



PROCEDURE	
Red 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

- abnormalities in the normally transparent visual axis or in the retina
- strabismus and unequal refractive errors.

Risk

Undetected or unmanaged eye pathology or 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

The red reflex (RR) test, also known as the Bruckner test, is vital for the early detection of potential eye health and vision problems in neonates, infants and children.² An abnormal red reflex may indicate retinoblastoma, congenital cataracts and congenital glaucoma, and so any abnormalities of the red reflex require immediate referral to the ophthalmologist via a medical practitioner.^{3, 4}

Large retinal lesions or opacities anywhere in the eye from the cornea to the vitreous gel will produce an abnormal reflex. This abnormal reflex may be white, yellow, dim, or show black focal areas. Leukocoria (white pupil reflex) may indicate a retinoblastoma, corneal opacity, hyphema or other anterior chamber fluid, congenital cataract, vitreous opacity or retinal disease. Dim reflexes may be a result of refractive errors such as myopia. Unequal brightness of the reflex may indicate unequal or marked refractive errors, astigmatism, or strabismus.⁵

For further information on vision refer to Clinical Nursing Manual:

- *Vision and eye health* guideline - includes information on development of vision, normal vision behaviours, vision concerns including strabismus and amblyopia, and the rationale for vision screening.

Key Points

- 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](#).
- Universal screening of the red reflex should occur at the 8 week and 4 month universal contacts.
- Targeted assessment of the red reflex should be performed at the 12 month or 2 year universal contacts, or any other time up to school entry if there is relevant family history or parental/caregiver concern, especially about eye health and/or strabismus.
- Red reflex may appear more glowing yellow than orange/red in people from different racial or ethnic groups due to greater levels of pigmentation of the ocular fundus.⁶.
- When both the red reflex and the corneal light reflex are asymmetrical, strabismus is likely to be present.
- 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

- Ophthalmoscope
- Replacement batteries and globes

Process

Steps	Additional Information
<p>1. Engagement and consent</p> <ul style="list-style-type: none"> • Obtain a history from the parent/caregiver. • Explain the procedure to the parent/caregiver and child if required. Allow sufficient time for discussion of concerns. 	<ul style="list-style-type: none"> • Refer to surveillance questions, risk factors and red flags listed in the <i>Vision and eye health</i> guideline. • Encourage parent/caregiver support and involvement with the procedure where possible. • In young infants, it is not always possible to complete the examination.

* 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
<ul style="list-style-type: none"> Ensure either written or verbal parental consent has been obtained prior to proceeding with testing. 	<ul style="list-style-type: none"> If there are no vision risk factors present, document and review at next scheduled or unscheduled contact. If vision risk factors are present, review hospital discharge information, reschedule and attempt again in two weeks. Refer to GP as below.
<p>2. Preparation</p> <ul style="list-style-type: none"> 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. Set the ophthalmoscope on its largest spot size. The focus dial should be set to zero or seven, depending on the type of ophthalmoscope being used.^{6, 7} 	<ul style="list-style-type: none"> When performing the assessment, examiner considers own posture to minimise any risk of musculoskeletal injuries Abnormal head posturing may indicate a visual difficulty. The examiner and the child should be at eye level with each other. The examiner faces the child directly front-on. The room should be as dark as possible to improve visualisation of the red reflex. The setting on which the largest spot size is produced varies with model of ophthalmoscope.
<p>3. Red reflex assessment</p> <ul style="list-style-type: none"> Hold the ophthalmoscope about an arm's length from the base of the child's nose, with the instrument held close to the examiner's eyes.^{6, 8} Adjust the distance to allow the light beam to shine on both eyes <u>simultaneously</u>. The lens on the ophthalmoscope should be adjusted until the skin around the eyes is in focus.⁶ Aim the light directly at the pupils. Direct infant/child's attention toward the light.⁶ View the red reflexes simultaneously. Compare the size, shape, brightness and colour of the reflex in both eyes. 	<ul style="list-style-type: none"> It may help to hold your hand in front of the child's eyes at first, blocking the light from shining on the child's face and focusing the light onto the palm of your hand. Then remove your hand and the light should cover both eyes simultaneously. Occasionally the focus dial of the ophthalmoscope may need to be altered slightly until the pupil glows bright orange. The reflex may appear absent if the pupils are not dilated enough.⁸
<p>4. Interpreting results (see Appendix A)</p> <ul style="list-style-type: none"> A normal red reflex appears glowing 	<ul style="list-style-type: none"> Leukocoria can depend on the position of the eye. The examiner should check

Steps	Additional Information
<p>orange/red. Both reflexes should be equal in size, shape, brightness and colour.⁶</p> <ul style="list-style-type: none"> Any asymmetry or abnormality of the red reflex may indicate concerns such as eye pathology, strabismus, refractive error or media opacity.⁶ 	<p>that they are viewing the child front and central and the child is looking at the light.^{6, 8}</p> <ul style="list-style-type: none"> Where black reflexes are noted, check the ophthalmoscope illumination is adequate and room lighting is dim.^{6, 8} Debris over the surface of the eye can cause some black opacity. Encourage the child to blink and check if this changes the results.^{6, 8}
<p>5. Communicate results with parent/caregiver</p> <ul style="list-style-type: none"> Discuss results with parent/caregiver. 	<ul style="list-style-type: none"> If not present, inform parent/caregiver by telephone. Refer to <i>Language Services</i> policy for information on accessing interpreters.
<p>6. Referral and follow-up</p> <ul style="list-style-type: none"> Discuss and seek consent for referral from parent/caregiver. When results and clinical judgement indicate, provide referral to a medical practitioner/ophthalmologist. An absent, abnormal, or unequal red reflex requires prompt referral All infants with a positive family history of retinoblastoma, congenital, infantile, or juvenile cataracts, glaucoma, or retinal abnormalities should be referred to a GP for referral to paediatric ophthalmologist <u>regardless</u> of the outcome of the red reflex test.⁶ 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. <ul style="list-style-type: none"> For other clients, use clinical judgment to determine if referral has been actioned. 	<ul style="list-style-type: none"> 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 an optometrist or medical practitioner to expedite assessment, prioritising and treatment by ophthalmology services.

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. World Health Organization. World report on vision. World report on vision2019.
2. American Optometric Association. Infant Vision: Birth to 24 Months of Age 2020 [cited 2020 14 September]. Available from: <https://www.aoa.org/healthy-eyes/eye-health-for-life/infant-vision?sso=y>.
3. McCreery C. Cataract in children. UpToDate; 2020.
4. Royal Children's Hospital. Retinoblastoma Melbourne: RCH; 2020 [cited 2020 3 September]. Available from: https://www.rch.org.au/ophthal/patient_information/Patient_info/.
5. Hu K. Alignment Assessment (Hirschberg). In: Center ME, editor. Utah: University of Utah; 2016.
6. American Academy of Pediatrics. Red Reflex Examination in Neonates, Infants, and Children. Pediatrics. 2008;122(6):1401-4.
7. Coats D, Paysse E. Evaluation and management of strabismus in children. Waltham, MA. 2012.
8. McLaughlin C, Levin AV. The red reflex. Pediatric emergency care. 2006;22(2):137-40.

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

Child Health Services

Clinical Handover - Nursing

Corneal light reflex test

Physical assessment 0 - 4 years

Universal contacts – 0-14 days, 8 weeks, 4 months, 12 months, 2 years

Vision and eye health

Vulnerable Populations

The following documents can be accessed in the [CAHS-CH Operational Manual](#)

Client Identification

Consent for services

Hand Hygiene

Infection Control manual

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 Governance, Safety and Quality
Clinical Handover Policy (MP0095)
Clinical Incident Management Policy (MP 0122/19)

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

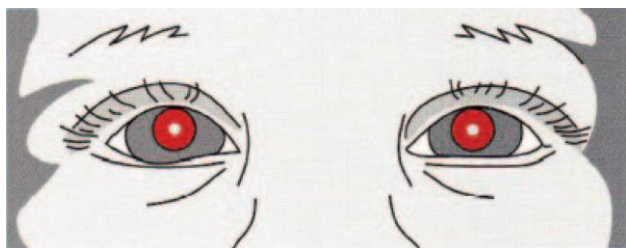
Related CAHS-CH forms
The following forms can be accessed from the CAHS-Community Health Forms page on HealthPoint
Clinical handover/Referral form (CHS 663)

Related CAHS-CH resources

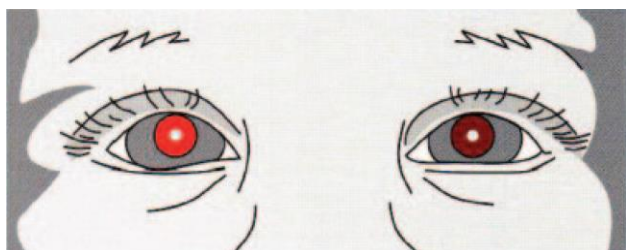
The following resources can be accessed from the [CAHS-Community Health Resources](#) page on HealthPoint

Practice guide for community health nurses

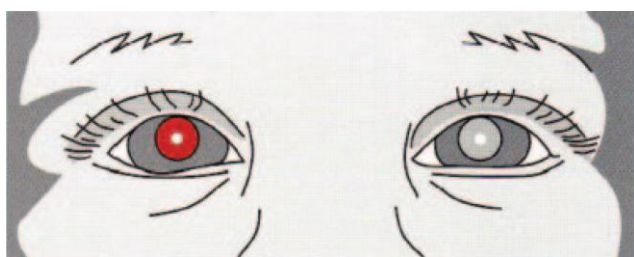
Appendix A: Normal and abnormal red reflexes⁶



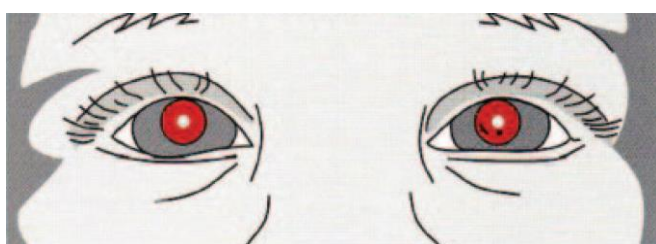
↑ **NORMAL** – Child looks at light. Both red reflections are equal in size, shape, brightness and colour.



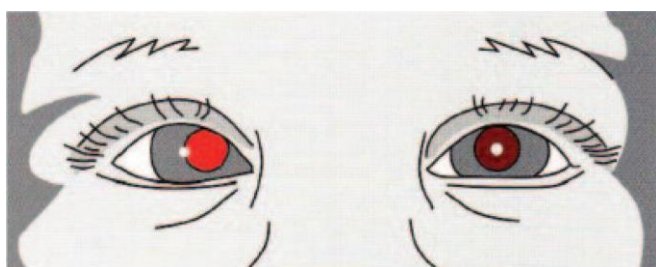
↑ **UNEQUAL REFRACTION** – One red reflection is brighter than the other.



↑ **NO REFLEX** – an absent or abnormal (white, dull yellow) reflex may indicate cataract, retinoblastoma, or corneal or retinal scar, as lens or other media opacities block or diminish the red reflex.




↑ **FOREIGN BODY/ABRASION (Left cornea)** – the red reflection from the pupil backlights corneal defects or foreign bodies.



↑ **STRABISMUS** – The red reflection is more intense from the deviated eye.

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

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