

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline scope

Glaucoma: diagnosis and management

Topic

NICE intends to partially update the guideline on the [diagnosis and management of chronic open angle glaucoma](#) (CG85). This will include case finding and referral from primary to secondary care. Other areas for update are set out in the [surveillance review decision](#).

Some areas of the guideline are not being updated – for details see [key areas that will be covered](#) and [areas that will not be covered](#).

The guideline is for use in the NHS in England.

The guideline will be developed using the methods and processes outlined in [Developing NICE guidelines: the manual](#).

For more information about why this guideline is being developed, and how the guideline will fit into current practice, see the [context](#) section.

Who the guideline is for

- People using services, families and carers and the public.
- Optometrists.
- Ophthalmologists.
- Orthoptists.
- Pharmacists.
- Nurses.
- GPs.

It may also be relevant for:

- Commissioners of services.

1 NICE guidelines cover health and care in England. Decisions on how they
2 apply in other UK countries are made by ministers in the [Welsh Government](#),
3 [Scottish Government](#), and [Northern Ireland Executive](#).

4 ***Equality considerations***

5 NICE has carried out [an equality impact assessment](#) during scoping. The
6 assessment:

- 7 • lists equality issues identified, and how they have been addressed
- 8 • explains why any groups are excluded from the scope.

9 The guideline will look at inequalities relating to age, family origin,
10 socioeconomic status, and moving from place to place (for example, people
11 who are homeless and Gypsies and Travellers).

12 **1 What the guideline is about**

13 ***1.1 Who is the focus?***

14 **Groups that will be covered:**

- 15 • Adults (18 and over) with confirmed chronic open angle glaucoma.
- 16 • Adults (18 and over) with suspected chronic open angle glaucoma.
- 17 • Adults (18 and over) with ocular hypertension.
- 18 • Adults (18 and over) with chronic open angle glaucoma or ocular
19 hypertension associated with pseudoexfoliation or pigment dispersion.
- 20 • Populations with a higher prevalence of chronic open angle glaucoma and
21 groups who may have worse clinical outcomes, including:
 - 22 – adults with a family history of chronic open angle glaucoma
 - 23 – older people (over 70 years)
 - 24 – adults of black African or black Caribbean family origin
 - 25 – adults living in areas of socioeconomic deprivation
 - 26 – younger adults with chronic open angle glaucoma or ocular hypertension
27 (under 50 years).

1 **Groups that will not be covered**

- 2 • Children and young people under 18 years.
- 3 • People with secondary glaucoma, for example, neovascular or uveitic
- 4 glaucoma. (Chronic open angle glaucoma or ocular hypertension variants
- 5 associated with pseudoexfoliation or pigment dispersion are not excluded.)
- 6 • People with, or at risk of, primary or secondary angle closure glaucoma.
- 7 • People with primary congenital, infantile or childhood glaucoma.

8 **1.2 Settings**

9 **Settings that will be covered**

- 10 • All settings in which NHS-funded healthcare is received.

11 **1.3 Activities, services or aspects of care**

12 We will look at evidence on the areas listed below when developing the
13 guideline, but it may not be possible to make recommendations on all the
14 areas. The decisions relating to which areas from the published guideline will
15 be updated by this update and which areas will not be updated have been
16 fully explained in the [surveillance review decision](#). Areas from the published
17 guideline which will not be updated as part of this update may be considered
18 by future updates.

19 **Key areas that will be covered**

20 ***Areas from the published guideline that will be updated***

- 21 1 The diagnostic accuracy of tests¹ used for the provisional and definitive
- 22 identification and monitoring of chronic open angle glaucoma, suspected
- 23 chronic open angle glaucoma and ocular hypertension in people

¹ Visual field assessments are an integral part of diagnostic assessment. This update is not reviewing visual field assessments because there is no new evidence (as identified by the [surveillance review decision](#)). Recommendations from CG85 on visual field assessment will be carried forward as part of this update.

1 presenting to community optometrists and those referred to hospital eye
2 services. Tests will involve 1 or more of the following:

- 3 • measuring intraocular pressure
- 4 • assessing the optic nerve head
- 5 • assessing the anterior chamber angle
- 6 • measuring the central corneal thickness.

7 2 The use of pharmacological interventions for people with chronic open
8 angle glaucoma, suspected chronic open angle glaucoma or ocular
9 hypertension (for example, when treatment should be started and how
10 long it should be continued). Treatments considered will include:

- 11 • eye drops, including
 - 12 – prostaglandin analogues
 - 13 – carbonic anhydrase inhibitors
 - 14 – beta-blockers
 - 15 – sympathomimetics
 - 16 – miotics
 - 17 – preservative-free solutions
 - 18 – fixed-combination solutions
- 19 • systemic carbonic anhydrase inhibitors.

20 3 Frequency of monitoring for people with confirmed chronic open angle
21 glaucoma, suspected chronic open angle glaucoma or ocular
22 hypertension.

23 4 The most appropriate service models, where evidence of clinical and
24 cost effectiveness is available (only in relation to the service models to
25 support repeat measures, enhanced case finding and referral
26 refinement).

27 Note that guideline recommendations will normally fall within licensed
28 indications; exceptionally, and only if clearly supported by evidence, use
29 outside a licensed indication may be recommended. The guideline will
30 assume that prescribers will use a medicine's summary of product
31 characteristics to inform decisions made with individual patients.

1 **Areas not in the published guideline that will be included in the update**

- 2 1 Repeat measures, enhanced case finding and referral refinement.
3 2 Thresholds for referral to secondary care.

4 **Areas that will not be covered**

- 5 1 Population-based screening programmes for glaucoma.

6 **Areas from the published guideline that will not be updated**

- 7 1 The accuracy of visual field assessments² for the provisional and
8 definitive identification of chronic open angle glaucoma and ocular
9 hypertension in people presenting to community optometrists and those
10 referred to hospital eye services.
11 2 The effectiveness of procedures (penetrating and non-penetrating) for
12 surgical drainage with and without pharmacological augmentation or
13 drainage devices.
14 3 The effectiveness of drain manipulation after surgery with and without
15 pharmacological augmentation.
16 4 The effectiveness of laser procedures to facilitate aqueous outflow or
17 reduce aqueous production.
18 5 The information, education and support needed to achieve adherence to
19 treatment.

20 Recommendations in areas that are not being updated may be edited to
21 ensure that they meet current editorial standards, and reflect the current policy
22 and practice context.

23 **1.4 Economic aspects**

24 We will take economic aspects into account when making recommendations.
25 We will develop an economic plan that states for each review question (or key
26 area in the scope) whether economic considerations are relevant, and if so

² Visual field assessments are an integral part of diagnostic assessment. This update is not reviewing visual field assessments because there is no new evidence (as identified by the [surveillance review decision](#)). Recommendations from CG85 on visual field assessment will be carried forward as part of this update.

1 whether this is an area that should be prioritised for economic modelling and
2 analysis. We will review the economic evidence and carry out economic
3 analyses, using an NHS and personal social services (PSS) perspective.

4 **1.5 Key issues and questions**

5 While writing this scope, we have identified the following key issues, and key
6 questions based on the surveillance review decision:

7 1 Tests for diagnosis and monitoring

8 1.1 What is the diagnostic accuracy of tests for diagnosis and monitoring
9 in people with ocular hypertension or suspected chronic open angle
10 glaucoma, including tests for:

- 11 – measuring intraocular pressure
- 12 – assessing the optic nerve head
- 13 – assessing the anterior chamber angle
- 14 – measuring central corneal thickness.

15 1.2 What is the diagnostic accuracy of tests for diagnosis and monitoring
16 in people with chronic open angle glaucoma, including tests for:

- 17 – measuring intraocular pressure
- 18 – assessing the optic nerve head
- 19 – assessing the anterior chamber angle
- 20 – measuring the central corneal thickness.

21 2 Prognosis and monitoring intervals

22 2.1 What is the accuracy of risk tools for identifying people who are at
23 increased risk of developing chronic open angle glaucoma?

24 2.2 What is the accuracy of risk tools for identifying people with chronic
25 open angle glaucoma who are at increased risk of vision loss?

26 2.3 What are the optimum intervals for monitoring in people with chronic
27 open angle glaucoma, people with suspected chronic open angle
28 glaucoma and people with ocular hypertension?

29 3 Treatment

30 3.1 Is treatment of ocular hypertension (in people who may also have
31 suspected chronic open angle glaucoma) overall clinically and cost

1 effective? If so, which pharmacological treatment is the most clinically
2 and cost effective and the least harmful, out of the following:

- 3 • eye drops
 - 4 – prostaglandin analogues
 - 5 – carbonic anhydrase inhibitors
 - 6 – beta-blockers
 - 7 – sympathomimetics
 - 8 – miotics
 - 9 – preservative-free solutions
 - 10 – fixed-combination solutions.
- 11 • systemic carbonic anhydrase inhibitors.

12 3.2 Which are the most clinically and cost effective and least harmful
13 pharmacological treatments for lowering intraocular pressure and
14 preserving visual field in people with chronic open angle glaucoma, out
15 of the following:

- 16 • eye drops
 - 17 – prostaglandin analogues
 - 18 – carbonic anhydrase inhibitors
 - 19 – beta-blockers
 - 20 – sympathomimetics
 - 21 – miotics
 - 22 – preservative-free solutions
 - 23 – fixed-combination solutions.
- 24 • systemic carbonic anhydrase inhibitors.

25 4 Repeat measures, enhanced case finding and referral refinement

26 4.1 What are the most effective service models for finding people with
27 chronic open angle glaucoma, suspected chronic open angle glaucoma
28 and ocular hypertension?

29 4.2 Which tools should be used for repeat measures, enhanced case
30 finding and referral refinement?

1 – 4.2.1 Which professionals and services should use these
2 tools for repeat measures, enhanced case finding and referral
3 refinement?

4 4.3 What are the thresholds for referral for repeat measures, enhanced
5 case finding, referral refinement and hospital eye service evaluation?

6 The key questions may be used to develop more detailed review questions,
7 which guide the systematic review of the literature.

8 **1.6 Main outcomes**

9 The main outcomes that will be considered when searching for and assessing
10 the evidence are:

- 11 1 Health-related quality of life (validated scores).
- 12 2 Intraocular pressure.
- 13 3 Visual field defect.
- 14 4 Onset of chronic open angle glaucoma.
- 15 5 Progression of chronic open angle glaucoma.
- 16 6 Vision loss.
- 17 7 Treatment adherence and discontinuation.
- 18 8 Adverse events (for example, allergic reactions, irritation, respiratory
19 difficulty).
- 20 9 Resource use and costs, including number of hospital visits.

21 **2 Links with other NICE guidance, NICE quality** 22 **standards, and NICE Pathways**

23 **2.1 NICE guidance**

24 **NICE guidance that will be updated by this guideline**

- 25 • [Glaucoma: diagnosis and management](#) (2009) NICE guideline CG85

1 **NICE guidance about the experience of people using NHS services**

2 NICE has produced the following guidance on the experience of people using
3 the NHS. This guideline will not include additional recommendations on these
4 topics unless there are specific issues related to glaucoma:

- 5 • [Patient experience in adult NHS services](#) (2012) NICE guideline CG138
- 6 • [Service user experience in adult mental health](#) (2011) NICE guideline
7 CG136
- 8 • [Medicines adherence](#) (2009) NICE guideline CG76

9 **NICE guidance that is closely related to this guideline**

10 ***Published***

11 NICE has published the following guidance that is closely related to this
12 guideline:

- 13 • [Medicines adherence: involving patients in decisions about prescribed](#)
14 [medicines and supporting adherence](#) (2009) NICE guideline CG76
- 15 • [Medicines optimisation: the safe and effective use of medicines to enable](#)
16 [the best possible outcomes](#) (2015) NICE guideline NG5
- 17 • [Canaloplasty for primary open-angle glaucoma](#) (2008) NICE interventional
18 procedure guidance 260
- 19 • [Trabecular stent bypass microsurgery for open angle glaucoma](#) (2011)
20 NICE interventional procedure guidance 396
- 21 • [Trabeculotomy ab interno for open angle glaucoma](#) (2011) NICE
22 interventional procedure 397

23 **2.2 NICE quality standards**

24 **NICE quality standards that may need to be revised or updated when**
25 **this guideline is published**

- 26 • [Glaucoma in adults](#) (2011) NICE quality standard 7

1 **2.3 NICE Pathways**

2 When this guideline is published, the recommendations will update the current
3 NICE Pathway on [glaucoma](#). NICE Pathways bring together all related NICE
4 guidance and associated products on a topic in an interactive topic-based flow
5 chart.

6 **3 Context**

7 **3.1 Key facts and figures**

8 Adult glaucoma is a group of conditions in which the head of the optic nerve
9 (within the eye) becomes damaged, resulting in problems with sight. In many,
10 but not all cases, glaucoma is associated with increased pressure within the
11 eye. Left untreated, or with inadequate treatment, glaucoma may lead to
12 blindness. Around 10% of registrations for blindness are recorded as being
13 primarily due to glaucoma.

14 Chronic open angle glaucoma is the most common form of glaucoma in the
15 UK, affecting about 2% of people over 40 years. In England and Wales,
16 around 500,000 people have chronic open angle glaucoma. Other forms of
17 glaucoma include closed angle and secondary glaucomas. The prevalence of
18 glaucoma rises rapidly with age; it is more common in people of black African
19 or Caribbean family origin, and in those with a family history of the condition.
20 There are often signs that something is wrong before vision is affected:
21 increased pressure within the eye (called ocular hypertension) is found in
22 around 3–5% of people over 40. When clinical signs are uncertain, the term
23 'COAG suspect' signifies a need for greater vigilance to detect any onset of
24 chronic open angle glaucoma. The onset of visual damage from glaucoma is
25 insidious and frequently goes unnoticed by those affected. This underlines the
26 importance of timely identification and referral.

27 Most people with glaucoma are identified by community optometrists during
28 routine sight tests. Identification of a possible problem is frequently followed
29 by further optometric assessments in the community. Incrementally more
30 complex assessments are undertaken by professionals with incremental

1 knowledge, skill and experience of glaucoma. Pathways may take the form of
2 1 or more of repeat measures (simply rechecking initial measurements),
3 enhanced case finding (undertaking additional tests) or referral refinement
4 (additional testing with added 'clinical value' in the form of clinical
5 judgements). These service configurations help to minimise false-positive
6 referrals to hospital eye services. Appropriate configuring of services allows
7 people at low risk (people with ocular hypertension and people with suspected
8 chronic open angle glaucoma) to be cared for in the community. People
9 referred to hospital eye services usually have an assessment by an
10 ophthalmologist. CG85 recommends that for people with chronic open angle
11 glaucoma a diagnosis and management plan should be made by a consultant
12 ophthalmologist.

13 The causes of chronic open angle glaucoma remain unclear. However, once
14 vision has been lost from glaucoma it cannot be recovered. So treatment must
15 be directed towards preserving remaining vision to maintain, as far as
16 possible, some sight for a person's lifetime.

17 The only known effective treatment for glaucoma is lowering eye pressure,
18 even when pressure is 'normal' to begin with (as in normal tension glaucoma).
19 Treatment may take the form of eye drops, laser procedures, oral medicines
20 or drainage surgery, either singly or in combination. People who are affected
21 need lifelong monitoring to detect possible loss of disease control and/or
22 disease progression. With changes in clinical status, treatments and
23 diagnostic categories may need to be adjusted. A person with chronic open
24 angle glaucoma can be expected to need an average of 40 follow-up visits for
25 monitoring within their lifetime.

26 Most glaucoma care involves monitoring of chronic disease. This underlines
27 the importance of appropriate monitoring intervals according to risk to
28 maximise service efficiency. People with ocular hypertension or those with
29 features suggesting but not diagnostic for chronic open angle glaucoma (that
30 is, 'COAG suspects') may not need treatment but do need monitoring of their
31 condition. The frequency of monitoring for glaucoma and related conditions
32 should therefore be stratified according to the risk of progression to blindness

1 within the person's lifetime. People at a high risk need more frequent
2 monitoring in services led by consultant ophthalmologists, with people at lower
3 risk of blindness being monitored less frequently and not necessarily in
4 hospital eye services. People with ocular hypertension and/or suspected
5 chronic open angle glaucoma may thus be monitored in the community, in line
6 with training and skill set requirements for non-medical healthcare
7 professionals set out in CG85.

8 An unintended consequence of publication of CG85 in 2009 was high levels of
9 false-positive referrals to hospital eye services. Recommendations for repeat
10 measures and referral refinement were included in the NICE quality standard
11 on [glaucoma in adults](#) (QS7), which helped but did not fully resolve this
12 problem. A review of the evidence linked to case finding and thresholds for
13 referral to hospital eye services has therefore been added to the scope of this
14 update to guide NHS practice in these areas. Other areas in which there is
15 new evidence since publication of CG85 have also been included.

16 **3.2 Current practice**

17 The [surveillance review decision](#) published in December 2015 outlined a
18 number of areas of CG85 that need updating. Some drugs (for example,
19 latanoprost) are now available in multiple generic products which may affect
20 the findings of the health economic modelling conducted as part of CG85. A
21 number of new questions have been identified and added to the scope to
22 cover case finding, particularly in high-risk groups. New questions are needed
23 to:

- 24 • clarify the threshold for referral to hospital eye services
- 25 • define and clarify repeat measures, enhanced case finding and referral
26 refinement
- 27 • clarify the role of optometrists
- 28 • incorporate new technologies, including I-Care tonometry.

29 These new questions aim to clarify referral criteria and avoid 'flooding' of
30 hospital eye services with referrals of people at low risk of blindness, which
31 has happened since publication of CG85. Because there are targets for

1 seeing new patients, these people at low risk are given priority by NHS trusts
2 ahead of people with advanced and potentially blinding glaucoma. It is
3 therefore desirable to guide referral based on appropriate risk stratification.

4 **3.3 Policy, legislation, regulation and commissioning**

5 **Legislation, regulation and guidance**

6 There is legislation around independent prescribing for non-medically qualified
7 healthcare professionals, including optometrists. Clarifying prescribing by
8 optometrists in glaucoma care will avoid confusion about when such
9 prescribing is appropriate.

10 **Commissioning**

11 Commissioning tools were developed as part of the NICE guideline on
12 [glaucoma: diagnosis and management \(CG85\)](#) and the NICE quality standard
13 for [glaucoma in adults \(QS7\)](#).

14 **3.4 Glossary of terms used in this scope**

15 **Chronic open angle glaucoma**

16 People with chronic open angle glaucoma have open or narrow (but not
17 occludable or closed) anterior chamber angles with 1 or more of the following
18 features:

- 19 • glaucomatous visual field loss
- 20 • glaucomatous optic neuropathy.

21 **Ocular hypertension**

22 Raised intraocular pressure.

23 **Suspected glaucoma**

24 People with suspected glaucoma have equivocal visual field loss and/or
25 equivocal optic neuropathy suggesting possible glaucoma damage.

1 **4 Further information**

This is the final scope incorporating comments from registered stakeholders during consultation.

The guideline is expected to be published in July 2017.

You can follow progress of the [guideline](#).

Our website has information about how [NICE guidelines](#) are developed.

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