[3] Introducing these new guidelines greatly reduced the commodities costs associated with testing and the storage space necessary for test kits.[4] In 2012, three new testing algorithms (see Table 1) were proposed because of the large turnaround time for Elisa results at lower-level facilities, the large costs associated with Elisa, and large training time required for healthcare workers. A testing algorithm is the recommended test type for screening, confirmatory, and tie breaker tests.

Table 1. HTC Current and Proposed Algorithms

	Screening Test	Confirmatory Test	Tie Breaker
Current	Determine	Unigold	Elisa
Option 1	KHB	First Response	Unigold
Option 2	KHB	First Response	Insti
Option 3	KHB	Insti	Unigold

Source: Authors' analysis.

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Research Questions

1. What are the costs of implementing the current HTC algorithm?
2. Which of the three proposed HTC algorithms would yield the lowest incremental cost if implemented?

Methodology

Staff of the Health Policy Project (HPP) were invited by the head of National AIDS and STI Control Programme (NASCOP) to collaborate on research questions. A sub-committee was formed within NASCOP to complete the analysis. Incremental costs, defined as the costs in addition to that of the current algorithm, were calculated for the three proposed algorithms. Incremental costs rather than total costs were calculated for each proposed algorithm to provide NASCOP with cost information relative to what is already being spent. Costs were calculated for an implementation timeframe of 2013–2014. Incremental cost calculations for 2013 include procurement costs for test kits by type in 2012, training for healthcare workers on the new algorithm, and printing costs for new tools and registers when relevant. All test types proposed in the three options are rapid tests and therefore are administered in a similar way. Training costs included the training of 100 trainers and the 100 trainers subsequently training 300 healthcare workers. Costs were based on the District Health Mentorship Training model because it was found to be the most efficient approach to training in previous analyses.[5] Incremental costs for 2014 only include procurement costs for test kits because training and printing costs are not recurrent. All costs are reported in U.S. dollars (USD). The HTC target number of tests that should be conducted during the screening, confirmatory, and tie breaker stages per year was determined by the NASCOP Costing Sub-Committee for Ultra Rapid Testing.[6] They assumed that of all 10,000,000 screening tests, 1,000,000 (10%) will be positive and require confirmatory tests; 10,000 (1%) of these tests result in discordant screening and confirmatory tests. The target numbers of tests are shown in Figure 2.

Figure 2. Target Number of HTC Tests

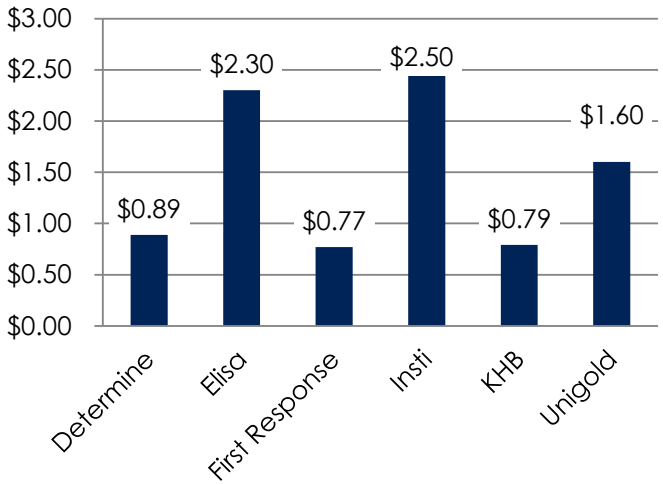
	Screening Test	Confirmatory Test	Tie Breaker
Target Number of Tests	10,000,000	1,000,000	10,000

Source: NASCOP Costing Sub-Committee for Ultra Rapid Testing.

Cost of HTC Algorithms

The cost of each test type is shown in Figure 3.

Figure 3. Cost per Test by Test Type (USD)



Source: NASCOP Procurement Department.

Based on the test procurement costs in Figure 3, the algorithm shown in Figure 1, and the HTC targets for each test type shown in Figure 2, the cost of the current algorithm was found to be $10,522,951 in Year 1 and $10,522,951 in Year 2.

The incremental costs for each proposed algorithm are shown for 2013–2014 in Figure 4. The incremental cost for each proposed algorithm in 2013 includes $264,642 for printing registers and tools and $137,728 for training of a trainer and training of healthcare workers on the new algorithm. In 2014, the incremental costs for each proposed algorithm only includes procurement costs.

Figure 4. Incremental Cost of Proposed Algorithms (USD)

Algorithm	2013	2014
Option 1	$9,105,038	$8,702,667
Option 2	$9,114,038	$8,711,667
Option 3	$10,838,371	$10,436,000

Source: Authors' analysis.

Cost Savings

Option 1 yields a cost savings of $1,417,913 in 2013 and $1,820,984 in 2014. Option 2 yields a cost savings of $1,408,913 in 2013 and $1,811,284 in 2014. Option 3 yields an additional cost of $315,420 in 2013 and a cost savings of $86,951 in 2014. Figure 5 shows the total cost savings, a sum of 2013 and 2014 costs, for each proposed algorithm.

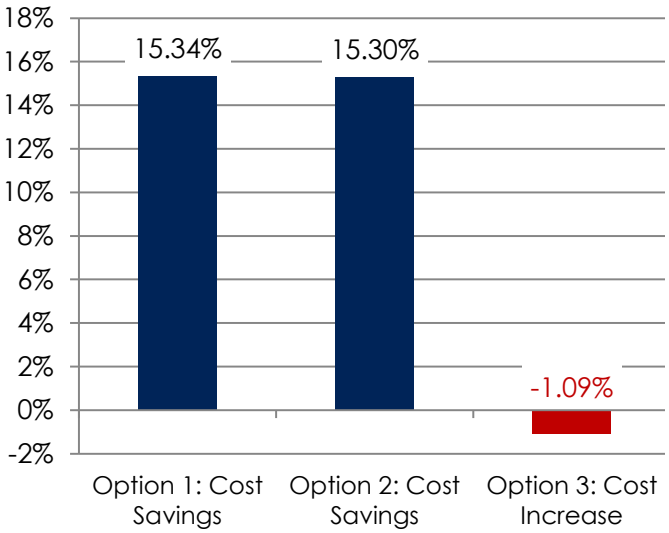
Figure 5. Cost Savings for Proposed Algorithms (USD)

Algorithm	Cost Savings
Option 1	$3,229,197
Option 2	$3,220,197
Option 3	– $228,469

Source: Authors' analysis. Option 3 shows negative cost savings, or an increase in cost.

The percent of costs saved for 2013 and 2014 is shown for each option in Figure 6.

Figure 6. Cost Savings for Proposed Algorithms



Source: Authors' analysis.

Based on the analysis, switching to HTC testing algorithm Option 1 yields the largest cost savings. In addition, Unigold is already being procured because it is used in the current algorithm. Only KHB and First Response will need to be newly procured.

References

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