



*National Institute for
Health and Clinical Excellence*

Quick reference guide

Issue date: April 2009

Glaucoma

Diagnosis and management of chronic
open angle glaucoma and ocular hypertension

About this booklet

This is a quick reference guide that summarises the recommendations NICE has made to the NHS in 'Glaucoma: diagnosis and management of chronic open angle glaucoma and ocular hypertension' (NICE clinical guideline 85).

Who should read this booklet?

This quick reference guide is for ophthalmologists, optometrists, orthoptists, pharmacists, nurses, GPs and other staff who care for people with ocular hypertension or glaucoma.

Who wrote the guideline?

The guideline was developed by the National Collaborating Centre for Acute Care, which is based at the Royal College of Surgeons. The Collaborating Centre worked with a group of healthcare professionals (including consultant ophthalmologists, optometrists, orthoptists and nurses), patients and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

For more information on how NICE clinical guidelines are developed, go to www.nice.org.uk

Where can I get more information about the guideline?

The NICE website has the recommendations in full, reviews of the evidence they are based on, a summary of the guideline for patients and carers, and tools to support implementation (see inside back cover for more details).

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ISBN 1-84629-949-7

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NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions in the NHS in England and Wales.

This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

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Introduction

- Chronic open angle glaucoma (COAG) is a common and potentially blinding condition, and is usually asymptomatic until advanced. Ocular hypertension is a major risk factor for developing COAG, although COAG can occur with or without raised eye pressure.
- Approximately 10% of UK blindness registrations are attributed to glaucoma. Around 2% of people over 40 years have COAG, rising to almost 10% in people over 75 years in white Europeans. The prevalence may be higher in people of black African or black Caribbean descent or in people who have a family history of glaucoma. With changes in population demographics the number of people affected is expected to rise.
- Once diagnosed, people with COAG need lifelong monitoring so that any progression of visual damage can be detected. Controlling the condition to prevent or minimise further damage is crucial to maintaining a sighted lifetime.
- By implementing this guideline more people will be prevented from going blind.

Terms and abbreviations

5-FU 5-fluorouracil

BB beta-blocker

CCT central corneal thickness

COAG Chronic open angle glaucoma. Glaucoma without evident secondary cause, which follows a chronic time course and occurs in the presence of an open anterior chamber angle (the trabecular meshwork is visible on gonioscopy). The term COAG is used regardless of the level of intraocular pressure and has been extended to include COAG associated with pseudoexfoliation and pigment dispersion.

COAG; early, moderate and advanced The definitions are based on the Hodapp classification of visual field loss for the stages of glaucoma (see section 1.8.6 of the full guideline). These can be summarised approximately in terms of mean defect (MD) as follows: early, MD greater than –6 dB; moderate, MD –6 dB to greater than –12 dB; advanced, MD –12 dB to greater than –20 dB. Severe visual impairment (blindness) is defined as MD –20 dB or worse.

IOP intraocular pressure

MMC mitomycin C

OHT ocular hypertension

PGA prostaglandin analogue

Target IOP A dynamic, clinical judgement about what level of IOP is considered by the healthcare professional treating the person to be sufficiently low to minimise or arrest disease progression or onset and avoid disability from sight loss within a person's expected lifetime.

Van Herick's test Van Herick's peripheral anterior chamber depth assessment

Key priorities for implementation are in boxes and highlighted with **KPI**.

Person-centred care

Treatment and care should take into account people's individual needs and preferences. Good communication is essential, supported by evidence-based information, to allow people to reach informed decisions about their care. Follow Department of Health advice on seeking consent if needed. If the person agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

Providing information

Offer people the opportunity to discuss their diagnosis, prognosis and treatment, and provide them with relevant information in an accessible format at initial and subsequent visits. This may include information on the following:

- their specific condition, its life-long implications and prognosis for keeping their sight
- that COAG in the early stages and OHT and suspected COAG are symptomless
- that once lost, sight cannot be recovered, although most people treated for COAG will not go blind
- that glaucoma can run in families and that family members may wish to be tested for the disease
- the importance of the person's role in their own treatment, how to apply eye drops, and the use of compliance aids
- the different types of treatment options and the need for regular monitoring
- methods of investigation during assessment
- how long each appointment is likely to take and whether the person will need any help to attend
- support groups
- Letter of Vision Impairment (LVI), Referral of Vision Impairment (RVI) and Certificate of Vision Impairment (CVI) registration
- Driver and Vehicle Licensing Agency (DVLA) regulations. **KPI**

Diagnosis for people with OHT, suspected COAG or COAG

See the diagnosis flowchart on page 6.

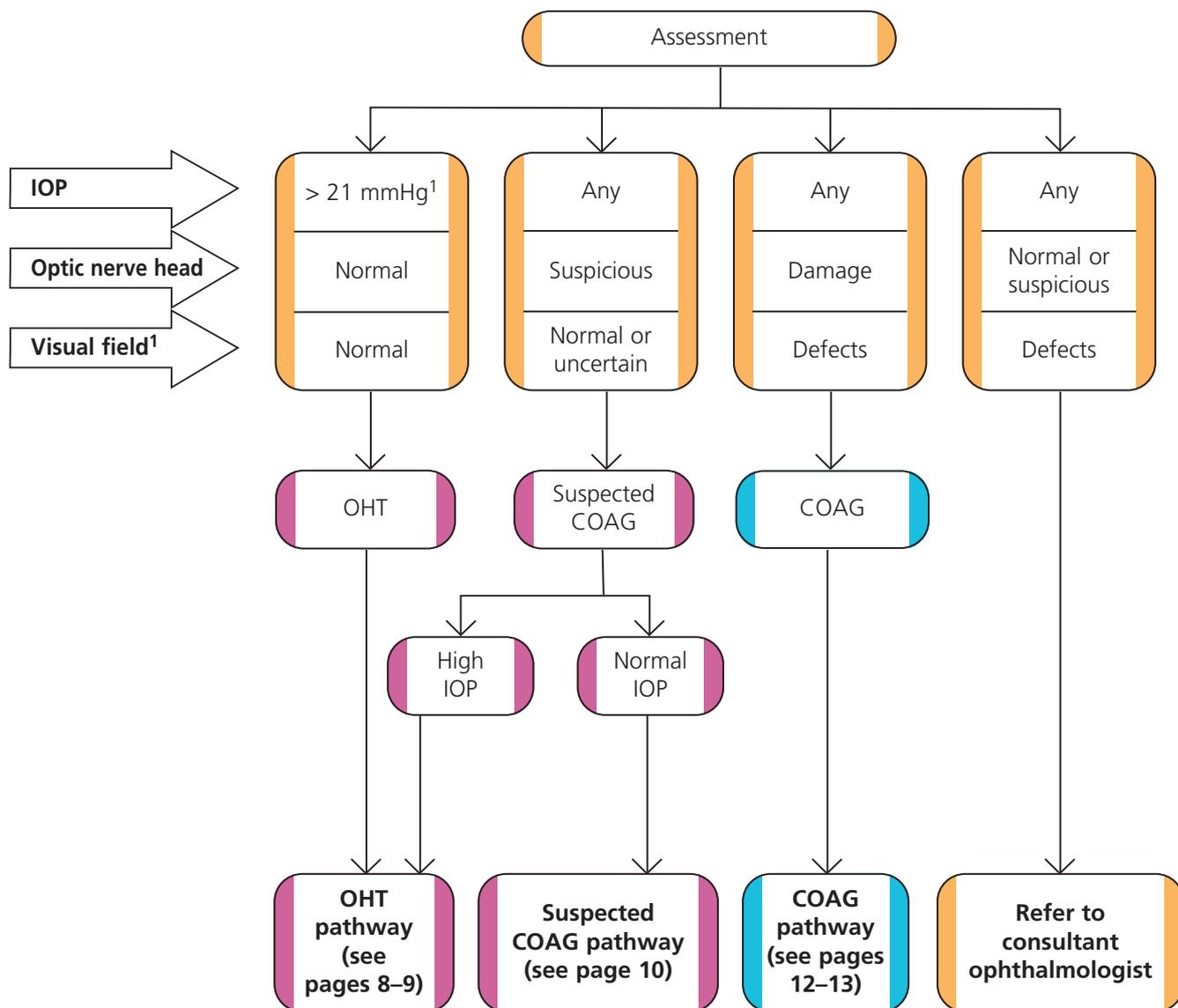
- At diagnosis offer:
 - IOP measurement using Goldmann applanation tonometry
 - CCT measurement
 - peripheral anterior chamber configuration and depth assessments using gonioscopy
 - visual field measurement using standard automated perimetry
 - optic nerve assessment, with dilatation, using stereoscopic slit lamp biomicroscopy with fundus examination. **KPI**

- If clinical circumstances rule out standard methods of assessment, use alternatives.
- Obtain an optic nerve head image.

- Ensure the following are available at each clinical episode:

– records of all relevant previous tests and images	– current systemic and topical medication
– records of past medical history which could affect drug choice	– glaucoma medication record
	– drug allergies and intolerances. KPI

Diagnosis of OHT, suspected COAG and COAG



See key priorities for implementation on page 14.

¹ Repeatable.

Tests offered at monitoring to people with OHT, suspected COAG or COAG

For recommended monitoring intervals see the flowcharts on pages 8–10 for people with OHT or suspected COAG, and on pages 12–13 for people with COAG.

- Offer standard automated perimetry to:
 - all people who have established COAG
 - people suspected of having visual field defects who are being investigated for possible COAG.People with diagnosed OHT or suspected COAG with confirmed normal visual fields may be monitored using supra-threshold perimetry.
- Where a defect has previously been detected use the same visual field measurement strategy for each visual field test.
- Offer Goldmann applanation tonometry and Van Herick's test at each monitoring assessment.
- Repeat CCT measurement and gonioscopy when clinically indicated.
- Offer stereoscopic slit lamp biomicroscopic examination of the optic nerve head at monitoring assessments.
- If there is no adequate view of the optic nerve head and surrounding area, ensure pupils are dilated before assessment.
- Obtain a new optic nerve head image if there is a change in status.

Monitoring and treatment for people with OHT or suspected COAG

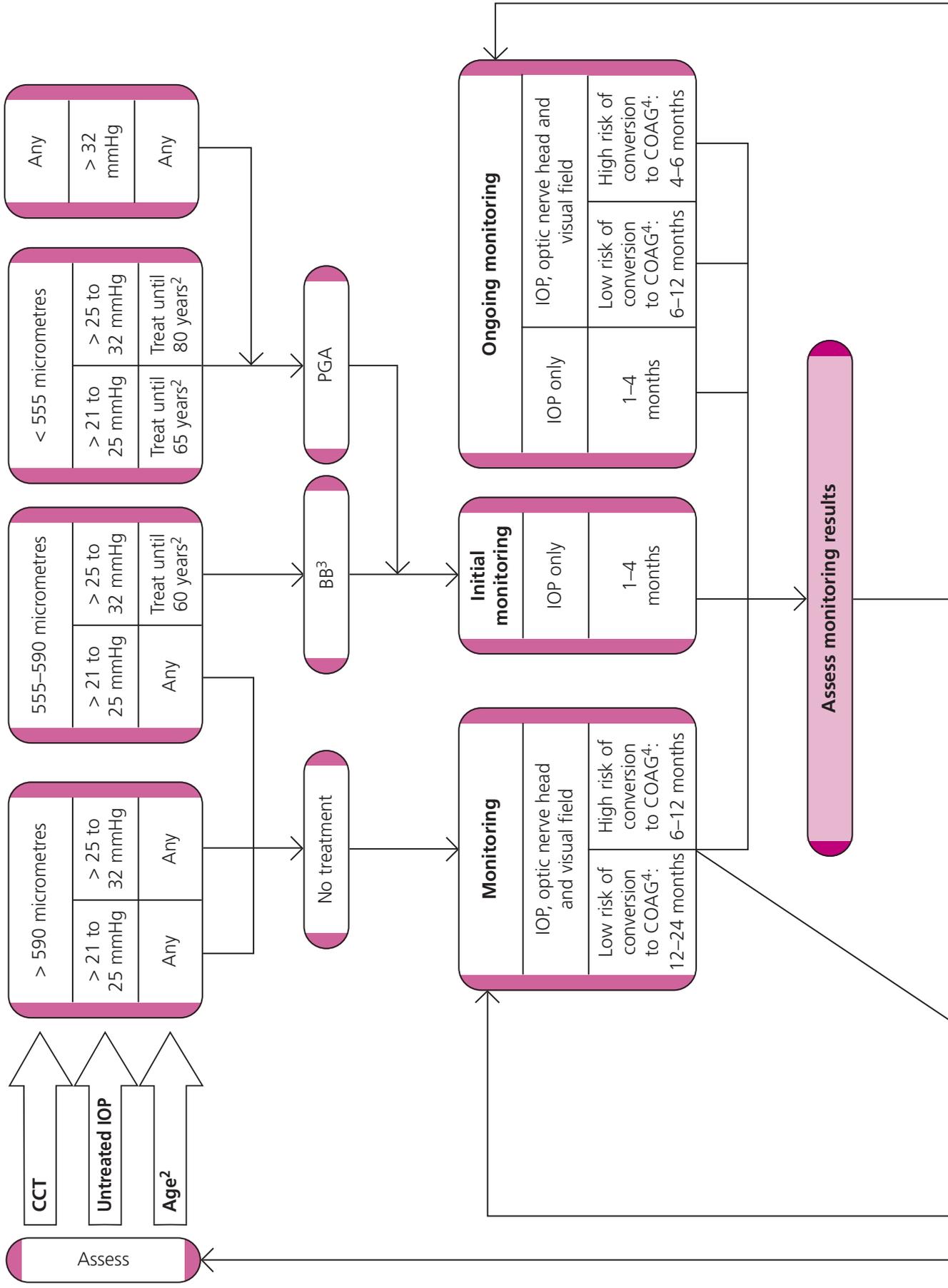
See the OHT pathway on pages 8–9 and the suspected COAG pathway on page 10.

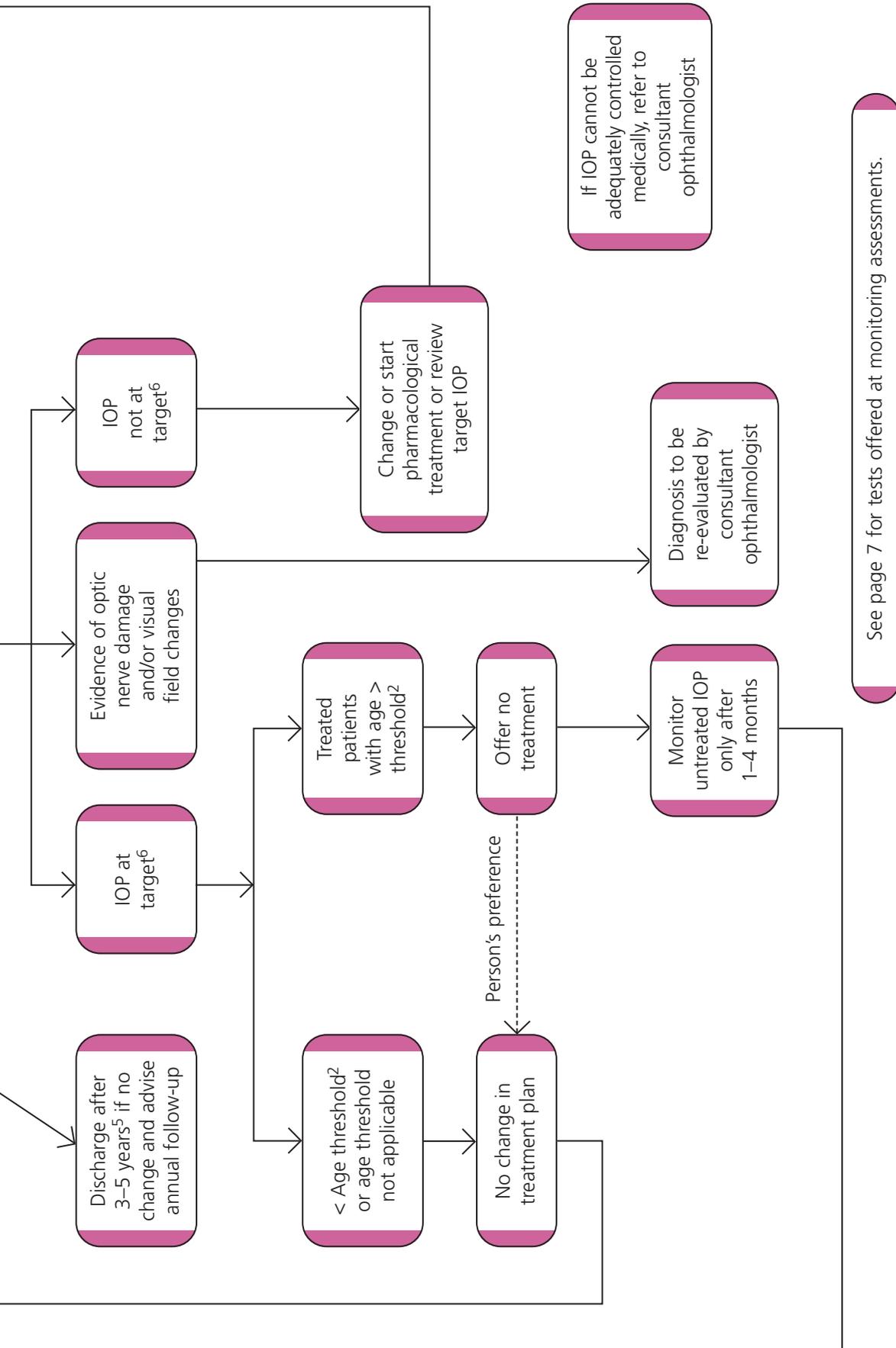
- 'Pharmacological treatment' refers to a prostaglandin analogue, beta-blocker, carbonic anhydrase inhibitor or sympathomimetic, or a preservative-free preparation if the person is allergic to preservatives. More than one agent may be needed concurrently.
- Check there are no relevant comorbidities or potential drug interactions before offering medication.

- Monitor at regular intervals people with OHT or suspected COAG recommended to receive medication, according to their risk of conversion to COAG (see OHT pathway on pages 8–9). **KPI**

- Offer people with OHT or suspected COAG with high IOP treatment based on estimated risk of conversion to COAG using IOP, CCT and age (see OHT pathway on pages 8–9). **KPI**

OHT pathway (monitoring and treatment for people with OHT and people with suspected COAG who have high IOP)





² Above the age threshold as indicated for each combination of parameters, the optimal treatment strategy changes to no treatment. The use of age thresholds is considered appropriate only where vision is currently normal (OHT with or without suspicion of COAG) and the treatment is purely preventative. Under such circumstances the threat to a person's sighted lifetime is considered negligible. In the event of COAG developing in such a person then treatment is recommended.

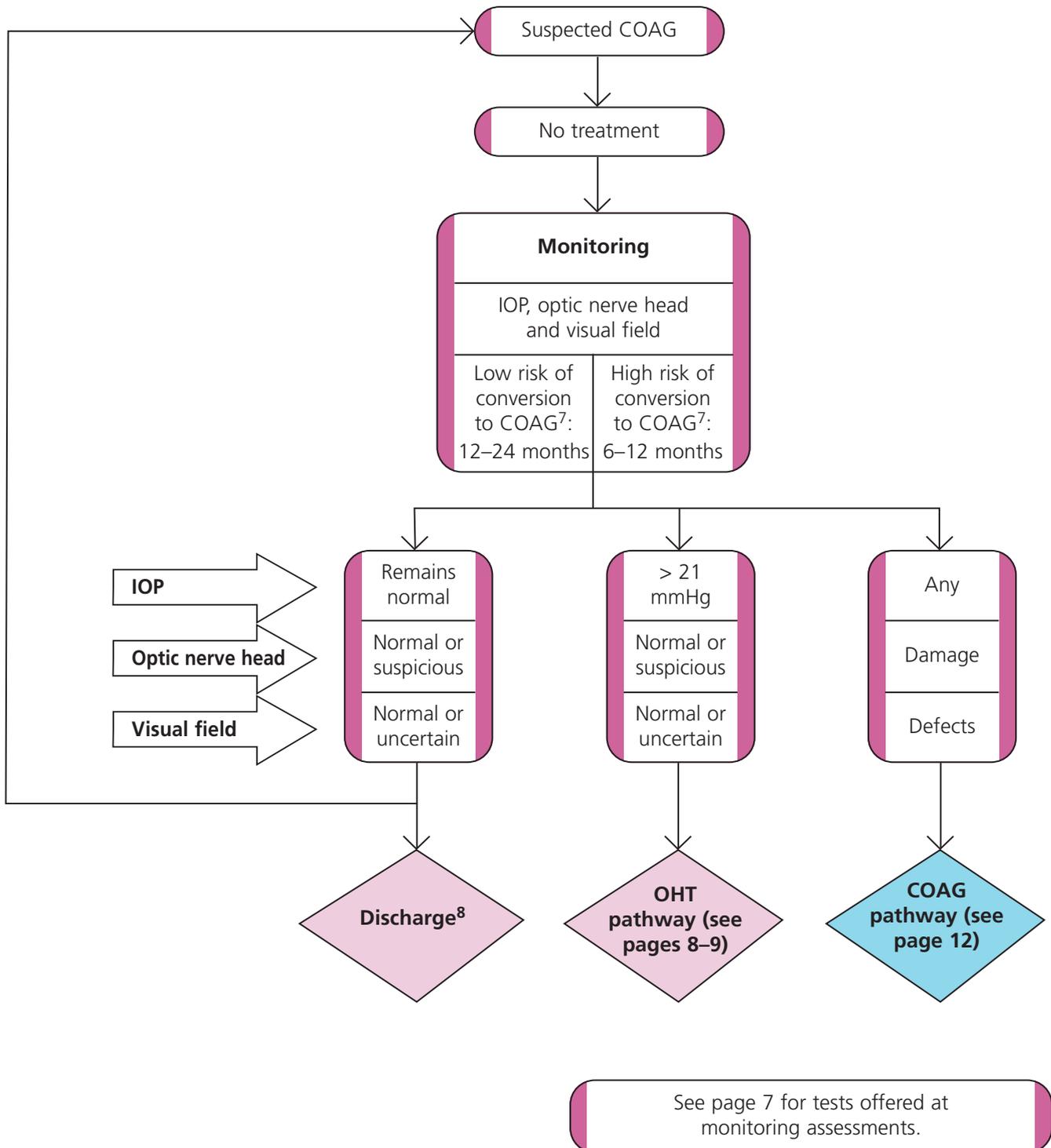
³ If BB are contraindicated offer a PGA.

⁴ To be clinically judged in terms of age, IOP, CCT, and appearance and size of optic nerve head.

⁵ Or before if confirmed normal.

⁶ Target IOP = see 'Terms and abbreviations' on page 4.

Suspected COAG pathway (monitoring for people with suspected COAG and normal IOP)



⁷ To be clinically judged in terms of age, IOP, CCT, and appearance and size of optic nerve head.

⁸ After 3–5 years if no change or before if confirmed normal, and advise annual follow-up with primary care optometrist.

Monitoring and treatment for people with COAG

See the COAG pathway on pages 12–13.

- 'Pharmacological treatment' refers to a prostaglandin analogue, beta-blocker, carbonic anhydrase inhibitor or sympathomimetic, or a preservative-free preparation if the person is allergic to preservatives. More than one agent may be needed concurrently.
- Check there are no relevant comorbidities or potential drug interactions before offering medication.

- Monitor at regular intervals people with COAG according to their risk of progression to sight loss (see COAG pathway on pages 12–13). **KPI**

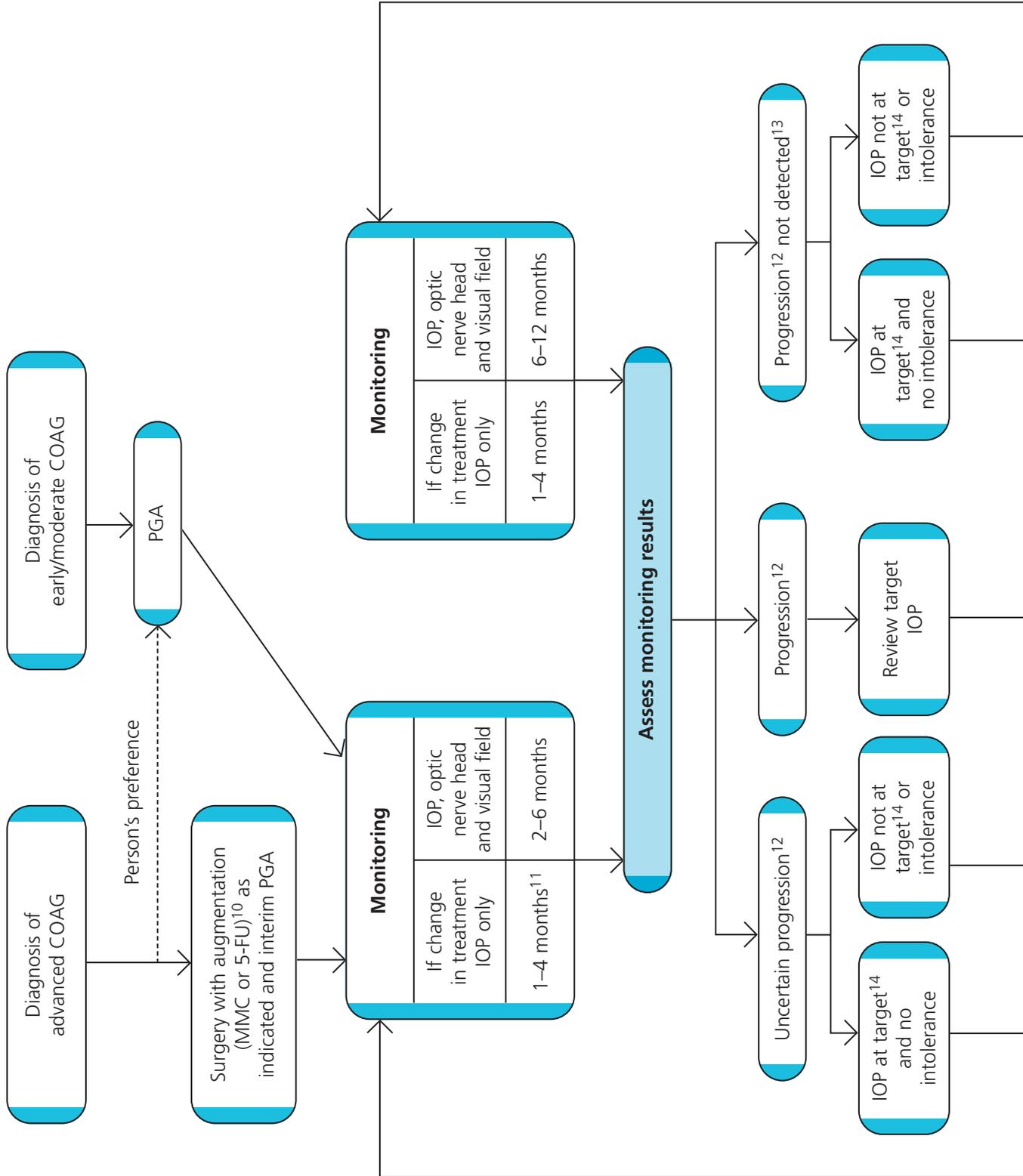
- Offer people newly diagnosed with early or moderate COAG, and at risk of significant visual loss in their lifetime, treatment with a prostaglandin analogue. **KPI**

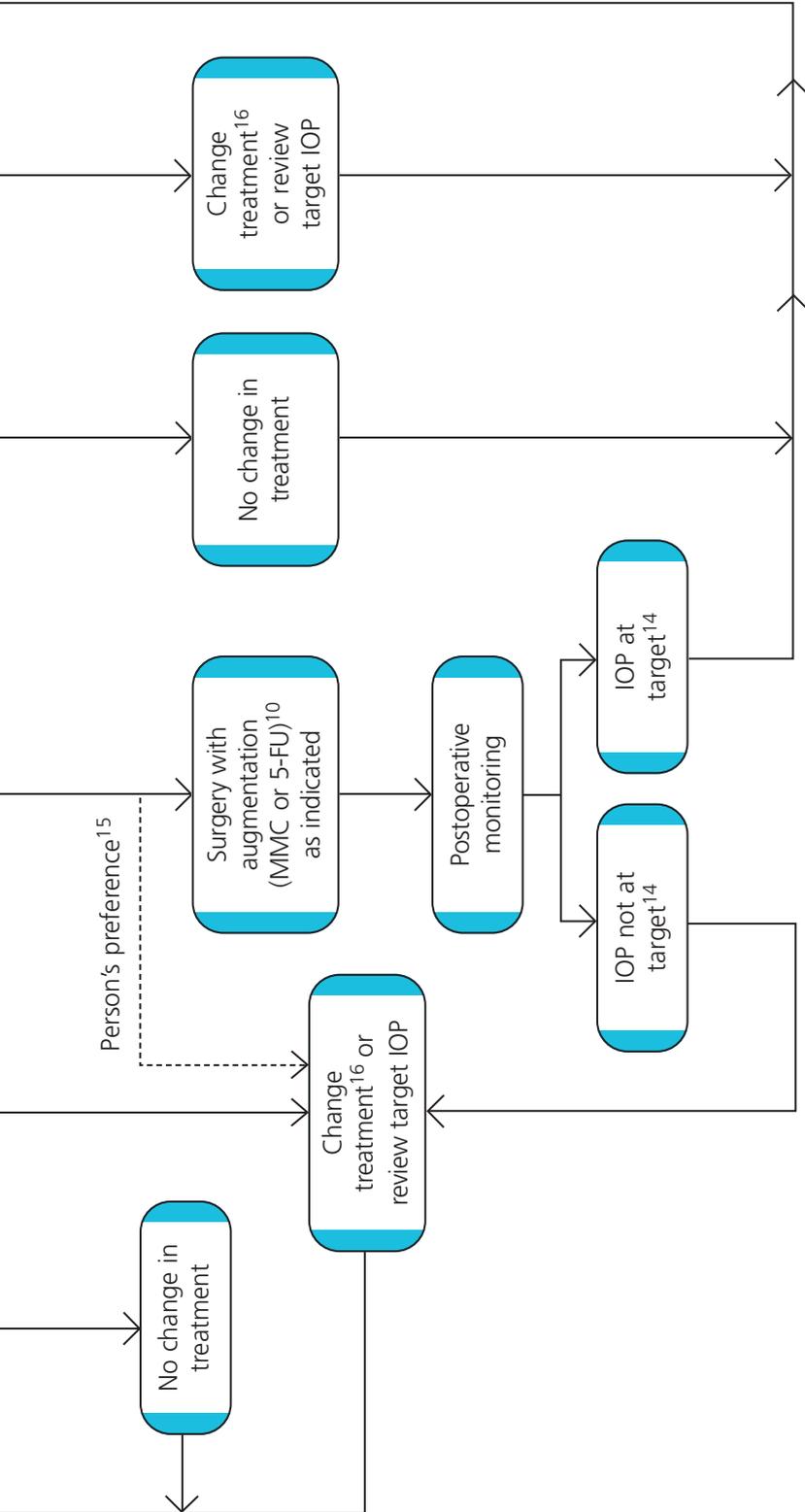
- Offer surgery with pharmacological augmentation (MMC or 5-FU)⁹ as indicated to people with COAG who are at risk of progressing to sight loss despite treatment. Offer them information on the risks and benefits associated with surgery. **KPI**

- Offer people with advanced COAG surgery with pharmacological augmentation (MMC or 5-FU)⁹ as indicated. Offer them information on the risks and benefits associated with surgery.

⁹ At the time of publication (April 2009), MMC and 5-FU did not have UK marketing authorisation for this indication. Informed consent should be obtained and documented. Both drugs should be handled with caution and in accordance with guidance issued by the Health and Safety Executive.

COAG pathway (monitoring and treatment for people with COAG)





Provide information at every visit.
Check adherence.

See page 7 for tests offered at monitoring assessments.

¹⁰ At the time of publication (April 2009), MMC and 5-FU did not have UK marketing authorisation for this indication. Informed consent should be obtained and documented. Both drugs should be handled with caution and in accordance with guidance issued by the Health and Safety Executive.

¹¹ Or 1–2 months if there is progression or uncertain progression.

¹² Progression = increased optic nerve damage and/or visual field change confirmed by repeated test where clinically appropriate.

¹³ Or not assessed if IOP check only following treatment change.

¹⁴ Target IOP = see 'Terms and abbreviations' on page 4.

¹⁵ When the person prefers not to have surgery or is not suitable for surgery, offer pharmacological treatment or laser treatment.

¹⁶ Pharmacological treatment (re-start if after surgery), surgery with augmentation (MMC or 5-FU) as indicated or laser as appropriate.

Organisation of care

- Refer people with suspected optic nerve damage or repeatable visual field defect, or both, to a consultant ophthalmologist for consideration of a definitive diagnosis and formulation of a management plan. **KPI**
- Diagnosis of OHT and suspected COAG and formulation of a management plan should be made by a suitably trained healthcare professional with:
 - a specialist qualification (when not working under the supervision of a consultant ophthalmologist) **and**
 - relevant experience.
- Diagnosis of OHT and suspected COAG and preliminary identification of COAG should be made by a healthcare professional trained in case detection and referral refinement who is able to identify abnormalities based on relevant clinical tests and assessments¹⁷.
- People with a diagnosis of OHT, suspected COAG or COAG should be monitored and treated by a trained healthcare professional who has all of the following:
 - a specialist qualification (when not working under the supervision of a consultant ophthalmologist)
 - relevant experience
 - ability to detect a change in clinical status. **KPI**
- Monitoring and treatment of people with OHT, suspected COAG and established COAG should be carried out by healthcare professionals trained to make relevant management decisions¹⁷.
- Monitoring (but not treatment) of people with a confirmed diagnosis of OHT or suspected COAG who have an established management plan can be carried out by a suitably trained healthcare professional with the relevant skills¹⁷ and ability to detect a change in clinical status.
- Healthcare professionals who diagnose, treat or monitor people independently of consultant ophthalmologist supervision should take full responsibility for the care they provide.
- Adopt professional¹⁸/Department of Health¹⁹ guidance to reduce the risk of transmitting infective agents via contact tonometry or gonioscopy.
- Ensure that all machines and measurement instruments are calibrated regularly according to the manufacturer's instructions.

¹⁷ See the NICE guideline for details (www.nice.org.uk).

¹⁸ Royal College of Ophthalmologists (www.rcophth.ac.uk) and the Medicines and Healthcare products Regulatory Agency (www.mhra.gov.uk).

¹⁹ See www.advisorybodies.doh.gov.uk

Implementation tools

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CG85).

- Slides highlighting key messages for local discussion.
- Audit support for monitoring local practice.
- Costing tools:
 - costing report to estimate the national savings and costs associated with implementation
 - costing template to estimate the local costs and savings involved.

Further information

Ordering information

You can download the following documents from www.nice.org.uk/CG85

- The NICE guideline – all the recommendations.
- A quick reference guide (this document) – a summary of the recommendations for healthcare professionals.
- ‘Understanding NICE guidance’ – a summary for patients and carers.
- The full guideline – all the recommendations, details of how they were developed, and reviews of the evidence they were based on.

For printed copies of the quick reference guide or ‘Understanding NICE guidance’, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk and quote:

- N1846 (quick reference guide)
- N1847 (‘Understanding NICE guidance’)
- N1858 (‘Understanding NICE guidance’ large print version).

Related NICE guidance

For information about NICE guidance that has been issued or is in development, see www.nice.org.uk

Published

Canaloplasty for primary open-angle glaucoma. NICE interventional procedure guidance 260 (2008). Available from www.nice.org.uk/IPG260

Updating the guideline

This guideline will be updated as needed, and information about the progress of any update will be available at www.nice.org.uk/CG85

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N1846 1P 30k Apr 09

ISBN 1-84629-949-7