PROCEDURE

Distance Vision Testing (LEA Symbols Chart)

Scope (Staff):	Community health
Scope (Area):	CACH, WACHS

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

Aim

To assess misalignment of vision (manifest strabismus) and clarity of vision when looking into the distance, using the LEA Symbols Chart.[1]

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.[2, 3]

Background

The LEA Symbols Chart (LEA) consists of lines of four different symbols, arranged in combinations of five symbols per line. The LEA contain symbols depicting a house, apple, circle and square. The symbols on each line of the chart are smaller than those on the line above. The LEA distance visual acuity test has been shown to be successfully used in 76% of children 3 years and over and more than 90% of children 4 years and over.[4, 5]

An Australian study found that reduced vision could be reliably detected in children around four years of age. This aligns with international findings[6]. An ideal visual acuity screening test in children needs to be simple, accurate and reproducible. The LEA aims to eliminate problems with distance vision testing associated with language barriers. The tests make use of common pictures believed to improve test ability among young children and eliminate cultural biases. The LEA gives high sensitivity for measuring visual acuity in childhood with early and reliable detection of ambloypia[1].

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, and the rationale for vision screening.

Key points

- The Cover Test (CT) and Corneal Light Reflex (CLR) Test should be performed in addition to Distance Vision (LEA Symbols Chart) to contribute to the overall assessment of the eye.
- Universal screening should be offered to children as a component of the School Entry Health Assessment (SEHA), unless there is evidence of the child being under the care of an ophthalmologist or optometrist.
- Targeted assessment may be performed from 3 years of age if there are early concerns about eye problems or family history of amblyopia, myopia, or astigmatism.
- The LEA may also be used to test the visual acuity of older children or adults.
- Vision screening must only be performed by community health staff who have undertaken the required CACH orientation or WACHS recommended training and have 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.
- All nurses will refer to the Nursing and Midwifery Board AHPRA Decision-making framework in relation to scope of practice and delegation of care to ensure that decision-making is consistent, safe, person-centred and evidence-based.
- For cultural considerations when caring for Aboriginal* children and families, refer to Related resources to assist service provision to Aboriginal clients.
- Nurses need to provide a culturally safe service delivery which demonstrates a welcoming environment that recognises the importance of cultural beliefs and practices of all children.
- Nurses must follow the organisation's overarching CAHS Infection Control Policies or WACHS Infection Control Policy and perform hand hygiene in accordance with WA Health guidelines at all appropriate stages of the procedure.

*MP 0097/18 – 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.

Equipment

- 15-line (3 metre) LEA Symbols Chart (#250100).
- 4 symbols LEA recognition card.
- Telescopic Pointer (Chrome Plated).
- Tape measure and tape for marking distance.
- Two pairs of occlusion glasses (right and left).
- Chair for the client (appropriate size).
- Swivel chair for the nurse.
- Tripod or easel.

The LEA should be stored with a sheet of white paper placed between the surfaces. This may prevent ghosting of the images onto the other side of the chart over time.

- The chart should not be exposed to high temperatures.
- If necessary, the chart can be cleaned with a non- abrasive cleaner.

Avoid using telescopic pointers with white tips as they blend with the LEA color and may affect the validity of the test.

All equipment must be cleaned before and after each use (see *Medical Devices: Single Use, Single Patient Use and Reusable.*

Process

Steps	Additional Information
1. Engagement and consent • Identify the child as per Patient/Client Identification Protocol (CACH) or Patient Identification Policy (WACHS). • Encourage parent/caregiver to support and be involved with the procedure where appropriate. • 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. **School Health:** • Ensure written consent has been obtained prior to proceeding with testing in accordance with the *CACH Consent for Service Policy* or *WACHS Engagement Procedure.* **Child Health:** • Obtain verbal parental consent prior to proceeding with testing in accordance with the *CACH Consent for Service Policy* or *WACHS Engagement Procedure.*	• It is the responsibility of the clinician to ensure informed consent has been obtained. • Consent should always be informed, current and relevant to the procedure in accordance with Consent for Services Policy and *WACHS Engagement Procedure.* • Section 337(1) of the *Health (Miscellaneous Provisions) Act 1911* authorises nurses specified in the schedule to examine a child without parent/caregiver consent if required. In this, case Consultation with the Clinical Nurse Manager must occur prior to examination, the school principal or delegate to be advised as appropriate.
2. Preparation • Note significant history from *CHS409-1 SEHA Parent Questionnaire* (for school health). • Consider surveillance questions, risk factors and red flags listed in the *Vision and eye health* guideline. • Electronic recording systems (e.g., CDIS/CHIS) should be accessed for any documented history of vision concerns already identified.	• Any noted family history of retinoblastoma, congenital, infantile, or juvenile cataracts, glaucoma, or retinal abnormalities should be referred as per local process regardless of the outcome of the LEA test.

Steps	Additional Information

3. Preparation of Equipment and room
• Ensure adequate room lighting with even light distribution throughout the area of testing.
• Ensure LEA is in good condition with no shadowing, marks, or stickers.
• Inspect all equipment for visible damage, loose parts or signs of wear and tear.
• Measure 3 metres from the LEA chart to the position where the child's eyes will be when they are sitting or standing.
• Set up LEA. The LEA should be:
  ○ Vertical.
  ○ Mounted on the wall or an easel.
  ○ Positioned so that the middle of the chart is at the child's eye level.
• Ensure an appropriate size chair for child during procedure.
	• When performing the assessment, examiner considers own posture to minimise any risk of musculoskeletal injuries.
	• The child's and the examiner's eyes should be at approximately the same height.
	• Use of plain butchers' paper to cover area behind the LEA Chart may be required to ensure the background does not detract from the chart (Avoid setting up chart in front of bookcases).
	• No part of the LEA should be covered; it should be presented as whole lines, not isolated symbols, as the crowding phenomenon enhances the detection of amblyopia.
	• Avoid using a stool or sitting on the floor.
	• If equipment is found to be damaged, arrange for replacement equipment.

4. Prior to Vision Assessment (Child) • Ensure the child is sitting or standing comfortably. • Observe the child's eyes, head posture and alignment while child is in a relaxed state (as per Physical assessment 0-4). • Place the LEA recognition card/s in front of the child and establish a method of communication with the child. • Familiarise younger children with the symbol chart: ○ Show all the symbols to the child to 'practice' before using	• Note any abnormalities with the child's eyes. • When undertaking observation of the eyes recognise indicators for child abuse. • Abnormal head posturing may indicate visual difficulty. • Providing the teacher or child with a copy of the symbols may assist the child to become familiar with them. A mat session in the classroom run by the nurse may also be useful for this. This is especially helpful for young children or children with disabilities.

Steps	Additional Information
the chart. The child should respond by either naming the symbol or pointing to the same symbol on the key card. ○ Always test within the visual sphere of the child. If the child loses interest and you cannot re-engage them, stop the test, and recheck at a later date.	• If the child does not spontaneously name the symbols, let the child decide their own names for the symbols and the method of responding, either verbally or pointing. • It may help to introduce the chart up close, before testing at the 3-metre distance. • For school aged child, practice with the symbols and then switch directly to the 3-metre chart.
5. Binocular vision assessment • Briefly point to a few of the larger symbols in random descending order: ○ Ask the child to name the symbol or match the correct symbol on the card in front of them. • Start at one of the smaller lower triangles (starting from 6/12) to commence testing binocular visual acuity. • Move to the next line once 4 symbols have been identified. • Continue with the testing until the child is not able to correctly identify at least 4 symbols in one line. • If a child loses concentration during testing, a whole line of another triangle may be used to verify a child's vision. • Visual acuity is recorded as the last line on which at least 4 of the 5 symbols are identified correctly across the line.	• Binocular vision is always tested first. • Briefly pointing to the symbol using a telescopic pointer is acceptable. • **Do not** leave the pointer close to the symbol because it makes fixation easier, leading to an inaccurate result. • If the child seems to have difficulties in knowing which line to look at, cover the line above the line to be read with a white card leaving a little of the upper line visible. • The nurse should use a swivel chair to keep their whole body aligned. • Skipping symbols may be a sign of other vision anomalies but is not a finding that requires follow-up or referral if noted in isolation. • Frequently prompting a child to repeat symbols on a line cannot accurately determine that the child has identified the symbols. The Child may be able to 'guess' the symbol correctly. • If the child fails to identify a symbol, move up the chart to the next larger line. If the child is unable to identify symbols in this line continue up the

Steps	Additional Information
	chart until you find a symbol that the child can correctly match. • When tested at 3 metres, the visual acuity value is found in the right-side margin adjacent to that line. • Having reached their visual acuity threshold, the child may identify all the symbols as circles; an indicator to the examiner the visual acuity threshold has been exceeded. • The child may guess at the symbol when they can no longer definitively recognise it. Observation of the child's behaviour should contribute to the clinical picture. • If a child skips a symbol, let the child complete a line then say "you jumped over this picture between (e.g., house and ball.) What is it?" The symbol can be briefly pointed at to help the child find the symbol, but do not leave pointer at symbol. • Children of all age groups should be tested to the 6/6 line or until they are unable to correctly name 4 out of 5 symbols on a line.
6. Unilateral vision assessment • Test each eye separately using the same progression as with binocular vision testing. • Test the right eye first (occluding the left eye) unless there is an obvious negative response to this order of process. • Use a different smaller lower triangle for each eye. This eliminates the risk of memorising. • To pass a line, the child must correctly identify at least 4 of the 5 symbols in the line. The correctly identified symbols do not need to be	• The eye not being tested must be occluded completely. When testing, be mindful of observing the child. Children can be very skilful at subtly 'peeking' with the better eye. • Encourage the child to keep both eyes open during the testing. • Use clinical judgement to determine if re-familiarising the child with bigger symbols is required for each component of the test. This will also depend on the individual practitioner's skill and experience.

Steps	Additional Information
consecutive. Continue testing across the smaller lines until 2 or more errors are made in a line or it is too difficult for the child to continue. • Repeat the procedure to test the left eye, covering the right eye, and test to the 6/6 line (under equivalent 6m column) if the child is able.	• Result for the binocular vison test should match the result of unilateral vision for at least one eye. Where this is not the case, consider the validity of the results.
7. Interpreting results • Visual acuity (VA) is the smallest line where the child has correctly recognised at least 4 of the 5 symbols: ○ Take VA measurement from "Equivalent 6m column" found in the right margin of the LEA Symbols Chart. • The child passes the test when: ○ VA for each eye is 6/9.5 or better and; ○ there is less than a two-line difference between the two eyes.	• A VA of 6/19 or worse requires an urgent referral. • If the VA is at, or worse than, 6/19 in either eye but there is a possibility that the results were unreliable, arrange a recheck on the same day or within one week of initial screen so that an urgent referral can be arranged. • If the VA was a pass for each eye individually e.g. 6/6 in one eye and 6/9.5 in the other eye is a two-line difference and requires retest and/or referral. • If any anomalies, such as turning of the head, reluctance to cover one eye or ptosis of eye are observed during the assessment: ○ recorded in the results. ○ use clinical judgement to determine if a recheck or a referral is required. • If a child is resistant to covering one eye more than the other, they should be prioritised for rescreening or be referred if the assessment is unable to be completed.[7] • A normal LEA result does not necessarily exclude the presence of other treatable eye conditions. Any child with a vision concern despite a normal visual acuity screening result

Steps	Additional Information
	should always be referred to their medical practitioner (CACH and WACHS) or an optometrist (WACHS only) for a more comprehensive assessment.
8. Documentation • Results must be documented on *SEHA Results for Staff* and retained in the child's health records. • CACH nurses must use a CDIS assessment screen to record the findings of cover test by selecting "LEA Chart" and then selecting the appropriate finding from the drop-down boxes for VAB, VAR and VAL (Visual Acuity Bilateral; Visual Acuity Right; Visual Acuity Left). • WACHS nurses document the results of the initial School Entry Health Assessment in CHIS: ○ If the initial check is documented over multiple appointments, use School Health: Targeted Assessment to document in CHIS. Manage recalls according to findings.	• Community health staff will document relevant findings according to CACH and WACHS processes. • CACH and WACHS nurses must use the relevant *Clinical Notes/Comments* field in CDIS/CHIS to record any factors that may have interfered with the accuracy of the findings as well as findings around the observation of the eye.

9. Communicate results with parent/caregiver
• Discuss results with parent/caregiver, including concerns if present.
• If parent/caregiver not present:
  ○ Contact to discuss if there are any concerns and need for recheck/referral as appropriate.
  ○ Provide results in writing using SEHA *Results for parents* or other relevant form.
	• Refer to *Language Services* policy for information on accessing interpreters.
	• Results should be given in a culturally safe environment, considering parent/caregivers health literacy.[8]
	• It is recommended that staff use the correct terminology when discussing any vision results with the parent or caregiver.
	• If a vision concern is detected, inform the classroom teacher. This may include recommendations on seating

Steps	Additional Information
• Provide a copy of the results to the school on completion of the health assessment *SEHA Results for staff*.	or other strategies to support the **child** in the classroom whilst awaiting referral follow-up. • If unable to contact a parent/caregiver to discuss a concern, follow CACH or WACHS processes to provide effective communication with the family.
10. Recheck process • Rechecks should be conducted within three months for: ○ any child who is not attentive or not able to perform the testing. ○ any child not passing as per Step 6 (excluding those requiring urgent referral).	• All components of the vision assessment should be reassessed, including CLR and CT. • Children who are not attentive during the vision screening process have been shown to have an increased likelihood of a vision problem.[9] • It is recommended to recheck the eye with the poorer visual acuity first and the better eye second.
11. Referral and follow up • Any child with any of the following results should be referred to their medical practitioner for ongoing assessment: ○ Any child on recheck with a VA equal to, or greater than 6/12 in either eye or if there is a two line difference between the eyes; ○ Any child with a VA of 6/19 or worse in either eye requires urgent referral. In this situation, discussion with the parents/caregivers should highlight the necessity for the medical practitioner (or optometrist for WACHS) to contact the ophthalmologist to arrange a timely appointment.	• Adherence to *CACH Clinical Handover* and *WACHS clinical handover of vulnerable children* procedure is required when handing over, or referring a client within, or outside of, the health service. • If verbal consent for referral is obtained it must be documented in detail in the client record. • When assessing children at risk consider *Factors impacting on child health and development* guideline. • It is preferable to obtain express written consent when disclosing client information. ○ Written consent must be captured in the *Consent for Release of Information* (CAHS) or *Consent for Sharing of*

Steps	Additional Information

• Discuss and obtain consent for referral from parent/caregiver.
• Include LEA vision results in referral along with information about other assessments (e.g., CLR, CT).
• For children at risk, follow up must occur with parents/caregivers to determine if the referral has been actioned. This includes children of concern, children in care, or those with urgent vision concerns:
  ○ For other children, use clinical judgment to determine if referral has been actioned.
• Document plan for referral and follow up in CDIS or CHIS.
	information (WACHS) form and filed in the client record.
	• **CACH Staff:**
	  ○ Refer to a medical practitioner. The medical practitioner will assess and consider referral to an ophthalmologist or optometrist for further investigation.
	• **WACHS nurses**:
	  ○ Follow local processes as required; this may involve referral to a medical practitioner or an optometrist for further assessment.

Documentation

Nurses must maintain accurate, comprehensive, and contemporaneous documentation of assessments, planning, decision making and evaluations according to CACH and WACHS processes.

Work Health and Safety Considerations

The following risk mitigation strategies should be observed to minimise any risk of musculoskeletal injuries when using the LEA. Additionally, staff must comply with the *CAHS Fitness for Work policy* and WACHS Due Diligence Guideline, and discuss the impact of any existing injuries with their manager.

It is recommended that individual nurses perform no more than 10 LEA tests per session. Operational considerations should be discussed with the line manager, including travel requirements. It is important to ensure community health staff rotate between assessment, documentation, and liaison tasks frequently.

The use of a swivel chair when performing LEA testing is strongly recommended. Sitting forward on the swivel chair, with feet flat on the floor, will allow greatest use of the chairs' swivel mechanism, and will help reduce neck and/or trunk rotation.

If accessing a swivel chair is not possible, staff are to alternate between sitting or standing on the left and right side of the chart and switch using the pointer between the left and right hand.

Nurses are to adjust the telescopic pointer to ensure the arm remains in a relaxed position, with the elbow by the side of the body.

References

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2. Lee EY, Sivachandran N, Isaza G. Five steps to: Paediatric vision screening. Paediatr Child Health. 2019 Feb;24(1):39-41.
3. Ambrosino C, Dai X, Antonio Aguirre B, Collins ME. Pediatric and School-Age Vision Screening in the United States: Rationale, Components, and Future Directions. Children (Basel). 2023;10(3).
4. Matta N, Silbert D. Pediatric Vision Screening. International Ophthalmology Clinics. 2014;54:41-53.
5. Loh AR, Chiang MF. Pediatric Vision Screening. Pediatr Rev. 2018 May;39(5):225-34.
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7. Cotter SA, Cyert LA, Miller JM, Quinn GE. Vision screening for children 36 to <72 months: recommended practices. Optom Vis Sci. 2015 Jan;92(1):6-16.
8. Thompson D, Leach M, Smith C, Fereday J, May E. How nurses and other health professionals use learning principles in parent education practice: A scoping review of the literature. Heliyon. 2020 Mar;6(3):e03564.
9. Holmes JM. When to screen for amblyopia. Journal of American Association for Pediatric Opthamology and Strabismus. 2020;24(2):65-6.

Related internal policies, procedures, and guidelines

The following documents can be accessed in the CACH Clinical Nursing Policy Manual HealthPoint link or CACH Clinical Nursing Policy Internet link

- Clinical Handover - Nursing
- Corneal light reflex test
- Cover test
- Factors impacting on child health and development
- Red Reflex
- Universal contact 0-14, 8 weeks, 4 months, 12 months, 2 years, School Health Entry Health Assessment
- Universal plus – Child Health, Universal Plus School Health
- Vision and eye health

The following documents can be accessed in the WACHS Policy Manual

Child Health Clinical Handover of Vulnerable Children Procedure
Consent for Sharing of Information: Child 0-17 years Procedure - Population Health
Due Diligence
Fitness for Work
Hand Hygiene
Health Record Management
Home and Community Visits in Remote Community Setting
Infection Prevention Control
Management of Medical Equipment
Patient Identification
Work Health and Safety Policy
The following documents can be accessed in the CAHS Policy Manual
Child and Family Centred Care
Child Safety and Protection
Clinical Documentation
Communicating for Safety
Confidentiality, Disclosure and Transmission of Health Information
Work Health and Safety
The following documents can be accessed in the CACH Operational Policy Manual
CDIS Client Health Record Management
Client Identification
Client Information – Requests and Sharing
Consent for Services
The following documents can be accessed in the CAHS Infection Control Policy
Hand Hygiene

Medical Devices: Single Use, Single Patient Use and Reusable
Toys, Books and Educational Material – Purchase Care Cleaning

Related external legislation, policies, and guidelines
Clinical Handover Policy
Clinical Incident Management Policy

Related internal resources (including related forms)
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 resources to assist service provision to Aboriginal clients
The resources below can be accessed on CAHS-Aboriginal Health page via HealthPoint
Cultural Information Directory
Effective and appropriate communication with Aboriginal people
Keeping our Mob healthy: Strabismus, Trachoma
The following resource can be accessed from WACHS Aboriginal Resources
WA Aboriginal Health and Wellbeing Framework 2015–2030
WACHS Aboriginal Health Strategy 2019-2024

Related external resources (including related forms)
Raising Children Network: Lazy Eye or amblyopia, Blocked Tear Duct, Cleaning baby eyes, ears and noses, Colour Blindness, Conjunctivitis, Lazy eye, Long sightedness, Ophthalmologist, Optometrist, Orthoptist, Short sightedness, Squint, Stye, Vision Impairment

This document can be made available in alternative formats on request.

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