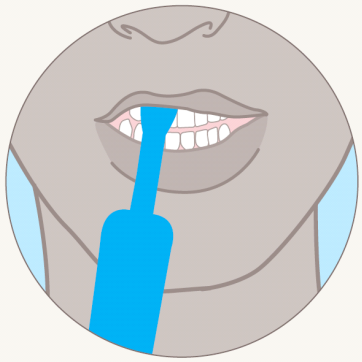
Factsheet How accurate are self-sampling kits for HIV?

Key points

- Blood samples that you collect yourself and send off for analysis are usually tested with fourth-generation laboratory assays.
- The method is expected to be extremely accurate, although there is little published research to confirm this.
- Like any screening test, a reactive ('positive') result must be confirmed with one or two follow-up tests.



This page deals with self-sampling (self-collection) for HIV diagnosis. This involves you collecting your own sample, either of blood or of moisture from your mouth. You send this to a laboratory for analysis. They will make your results available by phone or text a few days later.

In the UK, a number of charities, sexual health clinics and private companies offer self-sampling services for HIV testing. People who don't have any symptoms are often encouraged to use self-sampling, partly to lower costs. Kits may be ordered online or picked up from a clinic.

It's important to distinguish self-sampling from self-testing, in which you perform the whole test themselves, including reading and interpreting their test result.

Self-sampling and self-testing are sometimes both described as 'home testing', because people often use the kits at home.

Different types of tests

Different self-sampling programmes invite people to take and collect their samples in different ways:

- Using a lancet to release a small quantity of blood from the fingerprick and collecting it in a small tube.
- Using a lancet to release a small quantity of blood from the fingerprick and

squeezing it onto absorbent paper (this is a dried blood spot sample).

- Swabbing an absorbent pad around the outer gums, adjacent to the teeth.

When a blood sample is sent to a laboratory it will be tested with the same kind of assay that is used to test venous blood samples. Typically this is a fourth-generation antibody/antigen test. In theory, the test will be as accurate with a self-collected sample of fingerprick blood as with venous blood, both in relation to chronic (long-standing) and acute (recent) infection.

Test performance may be a little lower if testing a sample of oral fluid from around the gums, especially when testing after a recent HIV infection. This is because there are lower quantities of HIV antibodies in oral fluid than in whole blood.

However, there is little published research to confirm that self-sampling works as well as can be expected. Most studies deal with acceptability and feasibility, rather than accuracy. Moreover, most studies relate to self-sampling with dried blood spots or oral fluid, not to the small tubes (tiny vials) that are commonly used in the UK.

In the few studies that have been published, the main issue that emerges is that sometimes testing cannot be done because not enough blood has been collected (less likely to be a problem with dried blood spots, which need a smaller sample) or because the sample has degraded.

Studies of self-sampling

England's national HIV self-sampling service (www.test.hiv) uses small tubes to collect blood. Their data show that 2.4% of kits are returned with an insufficient sample and 2.7% of kits are returned with a sample that could not be analysed due to haemolysis (breaking down of the membrane of the red blood cells, potentially caused by delayed delivery of the sample, extreme weather or not allowing alcohol from the swab to fully dry before sample collection). The rate of haemolysis has improved over the years, showing the impact of clearer user instructions, operational efficiencies and other improvements. However, in some sub-populations, problems may be more common.

One of the only studies to compare the accuracy of testing of self-collected sampling (dried blood spots) and traditional laboratory testing is extremely reassuring. Dutch researchers asked 195 people using STI, HIV and hepatitis B clinics to both take their own dried blood spot sample and to allow a healthcare worker to take a venous blood sample. There was a perfect match in the results seen, with 100% sensitivity and 100% specificity. Other studies have similarly supported the use of dried blood spot samples (in those cases, taken by a healthcare worker).

A UK study compared results between 275 people sent self-sampling kits for dried blood spots and 275 people sent self-sampling kits using mini tubes to collect blood. Equal numbers of clients returned the two types of kit, but whereas 99% of dried blood spots samples could be tested and processed in the laboratory, only 59% of mini tube samples

could be tested and processed, usually because not enough blood had been collected. In addition, they found a high prevalence of false positive results in mini tube samples, a problem that was also identified in an evaluation of the Dean Street at Home service.

As with any test, an initially reactive (preliminary positive) result on a self-collected sample is not definitive. Laboratories should report that the result as 'reactive' rather than 'positive' and stress that it will need to be confirmed with a series of confirmatory tests at a clinic.

Some evaluations of self-sampling have shown its acceptability (for example, the Dean Street at Home service and the RUClear service).

References

Public Health England. *National HIV self-sampling service, November 2017 to October 2018.*

van Loo IHM et al. *Screening for HIV, hepatitis B and syphilis on dried blood spots: A promising method to better reach hidden high-risk populations with self-collected sampling.* PLoS ONE 12: e0186722, 2017.

Page M et al. *Dried blood spot and mini-tube blood sample collection kits for postal HIV testing services: a comparative review of successes in a real-world setting.* Sexually Transmitted Infections 95: 43-45, 2019.

Elliot E et al. *Identifying undiagnosed HIV in men who have sex with men (MSM) by offering HIV home sampling via online gay social media: a service evaluation.* Sexually Transmitted Infections 92: 470-473, 2016.

Ahmed-Little Y et al. *Attitudes towards HIV testing via home-sampling kits ordered online (RUClear pilots 2011–12).* Journal of Public Health 38: 585-590, 2016.

Seguin M et al. *Self-sampling kits to increase HIV testing among black Africans in the UK: the HAUS mixed-methods study.* Health Technology Assessment22: 1-158, 2018.

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Author: Roger Pebody
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