National Horizon Scanning Unit
Horizon scanning prioritising summary

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Ultrasound screening for hip dysplasia: A new screening programme for the early detection of hip dysplasia in neonates.

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PRIORITISING SUMMARY

REGISTER ID: 0000054

NAME OF TECHNOLOGY: ULTRASOUND SCREENING FOR HIP DYSPLASIA

PURPOSE AND TARGET GROUP: A NEW SCREENING PROGRAMME FOR THE EARLY DETECTION OF HIP DYSPLASIA IN NEONATES

STAGE OF DEVELOPMENT (IN AUSTRALIA):

- Experimental
- Investigational
- Nearly established

STAGE OF DEVELOPMENT (INTERNATIONAL):

- Established
- Established but changed indication or modification of technique
- Should be taken out of use

AUSTRALIAN THERAPEUTIC GOODS ADMINISTRATION APPROVAL

- Yes
- No

INTERNATIONAL UTILISATION:

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>LEVEL OF USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trials Underway or Completed</td>
</tr>
<tr>
<td>5 year screening programme, Germany</td>
<td>✓</td>
</tr>
<tr>
<td>5 year screening programme, Wales</td>
<td>✓</td>
</tr>
<tr>
<td>Cost-benefit analysis of screening programme, Croatia</td>
<td>✓</td>
</tr>
<tr>
<td>Targeted screening programme, United Kingdom</td>
<td>✓</td>
</tr>
<tr>
<td>Prospective randomised trial, targeted vs universal screening, Norway</td>
<td>✓</td>
</tr>
<tr>
<td>Screening programme, Switzerland</td>
<td>✓</td>
</tr>
</tbody>
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IMPACT SUMMARY:

Congenital hip dislocation (CDH) or developmental dysplasia of the hip (DDH) may lead to impaired hip function and premature degenerative joint disease, such as arthritis, due to increased load and shearing forces on the hip (Godward et al, 1998; Maxwell et al, 2002 & von Kries et al, 2003). In Australia universal screening for CDH/DDH in neonates was introduced in the 1960s. Currently all newborn infants are clinically tested for CDH/DDH using either the Ortolani or Barlow tests, which involve a physical examination that assesses the range of hip abduction and leg length discrepancy (Maxwell et al, 2002 & Neonatal Handbook Editorial Board, 2002). High-risk infants (breech presentation, familial history of CDH/DDH or infants suffering a neuromuscular disease) are examined by ultrasound. Infants who test positive are fitted with either a Von Rosen splint or a Pavlik harness. Early treatment
may avoid the need for surgery later in life (Neonatal Handbook Editorial Board, 2002). Infants are tested again at approximately 6 weeks and 6-8 months (Chan et al, 1999).

A retrospective survey by Chan et al (1999) reported the prevalence of CDH/DDH as 7.74 per 1000 live births in South Australia, for children born between 1988 and 1993. The incidence of cases requiring surgical procedures for CDH/DDH was 0.46 per 1000 live births, or 6% of all cases.

It has been suggested that the current screening regimen may miss the early detection of a proportion of infants with CDH/DDH. These infants may be detected at a later age and surgery may be their only option. The early utilisation of ultrasound for CDH/DDH screening may identify morphological abnormalities of the hip that would otherwise go undetected by a physical examination, therefore enabling these infants to be treated with the early non-invasive interventions, avoiding the need for surgery. The study by von Kries et al (2003) which assessed the ultrasound screening program in Germany, found that the rate of first operative procedure for ultrasound screening was 0.26 per 1000 live births. Godward et al (1998) assessed the screening program in the United Kingdom, which utilises the conventional physical examination, and found the rate of first operative procedure to be 0.39 per 1000 live births.

Several studies found that universal ultrasound screening of newborn infants was more effective at detecting CDH/DDH than targeted ultrasound screening of only high-risk infants. The randomised controlled trial conducted by Holen et al (2002) screened 15,529 infants randomised to either clinical screening and ultrasound of all hips, or clinical screening and ultrasound of only high-risk infants and found the rate of late dysplasia detection to be 0.13 and 0.65 per 1000, respectively (p=0.22). Similarly, Lewis et al (1999), in their assessment of an on-going screening programme, estimated the late detection rate of CDH/DDH to be 0.34/1000 if ultrasound screening was confined to only high-risk infants.

A cost-benefit analysis conducted in Croatia found that an ultrasound screening programme would return a saving of US$195,000 compared with the existing diagnostic approach. In addition, treatment costs without ultrasound screening were 1.6 times higher than the costs associated with the screening programme (Bralic et al, 2001).

**HEALTHPACT ACTION:**

It is recommended that this technology be archived, however this information should be forwarded to stakeholders such as the division of Paediatrics.

**SOURCES OF FURTHER INFORMATION:**


SEARCH CRITERIA TO BE USED:
Hip Dislocation, Congenital/epidemiology/surgery/*ultrasonography/*prevention & control
Ultrasonography/methods
Infant, Newborn
*Neonatal Screening
Mass Screening/methods/*standards
Hip Joint/ultrasonography
Joint Instability/ultrasonography