

What Makes a Satisfactory Newborn Screening Sample?



A healthy start leads
to a healthier life

Early detection saves lives

Newborn Screening Ontario
November 2017

Collect newborn screening (NBS) samples between one day (24 hours) and 48 hours of age.

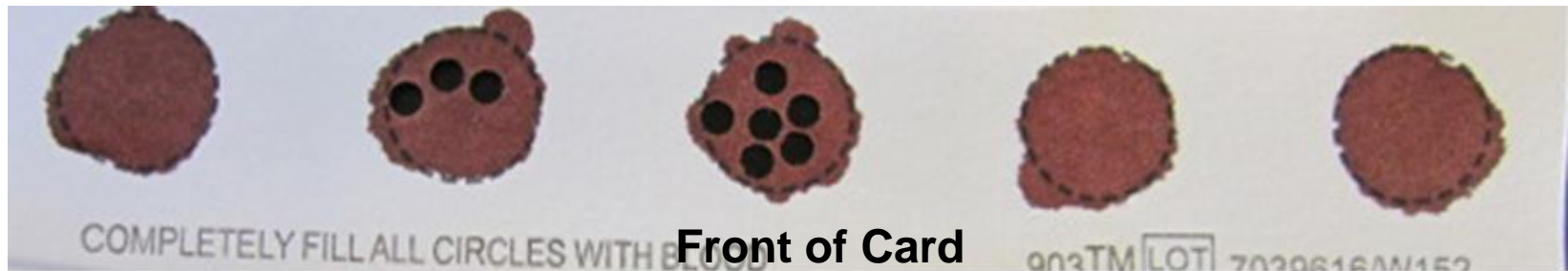
Data analysis shows that sample collection during this period is safe and supports a decrease in an infant's age at diagnosis of a serious disease by at least one day.

Other benefits of collecting the screening sample 24-48hrs after birth include correlation with the timing of hyperbilirubinemia and CCHD pulse oximetry screening.

Samples collected at less than 24 hrs. of age are unreliable for some screening tests and a repeat sample will be requested for these samples.

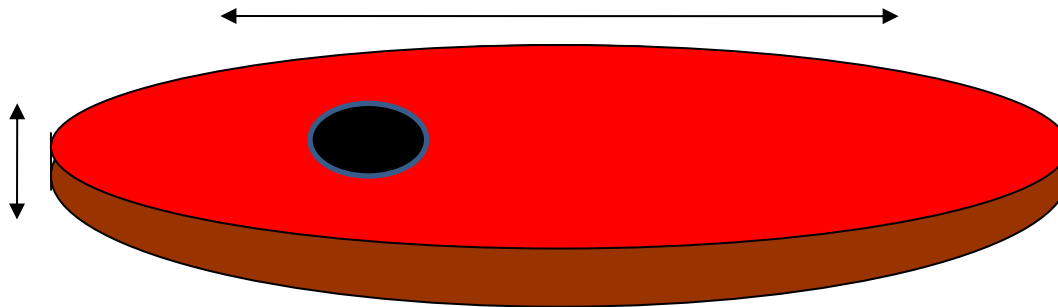


A high quality sample is important.



An example of a good quality dried blood spot (DBS) sample

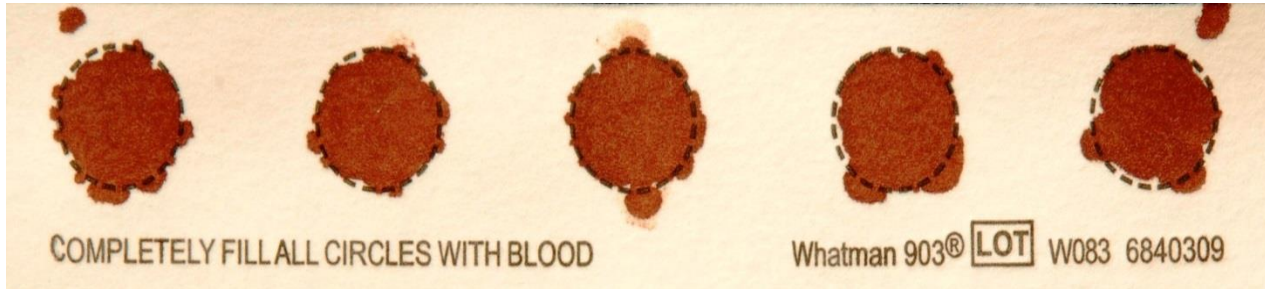
It is estimated that 75 ul of blood is required to fill one of the designated circles on the blood collection card.



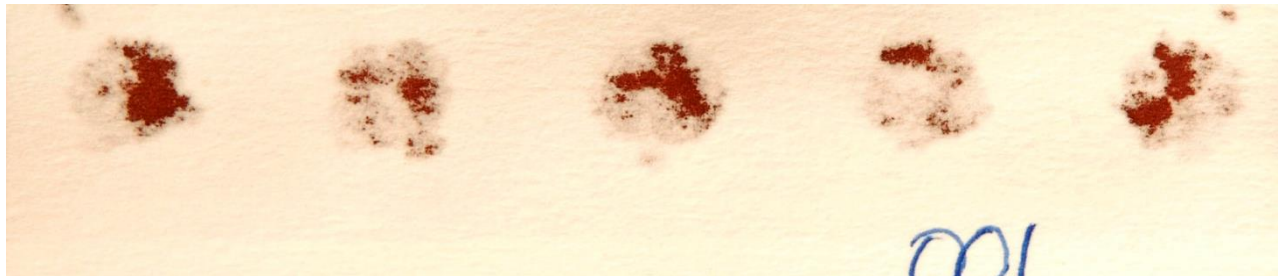
3.2 mm punches or discs of blood are taken from the applied blood spots and used during the newborn screening process. Each 3.2 mm punch contains ~3.1 ul of blood.

Any deviation from this volume could result in an unreliable newborn screen result.

Quantity of blood insufficient



Front of card



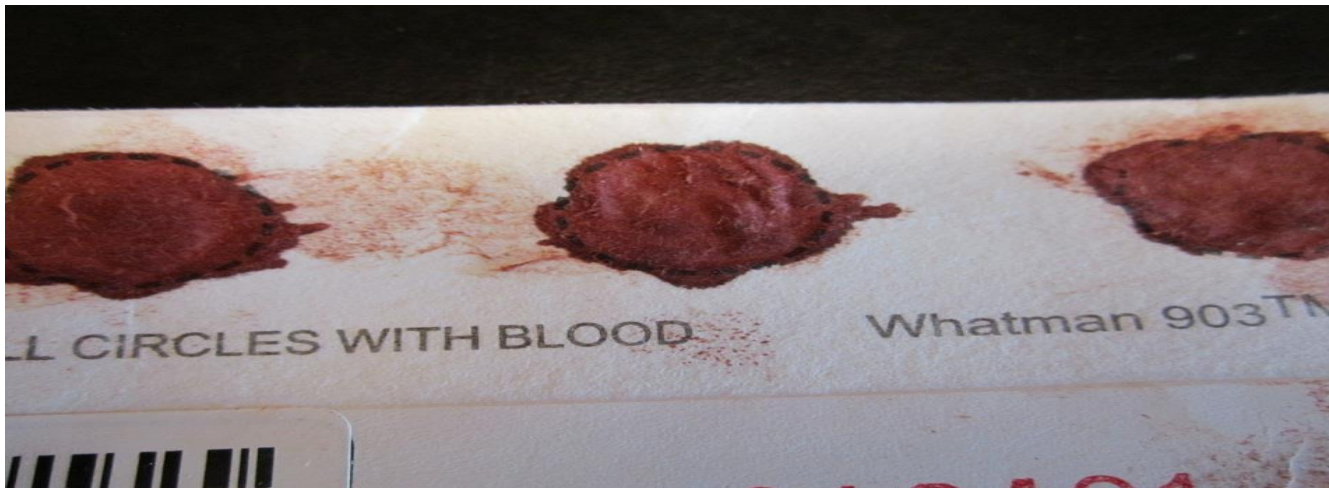
Back of card

Scratched or abraded

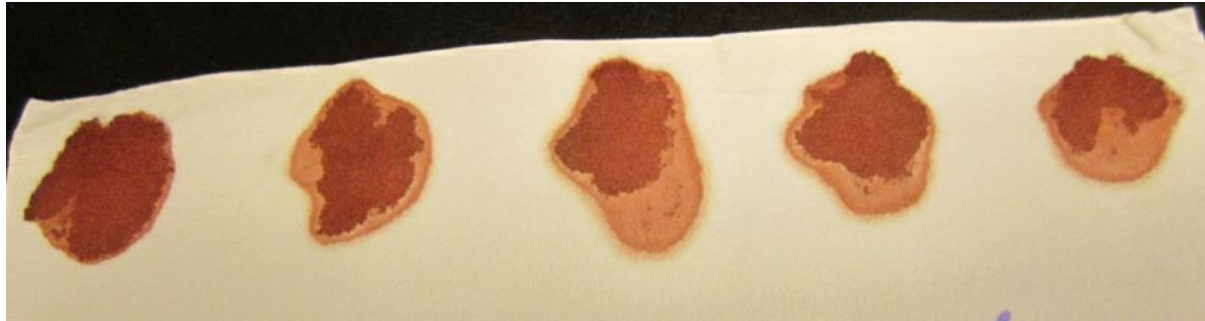


Capillary Applied Samples?

We cannot accept samples that appear “supersaturated”.



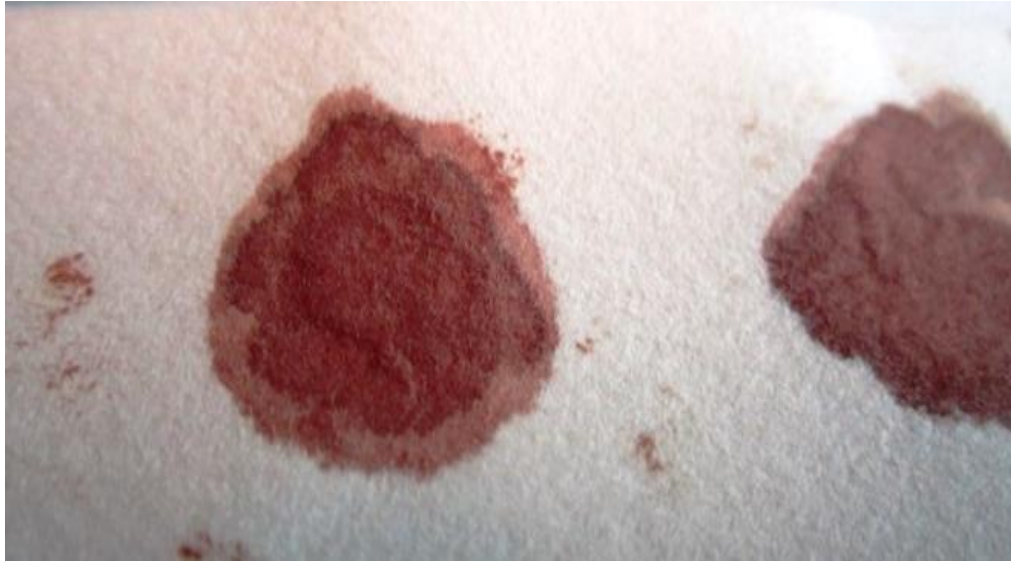
Blood spots are Wet and/or Discolored or Blood Spots appear diluted



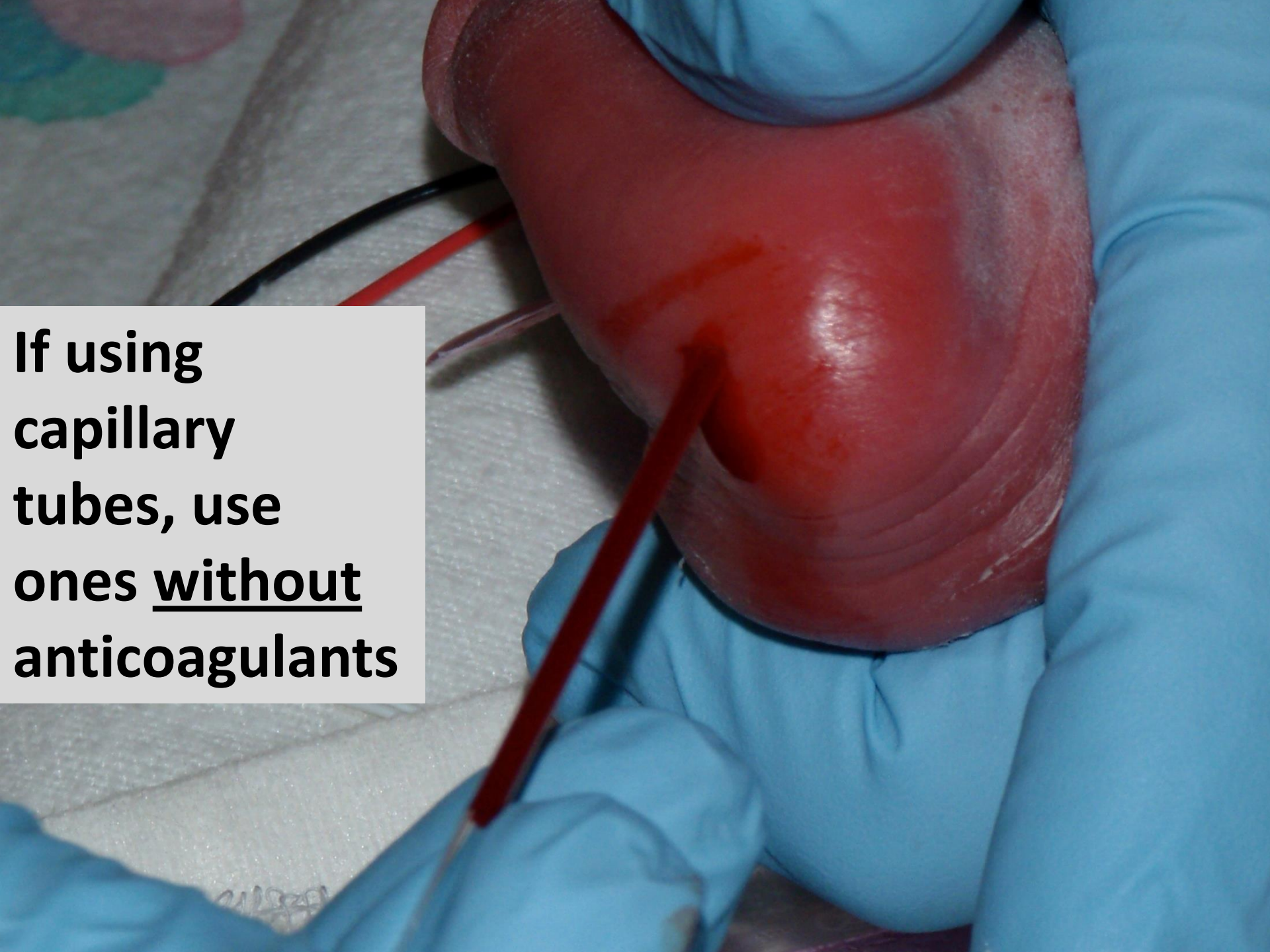
Before applying the blood to the collection card, ensure the heel is clean and dry to avoid any contamination or dilution of the sample.

Do not allow water, feeding formulas, antiseptic solutions, glove powder, hand lotion or other materials to come into contact with the specimen card before or after use.

Blood spots exhibit serum rings

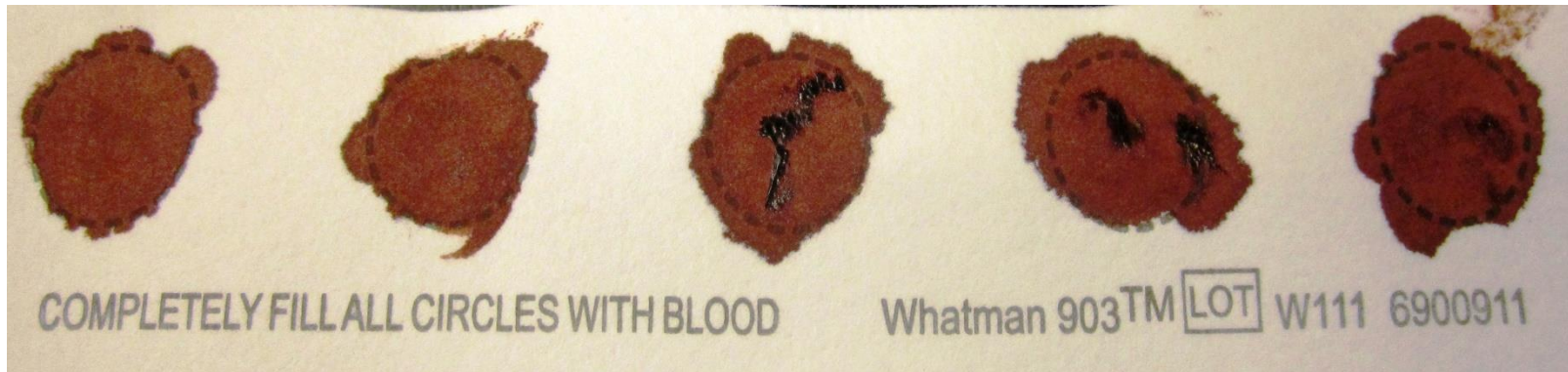


Do not excessively squeeze or “milk” the puncture site.



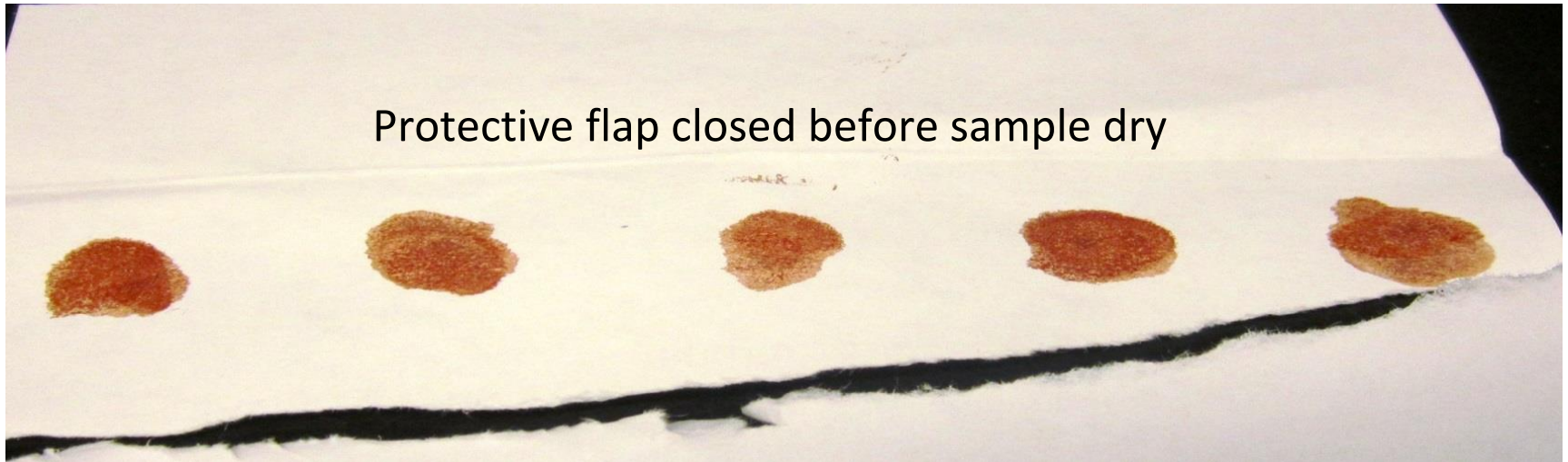
**If using
capillary
tubes, use
ones without
anticoagulants**

Clotted

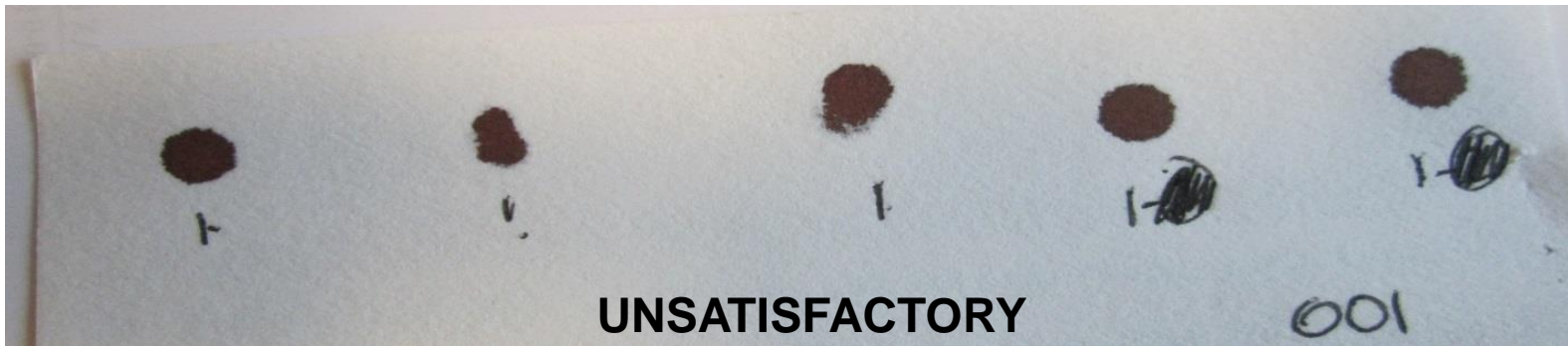


Apply the blood quickly so that it does not clot during application to the blood card.

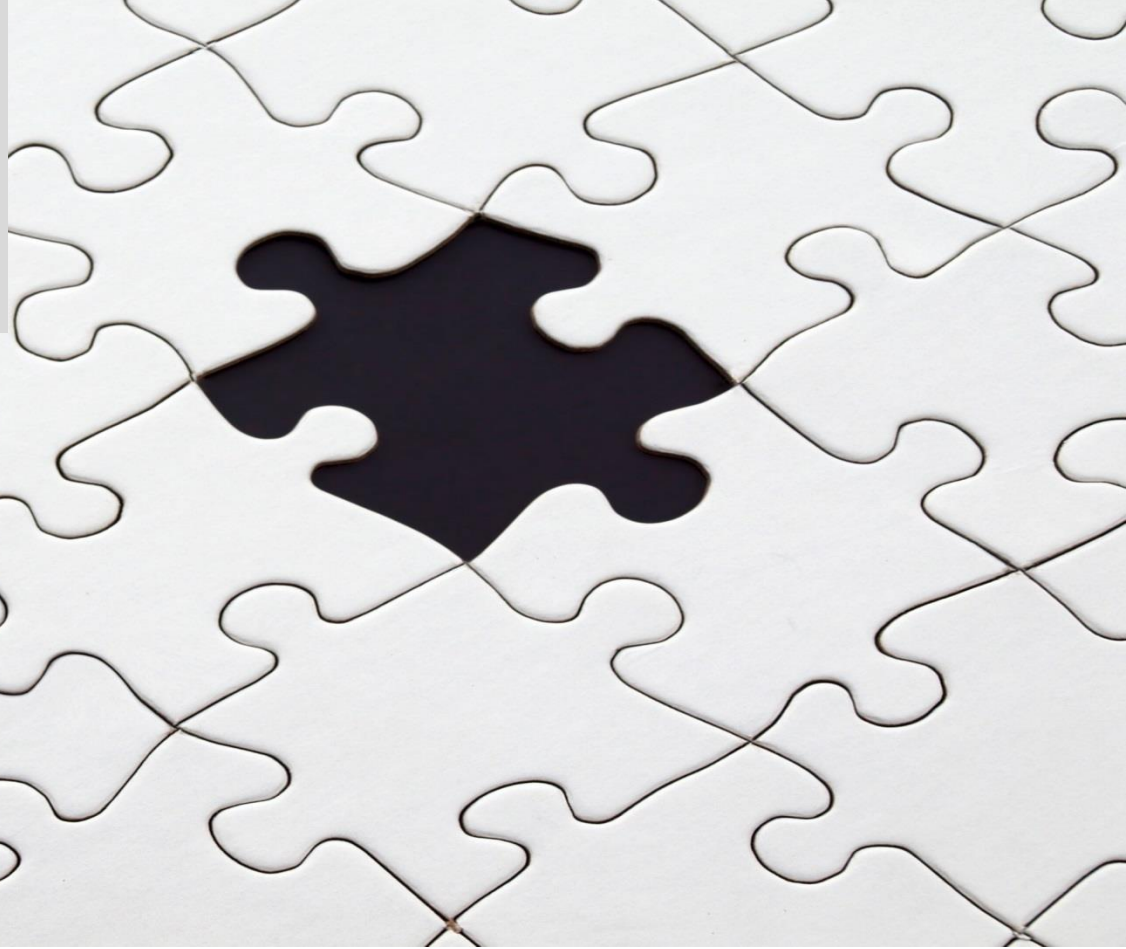
Do not close the protective flap
before the DBS sample is dry



It is better to successfully fill 2-3 circles than to partially fill five

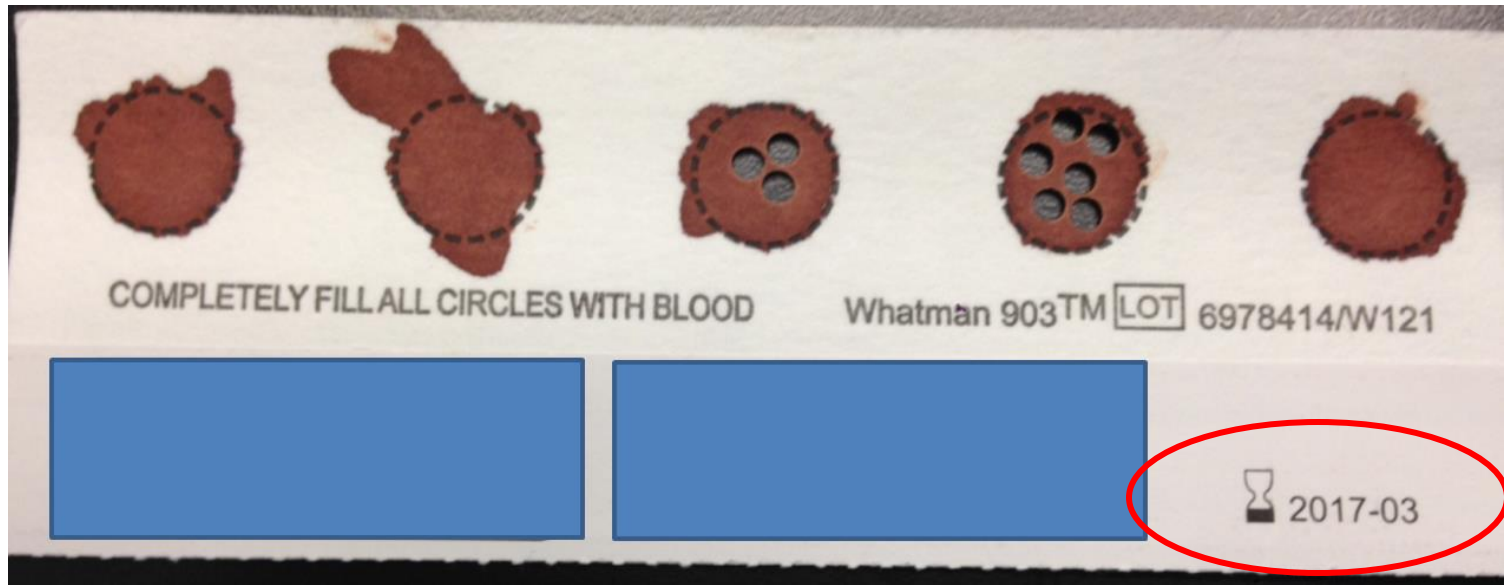


Missing information



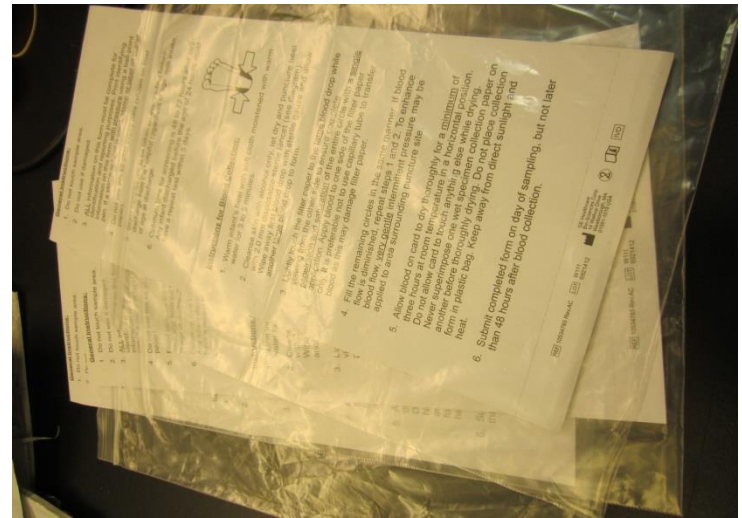
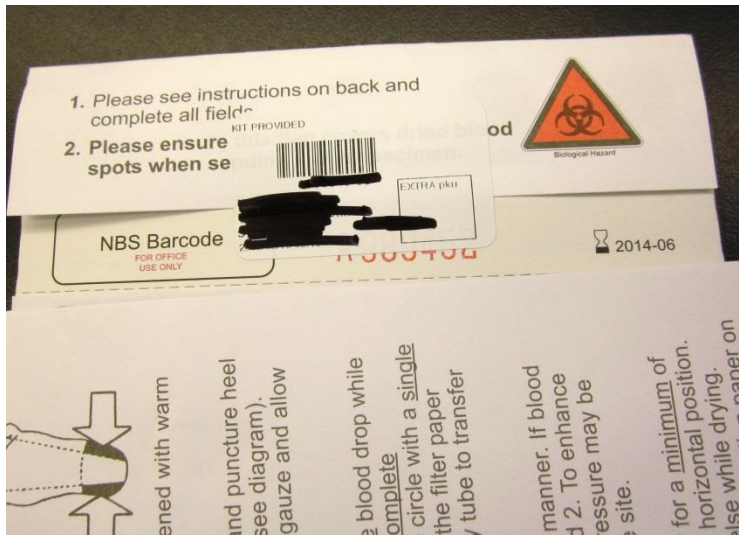
Confirm that the demographic portion of the card is completed correctly. The demographic information is used to help determine whether a sample is screen negative or positive.

Expired Blood Dot Cards



Each blood dot card has an expiry date which can be found in the upper right hand corner of the card next to an hourglass symbol and under the circles designated for blood collection.

Ziploc bags and stapled requisitions



It is not necessary to tape, staple or paperclip the protective flap to the blood collection card. The protective flap is sufficient to protect the sample.

It is not necessary to bag the samples individually or use Ziploc bags.

Some Reminders

Please ship newborn screening samples as soon as possible after collection.

If possible from your location, ship samples Monday to Saturday, as soon as possible after collection and allowing 3 hrs. drying time.

NSO covers the cost of shipping. Use your NSO account only to ship screening samples.

Failure to receive the sample in the lab within 14 days of collection will result in the sample being unsatisfactory as the sample integrity is in question. These samples will be analyzed but since the results are unreliable, a repeat request will be generated



Other Newborn Screening Sample Collection Resources

NSO website: <https://www.newbornscreening.on.ca>

NSO Sample collection video:

https://newbornscreening.on.ca/sites/default/files/submitter_manual_edition_2.pdf

CLSI NBS01-A6 Blood Collection on filter paper for
Newborn Screening Programs 6th Edition