



TRAINING MANUAL AND OPERATIONAL PROTOCOLS: VISION SURVEILLANCE FOR HEALTH VISITORS

Produced regionally by Orthoptists in consultation
with Community Nursing and Education Providers



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1. INTRODUCTION

This document, *0-4 Year Vision Surveillance for Health Visitors*, has been written to support Health Visitors in the identification of risk of visual problems in childhood and to provide a referral pathway when concerns are identified. This document adheres to the recommendations of the **National Screening Committee 2019**¹, **Health for All Children, Fifth Edition**² (Emond, 2019), and the **Healthy Child, Healthy Future** framework³ (2010). These require vision screening at birth and 4/5 years (P1 Health Appraisal) and ongoing vision surveillance by Health Visitors from 0-4 years, as set out in detail in these guidelines.

Early identification of visual problems and ophthalmic disorders is recognised as essential, as it not only ensures appropriate treatment during the critical period of visual maturation allowing optimal management of affected children, but provides families with support and management advice⁴.

Amblyopia, strabismus and significant refractive error are the most prevalent visual problems of childhood and occur with predictable frequency in around 10% of children. There is clinical evidence that children with these conditions benefit from early detection to optimise the potential of a successful treatment outcome. These guidelines will help ensure delivery of an Orthoptic-led vision screening and monitoring programme for all children in Northern Ireland.

This guidance also forms the basis of vision surveillance training for Health Visitors (delivered as part of their initial training within the University of Ulster Specialist Community Public Health Nursing course), who will engage the professional support of Regional Orthoptics services to ensure all training is Orthoptic-led. Staff should attend mandatory updates on a three-yearly basis which will be organised locally within Trusts. Additional one-to-one practical support can be accessed through the Line Manager and local Orthoptic Department, and Health Visitors are offered the opportunity to enhance their experience by attending an Orthoptic clinic.

This document will be reviewed every three years.

¹ <https://legacyscreening.phe.org.uk/vision-child>

² Emond, A (ed.), 2019, Health for All Children 5th Edition, RCPCH

³ [Department of Health, Healthy Child Healthy Future, 2010](#)

⁴ Rahi, J., 2017,

[Advice on Commissioning of Ophthalmic Services for Children Visual Impairment, Eye Conditions and Commissioning](https://www.rcophth.ac.uk), available from <https://www.rcophth.ac.uk>

2. WHAT IS NORMAL VISUAL DEVELOPMENT?

Babies' vision begins to develop at birth; they spend most of their early weeks and months learning to see. When they are born, babies can see patterns of light and dark and shades of grey. New-borns can only focus 20-30cm therefore much of their vision is blurred. Visual perception comprises of 3 parts:

Light perception the most primitive of the 3, the ability to distinguish between light and dark.

Form perception the ability to distinguish the size and shape of objects.

Colour perception the ability to distinguish between different colours.

Visual development occurs from birth to approximately 7/8 years of age, and so early detection of visual problems is essential if treatment is to be successful.

Table 1: Stages of Normal Vision Development

AGE	DEVELOPMENT
Birth- 8 weeks	<ul style="list-style-type: none"> <input type="checkbox"/> Stares at surroundings when awake <input type="checkbox"/> Momentarily hold gaze on bright light or bright object <input type="checkbox"/> Blinks at camera flash <input type="checkbox"/> One eye may be seen to turn at times
2-4 months	<ul style="list-style-type: none"> <input type="checkbox"/> Eyes begin to move more with less head movement <input type="checkbox"/> Eyes begin to follow moving objects or people <input type="checkbox"/> Watches parent's face when being talked to <input type="checkbox"/> Watches own hands
7 months	<ul style="list-style-type: none"> <input type="checkbox"/> Now looking for and watching more distant objects <input type="checkbox"/> Both eyes may turn inwards when inspecting hands or toy (this is the normal convergence reflex) <input type="checkbox"/> Watches activities around him/her for longer periods of time <input type="checkbox"/> Looks for toys he/she drops
9-12 months	<ul style="list-style-type: none"> <input type="checkbox"/> Visually inspects toys he/she can hold <input type="checkbox"/> Crawls to favourite toy when seen <input type="checkbox"/> Scans eyes around room to see what is happening <input type="checkbox"/> Visually responds to smiles and the voice of others <input type="checkbox"/> More visual interest in objects and people
12-18 months	<ul style="list-style-type: none"> <input type="checkbox"/> Visually interested in simple pictures <input type="checkbox"/> Often holds objects very close to eyes to inspect <input type="checkbox"/> Points to and identifies pictures in books by using words 'look' and 'see'
2-4 years	<ul style="list-style-type: none"> <input type="checkbox"/> Children's vision continues to develop throughout preschool years. As toddlers it is important for them to continue development of hand/eye coordination. <input type="checkbox"/> Reading to children, stacking building blocks, rolling a ball back, colouring, drawing, cutting and assembling jigsaws all help to improve these important skills.

TABLE 2: Visual Development - Normal Values

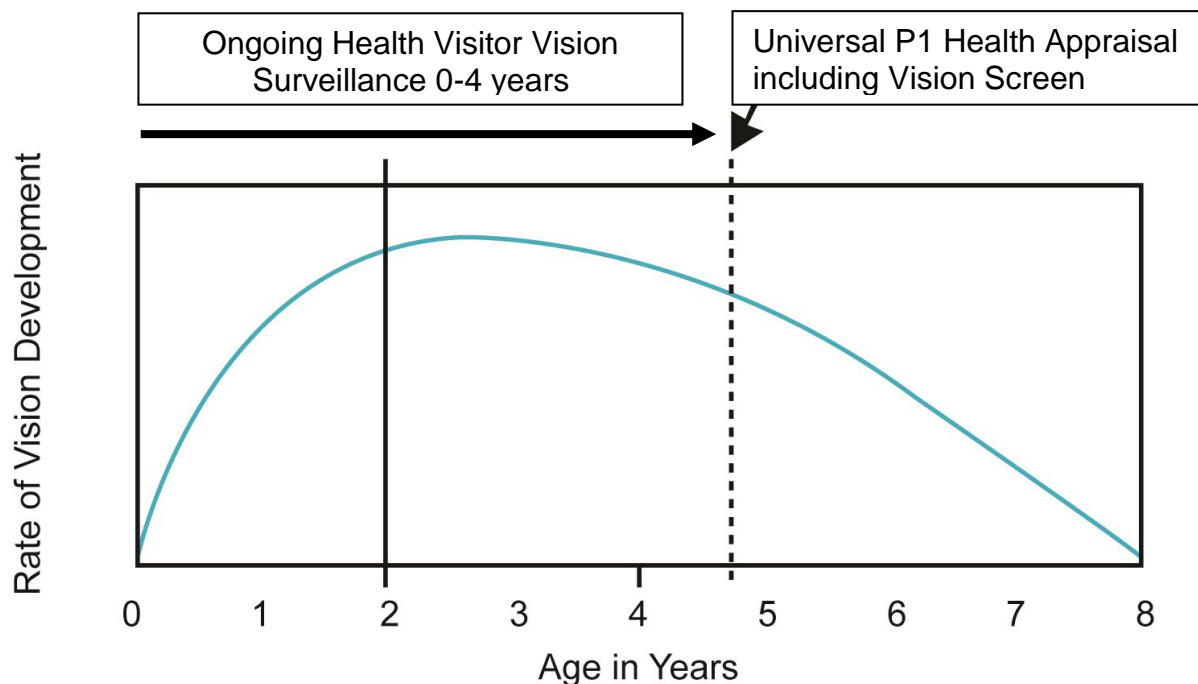
+	Normal visual development
+/-	May respond to this stimulus

BEHAVIOUR

AGE

	Neo	6/52	3/12	4/12	5/12	6/12	9/12	12/12
Blink to Flash	+	+	+	+	+	+	+	+
Turn to diffuse light	+	+	+	+	+	+	+	+
Fix & focus near face	+/-	+	+	+	+	+	+	+
Watch adult @ 0.75m	+/-	+	+	+	+	+	+	+
Fix & focus 6cm ball		+/-	+	+	+	+	+	+
Watch Adult @ 1.5m		+/-	+/-	+	+	+	+	+
Converges to 6cm ball			+/-	+	+	+	+	+
Fixes 2.5cm brick @ 1/3 m				+/-	+	+	+	+
Blink to threat				+/-	+	+	+	+
Watch adult @ > 3m					+/-	+	+	+
Fixates 1cm object @ 1/3m e. g. sweet					+/-	+	+	+
Fixates 0.125cm object @1/3m e.g. sweet						+/-	+	+

Graph 1: CRITICAL PERIOD OF VISUAL DEVELOPMENT



VISION SCREENING FOR NEWBORNS

All newborn babies, irrespective of gestational age, have their eyes examined as part of the newborn physical examination carried out by maternity health care staff within 72 hours of birth, and prior to discharge from the hospital postnatal ward or Neonatal Intensive Care Unit. Their eyes are examined again during the second physical examination offered at 6-8 weeks and carried out by the GP. These examinations comprise of careful inspection of the eye and test the 'red reflex' to detect cataract, congenital ocular malformation and retinoblastoma⁵.

In the case of babies born preterm, the 'Neonatal Network NI (NNNI) - Regional Pathway for Retinopathy of Prematurity Screening' (February 2019) is followed for all preterm babies and treatment planned if required.

Retinopathy of Prematurity (ROP) is a potentially sight-threatening condition which affects a proportion of preterm babies and very low birth-weight babies. Early detection and treatment can prevent vision loss, therefore ROP screening is carried out for every infant born

- less than 32 weeks gestational age (i.e. up to 31 weeks and 6 days), or
- less than 1501 grams birth weight.

Timing of the first ROP screen will depend on the gestational age of the baby. For example, for babies born before 27 weeks gestational age (up to 26 weeks and 6 days), the first ROP screening examination should be undertaken at 30 to 31 weeks

⁵ Emond, Health for All Children fifth edition, page 252

postmenstrual age, i.e. screen babies born before 27 weeks at 30-31 weeks corrected gestational age.

For babies born between 27-32 weeks gestational age (i.e. up to 31 weeks and 6 days), the first ROP screening examination should be undertaken between 4 to 5 weeks (i.e. 28-35 days) postnatal age, i.e. babies born between 27 and 32 weeks should be screened 4-5 weeks after they are born.

For babies born after 32 weeks gestational age but with birthweight less than 1501 grams, the first ROP screening examination should be undertaken between 2-3 weeks (i.e. 14-21 days) postnatal age.

Parents of preterm babies will also be made aware of the increased risk of eye problems and Health Visitor must maintain this awareness throughout the 0-4-year-old period⁶. "The increased risk of other eye problems including myopia, squint and cerebral visual impairment should also be remembered, and parents should be advised to seek medical attention should they have concerns."⁷

3. VISION SURVEILLANCE AND OPPORTUNISTIC DETECTION

Most Common disorders of vision:

- Refractive error** This is the presence of an error in the optical or 'refractive' system of the eye and leads to a blurred image being formed on the retina. Types of refractive error are:
- Hypermetropia (long-sightedness)
 - Myopia (short-sightedness)
 - Astigmatism ("rugby-ball shaped eyes")

In order to give a clear image on the retina, glasses are prescribed for full-time wear.

- Amblyopia** (Also known as lazy eye) This is the reduction of Visual Acuity (or "corrected vision" i.e. where a refractive error is corrected) which is not the result of any clinical / pathological anomaly of the visual pathway (e.g. cataract, nystagmus, etc.). Amblyopia is not relieved by correcting any refractive error (i.e. putting on glasses).

- Strabismus (squint)** The presence of a squint (otherwise known as 'strabismus') can be a cause of amblyopia because the fovea (the point on the retina where critical and best vision is achieved) is not being stimulated correctly.

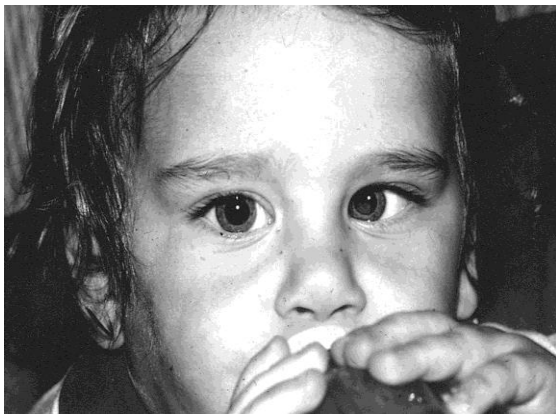
⁶ NICE Guideline NG72 (<https://www.nice.org.uk/guidance/ng72>) "Developmental follow-up of children and young people born preterm", published August 2017, recommends that ongoing follow-up surveillance and support of preterm babies includes consideration of any signs or symptoms of possible visual impairment. This is separate and in addition to the visits and ongoing surveillance provided by health visitors.

⁷ Emond (2019), Health for All Children fifth edition, page 255.

Squints are often more apparent when a child is tired or unwell. Eyes can turn in/out or up and down. A squint/ocular deviation may only be apparent when looking in a certain position, e.g. when looking up.

Any under-action, restriction, over-action or exaggerated movement of one eye in any position of gaze may be an indication of an anomaly of ocular movements and should be referred. With certain types of squint the eyelid action may be affected.

Health Visitors will follow this guidance along with the Vision Surveillance Tool (see page 11) in their observation of a child's eyes and vision and refer according to the protocol outlined below.



WHAT DOES ONGOING VISION SURVEILLANCE CONSIST OF?

There are three elements to ongoing vision surveillance

- monitoring of risk factors,
- parental concern, and
- professional observation of child

All three should be taken into consideration during every health visiting contact.

Monitoring of Risk Factors

The table below summarises the main risk factors that Health Visitors should monitor at every visit, and action to be taken. Health Visitors should ask about family history of visual problems – specifically strabismus, amblyopia, high refractive error, and other ‘inherited’ eye conditions. When no risk factors are recorded, the Health Visitor should advise parents of the checklist on page 33 of their PCHR (shown in fig. 1 below) which they can use as a reference, and inform parents of who they should contact if they have any future concerns about their child’s vision.

RISK FACTOR	ACTION
PREMATURITY: Under 32 weeks gestation and/or low birth weight ($\leq 1500\text{g}$) - VLBW at risk of retinopathy of prematurity.	Refer to Orthoptist if not attending Paediatric Ophthalmologist.
FAMILY HISTORY: 1 st degree relative with inheritable eye disorder, e.g. congenital glaucoma, retinoblastoma, micro/anophthalmia, congenital cataract or coloboma.	Refer direct to Paediatric Ophthalmologist (via GP).
FAMILY HISTORY: 1 st degree relative with potentially heritable eye disorder of amblyopia, squint, nystagmus or high refractive error (i.e. wearing glasses preschool and primary school).	Refer if parental or professional concerns. If no concerns, continue opportunistic surveillance at each contact and refer if required.
DYSMORPHIC SYNDROME, NEURODEVELOPMENTAL DISORDERS, learning disability, developmental delay, Cerebral Palsy & Downs Syndrome	Should all be referred for Orthoptist assessment by 2 years of age.
SENSORINEURAL HEARING IMPAIRMENT	Refer to Orthoptist if not already attending.

Parental Concern

Parental concern that a baby has poor vision is usually never ill-founded and is a very powerful indicator. Lack of concern, however, does not necessarily preclude a severe visual problem. It may reflect parents’ low expectation of vision in early infancy or, more likely, that a parent may be reluctant to voice their concerns. During their professional observation and surveillance as described above, Health Visitors should ask parents about their impressions of visual interest, eye-to-eye contact, smiling and other tasks e.g. blink reflex, child turning to look at light, reaching for object, visual threat, in addition to their own professional observations. Sample questions might be “does the baby look at you, follow moving objects with their eyes, or focus on smaller objects?”

If parents express concern about their child’s vision this should be taken into consideration as part of the Health Visitor’s overall surveillance and the child should

be referred on as per the referral pathway in the Vision Surveillance Tool on page 11 below. Parental concern is considered a primary indicator and Orthoptic services will always accept a referral on this basis, including if this is communicated to the Health Visitor outside of a face-to-face contact or appointment.

Parents should in any case be directed to the checklist on page 33 of their PCHR (shown in Fig. 1 below) which they can use as a reference, and advised that an HSC-funded eye examination (i.e. not for squints) is also available in any high street opticians for children age 3 and up.



Figure 1: Page 33 of the Personal Child Health Record – ‘Can baby see?’

Health Visitor Professional Surveillance

There are many ways in which potential vision impairment may manifest.

‘During all contacts Health Visitors must be alert to the various signs and symptoms that may alert them or parents that there may be a vision problem such as abnormal appearance of the eyes, roving eye movements, poor fixation and visual following’ (Emond, 2019, page 254).

Surveillance may therefore be quite brief, in addition to enquiring whether parents have any concerns about a child’s vision and whether they have noticed a squint, observing how a child manipulates small toys during the course of the review and so on is likely to be sufficient to assess a child’s visual development in most cases.

Visually-directed reaching

With normal visual development, an infant develops visually-directed reaching between 2 and 5 months of age, when s/he will begin to reach out to touch or grasp a visually interesting object. This action develops even when visual acuity is low and therefore does not imply good vision. However, careful observation of the behaviour of a poorly sighted child reveals that s/he moves his/her hand in an exploratory fashion rather than directly to the object.

This ongoing vision surveillance should be carried out during every routine health visit. During the last visit, the Health Visitor should inform parents to contact their GP or discuss with the school nurse if they have any concerns in future about their child's vision, as well as free HSC-funded eye examinations available in high street opticians from age 3 and up.

VISION SURVEILLANCE TOOL

The Vision Surveillance Tool shown below can act as a checklist for all Health Visitor contacts to go through with parents at all contacts, especially the 2-year review.

All questions to be asked about every child	If yes...
Does the mother, father or siblings have a squint, i.e. turn and/or wore glasses and/or a patch for 'lazy eye' under the age of 8 years?	Ask next question + professional observation
Do you suspect your child has difficulty seeing?	Observe and refer to orthoptic service
Do you ever see a 'turn' in one of your child's eyes, especially when tired?	Observe and refer to orthoptic service
Was your child premature or a low birth weight? <32/52 or ≤1500g (3lb 5oz)	Refer to orthoptic service if not attending Paediatric Ophthalmologist.
Does your child have Downs Syndrome, Cerebral Palsy, sensorineural hearing impairment, or are they being investigated for neuro-developmental disorder?	Refer to Orthoptic service if not already attending Paediatric Ophthalmology

Please note referrals for children with nystagmus, pupil anomalies, ptosis, cataract or non-seeing babies should be directed to paediatric ophthalmology via the GP. These should not be referred to orthoptics.

VISION SURVEILLANCE TIMELINE 0-4 YEARS

The table below outlines the routine eye assessments that are carried out from birth to 5 years of age. See Appendix 1 for the roles and responsibilities of the different eye health professionals involved.

Time of contact	Person responsible and assessment completed	Referral route
72 hours	Maternity Health Care Staff: Vision screening protocol: eye assessment including red reflex. Maternity Health Care Staff record ophthalmology risk factors.	Referral made to Paediatric Ophthalmology if required.
10-14 days	Health Visitor first visit: No formal eye assessment carried out – ongoing vision surveillance as part of routine health visiting contacts. Update any risk factors as per guidelines above.	Refer to Paediatric Ophthalmology for red reflex if required.
8 weeks	GP visit - GP eye assessment (including red reflex)	Referral made to Paediatric Ophthalmology if required.
0– 4 years	Health Visitor: Routine health visiting contacts from 0-4 years, including 2-year review and 3-year+ review in preschool setting. No formal eye assessment is carried out, but ongoing vision surveillance must take place during all contacts. Health Visitor to record familial risk factors as described in Vision Surveillance Tool above i.e. patch, glasses or squint present in a first-degree relative when under the age of 8. Refer if indicated. Health Visitor to record medical risk factors as described in Vision Surveillance Tool above. Refer if indicated – information from professional observation or parental concerns will aid prioritisation of referral. If parent or professional observes a squint or is concerned that vision is reduced, then a referral should be made. Referral should detail professional observations, but no tests are required to be carried out.	Refer to Orthoptic Service as required.
P1 Health Appraisal	School Nurse: Vision screening completed as part of universal P1 Health Appraisal programme in accordance with NSC recommendations.	Referral made to Orthoptics Service if required.

1. REFERRAL PROTOCOL

All pre-school children who have a suspected vision problem and/or an observed squint should be referred as specified in Section 3.

Parental information about referral

Upon appropriate completion of PCHR, the Health Visitor should advise parents of intention to refer to the Orthoptic Service and the reason for this. Appropriate information should be provided to parents regarding the potential risks of not diagnosing or treating early, and the potential consequences if they decline the referral or do not attend the appointment. If parents indicate a preference for a professional known to them (e.g. local optician), explain the different roles of professionals and referral route for different conditions. Obtain informed consent (this can be verbal) and complete the appropriate referral form in accordance with local Trust procedures.

Essential information required on referral form

In order to facilitate the processing of referrals **it is essential to provide all the relevant information** on the appropriate referral form. Inappropriate and inadequate referrals will be returned to the referral source in line with Integrated Elective Access Protocols (IEAP) guidelines.

Reason for Referral

Please complete referral forms accurately. This information is used for triage and it is most important to clearly state the reason for referral. It is not acceptable to just write “? Squint” or “suspected reduced/poor vision”.

Orthoptists need to know:

- Is there a significant family history? If so, what is it?
- What are the professional concerns? Please give details.
- What are the parental concerns – reduced vision **and/or** the presence of a squint? Please give details
- Any other observations
- Prematurity or low birth weight <32/52w or ≤1500g
- If child has Downs Syndrome, Cerebral Palsy, sensorineural hearing impairment, or is being investigated for neurodevelopmental disorder
- **Please indicate if you consider this is a priority referral**

In addition, please ensure that all of the details listed below are completed:

Parent/carer details:	Patient details:-	Referrer details:-
Name: Address and postcode: Contact no.: Interpreter Required: Language:	Name: DOB: H&C no.: Known to Social Services On Child Protection Register Threshold of need General Health	Name of HV: HV Address: HV Contact no.: GP address: GP contact no.: Date:
Providing the above information will ensure that all referrals will be allocated the appropriate clinical priority and prompt access to the service, especially in cases of possible serious visual impairment⁸.		

⁸ Emond (2019), Health for All Children fifth edition, page 254

What Happens After Referral?

- The Orthoptist triages the referral based on the information provided by the referrer.
- The GP and Health Visitor or referrer will be informed of the outcome of initial assessment and proposed treatment.
- When treatment is complete or the preschool child has met the discharge criteria a discharge summary will be sent to the GP.
- IEAP guidelines will be adhered to for patients who “Do not attend” (DNA)
- Please inform the Orthoptic service if there has been a change of address or of any other factors which may influence attendance.
- In relation to safeguarding and child protection, each profession must follow the Safeguarding Board of Northern Ireland’s (SBNI) Policies and Procedures⁹ as well as their own respective professional protocols at all times. Additional information is available via the SBNI website¹⁰.

Protocol for Discharge

Patients will be discharged from the Orthoptic Department when they meet one or more of the following criteria:

- When maximum potential visual acuity is obtained and maintained over an acceptable period.
- When an assessment of vision and binocular function has been obtained at a satisfactory level.
- Any potential binocularity has been achieved and maximized.
- Acceptable cosmetic appearance.
- Persistent non-compliance with treatment.
- Failure to attend appointments – in accordance with IEAP
- Self-discharge - if a parent/patient declines treatment or does not wish to attend.
- Patient moved out of the area.

Following discharge, a new episode of care may be initiated should any further problems arise by contacting the GP, Optometrist, Health Visitor or Orthoptic department.

⁹ Available at: <http://www.proceduresonline.com/sbni/>

¹⁰ <https://www.safeguardingni.org>
<https://www.safeguardingni.org/aces/home>
<https://www.safeguardingni.org/neglect>

Appendix 1 – roles and responsibilities of eye health professionals

Ophthalmologist

Ophthalmologists are medically trained doctors who commonly act as both physician and surgeon. They examine, diagnose and treat diseases and injuries in and around the eye. Ophthalmologists may specialise in certain areas e.g. Retinal / Glaucoma / Cataract / Paediatrics / Neuro-ophthalmology. Babies can be referred to ophthalmology by maternity healthcare staff or GP following eye examination after birth, and by health visitors if red reflex examination has not been completed at first Health Visitor contact.

Orthoptist

Orthoptists are part of the Allied Health Professions family (AHPs) and are registered with the Health and Care Professions Council. Orthoptists assess, diagnose and treat vision and eye movement problems such as squint, amblyopia/lazy eye and double vision, across all age groups. Orthoptists are autonomous practitioners and experts in interpreting the way the brain and the eyes work together in processing and understanding the world. Orthoptists have a unique skill in examining children and adults who have difficulty with communication. Health visitors and GPs can refer to Orthoptics if concerns or risk factors are noted in relation to a child's vision as per guidelines.

Optometrist

Optometrists examine eyes, give advice on visual problems and prescribe and fit glasses or contact lenses. They are usually employed in the high street but may also work in the hospital eye service alongside Ophthalmologists and Orthoptists. Some have an enhanced role in caring for patients with stable chronic eye conditions. Optometrists can refer to Ophthalmology and Orthoptic services and to GPs.

Ophthalmic nurse Specialist

Responsibilities may include evaluating, diagnosing, treating, and discharging patients with ocular conditions and diseases / disorders. They also manage patients referred from general practitioners and primary healthcare units, perform initial screening, monitor disease progression, and assist with early treatment of chronic ocular conditions (e.g., glaucoma, diabetic retinopathy, and dry eye).

Joint Working

As part of the Eye team Orthoptists work with Ophthalmologists to monitor vision levels, measure squint size and record eye movement problems. This helps inform treatment plans, indicate where deterioration may require further investigation and provide information for surgery if needed. Joint refraction clinics see Orthoptists and Optometrists working together to enhance care for children who require glasses for treatment of amblyopia or specialised glasses such as bifocals lenses to improve their squint or 3D vision. Orthoptists also work within condition specific teams to monitor and treat eye problems such as Glaucoma, Cataract and Macular degeneration. These are often multidisciplinary clinics alongside Specialist Nurses, Optometrists and Ophthalmologists.

Appendix 1 – Glossary of Ophthalmic Terms and Conditions

Accommodation	The ability of the eye to focus on near objects. The crystalline lens changes shape to focus the rays of light on the retina.
Alternating strabismus/squint	A squint in which fixation swaps so that each eye is used for fixation, indicating equal visual acuity
Amblyopia	Reduced vision in one or both eyes which may occur due to <ul style="list-style-type: none">• Squint (strabismus)• A difference in the lens strength required by each eye (anisometropia)• The need for strong glasses in each eye• Ocular Pathology
Anisometropia	A difference in the strength of lens prescription between the two eyes.
Anophthalmia	A condition that means one or both eyes didn't form during the early stages of pregnancy.
Astigmatism	This is a type of refractive error which results in distorted/blurred vision due to rays of light entering the eye through an irregularly shaped cornea e.g. shaped more like a rugby ball than a football.
Binocular Functions	The ability of the two eyes to co-ordinate together.
Binocular Single Vision (BSV)	When the eyes are straight and used together as a pair to achieve 3D vision.
Brown's Syndrome	An ocular muscle anomaly where the affected eye does not move up and in nasally to its fullest extent. It can be congenital or acquired in one or both eyes.
BSV – Binocular single Vision	See above

Coloboma	A condition where there is a failure of the closure of the optic fissure during foetal development leaving a gap in some or all of the structures of the eye. Usually but not always apparent because the pupil is misshapen e.g. keyhole-shaped. It can occur in different severities.
Compensatory/Abnormal Head Posture	When the head is tilted/turned in a certain direction or the chin is raised up or down in order to compensate for an ocular problem.
Congenital Glaucoma	In congenital glaucoma the eye pressure is higher than normal. This is caused by abnormal drainage of the fluid in the eye. Congenital glaucoma refers to glaucoma which can be either present at birth or appear any time during the first three or four years of life.
Convergence	The ability to pull both eyes inwards maintaining single vision to 6cm/tip of nose.
Convergence Weakness/Insufficiency	The inability to maintain adequate binocular convergence to 6cm. This can cause headaches, blurred or double vision.
Cover Test	This is performed to elicit the presence of manifest squint or latent deviation. The response of each eye is observed as they are covered and uncovered in turn.
Diplopia	Double vision
Duane's Retraction Syndrome	A congenital condition where there is restricted movement of one or both eyes on side gaze.
Eccentric Fixation	A unocular condition in which a point other than The fovea is used for fixation. Vision is usually poor.
Epicanthus	Skin folds at the inner corner of the eyes.

Esophoria	This is a latent convergent deviation. A slight esophoria is a normal condition.
Esotropia	This is a manifest convergent squint in which One eye turns inwards.
Exophoria	This is a latent divergent deviation. A slight exophoria is a normal condition.
Exotropia	This is a manifest divergent squint in which one Eye turns outwards.
Hyper/Hypophoria	This is a latent vertical deviation in which one Eye may turn or appear to 'drift' upwards / downwards.
Hyper/Hypotropia	This is a manifest vertical squint in which one eye turns upwards/downwards.
Hypermetropia/Hyperopia	This is a type of refractive error also known as long-sightedness. Rays of light entering the eye come to a focus behind the retina. This is because the axial length of the eye is shorter than a normal (emmetropic) eye. It can give rise to problems seeing objects clearly for near, but in moderate amounts may also affect the distance vision. It is most commonly associated with convergent squints.
Latent Nystagmus	When one eye is covered an involuntary rhythmic shaking/ oscillation of the eyes occurs. Vision is better with both eyes open.
Manifest Nystagmus	An involuntary rhythmic shaking/ oscillation of The eyes, which can be seen with both eyes open. Vision is usually reduced to varying degrees. Vision is usually better both eyes open.
Microphthalmia	A condition that means the eyes started to form during pregnancy but for some reason stopped, leaving the infant with small eyes.
Myopia	This is a type of refractive error also known as short-sightedness. Rays of light entering the eye come to focus in front of the retina. This is because the axial length of the eye is longer

than a normal (emmetropic) eye. It gives rise to problems seeing clearly in the distance.

Nystagmus

An involuntary rhythmic shaking or oscillation of the eyes. It can be manifest or latent see above. It can be congenital or acquired.

Null Point/ Zone

The point at which nystagmus/ shaking of the eyes is at a minimum and the vision at a maximum. This is usually achieved by turning the head.

Occlusion

This is a treatment for amblyopia (reduced vision). A patch is placed over the good eye in order to stimulate the vision in the lazy eye. NB: patching does not eliminate a squint or replace the need for glasses.

Pseudosquint/strabismus

This is the term used to describe the appearance of squint (in the absence of a manifest squint) in babies and young children. Most often caused by epicanthic folds, a broad bridge of the nose or facial symmetry.

Ptosis

This is a drooping of the upper eyelid which may be partial or complete (totally obscuring the pupil). It may be unilateral or bilateral.

Refractive Error

An imbalance in the optical system which interferes with the way light rays are focused within the eye. This includes hypermetropia, myopia and astigmatism. It is said to be high when strong spectacles are required, these will usually have been worn from a young age i.e. preschool and primary school.

Refraction

Subjective refraction requires a patient to cooperate and respond to questions posed in the assessment of refractive error; patients would report on how changes in lens power impact on their level of visual acuity.

Objective refraction is the assessment of refractive error without input from the patient. Objective refraction is principally undertaken using retinoscopy to determine refractive error

independently of patient input. This test determines if glasses are required and the strength of lenses required to correct the refractive error. The test may reveal hypermetropia, myopia and/or astigmatism. To ensure the test is accurate drops are usually instilled which temporarily inhibit focusing and enlarge the pupils which also permits examination of the back of the eye. These drops are called 'cycloplegic' drops.

Retinoblastoma

Is a childhood cancerous tumour of one or both eyes. The common signs are a white "glow" or "glint" in the pupil of one or both eyes, white pupil in colour photographs or a squint.

Retinopathy of Prematurity (ROP)

It affects prematurely born babies. It consists of abnormal retinal vessels that grow mostly in an area where normal vessels have not yet grown in the retina.

Stereoacuity

The measure of binocular stereopsis. Recorded in second of arc.

Stereopsis

The ability to perceive the relative depth of objects ('3D' vision).

Strabismus /Squint

This is a manifest deviation in which one eye May turn inward, outward, upward or downwards

Appendix 2 – Contact information for Trust Orthoptic Services

Belfast Health and Social Care Trust

Orthoptist	Contact number	Clinic Times	How to Refer
Dr P Anketell	028 9615 3957	Monday - Friday	Please place an order on EPIC for in trust. For primary care refer by CCG Or by paper send a letter to the Central Booking Office, Royal Victoria Hospital Belfast, BT12 6BA
Mrs G Lamont			
Miss C McAtamney			
Miss K Harpur			
Miss S Kirk			
Miss B Thompson			
Miss K Lavery			
Miss Á Gribbin			
Miss A Owens			

Location of Orthoptic Services in BHSCT

Royal Victoria Hospital

Orthoptic Services
Grosvenor Road
Belfast, BT12 6BA

Tel: (028) 9615 3957

Mater Hospital

45-51 Crumlin Road
Belfast, BT14 6AB

Knockbreda Health and Wellbeing Centre

110 Saintfield Road
Belfast
BT8 6GR

Beech Hall Health and Wellbeing Centre

21 Andersonstown Road ,
Belfast
BT11 9AF

Carlisle Wellbeing and Treatment Centre

40 Antrim Road
Belfast
BT15 2AX

The Arches

1 Westminster Avenue North

Belfast
BT4 1NS

Any enquiries regarding the service can be made to:
Pamela Anketell, Orthoptic Service Manager, Belfast Trust

South Eastern Health and Social Care Trust

Clinic locations

Ulster Hospital, Dundonald
Downe Hospital, Downpatrick
Bangor Community Hospital
Lisburn Primary Care Centre
Stewartstown Road Health Centre, Dunmurray

All referrals or queries should be sent via Encompass (direct order / via CCG for primary care) or can be emailed to:

Orthoptics@setrust.hscni.net

Any enquiries regarding the service can be made to:

Mrs Jennifer Patterson, Lead Professional for Orthoptics
Orthoptic Managers office, First Floor, Rear Spine,
Ulster Hospital, Upper Newtownards Road,
Dundonald

BT16 1RH

Jennifer.patterson@setrust.hscni.net

Tel: (028) 9048 4511 Ext 21649

Southern Health and Social Care Trust

Clinics	Contact Telephone no	How to Refer
Armagh Community Hospital	028 3756 2477 028 3756 2478	For primary care refer by CCG Written referral directly to: Orthoptic Office Ground Floor Finance Building Lurgan Hospital 100 Sloan St Lurgan Craigavon BT63 8NX
Banbridge Polyclinic		
John Mitchel Place Newry		
Thomas Street Clinic, Dungannon		
Lurgan Health & Social Services Centre		
Portadown Health and Care Centre		

For all clinic/patient enquiries, please contact the Orthoptic Office Tel 028 3756 2477/78

Any enquiries regarding the service can be made to:

Matthew Groogan
Acting Head of Orthoptic Service,
Orthoptic Office
Ground Floor Finance Building
Lurgan Hospital
100 Sloan St
Lurgan
Craigavon BT66 3NX

Western Health and Social Care Trust

Altnagelvin Hospital

Glenshane Road
Londonderry, BT47 6SB

Tel: (028) 7134 5171 ext 215154

Clinician	Contact number	Clinic Times	How to Refer
Emer O'Neill	028 71611424	Monday - Friday	Directly
Lisa Wallace			
David Wright			
Joshua Byrne			
Hannah Kelso			

Tyrone County Hospital

Hospital Road
Omagh, BT79 0AP

Tel: (028) 8283 3100 ext. 232137

Clinician	Contact number	Clinic Times	How to Refer
Audrey McBride	028 8283 3176	Monday - Friday	Directly
Emer O'Neill			

South West Acute Hospital

124 Irvinestown Road
Enniskillen
Co Fermanagh, BT74 6DN

Tel: (028) 6638 2174

Clinician	Contact number	Clinic Times	How to Refer
Ann-Marie Peace	028 6638 2174	Monday - Friday	Directly
Cathy Donnelly			

Roe Valley Hospital

Irish Green Street
Limavady, BT49 9EU

Tel: (028) 7776 1120

Clinician	Contact number	Clinic Times	How to Refer
Joshua Byrne/ Hannah Kelso	028 71611424	Monday	Forward referral to Altnagelvin Hospital

Shantallow Health Centre

64 Racecourse Road
Londonderry, BT48 8DS

Tel: (028) 7135 3344

Clinician	Contact number	Clinic Times	How to Refer
Emer O'Neill	028 71611424	1 st & 3 rd Thursday pm	Forward referral to Altnagelvin Hospital

Strabane Health Centre

Upper Main Street
Strabane, BT82 8AR

Tel: (028) 7138 4100

Clinician	Contact number	Clinic Times	How to Refer
Lisa Wallace	028 71611424	Wednesday 1 st Friday	Forward referral to Altnagelvin Hospital

Castledearg Health Clinic

33a Main Street
Castledearg, BT81 7AS

Tel: (028) 8167 1406

Clinician	Contact number	Clinic Times	How to Refer
Audrey McBride	028 8283 3176	1 st , 3 rd & 5 th Wednesday	Forward referral to Tyrone County Hospital

Belleek Health Centre

Belleek Health Centre
Rathmore Clinic
Belleek, BT93 3FY

Tel: (028) 6865 8382

Clinician	Contact number	Clinic Times	How to Refer
Anmarie Peace	028 6638 2174	1 st Tuesday	Forward referral to South West Acute Hospital

Any enquiries relating to the service may be made to:
Mr Patrick McCance, Orthoptic Services Manager,
Orthoptic Department, Altnagelvin Hospital, Londonderry
Tel: 028 71611424

Northern Health and Social Care Trust

Clinics Available	Contact Telephone no	How to Refer
Antrim Area Hospital	028 25635335	<p>For primary care refer by CCG</p> <p>Written referrals sent directly to: Orthoptic Admin Office, 1st Floor Rear Spine, Braid Valley site, Cushendall Road, Ballymena. BT43 6HL</p>
Ballymena Health & Care Centre		
Causeway Hospital, Coleraine		
Cookstown Community Care Centre		
Mid Ulster Hospital, Magherafelt		
Moyle Hospital, Larne		
Whiteabbey Hospital		

The Admin office is staffed Mon-Fri and can assist with enquiries regarding waiting lists. Orthoptists are present 2 mornings per week and Admin staff can direct enquiries to the appropriate clinician. It is likely that an Orthoptist will need the patient notes to deal with clinical enquiries.

Any enquiries relating to the service may be made to:

Sarah Spence, Head of Service for Orthoptics & ICATS Ophthalmology
 Pinewood Offices, 101 Fry's Road, Ballymena, BT43 7EN
 Tel: 07788379095

