PROCEDURE	
Corneal light reflex	
Scope (Staff):	Community health staff
Scope (Area):	CAHS-CH, WACHS

Child Safe Organisation Statement of Commitment

The Child and Adolescent Health Service (CAHS) commits to being a child safe organisation by meeting the National Child Safe Principles and National Child Safe Standards. This is a commitment to a strong culture supported by robust policy documents to ensure the safety and wellbeing of children at CAHS.

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 health, psycho-social development, educational progress, and long term social and vocational outcomes.[1]

Background

Alignment of the eyes during the early years of life is considered critical for development of binocular vision.[2, 3] Amblyopia is decreased vision in one or both eyes due to abnormal development of vision in infancy or childhood. In amblyopia, there may not be an obvious problem of the eye. Vision loss occurs because nerve pathways between the brain and the eye aren't properly stimulated. The brain "learns" to see only blurry images with the amblyopic eye even when glasses are used. As a result, the brain favours one eye, usually due to poor vision in the other eye. Amblyopia is the leading cause of vision loss amongst children.[4]

Amblyopia is unique to children but is preventable if the child receives adequate treatment in childhood. The prevalence of amblyopia is approximately 2% of preschool children in Australia.[5] 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.[6]

Overall vision development is said to be complete by the time the child is eight years of age. However, some aspects of visual development, including binocular vision, will already be complete by the time the child reaches school age.[7, 8]

The Corneal Light Reflex (CLR), otherwise known as the Hirschberg test, is used to detect strabismus. In a young baby both the accommodation and convergence systems are still developing. This may cause the CLR to appear intermittently asymmetrical up to three months of age.[9] Beyond this age, any CLR asymmetry is considered abnormal.

For further information on vision refer to the *Vision and eye health* guideline, which includes information on development of vision, normal vision behaviours, common vision

concerns including strabismus, and amblyopia, visual acuity tests, and the rationale for vision screening.

Key Points

- The CLR test forms part of a comprehensive baseline vision and eye health assessment along with the Cover test (CT), Red Reflex (RR) and testing for visual acuity, as age appropriate.
- Universal assessment of the CLR test should be offered at the 8 week and 4 month universal contacts, and at the School Entry Health Assessment, unless there is evidence of the child being **under the care** of a relevant specialist.
- Targeted assessment of the CLR test should be offered when the child has abnormal head posturing or when the parent/caregiver, teacher or health professional has a concern about strabismus or vision.
- Vision screening should only be performed by community health staff who have undertaken appropriate CAHS-CH or WACHS training and been deemed competent in the procedures.
    - After receiving training and prior to achieving competency, staff must work under the guidance of a clinician deemed competent.
- For cultural considerations when caring for Aboriginal* children and families, refer to Related resources to assist service provision to Aboriginal clients.
- The CLR test is especially useful in assessing ocular alignment in those who have poor fixation or who cannot cooperate sufficiently to allow cover testing, particularly if young and preverbal.
- Community health nurses must follow the organisation's overarching Infection Control Policies and perform hand hygiene in accordance with WA Health guidelines at all appropriate stages of the procedure.

Equipment

- Small toy to attract child's attention
- Bright pen torch (school health setting) or ophthalmoscope (child health setting)

Process

Steps	Additional Information
1. Engagement and consent • Ensure either written or verbal parental consent has been obtained prior to proceeding with testing.	• Refer to the surveillance questions, risk factors and red flags listed in the *Vision and eye health* guideline. • Encourage parent/caregiver to support

* OD 0435/13 - Within Western Australia, the term Aboriginal is used in preference to Aboriginal and Torres Strait Islander, in recognition that Aboriginal people are the original inhabitants of Western Australia. No disrespect is intended to our Torres Strait Islander colleagues and community.

Steps	Additional Information
• Explain the procedure to the child, and parent/caregiver if present. Allow sufficient time for discussion of concerns. • Obtain a history from the parent/caregiver prior to performing the test.	and be involved with the procedure if appropriate. • If obtaining verbal consent, discuss with the parent/caregiver whether they consent to sharing of information with relevant school staff. • Section 337(1) of the Health Act 1911 authorises nurses specified in the schedule to examine a child without parent consent if required.
2. Preparation • Ask parent/caregiver to hold infant on their lap or over their shoulder. Older children may sit on a chair or stand. • Observe the child's eyes, head posture and alignment while child is in a relaxed state. • Position of examiner should be square on and about 50cm away from the child.[10]	• When performing the assessment, examiner considers own posture to minimise any risk of musculoskeletal injuries. • Note any abnormalities with the child's eyes, including the size and symmetry of pupils. • Abnormal head posturing may indicate a visual difficulty. • The child's and the examiner's eyes should be at approximately the same height. • The room lighting should be dark enough not to compete with the light source used for testing. • Be aware of normal convergence of eyes due to accommodation if the light is closer than 30cm.
3. CLR assessment • Attract the child's attention towards the pen torchlight by holding a small toy on top of the torch. • Shine the light briefly onto both eyes simultaneously and observe the position of the light reflections on the cornea. • Identify the location of the light reflexes relative to the centre of the	• The object used to attract child's attention must remain still. • The child needs to look toward the light or toy for accurate CLR assessment. • Both eyes must be in the sphere of the light to ensure accurate testing.[7] • A normal light reflex is slightly towards the nose and not central, due to the

Steps	Additional Information
pupil: – See Appendix A - 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 CLR is negative and no strabismus is present.[10] – See Appendix A - where the light reflections are positioned asymmetrically, the CLR is positive and strabismus is suspected.[10] – See Appendix A	position of the maculae in the retina. • In some young children, especially of Asian descent, a wide, flat nasal bridge with prominent epicanthal folds can obscure the medial sclera and give the eyes a crossed appearance. This is pseudostrabismus (false squint) and is not evidence of strabismus. False squints have symmetrical corneal light reflexes.[10] – See Appendix A
4. Interpreting results • Recheck of the CT, CLR and visual acuity is required if CLR is unequal on the initial screen. This should be done as soon as practical, within 3 months. • 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. • After 3 months of age, any asymmetry of CLR is abnormal, whether constant or intermittent. If present when rechecked within 3 months, referral is required.	• If reliable initial testing shows constant CLR asymmetry, use clinical judgment regarding urgent referral rather than re-check within 3 months. • If initial testing not felt to be reliable, staff should use clinical judgment to determine the timing of re-check within three months. Examples may be an uncooperative or distracted child or unsettled infant. • If any other anomalies are observed during vision assessment, nurses should use their clinical judgment to determine review or referral, e.g. ptosis of the eye or reluctance to have one eye covered.[4] • For urgent referral if sudden onset of asymmetry.
5. Communicate results with parent/caregiver • Discuss results with parent/caregiver (if present) or inform by telephone or in writing. • If parent/caregiver not present: ○ Contact to discuss if there are any concerns, and need for recheck/referral if applicable ○ Provide results in writing using CHS409-6A Results for parents or other relevant form. • Provide a copy of the results to the school on completion of the health	• Refer to *Language Services* policy for information on accessing interpreters. • 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. The more accurate term for strabismus is a 'squint'.

Steps	Additional Information
assessment.	
6. Referral and follow-up • Discuss and seek consent for referral from parent/caregiver. • Refer children with a positive CLR on re-check to a medical practitioner. • Results of all vision tests conducted should be included in the referral. • For clients at risk, follow up must occur with parents/caregivers to determine if the referral has been actioned. This includes clients of concern, children in care, or those with urgent vision concerns. ○ For other clients, use clinical judgment to determine if referral has been actioned.	• Adherence to CAHS-CH and WACHS clinical handover processes is required when handing over, or referring a client within, or outside of, the health service. • WACHS nurses should follow local processes as required; this may involve referral to a medical practitioner or an optometrist for further assessment. • CAHS-CH staff should refer to a medical practitioner. ○ The medical practitioner will assess and consider referral to either an ophthalmologist or optometrist for further investigation.

Documentation

Nurses maintain accurate, comprehensive and contemporaneous documentation of assessments, planning, decision making and evaluations in electronic and/or MR600 child health records, according to CAHS-CH and WACHS processes.

References

1. Lee EY, Sivachandran N, Isaza G. Five steps to: Paediatric vision screening. Paediatrics & child health. 2019;24(1):39-41.
2. Duckman R. Visual development, diagnosis, and treatment of the pediatric patient: Lippincott Williams & Wilkins; 2006.
3. Mathers M, Keyes M, Wright M. National Children's Vision Screening Project. Melbourne: Murdoch Children's Research Institute; 2008.
4. Royal Children's Hospital. Amblyopia Melbourne: RCH; 2020 [cited 2020 3 September]. Available from: https://www.rch.org.au/ophthal/patient_information/Patient_info/.
5. Pai AS, Rose KA, Leone JF, Sharbini S, Burlutsky G, Varma R, et al. Amblyopia prevalence and risk factors in Australian preschool children. Journal of Ophthalmology. 2012;119:138-44.
6. Coats D, Paysse E. Evaluation and management of strabismus in children. Waltham, MA.2012.
7. Optometry Australia. Clinical Practice Guide - Paediatric Eye Health and Vision Care. Melbourne: Optometry Australia; 2016.
8. Zimmermann A, deCarvalho K, Atihe C, Zimmermann S, Ribeiro VIJcS-. Visual development in children aged 0 to 6 years. Arq Bras Oftalmol [Internet]. 2019 14 September 2020; 82(3):[173-5 pp.]. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0004-27492019000300002&lng=en.
9. Simons KE. Early Visual Development, Normal and Abnormal. New York: Oxford University Press; 1993.
10. Hu K. Alignment Assessment (Hirschberg). In: Center ME, editor. Utah: University of Utah; 2016.

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 via the WACHS Policy link.
Aboriginal child health
Child health services
Clinical Handover - Nursing
Cover test
Distance vision testing (Lea Symbols Chart)
Distance vision testing (Snellen)
Physical assessment 0-4 years
Red reflex test
School-aged health services - primary
School-aged health services - secondary
Universal contact School Entry Health Assessment
Vision and eye health
Vulnerable populations
The following documents can be accessed in the CAHS-CH Operational Manual
Client identification
Clinical handover
Consent for services
Hand Hygiene
Infection Control manual
Language Services
The following documents can be accessed in the CAHS Policy Manual
Fitness for Work
Occupational Safety and Health
The following documents can be accessed in WACHS Policy

Enhanced Child Health Schedule
The following documents can be accessed in the Department of Health Policy Frameworks
Clinical Handover Policy (MP0095)
Clinical Incident Management Policy (MP 0122/19)

Related CAHS-CH forms
The following forms can be accessed from the CAHS-Community Health Forms page on HealthPoint
Clinical handover/Referral form (CHS 663)
Referral to Community Health Nurse (CHS142)
SEHA Results for parents (CHS409-6A)
SEHA Parent Questionnaire (CHS409-1)
SEHA Results for staff (CHS409-2)

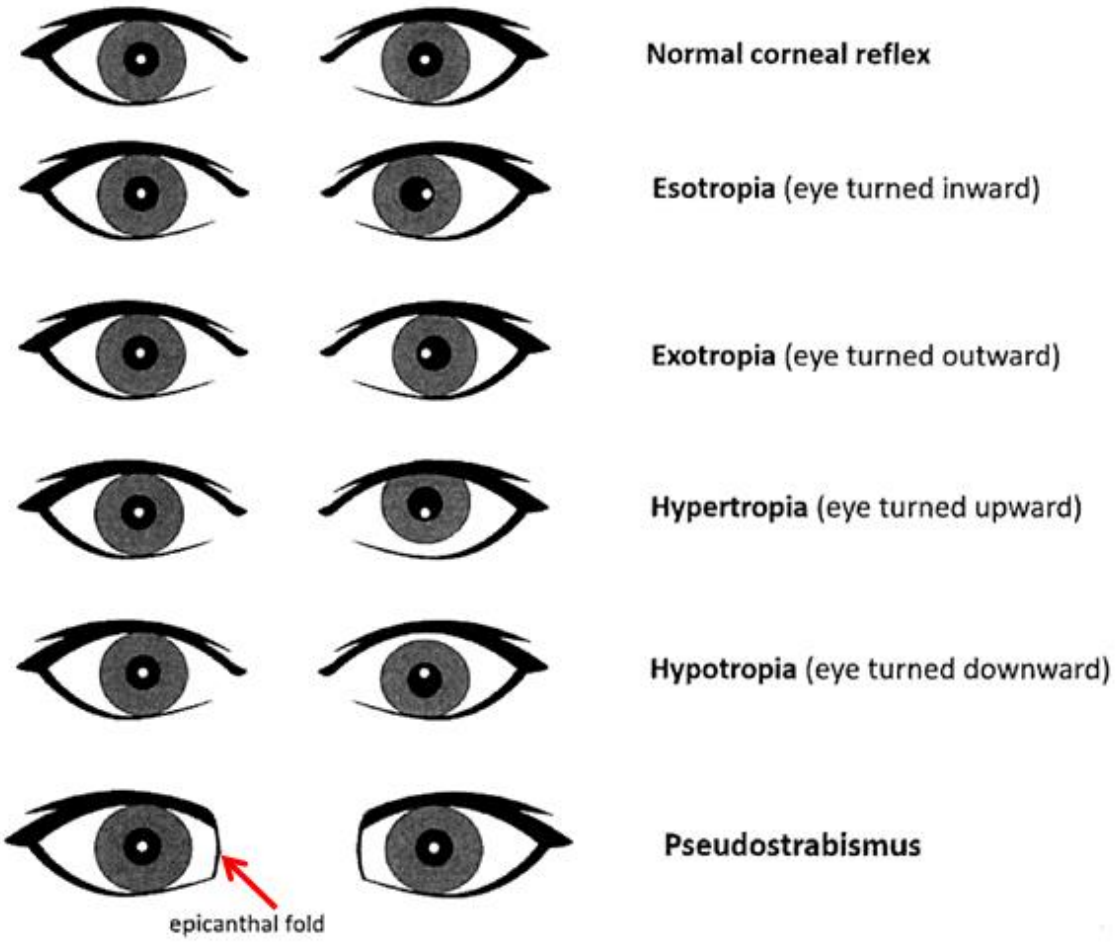
Related CAHS-CH resources
The following resources can be accessed from the CAHS-Community Health Resources page on HealthPoint
Community health staff
Practice guide for community health nurses

Related resources to assist service provision to Aboriginal clients
CAHS-CH staff
The following resources can be accessed from the CAHS-Aboriginal Health page on HealthPoint
Patient Care and Cultural Learning Guidelines
Aboriginal Health and Wellbeing
The following resources can be accessed from the CAHS-CH Aboriginal Health Team page on HealthPoint
Cultural Information Directory
WACHS staff

WACHS Strategic Plan 2019-2024
WACHS Aboriginal Health Strategy 2019-2024

Related external resources
Optometry Australia - Clinical Practice Guide: Paediatric Eye Health and Vision Care. 2016

Appendix A: Alignment assessment [10]



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

Document Owner:	Nurse Co-Director, Community Health		
Reviewer / Team:	Clinical Nursing Policy Team		
Date First Issued:	December 2014	Last Reviewed:	12 January 2021
Amendment Dates:		Next Review Date:	12 January 2024
Approved by:	Community Health Clinical Nursing Policy Governance Group	Date:	06 January 2021
Endorsed by:	Executive Director Nursing	Date:	12 January 2021
Standards Applicable:	NSQHS Standards:  Child Safe Standards: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10		
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