

Putting NICE guidance into practice

Resource impact report: Glaucoma: diagnosis and management - partial update (NG81)

Published: January 2022

Summary

This report focuses on the recommendations from NICE's guideline on [glaucoma](#) that we think will have the greatest resource impact (cost or saving) nationally (for England) and will need the most additional resources to implement or potentially generate the biggest savings. They are:

- Offering 360° selective laser trabeculoplasty (SLT) to people with newly diagnosed ocular hypertension (OHT) [[recommendation 1.4.4](#)].
- Offering 360° SLT to people with newly diagnosed chronic open angle glaucoma (COAG) [[recommendation 1.4.15](#)].
- Training healthcare professionals involved in monitoring and treatment of OHT, suspected COAG and established COAG to make management decisions. [[recommendation 1.6.6-7](#)].

Evidence suggest that having SLT significantly reduces the likelihood of using eye drops or delays the time at which eye drops can be used but does not completely remove the possibility people will need eye drops. Also, based on clinical expert opinion SLT does not reduce the level of ophthalmology outpatient appointments compared to eye drops. SLT results in slightly slower estimated progression rates for glaucoma.

Experts suggest that most glaucoma services do not routinely offer SLT as a first line treatment so more people with newly diagnosed OHT or COAG could be offered SLT as their first line treatment. As a result, some organisations may need upfront investment in infrastructure (appropriate rooms to deliver SLT, equipment and appropriately trained staff) to expand SLT services. The cost of the SLT procedure used in the resource impact template includes the amortisation cost of the SLT equipment.

Financial impact

The estimated financial impact of implementing this guideline for England in the next 5 years is a saving of around £88,000 in 2021/22 rising to a saving of around £0.4 million in 2025/26 as set out in table 1. Based on the

assumptions used for England, this is equivalent to a saving of around £25,900 and £14,300 in 2025/26 for Wales and Northern Ireland respectively.

The net savings are as a result of:

- increased routine use of SLT procedures
- reduced use of eye drops
- reduced cataract or intraocular pressure (IOP) lowering surgery.

The estimated financial impact of implementing this guideline for an average STP population (500,000 people) is a saving of around £3,900.

Table 1 Estimated annual activity and cost of implementing the guideline for the population of England

	Annual unit Cost per patient	Current practice activity (Baseline)	2022/23 Activity	2023/24 Activity	2024/25 Activity	2025/26 Activity	2026/27 Activity	Change in activity Year 1	Change in activity Year 2	Change in activity Year 3	Change in activity Year 4	Change in activity Year 5
Implementation rate of guideline (%)			29%	38%	47%	56%	65%					
People receiving selective laser trabeculoplasty (SLT) procedure	£151	10,540	15,280	20,030	24,770	29,510	34,260	4,740	9,490	14,230	18,970	23,720
People receiving eye drops following SLT procedure	£22	2,720	3,970	5,210	6,440	7,670	8,910	1,250	2,490	3,720	4,950	6,190
People receiving eye drops without SLT procedure	£173	42,160	37,420	32,670	27,930	23,190	18,440	-4,740	-9,490	-14,230	-18,970	-23,720
Reduced surgery	£129	-150	-220	-280	-350	-420	-490	-70	-130	-200	-270	-340

	Annual unit Cost per patient	Current practice cost £'000 (Baseline)	2022/23 Cost £'000	2023/24 Cost £'000	2024/25 Cost £'000	2025/26 Cost £'000	2026/27 Cost £'000	Change in cost £'000 Year 1	Change in cost £'000 Year 2	Change in cost £'000 Year 3	Change in cost £'000 Year 4	Change in cost £'000 Year 5
People receiving selective laser trabeculoplasty (SLT) procedure	£151	£1,592	£2,307	£3,025	£3,740	£4,456	£5,173	£716	£1,433	£2,149	£2,864	£3,582
People receiving eye drops following SLT procedure	£22	£59	£86	£113	£140	£166	£193	£27	£54	£81	£107	£134
People receiving eye drops without SLT procedure	£173	£7,308	£6,486	£5,663	£4,841	£4,020	£3,196	-£822	-£1,645	-£2,467	-£3,288	-£4,112
Reduced surgery	£129	-£19	-£28	-£36	-£45	-£54	-£63	-£9	-£17	-£26	-£35	-£44
Total Resource impact £'000		£8,939	£8,851	£8,764	£8,676	£8,588	£8,499	-£88	-£175	-£263	-£351	-£440

Table 2 Estimated annual activity and cost of implementing the guideline per 100,000 population

	Annual unit Cost per patient	Current practice activity (Baseline)	2022/23 Activity	2023/24 Activity	2024/25 Activity	2025/26 Activity	2026/27 Activity	Change in activity Year 1	Change in activity Year 2	Change in activity Year 3	Change in activity Year 4	Change in activity Year 5
Implementation rate of guideline (%)			29%	38%	47%	56%	65%					
People receiving selective laser trabeculoplasty (SLT) procedure	£151	19	27	36	44	53	61	8	17	25	34	42
People receiving eye drops following SLT procedure	£22	5	7	9	11	14	16	2	4	7	9	11
People receiving eye drops without SLT procedure	£173	75	67	58	50	41	33	-8	-17	-25	-34	-42
Reduced surgery	£129	0	0	-1	-1	-1	-1	0	0	0	0	-1

	Annual unit Cost per patient	Current practice cost £'000 (Baseline)	2022/23 Cost £'000	2023/24 Cost £'000	2024/25 Cost £'000	2025/26 Cost £'000	2026/27 Cost £'000	Change in cost £'000 Year 1	Change in cost £'000 Year 2	Change in cost £'000 Year 3	Change in cost £'000 Year 4	Change in cost £'000 Year 5
People receiving selective laser trabeculoplasty (SLT) procedure	£151	£3	£4	£5	£7	£8	£9	£1	£3	£4	£5	£6
People receiving eye drops following SLT procedure	£22	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
People receiving eye drops without SLT procedure	£173	£13	£12	£10	£9	£7	£6	-£1	-£3	-£4	-£6	-£7
Reduced surgery	£129	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total Resource impact £'000		£16	£16	£16	£15	£15	£15	£0	£0	£0	-£1	-£1

This report is supported by a resource impact template which may be used to calculate the resource impact of implementing the guidance by amending the variables.

Glaucoma services are commissioned by integrated care systems/ clinical commissioning groups. Providers are NHS hospital trusts and primary care.

1 Introduction

1.1 The guideline updates [NICE guideline NG81](#) published in 2017. Evidence reviewed focused on the treatment and organisation of care for ocular hypertension and chronic open angle glaucoma.

1.2 This report discusses the resource impact of implementing NICE guideline on glaucoma in England. It aims to help organisations plan for the financial implications of implementing the NICE guideline.

1.3 A resource impact template accompanies this report to help with assessing the resource impact at a local level in England, Wales, or Northern Ireland.

1.4 We have considered direct costs and savings to the NHS (and local authorities if applicable) and not those for the individual, the private sector, or the not-for-profit sector. Any cost savings arising from a change in practice have been offset against the cost of implementing the change.

1.5 Glaucoma services are commissioned by integrated care systems and clinical commissioning groups. Providers are NHS hospital trusts and primary care.

Background

2 Glaucoma is an eye condition in which the optic nerve becomes
2.1 damaged and, if left untreated, will lead to loss of vision.

2.2 The commonest type of glaucoma in the UK is chronic open angle glaucoma (COAG), affecting around 2% of people older than 40 years and rising to almost 10% in people older than 75 years.

2.3 Ocular hypertension (OHT) is the medical name for high pressure in the eye that increases the risk of getting glaucoma. Lowering the

eye pressure is the only known way to prevent glaucoma from getting worse. OHT is a very important risk factor for COAG, although COAG can occur with or without raised eye pressure. OHT affects 3–5% of people in the UK over 40 years of age [[NICE, 2017](#)].

- 2.4 The standard initial treatment of these conditions is prescription of eye drops to lower the pressure in the eye. Clinical experts suggest that sometimes people may need to instil multiple eye drops, which can become expensive. An alternative is a laser therapy to reduce the eye pressure.

3 Significant resource impact recommendations

There are 3 guideline recommendations that are likely to lead to a significant resource impact when implemented. These are considered together in section 3.1.

- Offer 360° selective laser trabeculoplasty (SLT) to people with newly diagnosed with ocular hypertension (OHT) or chronic open angle glaucoma [[recommendations 1.4.4 and 1.4.15](#)].
- Healthcare professionals involved in monitoring and treating OHT, suspected COAG and established COAG should be trained to make management decisions [[recommendation 1.6.6](#) [2009, amended 2022]].
- Healthcare professionals should discuss with the responsible consultant ophthalmologist the decision to offer SLT and how it will be performed. Healthcare professionals undertaking SLT should be given support by the responsible consultant ophthalmologist and have relevant training [[recommendation 1.6.7](#)].

Background

- 3.1 The evidence showed that SLT was a cost-effective intervention compared to eye drops. Evidence suggest that having SLT

significantly reduces the likelihood of using eye drops or delays the time at which eye drops can be used but does not remove the possibility people will need eye drops. SLT also results in slightly slower estimated progression rates for glaucoma. Based on evidence and clinical experience, the committee recommended SLT as first-line treatment to people with newly diagnosed OHT or COAG.

- 3.2 Experts suggest that most glaucoma services do not offer routine SLT as a first line treatment. The committee noted that the first-line use of SLT to treat OHT or COAG might result in a significant change in practice. It will mean more people with newly diagnosed OHT or COAG could be offered SLT as their first treatment. Therefore, upfront investment in infrastructure (this may include appropriate laser rooms to deliver SLT, equipment and appropriately trained staff) may be needed to expand SLT services.
- 3.3 Evidence also suggests that if SLT is successful, there may be a reduction in the future use of eye drops to manage glaucoma. Trial data suggested that around 74% of people who received SLT did not need eye drops for up to 3 years following SLT.
- 3.4 Experts suggest that there is currently a lack of appropriately trained workforce to deliver SLT. The committee highlighted that some local services healthcare professionals undertaking SLT should be provided support and relevant training on suitability and safety of the procedure, including the benefits and risks and on how to discuss these with adults and their family members or carers, including their consent to receive the SLT procedure. The template allows users to estimate the potential training costs at a local level.

Table 3 Estimated number of people affected for England for recommendations 1.4.4 and 1.4.15

Area costed	Current number of people	Future number of people (year 5)	Change in number of people
People receiving SLT procedure	10,540	34,260	23,720
People receiving eye drops			
Following SLT procedure	2,720	8,910	6,190
Without SLT procedure	42,160	18,440	-23,720
Total	44,880	27,350	-17,530
Reduction in IOP lowering surgery	-60	-210	-150
Reduction in cataract surgery	-90	-280	-190
Total	-150	-490	-340

3.5 The net saving over the next 5 financial years is summarised in table 4.

Table 4 Estimated annual savings of over time

	2021/22	2022/23	2023/24	2024/25	2025/26
Implementation rate of guideline (%)	29%	38%	47%	56%	65%
SLT procedures (£000)	716	1,433	2,149	2,865	3,582
Eye drops following SLT procedure (£000)	27	54	81	107	134
Eye drops without SLT procedure (£000)	-822	-1,645	-2,467	-3,288	-4,112
Reduced surgery (£000)	-9	-17	-26	-35	-44
Total impact (£000)	-88	-175	-263	-351	-440

Benefits and savings

- 3.6 SLT may improve quality of life by enabling people to manage or control eye pressure without the need of daily eye drops or by reducing the number of eye drops used to manage the glaucoma.
- 3.7 Evidence suggests that patients with glaucoma are more likely to be admitted to the hospital for a fall than those without glaucoma. Therefore, use of SLT may reduce number of glaucoma related falls and the ensuing costs to commissioners.
- 3.8 Based on the evidence there may be an additional saving from reduced pharmacist and GP time related to the re-prescribing and distribution of eye drops. The savings have not been included in the template and should be assessed at a local level.
- 3.9 The use of SLT may also lead to a reduction of community nursing appointments to administer eye drops to people that are unable to self-administer. The template allows users to estimate the potential saving.

4 Implications for commissioners and providers

- 4.1 Because SLT is not currently routinely available as a first line treatment, some organisations may need to set up or expand SLT services. This could require additional resources, for example, appropriate rooms to deliver SLT, SLT equipment and appropriately trained staff. The costs have not been estimated in the resource impact template. However, the cost of the SLT procedure used in the resource impact template includes the amortisation cost of the SLT equipment. The template also allows users to estimate the potential training costs at a local level.
- 4.2 Glaucoma falls under programme budgeting category PBC08X 'Problems with vision'.

5 Assumptions made

5.1 The resource impact template makes the following assumptions:

- The eligible population is based on people aged 40 years or older. However, in practice younger people may also be offered SLT. Organisations can amend the template to reflect the relevant local population.
- The recommendation states that SLT would be available for newly diagnosed people only with OHT or COAG. There is no data regarding the incidence of OHT or COAG. The average prevalence rate of OHT (4.5% -9.4%: [Royal College of Optometrists](#)) and (3%-5%: [NICE Clinical Knowledge Summaries](#)) was used as a basis to estimate incidence population.
- Currently 20% of people with OHT or COAG receive SLT treatment and 80% are treated with eye drops. Uptake of SLT is estimated to increase to 65% by year 5 of guideline implementation.
- Around 74% of people who receive SLT do not need eye drops for up 3 years following SLT. Therefore, 26% go on to receive eye drops each year following SLT.
- People who do not receive SLT would instead receive eye drops.
- There are savings from reduced IOP lowering and cataract surgery as a result of SLT. However, clinical experts suggest that it is not clear that there will be a long-term reduction in the number of people requiring cataract surgery, as some will develop age-related cataracts in their lifetime. Organisations can amend the template accordingly to reflect local practice.
- The cost of eye drops (£173) was taken from the [LIGHT RCT](#) report. Organisations can amend the cost to reflect local prices.

- The cost of eye drops following SLT (£22) was taken from the [LIGHT RCT](#) report. Organisations can amend the cost to reflect local prices.
- The cost of cataract surgery or IOP (£129) is based on the [2019/20 NHS reference costs](#) (Healthcare resource group BZ33Z: Minor, Cataract or Lens Procedures).
- The cost of SLT (£151) is from the economic model. The cost includes the amortisation cost of the SLT laser equipment.
- There may be a need to provide support and relevant training to healthcare professionals on the suitability and safety of the SLT procedure. The costs have not been estimated but the template allows users to estimate the costs over the 5-year financial horizon.

6 Other considerations

- 6.1 The committee highlighted that some local services may need upfront investment (equipment and training) in order to fully implement the guideline. This is not considered in the template but should be assessed at a local level.
- 6.2 It is assumed that 74% of people treated with SLT do not need eye drops for up to 3 years following treatment. These people may need eye drops thereafter. The cost of subsequent eye drops has not been included in the template and should be considered locally.
- 6.3 The recommendations requiring repeat SLT to be delivered where appropriate have not been considered in the template because there is no data indicating how many people might need repeat SLT. Therefore, these costs should be assessed at a local level.

7 Sensitivity analysis

- 7.1 There are some assumptions in the model for which no empirical evidence exists, so we cannot be as certain about them.

Appropriate minimum and maximum values of variables were used in the sensitivity analysis to assess which variables have the biggest impact on the net cost or saving. This enables users to identify the significant cost drivers.

Appendix A is a table listing all variables modified. The key conclusions are discussed below.

- 7.2 The unit cost of eye drops used in the template was taken from the [LIGHT RCT](#). Based on the [Primary care prescription cost analysis 2020/2021](#) and using a weighted average unit cost based on 1 bottle of eye drops, the unit cost is £70 per annum. Varying the cost of eye drops to a lower cost of £70 compared to a higher baseline cost of £173 will result in an estimated cost of £2.0 million compared to a baseline saving of £0.4 million. These figures are based on usage of 1 bottle of eye drops per month per person for 12 months.

Individual variable sensitivity				Recurrent resource impact	Recurrent resource impact	Recurrent resource impact	
	Baseline value	Minimum value	Maximum value	Baseline resource impact (£000s)	Minimum resource impact (£000s)	Maximum resource impact (£000s)	Change (£000s)
Proportion of outpatient ophthalmology appointments with OHT/COAG	5.5%	3.0%	9.40%	-439	-241	-754	-513
Cost of eye drops	£173	£70	£173	-439	2,003	-439	-2,442
People receiving SLT	20.0%	20.0%	75.0%	-439	-439	-537	-98

About this resource impact report

This resource impact report accompanies the NICE guideline on [Glaucoma: diagnosis and management](#) and should be read in conjunction with it. Please visit the NICE website to view the [terms and conditions](#).

© NICE 2022. All rights reserved. See [Notice of rights](#).