PROCEDURE

Hip dysplasia examination

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<th>Scope (Staff):</th>
<th>Child Health</th>
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<td>Scope (Area):</td>
<td>School Health</td>
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Aim

To detect developmental dysplasia of the hip in children in the first eighteen months of life and initiate appropriate referrals.

Background

Developmental dysplasia of the hip (DDH) is a condition that occurs when the normal relationship between the head of the femur and the acetabulum is interrupted. This occurs due to a range of anatomical abnormalities during the development of the hip joint. This includes:

- Dysplasia – when there is inadequate acetabulum formation
- Dislocation – when the femoral head can be displaced out of the acetabulum with manoeuvres. Dislocation can be partial or frank.
- Partial dislocation (subluxation) – occurs if the femoral head can be partially displaced out of the acetabulum.
- Frank dislocation – the femoral head is completely outside the acetabulum.¹

If developmental dysplasia of the hip is not detected and treated effectively, the individual will experience significant morbidity including hip, knee and lower back pain, gait abnormalities and degenerative changes of the hip joint.

The incidence of DDH in Western Australia is estimated to be 6/1000 births. Risk factors include female breech position, positive family history of DDH (first degree relative) multiple gestation, first pregnancy, high birth weight (>4000 g), oligohydramnios, postural and non-postural abnormalities of the lower limb.² ³

Detection in the general population occurs primarily through serial clinical examination by properly trained health care providers.

Key Points

- Clinical examinations should only be undertaken by registered nurses with appropriate child health qualifications. Ensuring practitioner competency is the responsibility of the Area Health Service.
- Staff must be aware of the risk factors for DDH and encourage parents to attend ultrasound and orthopaedic appointments as necessary.
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- Infants who are at high risk of DDH should always be referred for ultrasound and clinical examination at six weeks. These referrals should be organised prior to discharge from maternity services.
- Infants who are at high risk and have clinical signs of DDH should be referred for urgent orthopaedic assessment prior to discharge from maternity services.
- As DDH is a developmental condition, it can manifest at any time until the child is walking. Staff should be alert to signs of DDH at every scheduled contact during the period from birth to independent walking.
- Parents should be encouraged to wrap infants only in a way that allows leg movement.

**Equipment**
A safe, clean, and flat surface on which to conduct examinations.

**Procedure**

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| 1. Engagement and consent:  
- Explain the procedure to the parent/carer and child if required. Allow sufficient time for discussion of concerns.  
Ensure verbal parental consent has been obtained prior to proceeding with testing.  
Review family and pregnancy history to identify risk factors. | Encourage parent/carer support and involvement with the procedure where possible.  
Discuss relevant clinical signs with parents. |
| 2. Preparation:  
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. | Need a quiet relaxed infant and an examiner with gentle warm hands. |
| 3. Testing strategies:  
- **Ortolani's Test** (Birth to 6-8 weeks):  
  - Thighs are gently abducted one at a time. Gently elevate the greater trochanter with the middle finger during abduction.  
  - If dislocation is present, reduction of the femoral head will occur somewhere in the 90° arc. | Demonstrates true dislocation with the femoral head outside acetabulum.  
Reduction will occur with a ‘clunk’ that is felt and sometimes heard. A sudden low frequency jerk with a definite movement of about 5mm is felt.  
In neonates the sensation is of a slight |
- **Barlow's Test** (Birth to 6-8 weeks):
  - Thighs are slowly adducted and the thumb puts pressure backwards and downwards towards the examination surface.
  - If the hip is unstable it will be levered out of the acetabulum over its posterior rim.

- **Abduction** (8 weeks – walking):
  - The thighs are gently abducted to 70° from the midline.
  - Any restriction is considered abnormal. To examine for a shortened femur, place baby supine with ano-genital cleft vertical and both knees flexed.
  - The knee with the affected hip and contracted muscles will be shorter than the unaffected leg in the horizontal plane. This is a positive Galeazzi sign.
  - Caution: bilateral dislocation may not present with a positive Galeazzi sign

- **Gait** (Walking):
  - Observe gait with child undressed

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<th>4. Explain and discuss findings with parent/carer.</th>
<th>Document findings in the relevant health record:</th>
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catch of cartilage sliding over cartilage. Finer clicks are frequently felt and are not characteristic of DDH.

Demonstrates a hip that is unstable and can be dislocated.

This is a more unstable manoeuvre but a definite movement of about 5mm will be felt when the head of the femur returns to the acetabulum.

The most important sign in this age group is the limited abduction of a stable hip. It may be unilateral or bilateral.

If a hip is dislocated there will be shortening of the femur on that side, asymmetry of buttock folds and thigh creases and a greater pelvic width. Infants presenting with these signs should be referred for further assessment as per referral pathway.

Diagnosis at the walking stage is too late and disability may remain even after surgery.

Unilateral DDH will cause limping because of shorter limb.

Bilateral DDH will cause waddling gait with apparently wide pelvis, higher buttocks, a shift of centre of gravity over pelvis and excessive movements of the shoulders.
or abnormal response to age appropriate tests conducted.

- Abnormal response to Ortolani, Barlow or Abduction tests are documented as ‘positive’ signs for dislocation or instability
- Any abnormal findings should be clearly described to facilitate further monitoring and assessment.

- Child Health- CHS 560
- Personal Health Record.
- Enhanced Aboriginal Child Health record.

Documentation may include electronic records.

Outcome
Following examination, discuss findings with the child’s parent/carer and initiate referrals as appropriate after discussing options with parents and carers, and in accordance with local referral pathways.

Referral pathway
Infants and children may be referred:

- To a general practitioner for further assessment and referral to an orthopaedic surgeon.
- To a salaried paediatrician for assessment and management if applicable and PATS is required.
- In addition to the above pathways, infants up to four months of age may be referred directly to the Princess Margaret Hospital Orthopaedic Clinic using the referral form (CHS 663) or electronically via CDIS.
- Diagnosis is usually confirmed by ultrasound for children up to 4 months of age, and by X-ray for children over 4 months.
- Referring infants less than four months of age to a facility where paediatric ultrasound is available expedites intervention.

Related internal policies, procedures and guidelines

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<td>Child health universal services policy rationale</td>
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<td>Community health staff should also refer to any specific policies where applicable.</td>
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References

2. King Edward Memorial Hospital. Neonatology Clinical Guidelines: Developmental
Hip dysplasia examination

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<th>dysplasia of the hip. Revised August 2006.</th>
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### Useful resources

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

- The ‘Hippy Doll’ models available through Workforce Development (Metro) Non- metro, see your line manager

- Developmental Dysplasia of the Hip in Infants – Diagnosis and Management. DVD for loan (10 minutes, Metro only)

- Safe wrapping for Developmental Dysplasia of the Hips (DDH)

- Safe Wrapping Information Statement
Hip dysplasia examination

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