STANDARD OPERATIONAL PROCEDURE FOR HVL DBS CAPILLARY BLOOD SAMPLE COLLECTION

Purpose
Describe the procedures for collection and preparation of Dried Blood Spots (DBS) Specimens on filter paper cards for use in HIV Viral Load testing by using Capillary blood (Finger or Heel)

Scope
This procedure applies to all blood samples (DBS) collected from sites selected for viral load sample collection

RESPONSIBILITIES
- HCWs at the selected sites are responsible for following this procedure.
- Laboratory Personnel are responsible for the Quality assurance of this procedure.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Reagents</th>
<th>Supplies</th>
<th>Equipment</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Pricker</td>
<td>• Micro capillary pipette</td>
<td>• NA</td>
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<td></td>
<td>• Whatman 903 collection cards</td>
<td>• Plastic containers with 10% Bleach (Jik)</td>
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<td></td>
<td>• 70% ethanol</td>
<td>• Waste containers</td>
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<td></td>
<td>• 10% Bleach (JIK)</td>
<td>• Skin disinfectant alcohol wipe</td>
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<td></td>
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<td>• Safety blood collection set with adapter and holder</td>
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<td>• Absorbent gauze</td>
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</table>
**Sample**

Capillary blood collected by finger or heel prick

**Specimen management**

DBS cards must be labeled with the Patient Identification (PID) number and date of blood spot collection.

Completely dried DBS cards must be stored in a proper plastic sample bag together with desiccant packets and a humidity indicator card. If the indicator card changes the color (e.g., blue to pink. See Appendix A), it must be replaced and new desiccant packets will be added.

DBS cards have to be completely dry before packaging and storage.

DBS cards can be stored safely at RT up to 30°C for 9 weeks and in the event of high humidity for a maximum of 3 weeks.

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**Special Safety**

- All specimens must be regarded as potentially infectious.
Precautions

- Refer to Health Laboratory Safety and Waste Management Manual for safety considerations.
Quality control

Patient identification number and date will be used on patient register book, Laboratory request form, on vacuum tubes, on DBS cards and on the packing manifest.

*Powder free gloves* must be worn while preparing spots on the DBS cards.

Use only the supplies provided.

Fill each DBS circle with a **100 µl** of blood. The under-filled DBS cards will not provide enough materials for HIV viral load testing.

If a DBS circle is overfilled, it is fine. DO NOT “erase” the overfilled portion (e.g., liquid eraser)

Do not expose DBS cards to sunlight as the direct light and heat will deteriorate the specimens

Completely dried DBS cards must be packaged with a humidity card indicator and desiccants.

Put one card per drying slot to avoid sample contamination (see appendix B)

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**Procedure**: A: Preparation

- Wash hand vigorously
- Wear powder free gloves and change gloves between patients
- Confirm Patient ID to ensure all data elements on the form are complete, accurate and consistent

C. DBS Preparation

- Blood specimens will be collected using universal precautions and universal blood collection procedures.

- Label Whatman 903 DBS cards with Patient Identification number and collection date (*the blood spots have to be made within 2 hours of blood collection*) per patient.
• Position the foot or hand with the puncture site down ward then prick the site using then prick the site
• While holding the foot or finger properly
• Add 100 μl of whole blood to each of the 5 pre-printed circles on the filter paper card, using a micro-capillary pipette or P100 or pipette collect 100 microliters of blood.
• Add the sample slowly into the center of the circle. Do not touch the surface of the cards with the pipette tip. Duplicate this procedure with the second card.
• Discard pipette tips or micro-capillary tube used in a container with 10% Bleach/Jik.
• Repeat steps the above steps for the rest of the patient specimens
• Place the completed DBS cards horizontally on the dry rack without touching the spots at Room Temperature overnight in a safe location and away from direct sunlight.
• After DBS cards are completely dry, place each DBS card in an individual glassine envelope.
• Place 10 glassine envelopes containing DBS cards (5 patients) or less in a plastic card bag glassine envelopes).
• Insert 1 desiccant packet per card (e.g., 10 desiccants for 10 DBS cards).
• Place only 1 humidity indicator card into the bag. Press to expel any air within the bag and seal tightly.
• If the humidity indicator card changes the color (e.g., blue to pink. See appendix A.) Before DBS cards are transported to the storage facility, the humidity indicator will be replaced and five new desiccant packets will be added. Record this action.
• The packaged DBS cards should be kept in a dry and safe location at Room Temperature (18 – 30°C) with no direct exposure to sunlight until bi-weekly pick up to the central storage facility.
REFERENCE

- Dr. Chunfu Yang, M. Monleau et al. Effect of storage conditions of dried plasma and blood spots on HIV-1 RNA quantification and PCR amplification for drug resistance genotyping. J. Antimicrob Chemother 2010; 65: 1562-156
11.0 APPENDIX A

11.1 Humidity Indicator Card Example:

Appendix C: Heel Positioning
Related Procedures

1. SOP for DBS sample transportation

2. SOP for HIV Viral Load DBS specimen Processing

Appendices

Appendix A: Humidity Indicator

Appendix B: How to dry DBS in a drying rack