

Dried Blood Spot test

(for congenital hypothyroidism, cystic fibrosis, sickle cell disorder and 6 inherited metabolic disorders: phenylketonuria, medium chain acyl-coA dehydrogenase deficiency [MCAD], maple syrup urine disease [MSUD], homocystinuria [HCU], isovaleric acidaemia [IVA] and glutaric aciduria type 1 [GA1])

Standard

If consent is given by parents, infants will have the procedure carried out safely and efficiently. The method of obtaining the sample will be dictated by individual infant assessment; the card will be completed according to the laboratory's guidelines.

Timely collection of sample:

- All babies on admission to the unit will have their 1st dried blood spot card completed as part of their admission bloods. (Babies who have already had their dried blood spot test carried out prior to admission are excluded from this step). (See note 1)
- 2nd dried blood spot card completed between days 5-7 of life. Where a blood transfusion has occurred around this time, 72 hours must elapse before taking the 5-7 day sample. (See note 2)
- 3rd dried spot card completed on day 28 of life or at discharge whichever is sooner for all babies born at less than 32 weeks gestation. Where a blood transfusion has occurred around this time, 72 hours must elapse before taking this sample. (see note 3)

Parental Consent

- Parents need to be given the approved booklet **on day 3 of baby's life** and offered the opportunity to discuss any issues.
- Valid consent is obtained and recorded in baby's electronic/paper notes
- The consent form should be completed and signed indicating parents choices for:
 - congenital hypothyroidism, cystic fibrosis, sickle cell disorder, and the 6 inherited metabolic disorders
 - holding the card beyond the 1 year storage phase for further testing
 - for anonymised testing (research).
- If parents decide not to have their baby tested for one, some or all of the conditions, the Doctor/ANNP must be informed; if following their discussions the parents continue to decline, ask them to sign the form confirming that the reasons for testing have been explained to them, and that they understand the possible effects of their baby not being screened. Details on the dried blood spot card must be completed (excepting the blood spots) indicating the parents position; the form is then sent to Glasgow.
- Staff must record consent in 'Badger' and continuing consent in the baby's notes or the parents' decision not to proceed with any or all parts of the consent requirements.

Equipment

Disposable tray containing an alcohol swab, lancet, cotton wool ball, non-sterile gloves, paper towel, +/- container for blood sample (this depends on the manner of obtaining the sample - see blood sampling techniques: heel prick and venepuncture), an 'in-date' Dried Blood Spot card and oiled envelope.

Procedure

- Equipment is assembled and placed in an accessible position for carrying out the procedure. Check that the expiry date on the Card is valid for the card to be used.
- Cleanse hands according to NNU policy. Position the infant to promote his comfort during the procedure.

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- Apply gloves and collect blood according to sampling method requirements (see individual guidelines). If using a heel prick for sampling, allow the blood to drip freely onto the card; do not place the infant's foot against the card as the alcohol cleansing solution can interfere with the result.
- On the:
 - 1st card: completely fill **one** 'circle' with blood making sure that the drops soak through to back. Ensure the card has the pre-transfusion sticker completed.
 - 2nd card: completely fill **all** the 'circles' with blood making sure that the drops soak through to back.
 - 3rd card: completely fill **all** the 'circles' with blood making sure that the drops soak through to back.
- Complete the required documentation on the card.
- When the card is dried, place in the oiled packet in the correct tray in the 'Gas room'.
 - If baby has received a blood transfusion between 1st and 2nd card being completed, both cards are sent to the laboratory.
 - If baby has **not** received a blood transfusion between 1st and 2nd card being completed, only the 2nd card is sent to the laboratory. The nurse must check whether or not a transfusion has occurred and if not, must destroy the 1st card.
- The receptionists will record data for audit and send on to Glasgow. (No more than 6 cards should be in any one envelope).
- Document in appropriate section of computer record.

Nurse's role:

- Obtain admission card; place completed admission card in blood gas room.
- Give parents information on newborn screening.
- Seek and obtain consent for day 5-7 card
- Complete and place day 5 card in gas room. Check if baby has had a blood transfusion between admission card and day 5 card.
 - If baby has **not** received a transfusion, discard admission card.
- If baby is discharged to the ward or another hospital before day 5, send admission card with baby to the ward/hospital.
- If baby is discharged home before day 5, discard admission card.

Reasons why a repeat sample may be requested:

- Timing errors
 - baby was less than 72 hours old when day 5 sample taken
 - baby had a blood transfusion within 72 hours of the sample being taken
- Sampling errors
 - Insufficient blood available to perform all tests
 - Layering or compression of the blood
- Card detail errors
 - insufficient details on the card
 - inaccurate information
- Postage errors
 - the card was not dried properly prior to being posted
 - the card was damaged or did not reach the laboratory within the accepted time frame (14 days to reach the laboratory)
- Results
 - Equivocal or borderline test results

Potential complications:

Delayed detection and commencement of appropriate treatment for the specific illness.

Note

1. The 1st card is taken on admission. This is identified with:
 - the 'pre-transfusion' blood spot card sticker
 - the '700..' number written somewhere at the top/bottom of the card and not in the CHI number place
 - only one spot needs to be filled with blood.
2. The 2nd card is taken between days 5-7 of life (96-120 hours old). The 2nd test is carried out regardless of whether the infant is on milk feeds or not. **Mark the card** as Day 5. **Ensure** the CHI number is completed.
3. The 3rd card is for infants <32 wks gestational age: repeat sample at day 28 or discharge if sooner. **Mark the card** as Day 28 or discharge whichever is appropriate.
4. Training can be taken via the intranet. [Blood spot screening - midwives \(scot.nhs.uk\)](http://scot.nhs.uk)

High risk specimens should be marked clearly and placed in a plastic bag before being placed in envelope.

References

See <http://www.pnsd.scot.nhs.uk/wp-content/Newborn-Bloodspot-Sampling-Guidelines-2017-v1.0.pdf> or click [here](#) for pdf