

Instructions of sampling for Newborn screening Test (NST)

- **Sampling period (Dried blood spot, DBS)**

1. Ideal time for collecting blood from **healthy newborns** is **between 48-72 hours after birth**.
2. Increasing rate of specific amino acid depends on severity of disease or protein intake. So, early testing can lead to false negativity. Because the healthy newborns have TSH surge right after birth, it can lead to false positive for hypothyroidism, if they collect the blood from newborns within 48 hours.
3. For **premature baby** whose hospitalization is prolonged, it is advisable to collect samples at **about 7 days after birth**. If hospitalization is longer than 14 days, it is recommended to have **re-examination when baby discharges** while it's recommended to have re-examination at 1 month for those hospitalization are longer than a month.
4. Collect the samples **before transfusion** if possible. In this case, it is recommended that **newborns within 24 hours** of age have **re-examination at 30 days and 60 days after birth**. Description of the sample taken after blood transfusion must be noticed along with **the date of the most recent transfusion**.

- **Method**

Collecting the blood from **capillary of baby's heel** on blood paper.

1. To increase the blood flow, locate baby's legs below the heart and put warm towel on the baby's heels at least 3 minutes.
2. Disinfect the site of sampling (lateral side of the heel) and puncture with sterilized single-use lancet (< 2.4 mm point).



3. After wiping-off the first drop of blood from the baby, make contact with the blood drop on one side of the blood paper. Please make sure that the blood is thoroughly absorbed to the back side.
4. Fill 4 circles with blood completely (The circles of paper should be wet enough to be visible on both sides). If it is inevitable that you will not be able to fill all 4 circles, please make sure 3 or less circles are wet enough during collection.
5. Dry the collected sample paper on uncontaminated flat surface for 3-4 hours.
6. Put the sample into a plastic bag after **dried completely**.

● **Precautions**

1. Do not touch the circles on the blood paper with bare hand to **prevent the contamination**.
2. Be careful not to touch the blood paper with water, alcohol, preservative, lotion, etc.
3. Do not press blood paper on the spot of baby's heel, or squeeze the baby's heel when collecting.
4. It causes irregular blood absorption on the blood paper if you use capillary tube.
5. Please use only one side of the blood paper.
6. Blood paper should be completely dried on uncontaminated flat surface at room temperature at least for 3-4 hours. Drying vertically may cause the flow down and cause the serum separation.
7. Keep the blood paper from direct exposure to heat or direct sunlight.
8. Do not put the blood paper in the bag until it is completely dried. It may cause serum separation, bacterial growth, or fungi growth if not.
9. Please fill all the columns of request form without missing any part (Example: TSH and 17-OHP test needs baby's weight as well).
10. If possible, send fully dried blood paper to laboratory within 24 hours after sampling.
11. If delayed delivery is expected, store DBS samples in a cool and dark place.
12. Barcode needs to be labeled under the blood spots (circles) on the front.

- **Examples**

1. Adequate specimen

- 4 circles on the blood paper are completely filled and thoroughly absorbed to the back side.



[Front]



[Back]

2. Inadequate specimen

1) Incompletely dried blood paper



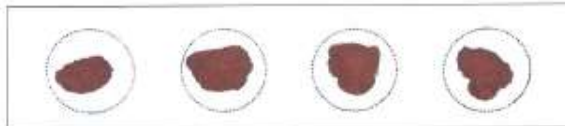
[Front]

2) Layered or clotted specimen



[Back]

3) Not enough amount of blood on the blood paper



[Front]



[Back]

4) Contaminated



[Front]



[Back]