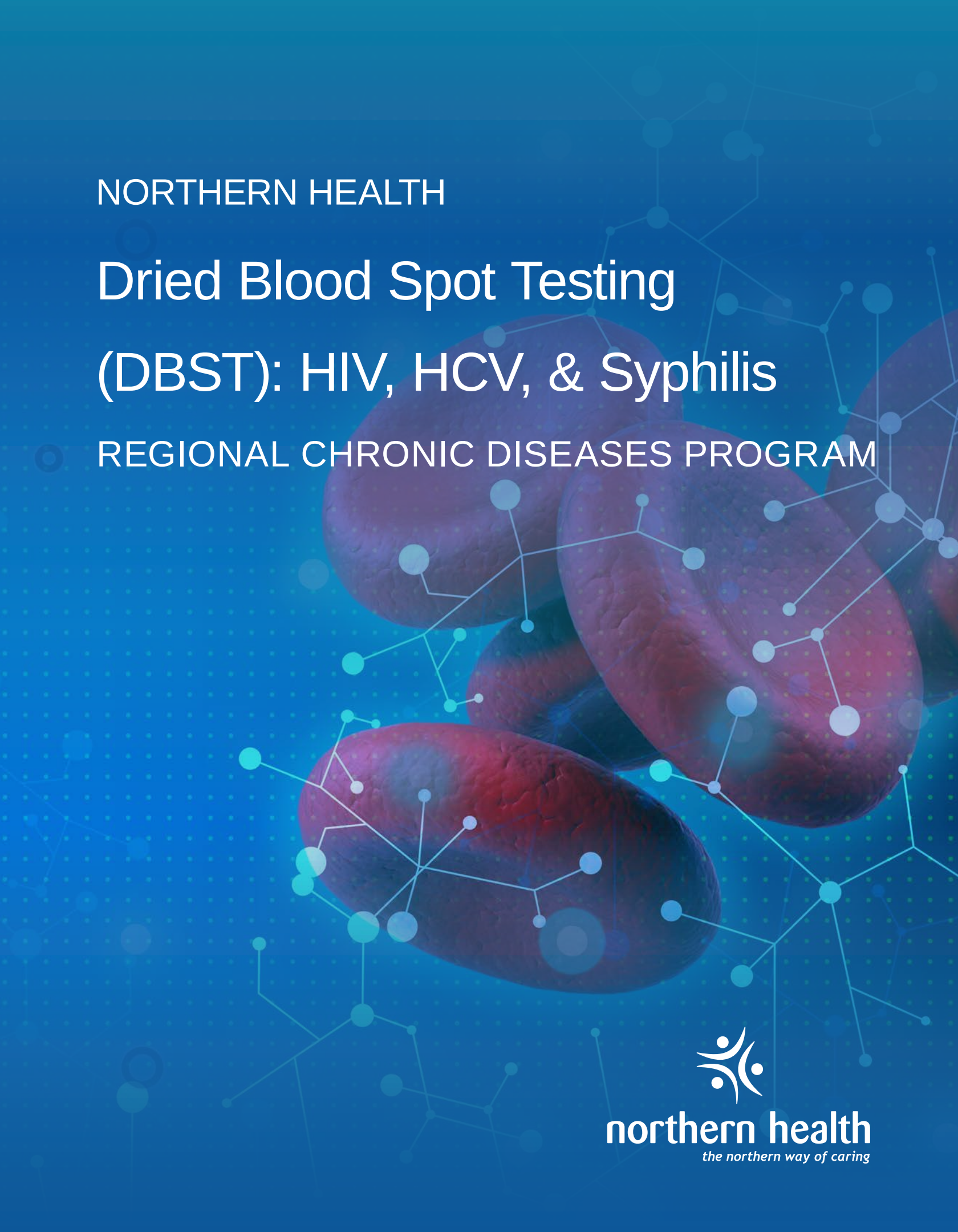
NORTHERN HEALTH

Dried Blood Spot Testing (DBST): HIV, HCV, & Syphilis

REGIONAL CHRONIC DISEASES PROGRAM



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INTRODUCTION

Screening for sexually transmitted and blood-borne infections (STBBIs) is key to diagnosis and treatment. There are currently many barriers that prevent individuals from participating in screening. Dried blood spot testing involves a low barrier method of specimen collection, which can result in making testing for the STBBIs HIV, hepatitis C, and syphilis more accessible in the region. The Northern Health Regional Chronic Diseases Program utilized the relevant processes from the BC Centre for Disease Control and the Public Health Agency of Canada's National Microbiology Laboratory (NML) to develop this resource to support the provision of dried blood spot testing for HIV, hepatitis C and syphilis.

Contact

Lead, Regional Chronic Diseases
Strategic Initiatives

Email: RCD.Communications@northernhealth.ca
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ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
BCCDC	British Columbia Centre for Disease Control
DBST	Dried Blood Spot Testing
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
RNA	Ribonucleic Acid
STBBI	Sexually Transmitted and Blood-Borne Infection

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DRIED BLOOD SPOT TESTING (DBST)

THE ACCESSIBLE CHOICE

Dried blood spot testing (DBST) is a type of blood test that can be used to test for STBBIs such as HIV, hepatitis C, and syphilis. The test uses a finger prick to collect drops of blood on a piece of filter paper. It is a less invasive process than standard testing – that is, collecting a blood sample by putting a needle into a vein. A lower volume of blood is needed, transport and storage are simpler, and less equipment is required.

Specimens can be collected by any individual trained by the team at the National Microbiology Laboratory (NML) or those who have completed the NHA Dried Blood Spot Testing Learning Hub Course (#30914). By allowing collection by non-health care professionals, DBST becomes more accessible to some. Tests must still be requisitioned by a physician or registered nurse certified in sexually transmitted infections to ensure that follow-up can easily occur.

DBST for these STBBIs is not currently performed in the provincial laboratory system, but the validation to do so is underway. Samples are shipped by regular courier/mail to the BCCDC for accessioning, and are then forwarded on to the National Laboratory for HIV Reference Services (NLHRS) in Winnipeg. Results should still be available within approximately three weeks.

APPROPRIATE USE OF DBST

It is important to know that DBST is less sensitive for STBBIs testing than standard sampling, which is the gold standard. When possible, it is ideal that a client participates in standard testing, where blood is drawn from a vein by a clinician. However, DBST has been demonstrated to be a beneficial option for clients who have barriers preventing them from accessing traditional testing such as: lack of access to lab services, fear of needles, and difficult vein access.

HEALTH LINK BC

Hepatitis C Virus Infection - healthlinkbc.ca/sites/default/files/documents/healthfiles/hfile40a.pdf

HIV and HIV Tests - healthlinkbc.ca/sites/default/files/documents/healthfiles/hfile08m.pdf

Syphilis - healthlinkbc.ca/sites/default/files/documents/healthfiles/hfile08e.pdf

WHAT TESTS ARE AVAILABLE THROUGH DBST?

Clients accessing testing can choose whether to be tested for one, some, or all three of the available tests: HIV, HCV, and syphilis. HealthLink BC has created information sheets on each of these viruses, web links noted on page four of this document.

For both HIV and HCV, DBST is considered confirmatory. This means that if a positive result for both antibody and RNA are received, it doesn't need to be confirmed with a follow-up test. Sometimes there isn't enough sample collected to test for RNA, in which case positive results will need additional testing. However, clients who receive positive results will require further bloodwork so that their clinician can have all of the information necessary to create a medication treatment plan.

DBST can only screen for syphilis. If a positive result is received, the client will be asked to provide a blood sample for standard testing in order to confirm the result. If a negative result is received, but the client has reason to believe that they may have been exposed to the bacteria, follow-up testing will be ordered.

DBST can also be used to measure the viral load for patients with HIV. It is important to note that, because DBST is not as sensitive, it has a lower limit of detection: <~1000 copies/mL, which is less sensitive than the 25-50 copies/mL which traditional serology testing can detect.

WINDOW PERIODS

With these STBBIs, there is a length of time after infection during which the markers of infection are still absent or too low to be detectable. During this "window period," a client may have been infected but a test will still show a negative result. With DBST, the window periods are four to six weeks for HIV, five to 10 weeks for HCV, and three to four months for syphilis.

If a client has reason to believe they have been a contact of someone with an STBBI during their window period, they should participate in testing again after the window period.

DBS training event with Northern Health's Specialized Support Team for HIV/HCV. February 2022.

CLIENT PRIVACY

There is often stigma associated with STBBIs, and ensuring client privacy is extremely important. The BCCDC and the NML require that requisitions contain at least the client's first and last name, and date of birth. It is at the client's discretion whether their Personal Health Number (PHN) and other demographics are included.

RCMP with Elder from Positive Living North on World AIDS Day, December 1, 2021.

RESULTS

Results are entered into the provincial Lab Information System and can be viewed in CareConnect, Excelleris, or Sunset by the ordering provider and any other providers listed in the "Copy to" section of the requisition. **The ordering providers are responsible for communicating results to clients as per standard of care.** HIV, HCV and syphilis are all reportable communicable diseases under the BC Public Health Act's Communicable Diseases Regulations. All positive test results are reported by the BCCDC's Public Health Lab and/or their delegate to the Medical Health Officer in the health authority where the test was ordered. For samples collected via DBST, only positive HIV and HCV results are reported, as the syphilis result is considered "screening" and requires a confirmatory test.

Other comments that may appear on the results:

- *Testing for Hepatitis B Virus at the National Microbiology Laboratory has been temporarily suspended*
- *Please submit a serum sample if clinically indicated*
- *The use of DBST for infectious diseases is not licensed by Health Canada but is validated by the National Laboratory for HIV Reference Services*
- *This sample was received with the humidity card indicating a moisture level of 40 per cent. The validity of results cannot be guaranteed for samples received under less than ideal conditions*

RESULTS ARE REPORTED AS FOLLOWS:

Test	Negative Result	Positive Result
aHIV 1	AVIOQ HIV 1: Nonreactive HIV 1 Antibody: Negative	AVIOQ HIV 1: Reactive HIV 1 Antibody: Positive
HIV 1 Quant [1]	Aptima HIV Quant Dx: Target Not Detected HIV 1 RNA: Negative	Aptima HIV Quant Dx: (quantitative value) copies/mL HIV 1 RNA: Positive
aHCV	Ortho anti HCV: Nonreactive HCV Antibody: Negative	Ortho anti HCV: Reactive HCV Antibody: Positive
HCV RNA[2]	Aptima HCV Quant Dx Assay: Target Not Detected HCV RNA: Negative	Aptima HCV Quant Dx Assay: (quantitative value) IU/mL HCV RNA: Positive Reported to Public Health
Syphilis	Bio Rad Syphilis Total Ab: Nonreactive Syphilis Antibody: Negative	Bio Rad Syphilis Total Ab: Reactive Syphilis Antibody: Positive

Note: 1) HIV 1 RNA is only performed if AVIOQ HIV 1 is reactive. 2) HCV RNA is only performed if Ortho anti HCV is reactive.

REPEAT TESTING

Clients wishing to have future testing performed can access STBBI testing through their primary care provider's office, clinics in their community, or through virtual options. Testing locations can be found utilizing the BCCDC's SmartSex Clinic Finder (smartsexresource.com/get-tested/clinic-finder). Virtual options include:

- First Nations Virtual Doctor of the Day
  fnha.ca/what-we-do/ehealth/virtual-doctor-of-the-day
  1-855-344-3800
- Northern Health's Virtual Primary and Community Care Clinic
  northernhealth.ca/locations/medical-clinics/virtual-clinic
  1-844-645-7811
- Options for Sexual Health's Telehealth Service
  optionsforsexualhealth.org/book-a-telehealth-appointment
  1-800-739-7367

TESTING PREPARATION[1]

TESTING PREPARATION

Obtain the following supplies through the NH Regional Chronic Diseases Program, RCD.Communications@northernhealth.ca:

1. DBS cards (903TM Whatman Protein Saver Card)
2. Coin envelopes
3. Humidity indicator cards, 10-60 per cent
4. Desiccants, 1g or 10g (ensure the bags storing the desiccant stay sealed and desiccant isn't removed from the bag until you require it for packaging)
5. Gas impermeable Bitran bags
6. 1.5 mm x 2.0 mm contact-activated safety lancets
7. Drying rack (optional)

Obtain the following supplies locally:

1. BCCDC Serology Screening Requisition - bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Forms/Labs/SerologyReq.pdf
2. Gauze
3. Gloves, non-latex
4. Alcohol prep pads
5. Bandaids
6. Hand sanitizer
7. Table protection (absorbent, with a liquid proof barrier)
8. Sharps container(s)
9. Carrying container (optional)

CLIENT DISCUSSION

Discuss with your client that they have the option to submit a sample to be tested for HIV, HCV, and syphilis.

Share the key messages

- HIV is treatable and, with early detection, people who have the virus can live long, healthy lives
- Testing and diagnosis gives those with HCV the opportunity to discuss treatment options with their health care provider
- If a test comes back positive for syphilis, confirmatory lab work is required
- Early diagnosis of any of these infections leads to better outcomes for clients

Advise the client

- Explain the process for sample collection
- Advise the client that it takes approximately four weeks for results to be received
- Let them know how they will receive results, based on the standard processes within your program
- Ensure that the ordering provider has a means to contact the client with the results

1. This procedure is based on the BC Centre for Disease Control's "Submitting Dried Blood Spot Cards to the BCCDC Public Health Laboratory – 04/28/2021" and the National Microbiology Laboratory's "Dried Blood Spot Collection - 01/10/2022".

PAPERWORK

1. Label the DBS card with client's first and last name, and collection date
   - Put your initials on the back of the card
2. Fill out the requisition with:
   - Client's first and last name
   - Date of birth
   - Ordering practitioner's name, Lab ID number (such as MSC#), and address of report delivery, (if known)
   - Date sample is being collected
   - Time of sample collection
3. Optional info:
   - Personal health number
   - Sex
   - The names of any clinicians the client would like to receive a copy of their report (last name and first name, or initial, and Lab ID # if known)
4. Ask the client which test(s) they would like performed and the priority of the tests
   - If there is insufficient blood collected to perform all of the tests, the lab will perform the tests in the order of priority documented on the requisition
5. On the requisition, check off which of the lab tests the client would like performed, and in what order (i.e. 1st, 2nd, 3rd). Options are:
   - HIV (Non Prenatal) – HIVCC
   - Anti-HCV - HEPCB
   - Syphilis Routine – TPE
6. For a client with HIV who requires a viral load, write "**HIV Viral Load**" in the "**Other Tests**" section
7. For a client who has previously had a positive HCV test, you can request only the HCV RNA Quantitative (write this in bold), which will determine if the client has a current HCV infection.
8. Following the NML's collection process, collect capillary blood sample using retracting lancet. See page 13 of this document for detailed steps

SAMPLE REQUISITION

SER

BC Centre for Disease Control
An agency of the Provincial Health Services Authority

Public Health Laboratory

655 West 12th Avenue, Vancouver, BC V5Z 4R4
www.bccdc.ca/publichealthlab

Serology Screening Requisition

SER LM LABS

Section 1 - Patient/Provider Information *(Two matching unique patient identifiers on sample container and requisition are required for sample processing)*

PERSONAL HEALTH NUMBER (or out-of province Health Number and province): Optional

PATIENT SURNAME: Mouse

PATIENT FIRST AND MIDDLE NAME: Minnie B.

DOB (DD/MMM/YYYY): 29/04/1979

SEX: ☐ M ☑ F ☐ X ☐ U (Unk)

PATIENT ADDRESS

CITY

PROVINCE

POSTAL CODE

ORDERING PRACTITIONER Name and MSC#: Douglas Howser, #12345

Address of report delivery: 400-299 Victoria Street
Prince George, BC
V2M 1S2

☐ I do not require a copy of the report ☐ I am a Locum†

†If Locum, include name of Practitioner you are covering for

ADDITIONAL COPIES TO PRACTITIONER / CLINIC:
(Name, Address / MSC#/ PHSA Client#) **(Limit of 3 copies available)**

1. Optional (First Initial, Last Name)
2.
3.

DATE RECEIVED

LABORATORY USE ONLY

OUTBREAK ID

SAMPLE REF. NO.

DATE COLLECTED (DD/MMM/YYYY): 01/12/2021

TIME COLLECTED (HH:MM): 13:47

Section 2 - Clinical Information

Reason for Test

☐ **NEEDLESTICK** ☐ Outbreak/Cluster/Event
☐ Prenatal ☑ Other, specify: DBS Testing

Clinical Information

☐ Rash symptoms ☐ STI contact ☐ STI symptoms

Recent Travel History (Date/Location)

Onset Date (DD/MMM/YYYY)

Section 3 - Test(s) Requested (Note: Codes for PHSA Labs Use Only)

PRENATAL SCREENING (PRENAT)

HIV	☐ HIVCC
HIV Non-Nominal Reporting	☐ HIVCC
HBsAg	☐ HBVP
Rubella IgG	☐ RUBEB
Syphilis Antibody (1st Trimester)	☐ TPE

Other Tests, specify:

PERINATAL SYPHILIS

Perinatal (>35 weeks/at delivery)	☐ PDSYP

SYPHILIS ANTIBODY

Routine (Non Prenatal)	☑ TPE

HIV (Non Prenatal)

HIV	☑ HIVCC

Note: Patient has the legal right to choose not to have their name reported to public health = non-nominal reporting

Non-Nominal Reporting Requested	☐ HIVCC

HEPATITIS SEROLOGY (Serum)

Acute - undefined etiology HBsAg, Anti-HBc Total, Anti-HBs, Anti-HCV, Anti-HAV IgM	☐ HEPSB
Chronic - undefined etiology HBsAg, Anti-HBc Total Anti-HBs, Anti-HCV	☐ DHEPCH
Hepatitis B Screen Panel HBsAg, Anti-HBs, Anti-HBc Total	☐ HBSAG
Anti-hepatitis A Total (Immune Status)	☐ HAAT
Anti-hepatitis A IgM (Acute Infection)	☐ HAVMB
HBsAg Only	☐ HBVSA
Anti-HBs (Immune Status)	☐ HBSAB
HBeAg (Therapeutic Monitoring)	☐ HBXEA
Anti-HBe (Therapeutic Monitoring)	☐ HBXEB
Anti-HCV	☑ HEPCB

HEPATITIS C PCR (EDTA Plasma)

HCV RNA Quantitative (For diagnosis and monitoring)	☐ HPCRBB
HCV Genotyping (For treatment)	☐ HEPCRB

OTHER SEROLOGY

Immunity		Acute	
CMV IgG	☐ CMVIGB	CMV IgM	☐ CMVSP
EBV IgG	☐ EBGSB	EBV IgM	☐ EBVSP
Measles IgG (Rubeola)	☐ MIGB	Measles IgM (Rubeola)	☐ MEASP
Mumps IgG	☐ MUIGB	Mumps IgM	☐ MUMPS
Parvo B19 IgG	☐ PARVGB	Parvo B19 IgM	☐ PARVP
Rubella IgG	☐ RUBEB	Rubella IgM	☐ RUBP
Varicella IgG	☐ VZIGB		
H. pylori IgG	☐ HELIB	HSV Type Specific IgG	☐ HSVTSS
HTLV I / II	☐ HTLVB		

OTHER TESTS (Specify) If patient has HIV & you are requesting a viral load, indicate "HIV Viral Load" here

For other available tests and sample collection information, consult the Public Health Laboratory's *eLab Handbook* at www.elabhandbook.info/PHSA/Default.aspx

Form CPSE-100-0001f 1.00 Version 4.0 08/2019

SER SER

COLLECTION OF DRIED BLOOD SPOTS PROCESS [2]

SAFETY

Always use Universal Safety Precautions. This includes:

- Treating all blood samples as though they are infectious
- Washing hands before and after collection
- Wearing gloves
- Taking precautions to avoid injury
- Disposing of contaminated sharps and waste appropriately

Blood and body fluid exposure

In the event of a sharps injury during the testing process, cleanse the area with soap and water immediately, report the injury to your supervisor, and refer to NH's Blood and Body Fluid Exposure Guide for Health Care Workers.

http://docushare.northernhealth.ca/docushare/dsweb/Get/Document-119154/10-320-6030.pdf

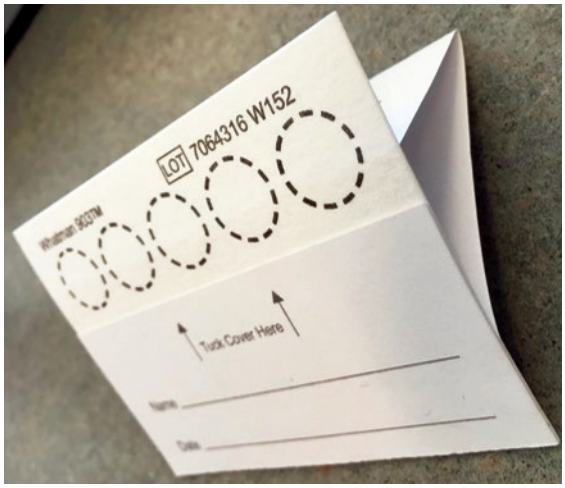
SAMPLE COLLECTOR PREPARATION

- Clear area and place the disposable pad on the table
- Wash hands and put on gloves
- Open the gauze and prepare the bandaid
- Have two lancets available in case a second finger poke is required

2. Mesa, C. (2021, November 22). Collection of Dried Blood Spots: Experienced Users Protocol [PowerPoint slides]. National HIV & Retrovirology Laboratories.

Public Health Agency of Canada. (2022). *Dried Blood Spot Collection*. National Microbiology Laboratory.

DBS SPECIMEN CARD



- The DBS card is a medical device
- Made of specialized cotton linter paper without hardeners or additives, manufactured for the purpose of collecting blood
- Each lot undergoes rigorous quality control
- While the collection card has five circles, only a single person's blood is collected on each card

DBS card tips

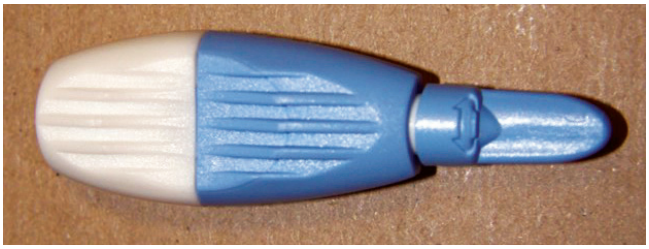
- Check the expiration date on your box of cards prior to use
- Do not touch the sample collection area with your bare hands or lay it directly on dirty surfaces, as this can contaminate samples
- Handle the DBS card by the edges; do not touch areas used to collect the blood
- Cover flips behind the card to act as a stand
- Allow it to dry without anything touching the spots

LANCETS

- Device with small blade that applies a prick to a controlled standardized depth (2 mm)
- This allows maximum contact with capillary bed without going deep
- Results in a greater volume of blood
- Single use, permanently retracts after use for safety
- Discard the lancet in the sharps container

HTL-Strefa Haemolance Max Flow Lancet

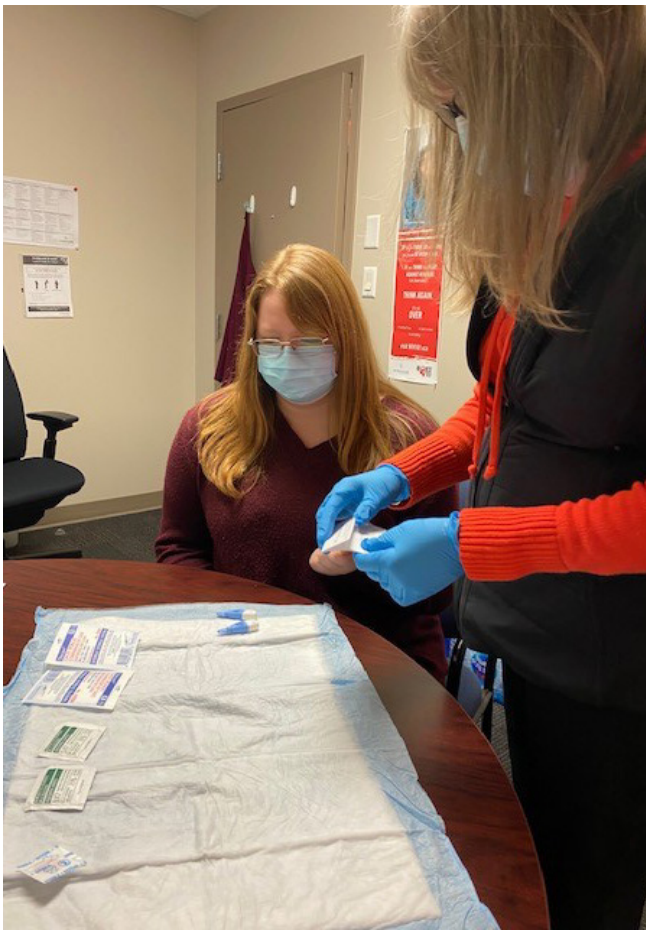
- The button on the end needs to be depressed to engage the blade
- Ensure that the lancet is held firmly against the client's finger when pressing the button



BD Microtainer Contact Activated Lancet

- Contact activated
- Lancet must be firmly pressed onto the client's finger to activate

PREPARING THE CLIENT



DBS training event with Northern Health's Specialized Support Team for HIV/HCV. February 2022.

Get Warm

- Have the client warm up their hands. They can do this by:
  - quickly rubbing their hands together
  - putting their hands between their knees
  - doing small exercises, such as arm circles
  - holding a warm drink

Get Clean

- The client should sanitize their hands either with soap and water or with hand sanitizer or wet wipes

Get Comfortable

- Ensure client is seated comfortably
- Choose a finger, either the middle or ring-finger, preferably on their non-dominant hand (do not use the thumb, pointer/index, or little finger)
- Have the client lay their hand on the table, palm facing upwards

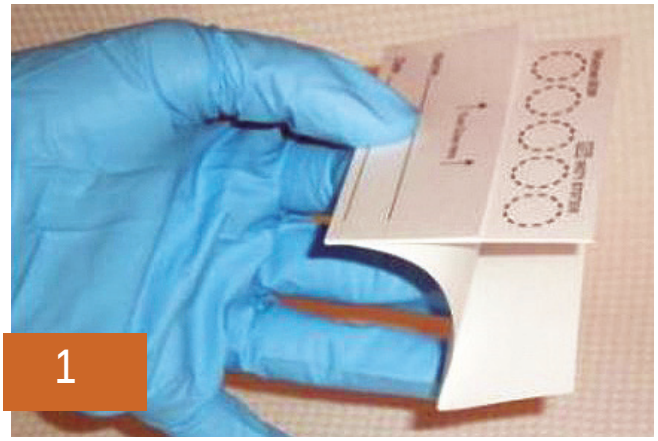
Get Clean Again

- Check that the finger is healthy and free from other wounds or infections
- Sterilize the finger to the first knuckle with an alcohol swab
- Allow the finger to air dry while you prepare for the collection, ensuring that they don't touch anything

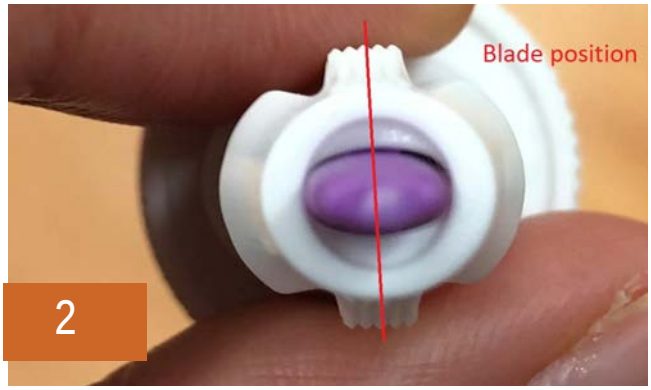
PUNCTURE SITE

- Middle finger or ring finger is preferred puncture site
- Avoid the thumb because it has a pulse
- Avoid the index finger because it may be more sensitive or callused
- Avoid the pinkie finger and sides or top of fingers because tissue depth is insufficient to prevent bone injury
- If possible, you will want to orient the lancet so that the lancet poke is across (perpendicular) to the fingerprint. This helps to ensure the blood will form nice droplets

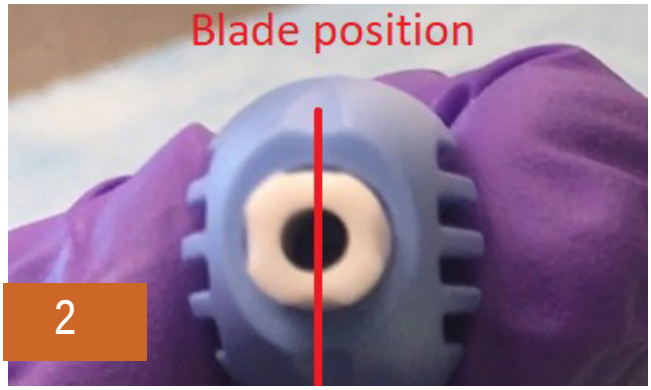
PUNCTURE STEPS



1. Fold back the flap of the card so that the card can sit on the work surface without the sample collection circles touching anything. Do not collect the sample with the card laying flat, as blood can wick through onto the protective flap
2. Twist or pull off the protective cap of the lancet and check the blade position



HTL-Strefa Haemolance Max Flow Lancet



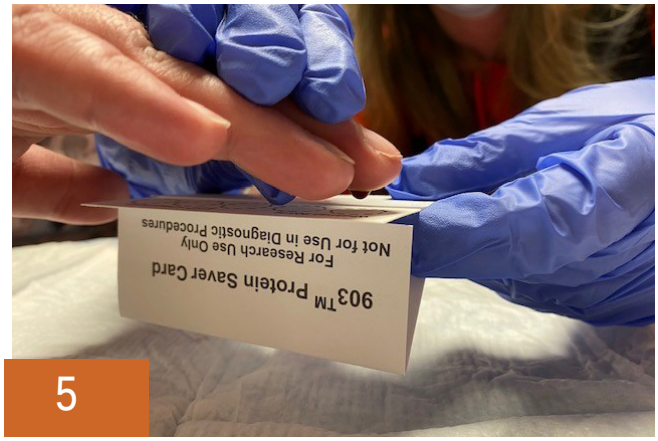
BD Microtainer Contact Activated Lancet

PUNCTURE STEPS CONT.

3. If using the purple and white HTL-Strefa lancet, press end firmly to the finger, then press the button on the end to engage the blade (you will hear a click)

3. If using the blue and white BD Microtainer lancet, pressing the lancet firmly against the finger will engage the blade (you will hear a click)

4. Allow a large drop of blood to collect at the site
   - Wipe the first drop away with gauze to remove residual alcohol, and to encourage blood flow



5. Touch the droplet to one of the circles on the card without allowing the finger to come in contact with the card.
   - If one droplet does not fill the circle, place the next droplet directly beside it in the white space
   - Do not layer droplets on top of each other. This oversaturates the card and may make the sample invalid.
   - A minimum of three circles need to be filled with blood for most testing to be completed, and five circles is ideal

HARD TO COLLECT SAMPLES

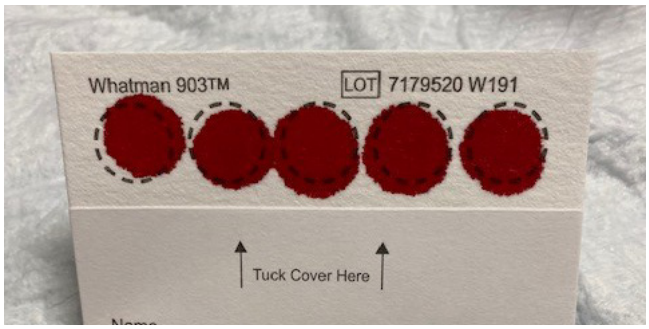
If the client does not have a lot of blood flowing, you can:

- Wipe the finger again with the gauze to encourage blood flow
- Squeeze the finger gently but DO NOT milk the finger. Pressing too hard will cause hemolysis and introduce excess body fluids into the sample
- Ask the client to stand up and have their arm pointing downwards so that gravity can help the blood flow
- Gently squeeze or massage the arm in a downward motion, or ask the client to massage their own arm
- If the blood has stopped flowing, ask the client if you may poke another finger
- Use a new lancet for the second poke

FINAL SAMPLE STEPS

Clean and discard

- Apply pressure to puncture site with cotton gauze and apply bandage when bleeding stops
- Do not wipe puncture site with the alcohol swab again
- Dispose of all used materials in the biohazard container
- Disinfect table top
- Wash hands

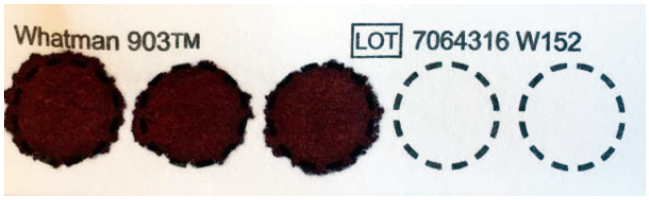


FRONT

BACK

SAMPLE QUALITY

FRONT



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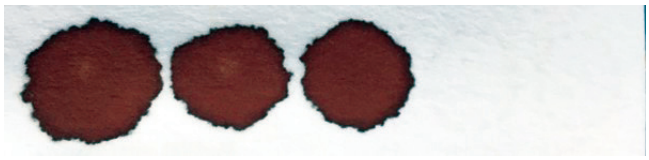
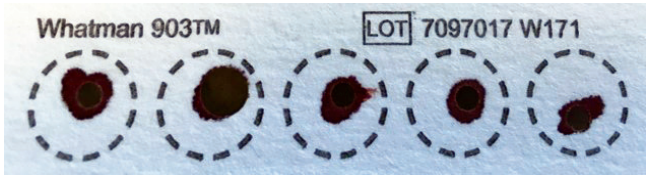


TESTS

HIGH QUALITY SAMPLE

- Between three to five spots completely filled, with the blood fully soaked through the card
- It is critical that entire circle be uniformly saturated
- Three complete circles are better than five incomplete ones
- Well collected spots = more tests run
- It is ok if blood goes over the dotted line
- A completed saturated spot will contain ~0.1ml of blood

FRONT



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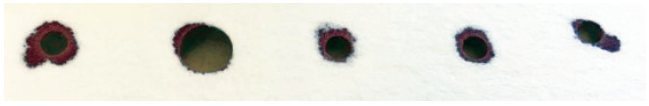


INADEQUATE SAMPLE

- Spots too small
- Entire card was only enough for one test
- It would have been better to put the small drops of blood beside each other in one circle
- If the blood stopped flowing, you could ask the client to poke another finger

FRONT

BACK

INSUFFICIENT FOR TESTING

- Blood not soaked through
- Although the front looks okay, when you turn it over you can see that the blood didn't soak through the card
- Specimen insufficient for testing

POOR SAMPLE QUALITY

Samples such as those pictured below cannot be used for testing and samples will need to be recollected.

Layering

These spots are over-saturated. Multiple blood droplets were layered on top of each other. This changes the concentration of blood in the spot.

Insufficient drying

These spots were not dried sufficiently before packaging and sending to the lab. The spots are still bright red after a number of days in transit, indicating that they are still wet.

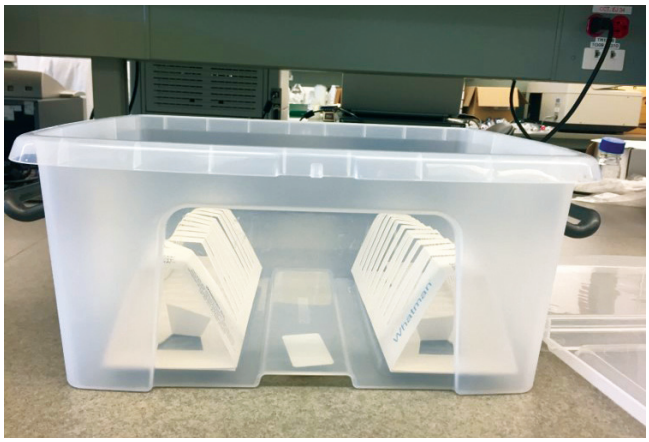
Contamination

These spots were contaminated. Either the finger was squeezed too hard and the sample was haemolysed, excess body fluids were introduced into the sample, or the sample was stored inappropriately and had some contamination from getting wet.

DO NOT

- Press the filter paper against the finger
- Layer successive drops of blood
- “Milk” the finger. This may cause a hemolysis and cause collection of tissue fluids with the specimen adversely affecting test results
- Prick a swollen or previously punctured site as this could contaminate the sample

DRYING DBS CARDS



IMPORTANT TIPS

- Dry samples in a secure location to prevent tampering, away from dust and direct sunlight
- Place card in drying rack and allow to fully air dry for 3 to 18 hours at room temperature
- Do not heat, stack, or allow DBS to touch other surfaces during the drying process
- If you are collecting many samples, a drying rack can be used to minimize the amount of space you need
- To put the card in the rack, fold the flap of the card all the way back, completely exposing the sample collection area. This keeps the sample area away from the cards beside it, preventing contamination
- The drying racks can be used multiple times, but dispose of them if they become dirty or contaminated
- If cards need to be transported to a secure location to finish drying, a plastic carrying case can be used. Velcro strips are provided that can anchor the racks to the bottom of the case. Put a lid on the case for transport, then remove the lid to allow air flow
- DBS spots change from bright red to dark red as they dry

Note

- Incomplete drying may lead to incorrect test results
- When samples are dry, they will have changed from bright red to a darker, reddish-brown colour
- Cards are non-infectious once dried
- Shipment of cards does not require Transportation of Dangerous Goods training
- Shipment can be at room temperature if previous storage conditions have been followed

Staff and volunteers from Positive Living North on World AIDS Day, December 1, 2021.

SPECIMEN LOGISTICS

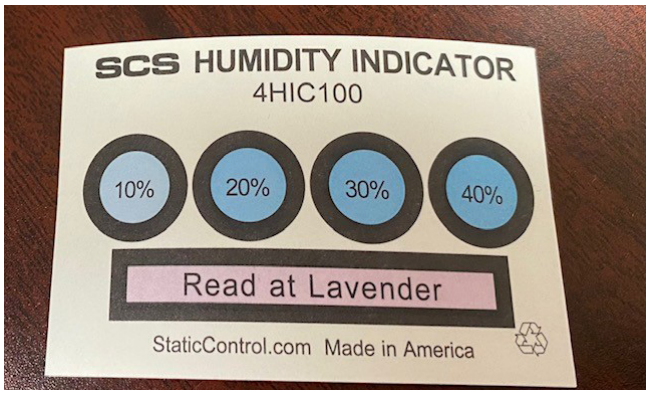
1. Once dry, insert each DBS card into its own coin envelope. Do not seal the envelope
2. Prepare the DBS card for shipping (even if you are not sending immediately)
   - Place DBS card envelopes inside gas impermeable Bitran bag
   - Do not make any substitutions for the Bitran bag. It is specifically designed to prevent humidity from entering the bag
   - Place humidity indicator card inside bag
   - Add desiccant to bag
   - Remove as much air as possible.
   - Seal bag, ensuring there are no gaps in the seal

Important notes

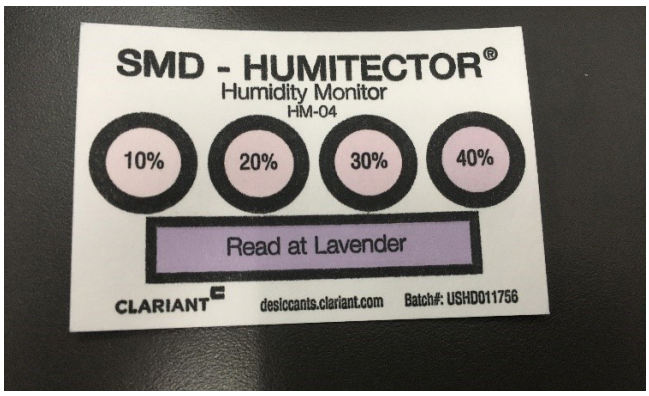
- Up to 10 DBS cards can be stored in one large bag
- If you are collecting samples over multiple days, you can batch ship them to the lab if you store them properly
- DBS cards stored properly in Bitran bags with desiccants and indicators can be stored at room temperature for up to seven days
- If storing DBS cards for longer than this prior to shipping, store at 4°C or below

HUMIDITY INDICATORS

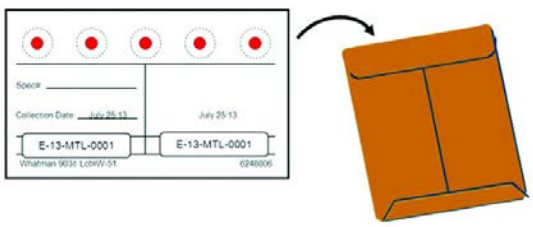
- The humidity indicator card will show if the humidity in the bag is increasing. If the circles are blue, the desiccant is working and the humidity is low



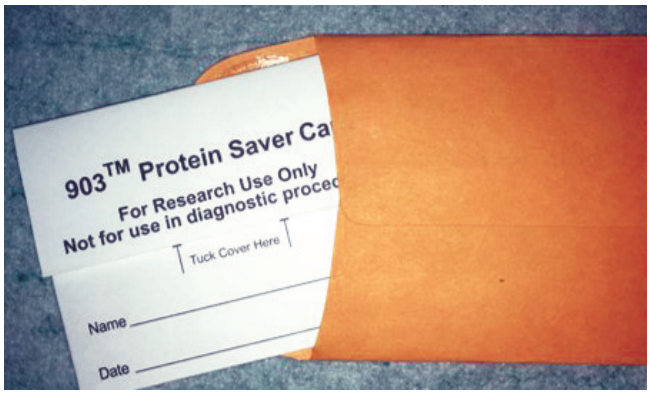
- If the circles on the humidity indicator are pink, this means that the desiccant is full of moisture and must be replaced. After replacement, the humidity indicator should turn back to blue, confirming your new desiccant is working



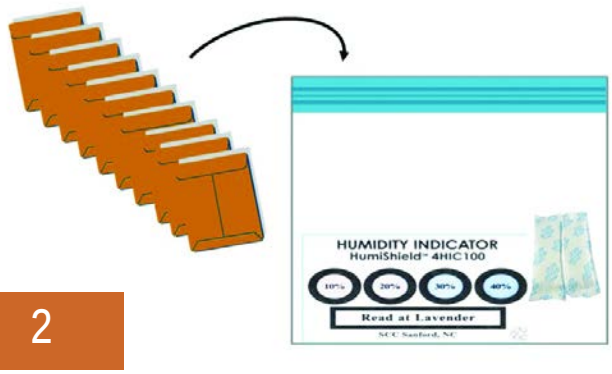
PACKAGING DBS CARDS



1



- Place dry DBS in its own coin envelope (do not seal the envelope)



2

- Place 5-10 coin envelopes in a gas impermeable Bitran bag

OR

3

- Add desiccant (one large OR three small) and humidity card to Bitran bag

PACKING CHECKLIST

northern health
the northern way of caring

All Sites and Facilities

Dried Blood Spot Testing Packing Checklist

Page 1 of 1

Please be sure this checklist is inside the envelope with the dried blood spot testing cards.

- ☐ Unique identifier (i.e. Name, Date of Birth)
- ☐ DBS cards – each in their own coin envelope (unsealed)
- ☐ Coin envelopes places in Bitran bag
- ☐ Dessicant in Bitran bag (1 large pack or 3 smaller packs)
- ☐ Humidity card in Bitran bag

Storage: Check-off which one applies

- ☐ One week or less at room temperature
- ☐ More than one week at 4° C (or below)

Required contact info of person submitting tests

Name: _____

Program/Location: _____

Phone #: _____

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SHIPPING THE SAMPLES

1. Check your humidity indicator(s) and replace desiccant if necessary
2. Complete the Packing Checklist
3. Ensure that there is both a requisition and DBS card/envelope for each sample.
4. Ensure the testing priority is indicated on the requisition.
5. Place requisitions, Bitran bags and completed Packing Checklist into a courier package/envelope
6. Address to:
   Tamara Pidduck
   BCCDC Public Health Laboratory
   655 West 12th Avenue
   Vancouver, BC
   V5Z 4R4
   604-707-2839
7. Call or email the BCCDC to advise that the samples are being shipped:
   Tamara Pidduck,
   Technical Coordinator –
   High Volume Serology
   Tamara.Pidduck@bccdc.ca
   604-707-2828

Note

If there is an NH laboratory in your community, they may be willing to send your packaged samples to the BCCDC with their regular shipments. To inquire about this possibility, contact the Chief Technologist at your local lab.

FAQs

There are fewer than three circles filled on the card and the client declined another lancet poke. Should I discard the sample?

Do not discard the sample. Send it to the lab and it will be assessed to determine if there is enough sample for the testing requested.

What do I do if blood soaked through onto the flap of the card, dripped onto the flap of the card, or dripped onto the cardboard covering of the card?

Dry the card as usual, making sure that the parts of the card that are contaminated don't come in contact with any other cards, and send for testing.

I finished collecting samples, but need to go home prior to the end of the drying period. Do I need to wait to package the samples? How long can I let them dry for?

They are still valid if left drying for 12-18 hours before packaging, but do not leave them longer than that. Ensure they are left to dry in a secure location to avoid tampering.

I'm collecting samples over a two week period. Do I need to package and ship the samples each day?

No, you do not need to send the samples each time you collect. Each day, package the samples in the Bitran bag(s) with desiccant, and store in the fridge, then you can ship multiple bags of samples together in one package. Remember that the clients tested at the beginning of the period will then have a longer turnaround time for their results if you wait and mail them all together.

I took the humidity card out of the bag it comes in before packing the samples, and it turned pink. Is it still okay to use?

Yes, the humidity indicator will "recharge" itself and turn back to blue when stored with a good desiccant pack.

The circles on the humidity indicator card stored with the desiccant packs have turned pink. What does that mean?

If the circles have turned pink, then the desiccant has soaked up a lot of moisture and won't be effective at keeping the samples dry. Request more desiccant to be sent and review your storage practices to make sure desiccant is not exposed to humid air for very long.

How do I request more supplies?

Send an email to RCD.Communications@northernhealth.ca. Include in your email how many tests worth of supplies you require and the mailing address for where you need the supplies sent.

There are new members on my team who need to be trained in collecting dried blood spot specimens. How do we arrange training?

Send an email to RCD.Communications@northernhealth.ca. Include the number of people who require training and whether supplies are required for training or if you have enough on site.

RESOURCES

BD Diagnostics. (2007). *Successful Specimen Collection: Fingersticks*. Retrieved from https://www.bd.com/documents/bd-legacy/posters/blood-and-urine-collection/PAS_BC-BD-Contact-Activated-Lancet-Points-to-Practice_PO_EN.pdf

Cadham Provincial Laboratory. (n.d.) *How to Collect an Acceptable Blood Spot Specimen*. (Document 15.04.003). Retrieved from https://professionals.wrha.mb.ca/old/extranet/publichealth/files/BloodSpotCollectionCadham.pdf

Ernst, D., Ballance, L., Calam, R., McCall, R., Szamosi, D., & Tyndall, L. (2008). *Procedures and devices for the collection of diagnostic capillary blood specimens: Approved standard* (6th ed.). (GP42-A6). Clinical and Laboratory Standards Institute.

Interior Health and Northern Health Authority. (n.d.). *Blood and Body Fluid Exposure Guide for Health Care Workers*. (Document 10-320-6030). Retrieved from http://docushare.northernhealth.ca/docushare/dsweb/Get/Document-119154/10-320-6030.pdf

Mesa, C. (2021, November 22). *Collection of Dried Blood Spots: Experienced Users Protocol* [PowerPoint slides]. National HIV & Retrovirology Laboratories.

Public Health Agency of Canada. (2022). *Dried Blood Spot Collection*. National Microbiology Laboratory.

World Health Organization. (2005). *Blood Collection and Handling – Dried Blood Spot*. Retrieved from http://www.who.int/diagnostics_laboratory/documents/guidance/pm_module14.pdf

DBST specimen collection with Positive Living North on World AIDS Day, December 1, 2021.

NOTES

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