

Standard Operating Procedure (SOP)

Sample Collection - Dried Blood Spot (DBS)

V. 3 17 February 2020

Purpose and Scope

To collect whole blood samples from patients infected with malaria, and enable DNA genotyping and/or DNA sequencing of the malaria parasite. To minimize distress, a small volume of blood is taken by pricking the patient's finger and spotting this onto a filter paper.

Duties and Responsibilities

- Collect blood samples as described here in this SOP, using universal safety precautions
- Appropriately label and store samples until transportation
- Maintain the sample transfer log

Materials and Equipment

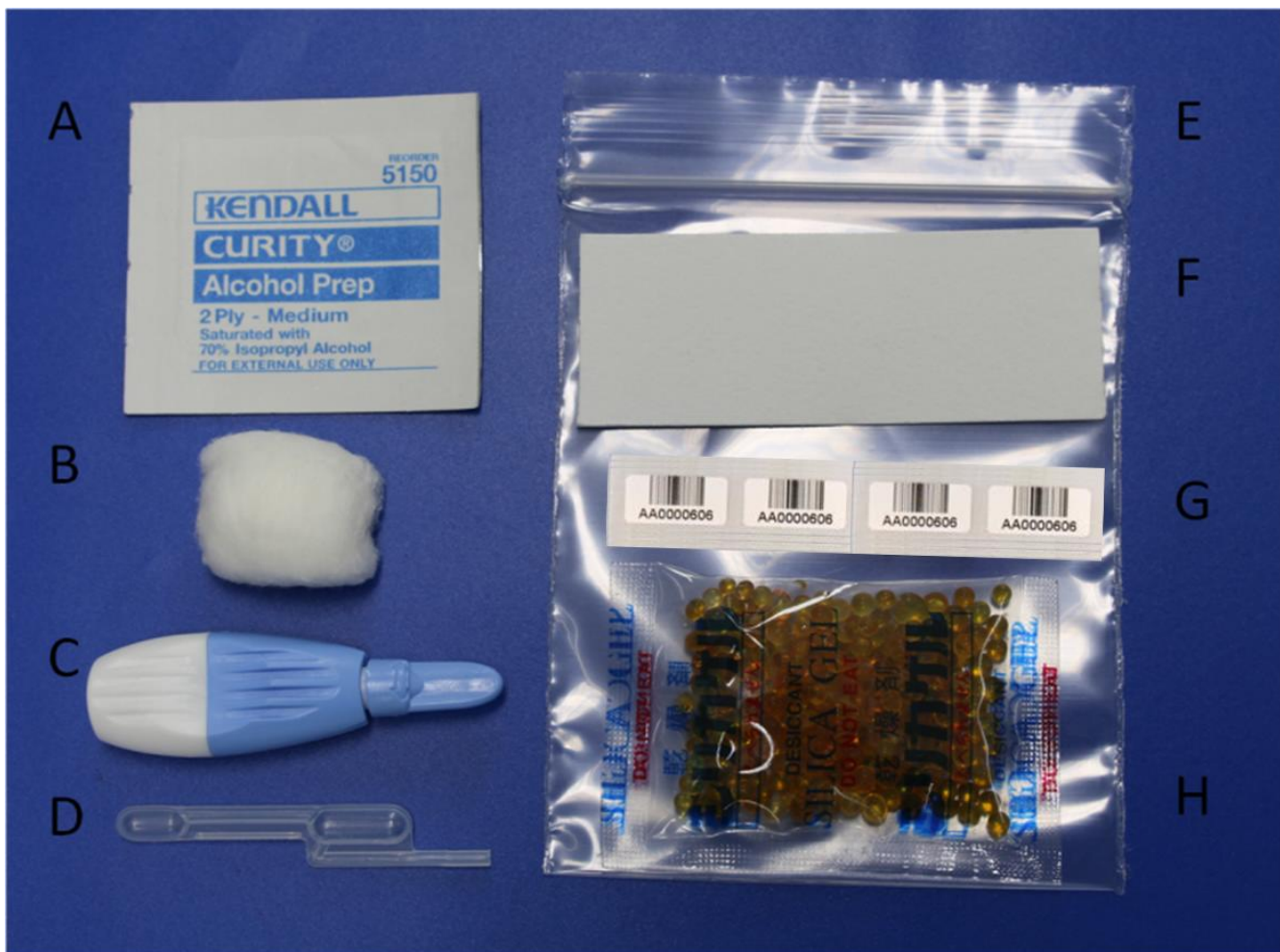


Figure 1. Materials and equipments used to collect DBS

The following materials are provided together with this SOP to collect samples:

- A. Alcohol swab (Figure 1A, can be replaced by cotton wool soaked in alcohol)
- B. Cotton pad/wool (Figure 1B)
- C. Sterile, disposable lancets (Figure 1C)
- D. Disposable fixed-volume pipette (20 μ l) (Figure 1D)
- E. Sealable plastic bag (Figure 1E)
- F. Filter paper strip. (Figure 1F)
- G. Barcode stickers (Figure 1G)
- H. Desiccant packs (Figure 1H)
- I. Sample manifest

Procedure for collecting samples

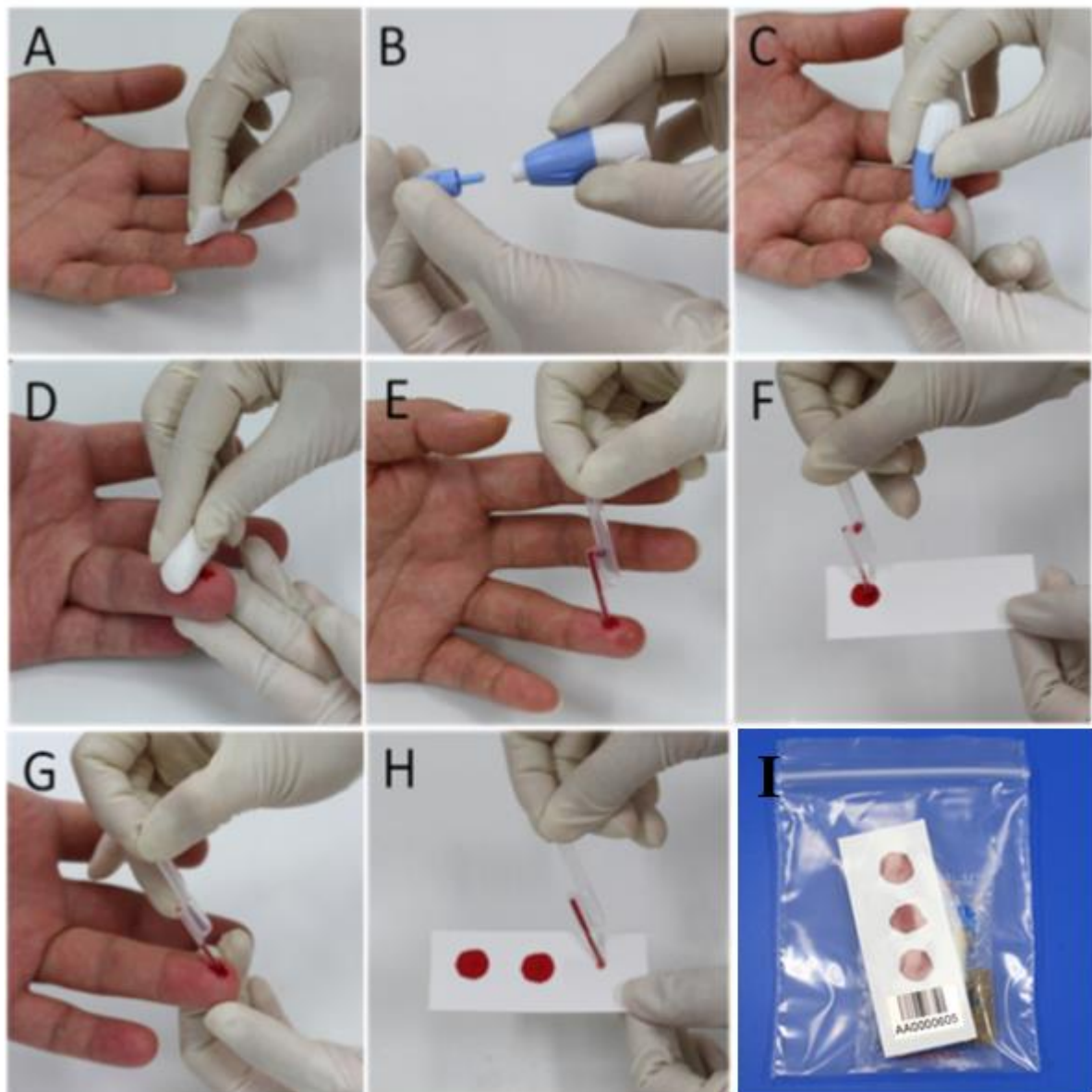


Figure 2: Finger prick and DBS collection procedure

Step 1

At the time of sample collection, clearly explain to the patient and/or their guardian (this may be an accompanying relative or friend) what sample is required and how it will be collected.

Step 2

See Figure 2. Wear a new pair of disposable gloves. Use an alcohol swab to clean the finger before puncturing it (Figure 2A). Allow the skin to dry.

Step 3

Twist open the sterile lancet (Figure 2B). Press the lancet toward the finger to puncture the finger, a little off the center of the finger pad (Figure 2C). Discard the lancet after use.

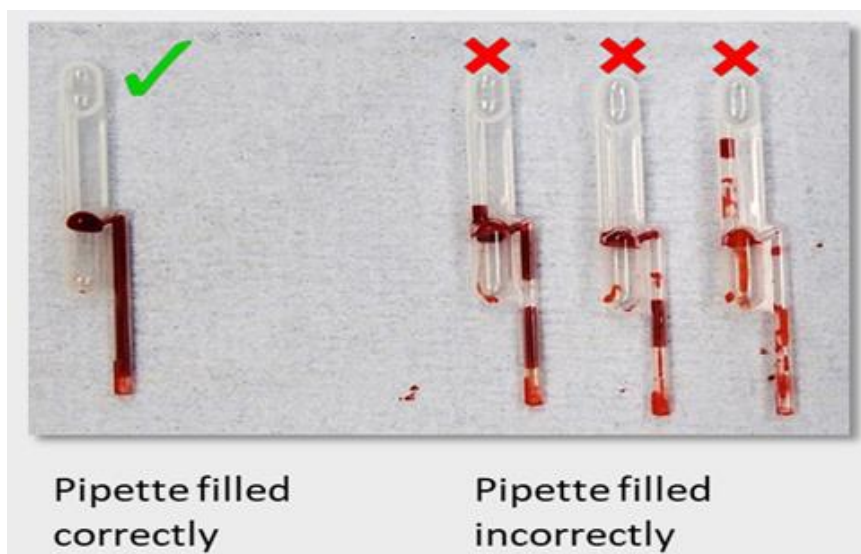
Step 4

Wipe away the first drop of blood with dry, clean cotton wool and apply gentle pressure to the finger (Figure 2D). Discard cotton wool after use.

Step 5

Using the pipette, transfer 20 µl of blood onto the filter paper (Figure 2E-F).

**MAKE SURE TO COLLECT ENOUGH BLOOD TO COMPLETELY FILL THE CAPILLARY OF THE PIPETTE.
AVOID AIR BUBBLES WHEN COLLECTING BLOOD WITH THE PIPETTE.
DELIVER THE ENTIRE AMOUNT OF BLOOD COLLECTED.**

**Step 6**

Repeat step 5 to make the second and third blood spot (Figure 2G-H). Discard the pipette after use.

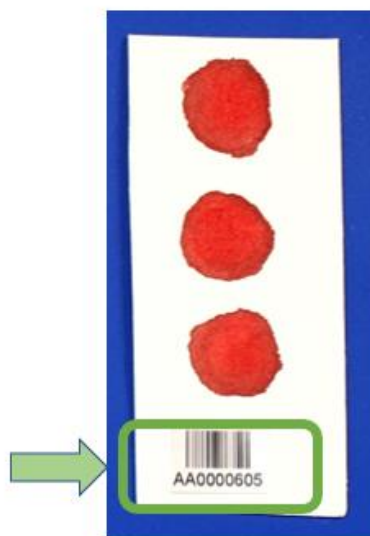
Blood should be applied only from one side of the filter paper. Make sure the blood soaks through to the other side of the filter paper- the blood spot should be roughly the same size on both sides of the paper.

Step 7

Write the location and date of sample collection on the sample manifest.

Step 8

Place one of the three barcode stickers onto the filter paper (see figure below) and place another barcode sticker from the same set on the sample manifest. You can place the third barcode sticker on the case record form.



MAKE SURE TO PLACE THE SAME BARCODE ON FILTER PAPER, SAMPLE MANIFEST AND YOUR RECORDS

Step 9

Allow the blood to air-dry overnight at room temperature. Do not let blood spots touch other samples during the drying process.

Step 10

Once completely dry, place each filter paper into a separate plastic bag, together with a sachet of desiccant (Figure 2). Seal the bags and store in a cool, dry place. Keep away from direct sunlight.

**ONE PATIENT = ONE FILTER PAPER
DO NOT SPOT SAMPLES FROM TWO PATIENTS ONTO THE SAME FILTER PAPER**