PROCEDURE

Corneal light reflex test

<table>
<thead>
<tr>
<th>Scope (Staff):</th>
<th>Community Health Staff</th>
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<tbody>
<tr>
<td>Scope (Area):</td>
<td>CACH, WACHS</td>
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This document should be read in conjunction with this DISCLAIMER

Aim
To detect strabismus (squint) in infants and young children.

Risk
Undetected or unmanaged vision impairment can have a significant effect on a child’s social, psychological development, educational progress, and long term social and vocational outcomes.

Background
Alignment of the eyes during the early years of life is considered critical for development of binocular vision. Amblyopia is a condition that occurs when there is altered visual input or abnormal binocular interaction resulting in diminished vision in one or both eyes.

Amblyopia is unique to children but is preventable if the child receives adequate treatment in childhood. The prevalence of amblyopia is approximately 1% - 4% of preschool children. Strabismus is the most common cause of amblyopia and is the term used to describe any anomaly of ocular alignment. It can occur in one or both eyes and in any direction.

The Corneal Light Reflex test (otherwise known as the Hirschberg Test) is used to detect strabismus.

In a young baby both the accommodation and convergence systems are still developing which may cause the Corneal Light Reflex (CLR) to appear intermittently asymmetrical up to three months of age.

Overall vision development is said to be complete by the time the child is eight years of age, however some aspects of visual development will already be complete by the time the child reaches school age.

The available evidence suggests that vision screening programs aimed at children aged 18 months to five years of age lead to improved visual outcomes.

The CLR Test forms part of the overall vision assessment along with the Cover Test (CT) and testing for visual acuity, as age appropriate.

For further information on vision refer to the Community Health Manual (Internet link or HealthPoint link):
- Vision guideline, which includes information on development of vision; normal vision behaviours; vision problems; common vision defects, including strabismus; common
Corneal light reflex test

Eye disorders, including amblyopia; visual acuity tests; and rationale for vision screening.

Universal assessment The CLR Test should be offered at the 8 week and 4 month universal child health contact, and the School Entry Health Assessment, unless there is evidence of the child being under the care of a relevant specialist.

Targeted assessment The CLR Test should be offered where the child has abnormal head posturing or where the parent/caregiver, teacher or health professional has a concern about strabismus or vision.

Key Points
- This test should be undertaken by staff with appropriate training only.
- Prior to performing the test, it is important to obtain a history from the parent/caregiver. Refer to the risk factors and red flags listed in the Vision guideline. The School Entry Health Assessment Parent Questionnaire (CHS 409-01) contains questions which aim to highlight parental concerns about their child’s vision.
- In children 3 years of age and over, the CT and CLR Test should be performed prior to the visual acuity testing and contribute to the overall assessment of the eye.
- Testing for strabismus using the CLR involves shining a light into a child’s eyes. The position of the light reflections are then observed on the cornea.
- The light source should be large enough to view both corneas at once but adjustable for client comfort. The room lighting should be dark enough not to compete with the light source.
- The CLR Test is especially useful for children who are unable to cooperate or focus.
- Community health staff should practice overarching infection prevention and management. Hand hygiene is to be performed at all appropriate stages of the procedure.

Equipment
- Small toy to attract child’s attention
- Bright pen torch (school health setting) and ophthalmoscope (child health setting)

Procedure

<table>
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<tr>
<th>Steps</th>
<th>Additional information</th>
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<tbody>
<tr>
<td>1. Engagement and consent</td>
<td>Encourage parent/caregiver to support and be involved with the procedure if appropriate.</td>
</tr>
<tr>
<td>• Explain the procedure to the child, and parent/caregiver if present. Allow sufficient time for discussion of concerns.</td>
<td>If obtaining verbal consent, discuss with the parent/caregiver whether they consent to sharing of information with relevant school staff.</td>
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<tr>
<td>• Ensure either written or verbal parental consent has been obtained prior to proceeding with testing.</td>
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1
2. **Preparation**

- Sit the child comfortably on the parent/caregiver’s lap. An older child may prefer to stand.
- Position of examiner should be at the same height and square on and about an arm’s length (30 – 50 cm away from the child).
- Observe the child’s eyes, head posture and alignment while child is in a relaxed state.

3. **Testing strategies**

- The examiner should attract the child’s attention to the pen torchlight by holding a small toy on top of the torch.
- The light is shone into the child’s eyes and the position of the light reflections is observed on the cornea.
- It is important to identify the location of the light reflexes from the centre of the pupil:
  - where the position of the reflection of the light in both eyes is symmetrical and located just slightly nasal to the centre of the pupil, the Hirschberg Test is

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<table>
<thead>
<tr>
<th>Corneal light reflex test</th>
<th>Section 337(1) of the Health Act 1911 authorises nurses specified in the schedule to examine a child without parent consent if required.</th>
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<tbody>
<tr>
<td>Refer to Appendix A within the Universal contact 4 years (School Entry Health Assessment) guideline if screening is indicated and consent not able to be obtained for a school aged child.</td>
<td>This test should be performed before the distance vision test using the Lea symbols chart.</td>
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<tr>
<td>2. <strong>Preparation</strong></td>
<td>The child and examiner should be at approximately the same height and square on.</td>
</tr>
<tr>
<td>Sit the child comfortably on the parent/caregiver’s lap. An older child may prefer to stand.</td>
<td>Make sure that both eyes are in the sphere of the light to ensure you are at the correct distance.</td>
</tr>
<tr>
<td>Position of examiner should be at the same height and square on and about an arm’s length (30 – 50 cm away from the child).</td>
<td>Be aware of normal convergence of eyes due to accommodation if the light is closer than 30cm.</td>
</tr>
<tr>
<td>Observe the child’s eyes, head posture and alignment while child is in a relaxed state.</td>
<td>Ensure room lighting is not too bright, as this may confound results (for example if testing is done in a school library with all lights on).</td>
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<tr>
<td>3. <strong>Testing strategies</strong></td>
<td>Note any abnormalities with the child’s eyes including the size and symmetry of pupils.</td>
</tr>
<tr>
<td>The examiner should attract the child’s attention to the pen torchlight by holding a small toy on top of the torch.</td>
<td>Abnormal head posturing may indicate a visual difficulty.</td>
</tr>
<tr>
<td>The light is shone into the child’s eyes and the position of the light reflections is observed on the cornea.</td>
<td>The object used to attract child’s attention must remain still.</td>
</tr>
<tr>
<td>It is important to identify the location of the light reflexes from the centre of the pupil:</td>
<td>The child needs to look toward the light or toy to achieve the measurement.</td>
</tr>
<tr>
<td>o where the position of the reflection of the light in both eyes is symmetrical and located just slightly nasal to the centre of the pupil, the Hirschberg Test is</td>
<td>A normal light reflex is slightly towards the nose and not central, due to the position of the maculae in the retina.</td>
</tr>
<tr>
<td>In some young children, a wide, flat nasal bridge with prominent epicanthal folds gives the eyes a crossed appearance. These are false squints and are not evidence of strabismus. False squints have symmetrical corneal light reflexes.</td>
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negative and no strabismus is present.\(^1\)  
- where the light reflections are positioned asymmetrically the Hirschberg test is positive and strabismus is suspected.\(^1\)

| Divergent squint: the light reflection is positioned medially.  
Convergent squint: the light reflection is positioned laterally.\(^7\) |

For outcome and referral pathways see page 5 of this document.

4. Explain results to parent/caregiver (if present) or inform parent by telephone or in writing.

5. Documentation

Documentation of CLR should identify if the reflexes are:
- Symmetrical
- Asymmetrical.\(^7\)

Document findings according to local processes.
Documentation may include electronic records.

Outcome

If an asymmetrical CLR is detected:

- For infants less than 3 months of age, if asymmetry is constant, refer to GP.
  If asymmetry is intermittent, this should be noted and rechecked after 3 months of age. If still asymmetrical on recheck, refer to GP.

- For infants over 3 months and children, the cover test, CLR, red reflex and visual acuity (if age appropriate) should be rechecked within 3 months. If still asymmetrical, refer to GP.

If any other anomalies are observed during vision assessment, nurses should use their clinical judgment to determine follow up or referral parameters, e.g., ptosis of the eye or reluctance to have one eye covered.

It is recommended that staff use the correct terminology when discussing any vision results with the parent or caregiver. The use of the term ‘lazy eye’ can be misleading as it can relate to several different eye conditions. A squint is a more accurate description.

Referral pathway

Children identified with an asymmetrical light reflex on re-check require a referral. Results of all visual parameters tested should be included in the referral. Always obtain parental consent for referral.

The Clinical handover/Referral form (CHS 663- CACH only) form should be used to refer the child to their medical practitioner.

WACHS nurses should follow local processes as required; this may involve referral to an optometrist to expedite assessment, treatment and prioritising ophthalmology services.

Referral feedback

It is recommended that when there is no feedback received from the medical practitioner and/or ophthalmologist that the referral should be followed-up with the parent/caregiver and outcomes carefully documented.
## References


## Related internal policies, procedures and guidelines

The following documents can be accessed in the Community Health Manual via the HealthPoint link or the Internet link

- Cover test
- Distance vision testing (Lea Symbols Chart)
- Red reflex test
- Universal contact 4 years (School Entry Health Assessment)
- Vision

## Related internal resources and forms

The following resources and forms can be accessed from the HealthPoint CACH Intranet link

- Clinical handover/Referral form (CHS 663)

**Clinical handover** – Operational procedure for internal or external referrals
This document can be made available in alternative formats on request for a person with a disability.

<table>
<thead>
<tr>
<th>Document Owner:</th>
<th>Director Clinical Services Community Health</th>
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<tbody>
<tr>
<td>Reviewer / Team:</td>
<td>Clinical Nursing Policy Team</td>
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<td>CACH/WACHS Community Health Clinical Nursing Policy Governance Group</td>
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<td>Executive Director CACH</td>
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