PROCEDURE

Hip assessment

<table>
<thead>
<tr>
<th>Scope (Staff):</th>
<th>Community health staff (Child health)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope (Area):</td>
<td>CAHS-CH, WACHS</td>
</tr>
</tbody>
</table>

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

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 walking 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.  

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

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

Risk factors for DDH include:

- female (more susceptible to the maternal hormone relaxin compared to males)
- breech presentation (in either sex)
- family history (first degree relative)
- tight wrapping with legs held straight
- birthweight over 4000g

DDH is also associated with:

- first born child
- torticollis
- oligohydramnios

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

The experience and training of the examiner and the age of the child influence the incidence. 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 hip

<table>
<thead>
<tr>
<th>Observation</th>
<th>unilateral</th>
<th>bilateral</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birth to around 3 months of age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hip instability (positive Ortolani or Barlow tests)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Asymmetric skin creases (inguinal, gluteal, thigh, popliteal)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Limb length discrepancy (positive Galeazzi)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>3 months to walking independently</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limitation of hip abduction in 90 degree flexion</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Limb length discrepancy (positive Galeazzi)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Asymmetric skin creases (inguinal, gluteal, thigh, popliteal)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>After the child is walking independently</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unilateral toe walking</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Abnormal gait (Trendelenburg gait)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
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**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 DDH\(^1\) as they are benign and resolve in time\(^2\) 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

<table>
<thead>
<tr>
<th>Steps</th>
<th>Additional Information</th>
</tr>
</thead>
</table>
| **1. Engagement**  | • 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.  
• For children who are independently walking, assessments may be completed wearing light clothing, for example underwear and t-shirt.  
• Observations are more accurate when the child is undressed. Where light clothing is worn, staff must document this. |
| • 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 |  |
| **2. Assessment of hip stability:** Ortolani test (birth to around 12 weeks)  | • 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’.  
• 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.  
• Correct hand positioning is important, as shown in image below: |
| • Infant is placed in supine position with knees fully flexed and hips flexed to 90 degrees  
• Place palm of hands on knees, with middle finger of each hand being placed over the greater trochanter and thumb of each hand grasping the inside of the knee.  
• Hips are assessed one at a time.  
• The hip is flexed to 90 degrees. Thighs are gently abducted one at a time. Gently elevate the greater trochanter with the middle finger |  |
3. **Assessment of hip stability**: Barlow test (birth to around 12 weeks)
   - Infant is placed in supine position with knees fully flexed and hips flexed to 90 degrees.
   - One hand stabilises the pelvis whilst the other hand grasps the knee with middle finger placed over the greater trochanter and thumb on inner sides of the thigh.
   - 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.

   - 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 *may* feel a palpable ‘clunk’ of dislocation.
   - Correct hand positioning is important, as demonstrated below:

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<table>
<thead>
<tr>
<th>Steps</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>during abduction, and apply gentle pressure.</td>
<td><img src="image" alt="Diagram of hip assessment process" /></td>
</tr>
</tbody>
</table>
### Steps

<table>
<thead>
<tr>
<th align="left">4. <strong>Assessment for limited abduction:</strong> Abduction (around 3 months to walking independently)</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left">• Infant is placed in supine position with knees fully flexed</td>
</tr>
<tr>
<td align="left">• Hips and knees flexed to 90 degrees</td>
</tr>
<tr>
<td align="left">• Thighs are gradually and gently abducted simultaneously to 70 degrees from the midline</td>
</tr>
<tr>
<td align="left">• This should be gradually performed a few times to allow infant to relax</td>
</tr>
<tr>
<td align="left">• 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.</td>
</tr>
<tr>
<td align="left">• The image below demonstrates that the right hip can be abducted to 70 degrees whilst the left hip has limited abduction.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th align="left">5. <strong>Observe asymmetry:</strong> skin creases (birth to walking independently)</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left">• Infant is placed in supine position with hips and knees flexed to 90 degrees (as shown in image) to observe:</td>
</tr>
<tr>
<td align="left">• thigh creases</td>
</tr>
<tr>
<td align="left">• gluteal creases</td>
</tr>
<tr>
<td align="left">• If required, position infant so that popliteal and inguinal creases can also be observed.</td>
</tr>
<tr>
<td align="left">• Any asymmetry of skin creases and greater pelvis width should be noted.</td>
</tr>
<tr>
<td align="left">• Asymmetrical creases may be a sign of unilateral DDH.</td>
</tr>
<tr>
<td align="left">• Thigh creases that are asymmetrical can be a sign of unilateral DDH if they are also associated with uneven gluteal creases.</td>
</tr>
<tr>
<td align="left">• Below shows asymmetric creases assessment below:</td>
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</tbody>
</table>

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### Steps

**6. Assessment of limb length:** Galeazzi sign (birth to walking independently)

- Infant is laying in supine position, with knees flexed.
- 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.

- **Additional Information**
  - Limb length discrepancy can identify unilateral hip dislocation (positive Galeazzi sign).
  - The image below shows a shorter left leg.
  - Bilateral dislocation may not present with a positive Galeazzi sign. Bilateral dislocations are more difficult to diagnose than unilateral dislocations because symmetry is retained.


**7. Observe gait deviations** (from when the child is walking independently)

- Observe for Trendelenberg gait (trunk noticeably moves from side to side).
- Observe for unilateral toe walking.

- **Additional Information**
  - 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.
  - If child is undressed, gluteal and popliteal creases can be observed whilst gait is assessed.

### Care planning

- Anticipatory guidance should include avoidance of lower limb swaddling. If infants are wrapped, legs should be able to move freely.
• 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

5. Williams N. Improving early detection of developmental dysplasia of the hip through general practitioner assessment and surveillance. AJGP. September 2018;47(9).

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. E-learning (accessible via iLearn)

Safe wrapping for Developmental Dysplasia of the Hips (DDH) Health Dept. of Victoria

This document can be made available in alternative formats on request.

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Date: 14 March 2020
Endorsed by: Executive Director Operations
Date: 20 March 2020

Standards Applicable:
NSQHS Standards: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Child Safe Standards: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Healthy kids, healthy communities

Compassion  |  Excellence  |  Collaboration  |  Accountability  |  Equity  |  Respect
Neonatology  |  Community Health  |  Mental Health  |  Perth Children’s Hospital

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