



| PROCEDURE | |
|-----------------------|------------------------|
| Hip assessment | |
| Scope (Staff): | Community health staff |
| Scope (Area): | CAHS-CH, WACHS |

This document should be read in conjunction with this [DISCLAIMER](#)

Aim

To identify deviations from normal in the development of the hip joint.

Risk

If deviations from normal are not detected early, the hip joint may develop abnormally leading to degenerative joint disease, impaired gait abnormalities, or hip, knee and lower back pain.

Definitions

Developmental dysplasia of the hip (DDH) describes the condition in which the femoral head has an abnormal relationship to the acetabulum. It includes frank dislocation (luxation), partial dislocation (subluxation) and instability (femoral head comes in and out of the socket).¹

Luxation or dislocation is the femoral head being positioned completely outside the acetabulum.¹

Subluxation is the femoral head being partially displaced outside of the acetabulum.²

Clinically unstable hips are when the femoral head is able to move within or outside the acetabulum.¹ The hips can be displaced by stress maneuvers.²

Background

Developmental dysplasia of the hips is a developmental condition, which can develop at any time until the child is walking¹ and beyond. Therefore repeated examination outside the newborn period is recommended and nurses should be alert to signs of DDH at every contact during the period from birth to independent walking. The earlier DDH is detected, the simpler the treatment.¹

Most hips stabilise in the first weeks of life, with over 90% having developed normally within 12 weeks.³

The incidence of DDH is around 7 per 1000 live births. Late presenting DDH is estimated to be about 2 per 1000 live births.⁴

Risk factors for DDH include:

- female (more susceptible to the maternal hormone relaxin compared to males)^{1, 2}
- breech presentation (in either sex)²

- family history (first degree relative)²
- tight wrapping with legs held straight
- birthweight over 4000g²

DDH is also associated with:⁵

- first born child
- torticollis
- oligohydramnios

Significantly, 60% of babies with DDH have no identifiable risk factors.⁶

The experience and training of the examiner and the age of the child influence the incidence.¹ It takes practice and expertise to differentiate between a normal unstable hip during early development and a truly dislocatable hip.

Table one provides a summary of the assessments performed at each age range.

Table 1. Observations in infants and children with developmental dysplasia of the hip⁷

| Observation | Unilateral | Bilateral |
|---|------------|-----------|
| Birth to around 3 months of age | | |
| Hip instability (positive Ortolani or Barlow tests) | Yes | Yes |
| Asymmetric skin creases (inguinal, gluteal, thigh, popliteal) | Yes | No |
| Limb length discrepancy (positive Galeazzi) | Yes | No |
| 3 months to walking independently | | |
| Limitation of hip abduction in 90 degree flexion | Yes | Yes |
| Limb length discrepancy (positive Galeazzi) | Yes | No |
| Asymmetric skin creases (inguinal, gluteal, thigh, popliteal) | Yes | No |
| After the child is walking independently | | |
| Unilateral toe walking | Yes | No |
| Abnormal gait (Trendelenburg gait) | Yes | Yes |

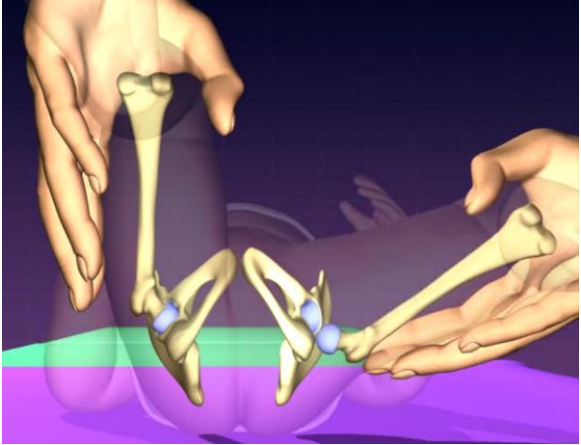
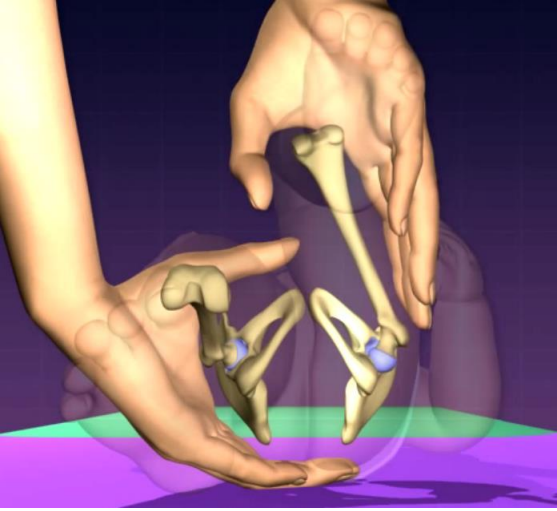
Key Points

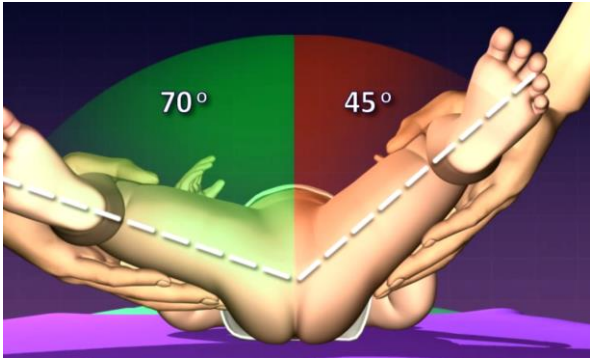
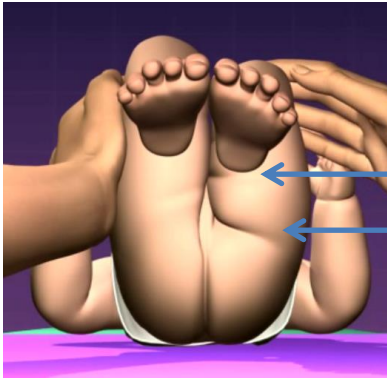
- In instances where the infant has been referred in response to risk factors at hospital discharge, the nurse is to review the outcome of these investigations.

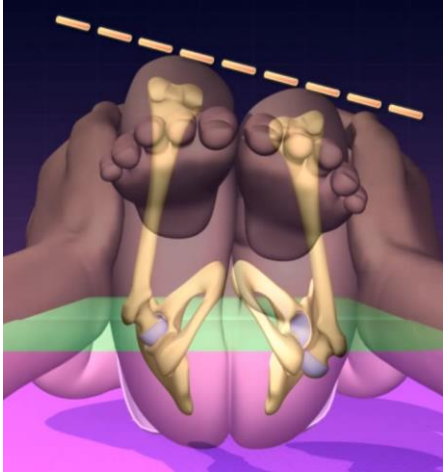
- During the first few weeks after birth, instability of the hip is common. Newborn soft tissue hip ‘clicks’ are palpable or audible during early examinations. These are not predictive of DDH¹ as they are benign and resolve in time² and do not require monitoring or referral.
- As the baby approaches 12 weeks of age, laxity decreases as muscle tightness increases and the Barlow and Ortolani tests are no longer accurate.^{1 2}
- From 3 months of age, limited abduction and asymmetry are the most reliable signs of DDH.
- Physical examination of the hips is to be performed by nurses with appropriate training.
- For more information and a visual presentation, refer to the DVD *Developmental Dysplasia of the Hip in Infants – Diagnosis and Management* (in related external resources).
- Staff are required to comply with the Hand Hygiene policy.

Process

| Steps | Additional Information |
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| <p>1. Engagement</p> <ul style="list-style-type: none"> • Infants must be relaxed and on the assessment bench. • Enquire about risk factors with the parent. • Explain the procedure to the parent. • Nurse to stand at the foot of the assessment bench, facing the infant. • Assess the infant with gentle, warm hands. | <ul style="list-style-type: none"> • Perform the test(s) below according to appropriate ages as indicated. • When conducting assessments for DDH, gentle handling of the infant and child is important, as the goal is not to prove that the hip can be dislocated. • Nappies must be removed from infants. • For children who are independently walking, assessments will be completed wearing light clothing, for example underwear and t-shirt. |
| <p>2. Assessment of hip stability: Ortolani test (birth to around 12 weeks)</p> <ul style="list-style-type: none"> • Infant is placed in supine position with knees fully flexed and hips flexed to the right angle • Place palm of hands on knees, with middle finger of each hand being placed over the greater trochanter and thumb of each hand on inner sides of the thighs. • Hips are assessed one at a time. • The hip is flexed to 90 degrees. | <ul style="list-style-type: none"> • Ortolani test identifies a dislocation. • This test is positive if a dislocated hip is manually reducible. The nurse feels the head of the femur relocating into the acetabulum with a ‘clunk’.⁵ • In newborns, the sensation is of a slight catch of cartilage sliding over cartilage. Finer clicks are frequently felt and are not characteristic of hip dysplasia. |

| Steps | Additional Information |
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| <p>Thighs are gently abducted one at a time. Gently elevate the greater trochanter with the middle finger during abduction, and apply gentle pressure.</p> | <ul style="list-style-type: none"> • Correct hand positioning is important, as shown in image below:  |
| <p>3. Assessment of hip stability: Barlow test (birth to around 12 weeks)</p> <ul style="list-style-type: none"> • Infant is placed in supine position with knees fully flexed and hips flexed to the right angle • Place palm of hands on knees, with middle finger of each hand being placed over the greater trochanter and thumb of each hand on inner sides of the thighs. • Hips are assessed one at a time. • Hip is slowly adducted and gentle pressure is applied backward and downward towards the examination surface • If the hip is dislocatable it will be levered out of the acetabulum over its posterior rim. The femoral head is palpated to detect moving out of the back of the acetabulum. • If the hip is unstable but not dislocatable, the femoral head will slide posteriorly and laterally. | <ul style="list-style-type: none"> • The Barlow test identifies instability, as the unstable hip dislocates from the acetabulum • A gentle posterior force will cause a dislocatable hip to palpably slip out of the acetabulum.⁵ • Nurse <i>may</i> feel a palpable 'clunk' of dislocation. • Correct hand positioning is important, as demonstrated below:  |

| Steps | Additional Information |
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| <p>4. Assessment for limited abduction: Abduction (around 3 months to walking independently)</p> <ul style="list-style-type: none"> • Infant is placed in supine position with knees fully flexed • Hips and knees flexed to 90 degrees • Thighs are gradually and gently abducted simultaneously to 70 degrees from the midline | <ul style="list-style-type: none"> • This should be gradually performed a few times to allow infant to relax • Limited abduction of a stable hip (unilateral or bilateral) is abnormal. It is a significant finding requiring further investigation (referral), however it is not diagnostic. • The image below demonstrates that the right hip can be abducted to 70 degrees whilst the left hip has limited abduction.  <p>The diagram shows a baby lying on its back with knees bent at 90 degrees. The right hip is abducted to 70 degrees, indicated by a green shaded area and a dashed line. The left hip is abducted to 45 degrees, indicated by a red shaded area and a dashed line. This illustrates a unilateral limitation in abduction.</p> |
| <p>5. Observe asymmetry: skin creases (birth to walking independently)</p> <ul style="list-style-type: none"> • Position infant so that creases can be observed in the following regions: • thigh • gluteal • popliteal • inguinal • Any asymmetry of skin creases and greater pelvis width should be noted. | <ul style="list-style-type: none"> • Asymmetrical creases may be a sign of unilateral DDH. • Thigh creases that are asymmetrical can be a sign of unilateral DDH <i>if</i> they are also associated with uneven gluteal creases.⁸ • Below shows asymmetric creases assessment below:  <p>The diagram shows a baby lying on its back with knees bent. Two blue arrows point to the thigh and gluteal regions, highlighting asymmetrical skin creases on the right side, which is a potential sign of unilateral developmental dysplasia of the hip (DDH).</p> |
| <p>6. Assessment of limb length: Galeazzi Test (birth to walking independently)</p> <ul style="list-style-type: none"> • Infant is laying in supine position, with knees flexed. | <ul style="list-style-type: none"> • Limb length discrepancy can identify unilateral hip dislocation (positive Galeazzi sign) • The image below shows a shorter left |

| Steps | Additional Information |
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| <ul style="list-style-type: none"> The examiner must stand at the end of the examination surface, with eyes level with infant's knees The knee with affected hip and contracted muscles will be shorter than the unaffected leg in the horizontal plane, as femur is shortened on this side. | <p>leg.</p>  <ul style="list-style-type: none"> Bilateral dislocation may not present with a positive Galeazzi sign. Bilateral dislocations are more difficult to diagnose than unilateral dislocations because symmetry is retained. |
| <p>7. Observe gait deviations (from when the child is walking independently)</p> <ul style="list-style-type: none"> Observe for Trendelenberg gait (trunk noticeably moves from side to side) Observe for unilateral toe walking | <ul style="list-style-type: none"> Bilateral DDH will cause waddling gait with hyperlordosis (exaggerated curvature of lower spine) Unilateral DDH will cause limping because of shortened limb Unilateral toe walking may be a result of unilateral DDH, because of a shortened limb |

* Images reproduced from Victorian State Government 'Developmental Dysplasia of the Hip Online Education Module' available from <https://www.education.vic.gov.au/childhood/professionals/profdev/Pages/hipdysplasia.aspx>

Care planning

- Anticipatory guidance should include avoidance of lower limb swaddling. ⁵ If infants are wrapped, legs should be able to move freely. ¹
- Discuss any abnormal findings with the parent/caregiver and obtain consent for referral.
- For any deviations from normal, refer to a General Practitioner. Infants **less than 4 months** (corrected age) may be referred directly to PCH Orthopaedic Clinic (via PCH.Referrals@health.wa.gov.au)
 - Some WACHS sites use eReferral with DDH proforma.

Documentation

Nurses maintain accurate, comprehensive and timely documentation of assessments, planning, decision making and evaluations; in electronic and hard copy child health records.

References

1. Committee on Quality Improvement Subcommittee on Developmental Dysplasia of the Hip. Clinical Practice Guideline: Early Detection of Developmental Dysplasia of the Hip. Pediatrics. 2000;105.
2. Gefler P, Kennedy K. Developmental dysplasia of the hip: Practice Guidelines,. Journal of Pediatric Health Care. 2008;22(5):318 - 22.
3. Sewell M, Eastwood D. Screening and treatment in developmental dysplasia of the hip - where do we go from here? . Int Orthop. 2011;35(9):8.
4. Pollet V, Percy V, Prior H. Relative risk and incidence for developmental dysplasia of the hip. The Journal of Pediatrics. 2017;181:5.
5. Williams N. Improving early detection of developmental dysplasia of the hip through general practitioner assessment and surveillance. AJGP. September 2018;47(9).
6. Shaw BA, Segal LS. Evaluation and Referral for Developmental Dysplasia of the Hip in Infants. Pediatrics. 2016;138(6).
7. MO T. Clinical Pediatric Orthopedics. The Art of Diagnosis and Principles of Management. . Stamford, CT: Appleton and Lange; 1997.
8. Institute IHD. Infant and child hip dysplasia [Available from: <https://hipdysplasia.org/developmental-dysplasia-of-the-hip/infant-signs-and-symptoms/asymmetry/>].

Related policies, procedures and guidelines

The following documents can be accessed in the **Clinical Nursing Manual** via the [HealthPoint](#) link, [Internet](#) link or for WACHS staff in the [WACHS Policy](#) link

Universal contact guidelines

The following documents can be accessed in the [CAHS Policy Manual](#)

Hand hygiene

Related CAHS-CH resources

The 'Baby Hippy' models


Related external resources

[Developmental Dysplasia of the Hip- Learning resource \(Department of Education and Early Childhood Development, Government of Victoria\)](#)

Developmental Dysplasia of the Hip in Infants –Diagnosis and Management. DVD
<http://www.ddheducation.com/> - Royal Children’s Hospital, Melbourne

[Safe wrapping for Developmental Dysplasia of the Hips \(DDH\)](#) Health Dept. of Victoria

This document can be made available in alternative formats on request for a person with a disability.

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