UK National Screening Committee

Screening for Glaucoma

8 November 2019

Aim

1. To ask the UK National Screening Committee (UK NSC) to make a recommendation, based on the evidence presented in this document, whether or not screening Glaucoma in adults meets the UK NSC criteria for a systematic population screening programme.

Current recommendation

2. The UK National Screening Committee (NSC) does not currently recommend screening for Glaucoma in adults in the UK. This policy was informed by the last external evidence review on this topic, which was published in 2015. This review concentrated its attention on screening for open angle glaucoma (OAG) which is the most common type of the disease accounting for at least 90% of all glaucoma cases. The Committee agreed that screening for Glaucoma in adults should not be implemented nationally because:

    - although, studies assessing tests of structure and function were identified, the sensitivity and specificity scores reported varied widely and no study reported acceptable sensitivity and specificity for use in general population screening
    - various cut-off levels were used in the studies and it was not clear if the optimum cut-off levels for use in screening have been identified for any tests
    - no randomised controlled trials assessing whether a screening programme for OAG would be effective in reducing morbidity were identified.
    - .

Evidence Summary

1. The 2019 review was undertaken by Solutions for Public Health in accordance to the UK NSC evidence review process https://www.gov.uk/government/publications/uk-nsc-evidence-review-process/uk-nsc-evidence-review-process

2. The 2019 evidence summary addresses 2 key questions on whether there is a valid, accurate screening test for primary open angle glaucoma and if screening reduces morbidity of the condition compared to usual diagnosis and care.

3. The conclusion of the 2019 evidence summary is that the current recommendation, that whole population screening for Glaucoma in adults should not be introduced in the UK, should be retained. This is because:

    - the volume of evidence reporting results of tests for OAG in a general adult population was limited to 6 relatively small studies. Although the screening tests used within the studies are applicable to the general UK adult population, there was no agreed test, combination of tests or cut-off levels for the tests used for the screening examination. The screening performance statistics varied between studies and were not comparable across studies. **Criterion 4 is not met**

    - as for the 2015UK NSC evidence review, this review not identify any randomised controlled trials on the effectiveness of screening for OAG to reduce the morbidity of the condition were identified. **Criteria 11 and 13 are not met**

Consultation

4. A three month consultation ending on the 3 November 2019 was hosted on the UK NSC website. Direct emails were sent to 20 stakeholders. **Annex A**

5. Two consultation responses were received by The Royal College of Ophthalmologists (RCO) and the College of Optometrists which agree with the conclusion of the review. The RCO also suggested some corrections to the consultation document. These suggestions were considered by the reviewer, and alterations were made to the evidence summary where appropriate. The College of Optometrists noted that opportunistic testing for OAG done by a trained optometrist, can be an effective method for an early (pre-symptomatic) detection of the condition, especially in high risk individuals. (See **Annex B** for comments).

Recommendation

6. The Committee is asked to approve the following recommendation:
A systematic population screening for Glaucoma in adults is not recommended in the UK.

Criteria (only include criteria included in the review)	Met/Not Met
Section 1 - Criteria for appraising the viability, effectiveness and appropriateness of a screening programme	
The Test	
4. There should be a simple, safe, precise and validated screening test.	**Not Met**
The Screening Programme	
11. There should be evidence from high quality randomised controlled trials that the screening programme is effective in reducing mortality or morbidity. Where screening is aimed solely at providing information to allow the person being screened to make an "informed choice" (such as Down's syndrome or cystic fibrosis carrier screening), there must be evidence from high quality trials that the test accurately measures risk. The information that is provided about the test and its outcome must be of value and readily understood by the individual being screened.	**Not Met**
13. The benefit gained by individuals from the screening programme should outweigh any harms for example from over-diagnosis, overtreatment, false positives, false reassurance, uncertain findings and complications	**Not Met**

UK National Screening Committee

Annex A - List of organisations and individual contacted

1. Age UK
2. Association for Independent Optometrists and Dispensing Opticians
3. Association of Optometrists
4. British and Irish Orthoptic Society
5. British Association of Retinal Screening
6. College of Optometrists
7. Faculty of Public Health
8. International Glaucoma Association
9. National Eye Research Centre
10. PHE adult screening programmes
11. Royal College of General Practitioners
12. Royal College of Nursing
13. Royal College of Ophthalmologists
14. Royal College of Physicians
15. Royal College of Physicians and Surgeons of Glasgow
16. Royal College of Physicians of Edinburgh
17. Royal National Institute of Blind People (RNIB)
18. UK & Eire Glaucoma Society
19. UK Vision Strategy
20. Vision2020UK

UK National Screening Committee

Name:	Olivier Denève	**Email address:**	XXXX XXXX
Organisation (if appropriate):	The College of Optometrists		
Role:	Head of Policy and Public Affairs		

Do you consent to your name being published on the UK NSC website alongside your response?

Yes

Section and / or page number	**Text or issue to which comments relate**	**Comment** *Please use a new row for each comment and add extra rows as required.*
General	Recommendations on screening.	The College of Optometrists agrees with the conclusion of the National Screening Committee; the College agrees that open-angle glaucoma is a condition that does not meet the required criteria for a population screening programme. Notwithstanding that, glaucoma is a condition which is detected opportunistically by primary care optometrists during a sight test. Furthermore, at-risk populations may choose to have a sight test funded by the NHS, specifically to detect early signs of open-angle glaucoma. Primary care optometrists are able to synthesise the information from a range of tests to detect open-angle glaucoma, which always includes tonometry, optic nerve head assessment and visual fields. Increasing numbers of optometrists are using advanced imaging, pachymetry and gonioscopy in practice and have undertaken additional training to develop a specialist interest in the disease. The lack of evidence surrounding the benefit of a population-based

		screening programme should not detract from the sight-saving work done by optometrists in opportunistic case finding for open-angle glaucoma which is, in its early stages, asymptomatic.

Name:	Olivier Denève	**Email address:**	XXXX XXXX

Organisation (if appropriate):	The College of Optometrists
Role:	Head of Policy and Public Affairs

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		lack of evidence surrounding the benefit of a population-based screening programme should not detract from the sight-saving work done by optometrists in opportunistic case finding for open-angle glaucoma which is, in its early stages, asymptomatic.

Name:	Beth Barnes	**Email address:**	XXXX XXXX
Organisation (if appropriate):	The Royal College of Ophthalmologists based on advice from members of our Scientific Committee		
Role:	**Head of Professional Support**		

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Yes

Section and / or page number	Text or issue to which comments relate	Comment *Please use a new row for each comment and add extra rows as required.*
In the covering email on the consultation	"Why is screening not recommended by UK NSC? · there are no tests which can accurately predict who is going to develop the disease · many people diagnosed with early glaucoma will never suffer visual impairment in their lifetime · there isn't any good-quality evidence that demonstrates treatment to be better than no treatment. Additionally, the treatments can cause harm	The highlighted text is inaccurate. There is good quality evidence of the effectiveness of treatment - see Garway-Heath et al. Lancet 2017.

	· the effectiveness of a screening programme has not been studied; therefore there is no evidence to suggest that a programme would reduce the burden of the disease to the UK population"	
Page 4 plain English summary	"Open angle glaucoma starts when one of the drainage channels of the eye becomes blocked, stopping the normal drainage of fluid. Pressure builds in the eye ball damaging the nerve at the back of the eye. Over a long time this nerve damage can cause blindness. "	This is inaccurate, Channels do not become blocked, but outflow is compromised without any obvious physical obstruction to drainage. Primary open angle glaucoma is as common with pressure in the normal range than above normal. The disease is better characterised as one of the optic nerve, where it is vulnerable to the effects of pressure - often even when the pressure is within statistically normal limits. This is important because the properties on an ideal screening test would be one that could reliably detect that vulnerability. The same inaccurate statement appears in the executive summary.
Page 4 plain English summary	Optic nerve damage typically precedes visual functional impairment and between 25% and 40% of retinal ganglion cells may be lost before visual field loss is detected (via eye examination). The proportion of people who present early with OAG and progress to severe visual loss is not known."	This is also probably not the case or at least the evidence for the first statement is based on very limited evidence. It is probable that functional impairment may be detectable in some cases before structural and in others vica versa. It is thought approximately 10% of persons presenting with glaucoma are at risk of severe sight impairment but it is correct to say this is a rough estimate.
Executive summary		Sight loss from Open Angle Glaucoma remains a major public health concern and data from sight loss certifications over the

		last 8 years shows no change in rates per 100,000 population - see public health outcomes framework data. Now that we have evidence that treatment is both safe and effective, it has become more important to find ways of identifying people at risk of sight loss. The UK has established a uniquely successful national screening programme for diabetic retinopathy which involves retinal photography which also images the optic nerve. This would seem to be the most likely potential mechanism for screening combined with Artificial Intelligence mechanisms to detect possible abnormalities of optic nerve structure especially now that high resolution images of the optic nerve can easily be captured by smart camera technologies. Research in this area should be considered a priority. There is evidence that existing processes for opportunistic surveillance and case detection are not working either efficiently or effectively and could be greatly improved.
Page 5 Executive summary	Recommendations	Overall the RCOphth agrees with the NSC recommendations but notes the above considerations for the future.