

CLINICAL COUNCIL

FOR EYE HEALTH COMMISSIONING

POST-VISION SCREENING: PROPOSALS AND RECOMMENDATIONS

A REPORT FROM THE CCEHC VISION SCREENING
WORKING GROUP

DATE OF APPROVAL: MARCH 2022

POST-VISION SCREENING: PROPOSALS AND RECOMMENDATIONS

SUMMARY

Child vision screening is recommended by the National Screening Committee¹. The service delivering the screening is commissioned locally, currently at Local Authority (LA) and in some cases at Clinical Commissioning Group (CCG) level^a, supported by a service specification and parent information materials developed by Public Health England (PHE)^{2,3}. For children who screen positive (i.e. found to have reduced vision at the screening assessment), there is no consistent commissioned service or pathway to link the screening service with that of specialist diagnostic and clinical management services. Whilst a number of pathways have been developed by the sector to provide this link, there are variations in how (or even whether) these are commissioned and delivered, their outcomes and their governance arrangements.

The report from the Clinical Council for Eye Health commissioning (CCEHC) and the British and Irish Orthoptic Society (BIOS) on their 2019 FOI on Childhood Vision Screening⁴ highlighted the need for a clearly defined post-screening service for children who screen positive, and called for the CCEHC to develop and publish requirements for a post-screening service. The CCEHC established a Vision Screening Working Group (WG) in November 2020 to take this forwards as part of a wider scope of work which included provision of interim failsafe recommendations for children who may have missed their screening opportunity during the Covid-19 pandemic. These interim failsafe recommendations were published in February 2021⁵.

This report presents the deliberations and recommendations of the WG following their review of the current on post-vision screening arrangements for children who screen positive. It is based on best currently available evidence and guidance, recognition of existing arrangements, and approaches for making best use of local capacity and resources for timely service provision. It includes principles for a post-vision screening service, and proposals for high level service requirements to provide assurance of consistent and accountable service delivery. The expectation being that both existing and any new pathways for service provision developed locally should meet these service requirements.

WG Recommendations:

- I. There should be a dedicated post-vision screening service commissioned for children who screen positive following their vision screening assessment
- II. The proposed high level service requirements should inform and underpin service delivery through locally agreed pathways and governance processes, and development of locally agreed service specifications for its commissioning.

Following a consultation of its Member organisations and stakeholders, the CCEHC has approved this report and its recommendations.

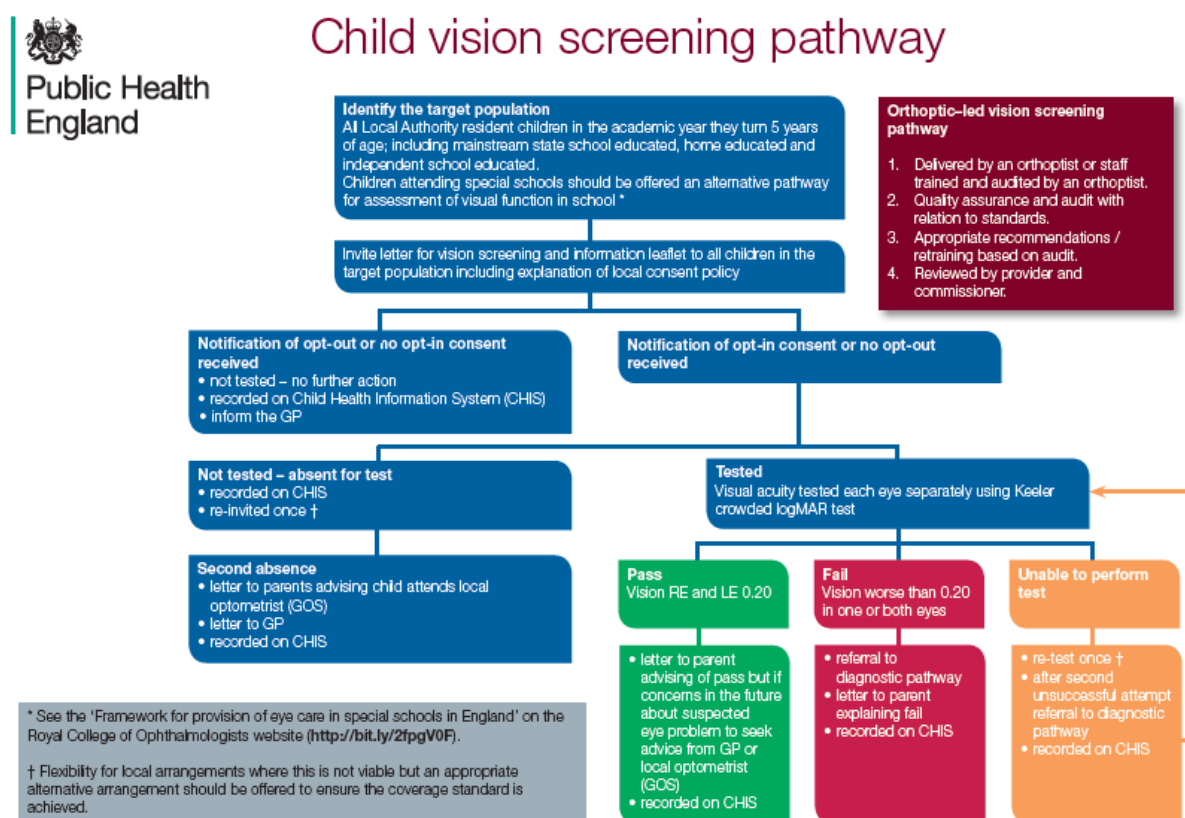
^a Responsibility for commissioning Child Vision Screening services lies with the Local Authority. However some CCGs still continue to commission this historically.

POST-VISION SCREENING SERVICE: PROPOSALS AND RECOMMENDATIONS

The Vision Screening Service

The UK National Screening Committee (NSC) recommends orthoptic-led vision screening for all 4-5 year old children to detect vision defects¹. These will chiefly be caused by strabismus, refractive error and amblyopia. Amblyopia is the main cause of preventable unioocular blindness in children, with a prevalence of 2-5%⁶. Public Health England (PHE) has developed a set of resources to support the commissioning and delivery of child vision screening including a service specification and parent information materials^{2, 3}. The content of the child vision screening pathway is illustrated in Figure 1¹. The screening assessment is a measure of visual acuity with a Keeler crowded LogMAR acuity test. The criterion for passing vision screening is achieving a visual acuity equal to or better than a score of 0.2logMAR in both eyes.

Figure 1. Child Vision Screening Pathway- England¹



https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/652699/Child_vision_screening_pathway.pdf

The report⁴ from the Clinical Council for Eye Health commissioning (CCEHC) and the British and Irish Orthoptic Society (BIOS) published in March 2020 (prior to the COVID-19 pandemic) stated that 94% of Local Authorities (LA) conduct some kind of vision screening service, with 47% fully compliant with PHE service specifications. It highlighted the need for a consistent post-screening service for children who screen positive.

What a post-vision screening service and pathway needs to do:

- Validate status of all children who screen positive to sift out the false positives (those with normal vision) and discharge out of system
- Commence appropriate investigation and treatment for all children who are confirmed screen positive, and/or facilitate further onward referral as necessary.
- Detect ocular pathology, i.e., abnormal fundus findings/strabismus and signpost to specialist hospital services. Apart from strabismus, childhood ocular pathology is uncommon, so this will be a 'sentinel' type of event.
- If amblyopia or a vision defect is detected, provide full refractive correction based on cycloplegic refractive findings. Dispense spectacles.
- Monitor refractive adaptation
- Refer to specialist hospital services if no improvement after refractive adaptation for occlusion/penalization amblyopia treatment
- Provide data to the child health system.
- Provide data to enable audit of the pathway

Existing arrangements for screen-positive children

After screening positive at a vision screening assessment¹ (i.e. acuity worse than 0.2 logMAR in one or both eyes) there is currently no consistent pathway to link the screening service with that of diagnostic and management services (provided predominantly within Hospital Eye Services (HES)).

In the absence of any mandated/commissioned service or framework for what occurs beyond the vision screening assessment, a number of pathways have been developed by the sector along the following lines:

- A diagnostic pathway following child vision screening has been developed by the Royal College of Ophthalmologists (RCOphth) (**Appendix 1**).
- The Local Optical Committees Support Unit (LOCSU) have a post-vision screening pathway that aligns with the RCOphth diagnostic pathway that can be used by Local optical committees (LOCs) for commissioning services to utilize primary care optometry (**Appendix 2**). To date this has been commissioned by 16% of CCGs in England. A LOCSU audit of findings in 2017/18 from seven of these CCGs demonstrated that 90% of cases were handled through this pathway with 10% referred to HES. This is consistent with BIOS audit data from East Sussex NHS trust who noted 14.4% of patients were referred into HES with vision of 0.5logMAR or worse in one or both eyes after 18 weeks of refractive adaptation.
- BIOS have also developed a post-vision screening pathway (**Appendix 3**). They propose an acuity threshold for signposting into community or HES services.

BIOS collate audit data from a variety of sites on arrangements for screen-positive children. These audits are independently designed locally and have different definitions and focus, so as such cannot be pooled to provide generalizable findings, but provide some insight into local

experiences and differences in service provision that may exist. These include application of local acuity criteria with or without a further criterion for inter-ocular difference (neither of which directly align to the evidence-based criteria for screen positive children¹) for sign-posting children into HES or from the HES into community services; and indicate that the majority of screen positive children could be initially managed in the community by refraction⁷. (Please see **Appendix 4** for examples of BIOS collated audits and published audit).

Current challenges for managing screen-positive children

Across England there are wide variations of services, some of which are established local partnerships between primary, community and secondary care, but there are recognized pressures managing the significant number of children that screen positive at vision screening and require further investigation. This coupled with the fact that outcomes for the treatment of amblyopia and strabismus are better with early and prompt intervention, means that children who have a significant waiting time to be seen are at risk of permanent visual loss.

During the lockdown periods triggered by the COVID-19 pandemic, ophthalmology services had to cancel thousands of clinical appointments and surgeries, and diagnostic assessments that would have been assigned high priority for clinical review are experiencing significant delays^{8,9}. There will also be longer-term effects on waiting lists and appointments. Thus, it is timely to consider the development of a national post-vision screening pathway to ensure effective use of available healthcare resources and develop integrated solutions. Post-pandemic, it is also important to consider the streamlining of appointments that children may have, to reduce stress and anxiety for children and parents by creating unnecessary hospital attendance, to limit the number of visits which are disruptive for family life, and to limit clinical visits for infection control.

In common with most screening services, there is a 10-20% false positive rate for vision screening^{7,10,11}. The majority of children who then require treatment will need refractive correction in the form of spectacles^{7,10,11}. Spectacles are the first line of treatment for reduced vision and refractive adaption is recommended to take place for 18-22 weeks prior to commencing further treatment for amblyopia, if needed by that stage^{12,13}. Spectacles made to prescription are medical devices that are dispensed in optical practices by optometrists and dispensing opticians. The NHS sight test for children, including refraction, issuing of spectacle prescriptions and vouchers, and the dispensing of spectacles are covered by GOS (General Ophthalmic Service) funding when provided in primary care optical practices, but not when these are provided through the HES (in which case all costs for these are borne by the Trust).

The sensitivity and specificity of the screening tool is also a necessary consideration for the development of post-screening pathways. In respect to visual acuity, when conducted with experienced examiners, there is a repeatability of approximately ± 0.1 LogMAR using logMAR visual acuity charts in adults^{14,15}, with similar findings reported for the Keeler crowded logMAR chart in children with amblyopia^{15,16}. Orthoptic-led vision screening services are often undertaken by a range of screening personnel (e.g. school nurses or non-registered support staff), and the repeatability of vision acuity measures during screening processes in real-life settings is unknown, and may not reflect published findings.

Principles for an integrated post-vision screening service and pathway

The following were agreed by the WG:

1. Focus on what needs to happen at each stage of the pathway, rather than who provides care and where it is provided, based on:
 - a. Standards for clinical practice
 - b. Competencies and experience of health care professional
 - c. Outcomes of care at key steps – review and report
 - d. Governance
2. Recognise where arrangements are already in place and working - do not fix what is not broken.
3. Recognise the boundaries of the NHS sight test and GOS funding, and the supplementary arrangements needed for local pathways.
4. Acknowledge the need for providing some flexibility for adaption and application depending on local circumstances (e.g., availability of relevant workforce (capacity), estate (space)), for timely assessment (avoiding delays / long waits) as management and overall outcomes for children are time critical.

Proposed High Level Requirements for a Post-Vision Screening Service

Based on these principles, the following high level requirements are proposed to ensure consistency in quality and effectiveness of this service and to inform the specifications for its commissioning or for review of existing arrangements. The expectation being that both existing and any new pathways for service provision developed locally should meet these requirements.

i. Core requirements of a post vision screening service (i.e. following vision screening assessment)

The service should:

- Be accessible and timely, recognising patient choice and patient / parent anxiety waiting for an appointment.
- Be a specifically commissioned service with a clearly defined service specification and objectives (meeting the NHS Standard contract requirements)
- Meet the aims and objectives of the NHS Long Term Plan and NHSE/I National Eyecare Recovery and Transformation Programme
- Make optimal use of the entire clinical workforce across primary, community and secondary care. Validating findings from vision screening before referring to a specialist service to reduce the false positive rates.
- Deliver prompt access to assessment, treatment and onward referral.
- Recognise spectacle dispensing and continued support for spectacle wear and maintenance as a core part of the patients' management plan and a vital step in the patient pathway (often overlooked). This is particularly important as most children identified with reduced vision will be managed by spectacles alone.
- Recognise that Children's spectacle dispensing is regulated by law, and can only be carried out by a qualified and registered optometrist or dispensing optician.
- Have robust clinical governance, reporting and accountability at its core, which should include:

- Clinical leadership and organisational collaboration across the care pathway (i.e. all steps of a child's management from the screening visit onwards), with clear lines of accountability and responsibility at each step
- Working within national guidance, adopting an evidenced based approach and continually developing and reviewing clinical protocols based on research and experience
- Routine audit, evaluation and reporting, working with and sharing the learning with all key stakeholders involved in all steps of the child's management from the screening visit onwards. As a minimum, key agreed, service indicators should be regularly audited and reported.
- Systems and processes for reporting and monitoring risks / complaints / incidents. Adopting a blame-free culture and transparency.
- Systems and processes for collecting patient experience and opportunities for service development adopting a patient-centred approach
- Create opportunities for continued professional development and upskilling
- Data Protection principles to ensure secure record keeping and safe transfer of clinical information
- Service delivery by registered professionals with the appropriate competency, capacity and capability.
- Have all required national safeguarding processes in place

ii. Core requirements for the clinical pathway delivering the service:

- All children who fail to demonstrate good vision (screen positive) are referred into a service to validate the screening result and perform a full ocular assessment, to include as a minimum:
 - visual acuity measurement (linear letter LogMar test)
 - refraction under cycloplegia
 - cover test
 - binocular vision
 - examination of the anterior eye and media
 - examination of the fundus and its landmarks
- Follow up assessments following the refractive adaptation period should be provided to monitor improvement in visual acuity. These assessments should be made at 18-22 weeks after the collection and consistent wearing of spectacles.
- Clear local protocols and processes for onward referral if indicated, and arrangements for advice and guidance where uncertainties in management arise. These should be co-developed and agreed by all relevant stakeholders involved in all steps of a child's management from the screening visit onwards.
- Clear process for accessing a dispensing appointment (offered immediately for children seen within optical practice) and NHS voucher for spectacles with advice on wear and maintenance (GOS process for replacement / repair) provided and reiterated on collection.
- Clear processes in place to support timely collection and compliance of spectacles wear. (delay`s on collection and compliance with wear have an impact on the child's refractive adaptation)
- Effective discharge processes with appropriate advice on future self-care, which should include information on how and when to access General Ophthalmic Services (GOS)
- Outcome of assessments to be reported to the referring Vision Screening team and GP, and copied to the parent / carer.

iii. **Achievable Key Service Indicators** should underpin the service model to deliver quality assurance and service improvement:

- 100% of children who screen positive are offered an ocular assessment
- 80% of children who screen positive to be seen within 6 weeks and 95% of children to be seen within 12 weeks
- Monitor frequency of “Was Not Brought (WNB)” – previously covered under the terms “failed to engage (FTE)” and “failed to attend (FTA)”
 - *Indicator - % assessments offered resulting in WNB*
 - *Indicator defined as -*
 - numerator – number of WNB appointments
 - denominator - total number of assessments offered to screen positive children.
 - *Minimum reporting frequency to be quarterly*

WG Recommendations

- I. There should be a dedicated post vision screening service commissioned for children who screen positive following their vision screening assessment.
- II. The proposed high level service requirements should inform and underpin service delivery through locally agreed pathways and governance processes, and development of locally agreed service specifications for its commissioning.

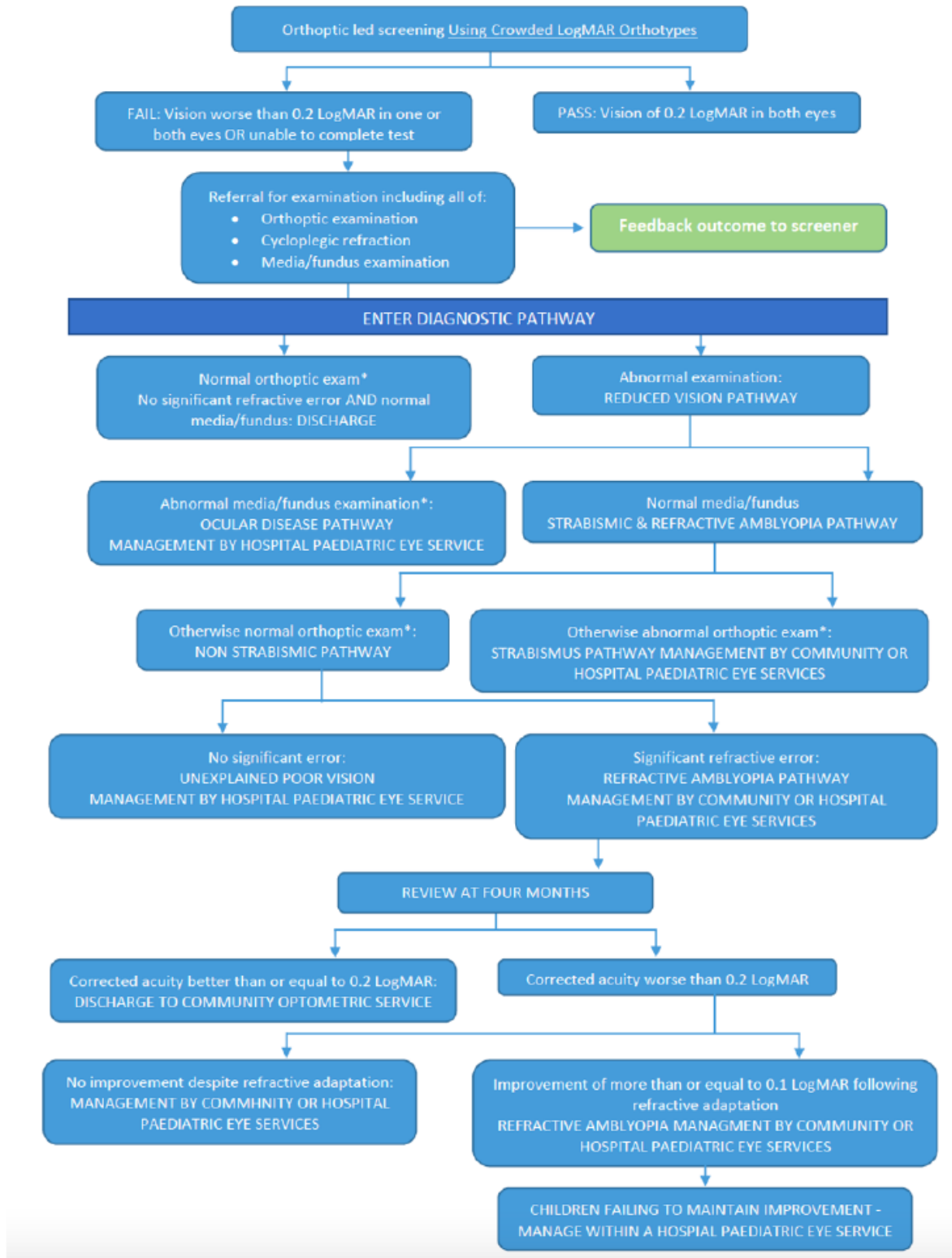
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APPENDIX 1
Royal College of Ophthalmologists (RCOphth):
Diagnostic Pathway following child vision screening (2017)

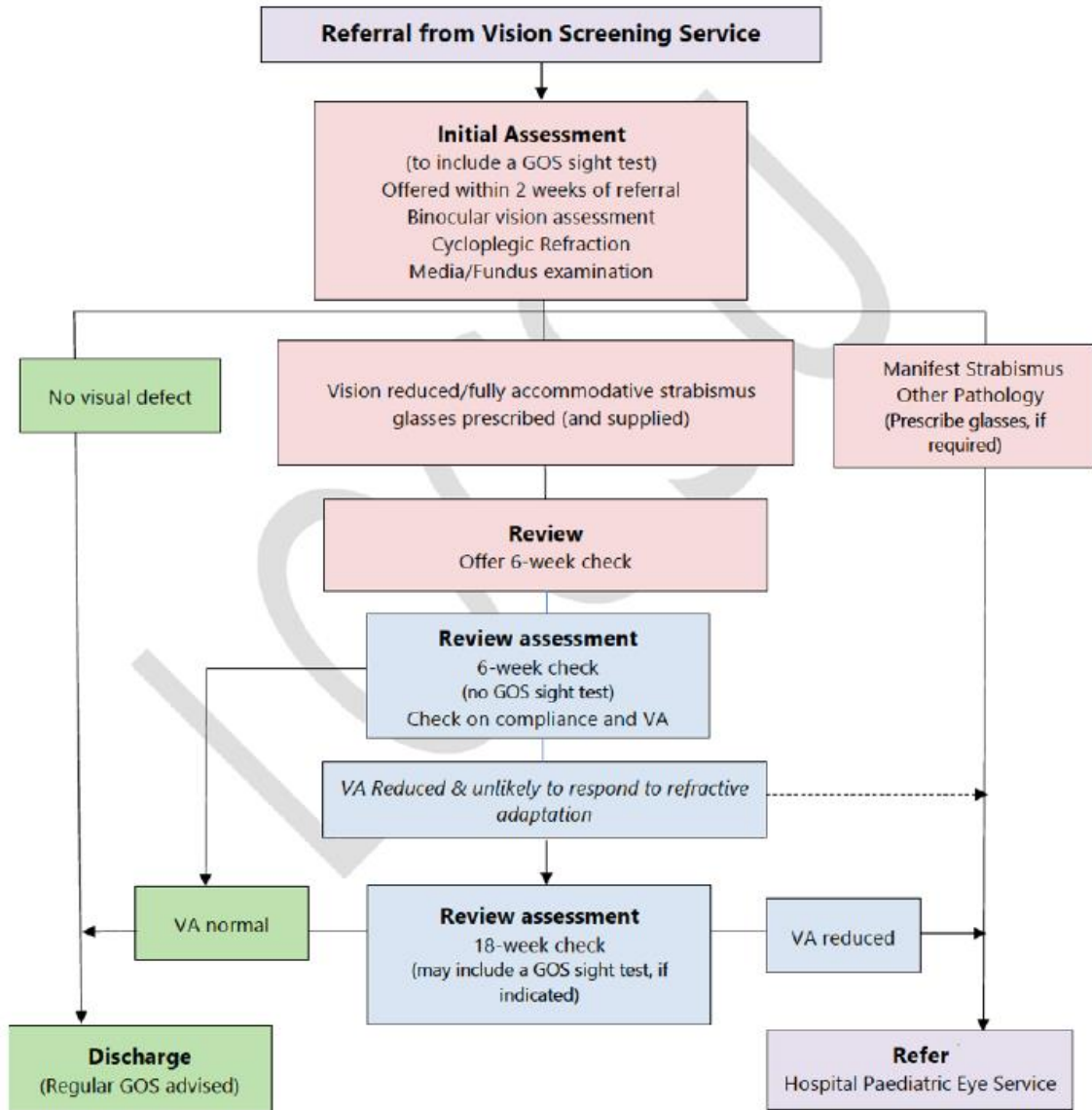
<https://www.rcophth.ac.uk/wp-content/uploads/2017/10/Diagnostic-Pathway-following-Child-Vision-Screening-Oct-2017.pdf>



APPENDIX 2

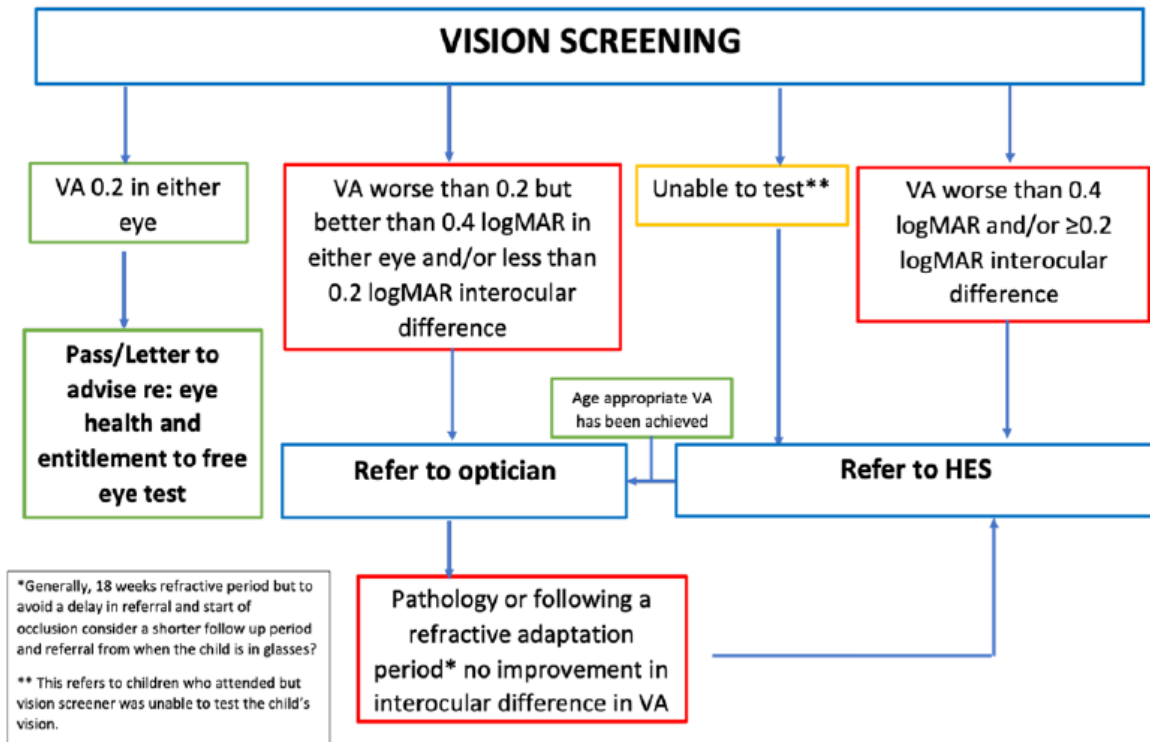
LOCSU Diagnostic pathway diagram following child vision screening.

Available to all LOCs with accompanying guidance through LOCSU (including clinical governance framework)



Note: Offer for 6 week review is consistent with RCOphth guideline for management of childhood strabismus¹³

APPENDIX 3
Proposed BIOS Post-Vision Screening pathway



APPENDIX 4

Existing arrangements for screen-positive children

Examples of findings from local audits (collated by BIOS or published)

Data from Dorset University Hospitals found that for n=594 children, if a cut-off of acuity in the poorer eye of 0.425logMAR or better is applied (without considering intraocular difference) then 73% of children could be signposted from HES into community.

Applying the same criterion to data from Milton Keynes NHS trust from n=692 children in 2018-2020 would mean 80% of children could be signposted into community services. For the proposed 0.4logMAR cut-off in *Appendix 3* this would approximate to 65-70% signposting to community services.

BIOS audit data from Wolverhampton for the period 2012-15 indicates that for those achieving VA of 0.4logMAR or worse, 32% required amblyopia treatment (61/193). However, there is a lack of data or evidence regarding a clinically significant inter-ocular difference (i.e. the difference in vision between the two eyes), so it is difficult to estimate the effect that a 0.2logMAR acuity difference threshold, also noted in this proposed pathway: but evidently this would mean more children would be signposted into HES.

In 2013-14, Garretty⁷ reported on a post-vision screening pathway in Leeds that used a conservative criterion of signposting those that screened positive at vision screening but had acuity not worse than 0.3logMAR in either eye to community services, and facilitating the rest in HES. From 7,807 children that underwent vision screening, 866 screened positive (11%), of which 37% were signposted to GOS in the community and 63% into orthoptic services. Of the 547 children who were referred to orthoptic services 434 attended (80%), of which 13% were discharged as false positives. Of the remaining 375 children that required treatment, 75 (20%) received occlusion therapy. Through simple logistic regression, presence of heterotropia, initial level of vision in the worst eye, anisometropia >1.50D were identified as significant factors influencing the need for occlusion. Interestingly, inter-ocular difference of vision between two eyes did not emerge as a significant factor, but further correspondence with Garretty indicates that for those that had occlusion therapy, the median inter-ocular difference in vision was 0.25logMAR.

APPENDIX 5

CCEHC Vision Screening Working Group Membership

British and Irish Orthoptic Society	Julie Dowdney Karon McCarthy Jigs Mehta Fiona Bush
Primary Care Optometry	Julie-Anne Little Ben Marchant Zoe Richmond
Royal College of Ophthalmologists Paediatric Sub-Committee	James Self
College of Optometrists	David Parkins
Faculty of Public Health	Parul Desai (Chair)