

Blood Spot Card Sample



**COMPLETELY FILL ALL CIRCLES WITH BLOOD.
SOAK THRU**

Whatman 903® LOT W0XX XXXXXXX

YYY-MM REF 10534567 Rev.3 LOT W0XX XXXXXXX Whatman Inc.
 800 Centennial Ave.,
 Bldg 1
 Piscataway, NJ 08855
 USA

- 1) Do not touch sample area
- 2) Do not use if damaged

NBS lab use only

BC Children's Hospital
 NEWBORN SCREENING LABORATORY, Dept. of Pathology
 4480 Oak Street, Room 2F27, Vancouver, BC V6H 3V4
 Ph:(604) 875-2148, Fax: (604) 875-3836

PRINT CLEARLY WITH BALLPOINT PEN DO NOT USE ADDRESSOGRAPH

NEWBORN

Name Surname First Name M
 F

PHN Date of Birth Time of Birth

Hosp Place of Birth Unit/Hospital #

Birth Weight (g) Multiple Birth Gestational Age:
 Y N Term Prem _____ (wks)

Newborn on TPN? RBC Transfusion? Last Date:
 Y N Y N dd/Month/yy

MOTHER

Name Surname First Name

PHN

PHYSICIAN/MIDWIFE (to be notified of results)

Name Surname First Name Billing #

COLLECTION

Collected By Collection Date Collection Time

dd/Month/yy __ : __

Collection Location (if NOT hospital of birth)

If not an **initial** Newborn Screen, check below:
 Repeat Screen Amino Acid Monitor
 Acylcarnitine Profile _____

Collection instructions on reverse. For information on disorders screened, visit: www.newbornscreeningbc.ca

SAMPLE

Ordering Blood Spot Cards:

- Please contact the C&W Newborn Screening Laboratory to obtain blood spot cards (Phone: 604 875-2147; Email: nbs_office@cw.bc.ca).
- Plan ahead and allow enough time for the cards to reach you by regular mail so that you do not run out of cards.

Blood Spot Card: Procedure for Collection

The procedure for collection of blood spot cards is outlined below and is found on the back of the newborn screening blood spot card. Questions about collection of blood in specific circumstances may be directed to the Supervisor of the Blood Collection Department at BC Children's Hospital (ph: 604 875-2139).

1. Utilize appropriate measures to enhance comfort for the baby during blood spot collection (e.g., breastfeeding, skin-to-skin).
2. Wash hands vigorously. Wear powder-free gloves and change gloves between babies.
3. Select puncture site.



Shaded areas indicate safe areas for puncture site (medial or lateral portion of the plantar surface of the baby's heel).

Avoid previous puncture sites or the curvature of the heel.

4. If the baby's heel is cool or the first puncture was unsuccessful, warm the heel for 3 minutes (may help increase blood flow).
 - Use a soft cloth moistened with warm (not hot) tap water. Tap water that is too hot may cause burns.
 - If a commercial heel warmer is used, follow the manufacturer's guidelines. Remember there is a higher likelihood of burning the skin of babies if the skin is fragile (e.g., premature babies).
5. Place the baby's leg lower than the heart (to increase venous pressure).
6. Cleanse puncture site with 70% isopropyl alcohol.¹
7. Allow heel to air dry.
8. Make puncture using sterile safety lancet or heel incision device with tip not longer than 2.0 mm (shorter for babies less than 1,500 grams in weight).
 - Incision devices are recommended as they make a standardized incision (better blood flow, less damage to the heel and fewer punctures required).
9. Wipe away the first drop of blood with a dry sterilized gauze pad (initial drop contains tissue fluids which might dilute the sample).
10. Allow a second, large drop of blood to form.
11. Touch the underside of the filter paper gently against the large drop of blood and, in one step, allow a sufficient quantity of blood to soak through and completely fill a preprinted circle.



Valid Blood Spot

Do not press the filter paper against the puncture site on the heel.

Do not layer successive drops of blood or apply blood more than once in the same collection circle.

Avoid touching or smearing spots.

12. Fill remaining circles with blood in the same manner as step 8, with successive drops of blood. If blood flow is diminished, repeat steps 3 to 7.

¹ 70% isopropyl alcohol is recommended as an antiseptic for the collection of blood spot specimens by the Clinical and Laboratory Standards Institute (CLSI). Refer to the BC Newborn Screening Program website (www.newbornscreeningbc.ca) or contact BC Children's Hospital Laboratory (p: 604-875-2148) if considering an alternative antiseptic to ensure the solution does not interfere with the results of the test.

13. After blood has been collected, elevate the baby's foot and place a sterile gauze pad against the puncture site until the bleeding stops.
14. **Allow blood spots to thoroughly air dry for at least three hours** at ambient temperature (18^o – 25^o) on a horizontal, nonabsorptive surface, away from direct heat and sunlight. Do not refrigerate.
15. Once dried, place blood spot cards into the sleeves provided. Place sleeves into an envelope and send to BC Children's Newborn Screening Laboratory, Department of Pathology, 4480 Oak Street, Vancouver, BC, Room 2F27, V6H 3V4 [within 24 hours of collection](#).

Timing of Collection

- 1) **Babies discharged after 24 hours of age:** Collect the blood spot card prior to discharge and between 24 and 48 hours of age (pre-term and term babies). If collection is not completed during this timeframe, collection should be done no later than 7 days.
- 2) **Babies discharged before 24 hours of age:** Collect the blood spot card prior to discharge. The Newborn Screening Laboratory (NBS) at BC Children's Hospital (BCCH) will request, through the baby's physician/midwife, that a repeat sample be collected by 2 weeks (14 days) of age.

Rationale for collecting 2 samples on newborns discharged at < 24 hours of age:

- The first blood screen will identify over 80% of disorders and will help to prevent life threatening events such as severe or potentially fatal bacterial infections in babies with galactosemia or significant metabolic crises in babies with medium-chain acyl-CoA dehydrogenase deficiency (MCAD), very-long chain acylCoA dehydrogenase deficiency (VLCAD) or maple syrup urine disease (MSUD).
- The 2nd screen optimizes detection of phenylketonuria (PKU), cystic fibrosis (CF) and homocystinuria (Hcy) which are time sensitive and cannot be reliably detected until 24 hours or more after birth.
- Most health authorities (HAs) or hospitals do not have processes in place to track and follow-up babies in the community who did not have a blood spot card collected prior to discharge.
- A pilot study at BC Women's hospital to trial deferral of testing revealed that up to 8 percent of parents did not return with their baby to the hospital for blood collection. Many parents find it difficult to return to the lab shortly after discharge with their baby, despite their best intentions. If a second sample is never collected, at least the baby will have received most of the benefits of screening.

Note: If an initial blood spot card is collected, the BC Newborn Screening Program will track that a follow-up card(s) is collected (if required). If an initial card is never collected, the Program has no way of identifying or tracking babies for screening.

Deferral process if parent/guardian declines collection of the sample prior to discharge ("informed deferral"):

- An "informed deferral" process is outlined in the guideline for babies discharged at less than 24 hours old where the parents wish to defer blood spot card collection.

Exceptions to collection of two blood spot cards may apply if a health authority/hospital has a clear process in place to follow-up after discharge to ensure the blood spot is collected or if the baby is under the care of a registered midwife.

- 3) **Babies who receive a blood transfusion:** If a blood transfusion is anticipated, whenever possible, collect a blood spot card prior to the transfusion regardless of the baby's age. If not collected prior to the transfusion, collect at 24 – 48 hours of age. The NBS Laboratory at BCCH will request, through the baby's physician/midwife, repeat cards as required.
- 4) **Very low birth weight babies (1,500 grams or less):** Collect an initial blood spot card between 24 and 48 hours of age. The NBS Laboratory at BCCH will request, through the baby's physician/midwife, a repeat card at three weeks (21 days) of age or on discharge from hospital, whichever is sooner. Very low birth weight babies who have congenital hypothyroidism (CH) may have a delayed rise in thyroid stimulating hormone (TSH). The first screen (done at 24 – 48 hours) may miss the detection of CH.