

How To: Evaluate Blood Spot Quality

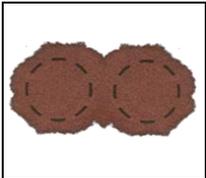
At the laboratory, 3.2mm uniform-sized punches are taken out of the dried blood spots (DBS) and tested for an assortment of biomarkers. The blood spot punch is a volumetric measurement of blood that is used for quantitative testing. Each assay assumes that a uniform volume of blood is being tested for each specimen. It is therefore important that the DBS are of uniform size and quality to minimize the differences in amount of blood tested from each newborn.

SIZE OF SPOT



[Quantity Insufficient](#)

Blood spots that completely saturate the filter paper, but are too small in size, or when no blood at all has been applied. A blood spot is defined as too small when it does not reach close to the dotted circle guidelines. Even if the blood spots are of good quality, too small a blood spot makes it unsatisfactory for testing.



[Oversaturated Specimen](#)

Blood spots that significantly exceed the dotted circle guidelines for collection. This does not refer to a case where the blood spots are just beginning to touch, but to a case where the blood spots run into each other, and it is difficult to distinguish one from the other. Even if the blood spots are of good quality, too large a blood spot makes it unsatisfactory for testing.

SATURATION OF SPOT



[Incomplete Saturation of Filter Paper](#)

Inspect the specimen front and back to ensure that the blood has completely saturated the filter paper. White areas on one side of the filter and blood on the corresponding other side of the filter paper indicates that the blood did not properly saturate the filter paper. The white areas can be large, small, or appear as speckles.

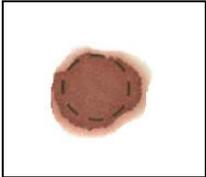
QUALITY OF FILTER PAPER



[Filter Paper Torn, Scratched, or Distorted](#)

Inspect the specimen for tears, scratches, abrasions, wrinkles, or crumples.

QUALITY OF SPOT



[Contaminated, Diluted, or Discolored](#)

Inspect the specimen for blood that appears diluted, discolored, contaminated, or exhibits serum rings. This refers to blood spots that appear unnaturally light in color or have a lighter colored ring around them. It also refers to spots with a non-uniform color appearance (mottled or marbled). Check the area around the blood for signs that it may have gotten wet.



[Blood Caked, Clotted, or Layered](#)

Inspect the specimen for blood that appears caked or clotted as well as for areas that appear to have layered blood or be double/multiple spotted.



[Specimen Not Allowed to Dry Thoroughly](#)

Inspect the yellow fold-over cover for blood. The presence of a significant amount of blood on the fold-over cover mean that blood spot is unsatisfactory for testing and should not be used. Even if the blood spots are of good quality, a full circle of blood on the yellow fold-over cover indicates that there was interference with the blood, and it should not be used.

QUALITY OF KIT AND KIT INFORMATION (see How To: Evaluate Demographic Information)

Specimen not attached to form

Inspect to ensure that the filter paper with the spots is attached to the form with the demographic information.

Specimen arrived in lab > 14 days from collection date

Inspect the date of specimen collection. Date of specimen collection must be within fourteen days of receipt in the laboratory to be valid for testing.

Conflicting information

Inspect demographic information for any conflicting information. If the identity of the baby to whom the blood spots belong is in question the blood will not be tested. Do not use white out on any demographic fields. For any errors, strikethrough with pen and add corrections to the remarks section.

Filter paper expired

Inspect the expiration date of the filter paper. Filter paper expiration date is located along the left side of the kit, in the green or yellow colored region, and along the bottom under the box for hospital information. Specimen collected on expired filter paper are not valid for testing.

QUALITY OF DELIVERY AND TRANSPORT

Damaged during UPS delivery

Inspect both envelope and kits for significant tearing and dampness.

What does the ideal blood sample look like?

All dried blood spots are inspected by the Newborn Screening Laboratory on both initial and repeat kits. Satisfactory specimens can be seen below:

