National Framework for Vision Screening for 3.5-5-year-olds

VISION 2020 THE RIGHT TO SIGHT AUSTRALIA

Foreword

Eye disorders are one of the most common long-term health problems experienced by Australian children. Good vision is critical to childhood development and education. Therefore, early detection of visual problems, and appropriate and timely treatment of eye conditions is important for all Australian children to help prevent life-long vision loss.

There is broad agreement across the eye health sector that pre-school vision screening is necessary to help detect visual problems and prevent life-long vision loss in children. Vision screening programs in Australia vary widely across the states and territories and could benefit

This document outlines a National Framework for Vision Screening for 3.5-5-year-olds. This age range represents an important opportunity as vision can be screened reliably, and identification and treatment of visual problems occurs prior to the commencement of school. The Framework draws on available evidence from local screening programs and protocols such as the New South Wales Statewide Eyesight Preschool Screening Program (StEPS). Its development has involved extensive consultation with sector experts, including clinicians and a range of organisations involved in eye health. Vision 2020 Australia gratefully acknowledges the sector's contribution, insight, and advice in developing this Framework.

The National Framework's main objective is to help facilitate universal access to integrated people-centred eye care for Australian children. This objective is in line with the World Health Assembly's 2020 resolution on eye health and the United Nations resolution of 'Vision for Everyone: accelerating action to achieve the Sustainable Development Goals'.

Foreword

There are three core concepts that underpin this Framework. Firstly, that children between 3.5-5-years-old represent an age young enough for the visual system to be amenable to the treatment of significant visual conditions such as amblyopia, strabismus and refractive errors.

Secondly, that existing screening systems should be leveraged, and the screening workforce should be flexible and broad to maximise access. Finally, post-screening follow up measures must be embedded in all vision screening programs, as this helps to ensure that children in need of treatment and/or monitoring receive appropriate and timely intervention.

The Framework comprises two sections:

1. National Minimum Standard for Vision Screening for 3.5-5-year-olds

   An outline of the minimum considerations/inclusions for an effective vision screening program for Australian children.

2. Post-Screening Follow Up Processes

   An outline of the key considerations and processes that are integral to follow-up care, screening program monitoring and evaluation.

National Minimum Vision Screening Standard for 3.5-5-year-olds

To ensure all 3.5-5-year-old Australian children have access to integrated and people-centred eye care (IPEC), where vision screening programs with coordinated pathways for referral and follow up will help with early detection of vision problems and facilitate timely.

Overarching principles

The National Minimum Standard for Vision Screening will be underpinned by the following principles:

- Vision screening to be conducted at an age young enough for the visual system to be amenable to treatment of significant visual conditions, including amblyopia, strabismus and refractive error.
- Approach aims to maximise coverage and ensure access for all.
- Approach to be flexible, leverage existing state/territory platforms and accommodate local community needs, capacity, and infrastructure.
- Approach should adhere to the World Health Organization's Screening Programme Guide and produce valid information, leading to better child health outcomes.
- Screening must be supported by effective pathways for referral, follow up and access to appropriate eye care.
- Screening must be supported by proactive strategies to improve community and parental awareness, education, involvement and follow up.
- A broad workforce should be utilised to maximise reach of the screening program, with all screeners to meet required standards/skill levels.
- Data collection, evaluation and reporting to be embedded to drive continuous improvement and transparency.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Pre-screening regimen

Written information provided to parents/carers about vision screening should have the appropriate level of detail, avoid being overly complicated, and should be available in most commonly spoken community languages.

The following materials should be provided to parents/carers prior to the screening:

Written information about:

- the screening process
- the importance of vision screening for vision and eye health in children
- common eye conditions affecting children.

Written information should also state that vision screening does not replace a comprehensive eye exam and parents/carers with concerns regarding their child's eyes/vision should consult an eye health practitioner. Additionally, parents/carers have the right to have their child's eyes assessed by an eye health practitioner at any stage irrespective of the screening outcome in addition/simultaneous to vision screening.

Consent form, including parental/carer consent:

- for screening to be conducted,
- for screener to connect with relevant educators and community organisations where appropriate to provide feedback to these services, and
- for information collected via screen to be recorded within an information management system for purposes of follow up, evaluation and research (subject to ethics approval and use of de-identified data only).

History questionnaire covering the following topics:

- Current eye care/current spectacle wear, and
- Parental/carer concerns regarding child's eyes/vision.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Screening regimen

The primary purpose of the screening is to identify children with significant visual compromise. Given this, the minimum vision screening tests to conduct includes careful inspection of the child's eyes and an assessment of the monocular distance vision of both eyes.

Observation:

Observe the child's eyes to determine if any abnormalities may be present, which are of concern or could affect either the vision or the child's general comfort.

Assessment of distance vision:

- The monocular distance vision will be measured with the child in their habitual correction state (i.e. wearing distance glasses if they have them, or unaided if they do not have glasses for distance).
- A device which occludes one eye at a time (e.g., eye patch or occlusion glasses) should be used so that the child cannot see through or around during the test.
- Use a distance vision chart with crowded or linear optotypes (e.g. HOTV, LEA chart) that includes equivalent measures for 6/6, 6/95, 6/12 and 6/18 as a minimum. Vision chart should be placed at the manufacturer's recommended test distance.

It is recognised that the final screening regimen adopted may vary by jurisdiction to ensure contextual factors, including workforce availability and cultural appropriation are incorporated.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Referral criteria

Outlined below are the criteria to be used by screeners to determine the outcome of the screen. In instances where the parent/carer has indicated the child is under current eye care via the history questionnaire then screeners should advise parents/carers to continue this care for all criteria listed.

'Eye health practitioner' collectively includes ophthalmologists, optometrists, and orthoptists. Where access to an eye health practitioner is not available within appropriate timeframes then the child should be referred to a 'medical practitioner' or 'healthcare worker', which intends to mean a medical physician or healthcare worker who does not have ophthalmic expertise.

It is recommended that each jurisdiction considers the inclusion of secondary screening clinics, which are staffed by a more experienced screener or orthoptist. This will incur additional resourcing and may not be feasible and/or justifiable in all locations. However, these clinics will allow children in the 'unable to be tested' category to be re-screened, reducing false positive referrals and the burden on public health systems.

Pass	The distance vision is 6/12 or better in each eye. Referral not required.
Refer	The distance vision is worse than 6/12 but is 6/18 or better in one or both eyes. Parents/carers advised to have their child's eyes tested within eight weeks by an eye health practitioner.
Refer	There is obvious pathology on observation of the external eye(s) that is currently untreated (i.e. where the observed pathology has not been indicated on the history question-naire). Parents/carers advised to have child's eyes tested within eight weeks by an eye health practitioner.
Refer	Child is unable to be screened (e.g. uncooperative/unable to test). Parents/carers advised to have the child re-screened through a secondary screening clinic OR have the child's eyes tested prior to the commencement of school or with-in three months (whichever comes first) by an eye health practitioner.
High priority referral	The distance vision is worse than 6/18 in one or both eyes. Parents/carers advised to have their child's eyes tested as soon as possible and preferably within one month by an eye health practitioner.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Screening environment

The screening should be conducted across a broad range of community facilities, and ideally in environments that are familiar and friendly to children as this may aid screening cooperation and uptake. The minimum screening conditions include:

Size	The space in which screening is conducted should allow a testing distance of at least three meters.
Lighting	The screening space should be well lit, without sources of glare or reflections on the vision chart.
Distractions	The screening space should have minimal auditory and visual distractions.
Optimise accuracy	The screening space should be set up to ensure that children waiting to be screened cannot see the chart.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Screening workforce

Wherever possible, vision screening should be conducted by a broad workforce of screeners where there is no perceived conflict of interest. The workforce is likely to comprise mostly of lay screeners, nurses and teachers in most jurisdictions. It is recommended that university students who are completing training in optometry and orthoptics should also be considered for the screening workforce.

Screeners should have the following attributes, skills and qualifications:

Attributes/Skills

- Experience in working with children and parents/carers.

Cultural competency

- Have a clear understanding of cultural safety within the community that vision screening will be conducted in.

Communication skills

- Effective/appropriate/professional communication with service providers, parents/carers and children.
- Understanding of patient confidentiality.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Technical skills

- Competency in using vision screening equipment
- Accurate record keeping
- Ability to follow protocols and procedures
- Ability to adhere to OHS/compliance/infection control guidelines.

Qualifications

- Working with Children Check
- Successful completion of prescribed competency package.

National Minimum Vision Screening Standard for 3.5-5-year-olds

Training of screeners

Each jurisdiction should utilise a formal training program for screeners with the following inclusions:

- An initial training and competency package and assessment, that is completed to a satisfactory level by all screening staff upon recruitment.
- Training materials/packages should include cultural safety/competency, and privacy and confidentiality components.
- An annual professional development and refresher program to help maintain and develop technical skills, that is to be completed by all screening staff.
- Development and delivery of the training packages should be conducted by eye health practitioners or experienced screening program staff, who have a strong understanding of the National Minimum Standard for Vision Screening in 3.5-5-year-olds.
- Training materials/packages should be reviewed and updated annually by trainers.
- Supplementary training for screeners identified with high false-positive referral rates.
- Training materials/packages should be delivered through various platforms (e.g. face-face training, webinars, self-paced learning modules) to ensure maximum reach.

Post screening follow up processes

One of the key challenges encountered to date with vision screening programs is the relatively high rates of children who fail screening but are lost to follow up. As this is a key limiter to the overall goals of vision screening it is essential that sustainable and practical strategies are implemented in this area. The goal is to develop and document a system for follow up that helps minimise the number of children who fail vision screening but are lost to follow up. This document outlines the principles and considerations for referral pathways and follow-up procedures that will optimise post-screening outcomes.

Guiding principles

The Framework recommends each jurisdiction develop and embed follow up processes guided by the following principles:

- Approach to provide clear and consistent guidance regarding how and where to refer for follow up, with the primary objective of supporting timely access to a full eye examination wherever possible.
- Approach will be considerate towards parent/carer positions and avoid evoking unnecessary distress.
- Approach aims to accommodate a range of settings, populations and workforces.
- Approach aims to incorporate strategies to address known barriers (e.g., cost of care) to follow up, and/or support enabling factors (e.g. parental/carer involvement) to follow up.
- Approach aims to support connections with community-controlled health organisations and support networks.
- Approach will be supported by appropriate information management protocols and systems underpinned by appropriate privacy arrangements, that support a shared understanding of whether follow up has occurred and could support broader data collection and evaluation.

Post screening follow up processes

Referral pathways

Screened children under current eye care as indicated by the parent/carer via the history questionnaire should be advised to continue this care regardless of their screening outcome. In all other instances, to maximise the potential for the child to receive timely care, it is recommended that wherever possible referrals be made to eye health practitioners in the first instance.

Based on the referral criteria outlined in the National Minimum Standard for Vision Screening in 3.5-5-year-olds the recommended referral timeframes are:

Within eight weeks:

- The child does not pass the screening because the distance vision is worse than 6/12 in one or both eyes.
- The child has obvious pathology on observation of the external eye(s) that is currently untreated.

As soon as possible (preferably within one month):

- The child does not pass the screening and the distance vision is worse than 6/18 (or equivalent) in one or both eyes.

Post screening follow up processes

Systems and information management to support follow up

In selecting an appropriate system for information management it is recommended that the following features are considered:

- Electronic systems are most likely to provide the necessary breadth of access and support efficient follow up.
- The information management system(s) should support streamlined processes and enable various parties involved in the screening program's delivery, follow up and evaluation to access information relevant only to their purposes.
- The information management system(s) should include functionality for recording the screening results on/offline, facilitate follow up processes, store large data that can be easily accessed and allow extraction of de-identified information for research, analysis and evaluation.
- The information management system(s) should have high accessibility and usability, accommodating a diverse range of users, and contain only the core information essential for follow up and data analysis. As this work develops and progresses, there will be a need to consider system features or complementary products that ensures broad compatibility with existing IT systems.
- Use of an electronic management system requires appropriate consent.

Post screening follow up processes

Information management

Access to public information regarding the vision screening process, interpreting screening outcomes, and where to access follow up care is important. This will ensure that both screeners and parents/carers can refer to relevant information and resources as they need them, and the information is consistent.

Various mechanisms to support information management on a large scale could be established in each jurisdiction, varying from a program-specific website/portal, through to building the required capability off an existing platform if a suitable option could be identified. Consideration should be given to existing systems in place for the local population, and how these could be leveraged or otherwise connected.

Under any information management system, access to relevant resources and data would be required by:

Parents/carers and general public

To access information regarding the vision screening program and where to go for screening and/or follow up care.

Screeners

To access information regarding the vision screening program and add screening activities and outcomes.

People conducting follow up

To identify children who require follow up and record the outcomes of that follow up.

Program management and/or evaluators

To access de-identified data for program reporting, quality assurance.

Post screening follow up processes

Follow up protocol

Eye care practitioners will have a role to play in conducting follow up examinations and providing basic data on follow up outcomes. Parent/carer involvement is also critical to ensuring follow up care is achieved post-screening, and direct contact with parents/carers about this process would maximise this opportunity for engagement. However, relying on parents/carers for clinical outcomes including diagnosis and management, comes with inherent challenges and can impact the reliability of the information obtained.

It is therefore recommended that where it is feasible, eye health practitioners are principally responsible for entering basic follow up outcomes, but this must be balanced carefully to minimise the demand on practitioners' time. Obtaining additional/supplementary information from parents/carers could also be included, particularly in instances where eye health practitioners have not completed follow up outcomes.

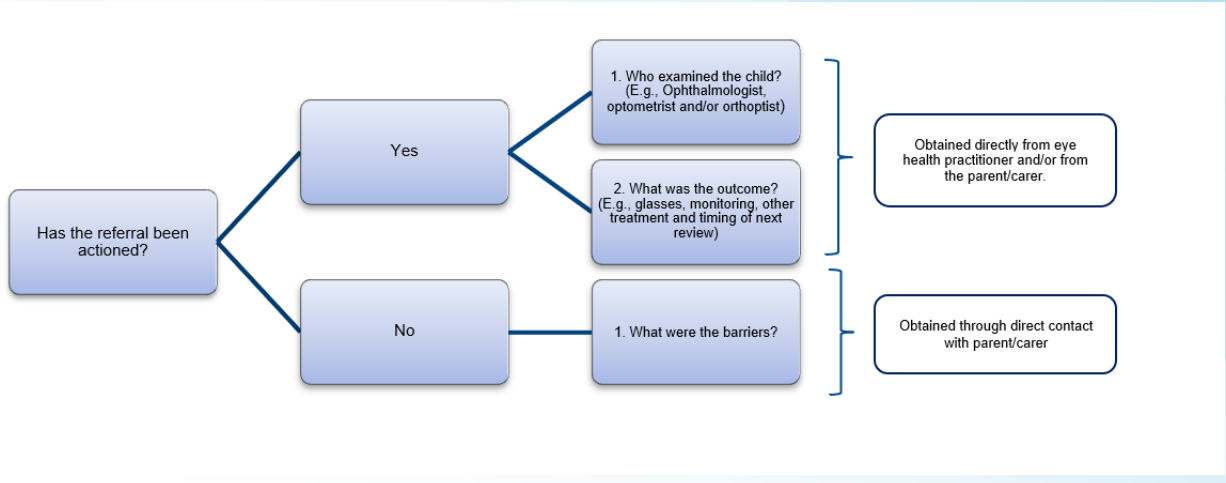
Post screening follow up processes

Each jurisdiction should develop and embed a robust follow up protocol specific to its location, available resources, and cultural considerations, with the following inclusions:

- A designated and resourced role(s) within the screening program workforce responsible for monitoring and coordinating follow up of children who were referred after their vision screen.
- Progress, outcomes and reported barriers to follow up care should be recorded within the information management system.
- In instances where follow up outcomes are outstanding, then there should be at least two documented attempts to contact and engage parents/carers.
- Information and discussion about follow up should be available in most commonly spoken community languages.

The figure below (Figure 1.) summarises the key information to be gathered in the follow up process.

Figure 1. Follow up information to be gathered



Post screening follow up processes

Evaluation and monitoring

Monitoring progress and outcomes will facilitate future program evaluation(s) and identify opportunities for improvement. It is recommended that each jurisdiction undertake regular evaluations of the vision screening program, including follow up processes.

Objectives of future program evaluation(s) will be to understand:

- Program reach;
- Barriers to accessing screening and follow up pathways;
- Rates of screening pass/fail;
- Referral accuracy;
- Acceptability across stakeholders; and
- Feasibility.

The key aspects of the evaluation and monitoring framework should therefore include reporting systems covering:

- Demographics of screened children; and
- Screening statistics
- Consent rate
- Screens conducted & outcomes
- Diagnostic categories.
  - Accuracy and appropriateness of screening referrals
  - Follow up rates and outcomes, including the time elapsed between screening and definitive follow up care.

Post screening follow up processes

Evaluation and monitoring

- Workforce statistics;
  - Composition
  - Geographical distribution
  - Labour.

To understand program acceptability, key stakeholders will be surveyed to provide qualitative information regarding their experiences and perceptions.

Post screening follow up processes

Reaching children who are not screened before they start school

It is recommended that each jurisdiction consider a range of additional measures to reach children who are not screened before they start school, for example:

1. **Catch up screening clinics/visits**
   Providing additional opportunities for children who were consented but missed the vision screen. The frequency and location of catch up clinics/ visits will depend on demand, workforce availability, resourcing and funding.

2. **School entry point survey**
   All children to receive an entry point survey upon enrolment of their first year of school to identify children who have not been screened or had their vision tested. In a range of jurisdictions there are existing measures in place to capture this information, and where it is possible these processes will be leveraged, or recommendations provided to enhance the quality of the information obtained.

3. **Targeted screening**
   For the cohort of children not yet screened or tested, a targeted invitation to vision screening will be provided along with written information about children's vision and the importance of vision screening. Adopting a targeted approach will increase the likelihood of uptake.

Closing remarks

The National Framework for Vision Screening in 3.5-5-year-olds will provide an essential foundation for effective vision screening programs nationwide. Vision 2020 Australia are requesting that the Commonwealth and State Governments adopt the Framework and ensure implementation in each jurisdiction.

A National Framework supported by both levels of Government will facilitate early detection and treatment of vision problems, maximise treatment outcomes and help prevent life-long vision loss in Australian children.

Appendices

Appendix A – Recommended Screening Locations/Sites

- Aboriginal Community Controlled Health Centres
- Childcare centres
- Child and family health services
- Early intervention services
- Family day care services
- Immunisation clinics
- Kindergartens
- Playgroups
- Refugee services
- Refugee services
- School orientation programs.

Appendices

Appendix B – Implementation Costs & Considerations

Implementation of the National Framework for Vision Screening in 3.5-5-year-olds will be completed at the local level for each state and territory. Various contextual factors will affect local implementation strategies and costs including:

- Existing vision screening systems and workforces that can be leveraged,
- Local population figures and projections, geographical distribution and demographics,
- Existing health record databases and infrastructure, and
- Local government funding priorities.

The NSW StEPS Program Evaluation 2018 is a useful resource and provides some key cost guides, for example:

- It was calculated that 0.32FTE screeners was required per 1000 children,
- The NSW StEPS Program was estimated to cost $37.37 per screened child in 2020, and
- The incremental cost-effectiveness ratio (ICER) of StEPS was evaluated at $13,942 per Quality Adjusted Life Year (QALY) gained.