SEXUAL HEALTH & BLOOD BORNE VIRUS MANAGED CARE NETWORK

Dry Blood Spot Testing Guidelines for Hepatitis B virus and HIV, Hepatitis C antibodies and Hepatitis C PCR testing

January 2025

Contents

1. Introduction – when to use this test

A conventional venous blood test remains the preferred option to assess for the presence of Hepatitis B virus (HBV), Hepatitis C virus (HCV), and HIV as it permits a greater range of tests to be conducted on any given sample. However, as venepuncture can be difficult in People Who Inject Drugs (PWID) due to challenging venous access, a dried blood spot test is an effective alternative.

By simply taking a finger prick of blood, spotting this blood onto specially designed paper, and once dried sent to the Medical Microbiology department, testing can be conducted to assess for:

- Hepatitis C (HCV antibody)
- HIV (antigen/antibody)
- Hepatitis B surface antigen (HBsAg)
- HCV PCR (Polymerase Chain Reaction / active Hepatitis C infection)

Blood Borne Virus (BBV) screening should predominantly be carried out in response to an identified risk and is primarily used in NHS Tayside as a tool to facilitate regular screening of people who inject drugs given the high transmission risks of this population.

Training

Before attempting this procedure, please ensure you have undergone the appropriate training in the use of the test, and you are confident in answering any patient / client's questions about the procedure and the results of the test.

If you would like further information about training, please contact Harm reduction/BBV nursing team on **01382 496745 or email via: Tay.specialistharmreductionnursingteam@nhs.scot Alternatively, leave a voicemail message on 01382 632001**

2. Discussion & Consent

Ensure the patient understands what the test is for and the potential consequences of a positive or negative result. It should be clarified whether they have ever previously been diagnosed with any BBV as, in relation to HCV, this will impact on the number of DBS cards that are required. This can be from gathering information from NHS Tayside clinical systems or simply by discussing fully with the patient.

Patient Information Leaflets are available free of charge from the MCN and can be obtained by contacting via email address tay.bbvmcn@nhs.scot or by calling via **01382 424186**

3. Results

Results should be available 10 to 14 days after submission of test therefore it is important you agree and document a mechanism with the client to return for their results.

Dried blood spot testing has been shown to produce reliable results, similar to those from the conventional blood tests for HCV antibody (IgG) and HIV antibody and HBsAg.
Patients found to be positive (**reactive or weak reactive**) by either test will need prompt referral to specialist care and conventional blood tests to confirm result of dried blood spots and to assess their infectiousness and their prognosis.

PCR tests undertaken on dry blood spot card will record a result of either **detected or not detected**. All detected results should be followed up with a conventional blood sample wherever possible to quantify the HCV PCR result and establish an HCV Genotype to identify the appropriate treatment either by the tester or by referral to Specialist Services.

4. Equipment needed

The following are available from the harm reduction nursing team:

- Orange coloured Unistik disposable lancets for taking the finger prick see: http://www.owenmumford.com/en/range/14/unistik-3.html (Code AT1012)
- Whatman 903 filter paper marked with 5 rings, for collecting the blood.
- Microbiology request form with bag attached.

Equipment not supplied but required:

- gloves for your protection
- alcohol wipe to clean the patient / client's finger
- sharps bin, within reach of where you will do the test
- clinical waste bin (orange bag)
- cotton wool or gauze to press against puncture site

5. Testing Procedure

Before proceeding to the test ensure that the Whatman 903 filter paper for the spots is clean and the orange Unistik lancet is unused: if it is unused, it will have its grey cap on and no grey tabs sticking out the side. See page 8 for a diagram or visit the following website for instructions on using Unistik lancets: http://www.owenmumford.com/en/range/14/unistik-3.html

If you have access to ICE, request the tests under the **Rarer Bloods** page of the **Microbiology** panel. They can also be found by using the Search facility and entering "**DBS**" into the search box and ticking off all required investigations. Put the ICE label on the rear of the Whatman 903 filter paper card (x2 cards will be required if both antibody and PCR testing is required). If the patient has already tested positive for HCV or HIV it is not necessary to test again, refer them to specialist services unless you are requesting HCV PCR testing

Alternatively, if ICE system is not available, complete a paper Microbiology request form (as detailed on page 9) and ensure the **patient's name and CHI (or correct date of birth as an absolute minimum)**, are clearly written on the front of the card in the space provided.

1. Perform hand hygiene (wash or use alcohol gel) and put on gloves
2. Massage finger to allow blood to come to the surface, holding the hand below waist level
3. Select puncture site and cleanse skin with disposable alcohol wipe. Dispose of wipe in clinical waste
4. Allow skin to air dry
5. Using the Unistik disposable lancet (orange colour, Unistik 3 Extra), perform the puncture
6. Dispose of the Unistik disposable lancet into the sharps bin
7. Wait for formation of large blood droplet; apply gentle pressure with your thumb and forefinger, ease pressure intermittently as drops of blood form
8. Gently touch (do not press) one of the rings printed on the filter paper to the blood drop and allow blood to soak through and completely fill the circle

9. Observe both sides of the filter paper card to assure that blood uniformly penetrated and saturated the card. Spotting should be done only on the printed side

10. **Fill all five printed circles with blood**. Three circles are required as a minimum. Tests will be rejected if they do not have at least three circles filled. If HCV PCR testing is required, all five circles **must** be filled. It is important to place an adequate amount of blood into all circles - see page 8 for diagrams. Note that blood should show through to the other side of the card showing that the card is properly saturated. Failure to adhere to this point may lead to rejection of the test card.

11. Apply pressure to the puncture site using cotton wool / sterile gauze, if required to stop bleeding

12. Dispose of cotton wool / gauze and gloves as clinical waste

13. Remove gloves, dispose of as clinical waste. Perform hand hygiene

14. Allow blood specimen to **air dry thoroughly**, on a horizontally level—non-absorbent open surface and away from direct sunlight. Typically, this takes 10 minutes at room temperature. Do not stack, heat, or allow to touch other surfaces during the drying process

15. Place the card with the dried blood spots into the request form bag or ICE polythene bag. Seal the bag with the self adhesive strip, or zip lock

16. Transport to Medical Microbiology by the next available collection

Improperly collected samples will be rejected by the laboratory, requiring a second sample and inconveniencing the patient / client. In the unlikely event of sustaining a needlestick injury during the procedure, please follow local needlestick protocols.

7. Transport of dry blood spots to the lab

Samples can be sent to the lab using the NHS Tayside van service. If necessary, specimens can be sent through the Royal Mail. Dried blood spots are exempt from the strictest requirements on transport of infectious substances. Completed request forms with the dried blood spot card in the attached bag can be sent to Medical Microbiology in a properly sealed, sturdy envelope by first class post addressed to:

Medical Microbiology
Level 6, Laboratory Block
Ninewells Hospital and Medical School
DUNDEE
DD1 9SY

8. Interpretation of results

HCV antibody (IgG):
Weak reactive or reactive means the patient has come up positive in the test for HCV antibody (IgG). This means the patient has been infected with Hepatitis C virus. Without further tests it is not possible to tell the patient whether they are currently infected and infectious or not.

All patients positive for HCV antibody (IgG) on the dried blood spot test will need to be referred for a conventional blood test for HCV RNA (also known as a PCR test or viral load), or a PCR test will need to be requested on a dry blood spot sample. About 6 out of 10 patients that test positive for Hepatitis C antibody (IgG) will also test positive for HCV RNA.
Patients that have tested as positive for HCV antibody (IgG) AND RNA are currently infectious and infected and at risk of serious liver disease as a result.

Patients that are positive for HCV antibodies but negative for HCV RNA have been infected in the past but are not currently infected. They are not at risk of serious liver disease due to HCV unless they re-infect themselves, for example through needle sharing.

Some patients reported as “weak reactive” for HCV IgG will have no HCV antibody when they get a conventional blood test. This happens in about 14% of those patients found HCV IgG “weak reactive” on dried blood spot testing. The low level of antibody that was found in the dried blood spot can disappear in the time taken to get a conventional blood test though it is possible that some of these dried blood spot “weak reactive” results were false positives. Patients found “reactive” for HCV IgG in the dried blood spot will also have HCV antibody in the conventional blood test in all (or nearly all) cases; they will have HCV RNA too in about 6 out of 10 cases.

HIV antibody:
Reactive suggests that the patient is infected with HIV. They will need urgent referral to specialist care. Conventional blood tests need to be done to confirm the dried blood spot result and to assess each patient’s prognosis and current health. Further advice is available in the NHS Tayside HIV Testing Guideline.

HBsAg test results:
Reactive suggests that the patient is currently infected with Hepatitis B virus. Conventional blood tests need to be done to confirm the dried blood spot result and to assess each patient’s prognosis and current health.

Negative results:
Negative means the patient is not currently infected, however if the patient has put themselves at risk of infection in the last 12 weeks, they could still become infected and they should be advised to have another test at 12 weeks.

9. Referral to Specialist Services

Hepatitis
Clients reactive or weakly reactive test results for HCV require conventional blood tests for HCV IgG and HCV RNA. Clients reactive for HBsAg require conventional blood tests for HBsAg and HBV DNA to confirm infection and gauge infectivity and prognosis and need for antiviral therapy.

Please refer clients to the Hepatitis Specialist Team.

For advice and support contact:
Harm Reduction Nursing Service on 01382 496745 or email
Tay.specialistharmreductionnursingteam@nhs.scot

HIV
Clients reactive for HIV require urgent referral to the HIV Specialist Service. It is recommended that any individual testing HIV positive for the first time is seen by a specialist (HIV clinician, specialist nurse, sexual health advisor or voluntary sector counsellor) at the earliest possible opportunity. More detailed post-test discussion (including confirmation of infection, assessment of disease stage, consideration of treatment, and partner notification) will be performed by the HIV specialist team.

For advice and support contact:
HIV Nurse Specialists Telephone no: 01382 496554 or 01382 425572
Any patient who is symptomatic and newly diagnosed requires urgent assessment.
Please refer urgently to the HIV Service via email: tay.id@nhs.scot
This email account is checked daily Monday to Friday.

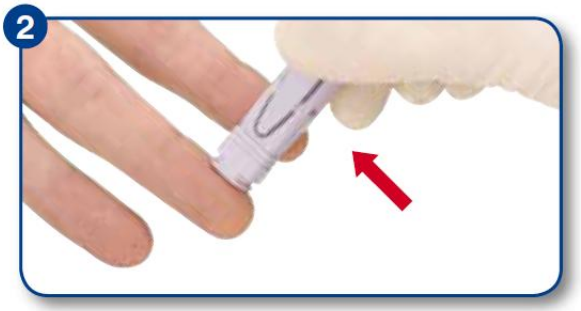
10. Re-testing
Patients that continue to put themselves at risk, for example by continuing to inject, should have a repeat test if their first test is negative. The Sexual Health & Blood Borne Virus Managed Care Network recommends that this is done every 12 months.

11. Diagrams

Unistik® 3

Single use Safety Lancets featuring our unique Comfort Zone Technology®

Hold the lancet by the sides, taking care **NOT** to press down on the release button.

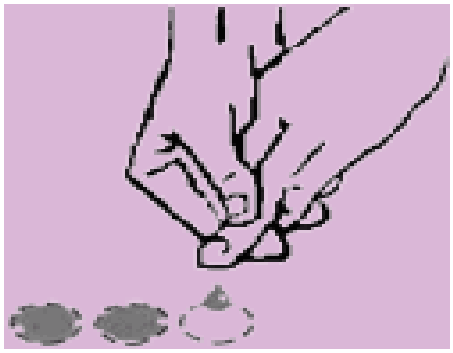


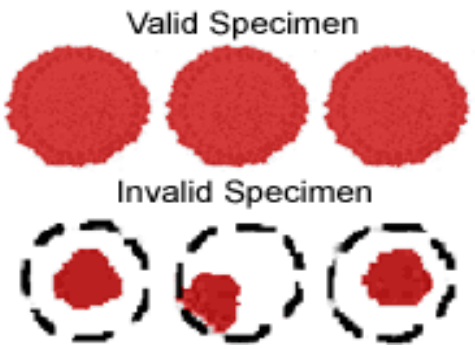
Press the platform firmly against sample site and press the release button.

Massage the sample site, taking care not to squeeze too hard at the site.

Dispose of in a suitable sharps container immediately.

Appearance of filled circles





12. Manual completion of request form

All highlighted areas on demonstration in example below must be completed to ensure sufficient information for testing is provided to the Microbiology laboratory to enable accurate patient identification and assurances for issuing results.

- **Hospital – Or name of your organisation**
- **Ward – Or specific department**
- **CHI – Minimum requirement is a 6 digit Date of Birth (DOB)**
- **Surname – Please check spelling and confirm details with patient**
- **Forename – Please check spelling and confirm details with patient**
- **GP Address – Your organisation details**
- **GP Telephone no. – Your organisations details**
- **Collection date**
- **Time**
- **Requesting Officer – Your name**