Training Programme
for Public Health Nurses and Doctors
in Child Health Screening, Surveillance and Health Promotion

Unit 2
Vision Screening
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Vision Screening Training for Area Medical Officers, Public Health Nurses & School Nurses

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INTRODUCTION

The aim of this pack is to provide a resource for Area Medical Officers, Public Health Nurses, School Nurses & other Health Professionals involved in vision screening. This pack will provide information on visual development, how to assess and record levels of visual acuity, identify the presence of a squint and ocular movement problems.

Why the need for such training?

The Department of Health and Children carried out a review of children’s eye services and one of the recommendations state that:

*Standardised training should be established for Area Medical Officers, School Nurses and Public Health Nurses.*

This training is to be provided by the Area Orthoptic/Ophthalmic Service in the North Western Health Board.

AIMS & OUTCOMES FOR AREA MEDICAL OFFICERS, PUBLIC HEALTH NURSES & SCHOOL NURSES

AIMS

1. To have a knowledge of visual development in childhood
2. To understand basic principles of vision testing
3. To have the ability to test vision in children
4. To identify ocular problems requiring referral to the Eye service
5. To take appropriate action regarding review and referral

OUTCOMES

To accurately identify and refer all children with visual problems, to the Eye service so the best visual acuity, binocular vision and cosmetic appearance can be obtained for each child.

MANDATE AND FOUNDING DOCUMENTS

This work is based on the recommendations in

*Best Health for Children – Developing a Partnership with Families 1999*
*Training of Doctors and Public Health Nurses in Child Health Surveillance 2000*

It is further supported by the

*National Children’s Strategy 2000*
*National Health Strategy: Quality and Fairness – a Health System for You 2001*
*Investing in Parenthood to achieve best health for children 2001*
*National Report of Core Child Health Programme Review Group (In draft) 2004*
Background to the Training Initiative

Best Health for Children (BHFC) was established by the Conjoint Body of Chief Executives of the health boards in 1999 to drive the implementation of the report, *Best Health for Children – Developing a Partnership with Families*. Arising from the recommendations in this report for child health screening and surveillance, BHFC published a supplementary report entitled *Training for Doctors and Public Health Nurses (2000)*. The work of Best Health for Children is now incorporated into the wider Programme of Action for Children within the Health Boards Executive (HeBE).

Both reports can be accessed through [www.hebe.ie/programmes/programmefactionforchildren](http://www.hebe.ie/programmes/programmefactionforchildren).

A National Training Committee, with membership drawn from all the key stakeholders, produced a training report that was accepted by the CEOs of each Health Board in 2000. *Training for Doctors and Public Health Nurses in Child Health Surveillance* suggested an outline curriculum for a **standardised, quality assured, evidence-based training programme** for doctors and nurses involved in child health surveillance.

A national training plan for doctors and nurses involved in child health surveillance was developed. A national expert group to oversee this development was sanctioned by the Board of HeBE and started work in September 2003 to oversee the implementation of the Training Project. Joint training of regional trainers by the Department of Paediatrics TCD and PAC began in January 2004. This training is ongoing and will continue as further training needs are identified through the project’s implementation at regional level.

The National Core Child Health Programme was reviewed and updated in line with recent evidence. The revised BHFC recommendations form the basis of this manual.
DEFINITIONS

DEFINING TERMS

VISUAL ACUITY
This is the ability to discriminate detail. Visual acuity is a measurement of the smallest image a person can see and identify at a set distance using a Snellen or equivalent chart.

AMBYLOPIA
Amblyopia is defined as a reduction of visual acuity in one or both eyes. The reduced vision persists after correction of the refractive error and removal of any pathological obstruction. The essential factor to the development of amblyopia is an abnormal retinal image in one or both eyes during maturation of the visual system. It affects approximately 2.5% of the population.

SQUINT
Squint is a condition in which both visual axes are not aligned correctly. A squint may be convergent (turning in), divergent (turning out) or vertically displaced. Squints can be constant or intermittent.

It affects up to 6% of children. Most childhood squint is concomitant (in which the angle remains the same in different positions of gaze).

Squint can be the presenting sign of serious systemic and ocular disease. The eyes of a blind infant are commonly divergent.

Some common terms for squints are lazy eye, cross-eyed, boss eyed, wall eyed, turned in eye.

Beware parents may use the term “squint” to mean screwing up the eyes.

REFRACTIVE ERROR
This is the disturbance of the optical system of the eye. This leads to a blurred image being formed on the retina.

• Myopia (shortsighted)
  The image of an object is focused in front of the retina.

• Hypermetropia (longsighted)
  The image of an object is focused behind the retina. Small amounts can be overcome by focusing the lens of the eye.

• Astigmatism
  A mixture of refractive error at different axes, preventing a sharp retinal image to be formed. The eye is more rugby ball than football shaped.

OPHTHALMOLOGIST
A doctor who specialises in the diagnosis and treatment of eye abnormalities and diseases. Most Ophthalmologists are based in hospitals. They provide medical treatment or surgical procedures as indicated.

ORTHOPTIST
Orthoptists have specialised training which enables them to assess, diagnose and treat squints, amblyopia and abnormalities of binocular vision. Orthoptic treatment
aims to maximise vision and relieve symptoms e.g. double vision. Orthoptists work with ophthalmologists and optometrists and are part of the eye care team.

OPTICIAN/OPTOMETRIST

These eye professionals prescribe and supply glasses. They will refer certain eye conditions to an eye specialist (Ophthalmologist) for treatment.
DEVELOPMENT OF THE EYE

OCULAR ANATOMY

VISUAL PATHWAYS
GROWTH AND DEVELOPMENT OF THE NORMAL EYE

NEONATES
The eye is large in relation to the rest of the body at birth. There is no iris pigment at birth. A baby has a fixed focal length of approximately 30cm until 4-6 weeks. All children under 31 weeks’ gestation and/or less than 1.5 kilogram’s should be checked by an Ophthalmologist for Retinopathy of Prematurity.

1-3 MONTHS
The start of the critical period for the development of vision occurs within the first two months. The eyes can converge. A defensive blink is present within the first few weeks. Squints are now abnormal, however slight.

- Looks at face with preoccupation
- Follows slowly moving objects

4-6 MONTHS
The fovea develops during the first six months and both eyes work together as a pair (binocular vision).

- Vision 6/45
- Visually alert for near and distance
- Smooth following eye movements in all directions
- Reaches for toys and watches objects within visual field

7-12 MONTHS
Improvement of visual competence. Accommodation is at an advanced stage of development.

1-2 YEARS
The cornea is adult size by 2 years. Vision can be recorded up to 6/18 at 2 years.

2-3½ YEARS
Can match single letters
3 years recorded vision 6/6 with single letters

4-5 YEARS (SCHOOL ENTRY)
Capable of Snellen visual acuity but may still require matching card.

7-8 YEARS
Approaching the end of the critical period for vision development. Treatment can still be given effectively up to at least age twelve depending on the type of defect.
BARRIERS TO NORMAL VISUAL DEVELOPMENT

AMBLYOPIA
Amblyopia is defined as a reduction of visual acuity in one or both eyes. The reduced vision persists after correction of the refractive error and removal of any pathological obstruction. The essential factor to the development of amblyopia is an abnormal retinal image in one or both eyes during maturation of the visual system. It affects approximately 2.5% of the population.

Amblyopia can develop due to:-
Defocused image, e.g. refractive error
Lack of light or stimulation, e.g. ptosis, cataract, retinoblastoma
Abnormal binocular interaction, e.g. squint.

CROWDING EFFECT
Amblyopia causes blurring of a whole line of letters so prevents the child seeing letters at the centre of the line on a chart, but they may be able to see single letters. It is important to use a line of letters to test vision accurately. A child with amblyopia may have 6/6 with single letter vision acuity but only 6/18 when tested with a linear chart.

Stimulating the eye by giving the full optical correction and patching the good eye to give stimulation of the poor eye can reverse amblyopia up to the end of the critical period.

BEHAVIOUR OF VISUAL IMPAIRED CHILDREN
Poorly sighted children exhibit no smiling to visual stimulation. They do not fix or follow a light or face. They often roll their eyes and appear to look over the viewed object. If the vision is very low they tend to stare at bright light sources, e.g. windows and lamps. If the vision is very poor, they often spend an excessive amount of time poking and rubbing their eyes.

Many children who are born blind or poorly sighted have divergent squints.

CARE OF A VISUALLY IMPAIRED CHILD
Very poorly sighted children need tactile input before they are picked up, fed or changed etc. This is because they do not make eye contact or see the bottle or spoon approaching. It is thought that blind children who are not touched or spoken to before being picked up adopt very closed and defensive body language and often rock back and forth.
DEVELOPMENT OF BINOCULAR SINGLE VISION (BSV)

Binocular single vision is the ability to use both eyes simultaneously so that each eye contributes to a common single perception.

REQUIREMENTS FOR THE DEVELOPMENT OF BSV

- Orbits of both eyes correctly aligned
- Eye muscles capable of moving the eyes together
- Healthy nervous system including higher centres and midbrain
- Visual pathway and visual cortex intact
- Optical properties of each eye are the same so they produce the same brightness, colour, clarity and size of image
- Overlapping visual fields

BINOCULAR REFLEXES

A Postural - movement of the eyes relative to the head to maintain fixation.
   - Fixation from birth
   - Re-fixation from 2-3 months
   - Conjugate 2-3 months
   - Vergence 3-6 months

B Development of central mechanisms
   - Fusion - the ability to fuse 2 images as one through a range of movement
   - Stereopsis - the ability to perceive depth (3D vision)

ADVANTAGES OF BSV

- Larger field of vision than a uniocular field
- Combined visual acuity better than best uniocular
- More accurate assessment of depth perception
- Ocular position maintained
- Compensation of blind spots

ASSESSING VISION
WHY TEST FOR VISION

If a child has a refractive error uncorrected during the critical period then vision fails to develop. This means that even if the child puts the correct glasses on in adult life, he/she will not achieve normal vision.

If a child has blurred vision or a poorer quality of vision in one eye (due, for example, to squint, cataract or ptosis) then amblyopia can develop. This can be treated with glasses and occlusion (patching) of the good eye to stimulate the vision in the poorer sighted eye. This treatment is carried out under the close supervision of an Orthoptist/Community Ophthalmologist.

The earlier we treat amblyopia the better the prognosis. This is why screening is so important. Children can function very well and appear visually normal with one normal eye. This is why it is so important to test vision properly in either eye.

VISION TEST

Vision can be tested by a variety of methods at any age. Tests may have guidelines but should be carried out to the age and ability of the patient. Visual acuity - a measurement of the smallest image a person can see and identify at a set distance. It is determined by the smallest retinal image whose form can be seen by the cones of the eye.

The diameter of a cone is 4/1000mm or 1 second of arc.

VISUAL ACUITY (VA) IS AFFECTED BY

- Retinal eccentricity - VA is best at the fovea and reduces at the periphery
- Eye movements - Nystagmus
- Crowding effect increased in amblyopia
- Refractive error
- Opacity of Ocular Media

HOW VISION IS ASSESSED

Ensure satisfactory lighting and lack of distractions while measuring visual acuity. The most accurate test should be selected according to the child’s age and ability. At present the test of choice is the illuminated Snellen chart. The test should be carried out at 6 metres and each eye tested separately. The method of Occlusion should always be an adhesive patch.
HOW VISION IS RECORDED

The distance at which the test is done in metres over the line seen.

• Normal vision in Ireland is recorded as 6/6
• Normal vision in USA is recorded as 20/20 (they measure in feet)
• 6/36 vision means that the test was performed at 6m and the child could see the second line down, which a normal seeing person could see at 36m
• 6/5 vision means that the test was performed at 6m and the child could see one line better than normal

WHAT IF A CHILD CANNOT SEE 6/60?

• Move the top letter nearer (e.g. 2/60)
• Counting fingers at 1m (CF)
• Perception of light at 1m (PL)
• No perception of light (NPL)
TYPES OF VISION TEST

SONSKEN - SILVER

- Age group: 3 1/2 years and upwards
- Equipment: Sonsken – Silver chart, matching card and occlusion
- Method: Show Sonsken - Silver card to the child at close range and ask the child to identify a letter. Move to 6 metres away. Ask the child to identify another letter in the middle of the line starting at 6/12. Then test 6/9 and ask the child to do a few letters on the 6/6 line.

This is done quickly so that the child does not get bored.

Repeat with each eye covered

- Results: The Snellen size seen for each eye is recorded.

SNELLEN (ILLUMINATED AT 6 METRES)

- Age group: From 4-5 years and in some children earlier
- Equipment: Snellen chart and occlusion
- Method: Show Snellen card to the child at close range and ask the child to identify a letter. Go to the correct distance. Ask the child to identify another letter in the middle of the line starting at 6/12. Then test 6/9 and ask the child to do a few letters on the 6/6 line.

This is done quickly so that the child does not get bored.

Repeat with each eye covered

- Results: The Snellen size seen for each eye is recorded.

LOGMAR TEST (GOLD STANDARD)

Crowded Logmar is a test designed on best practice of vision assessment. Specifically designed for children it can be used at 3 metres for better interaction or 6 metres. There are four letters per line selected from X V O H U Y. The letter spacing is equal to 0.5 letter diameters from the optotypes, which is achieved by the inclusion of a box surrounding the row of letters. The thickness of the box is the same thickness as the letter size and is positioned 0.5 letter diameters from the optotypes.

Recording Notation

6/60 in logMar is 1.0 and 6/6 in logMar is 0.0 and each letter is scored as 0.02.
When testing observe the child and look out for

- Abnormal Head Posture (AHP)
- Struggling
- Disruptive
- Boredom
- Sitting forward and peering
- Nystagmus

Repeat with each eye covered using an adhesive patch.
STANDARDS/RATIONALE

RATIONALE

- Many abnormalities are first recognized by parents or other family members.
- There is insufficient evidence to make a recommendation for pre-school visual acuity screening beyond observation of visual behaviour.
- There is evidence to support vision screening at school entry to identify and treat children with moderate and severe visual acuity loss to prevent amblyopia.
- LogMar crowded at 3 metres test is the gold standard for visual acuity testing and will be introduced gradually in co-operation with community ophthalmic departments. In the interim, illuminated Snellen Acuity test at 6 metres and Sonsken Silver acuity matching test remain tools of acceptable quality for screening.
- The evidence for stereo-acuity testing as a screening tool is weak.
- There is insufficient evidence for or against colour vision screening. It should therefore continue in areas where it is in operation, but not commence in other areas.

Recommendations

Pre-school children
- Observation of visual behaviour
- Clear referral criteria
  - History of amblyopia or squint in first degree relative AND
  - Parental concern

Primary school children
- School entry and exit screening – omit second class screening
- Clear referral criteria
  - Visual acuity of less than 6/9 in one or both eyes OR
  - Difference of more than one line between two eyes

Personnel

- Ideally, screening should be carried out by orthoptists.
- Designated school nurses are required for school vision screening.
- Children with special needs should be screened by orthoptists.
### Vision Screening

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<tr>
<th>Timing</th>
<th>History</th>
<th>Examination</th>
<th>Equipment</th>
<th>Health Promotion</th>
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<td>Birth</td>
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<td>Observation:</td>
<td>Ophthalmoscope</td>
<td>Inform parents of normal vision</td>
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<td>Inspection of Eyes</td>
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<td>Red Reflex (RR)</td>
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<td>Corneal Light Reflex (CLR)</td>
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<td>Inspection of Eyes</td>
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<td>Visual behaviour</td>
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<td>6 to 8 weeks</td>
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<td>Observation:</td>
<td>Ophthalmoscope</td>
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N.B. Vision screening should also be offered to children wearing glasses. This is for reasons of equity and to identify children who may have been lost to follow up. These children should be screened with their glasses on. For some children, visual acuity in one or both eyes may be intentionally lower with the corrective glasses than without. This should not be highlighted to a child as any comment might be misinterpreted as a reason for the child to discontinue wearing glasses. If in doubt, refer the child for reassessment by the community ophthalmic department.
ASSESSING FOR A SQUINT

SQUINT/STRABISMUS

A squint is present when the eyes are not aligned at all times. One eye is straight while the other eye turns inwards (convergent), outwards (divergent), or is vertically displaced. Some squints are only seen under certain conditions, e.g. when accommodating (focusing on a near object), looking into the distance or a certain direction.

Some children are born with squints but a squint can occur at any time throughout life. Squints are frequently seen when the child is 2 1/2 to 3 years and starts to focus on detailed pictures. Onset of a squint in an older child may be a sign of serious pathology.

There is an increased chance of a squint if the child has one of the following factors:

• Premature birth
• Physical or mental disability
• Family history of squint or refractive error

Some squints are present because the child sees very poorly out of one eye. This can be due to cataracts, glaucoma or something more sinister like retinoblastoma. In these children, when a bright light is shone in the eye or flash photography is taken, the diseased eye has a white pupil reflex and the healthy eye looks pink/red.

Squints can cause a lack of development in one eye leading to -
• Amblyopia
• Loss of ability to use both eyes together i.e. binocular vision
• A cosmetic problem preventing the child having eye contact with his peers and family. This may lead to teasing and name-calling.

TYPES OF SQUINT

Manifest and Latent

• Convergent
• Divergent
• Vertical
• Intermittent
• Constant
• Alternating

Intermittent Squints

• Accommodative squint - e.g. only present when the child is focusing.
• At certain distances - e.g. squints either for near or distance
• At certain times - e.g. when the child is tired
• In certain directions - e.g. when the child looks up or to one side
PSEUDOSQUINT

This is the appearance of a squint when the eyes are actually correctly aligned. Facial features such as a broad bridge to the nose (epicanthus) can produce a pseudosquint.

ASSESSMENT OF CORNEAL REFLECTIONS

The position of the light reflex on the cornea when viewed with a torch can indicate the presence of a squint. Normally the reflex should be symmetrical in each eye. Hold the pen torch approximately 1/3m from the patient and observe the position of the corneal reflection in either eye.
CORNEAL REFLECTIONS

Example of normal

Example of convergent squint (reflection temporal in left eye)

Example of divergent squint (reflection nasal in left eye)

Example of a vertical squint (left eye elevated)
COLOUR VISION DEFICIENCY

Colour blindness affects males more frequently than females. Most problems are experienced in distinguishing between red and green. There are jobs where there could be safety hazards if colours are not distinguished correctly, e.g. jobs where red and green lights are used for signalling.

There is also quite a range of occupations where defective colour vision may be a disadvantage. These include jobs where the ability to match colours exactly is required. If you know or suspect that you have defective colour vision, you need to get the type and extent of your colour blindness correctly assessed.

Fire Service fire fighters should have normal red green perception
Railway all staff on operating duties or working among moving traffic or electrical work
Civil Aviation Flying personnel (airline, transport pilot, flight navigator, flight engineer, radio operator) air traffic controllers, private pilots, and most engineering apprentices

Other occupations where defective colour vision may be a handicap -

Anaesthetist
Artist
Beautician
Electrical/electronics
Engineering - some types
Florist
Forensic scientist
Hairdressing (dying, tinting)
Interior decorator
Interior designer
Jeweller
Laboratory technician
Paintmaker, paint sprayer
Radio and TV servicing

If in doubt check with the professional body in question or school careers advisor.
COLOUR VISION (ISHIHARA) TEST

Colour vision should be tested at 11 year or earlier if indicated by family history or learning problems.

The Ishihara Test is designed to provide a test of colour vision deficiency: most cases are characterised by a red-green deficiency, which may be complete or partial.

**NB** Prevalence ratio is Boys>Girls 16:1.

Total colour blindness is very rare. Failure of appreciation of blue and yellow is also extremely rare.

The Ishihara plates are designed to be appreciated correctly in a room lit adequately by daylight. The plates should be held 75cm from the subject and at right angles to the line of vision. The child is asked to read the numbers on plates 1-17, each answer should be given promptly.

The explanatory leaflet accompanying the Ishihara book contains a reference chart indicating which numbers can be seen on each plate by people with normal colour vision, or those with red-green deficiencies. Plates 18-24 can be used if the child does not know numbers. They can be traced with a brush or finger; each tracing should be completed within 10 seconds.

If 13 or more of the plates 1-15 are read correctly, colour vision is regarded as normal and should be recorded as Ishihara - Pass. If 9 or less are read correctly colour vision is regarded as deficient and should be recorded as Fail. Repeat the test if there is any uncertainty.

**NB** it is important that the Ishihara book should be kept closed, except during use because undue exposure to sunlight causes fading of the colour of the plates.
REFERRAL CRITERIA FOR EYE CLINIC


2. More than one line of a difference, between the two eyes.

3. Any manifest squint.

4. Any abnormal appearance of the eyes/eye movements

5. Positive family history of first degree relative with squint or amblyopia with parental concern.

6. Other concerns e.g. headaches, sticky eyes, watery eyes – refer to GP first.

7. Any parental concern regarding a squint.

ADDITIONAL INFORMATION WHEN REFERRING

1. FAMILY HISTORY OF SQUINT

Please clarify when taking history. The word squint is sometimes misunderstood. True squint should have some form of treatment in childhood, i.e. glasses, patching or surgery. Only refer cases where parents or siblings have a definite squint and there is parental concern.

2. FAMILY HISTORY OF GLASSES

Only immediate family (parents/siblings) who has worn glasses from under age 5 years. Here we are looking principally for hypermetropia and anisometropia. School age myopia does not require screening at this age. Congenital myopia is rare.

3. CONCERN ABOUT POSSIBLE SQUINT

Refer all cases with a definite diagnosis of constant or intermittent squint. Confirm with corneal reflections. Only refer cases with possible squint if parents are concerned.

4. CONCERNS ABOUT EYE MOVEMENT

Refer all cases of ocular motor imbalance, or where parents are concerned with their child’s eye movements.

5. CONCERN ABOUT VISION

Following examination or concerns from parents.

6. HISTORY OF PREMATURITY

All premature babies (under 31 weeks or 1.5Kg) should be seen by an Ophthalmologist on the Special Care Baby Unit.
WHAT HAPPENS UPON REFERRAL?

The patient is prioritized, placed on a waiting list and the patient is notified that a referral to the appropriate Ophthalmic Department has been received.

The source of referral and the GP will be informed on:

1. The outcome of the initial assessment.
2. Following initial assessment the member of the ophthalmic team will make onward referral to the appropriate health professional.
3. Outcome on discharge.
4. Referral pathways may vary but referral protocol should be the same nationwide.

“DNA” POLICY

The appropriate health professionals will be informed if a patient “DNA’s” two consecutive appointments.

Comments to indicate that further treatment would benefit the patient will be made to the referral source on the discharge letter.

If not in place already a local DNA Policy should be initiated.
FLOW CHART RE: OUTCOME OF REFERRAL TO ORTHOPTIC DEPARTMENT.

Referral from Referral from

Area Medical Officer
Public Health Nurse
School Nurse
Family Doctor

ORTHOPTIST
Test vision, eye movement, and presence of squint
Treatments to maximise vision and relieve symptoms

Tertiary Referral
For electrophysiological tests.

OPHTHALMOLOGY SERVICE.
Medical examination of eyes. Diagnosis and investigation of problems not correctable with glasses. If significant visual impairment onward referral by

Paediatrician.
Check other areas of child’s development

Department of Education
Includes teacher for the visually impaired

LOW VISION CLINIC.
Provides Low vision aids, contact lenses etc.

NCBI Resource Worker for the Visually Impaired.
Practical advice re: aids and benefits
List of all Orthoptic Hospital and Satellite clinics
Squint and Lazy Eye in Children

Some questions answered

1. What is a ‘lazy eye’?
   It means that one eye does not see as well as normal, even with glasses on. If something stops the eye seeing well, like a squint, it does not develop normal eyesight. The other eye usually sees very well.

2. My child sees well when both eyes are open, so what does he/she have to have treatment for a ‘lazy’ eye?
   This is because they are predominantly using the good eye to see with and the ‘lazy’ eye is not working. Treatment with patches or glasses can bring the sight back to normal in the lazy eye. It is much better to have two good eyes than one weak eye for the rest of your life.

3. What is a squint?
   If one eye looks in a different direction from the other it is called a squint. A squinting eye may turn in (convergent) or out (divergent); much more rarely it may turn up or down (vertical).

4. I cannot see the squint. Does it really matter?
   YES. When one eye looks at something different from the other, you see double. To avoid this, children can ‘switch off’ what they see with one eye. If this happens the ‘switched off’ eye can become ‘lazy’.

5. Some people say that children grow out of squint. Is it true?
   NO. Babies sometimes look as if they are squinting when they are not. It needs the special skills of an orthoptist or eye doctor to judge whether or not your child has a squint. If a squint is really there, it must be treated or it may get worse and the eye may become ‘lazy’.

6. My child only squints when tired or run down. Why?
   When your child is tired, the muscles of the eye can be weak, so you can see the squint. It is a warning sign that must not be ignored. It could become a permanent squint unless it is treated.

7. Does measles cause squint?
   NOT REALLY. Any nasty illness can help to unmask a squint in a long-sighted child as it can weaken the child’s ability to overcome an underlying squint.

8. Will my child need an operation?
   An operation will not improve the sight in a ‘lazy’ eye. It is important to treat the ‘lazy’ eye first. When both eyes see equally well and your child is wearing glasses all the time (if we tell you to) an operation might help if the squint is still large.
GLASSES

9. My child can see well. Why does he/she have to wear glasses?
Glasses help squinting eyes to become straighter. They help a ‘lazy’ eye to see better. The child must go on wearing the glasses even after they see well to prevent the squint become worse again.

10. What is long-sight? (Hypermotropia)
A long-sighted person needs to focus even when they are looking in the distance. They need to focus even more for close work. A child is able to do both quite easily, as the lens inside the eye is soft. Unfortunately, this over-focusing can lead to a squint (one eye turning in). Treatment for these squints often means wearing glasses to stop the over-focusing.

11. What is short-sight? (Myopia)
A short-sighted person can clearly see things, which are close, but more distant things are blurred. Glasses change the way light goes into the eye, making things clear again in the distance.

12. What is astigmatism?
If the front surface of the eye is curved unevenly, we call it ‘astigmatism’. If a ball were made of these curves it would be more like a rugby ball than a soccer football. An eye like this cannot focus clearly on anything whether near or far. Glasses help the uneven focusing so the eyes see clearly.

13. Why does my child have to have drops in the eye for the glasses test?
We have to open up the pupil and stop your child focusing before we can measure the eye for glasses. When your child can read letters confidently and concentrate well, we do not usually need to use the drops.

14. Is there any way of testing my child for glasses without drops?
NO, not the first time, unless he or she is older and there is no squint. We must measure the focusing and look carefully at the back of the eyes for other diseases.

15. My child says the glasses make it worse.
This often happens in the first week or two, especially when the glasses are for long-sight. The eyes need to stop over-focusing and let the glasses do it for them. Once they have learned to do this, they see clearly through the glasses. We test the vision soon after getting the glasses to check that all is well. It is important that your child wears the glasses all the time so we know they have really got used to them.

16. Can my child take the glasses off when playing rough games?
It is best if your child wears them all the time to get used to them as quickly as possible. The lenses are plastic and do not splinter if broken. Children can take the glasses off in the bath, bed or swimming pool.

17. Do glasses cost a lot of money?
You have help with the cost of glasses. The form you take to the optician pays for the lenses, with something left over for the frames. You should never have to pay very much for the glasses. Plastic frames are cheaper and do not break as easily as metal ones. If you choose expensive frames they could cost a lot more than cheaper ones - BEWARE!
18. Will my child always have to wear glasses?
Probably not. We can treat squints and ‘lazy’ eyes until the age of at least twelve. When we tell you it is safe to stop wearing glasses, children can choose whether to wear them or not. After that the sight will not be damaged if they leave them off.

19. My child says the glasses do not make any difference
This can often happen when the two eyes are different from each other, e.g. one is more long-sighted. The sight is the same in the good eye with and without glasses. BUT ONLY when the glasses are worn does the ‘lazy’ eye have a chance to see better.

PATCHING

20. Why does putting a patch on help a ‘lazy’ eye?
The lazy eye does not see as well as the normal one. This is because it has not had as much practice in seeing as the other one. Putting a patch on the good eye makes the ‘lazy’ eye work properly. This helps it to catch up with the ‘learning’ to see like the normal one.

21. My child cannot see so well when the patch is on, so he/she will not wear it
The patching treatment only works if you use it as we tell you to. So please do all you can to keep it on. If you succeed at the beginning, it will make the sight better in a short time and your child will see that wearing the patch is really helping.

22. My child is teased when wearing the patch at school. Can the patch be done at home?
YES. If you are prepared to sit with the child for the required length of time (several hours every day) and be sure your child is doing something which needs good vision. Watching TV and playing ordinary games will not do. Your child must be concentrating on doing something so the eye is stimulated - things like looking at books, reading, drawing, colouring in, puzzles, board games, etc. We often say the patch should be worn at school because when doing schoolwork, your child is concentrating.

23. My child is allergic to plaster and so cannot wear the patch.
There are different kinds of patch. We should be able to find one your child can wear comfortably or other methods of treatment may be considered. Please ask the orthoptist.
## APPENDIX

### Abbreviation used by the Eye Clinic Staff.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEO</strong></td>
<td>Both eyes open</td>
</tr>
<tr>
<td><strong>BSV</strong></td>
<td>Binocular single vision</td>
</tr>
<tr>
<td><strong>E.E</strong></td>
<td>Either eye</td>
</tr>
<tr>
<td><strong>H&amp;T’s / 100\1000</strong></td>
<td>Hundred and thousand cake decorations</td>
</tr>
<tr>
<td><strong>C.C</strong></td>
<td>Cardiff Cards</td>
</tr>
<tr>
<td><strong>Kays 3M</strong></td>
<td>Kays picture test at 3 metres</td>
</tr>
<tr>
<td><strong>Kays</strong></td>
<td>Kays picture test at 6 metres</td>
</tr>
<tr>
<td><strong>S.G</strong></td>
<td>Sheridan Gardiner singles vision test</td>
</tr>
<tr>
<td><strong>S.G + Sn</strong></td>
<td>Sheridan Gardiner with Snellen test</td>
</tr>
<tr>
<td><strong>Sn</strong></td>
<td>Snellen test</td>
</tr>
<tr>
<td><strong>c</strong></td>
<td>with</td>
</tr>
<tr>
<td><strong>s</strong></td>
<td>without</td>
</tr>
<tr>
<td><strong>Gls</strong></td>
<td>Glasses</td>
</tr>
<tr>
<td><strong>CT</strong></td>
<td>Cover test</td>
</tr>
<tr>
<td><strong>OM</strong></td>
<td>Ocular movements</td>
</tr>
<tr>
<td><strong>Conv</strong></td>
<td>Convergence</td>
</tr>
<tr>
<td><strong>VA</strong></td>
<td>Visual Acuity</td>
</tr>
<tr>
<td><strong>6/?</strong></td>
<td>Vision tested at 6 metres</td>
</tr>
<tr>
<td><strong>3/?</strong></td>
<td>Vision tested at 3 metres</td>
</tr>
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REFERENCES


