

Supplementary Material

Feasibility and economic costs of syphilis self-testing to expand test uptake among gay, bisexual and transgender men: results from a randomised controlled trial in Zimbabwe

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Appendix 1: Costing methods

Costing overview

Standard costing guidelines were used to estimate the annual cost per syphilis testing kit distributed. The analysis took both the Ministry of Health and Child Care (MoHCC) of Zimbabwe and societal perspectives. We conducted an ingredients based costing exercise to estimate the full economic cost of distributing syphilis test kits to MSM through both the self-testing intervention and a public health facility. Detailed resource utilization data were collated for distribution between October 2020 and January 2021. We also conducted client exit interviews to measure any out-of-pocket expenses (OOPEs) incurred seeking either a self or facility test including transportation, food, any direct payments for receiving the test kit as well as productivity losses. Costs were estimated in 2020 United States dollars.

Costs from the provider perspective

We first estimated the provider costs of SST distribution including expenses for training and start-up (venue and reimbursement expenses), staffing and supplies for demand creation, self-testing, initial facility as well as confirmatory tests (including laboratory tests) and treatment. We conducted time and motion analysis to estimate productivity losses for self-testers as well as time allocation by nurses to provision of facility testing relative to other services. On average providers took 30 minutes each for initial and confirmatory tests broken down into 5 minutes for pre-test counselling, 5 minutes for blood draw, 10 minutes for test reaction, 5 minutes for recording participant information and 5 minutes for post-test counselling. The treatment visit lasted 10 minutes in total. Training and start-up costs were annualised over 3 and 5 years respectively at a standard 3% discount rate.

Client costs

We characterised client's out-of-pocket expenses (OOPEs) incurred seeking a self-test and any productivity losses. As part of the time and motion analysis and in-order to estimate productivity losses clients were asked to indicate time used to collect kits (travel time to distribution sites, waiting time at the sites, and travel time going back home). We proceeded to multiply the total time spent collecting kits by clients self-reported earnings per hour.

There were no user fees reported for seeking testing services in both arms. During the exit interview clients reported average earnings from their main source of income were US\$0.76 per hour. Main mode of transportation

was reported as public and on average cost US\$1.90 for a return trip. It took about 3 hours for the client to travel to and from their respective kit collection points and about an hour at the site including 79 minutes one-way 56 minutes at the facility. Food and other expenditures averaged US\$2. Clients indicated whether they incurred any direct payments for receiving the test kit. While self-reported user costs are subject to reporting bias, it provides insights into the client cost that can be a potential barrier for treatment seeking^x.

SYPHILIS

Syphilis is a sexually transmitted infection (STI) caused by a bacteria named *Treponema pallidum*. It is important to test yourself for syphilis if you think you may have been at risk of getting infected. If it is left untreated, it can lead to serious consequences for your health.

What are the signs and symptoms?



The symptoms are often unnoticeable and you could be infected without knowing it. Symptoms include:

- sores/ulcers on the penis, anus and around the mouth
- blotchy red rashes on the hands or feet
- skin growths around the anus (similar to genital warts)
- white patches in the mouth
- tiredness, headaches, joint pain, high temperature
- swollen glands in the neck, groin or armpits.

How is it transmitted?



It is usually caught by having sex or being in close sexual contact with an infected person.

It can also be transmitted from a mother to her child during pregnancy and when giving birth.

You can catch syphilis more than once, even if you have been treated for it before.

Why test myself?

It is difficult to diagnose syphilis from only symptoms because these are usually not specific. In fact, a lot of cases don't show any symptoms at all. Testing for the disease is important because it means you can get treated quickly, to avoid developing complications and transmitting syphilis to your partner.

Being infected with syphilis can also make it easier for HIV to be transmitted through sex. Testing and treating syphilis can therefore help to reduce your risk of getting HIV as well.



Where can I get help?

If you think you could have been infected, it is important to seek care as soon as possible. The first step should be to test yourself and to get treated.

There are local facilities that offer these services:

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The disease

In the early stages of infection, the symptoms of syphilis are usually mild and non severe.

If untreated, syphilis infections can progress to a severe stage where patients experience severe medical complications that affect the heart and the brain. There can also be severe skin and/or bone damage and eye problems.

Ultimately, untreated syphilis can lead to death.

How can I prevent this disease ?

By practising **safer sex**: use a male condom consistently during oral and anal sex; avoid sharing sex toys with people. Be mindful of who you are having sex with and if they are at risk of being infected with syphilis. Having more than one sexual partner and concurrent partnerships also increase the risk of getting syphilis.

How is it treated?

Syphilis will not go away on its own. If it is caught early, it can be treated with 1 injection of benzathine penicillin G or with a longer course of antibiotics.



You should avoid any sexual activity or close sexual contact until 2 weeks after treatment for syphilis finishes. Treatment will also reduce the risk of spreading the infection to others.

Why men who have sex with men (MSM)?

Syphilis is a global public health problem, particularly among MSM in urban settings, where prevalence is high. It has been found that MSM are at higher risk of getting syphilis. This could be because less men are ensuring safe sex practices and using condoms.

In MSM that are HIV+, syphilis has been reported to present differently and progress more rapidly than if HIV-. Syphilis complications involving the brain are also more common in HIV+ patients.

[SCAN THE QR CODE BELOW FOR MORE INFORMATION](#)



SELF-TESTING WHAT YOU NEED TO KNOW

When should I consider getting myself tested?

You should get tested for syphilis if:

- you have had unprotected sex with one or multiple partners.
- you are worried you might have it.
- you have symptoms of syphilis.
- a sexual partner has been diagnosed with syphilis.

Why should I use a self-test?

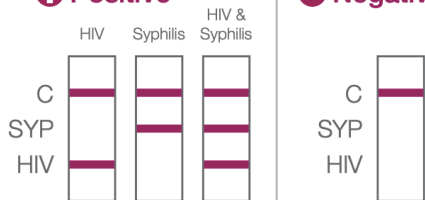
Self-testing makes it easier for people to know their syphilis status:

- you can test whenever you want: it is an easy, quick and private test you can do at home. This makes it easier to get tested early.
- There is no need to wait long periods of time to know the result of the test : it is a rapid test that only takes 15-20 minutes.
- you do not have to attend an STI health service to do this test: it is anonymous and private.

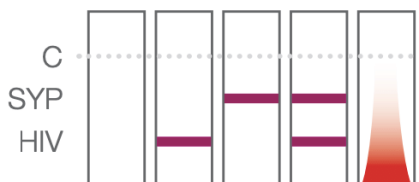
How to interpret the test

+ Positive

- Negative



✗ Invalid



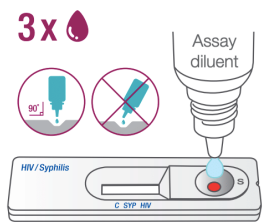
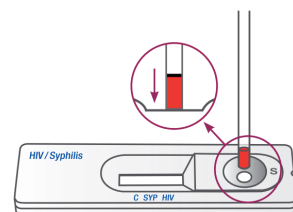
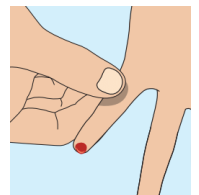
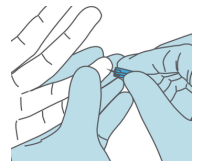
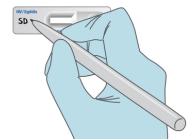
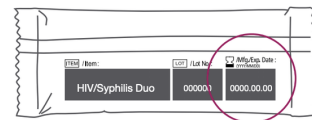
After 15 minutes the results should have appeared. The control line 'C' should appear for all results. If there is no 'C' line, then the test has not worked and you will need to use another test. If you read that you are positive for HIV or syphilis, please try to see a doctor as soon as possible.

The test

The test we offer here is the dual HIV/Syphilis Rapid Diagnostic Test. This means it will test your blood for syphilis and HIV.

9 easy steps

1. Check test expiry date and read the instructions for use included in the pack.
2. Write your patient ID number on the test device (not your name!)
3. Wash your hands first. Then use the alcohol wipe to swipe 1 finger clean. Let air dry!
4. Use the lancet provided to prick the finger you cleaned. Dispose of the lancet in a plastic box.
5. Use the capillary pipette provided to pick up the drop of blood.
6. Put the drop of blood on the round well marked 'S'. Dispose of the pipette in a plastic box.
7. Add 3 drops of assay diluent into the round well marked 'S' where you put the blood.
8. Wait for 15-20 minutes and read the result
9. Take a photo of the test result (make sure the patient ID can be read!)



SCAN THE QR CODE FOR MORE INFORMATION ON SELF-TESTING. A VIDEO IS AVAILABLE TO WATCH ON HOW TO USE THE SELF-TEST.



Remember that self-test kits are **not 100% reliable**. If you are unsure about anything, get advice from a health professional. If you test positive, contact a health professional to get the medical and emotional support you need.