



GIG
CYMRU
NHS
WALES

Archwiliadau Corfforol
ar gyfer Babanod a Babanod
Newydd-anedig Cymru
Newborn and Infant
Physical Examination Cymru



Llywodraeth Cymru
Welsh Government

New-born and Infant Examination Cymru (NIPEC) 2023

Examination of the Hips



Contents

Examination of the Hips

Incidence	4
Clinical risk factors	4
Undertaking the hip examination	5
Abnormality not suspected at newborn and infant examination	7
Abnormality suspected following newborn examination	8
Abnormality suspected following infant (6 week) examination	8
Pathway	9

Acknowledgements

Welsh Government would like to give special thanks to the main report author:

**Miss Clare Carpenter BSc MBBCH, MRCS(Eng), Pg Dip (Sports Med), FRCS (Orth), MD
Consultant Paediatric Trauma and Orthopaedic Surgeon**

We would also like to thank the following for their specific contributions towards this report:

Mr Paul R Williams (*Consultant Trauma & Orthopaedic Surgeon*), Dr Rachel Hayward (*Consultant Neonatologist*), Dr Robert Bryan Beattie (*Lead Consultant in Fetal Medicine*), Mrs Jayne Frank (*NIPEC Lead Midwife, Specialist Fetal Medicine Midwife*), Dr Oliver Rackham (*Neonatal Consultant*), Jessica Case-Stevens (*Midwifery Lecturer, Cardiff University & Midwife*), Mrs Rebecca Boore (*Health Education and Improvement Wales*), Public Health Wales, Dr Heather Payne (*Senior Medical Officer, Welsh Government*), Lois Huelin, Alex Hicks (*Programme leads, Children's Health Team, Welsh Government*), Midwifery team (*Welsh Government*) and Design Team (*Welsh Government*).

Elements of this guideline have been reproduced and adapted from the NIPE Programme Handbook 2021 with permission from the NIPE Programme Team, NHS England.

NHS England (2021) Newborn and infant physical examination screening programme handbook.
Available at: [Newborn and infant physical examination \(NIPE\) screening programme handbook – GOV.UK \(www.gov.uk\)](https://www.gov.uk) (Accessed: 18th October 2023)

References to parent(s) also relate to carer(s), if appropriate.

Examination of the Hips

The guidance below relates to both NIPEC newborn and infant (6 week) examinations unless otherwise stated.

The primary purposes of screening are:

- **early identification of a dislocated or a dislocatable hip(s)**
- **the identification of sonographic pathological hip dysplasia through selective ultrasound scan (USS)**
- **minimising the risk of long-term complications through:**
 - **timely hip ultrasound scan**
 - **early intervention**



Examination of the Hips

Incidence

Developmental dysplasia of the hip (DDH) is the most used term for the congenital disorder where there is an abnormal relationship between the ball and socket of the hip joint. It is also referred to as congenital hip dislocation or hip dysplasia.

DDH has a reported incidence of 1-2 per 1000 live births with approximately 35–70 new cases of DDH treated in Wales each year.

Early identification of these cases allows more successful non-surgical intervention with harness treatment. With optimum treatment, most children can develop normal hips, with full range of mobility.

Without treatment DDH may lead to problems in later life including a limp, hip pain and predictable osteoarthritis. Undetected unstable hip(s) with delayed treatment may result in the need for complex surgery and, or long-term complications such as impaired mobility and pain osteoarthritis of the hip and back.

Clinical risk factors

The mother should be questioned directly with regards to of the identified risk factors below if they have not already been identified;

Family history

- First-degree family history of hip problems in early life as defined by a positive response to this question, *“Is there anyone in the baby’s close family, i.e., a mother, father, brother or sister, who has had a hip problem that started when they were a baby or young child that needed treatment with a splint, harness or operation?”*

The identification of a breech presentation

- Any baby at or after 32 completed weeks of pregnancy, irrespective of presentation at birth or mode of birth should be referred for an USS as per pathway.

In the case of a **multiple birth**, if any of the babies falls into either of these categories, all babies in this pregnancy should have an ultrasound examination.

This is because if one of the babies meets the criteria of breech presentation described above during pregnancy, it may be difficult to accurately identify which baby was affected.

Unless a history of breech presentation at these times has already been handed over from the midwifery staff, or is evident from the maternal notes, the parent should be asked *“Was your baby head down after 32 weeks of pregnancy?”*

Examination of the Hips

Additional risk factors

If the health board indication for screening is more extensive than those stated above, it is recommended that they continue to provide that level of screening. The advice above is the minimum requirement for each health board within Wales. It is acknowledged that there are other conditions that are associated with DDH that may also require hip screening and this will be decided at a local level. The variation across Wales for additional risk factors include:

- **Oligohydramnios is defined as the deepest vertical pool (DVP) or amniotic fluid index (AFI) < 5th percentile for liquor volume or when a sonographer has recorded subjective diagnosis of oligohydramnios at any stage in pregnancy.**
- **Large Birthweight infants > 4.5 kg**
- **Congenital Foot deformities – metatarsus adductus, calcaneovalgus, positional talipes**
- **Packaging deformities – congenital knee dislocation, torticollis, plagiocephaly**
- **Neuromuscular Conditions – Spina bifida, Arthrogryposis, Syndromic Conditions – VATER / VACTERL**

It is advised that the local clinicians responsible for the management of DDH have written protocols so that all staff examining infants are fully aware of the local diagnostic and treatment pathways.

Ensure the newborn is examined on a flat surface with the nappy removed.

Undertaking the hip examination

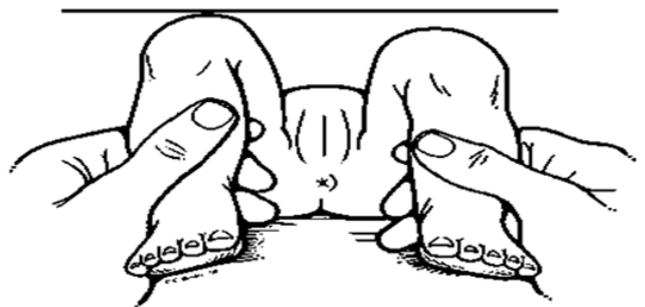
Before the examination, practitioners should establish:

- **a mother's recent obstetric history**
- **a baby's family history**
- **the presence of any NIPEC hip risk factors**

The examination should take place in a warm environment and on a firm, flat surface with the baby undressed and settled.

Observation and manipulation

1. **Galleazzi test:** Performed by placing the flexed knees and hips together to observe the symmetry of leg lengths. This helps in detecting a unilateral dislocation (see below).
2. **Barlow manoeuvre:** performed by adducting and flexing the hip (bringing the thigh towards the midline) while applying light pressure on the knee, directing the force posteriorly. If the hip is dislocatable the test is considered positive (i.e. if the hip can be popped out of socket with this manoeuvre).



Examination of the Hips

3. **Ortolani manoeuvre:** performed by first flexing the hips and knees of a supine infant to 90 degrees, then with the examiner's index fingers placing anterior pressure on the greater trochanters, gently and smoothly abducting the infant's legs using the examiner's thumbs. A positive sign is a distinctive 'clunk', which can be heard and felt as the femoral head relocates anteriorly into the acetabulum

Specifically, this tests for relocation of a posteriorly dislocated hip. It usually becomes negative after 2 months of age.

4. **Limitation in abduction** with the hips and knees flexed to 90 degrees can sometimes be the most sensitive sign of a dislocated hip. This is usually more evident in the infant hip.

On this basis **clinically abnormal** hips will fall into three broad categories:

1. FRANKLY DISLOCATED BUT RELOCATABLE:

There is a leg length discrepancy with the dislocated side being short. On Ortolani's test there is a clunk as the hip re-enters the socket. In this situation the hip is dislocated as the child lies on the couch but relocates.



2. FRANKLY DISLOCATED HIPS BUT IRREDUCIBLE:

There is a leg length discrepancy but the Ortolani's test is negative.



3. HIPS WHICH ARE LOCATED BUT DISLOCATABLE:

The leg length equal but **Barlow test** positive.

The most likely cause for this situation is physiological neonatal instability of the hip rather than frank dislocation. 90% of these cases settle within six weeks.

Examination of the Hips

Abnormality not suspected at newborn and infant (6 week) examination

Babies with no abnormality suspected at the NIPEC newborn clinical examination and no national hip risk factors present should have the NIPEC infant examination at 6 weeks.

Infants with no abnormality suspected on NIPEC infant (6 week) examination (and no national hip risk factors – unless they have not been previously referred), should follow the Healthy Child Wales Programme.

Parental concern

Parents should be advised to contact their midwife, GP or health visitor if they have concerns about their baby's hips. They should observe if:

- **one leg cannot be moved out sideways as far as the other when changing the baby's nappy**
- **one leg seems to be longer than the other**
- **one leg drags when their baby starts crawling**
- **their child walks with a limp or has a 'waddling' gait when they start walking.**



Examination of the Hips

Abnormality suspected following newborn examination

An abnormality suspected result is:

- an abnormal clinical hip examination (with or without risk factors)
- **OR** presence of risk factors (family history, breech after 32 weeks, multiple birth, any locally agreed risk factors).

A suspected abnormality on clinical examination is defined by:

- **difference in leg length**
- **knees at different levels when hips and knees are bilaterally flexed**
- **restricted unilateral limitation of hip abduction (with a difference of 20 degrees or more between hips)**
- **gross bilateral limitation of hip abduction (loss of 30 degrees abduction or more)**
- **palpable 'clunk' when undertaking the Ortolani or Barlow manoeuvre**

Babies with an abnormality suspected following NIPEC newborn examination should be managed as outlined below.

ABNORMALITY SUSPECTED following NEWBORN examination

Abnormality suspected in newborns with detectable **clinical abnormalities**:

- **should be referred urgently for a neonatal hip ultrasound by 2 weeks of age.**

Abnormality suspected in newborns because of **identified risk factor**:

- **should be referred urgently for a neonatal hip ultrasound and scanned by 6 - 8 weeks of age.**

ABNORMALITY SUSPECTED following INFANT (6 week) examination

Abnormality suspected in infants with **any** detectable **clinical abnormality or risk factor highlighted at the 6 week examination**:

- **should be referred urgently for a neonatal hip ultrasound within 2 weeks.**

Pathway

