Vision and hearing screening for school-age children

Implementation handbook

World Health Organization

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Contents

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Glossary

Technical terms are used throughout this document. The table below lists the non-technical terms used in the corresponding WHO learning resource: *Sensory screening (vision and hearing) for school-age children: blended course*.

Technical term	Non-technical term
Ambient noise levels	Background noise levels
Automated digital screener	Tablet or phone audiometer
Cerumen	Ear wax
Hyperopia	Long-sighted
Malformation	Missing or very different shape
Misalignment/not aligned	Not looking in the same direction
Myopia	Short-sighted
Perforations	Holes
Refractive errors	Vision problems
Tumbling E chart	E chart
Tympanic membrane	Eardrum
Visual acuity	Vision

Executive summary

Background and purpose

Unaddressed sensory impairments have far-reaching impacts on the lives of those affected and their families. In children, sensory inputs from both vision and hearing are important for optimal developmental and learning outcomes *(1–4)*.

Uncorrected refractive errors (such as myopia, hyperopia, and astigmatism) are the leading cause of visual impairment in school-age children (5–18 years), and global prevalence in myopia is projected to increase significantly in the future in this age group *(5, 6)*. To help prevent myopia in its earliest phases or to delay its onset, particularly during the early school years, it is essential to identify children who are at a high risk of developing the condition *(7)*. In most cases, early intervention can lead to improved outcomes. Other causes of visual impairment, such as amblyopia, strabismus, cataracts and retinopathy of prematurity, can lead to permanent vision loss if left untreated, and children with these conditions require additional support and care.

Regarding hearing loss, globally, most newborns are not screened, and even when they are, those with hearing loss that is progressive or develops later in childhood often remain unidentified and therefore untreated *(1, 8)*. Ear diseases such as otitis media are a common cause of hearing loss among children that can be prevented if identified and treated in a timely manner *(1)*.

Early identification, diagnosis and interventions for sensory (vision and hearing) impairments in children, are critical to avoid the long-term impact on their language, learning, cognition, educational attainment and social development *(1, 2, 9–11)*, and to improve their opportunities for employment later in life *(1, 2, 11)*.

In order to raise awareness about these issues, WHO has developed documents aimed specifically at addressing health problems associated with school age children that include, among the suggested standards, performing vision and hearing screening in these age groups *(6, 12)*.

The WHO *World report on vision (2)* and the *World report on hearing (1)* call upon WHO Member States to initiate affirmative actions that both include and address the needs of those living with sensory (vision and hearing) loss as well as the populations at risk of developing these conditions.

This publication: *Vision and hearing screening for school-age children, implementation handbook* provides practical guidance to support the establishment of sensory screening programmes for school-age children. It is intended to be used with the following resources:

- Vision and eye screening implementation handbook.
- Hearing screening: considerations for implementation.
- Vision and hearing for school-age children: blended course.

The substantial overlap between vision and hearing impairment prevalence presents a strong rationale for implementing combined screening programmes *(13)*. A joint approach could facilitate widespread screening particularly in low- and middle-income countries that have limited resources.

This implementation handbook provides practical information to support personnel tasked with planning and implementation. It outlines the equipment and human resources required for screening school-age children, as well as steps for referral, follow-up and management. It is not designed to be a training manual. Training content (online modules) can be accessed via Learning on TAP.

Supporting documents, such as templates for consent forms and screen forms, as well as health promotion materials, are provided in the Annexes.

Principles for sensory screening in school-age children

The processes for sensory (vision and hearing) screening are based on set principles which must be followed as described in the handbook and not compromised upon.

Screening programmes should be developed following consultation and collaboration with local stakeholders and adapted to the sociocultural settings in which the screening is to be implemented. Services need to be based on ethical principles and include the establishment of the full care pathway. Where possible, sensory screening can be built into routine school health checks.

Other important principles include the following:

- Consent and assent should be sought prior to screening.
- Screening methods must be evidence-based and validated.
- Pathways into follow-up diagnostic services must be available.
- Programmes must include awareness/health promotion about vision and hearing problems.
- Standard clinical hygiene and personal protective measures should be maintained.

Screening pathways

The recommended steps that should be undertaken prior to the day of screening, during the screening and post screening are provided in the handbook. The steps in the pathway can be adapted to suit the local environment and human resources.

Screening methods

Evidence-based and validated methods are outlined for vision screening and eye examination, and for hearing screening and ear examination. Guidance is also provided for the screening environment requirements and necessary equipment.

Testing preparation, age-based procedures and pass/refer criteria are described for both vision and hearing screening, with annexes and/or links to supporting documents and materials.

Results, referrals and follow-up

Results from the sensory (vision and hearing) screening should be provided to the parent/caregiver along with information regarding any necessary next steps to be undertaken.

The referral pathway must be established during the planning stage. The steps in the referral process should be aligned with those of the existing national referral systems and facilitate parent/caregiver attendance at follow-up examinations.

It is also important to establish an internal follow-up system to ensure that children who are being referred receive the appropriate care, with monitoring of children needing subsequent screening programmes and those who missed the screening.

Monitoring and evaluation

Monitoring and evaluation play an important role in ensuring the effectiveness of sensory (vision and hearing) screening programmes. A monitoring and evaluation framework should be implemented as part of the screening programme.

Health promotion

Promoting good health in the surrounding community, for example to teachers, parents, and children, must be embedded into any sensory (vision and hearing) screening programme to raise awareness of signs of vision and hearing loss, to share information about eye and ear care, and to break down stigma.

Introduction

Background

Globally, 2.2 billion people suffer from vision impairment, while over 1.5 billion live with hearing loss *(1, 2)*. The majority of those with sensory impairments live in low- and middle-income countries with limited access to required eye care and hearing care *(1, 2)*. This is mainly due to poor availability and disparate distribution of appropriately trained health-care personnel, infrastructure, and resources, and in some areas, the high costs associated with traditional eye care and hearing care *(1, 2, 14–17)*.

Unaddressed sensory (vision and hearing) impairments have far-reaching impacts on the lives of those affected and their families. In children, sensory inputs from both their vision and hearing are important for their optimal developmental and learning outcomes *(1–4)*. In adults, unaddressed sensory (vision and hearing) impairments are linked with poorer employment opportunities, social isolation, depression, and early cognitive decline; older adults are placed at a higher risk for developing dementia *(1, 2)*. The impact can be even greater in those with dual sensory (vision and hearing) impairments. When compared to individuals with only one sensory impairment, those with dual sensory impairment are likely to experience a decreased quality of life, an increased risk of falling, depression, and even mortality *(18)*.

Population groups most likely to be affected by sensory (vision and hearing) impairments include newborns, preschool and school-age children, older adults and those exposed to harmful stimuli or substances. All these groups can benefit from having access to services that ensure early identification of these impairments followed by prompt intervention. Important principles and considerations for vision and hearing screening at the above-mentioned life stages are outlined in WHO's *Vision and eye screening implementation handbook (19)* and *Hearing screening: considerations for implementation (20).*

This handbook focuses on the sensory (vision and hearing) needs of school-age children. In these age groups, it is not uncommon to find both vision impairment and hearing loss that is associated with ear diseases, such as otitis media. Globally, most newborns are not screened for hearing loss, and even when they are, those with hearing loss that is progressive or develops later in childhood often remain unidentified and therefore untreated *(1, 8)*. In addition, ear diseases, such as otitis media, are a common cause of hearing loss among children, and can be treated if identified in a timely manner *(1)*. Similar concerns arise with vision problems that are not identifiable at birth and that develop during childhood; these include uncorrected refractive errors, amblyopia and strabismus *(21)*. Uncorrected refractive errors (such as myopia, hyperopia, and astigmatism) are the leading cause of vision problems in

children aged 5–18 years; the global prevalence of myopia is projected to increase significantly in the future *(5, 6).* To help slow the progression of myopia, or to prevent it in its earliest phases, particularly during the early school years, it is essential to identify those children who are at a high risk of developing the condition *(7).*

The early identification of sensory (vision and hearing) impairments in children, and connecting these children to care, is critical to avoid the long-term impact on their language learning, cognition, educational attainment and social development *(1, 2, 9–11)*, and to improve their opportunities for employment later in life *(1, 2, 11)*.

The key to effective management of sensory (vision and hearing) conditions is through timely early identification *(19, 20, 22)*. Given the insidious nature of sensory impairments, people commonly fail to seek vision or hearing check-ups during the early stages of sensory losses. For this reason, it is important to establish dedicated measures for universal, systematic screening for sensory (vision and hearing) impairments, as highlighted in WHO's *World report on vision (2)* and *World report on hearing (1)*.

The prevalence of vision and hearing impairment in school-age populations presents a strong rationale for implementing combined screening programmes *(13)*; these are more cost–effective than vision/eye and hearing/ear screening programmes undertaken individually. Using the same screening personnel can reduce time and associated costs *(13)*. Such a joint approach could, therefore, facilitate widespread screening particularly in low- and middle-income countries that have limited resources.

Purpose and use

This handbook presents practical guidance on how to facilitate a joint vision and hearing sensory screening programme for school-age children at community level. It is intended for use by programme planners and managers to plan such services at a national or subnational level. An online training course is also available to support implementation. The aim of the course is to equip community-level workforce and school staff to provide safe and effective sensory (vision and hearing) screening for school-age children. The first module is intended for people who will be coordinating the setting up and running of the screening programme. The full course is for people working in health and education who are in a position to conduct the screening; these include nurses, primary health care workers, teachers, social workers, and community workers.

To implement a screening programme, this handbook should be read in its entirety and the procedures discussed by in-country technical experts and adapted to local and cultural context. The principles outlined must be followed and not compromised upon, so that quality and equitable services can be provided to those in need.

Development

In developing this implementation handbook, the relevant guidance for screening school-age children was collated from various WHO publications; these include:

- Vision and eye screening implementation handbook.
- Hearing screening: considerations for implementation.
- Background publication: Combined hearing and vision screening programs: a scoping review.

1. Principles for sensory (vision and hearing) screening in school-age children

The screening methodology outlined in this handbook can be adapted to suit the specific requirements and cultural preferences of the different settings where it is to be implemented. However, certain principles must always be adhered to:

- A screening programme should be implemented only in discussion with local stakeholders including health care providers and educators, and adapted to the sociocultural setting in which it is to be implemented. An advisory board may be established to oversee planning, implementation and evaluation.
- Screening should be conducted only with the consent of parents/caregivers/guardians/heads of school and in accordance with local rules and regulations.
- All methods applied in the screening process should be evidence-based and validated. Recommendations for suitable types of screening tools are made in this handbook; however, the appropriate tools must be selected at programmatic level, keeping the requirements in mind.
- As children's eyes and ears continue to develop over time, screening and subsequent follow-up services should be conducted regularly (i.e. every 1–2 years). For example, refractive error, which is the most common cause of vision impairment in school-age children, is a chronic condition that requires regular monitoring and care. Additionally, all children should be screened in their first year attending a school.
- Diagnostic services (opthalmic/otologic/audiologic) must be developed prior to, or in parallel with, screening programmes and should be available to children who have been referred after participating in a screening programme.
- The care pathway and follow-up mechanisms should be outlined at the time of intervention planning. Referral services (for diagnostics and interventions) for eye and ear problems, including assistive products, must be established alongside screening programmes, ensuring accessible follow-up care without financial or travel burdens, and tailored to individual needs, preferences, and cultural contexts.
- Wherever feasible, school (and pre-school) vision and hearing screening should be part of routine school health checks or combined with other health interventions such as general physical check-ups, dental care etc.
- The components of professional accountability, risk management, quality assurance, data management and programme evaluation must be developed prior to implementation of any screening programme.

- To be effective, any such programme needs to be accompanied by efforts to raise awareness about vision and hearing problems, and the importance of timely care.
- During the screening process, suitable hygiene and personal protective measures, as per local practice and regulations, should be followed.
- For reasons of child protection, children should not be left alone with the screener during the examination. A teacher or other suitable person designated by the school authorities should be present in the room with the screener, and the door to the screening room kept open.

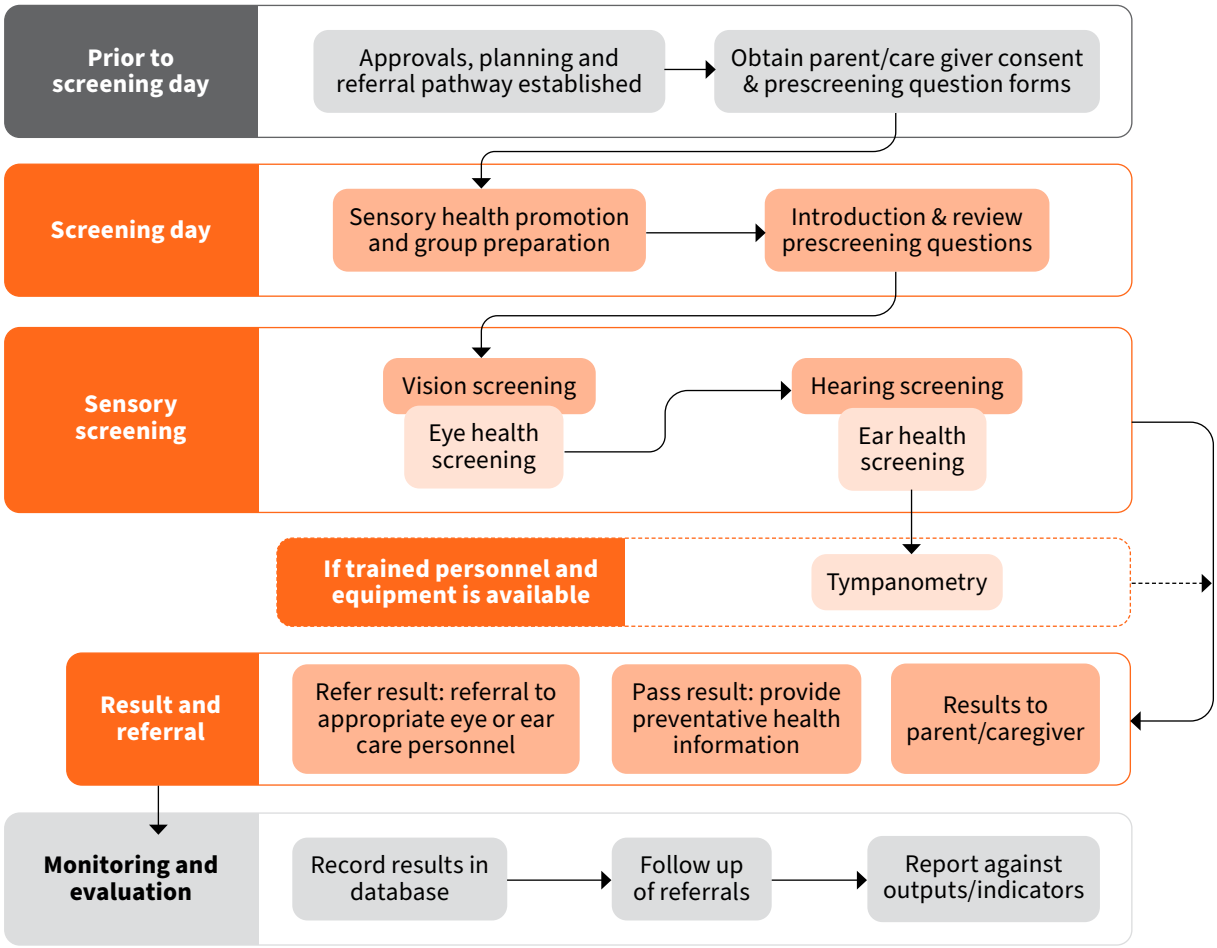
2. Screening pathway

The steps involved in the planning and conducting of a sensory (vision and hearing) screening programme for school-age children are illustrated in the flow chart below (Figure 1) and explained in the subsequent sections.

The flow chart shows the order in which the different steps of the programme should be undertaken; however, in certain circumstances this can be customized according to the available space and human resources. Likewise the order of the screenings: in the handbook, the vision and eye screenings are listed before the hearing and ear screenings to maintain consistency and flow in all related items, but the order of these can be reversed.

The processes involved in the programme are summarized in Annex 1 (Screening checklist).

Figure 1. Flow chart showing the screening pathway



2.1 Prior to screening day

2.1.1 Approvals, planning and establishing referral care pathways

Prior to planning, any necessary approvals for conducting vision and hearing screening should be obtained from the relevant authority (e.g. Ministry of Health, Ministry of Education). Once approval has been secured, it will be necessary to identify and allocate a screening coordinator to oversee the planning and operational elements of the screening programme. Planning should include identifying the person who will conduct the screening; when and where the screening will be conducted; sourcing all relevant equipment and other health promotion resources; and identifying any children the school may be particularly concerned about.

Consideration should also be given to selecting a screening location that is accessible by all, has adequate space, is well lit, and has the required furniture.

It is also important to establish the referral pathway to health care personnel prior to starting the screening.

2.1.2 Obtaining consent from parent/caregiver/head of school

Prior to conducting the sensory screening, it is essential to obtain written consent from the appropriate authority (parent/caregiver/head of school) for the child's participation (see Annex 2 for a Consent form template). An additional flyer with information about the programme may be attached to the Consent form given to the parent/caregiver/head of school. Parents/caregivers/heads of school should be provided with information on the screening tests and checks being conducted, why they are being conducted, by whom and when. If feasible, parents/caregivers/heads of school should have the option to be present while the child undergoes the screening.

Once consent is received, it should be duly recorded (via a local monitoring system). The child can then participate in the screening. If the child is absent on the day of the screening, and consent has been given, a screening should be rearranged and conducted on another day.

2.1.3 Pre-screening questions

A few simply worded pre-screening questions are included in the Consent form to be answered by the parent/caregiver/head of school. Responses to the questions provide information that helps the screener carry out the screening correctly and make the appropriate referrals.

2.2 Screening day

2.2.1 Awareness and group preparation

On the day of the screening, a short vision and hearing awareness session should be presented to all children to encourage them to take care of their eyes and ears and

protect their vision and hearing. Children for whom consent for screening has not been received should also be included.

A separate group preparation session should be presented to all children for whom consent has been obtained. This can help to reduce the time required for individual preparation and reduce any anxiety related to being screened. Both the vision and hearing screening processes can be explained in a fun way, comparing them with playing a game that will help the screeners to check their eyes and ears. The screening equipment may also be shown to the children to allow them to know what to expect and how to respond.

2.2.2 Introduction and review of consent and pre-screening questions

- The person/s receiving the children for the screening should introduce themselves to each child, greet them and, if needed, make efforts to allay any anxiety.
- After greeting the child, the person will ask for the child's name and other relevant identifiers (such as school class or address), then make sure the relevant Consent form with the prescreening questions is at hand, checking that it corresponds to the correct child (note that more than one child may have the same name).
- The person conducting the screen (the screener) will ask for the child's assent, then review the responses to the prescreening questions and transfer the information to the Screen form.

2.3 Sensory (vision and hearing) screening

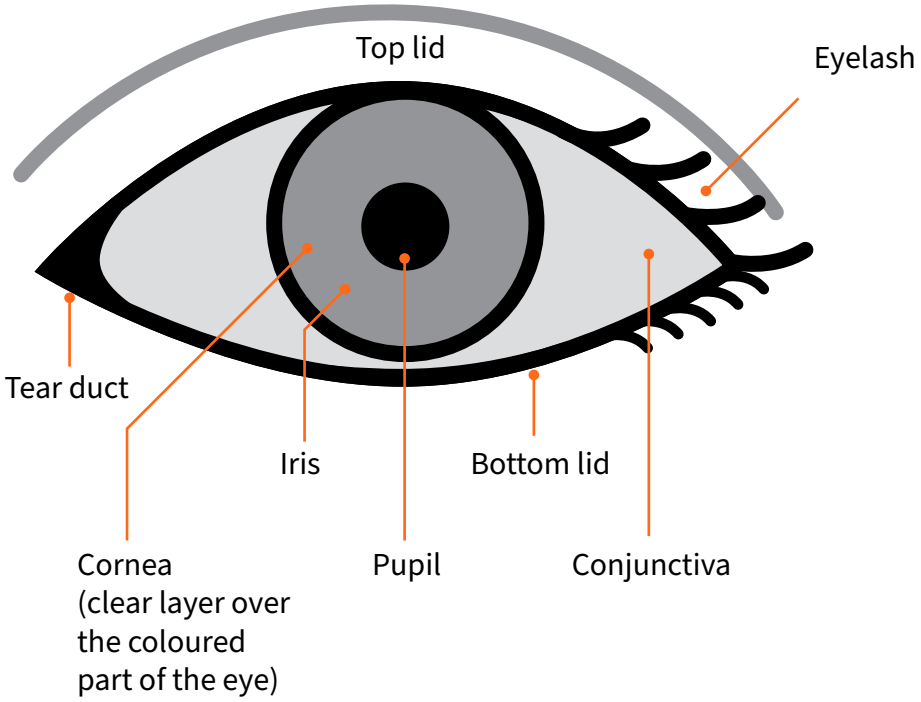
2.3.1 Vision screening

- Each eye is screened separately while occluding (covering) the other eye with an occluder (preferred) or palm of the child's hand. The visual acuity result is recorded in the Screen form (Annex 3). Details of the screen, along with equipment required and referral criteria are given in section 3.3.

2.3.2 Eye health screening

- Each eye is screened separately and externally using a light source such as a pen torch or regular torch. To perform this procedure, it is important to know and identify the parts of the eye (Figure 2). The results are then recorded (see Annex 3). Details of the procedure, along with equipment required and referral criteria are given in section 3.4.

Figure 2. Parts of the external eye



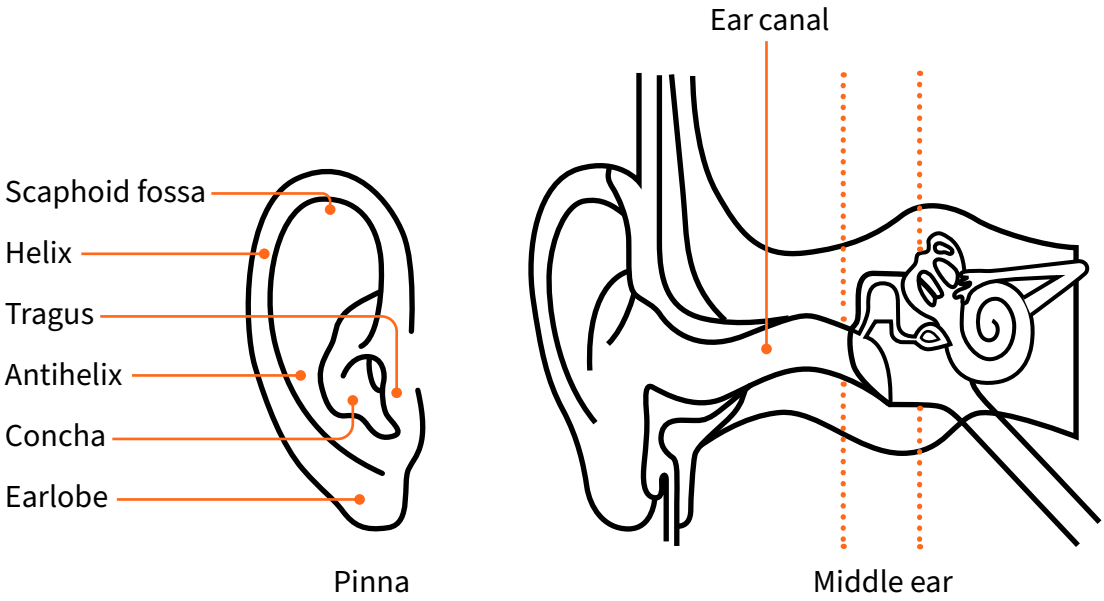
2.3.3 Hearing screening

Each ear should be screened separately, and the results recorded (see Annex 3). It is important to ensure that the hearing screen is carried out in a quiet environment, with ambient noise levels that do not exceed the maximum permissible noise levels for the equipment being used (as explained in section 4.3).

2.3.4 Ear health screening

An examination of the external ear must be undertaken using the naked eye, then an otoscopic examination of the ear canal and tympanic membrane (as explained in section 4.4). To perform this procedure, it is important to know and identify the parts of the ear (Figure 3).

Figure 3. Parts of the ear



2.3.5 Optional step: Tympanometry

As part of the ear and hearing screening, and wherever equipment and training are available, it is important to assess middle ear pressures through tympanometry. In settings where tympanometry is not available, a clinical assessment of the middle ear status must suffice (see section 4.4).

2.3.6 Order of screenings

The vision and hearing screening tests described above can be carried out in the order given, or changed according to the space and human resources available. For example, in settings where there are separate personnel available for undertaking vision/eye health screening and hearing/ear health screening, half of the children may be sent for vision and eye health screening while the other half go for hearing and ear health screening.

3. Vision and eye health screening

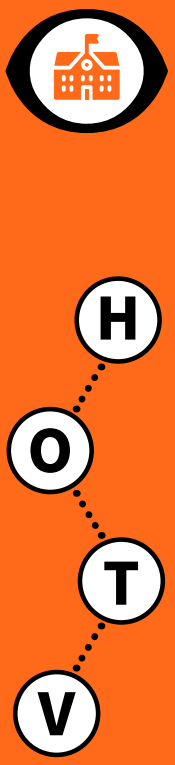
3.1 Screening environment

The screening area should have adequate lighting, with no glare or reflections on the vision chart, and minimal distractions. Children who are waiting to be screened should not be able to see the vision chart or distract the children who are being screened *(19)*. The vision screening requires a space that is at least 3.5 metres long and 1.5 metres wide.

3.2 Screening equipment

The equipment needed to conduct the vision screening includes the following:

- Distance vision charts for school-age children (WHO Distance vision preschool screening chart; HOTV chart; WHO Distance vision screening chart; Tumbling E charts) (see Box 1).
- Pointing card for the HOTV chart.
- Occluder. If an occluder is not available, the palm of the child's hand can be used.
- Chair for the child.
- Tape measure or 3-metre piece of string.
- Tape to mark the measured distance on the floor and to stick the vision chart to the wall.
- Light source for external eye examination e.g. medical torch/flashlight/pen torch/ophthalmoscope or phone torch.



Box 1. Charts for screening vision in school-age children

Different charts are available to measure distance vision (visual acuity). For younger school-age children (5–8 years), the appropriate chart is usually an HOTV chart (a vision screening test that determines relative visual acuity for distance vision using a chart with the four letters H, O, T and V). In this age group, the children are not asked to read the letter aloud, but rather to point to the same letter on a pointing card.

To conduct vision screenings in older school-age children (over 8 years), a Tumbling E chart can be used in various settings; this chart accommodates for different language groups. Additionally, for the over-8 years' age group, a HOTV chart, a LogMAR (EDTRS) chart or Snellen chart consisting of letters of the Latin alphabet, numbers or symbols, can be used. If available, self-illuminated charts can also be used.

A printable HOTV chart that can be used for the 5–8 years' age group, and a printable Tumbling E chart for the over-8 years' age group are provided in Annex 4.

3.3 Vision screening (distance visual acuity)

Screening for distance vision checks the ability of the child to clearly identify or distinguish an object or letter at a given distance (distance visual acuity). It identifies if the child may have vision problems and need further assessment.

3.3.1 Screening for children aged 5–8 years

Preparation:

- Ensure that the HOTV chart is mounted on a well-lit wall and is at the same eye level as the child being screened. The child must be at a distance of 3 metres from the chart (measure distance from the back of the chair to the wall and mark it on the floor with tape) and must not move closer to the chart.
- If the child wears spectacles for distance vision, make sure that they are wearing these for the screening test. Make sure that the lenses are clean.
- Give the child the pointing card, which they can hold on their lap. If needed, a helper can assist by sitting or standing next to the child and holding the pointing card. This approach is particularly helpful for younger children or children with special needs. If a helper is not available, instruct the child to hold the pointing card flat on their lap with the letters right side up as they look down at them.

- Explain the test to the child using child-friendly language: explain that you will be showing them the HOTV letters and that they need to match what they see on the HOTV chart by pointing to the same letter on the pointing card.

Procedure:

- Test each eye separately. First, cover the left eye with an occluder (or the child's palm), leaving the right eye open to see. Make sure that the child is not peeking from the covered eye. A helper can assist if necessary.
- A clean pen or finger should be used to point from the side of the chart, beneath each letter, ensuring that the hand or pointer does not cover or obscure the letter. Steady and consistent movements must be maintained.
- Point to each letter at the top line of the chart (6/60 line) and ask the child to identify the same letter on the pointing card.
- Make sure that the child does not lean forward, turn their head to the left or right, or move closer to the chart during the test. If the child is using their palm as the occluder, make sure that the palm which covers the untested eye is not pushing against the eyeball and that there is no gap through which the child may be able to see.
- If the child correctly identifies two or more of the letters on the top line (6/60 line), ask them to identify the letters on the bottom line (6/12 line) in the same way.
- Record the results for the right eye.
- Repeat the above steps, now with the left eye open, and the right eye covered.
- Record the results for the left eye.
- To pass the distance vision test, the child must be able to identify three or more letters on the bottom line (6/12 line).
  - Children who do not meet this criterion, or are unable to be screened for any reason, should be referred to eye care personnel (e.g. optometrist, refractionist, ophthalmic nurse).
- Record the result immediately on the Screen form (see Annex 3) to avoid missing any documentation of the results.
- Clean the occluder between screening each child. Make sure the occluder is dry before giving to the next child.

3.3.2 Screening for children aged over 8 years

Preparation:

- Ensure that the Tumbling E chart is mounted on a well-lit wall and is at the same eye level as the child being screened. The child must be at a distance of 3 metres from the chart (measure distance and mark the floor with tape) and must not move closer to the chart.
- If the child wears spectacles for distance, make sure that they are wearing these for the screening test. Make sure that the lenses are clean.

- Explain the test to the child using appropriate language. Show the Tumbling E chart. Explain that you will be pointing to an E on the chart and that they will need to use their fingers to point in the same direction that the E is facing.

Procedure:

- Test each eye separately. First, cover the left eye of the child with an occluder (or use the palm of the child's hand), leaving the right eye open to see. Make sure that the child is not peeking from the covered eye. A helper can assist if necessary.
- Standing to the side of the chart, use a clean pen or finger to point to each letter ensuring that the hand or pointer does not cover or obscure the letter. Maintain steady and consistent movements.
- Point to the letters on the top line of the chart (6/60 line) and ask the child to tell you or point in the direction the letter E is facing (up, down, left, or right).
- Make sure that the child does not lean forward, turn their head to the left or right, or move closer to the chart during the test. If the child is using their palm as the occluder, ensure that the palm which covers the untested eye is not pushing against the eyeball and that there is no gap through which the child may be able to see.
- If the child correctly identifies the direction of two or more Es on the top line (6/60 line), ask them to do the same for the bottom line of Es (6/12 line).
- Record the results for the right eye.
- Repeat the above steps, now with the left eye open, and the right eye covered.
- Record the results for the left eye.
- To pass the distance vision test, the child must be able to correctly identify the direction of three or more letters on the bottom line (6/12 line).
  - Children who do not meet this criterion, or are unable to be screened for any reason, should be referred to eye care personnel (e.g. optometrist, refractionist, ophthalmic nurse).
- Record the result immediately on the Screen form (Annex 3) to avoid missing any documentation of the results.
- Clean the occluder between screening each child. Make sure the occluder is dry before giving to the next child.

Note: For children aged 8 years and older, the *WHOeyes* mobile phone app is available from the App Store and Google Play, free of cost, and this can be used for screening. To use this app, a mobile phone device will be needed. The *WHOeyes* mobile phone app can be downloaded here.

Pass result:

For a Pass result, the child must identify correctly more than half the letters/symbols (i.e. 3 out of 4; or 3 out of 5 letters/symbols on the bottom line (6/12 line) of the vision chart.

Refer result:

A Refer result is given if the child is unable to identify correctly at least half of the letters/symbols (i.e. 3 out of 4; or 3 out of 5 letters/symbols on the top (6/60 line) or bottom line (6/12 line) of the vision chart.

3.4 Eye health screening

The eye health screening checks for any disease or abnormality of the eye and refers children who require further attention.

Preparation:

Ensure that your hands are thoroughly clean before screening each child *(19)*.

Give clear instructions to the child, in the child's language and appropriate to their age, as to what is required of them.

If the child is wearing spectacles at the screening, ask them to remove these.

Procedure:

Examine the appearance of the external eye, eyelids and eyelashes. Look for any of the following: crust or pus on the eyelid margin; excessive watery or sticky discharge from the eyes; red on the white part of the eye; abnormal haziness of the coloured part of the eye; misalignment of the eyes. Avoid touching the child's eyes. Record your observations in the Screen form (see Annex 3).

Pass result:

A Pass result is given if the eyelids and eyelashes appear clean and free from crusts or pus; the white part of the eye appears white; the coloured part of the eye is clear (i.e. no haziness); and both eyes are aligned (i.e. looking in the same direction).

Refer result:

A Refer result is given if there is:

- Significant crust or pus on eyelid margin.
- Excessive watery or sticky discharge from the eyes.
- Abnormal red or lesion on the white part of the eye.
- Abnormal haziness on the coloured part of the eye.
- The eyes are not aligned.

3.5 Referral criteria

Following examination of the eyes, if any abnormalities or issues listed below, and in Figure 3, are identified, the child should be referred to eye care personnel for further assessment and intervention:

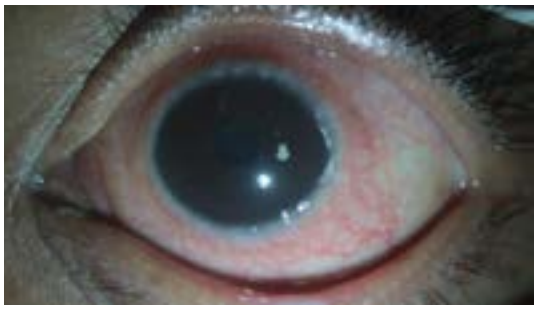
- The child is reported to have diabetes.
- The child complains of pain/discomfort/severe itchiness of the eye.
- A Refer result has been given for distance visual acuity in one or both eyes.
- There is significant crust or pus or swelling on the eyelid margin (Figure 3a).
- There is excessively watery or sticky discharge from the eyes (Figure 3b).
- There is abnormal red on the white part (conjunctiva) of the eye (Figure 3c).
- There is abnormal haziness on the coloured part (iris/pupil/cornea) of the eye (Figure 3d).
- The eyes are not aligned – i.e. one eye is turned and looks in a different direction to the other eye (Figure 3e).
- The child is unable to be screened or to cooperate fully in the screening (untestable).

NOTE: With any injury to the eye
URGENT REFERRAL IS REQUIRED!

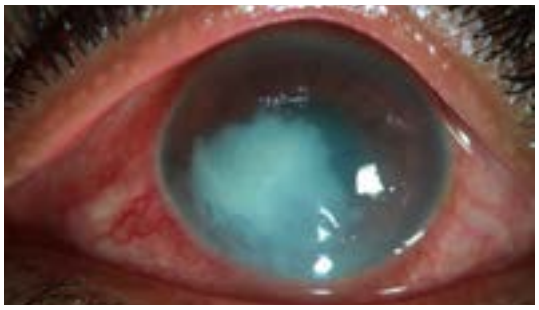
Figure 3. Abnormal eye conditions in school-age children that require referral

3a

3b



3c



3d

3e

This image series shows abnormal eye conditions in children that require medical referral. The images display signs such as abnormal eye and ear conditions in children that require medical referral. ©WHO

4. Hearing and ear health screening

4.1 Screening environment

The following conditions and equipment are required for conducting a hearing screening:

- The screening room must be quiet and free from distractions and external noise (e.g. from playgrounds or traffic) *(20, 23, 24)*. A good option is a room with soft furnishings and floor coverings that will help to absorb any noise *(23)*.
- Noise levels during the hearing screening must not exceed the maximum permissible ambient noise levels (MPANLs) prescribed for the selected headphones and screening level *(20)*. Where this information is unavailable, the ambient room noise should be below 40 dBHL.
  - Check the ambient noise with the sound level meter or a validated mobile phone app. If the ambient noise levels increase during the screening, check the levels again.
  - In situations where sound meters are unavailable, screeners can test the suitability of the site by checking the levels to be used for screening against their own ability to hear the signals at their known hearing threshold levels, in the test environment *(20, 23)*.
  - If the ambient noise exceeds 40 dBHL, it will be necessary to do whatever possible to reduce the source of the noise. Approved attenuating headset cups can be used *(23)*.

> **NOTE:** If the ambient noise cannot be reduced to the required level, do not continue with the testing as the results are likely to be invalid.

- Access to an electrical power source and a work surface or tabletop *(24)*.

4.2 Screening equipment

The equipment required to undertake the hearing screen will depend on the screening method used (see Box 2).

Other equipment required will include the following:

- Otoscope and speculum *(20)* (validated low-cost options are available and can be used, e.g. example the Arclight scope. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7041821/)
- Sound level meter or phone app to measure sound levels *(23)*
- Chair, table, or desk for the audiometer and paperwork *(23)*
- Chair for the child *(23)*
- Screen form (see Annex 3) *(23)*.

Box 2. Hearing screening equipment considerations

Equipment

Conventional screening audiometer or automated digital screeners *(20)* fitted with noise attenuating audiocups (headphones) *(23)*. If these are not available, the digit triplet-in-noise test – using the WHO hearWHO app for example – can be used for children aged 9 years and older *(20)*.

Calibration

Audiometers need to be calibrated annually (0.5 kHz–4 kHz at 0–100 dBHL presentation range).

Headphones are calibrated to a particular audiometer and are not interchangeable *(23)*.

4.3 Conducting hearing screening

4.3.1 Sweep audiometry (preferred test method)

This method relies on a conditioned response to sound *(23)*. It is suitable for all school- age children.

Preparation:

Prepare the child for the screen *(23)*.

- Seat the child at the table next to the audiometer and in a position where the child is unable to see your hands pressing the audiometer buttons.
- Explain to the child that you will be making sounds or beeps with the machine, and that these noises will come through the headphones.
- Explain, and demonstrate, to the child: "*Wait for the beep. Each time you hear a beep, raise your right or left hand to indicate which ear heard the beep".*

  Note: If the child is unable to sit still or does not understand the instructions, this indicates that the child is not ready to be screened with this type of

procedure. Refer the child to hearing care personnel for assessment using different techniques, but do not forget to complete the ear screening before referring (otoscopy).

Procedure:

- Once you are satisfied that the child is fully prepared, begin the testing.
- Place the headphones on the child with the audiometer set at 1000 Hz at 40 dBHL.
- Practice screen:
  - Present a 1000 Hz tone at 40 dBHL in the right ear. If the child responds repeat this in the left ear. If the child responds, continue to hearing screen.
- Actual hearing screen.
  - Turn down the intensity and present the target threshold at 1000 Hz in the right ear.
  - If the child responds, repeat the presentation at the target threshold. The child will need to respond twice (out of a maximum of 3 presentations) at the target threshold *(20)*. Repeat this process for 2000 Hz and 4000 Hz.
  - If the child responds to all the frequencies (at least 2 out of 3 times at each frequency), begin testing in the left ear in the same way.
- Record the results in the Screen form (see Annex 3).

NOTE: The level of 20 dBHL is proposed as the target threshold for these screenings since it is the threshold for mild hearing loss. Countries/project managers/implementers may, however, select a different threshold if they so wish: 25, 30 or 35 dBHL as agreed upon by experts within the country.

Pass result:

A Pass result is given when the child responds correctly at the target threshold, at least 2 times out of 3, in each ear for all frequencies.

Refer result:

A Refer result is given either when:

The child does not respond to the sounds during the practice screen undertaken prior to the hearing screening (1000 Hz tone at 40 dBHL).

Or

The child does not respond at the target threshold in either ear, at least 2 out of 3 times for one of more frequencies.

4.3.2 Digits-in-noise/speech-in-noise tests

If an audiometer is not available, alternative screening methods such as "digits-in-noise" or "speech-in-noise" tests can be used in children aged 9 years and older. When adopting these tests, both ears are screened together.

The tests should only be conducted using a validated mobile app such as the WHO hearWHO app which can be downloaded here.

Preparation:

- Download the app to your device (e.g. smartphone). The hearWHO app is available on Google Play or the App Store in English, Dutch, Chinese, Russian and Spanish languages.
- A pair of good quality headphones is required with stereo sound that will work with your device. Between screening each child, make sure to clean the headphones.
- Enable device permissions to access the device microphone to measure ambient noise levels.
- Accept the disclaimer.

Procedure: *(25)*

- Make sure the app is installed on your device (e.g. your smartphone).
- Make sure the screening environment is quiet. This is necessary for the app to be used correctly. The screening results will NOT be reliable if the background noise is high.
- You will need a pair of good quality headphones that work with your device.
- Before proceeding with the test, make sure that you read the disclaimer to the parent/caregiver/guardian of the child and that agreement is given. If they do not agree, you must not proceed with the test.
- Enter each child's details (e.g. name or identification number and sex), then select the year of birth.
- Select the child's first language (the digits are presented automatically in English). This information is important for assessing the child's score.
- Now place the headphones correctly (i.e. fully) over the child's ears.
- The child will hear three sample digits being spoken. The child must adjust the volume to a level where they can comfortably hear all three digits. (Note that the volume should be adjusted to a comfortable level, not the lowest level heard by the child.)
- Explain the screening sequence to the child so that they know what to expect. Tell them that:
  - when the screening starts, they will hear sets of three digits against background noise;
  - they must listen carefully and identify the digits. They must then enter the digits into the keypad on the screen and press "OK" to move ahead;

  - if they are unsure, they must guess the digits, enter them and then press "OK". It is important that they do this every time, even when they are not sure of what digits they have heard.
- A total of 23 sets of digits will be presented consecutively.
- Make sure that the child can undertake the screening undisturbed for 3–4 minutes. When the child is ready to begin, ask them to press "Start". The child can also see a short demonstration on the screen to get a better idea of how to do the screening.
- Once the screening is complete, the app will display a score.
- The results can be exported and saved onto a computer.

Pass result:

A Pass result is given when there is a score of 50 or above on the hearWHO app.

Refer result:

A Refer result is given when the score is below 50 on the hearWHO app.

4.4 Conducting an ear examination (external and otoscopy)

An ear examination includes an external inspection of the pinna and behind the ear. After that an otoscopy should be performed to detect common ear conditions that are likely to cause hearing loss. Examples include acute or chronic otitis media, impacted wax, foreign bodies in the ear or malformations.

> **NOTE:** Trained staff should be available to confirm examination findings and provide decision-making support, where needed, for examination and diagnoses of ear diseases (either in-person or remotely).

Preparation:

- Ensure that you have all the necessary supplies: charged or battery-powered otoscope and at least two sizes of speculum.
- Explain to the child that you are going to undertake a visual inspection of each ear and then, using a light/torch, look into their ear canal.
- Reassure the child that it may feel strange but will not hurt.
- Make sure that the child is seated and that you are positioned comfortably at the same level as the child.
- Ask the child to sit still during the examination.

Procedure: *(25)*

- Ask the child if you can examine their ears.

- Examine the pinna and the area around the pinna. Make sure that you also examine behind the pinna to look for any swelling, redness or pain. Look for scars from ear operations behind the pinna or just in front of it.
- Before starting the otoscopy:
  - Look for any evident discharge. If discharge is present, the child will need to be referred for treatment.
  - Push the tragus and observe if the child has any pain. Be watchful for any indication of pain when you touch the ear or insert the otoscope. If you notice pain, stop the ear health screen and refer the child. Otherwise, continue.
  - Look for any evident discharge. If discharge is present, the child will need to be referred for treatment.
- Hold the otoscope in your right hand if you are examining the child's right ear, and your left hand if you are examining the child's left ear. Hold the otoscope as you would hold a pen.
- Using the hand that is not holding the otoscope, pull the pinna straight back (not upwards). Keep the pinna held during otoscopy (Figure 4a).
- Insert the otoscope and speculum gently, directing it upwards and forwards (towards the eye) so that you can see the tympanic membrane. Do not insert the speculum too deeply into the ear canal; ideally you should not need to insert more than half the length of the speculum. Putting one finger on the child's cheek bone can help to keep the otoscope steady (Figure 4b). Touching the skin of the deep ear canal (the skin with no hair) may hurt the child. If the child experiences pain, stop. Pain can be caused by not directing the speculum correctly or by inserting it too deeply. It can also be caused by infection of the outer ear.
- Examine the ear canal for discharge, swelling, wax, foreign bodies or other problems.
- Look at the tympanic membrane. If you cannot see the tympanic membrane, it may be because there is wax or pus blocking the view of it, or because the otoscope is not positioned correctly. Gently adjust the otoscope's position, making sure it is directed forwards and upwards (towards the eye).
- When you can see the tympanic membrane, identify the structures. Is the tympanic membrane normal? Is it red? Is there a perforation in it?
- Use the findings of your examination and the prescreening questions to help you decide on your action plan.
- Make sure to always examine both ears.

Figure 4. Positioning an otoscope

Figure 4a: Straightening the ear canal

Figure 4b: Inserting the otoscope

Pass result:

A Pass result is given if both ears have no structural defects, no discharge, no impacted wax or foreign objects and have no perforations or other abnormalities of the tympanic membrane *(20, 26)*.

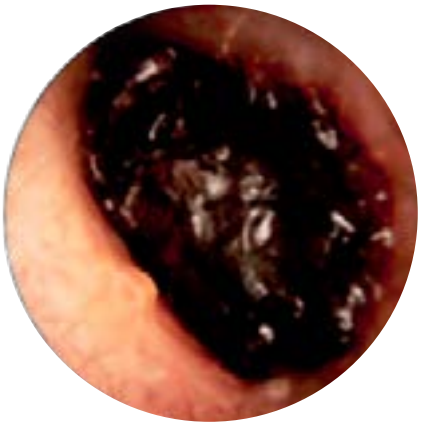
Refer result:

A Refer result is given if any of the following signs of an abnormal ear canal and/or abnormal tympanic membrane in one or both ears are identified (see Figure 5):

- Malformation of pinna or ear canal, especially if accompanied by hearing loss.
- Infection or swelling of pinna or behind the ear (5a).
- Impacted cerumen (wax) (5b) or foreign objects in ear canal.
- Discharge in ear canal (5c).
- Tympanic membrane is not visible.
- Perforations (5d) or other abnormalities of the tympanic membrane (e.g. bulging tympanic membrane (5e)).

Figure 5. Common ear conditions in school-age children that require referral *(27)*

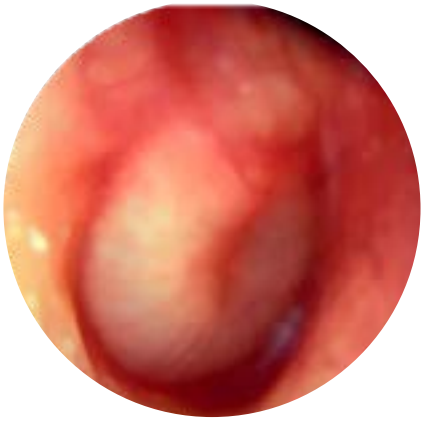
5a



5b

5c

5d



5e

This image series shows abnormal ear conditions in children that require medical referral. The images depict issues like external ear malformation, wax, perforated tympanic membrane, bulging or red ear drums – signs of otitis media or chronic infection. These visuals aid health workers in identifying children who need urgent vision or hearing assessment and treatment. ©WHO

4.5 Referral criteria

If any of the following criteria are identified in one or both ears, the child should be referred to ear care personnel for further assessment and intervention, as needed:

- Absent or severely malformed pinna or external auditory canal.
- Ear discharge or bleeding from the ear.
- No response on hearing screening for one or both ears OR hearing score below 50 using the hearWHO app test.
- Tympanic membrane is abnormal or not visible.
- The child is unable to be screened or to cooperate fully (untestable).

NOTE: Urgent referral is required when:

- The parent/caregiver or teacher has concerns regarding a child's hearing, speech and language development, attention levels, learning abilities or any ear problems (irrespective of test outcomes).
- The child complains of acute ear pain.
- There is redness and painful swelling of the pinna or behind the ear (mastoid).
- The tympanic membrane is red or bulging.
- There is foul smelling discharge from the ear.

5. Referral and follow-up

The referral pathway must be clearly mapped out during the planning stage. The steps for the referral process should be aligned with those of the existing national referral system and should facilitate parent/caregiver attendance at follow-up to ensure maximum compliance. The system should include a mechanism to track children who are referred and to assess the care they receive.

Referrals should be made to eye and/or ear care personnel in an accessible facility identified as the first referral point in the referral pathway. The facility can be a clinic, primary health centre or hospital in the vicinity. The personnel receiving the referrals can be primary care physicians, trained nurses/health workers, eye care or ear care personnel (Figure 6).

The decision of who should receive the referrals must be based on the local context, availability of clinical personnel and other trained health work force.

5.1 Vision and eye health

The actions to be taken following different screening results are as follows:

- **Pass result** *(19)*

  Following a Pass result, the parent/caregiver should be given information about the result and how to care for the child's eyes and to be aware of any signs of vision impairment. Information that can be shared with the parent/caregiver is provided in Annex 7.

  If a parent or caregiver suspects any degree of vision impairment at any time, regardless of the child's age or the outcome of previous screenings, it is crucial that they take the child for another vision and eye health screening.

- **Refer result** *(19)*

  All school-age children who have a Refer result after vision and eye health screening should be referred to eye care personnel for a full eye examination after speaking to the parents/caregivers about the result of the screening.

  Children who receive a "red flag" alert following vision and eye health screening should be referred for further assessment. Red flag alerts include:

  - Parent/caregiver or teacher concerns regarding a child's vision or eye health (irrespective of screening outcomes) or general learning abilities.
  - Pain/discomfort/severe itchiness in the eyes.
  - Diabetes.

Urgent referral: children who are unable to see the 6/60 line with either eye should be referred immediately for further assessment (within one month, depending on resources), regardless of the results of the external eye screening.

5.2 Hearing and ear health

Actions to be taken for different results are as follows:

- **Pass result**

  Following a Pass result, the parent/caregiver should be given information about the result and how to care for the child's ears and to be aware of any signs of hearing loss. Information that can be shared with the parent/caregiver is provided in Annex 7.

  If a parent or caregiver suspects any degree of hearing loss at any time, regardless of the child's age or the outcome of previous screenings, it is crucial that they take the child for another hearing and ear health screening.

- **Refer result**

  Children with a Refer result following screening should be referred to ear/hearing care personnel for diagnosis and management. They can then access the care they require after speaking to the parents/caregiver about the results of the screening.

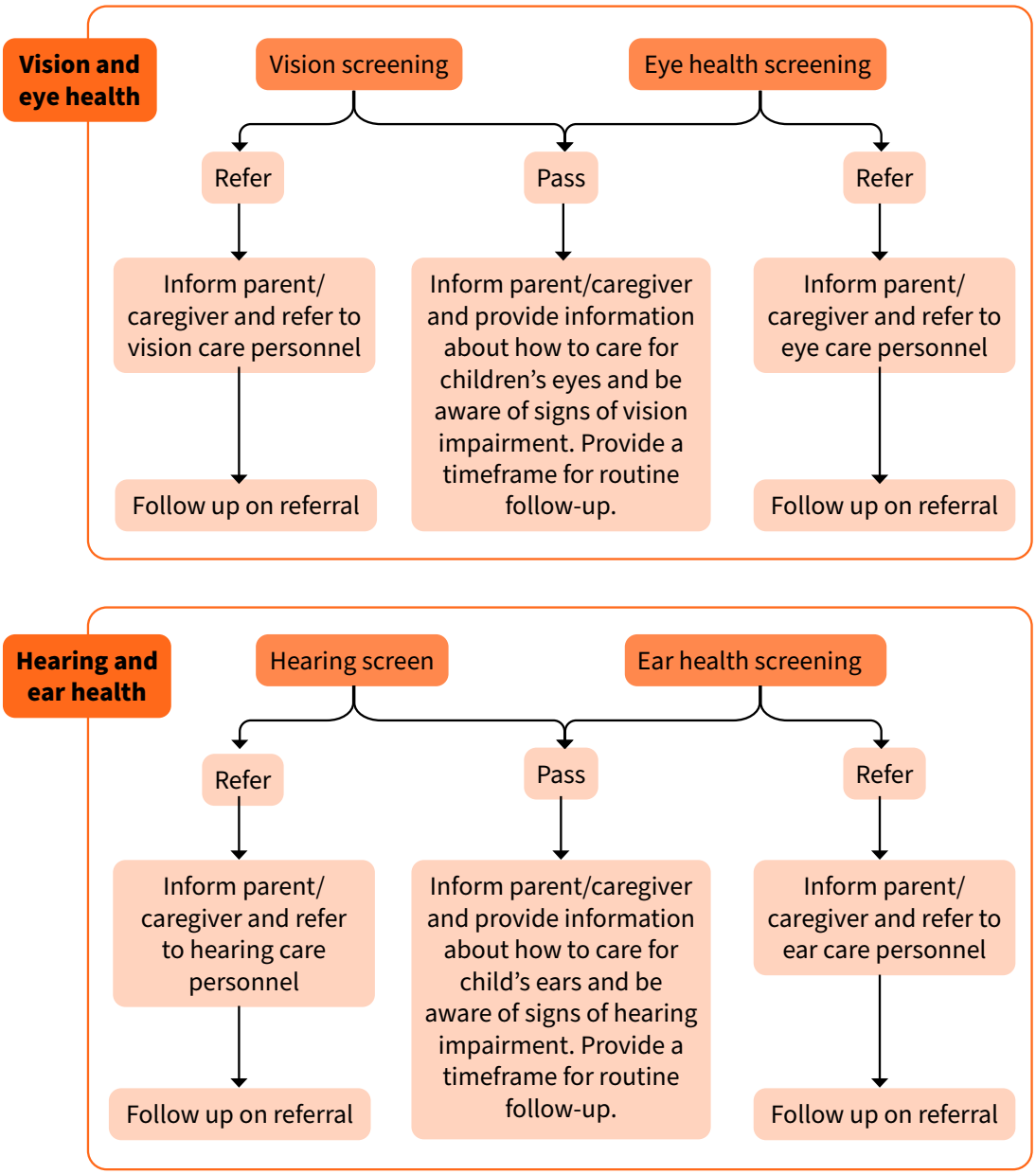
- **Urgent referrals**

  Children who receive a "red flag" alert following ear and hearing screening should be referred for immediate further assessment.

  Red flag alerts include:

  - Parent/caregiver or teacher concern regarding a child's hearing or ear health, (irrespective of screening outcomes), speech and language development, attention levels or general learning abilities *(28).*
  - Acute pain in or around the ear.
  - Redness and painful swelling behind the ear (mastoid).
  - Red, bulging tympanic membrane.
  - Ear discharge that is foul smelling.

Figure 6. Screening outcomes



5.3 Further management

Sensory screening provides a broad assessment and may not detect minor impairments or problems. It is crucial to advise parents/caregivers that this is a screening only and does not replace a comprehensive eye or ear examination. Ongoing eye and ear checks are important as their child continues to develop and grow.

Vision and hearing impairments can arise at any time or manifest progressively. If a child passes sensory (vision and hearing) screening but parents/caregivers are concerned at any point, they need to be encouraged to bring the child back for a repeat screening.

5.4 Hearing aid fitting

Children with mild to moderately severe hearing loss should be further evaluated to assess their eligibility for hearing aid fitting and to be fitted with one or two hearing aids, as required. Assessment of their eligibility, fitting, teaching them how to use their hearing aids, and follow-up, should be carried out as described in WHO's *Hearing aid service delivery approaches for low- and middle-income settings*. This should be conducted by personnel trained in these approaches. Two training modules are available on the WHO Training in assistive products platform.

5.5 Preventing referral losses

An established follow-up system should include a mechanism to ensure that children who are referred receive the appropriate care. Options to ensure compliance with referrals include automated reminders on management software, or other manual approaches, such as reminders by phone call or letter to the family to check if any action has been taken.

To prevent referral losses and ensure that the child accesses referral services, the following tips are suggested:

- Complete the Notification form (Annex 6) for the parent/caregiver.
- Provide clear details of the name and location of the facility where the child is being referred.
- Develop a relationship with the eye and ear and vision and hearing care providers to whom the child is being referred, so that the list of names of children referred can be shared.
- Maintain regular communication with the eye and ear care providers. This enables the referrer to stay updated on the availability of eye and ear care services and their capacity.
- Keep a separate list of the children referred. This is essential, particularly in the absence of an automated referral tracking system. It helps to keep a track of the referrals and enables easier follow-up with the parent/caregiver if they have not

complied with the referral (a template for a Follow-up referral list can be found in Annex 5).

- Parents/caregivers should be strongly encouraged by school authorities to take their child to the referral institution for definitive diagnosis and follow-up intervention as recommended**.** The involvement of the class teacher or school in making this call carries significant credibility, increasing the likelihood of parental compliance.
- Notify the relevant personnel at the school of the children being referred for further investigation, depending on privacy policies. This enables the school to also follow up with parents/caregivers of the referred children. If the child is being screened outside the school setting, the parent/caregiver must be notified directly.
- Manage the referral process. This should be carried out systematically by a designated person and included as part of their roles and responsibilities.
- Efforts should be made to ensure that the referral location is accessible and affordable**.** This includes consideration of factors such as distance, transportation, and financial costs, all of which can impact a family's ability to follow through with the recommended referral.
- Monitor losses to identify children who do not follow through with their referrals. This is crucial; if referral losses are observed, further investigation can then be conducted to understand the reasons behind non-compliance and address these appropriately.

6. Monitoring and evaluation

Monitoring and evaluation are vital in ensuring the effectiveness and impact of sensory (vision and hearing) screening programmes. Every setting that implements a sensory screening programme for school-age children must establish a monitoring framework. Examples of indicators that should be reported are outlined in Table 1 below:

Table 1. Example screening indicators for monitoring and evaluation

Indicator name	Definition	Disaggregation
Total number of children screened	Total number of children who were screened as part of the sensory screening programme	Gender Age 5–10 years >10 years
Percentage of children screened	Number of children screened/ total number of children of that age group in the target population x 100	Gender
Number of children with Refer result for vision and eye problems	Number of children with Refer result following vision and eye screening	Gender
Percentage of children with Refer result for vision and eye problems	Number of children with Refer result following vision and eye screening/Total number of children screened x 100	Gender
Total number of children diagnosed with vision impairment or blindness by eye care personnel	Number of children who were diagnosed with vision impairment or blindness by eye care personnel upon referral	Gender Severity of vision loss

Indicator name	Definition	Disaggregation
Percentage of children diagnosed with vision impairment or blindness by eye care personnel	Number of children diagnosed with vision impairment or blindness (of any severity) by eye care personnel x 100/ Total number of children screened	Gender Severity of loss
Total number of children prescribed and fitted with spectacles	Number of children who were prescribed and fitted with spectacles after being examined and diagnosed by eye care personnel	Gender
Percentage of children prescribed and fitted with spectacles	Number of children prescribed and fitted with spectacles after being examined and diagnosed by eye care personnel x 100/ Total number of children screened	Gender Severity of vision loss
Number of children with a Refer result for hearing	Number of children who failed hearing screening – i.e. received a Refer result following hearing screening	Gender
Percentage of children with a Refer result for hearing	Number of children with Refer result following hearing screening/Total number of children screened x 100	Gender
Number of children referred for ear examination	Number of children with suspected ear problems on screening who were referred for further examination	Gender
Percentage of children referred for ear examination	Number of children with suspected ear problems on screening who were referred for further examination x 100/Total number of children screened	Gender
Total number of children diagnosed with ear disease	Number of children diagnosed with ear disease by trained health care personnel.	Gender Diagnosis
Percentage of children diagnosed with ear disease	Number of children diagnosed with ear disease by trained health care personnel/Total number of children referred for ear examination x 100	Gender Diagnosis

Indicator name	Definition	Disaggregation
Total number of children who underwent audiometry (following referral)	Number of children who underwent audiometry following referral	Gender
Percentage of children who underwent audiometry (following referral)	Number of children who underwent audiometry following referral/Total number of children referred for audiometry x 100	Gender
Total number of children diagnosed with hearing loss	Number of children diagnosed with hearing loss (of any severity) upon audiometry conducted by trained health care personnel.	Gender Age 5–10 years >10 years Type of hearing loss (e.g. mild/ moderate/ moderately severe/ severe/ profound)
Percentage of children diagnosed with hearing loss	Number of children diagnosed with hearing loss (of any severity) upon audiometry carried out by trained health care personnel/ Total number of children screened x 100	Gender Age 5–10 years >10 years Type of hearing loss (e.g. mild/ moderate/ moderately severe/ severe/ profound)
Total number of children fitted with hearing aids	Number of children fitted with hearing aids as part of the school screening programme	Gender
Percentage of children fitted with hearing aids	Number of children fitted with hearing aids as part of the school screening programme x 100/Total number of children screened	Gender
Percentage of referral losses: *after the 1-month follow-up*	Total number of children who have not complied with the vision/ eye health and/or hearing/ear health referral (*after the 1-month follow-up)* x 100 /Total number of children referred	Gender Type of referral: Vision/eye health/ hearing/ear disease

7. Health promotion

A joint sensory (vision and hearing) screening programme provides an opportunity to educate children, parents and the community about good eye and ear care practices that can help to prevent vision or hearing impairment, identify potential conditions early on in the child's development, and reduce the stigma related to these. It is crucial to inform parents/caregivers that both vision and hearing continue to develop throughout a child's life, and regular eye and ear checks are essential as the child grows.

To support this, it is important that the information provided to families is written in their preferred language and at an appropriate literacy level. Health promotion activity can be in the form of:

- *Information sessions or talks.* These can be given at the school either before or on the day of screening before the screening starts. These can be part of introducing children to the hearing and vision tests.
- *Poster displays around the venue*. These can be simply worded, graphic posters with easy-to-understand messages in the local language.
- *Information flyers*. The distribution of information flyers with good eye and ear care practices can be useful in explaining to children how they should care for their eyes and ears to avoid sensory impairment and identify problems early on. Flyers can be taken home by the children and, thereby, also be a source of information for parents/caregivers.
- *Counselling children.* Following the sensory (vision and hearing) screening, counselling children on good eye and ear care practices can be helpful, ideally using the flyers mentioned above.

Links to relevant resources are provided in Annex 8.

8. Equipment and human resource requirements

8.1 Equipment required for the screenings

Assessment	Equipment
Vision screening (distance visual acuity)	• Age-appropriate visual acuity charts (e.g. HOTV and Tumbling E charts) (see Annex 4) • Pointing card for HOTV chart • Occluder. If an occluder is not available, the palm of the child's hand can be used • Tape measure or 3-metre length of string • Tape to mark the measured distance on the floor and tape the chart to the wall • If required, the WHOeyes mobile app, installed in an android or iOS-based device (for children 8 years and older)
Eye health screening	• Light source for external eye examination (e.g. medical torch/flashlight/pen torch/ophthalmoscope or phone torch)
Hearing screening	• Sound level meter or a validated mobile app (e.g. NIOSH Sound Level Meter; Sound Meter Pro; or Sound Meter and Noise Detector) • Conventional audiometer, or automated digital screener, or hearWHO mobile app installed on an android or iOS-based device • Good quality headphones, with noise cancellation if possible
Ear health screening	• Otoscope (validated low-cost options are available and can be used) • Speculums of different sizes • Tympanometer (where trained personnel and equipment are available)

Assessment	Equipment
General	• A space that is at least 3.5 metres long and 1.5 metres wide, with good lighting for the vision screening • Chairs for the child and screener • Table, or desk for audiometer and paperwork • Batteries/electrical charging facilities for otoscope and (if applicable) ophthalmoscope and android or iOS devices • Cleaning materials for hands and equipment
Relevant documentation	• Can be electronic or on paper. Included are: – Consent forms – Screen forms – Notification forms – Follow-up referral list – Health promotion flyer.

8.2 Human resources

8.2.1 Personnel

A minimum of two personnel is required for the screening of school-age children: a screener to conduct the vision/eye health and hearing/ear health screening, and one (or more) schoolteacher/health worker/parent/caregiver to supervise the children waiting to be screened.

Sensory (vision and hearing) screening can be performed by any of the following personnel who have received training in conducting sensory screening:

- School teachers.
- Community health workers.
- Health workers (e.g. clinical officers, nurses, medical assistants, technicians).
- Specialist eye and ear personnel (e.g. allied opthalmic personnel, ophthalmic nurse, ear, nose and throat (ENT) specialist, audiologist).
- Other health care professionals (e.g. school doctor, general physician, paediatrician, speech and language pathologists).

8.2.2 Training requirements

Training should encompass both theoretical knowledge and practical skills related to the screening of vision/eye health and hearing/ear health at the community and primary levels of care. Emphasis should also be placed on identifying any red flag alerts for referral, and familiarizing personnel with both the screening equipment

to be used and the standard operating procedures of the programme, including full documentation of results, data collection, and referral management.

Screeners should have ongoing specialist support, where required, and ongoing quality control checks to ensure compliance with standards and guidelines.

The WHO Vision and hearing screening for school-age children blended course (which corresponds with this handbook) is available for all non-specialist clinical and non-clinical staff to access at WHO Learning on TAP platform.

The course includes three modules:

1. *Introduction to sensory screening* which provides an overview and can be useful for all stakeholders who are involved in the screening programme.
2. *Vision and eye health in children.*
3. *Hearing and ear health in children.*

For modules two and three, the online content should be followed by face-to-face learning to practice the clinical skills taught in the modules.

Other available WHO resources for training include the following:

- Primary ear and hearing care training resources.
- Hearing aids service delivery approaches for low- and middle-income settings
- Provision of hearing aids for mild to moderately severe hearing loss: WHO TAP modules on Hearing Assistive Products and Hearing aids.

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Annex 1. Screening checklist

Learning on TAP

Vision and hearing screening for school-age children
Screen checklist

Before screening		
Screening requirements	**Responsible: Screening coordinator**	
Approvals	**Apply to Ministry of Health and Ministry of Education**	☐
Referral pathways	**Contact local eye and ear care personnel to establish referral pathways. Check:** • What service they can offer • Their availability for new referrals • How to make referrals • Any available concession rates / support schemes.	☐

Suitable location(s)	**Meet with school to explain programme and check requirements for screening can be met:**
	• Explain the purpose of screening and recommend all relevant school personnel complete Module 1: Sensory screening for school-age children
	• Requirements of screening space:
	  ○ Access
	  ○ Lighting
	  ○ Noise
	  ○ Length of room
	• Paperwork requirements:
	  ○ Consent forms
	  ○ Screen forms
	  ○ Notification forms
	  ○ Follow up referral list
	  ○ Tips for healthy eyes and ears
	  ○ School screening list/spreadsheet
	• Personnel needed:
	  ○ School screening coordinator
	  ○ Helpers to organise children and accompany child for screening where needed
	• Consent process and agreement from parent/caregiver/school head, with relevant paperwork
	• Details of the screening day, including group sessions.
	• Logistics of the screening day, organising and supervising the children. Any children with special needs?
		☐

Screening preparations	**Responsible: Screening coordinator with school coordinator**	
Preparation checks: Paperwork	**Check with the school:** • Signed and returned Consent forms have been filed together ready for screening day and consent for each child has been recorded • A school screening list has been created ○ Blank Screen forms, Notification forms and Follow-up referral list are raedy • The screening space is clean and furniture is ready.	☐
Preparation checks: Equipment	**Check with the coordinator:** • Equipment for vision and hearing screen identified and checked – see screening space set up: ○ Extra set of batteries and bulb for otoscope and pen torch/ophthalmoscope.	☐

Screening day		
Before screening activities	**Responsible: Screener/s with school coordinator**	

Screening space set up	**Prepare the space and equipment:**
	• Check background noise levels using sound level meter or mobile app. Do not continue if sound exceeds 40dB.
	• Furniture:
	  ○ Two chairs
	  ○ Table
	• Equipment for vision screen:
	  ○ HOTV charts
	  ○ Pointing cards
	  ○ E charts
	  ○ Occluder (optional)
	  ○ Tape measures
	  ○ Pen torch/ophthalmoscope
	  ○ Tape
	  ○ Cleaning materials for hands and equipment
	• Equipment for hearing screen:
	  ○ Sound level meter
	  ○ Audiometer (machine or mobile app)
	  ○ Headphones
	  ○ Otoscope
	  ○ Speculums (at least two different sizes)
	  ○ Cleaning materials for hands and equipment.
		☐

Group session	**Run group sessions** • Eye and ear health awareness for all children • Screening preparation for children who have consent to be screened.	☐
Vision and eye health screen	**Responsible: Screener/s**	
Step 1: Getting ready	• Check that you have the correct Consent form. • Copy answers from the pre-screening questions to the blank Screen form. • Check that the child is wearing their spectacles if they use them for distance vision.	☐

Step 2:
Distance vision screen
	Carry out the vision screen:
	1. Clean the occluder (if using one)
	2. Select the correct chart:
	  ○ Children aged 8 years and younger use an HOTV chart and pointing card
	  ○ Children older than 8 years use an E chart
	3. Sit the child 3 metres away from the chart on the wall
	4. Explain the screening procedure to the child:
	  ○ HOTV chart - match letters using the pointing card
	  ○ E chart -show or tell the direction of the E's
	5. Test the right eye first and then left eye.
	6. Gently cover the eye not being tested with the palm of the hand or an occluder.
	7. Work through the Screen form. Record the results for each eye and overall result.
		☐

Step 3: Eye health screen	**Prepare and carry out the eye health screen:** 1. Wash and dry your hands with soap or sanitizer.	☐

	2. Explain to child that you will be looking into their eyes and using the torch to help you. 3. Check each eye with the torch. 4. Record the results.	
Hearing and ear health screen		**Responsible: Screener/s**
Step 1: Getting ready	• Check you have the correct Consent form and copy any missing information onto the Screen form • If the child has hearing aids they should remove them for the hearing screen. • Check noise levels are suitable, using a sound level meter / mobile phone app. Do not continue if sound level is over 40dB.	☐

Step 2:
Hearing screen
	Carry out the hearing screen:
	1. Sit the child on a chair.
	2. Explain the hearing screen procedure to the child:
	  ○ The child will hear a sound through the headphones
	  ○ Each time they hear a sound they need to show you in which ear they heard the sound. For example, by raising their right or left hand.
	3. Place the headphones on the child. Make sure the headphones are covering their ears and are comfortable.
	4. Work through the Screen form and record the results for each ear.
		☐

	Practice screen: 1000Hz at 40dB
	1. Set the sound frequency at 1000Hz, and the loudness at 40dB.
	2. Give a sound into their right ear:
	  ○ If the child responds, record a Pass result for that ear
	  ○ If the child does not respond, try again, two more times only
	  ○ If the child does not respond the second or third time, record a Refer result for that ear
	3. Repeat this process for the left ear.
	Results:
	• If the child did not respond to the sound after three attempts in one or both ears, do not continue with the hearing screen, record Refer in the Result column on the Screen form and start the ear health screen.
	• If the child responded to the sound in both ears within three attempts, continue.
		☐

	Hearing Screen: 1000Hz, 2000Hz and 4000Hz at 20dB • Make sure the child cannot see the audiometer or your hands when carrying out the hearing screen. 1000Hz at 20 dB: 1. Keep the frequency at 1000Hz and turn down the loudness level to 20dB. 2. Give this sound in the right ear three times. 3. Record the child's response by marking a tick (✓) or cross (X) on the screening form for each sound. 4. Repeat the process for the left ear. 2000Hz at 20dB: 5. Adjust the levels and repeat the same process as above. 4000Hz at 20dB: 6. Adjust the levels and repeat the same process as above. 7. Record the results for each ear and overall result.	☐

Step 3: Ear health screen	**Prepare and carry out the ear health screen:** • Wash and dry your hands. Use soap/sanitizer gel. • Disinfect the speculum. • Explain to the child that you will be looking in their ears and using the otoscope to help you.	☐
	Check 1: The outside of the ear 1. Check the outside of the child's ear from behind and in front. 2. Record the results. 3. Press gently on the tragus to see if this causes pain. Pain could be a sign of infection. 4. If the child feels pain when you press on the tragus, stop the ear health screen and record 👉 Refer in the Result column. Otherwise, continue.	☐
	Check 2: Ear canal 5. Hold otoscope in hand on same side as child's ear. Gently pull back their pinna to open up the ear canal. 6. Record the results for each ear. Results: • If there are no signs of any ear health problems in either ear, this is a Pass result. • For any signs of an ear health problem, record a 👉 Refer result.	☐
Screen plan	**Responsible: Screener/s**	
Did not attend	**If child did not attend screening:** Record intent to reschedule the screening.	☐
Pass result	**If child passed all results:** • If there are no signs of any vision or ear problems, record intent to inform parents using a Notification form. • If the parent/caregiver has concerns, record intent to discuss with parents and perform a follow up screen.	☐
Refer: Eye care personnel	**Record plan to discuss referral to eye care personnel for any 👉 Refer result identified in:** • Pre-screening questions • Distance vision screen • Eye health screen.	☐
Refer: Ear care personnel	**Record plan to discuss referral to ear care personnel for any 👉 Refer result identified in:** • Hearing screen • Ear health screen.	☐

After screening activities	**Responsible: Screener/s and school coordinator**	

Paperwork	• Check all the Screen forms have been completed
	• Add details to the Follow up referral list
	• Update the school records:
	  ○ Attendance
	  ○ Pass results
	  ○ Refer results
		☐

	○ Follow up screens.	
Equipment and screening space	Clean the equipment and screening space.	☐

After screening day		
Communication and record keeping	**Responsible: Screening coordinator and school coordinator**	
Communication with parents	• Ensure the school has a copy of the Follow up referral list • The school will: ○ Speak to parents/caregivers of children needing referral ○ Send Notification forms and Tips on healthy eyes and ears to **all** parents ○ Track attendance at follow up referral appointments ○ Arrange another screening day or make other arrangements to include children who did not attend • Suggest a follow up screening in one month if the parents/caregivers have concerns, even if a child had a Pass screening result on the screening day.	☐
Communication with eye and ear care personnel	• Communicate with personnel receiving referrals and let them know how many referrals to expect • If a child already uses vision or hearing assistive products, contact the service they currently use.	☐
Communication with the school	Follow up with the school to: • Check attendance at follow up referral appointments • Arrange further screening days.	☐
Record keeping	• Make sure the Follow up referral list is being updated. • Record and report monitoring and evaluation data as agreed locally.	☐

Annex 2. Consent form

Learning on TAP

Vision and hearing screening for school-age children
Consent form

[Service provider logo]	Screening coordinator:
	Date of screen:
	Location:

Why is screening important?

Your child's vision and hearing are important for their learning. The World Health Organization recommends that every child has their vision and hearing screened by trained personnel.

What will happen during the screening?

During the screening, your child's vision and hearing will be tested. Someone will look closely at your child's eyes and ears to check if they are healthy. No medicine will be given, and it will not be painful for your child.

What do I need to prepare?

If your child wears spectacles, they will need to bring them on the day of screening.

What will happen after the screening?

You will be informed of the results and if any action is needed. The results will be shared with the screening coordinator. They will contact you if any action is needed.

How do I use this form?

Please read the questions carefully and mark inside the box ☐ to answer. You may be asked to give more information. Please write a short answer where you see the pencil ✎.

1. Information about the child	
Family name ✎	Given names ✎
Date of birth ✎	Gender: Male ☐ Female ☐ Other ☐
Address ✎	
School ✎	Class ✎
Parent/caregiver details	
Family name ✎	Given names ✎
Phone/email ✎	
Languages spoken ✎	

2. Consent for sensory screening *Please tick one*
Yes, I consent to vision and hearing screening for my child and to the results being shared with the school screening coordinator ☐ → *Please continue to the next section*
No, I decline vision and hearing screening for my child ☐ → *Please explain why* ✎

3. Pre-screening questions *Please answer if "Yes" selected above.*		
Does your child wear spectacles?	Yes ☐ → What are the spectacles used for? Seeing things in the distance ☐ Seeing things that are near ☐ Don't know ☐	No ☐
Does your child use hearing aids?	Yes ☐	No ☐
Does your child have diabetes?	Yes ☐	No ☐
Does your child have any current pain, discomfort and/or severe itchiness in the eye?	Yes ☐	No ☐
Do you have any concerns about your child's vision?	Yes ☐ → *Please describe* ✎	No ☐
Do you have any concerns about your child's hearing?	Yes ☐ → *Please describe* ✎	No ☐

4. Signature *Please sign below and return this completed form to* ***[insert coordinator name/school/facility name]***	
Parent/caregiver name ✎	Relationship to child ✎
Parent/caregiver signature ✎	Date ✎

Annex 3. Screen form

Learning on TAP

Vision and hearing screening for school-age children
Screen form

[Service provider logo]	Name of screener ✎
	Date of screen ✎
	Location ✎

1. Information about the child	
Family name ✎	Given names ✎
Date of birth ✎	Gender: Male ☐ Female ☐ Other ☐
Address ✎	
School ✎	Class ✎
Parent/caregiver details	
Family name ✎	Given names ✎
Phone/email ✎	Languages spoken ✎
Consent: Yes ☐ No ☐	

2. Pre-screening questions *Copy the information from the completed consent form.*			**Result**
Does the child wear spectacles? Yes ☐ No ☐	**Yes** → What are the spectacles used for?		**No** → Continue **Yes** and a **problem is identified** during screening ☞ **Refer** to eye care personnel at service child is already using ☐
	Seeing things in the distance	☐	→ Ask child to wear spectacles for screening ☐
	Seeing things that are near	☐	→ Ask child **not** to wear spectacles for screening ☐
	Do not know	☐	
Does the child wear hearing aids? Yes ☐ No ☐			**No** → Continue ☐ **Yes** and a **problem is identified** during screening ☞ **Refer** to ear care personnel at service child is already using ☐
Does the child have diabetes? Yes ☐ No ☐			**No** to **both** → Continue ☐ **Yes** to **either** ☞ **Refer** to eye care personnel ☐
Pain / discomfort / severe itchiness in their child's eye/s. Yes ☐ No ☐			
Concerns about child's vision? Yes ☐ No ☐			**No** to **both** → Continue ☐ **Yes** to **either** → Continue. If child passes arrange Follow up screen ☐
Concerns about child's hearing? Yes ☐ No ☐			

3. Distance vision screen			
Chart:	8 years and younger ☐ → HOTV Older than 8 years ☐→ E chart		
Spectacles:	If the child wears spectacles for distance vision, are they wearing them today?		Yes ☐ No ☐
Right eye: Top line	**Result**	**Right eye: Bottom line**	**Result**
Child matches **2 or more** letters correctly on the top line: Yes ☐ No ☐	**Yes** → Continue bottom line **No** → Continue Left eye	Child matches **3 or more** letters correctly on the bottom line: Yes ☐ No ☐	**Yes** to **both** → **Pass** ☐ **No** to **any** ☞ **Refer** ☐

Left eye: Top line	Result	Left eye: Bottom line	Result
Child matches **2 or more** letters correctly on the top line: Yes ☐ No ☐	**Yes** → Continue bottom line **No** → Continue Eye health screen	Child matches **3 or more** letters correctly on the bottom line: Yes ☐ No ☐	**Yes** to **both** → **Pass** ☐ **No** to **any** **Refer** ☐

4. Eye health screen *Look at each eye with torch.*			**Result**
Do **both** eyes look healthy? Yes ☐ No ☐	**No** → Why?		**Yes** → **Pass** ☐ **No** **Refer** ☐
	Crust or pus on eyelids/eyelashes	☐	
	Red colour on white of the eye	☐	
	Discharge from eye	☐	
	Coloured part of eye unclear/milky	☐	
	Eyes not looking in the same direction	☐	
	Other	☐	

5. Hearing screen										
Practice screen										**Result**
Does child hear sound at 1000Hz and 40dB?	Right ear: Yes ☐ No ☐									**Yes** to **both** → **Pass** ☐ **No** to **any** **Refer** ☐ Stop hearing screen and → Continue to ear health screen.
	Left ear: Yes ☐ No ☐									
Full screen										**Result**
	Tick if child hears 20 dB sound									**Two or more ticks** for each frequency for both ears → **Pass** ☐ **Less than two ticks** for any frequency for either ear **Refer** ☐
	1000 Hz			**2000 Hz**			**4000 Hz**			
Right ear	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Left ear	☐	☐	☐	☐	☐	☐	☐	☐	☐	

6. Ear health screen			
Outside of the ear *Look at each ear with eyes.*			**Result**
Do **both** ears look healthy? Yes ☐ No ☐	**No** → Why?		**Yes** → **Pass** ☐ **No** **Refer** ☐
	Damage / scars / injury	☐	
	Pinna or ear canal missing, or very different shape	☐	
	Swelling	☐	
	Change of colour	☐	
	Discharge	☐	
Does the child feel pain when you press the tragus?	Left: Yes ☐ No ☐		**No** to **both** → **Pass** ☐ **Yes** to **any** → Stop the ear health screen and **Refer** ☐
	Right: Yes ☐ No ☐		
Inside the ear (ear canal and eardrum) *Check each ear with otoscope.*			**Result**
Do **both** ears look healthy? Yes ☐ No ☐	**No** → Why?		**Yes** → **Pass** ☐ **No** **Refer** ☐
	Pain	☐	
	Swelling	☐	
	Redness	☐	
	Discharge	☐	
	Blocked (wax or foreign body)	☐	
	Damage / injury	☐	
	Other	☒	

Do **both** eardrums look healthy? Yes ☐ No ☐	**No** → Why?		**Yes** → **Pass** ☐ **No** ☞ **Refer** ☐
	Unable to see eardrum	☐	
	Swelling and/or redness on the eardrum	☐	
	Holes (perforations)	☐	

7. Plan		
Results	**Plan**	
Did not attend	Reschedule screening	☐
Passed all results	Inform parents of results using Notification form	☐
	Parent/caregiver has concerns	
	Discuss with parents	☐
	Arrange follow up screen	☐
Refer result for any: • Pre-screening questions • Vision screen • Eye health screen • Hearing screen • Ear health screen.	Discuss need to refer with parents/caregivers	☐
	Child already has spectacles or hearing aids	
	Ask parent/caregiver to take child to existing service provider	☐
	Send Notification form	☐
	Enter information into Follow up referral list	☐
	Share information with screening coordinator	☐

Annex 4. Vision screening charts

HOTV Charts for pre-school-age children and younger school-age children (3–8 years)

Printing instructions:

1. Print a full-sized chart (as provided in the following pages). Do not reduce the document size to fit the paper.
2. Print on white A4 card that is thick and strong.
3. Make sure the letters are printed in rich black.
4. If the printed image is unclear, or grey, do not use.
5. To ensure that you have printed the chart at the correct size, measure the 10 cm ruler on the page to verify its accuracy.

Please print the following two pages

WHO DISTANCE VISION PRE-SCHOOL SCREENING CHART (HOTV CHART)
(3 METRE TEST DISTANCE)

World Health Organization

V O H T

6/60

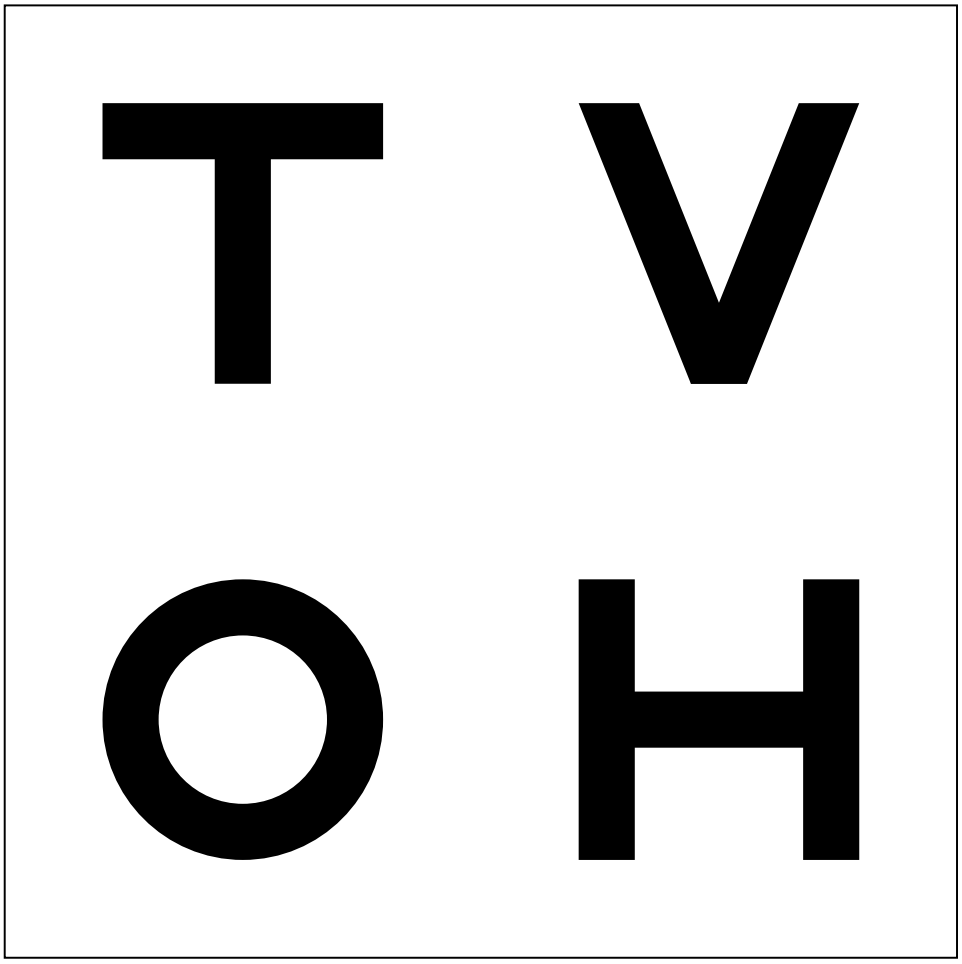
V H T V O

6/12

10CM

Print this page

World Health Organization



Pointing card

E Chart for school-age children (aged over 8 years)

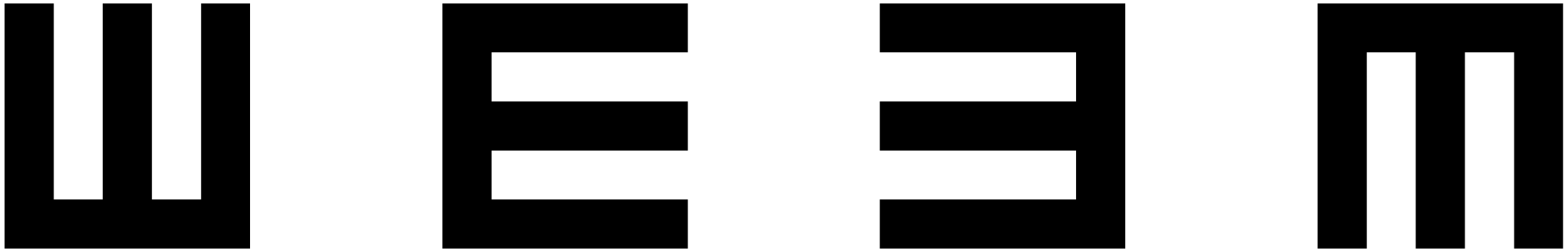
Printing instructions:

1. Print a full sized chart (as provided in the following pages). Do not reduce the document size to fit the paper.
2. Print on white A4 card that is thick and strong.
3. Make sure the letters are printed in rich black.
4. If the printed image is unclear, or grey, do not use.
5. To ensure you have printed the chart the correct size, measure the 10 cm ruler on the page to verify its accuracy.
6. After printing, carefully separate the WHO Distance vision screening chart from the WHO Near vision screening chart along the dotted line

Please print the following page

WHO DISTANCE VISION SCREENING CHART (E CHART)
(3 METRE TEST DISTANCE)

World Health Organization



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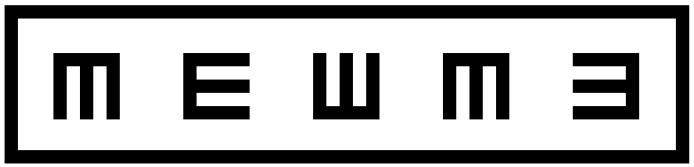

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Annex 5. Follow-up referral list

Learning on TAP

Vision and hearing screening for school-age children

Follow up referral list

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐	Hearing and/or ear health ☐
Referral location:		Name of referral personnel:	Follow up date:
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐	Hearing and/or ear health ☐
Referral location:		Name of referral personnel:	Follow up date:
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐	Hearing and/or ear health ☐
Referral location:		Name of referral personnel:	Follow up date:
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐	Hearing and/or ear health ☐
Referral location:		Name of referral personnel:	Follow up date:
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐	Hearing and/or ear health ☐
Referral location:		Name of referral personnel:	Follow up date:
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐	Hearing and/or ear health ☐
Referral location:		Name of referral personnel:	Follow up date:
Notes:			

Learning on TAP

Vision and hearing screening for school-age children

Follow up referral list

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐ Hearing and/or ear health ☐	
Referral location:	Name of referral personnel:	Follow up date:	
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐ Hearing and/or ear health ☐	
Referral location:	Name of referral personnel:	Follow up date:	
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐ Hearing and/or ear health ☐	
Referral location:	Name of referral personnel:	Follow up date:	
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐ Hearing and/or ear health ☐	
Referral location:	Name of referral personnel:	Follow up date:	
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Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐ Hearing and/or ear health ☐	
Referral location:	Name of referral personnel:	Follow up date:	
Notes:			

Name:	Class:	Contact phone/email:	Date of birth:
Gender: Male ☐ Female ☐ Other ☐	Referral date:	Reason for referral: Vision and/or eye health ☐ Hearing and/or ear health ☐	
Referral location:	Name of referral personnel:	Follow up date:	
Notes:			

Annex 6. Notification form

Learning on TAP

Vision and hearing screening for school-age children
Notification form

[Service provider logo]	Screening coordinator:
	Date of screen:
	Location:

Information about the screening

What is this form?

Your child was recently involved in a school sensory screening programme for vision and hearing. The results of the screening are provided below.

What should I do with this form?

Please keep this form. If your child has a referral appointment, please take this form with you to the referral location.

1. Information about the child	
Family name:	Given names:
Date of birth:	Gender: Male ☐ Female ☐ Other ☐
Address:	
School:	Class:

2. Vision	
Pass ☐	Your child's vision is healthy for their age. If you have any concerns about your child's eyes, please arrange for another vision and eye health screen within the next month.
Refer ☐	Your child needs an appointment with a person trained in eye care for further examination. Please use the details below to make an appointment at the referral location. Your child should attend a **referral appointment within one month** of the screening.
	Reason for referral:
	Referral location:
Absent ☐	Your child was absent on the day of the screening. Please contact the school for more information.
Continue care ☐	Your child is under the care of an eye care professional. We recommend that you continue this care.

3. Hearing	
Pass ☐	Your child's hearing is healthy for their age. If you have any concerns about your child's ears, please arrange for another hearing screen within the next month.
Refer ☐	Your child needs an appointment with a person trained in ear care for further examination. Please use the details below to make an appointment at the referral location. Your child should attend a **referral appointment within one month** of the screening.
	Reason for referral:
	Referral location:
Absent ☐	Your child was absent on the day of the screening. Please contact the school for more information.
Continue care ☐	Your child is under the care of an ear care professional. We recommend that you continue this care.

4. Contact *If you need more information, please use the following details to contact the screening coordinator.*	
Screening coordinator:	Signature:
Phone:	
Email:	Date:

Tips for healthy eyes and ears

Your child should:

- Have regular eye and ear checks
- Wear sunglasses and a large hat outdoors
- Wear ear protection in very noisy places
- Spend at least 90 minutes outdoors every day to reduce the risk of needing spectacles
- Take regular breaks when using digital devices and during close-up activities.
  Follow the 20-20-20 rule by taking a 20 second break to look at something 20ft/6m away every 20 minutes, to reduce eye strain and headaches
- Wash their hands before touching their eyes and ears
- Use their own personal towels
- Avoid rubbing their eyes vigorously
- Have their ears checked if they have a cold that is not improving, or if there is pus/fluid coming out their eyes and/or ears
- Be up to date with their vaccines, especially for rubella, measles, mumps and meningitis.

Your child should not:

- Swim or wash themselves in dirty water
- Insert objects into their ears, including cotton buds or candles for removing ear wax
- Use eye or ear medication that does not belong to them or was not prescribed for them.

Annex 7. Tips for healthy eyes and ears

Instructions for parent/caregiver:

Your child **SHOULD**:

- Have regular eye and ear checks
- Wear sunglasses and a large hat when outdoors in the sun. Wear ear protection in very noisy places.
- Spend at least 90 minutes outdoors every day. This will reduce the risk of your child needing to wear spectacles
- Take regular breaks when using digital devices and during close-up activities. Follow the 20–20–20 rule, which suggests a 20 second break to look at something 20 feet (6 metres) away, every 20 minutes, to reduce eye strain and headaches.
- Keep the sound volume at a level below 60% of the maximum.
- Use noise-cancelling and well-fitted earphones/headphones.
- Wash their hands before touching their eyes and ears; use their own personal towels and avoid rubbing their eyes vigorously.
- Have their ears checked if they have a cold that is not improving, or if there is pus or fluid coming out the eyes and/or ears.
- Keep up-to-date with their vaccines, especially for rubella, measles, mumps and meningitis.

Your child should **NOT**:

- Swim or wash themselves in dirty water.
- Insert objects into their ears, including cotton buds or candles for removing ear wax.
- Use eye or ear medication that does not belong to them or was not prescribed for them.

Tips for children for healthy ears

DO

Use earplugs in noisy places

Check your hearing regularly

Wear your hearing aids regularly

See a doctor if you have ear or hearing problems

DON'T

Put cotton buds, oil, sticks or pins inside your ears

Swim or wash in dirty water

Share earphones or earplugs

Listen to loud sounds or loud music

Steps for healthy eyes

Have regular eye exams.
Early detection of eye disease can prevent future vision loss.

H
A V E
REGULAR
EYE EXAMS

Wear sunglasses and brimmed hats outdoors
to reduce UV exposure that can damage your eyes.

Stop smoking.
Smoking increases the risk of eye diseases such as cataracts and macular degeneration.

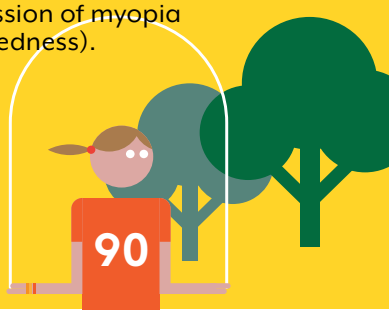
Avoid eye strain and headaches
Follow the 20-20-20 rule

After **20** minutes spent using a screen

Look at an object **20** feet (6m) away

For at least **20** seconds

Encourage children to spend at least 90 minutes outdoors
to prevent the development and progression of myopia (short-sightedness).



Wear eye protection when using tools and chemicals that could damage your eyes such as welding, chemicals, flying metals or wood.

Annex 8. WHO health promotion materials

Document name	Link to resource
Steps for healthy eyes	https://www.who.int/andorra/publications/m/item/steps-for-healthy-eyes https://www.who.int/multi-media/details/access-poster---education-resources https://www.who.int/multi-media/details/access-resource-2
The 20–20–20 rule	https://www.who.int/multi-media/details/20-20-20-rule https://www.who.int/multi-media/details/access-resource-6
Tips to protect your child's eyes and prevent myopia	https://www.who.int/multi-media/details/prevent-myopia
Treat myopia?	https://www.who.int/multi-media/details/treat-myopia
What is myopia?	https://www.who.int/multi-media/details/what-is-myopia
Risks for myopia	https://www.who.int/multi-media/details/risks-for-myopia
Signs of myopia	https://www.who.int/multi-media/details/signs-of-myopia
Eye examination	https://www.who.int/multi-media/details/eye-exam https://www.who.int/multi-media/details/access-resource-3
Eye protection	https://www.who.int/multi-media/details/access-resource-4
Tips for health ears	https://www.who.int/andorra/publications/m/item/tips-for-healthy-ears https://www.who.int/publications/m/item/community-resource-5-tips-for-healthy-ears
Hearing loss in children: when to suspect and what to do	https://www.who.int/publications/m/item/community-resource-1b-when-to-suspect-hearing-loss-in-a-child
Care of discharging ears	https://www.who.int/publications/m/item/community-resource-2-care-of-discharging-ears
Hearing and language milestones in children	https://www.who.int/publications/m/item/community-resource-3-hearing-and-language-milestones-in-children
Tips for safe listening	https://www.who.int/publications/m/item/community-resource-6-tips-for-safe-listening

Annex 9. Management of conflict of interest

All members of the technical working group (TWG) and peer reviewers completed and submitted a WHO Declaration of Interests form and signed confidentiality undertakings prior to attending any TWG meetings and review. The WHO department for Noncommunicable diseases reviewed and assessed the submitted declarations of interest and performed an internet search to identify any obvious public controversies or interests that may lead to compromising situations. If additional guidance on management of any declaration or conflicts of interest had been required, the department would have consulted with colleagues in the Office of Compliance, Risk Management and Ethics. If deemed necessary, individuals found to have conflicts of interest, financial or non-financial, would have been excluded from participation in any topics where interests were conflicting. The management of conflicts of interest was reviewed throughout the process. TWG members were required to update their Declaration of Interest, if necessary, before each meeting.

No conflict of interest was identified.

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https://www.who.int/health-topics/blindness-and-vision-loss

https://www.who.int/health-topics/hearing-loss