Changes to the Newborn Bloodspot Screening Policy for Congenital Hypothyroidism (CHT) in Preterm Babies

A UK policy change has been agreed that will mean changes to:

- which preterm babies require second CHT tests
- the timing of these second bloodspot samples.

Preterm babies require a second test for CHT as the routine bloodspot test result can be incorrectly negative because of the baby’s prematurity.

Revised CHT Preterm Policy

Implementation Date: 1st April 2012

It has been agreed that the revised CHT Preterm Policy will be implemented across the UK on the 1st April 2012.

All babies born on or after 1st April 2012, at less than 32 weeks gestation (less than or equal to 31 weeks+6 days) should be offered a second preterm CHT test at 28 days of age (counting day of birth as day 0) or on day of discharge home whichever is the sooner.

Please refer to pathway on page 5 ‘Newborn Bloodspot Screening - For all babies cared for in hospital specialist units.’

The consultant neonatologist or general paediatrician is professionally responsible for ensuring that the second CHT sample is offered, and that the sample is obtained whilst the baby is an in-patient in neonatal or paediatric services. If a baby is moved to another hospital, responsibility for taking the second CHT sample is transferred to the receiving hospital.

To enable the Newborn Screening Laboratory to report a valid CHT result, it is essential that the gestational age at birth is recorded on the bloodspot card.
The new policy will significantly reduce the number of babies who require a second preterm CHT test. The process of ensuring the second samples are taken should be clearer because the babies will still be on the neonatal or paediatric units when the second sample is required, and therefore responsibility for taking the sample is more clearly defined.

**Background**

Screening for CHT aims to detect babies who do not produce adequate thyroxine from birth. Babies may not produce adequate thyroxine because their thyroid gland has not developed, or has failed to develop properly, or they cannot produce active thyroid hormone due to an inherited deficiency.

If babies with CHT are not treated they can develop a serious and permanent physical and mental disability. Babies who are identified as having CHT are treated with thyroxine tablets.

Screening for CHT is based on thyroid stimulating hormone (TSH) levels measured in the bloodspot sample taken 5-8 days after birth (counting day of birth as day 0). Ideally, this sample is taken on day 5. Babies whose screening results show raised TSH levels are referred promptly to an endocrinologist for specialist care.

Preterm infants, especially those born between 23 and 27 weeks gestation, are more likely to have low TSH levels at the time of the first routine newborn bloodspot screening test. This may be due to a number of factors including immaturity of thyroid function, the effects of acute illness and/or the use of iodine containing compounds in imaging and surgery. It is these preterm infants who show a delayed rise in TSH levels after birth who are the target population for the preterm second CHT screening test.

**Current CHT Preterm Policy**

Currently, all babies (irrespective of gestational age) have a bloodspot sample collected at day 5 to 8 of life for newborn screening. The existing CHT preterm policy is that babies born before 36 weeks gestation should also have a second sample collected for CHT when they reach the equivalent of 36 weeks gestational age.
Drawbacks of this policy are that very premature infants might wait up to twelve weeks for a second CHT test. There is also concern that a percentage of babies have an unnecessary second test.

An expert sub-group comprising representatives from the British Society of Paediatric Endocrinology (BSPED), the British Association of Perinatal Medicine (BAPM) and the UK Newborn Screening Laboratory Network (UKNSLN) reviewed the evidence and consulted on reviewing the policy. They concluded that the optimal gestational age threshold for second testing is 32 weeks gestation (i.e 31 weeks + 6 days).

Questions and Answers about the revised CHT preterm policy

- **Do babies born before 1st April 2012 need a second CHT preterm bloodspot test at 36 weeks?**

Prior to 1st April 2012, the existing policy of second testing when a preterm baby reaches the equivalent of 36 weeks gestational age remains.

There will also be a transition period which applies to preterm babies born before April 2012 who will not have had their second sample prior to 1st April 2012. The Newborn Screening Laboratory will send out reminders for the second CHT bloodspot tests depending on date of birth and gestation.

- **What are the implications of this policy for neonatal unit staff?**

The revised CHT preterm policy applies to babies born under 32 weeks gestational age. These babies will be under the care of the in-patient neonatal or paediatric services when the second CHT sample is due at 28 days of age.

If babies are discharged home prior to 28 days of age they should have the second CHT sample taken on the day of discharge, before they go home.

The consultant neonatologist or general paediatrician is professionally responsible for ensuring that the second CHT sample is offered, and that the sample is obtained whilst the baby is an in-patient in neonatal or paediatric services. The bloodspot samples will continue to be taken
by appropriate healthcare professionals providing care on the neonatal or paediatric units.

If a baby is moved to another hospital, responsibility for taking the second CHT sample is transferred to the receiving hospital.

- **What are the implications of this policy for midwives?**
  All second CHT preterm samples should be taken whilst the babies are in-patients in neonatal or paediatric services. It is therefore unlikely that midwives will be required to take these second samples.

- **How many bloodspots need to be collected for the second preterm CHT sample?**
  Two bloodspots (two circles filled and evenly saturated) are required on the screening card for the second preterm CHT sample.

- **Does the policy change affect the routine newborn bloodspot screening test?**
  The routine newborn bloodspot screening test is not affected by the change in preterm CHT second policy.

Samples for newborn bloodspot screening should be taken, 5-8 days after birth (counting day of birth as day 0). Ideally the samples should be taken on day 5. All babies (irrespective of gestational age) are offered this screening.

The conditions currently screened for in Wales are phenylketonuria (PKU), congenital hypothyroidism (CHT) and cystic fibrosis (CF).

Two additional newborn bloodspot screening tests will be introduced this year. Screening for medium chain Acyl-CoA dehydrogenase deficiency (MCADD) is due to start in June 2012, and screening for sickle cell disorders will be introduced from December 2012.

Further information will be sent out to health professionals prior to the introduction of these new screening tests.

Information provided with thanks to the UK Newborn Blood Spot Screening Programme ([www.newbornbloodspot.screening.nhs.uk/chtpretermpolicy](http://www.newbornbloodspot.screening.nhs.uk/chtpretermpolicy))
Newborn Bloodspot Screening
For all newborn babies in hospital specialist units

1 April 2012

Admission

Days 0-4 (date of birth = day 0)
Give information and gain consent

Blood transfusion?

Days 5-8 (ideally day 5)
Take routine sample (4 spots)

The date of the most recent blood transfusion must be recorded on the blood spot card

Routine sample must be taken by day 8 at the latest, and a further repeat sample taken 72 hours after the last transfusion

Less than 32 weeks gestation?

Yes

CHT
Repeat sample taken (2 spots) at 28 days of age or on day of discharge from hospital, whichever is sooner

No

Multiple blood transfusion?

Yes

No

Pathway complete unless further sample requested by lab

Gestational age at birth must be recorded on the blood spot card for laboratory to report a valid CHT result

Information for health professionals