Case study

Birmingham Children's Hospital NHS Foundation Trust and the NHS Numbers for Babies (NN4B) project

The NHS Numbers for Babies (NN4B) project has driven the adoption of GS1 bar codes in hospitals to ensure the positive identification of babies during the newborn screening process. With the implementation of GS1 bar codes, babies can also be tracked accurately throughout the healthcare system using the unique NHS number. Birmingham Children's Hospital NHS Foundation Trust has implemented GS1 bar codes at its newborn bloodspot screening laboratory to ensure that the right baby is matched to the right test results.

Background

The NHS Numbers for Babies (NN4B) service was launched on 29 October 2002. The service has made it possible to track every baby born in England, Wales and the Isle of Man based on a unique NHS number allocated shortly after birth and used for the rest of their lives.

Midwives and maternity staff use an online service to request and receive an NHS number for a baby shortly after birth. Previously, babies used to have to wait until their civil registration, up to 6 weeks after birth, before they received an NHS number. Early issue of NHS numbers gives each baby a unique identifier making it easier to match test results, monitor quality of care, improve neonatal research and help provide clinicians with information needed to implement best practice. A newborn's personal and health details will therefore be consistent and accessible to ensure continuous quality healthcare.

The National Screening Committee recommends that all babies are screened for five conditions: phenylketonuria, congenital hypothyroidism, sickle cell disease, cystic fibrosis and medium-chain acyl-CoA dehydrogenase deficiency. The blood spot test is performed by pricking the heel of the baby's foot and dropping the blood obtained onto a special filter paper card where it is dried as several blood spots. These blood spots are sent to a newborn screening laboratory where they undergo tests to detect any of the five conditions that all benefit from early detection.

One problem previously faced by the newborn screening programme was the tracking of babies through the system to make sure they had been tested. Until the NN4B service, this was only possible by using names and other personal identifiers because the NHS number was not available at the age when screening was carried out (5-8 days). This process increased the risk of mismatching the baby to its test results, due to the fact that around the time of birth, a baby's name and address may be subject to change and cannot be relied on.

Bar coding in the NN4B project

The objective of the additional functionality to provide bar coded labels is to make sure that the screening laboratory receives the blood spot filter paper card with the NHS number represented as a GS1 bar code as well as in human readable format on a label. Specifically, the aim is to enable all maternity units to print 'standard sticky labels' with the GS1 bar coded NHS number and basic demographic details to give to the baby's mother with the personal child health record (PCHR), usually before discharge from the maternity unit.

The globally unique GS1 code required by the NHS for this project is the Global Service Relation Number (GSRN) which contains the GS1 NHS CFH identifier, the NHS number and a check digit that ensures the data element string has been correctly composed. Once implemented, midwives using the NN4B specified labels to carry out blood spot tests will not have to handwrite the basic birth and demographic details, saving time and reducing errors in writing and reading. Data transcription errors in test laboratories will also be reduced.

"GS1 bar coded labels will enable the NHS number to be used as a unique identifier within the screening process allowing for the tracking of babies throughout the system. Being able to identify and track the progress of babies is fundamental to reducing the risk of babies going untested or not being tested in a timely fashion." **says Glen Woodward, Project Manager – NN4B Migration Lead, NHS Connecting for Health (NHS CFH)**

The NN4B process at Birmingham Children's Hospital

Birmingham Children's Hospital runs a newborn bloodspot screening laboratory that tests 70,000 babies a year for five different disorders recommended by the National Screening Committee. The blood screening laboratory, one of 13 in England, tests babies from 17 different Primary Care Trusts (PCT) within the West Midlands SHA.

Usually before a baby is discharged from hospital, the mother will receive a personal child health record (PCHR) also known as a 'red book' into which a set of GS1 bar code labels is inserted. When home, a midwife will then carry out the blood spot test at 5-8 days of age. A bar code label is attached to the blood spot card which is then sent to the Birmingham Children's Hospital screening laboratory where staff can scan the bar code label to search for the baby's NHS number which will bring up his/her demographic details on their system.

The hospital's blood screening laboratory is the only one in England that is directly linked to the Child Health Record Department's systems, allowing it to download babies' demographic details accurately to its own system. Once the blood test is complete, the results are recorded in the laboratory's system and then sent electronically to the Child Health Record Department. This quicker and more efficient process reduces the amount of administrative work involved and reduces potential errors.

Other screening labs across England currently receive handwritten test cards from midwives. The information is then typed into their computer systems and the printed results are posted to the Child Health Record Department where it is re-typed into their systems. This manual process of handwriting and re-typing information increases the risk of transcription errors.

Birmingham's screening laboratory faces the challenge of getting all the maternity units that it services within the West Midlands region to update their computer systems (software/hardware) to be able to print out GS1 bar coded labels. The hospital is working with all the trusts that it services to provide implementation support and guidance through the 'West Midlands pilot project' which is funded and supported by the National Screening Committee.

"With the implementation of GS1 bar codes, Birmingham Children's Hospital has benefited from a quicker, easier and more accurate process of identifying the babies that are tested at our screening laboratory. A simple scan of a baby's unique GS1 bar code label ensures that the right test results are matched with the right baby. This process improves patient safety by eliminating the risks associated with handwriting, illegibility and transcription errors," ***says*** **Paul Griffiths, Director of Newborn Screening Services, Birmingham Children's Hospital NHS Foundation Trust.**