



## Types of HIV test

There are two basic categories of HIV test – 4<sup>th</sup> generation and 3<sup>rd</sup> generation. Each individual test differs as to what it tests (whether antibodies and/or p24 antigens), how it tests and the time a patient has to wait for their results.

**Most importantly, the 'window period' is also different for each test – this is the period of time *after* infection but *before* markers of HIV (such as antibodies and antigens) become detectable.** Subsequently some tests will be more appropriate in particular personal circumstances than others [see FAQs below]. **The most important thing is to test – however, it is also vital that you discuss the window periods and limitations of any test with a healthcare professional before taking one.**

**Antigen** - Any substance (such as an immunogen or a hapten) foreign to the body that stimulates an immune system response.

**Antibodies** - A protein produced by the body's immune system when it detects harmful substances, called antigens.

## 4<sup>th</sup> generation tests

### 4<sup>th</sup> generation tests

#### Laboratory

**What do they test for?** HIV antibodies and P24 antigens

**Where are they available?** NHS GUM clinics, primary care settings (e.g. GP practice)

**What is the window period?** 11 days – 1 month

**How long do I have to wait for the results?** 2-14 days

**How accurate are the results?** Highly accurate, although false positives are possible (but any positive diagnosis is double checked).

#### Rapid/Point of Care

**What do they test?** HIV antibodies and P24 antigens

**Where are they available?** Community settings, some healthcare settings. Only one testing kit currently available.

**What is the window period?** 11 days – 1 month.

**How long do I have to wait for the results?** 20-40 minutes.

**How accurate are the results?** Good, some questions over their sensitivity. Speak to a trained healthcare professional on the limitations of rapid 4<sup>th</sup> gen POC test before taking one.

## **i. 4<sup>th</sup> generation laboratory tests**

### **What do they test?**

The vast majority of HIV tests conducted in the UK today are 4<sup>th</sup> generation laboratory tests. Most laboratories in the UK should be able to conduct '4<sup>th</sup> generation' tests. These test for both HIV antibodies and p24 antigens and usually require a blood sample (although saliva can be used with some kits).

### **Where are they available?**

4<sup>th</sup> generation lab tests should be available at all NHS GUM clinics, as well as many primary care settings (e.g. GP practice).

### **What is the window period?**

Because they test for both antibodies and antigens, 4<sup>th</sup> generation lab tests are generally better at detecting recent infection than other forms of testing. Estimates on the 'window period' for 4<sup>th</sup> generation tests vary from 11 days to one month after exposure. It is therefore advisable for anyone having a 4<sup>th</sup> generation lab test to assume that the test does not cover any risk they may have exposed themselves to in the past month. However, this does **NOT** mean that anyone who thinks they have recently put themselves at risk should wait one month before testing or speaking to a healthcare professional [see FAQs below].

### **How long do I have to wait for the results?**

Test results are usually available between two days (for smaller clinics and more urgent cases) and two weeks after testing.

Guidelines for national testing published in 2008 recommended that results of routine opt-out tests be made available to the patient within 72 hours.

### **How accurate are the results?**

The Health Protection Agency (HPA) evaluated ten different 4<sup>th</sup> generation tests, finding that 9 had a sensitivity of 100% – in other words, all HIV positive people tested were correctly diagnosed. The 1 other test had a sensitivity of 99.8%.

Off the back of this analysis, the HPA estimate that if 1000 HIV negative people undertook 4<sup>th</sup> generation tests 997 of them would be correctly diagnosed as such, while three would incorrectly test reactive (positive). However, in practice, all reactive results are checked with at least one additional test to confirm they are correct, so individuals would not receive an incorrect diagnosis.

## **ii. 4<sup>th</sup> generation POCT**

### **What do they test?**

Rapid 4<sup>th</sup> generation POC tests were introduced relatively recently. Like 4<sup>th</sup> generation lab tests, these test both antibodies and antigens.

### **Where are they available?**

There is only one major 4<sup>th</sup> generation point of care testing kit available in the UK, which is the 'Determine HIV 1/2 Ag/Ab Combo'. Because of this, 4<sup>th</sup> generation POC tests are relatively rare, but they are usually found in community outreach settings and some GUM drop in clinics.

## What is the window period?

Around one month (the same as lab-based 4<sup>th</sup> generation tests). A key advantage of these tests is that they combine the window period of 4<sup>th</sup> generation lab-based tests with the waiting time of conventional rapid POC tests.

## How long do I have to wait for the results?

About 20 minutes.

## How accurate are the results?

Testing for antigens as well as antibodies should increase the sensitivity of these tests. However because they are relatively new, there is some doubt as to the exact sensitivity of 4<sup>th</sup> generation POCT in detecting the p24 antigen. More research is needed on the consistency and sensitivity of 4<sup>th</sup> generation POCT. However, they are still preferable to having no test at all and they may still pick up primary HIV infection quicker than third generation equivalents. Those wishing to take a 4<sup>th</sup> generation POC test should speak to a trained sexual healthcare professional to make sure they understand the possible limitations of the test.

## Third generation tests

### 3<sup>rd</sup> generation tests

#### Laboratory

**What do they test for?** HIV antibodies.

**Where are they available?** A small number of UK GUM clinics and primary care settings

**What is the window period?** 3 months

**How long do I have to wait for the results?** 2-14 days

**How accurate are the results?** Highly reliable and trusted

#### Rapid/Point of Care

**What do they test?** HIV antibodies

**Where are they available?** Most community and outreach settings; also GUM and healthcare.

**What is the window period?** 3 months

**How long do I have to wait for the results?** 20-40 minutes

**How accurate are the results?** Generally satisfactory for uncomplicated HIV infection.

### i. 3<sup>rd</sup> generation laboratory tests

#### What do they test for?

3<sup>rd</sup> generation laboratory tests test for HIV antibodies only. Although 2008 national guidelines on testing recommended they be phased out in favour of 4<sup>th</sup> generation tests, an audit conducted in 2009 found that a handful of laboratories were still using 3<sup>rd</sup> generation tests. 3<sup>rd</sup> generation tests usually require a blood sample.

#### Where are they available?

A small number of GUM clinics and primary care settings still provide these tests.

### **What is the window period?**

Because 3<sup>rd</sup> generation tests only test for antibodies, the window period for conventional 3<sup>rd</sup> generation lab tests is longer than that of a 4<sup>th</sup> generation test. It is estimated to be around 3 months, at which point the relevant antibodies are detectable in 97% of infected people.

### **How long do I have to wait for the results?**

Test results are usually available between two days (for smaller clinics and more urgent cases) and two weeks.

### **How accurate are the results?**

A recent study evaluated 16 3<sup>rd</sup> generation tests and found that 15 had 100% sensitivity, with the other having a sensitivity of 98.9%.

## **ii. 3<sup>rd</sup> generation rapid POCT**

### **What do they test?**

Most point of care tests look to detect HIV antibodies. There are many types of rapid, or 'point of care' (POC) tests, but most are conducted on blood taken from a fingerprick or from oral fluid.

### **Where are they available?**

Rapid, POC tests can and have been undertaken in GUM clinics, hospitals and primary care settings, especially where a rapid turn around in results is required or if venupuncture is refused (e.g. if the patient is scared of needles). However, in practice, they are most commonly used in outreach or community settings.

### **What is the window period?**

Because this kind of POC test only tests for antibodies, the 'window period' is similar to that of a third generation test: around three months.

### **How long do I have to wait for the results?**

For most conventional (i.e. antibody) POC tests, results are available after 20-30 minutes.

### **How accurate are the results?**

According to the British Association of Sexual Health and HIV (BASHH), conventional rapid POC tests are generally satisfactory for detection of uncomplicated HIV infection. However, they are slightly less sensitive than lab-based tests. In a population with low prevalence of HIV, they can lead to a high number of false positives - although all reactive tests are always tested again (so no incorrect diagnosis will ultimately be issued). Despite this, a negative result is usually considered conclusive.

## FAQs

### Which type of test should I go for if...

*I believe I have put myself at risk of HIV in the last 3 months?*

Go to a GUM clinic or your GP, as they almost certainly have 4<sup>th</sup> generation lab tests. A rapid, point of care test may be both harder to find and less sensitive.

*I believe I have put myself at risk of HIV in the last 1 month?*

The main thing is: **DON'T wait or do nothing**. Go and speak to a healthcare professional (for instance, at your local GUM clinic) to discuss your level of risk and the appropriate action to take from there. It's important to get plugged into the sexual healthcare system as soon as possible if you think you have exposed yourself to risk.

*I have not put myself at risk of HIV in the past 3 months, but I believe I may have done before that*

A number of options are available. If you want the results that day, are scared of needles and/or would feel more comfortable in a community setting, a rapid point of care test would be appropriate. However, if you are able and willing to collect your results at a later date than you are tested, a GUM or GP administered 4<sup>th</sup> generation lab test would be preferable.

*If I am scared of needles or don't want to wait for the results*

A rapid point of care test is available which can be taken via fingerprick, the results of which will be available within 20-40 minutes. However, bear in mind that the window period - the period of time *after* infection but *before* markers of HIV become detectable – is higher than a 4<sup>th</sup> generation laboratory test from your GP or GUM clinic.

*I believe I may have symptoms of HIV?*

Visit your local GUM clinic or GP **immediately** to discuss your circumstance and appropriate action.

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