Shared care and referral pathways
Part 4: How NICE – OHT and glaucoma referral

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Chronic open-angle glaucoma (COAG) is a common and potentially blinding condition. Its prevalence rises steeply with advancing age, from 0.3% at 40 years to 10% in the over 80s.\(^1\) It is estimated that around 489,000 people are known to have COAG in England and at least the same number again remain undetected.\(^2\) COAG is usually asymptomatic until it reaches an advanced stage. Visual impairment from glaucoma has been associated with poor quality of life and loss of independence, for example from falls or losing the ability to drive. About 14% of UK blindness registrations are due to glaucoma. Although COAG cannot be cured, at least its devastating effects can be minimised through timely detection, diagnosis and slowing the progression of this insidious disease. Once the diagnosis is established, lifelong monitoring is required to minimise the risk of progressive, irreversible damage to vision. This article discusses shared care of glaucoma and looks at opportunities created by changes in clinical guidance which took place a few years ago.

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Learning objectives
Be able to work within a multi-disciplinary team, knowing the roles of other health care professionals including knowledge of glaucoma shared care schemes (Group 2.2.2)
Be able to evaluate glaucoma risk factors, to detect glaucoma and refer accordingly (Group 6.1.8)

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About the author
Chris Steele is consultant optometrist, head of optometry at Sunderland Eye Infirmary (SEI). Over the past 19 years he has developed a wide range of extended roles involving hospital optometrists undertaking cataract, anterior segment, diabetes, glaucoma, paediatrics and medical retina caseloads. He has authored over 50 publications on topics including glaucoma, diabetes, specialist medical contact lenses, refractive surgery and clinical risk management, and has undertaken many presentations, both nationally and internationally. Mr Steele was a member of the NICE Glaucoma Guideline Development Group from 2007 to 2009, which produced the NICE glaucoma guidelines published in 2009.
Risk factors

Ocular hypertension (OHT) is a major risk factor for developing COAG, although COAG can occur with, or without, raised intraocular pressure (IOP). OHT is defined in the NICE glaucoma guidance as repeatable IOP over 21mmHg measured by Goldmann applanation tonometry (GAT), where optic discs and visual fields are normal. Numerous studies have demonstrated the role of IOP as a significant risk factor in the development and progression of COAG.

The risk of developing glaucoma (Figure 1) and worsening of existing glaucoma increases with elevated IOP. For every 1mmHg of IOP above the normal range, the risk of developing glaucoma increases by 12%. Other risk factors include myopia, low central corneal thickness (CCT), diabetes, hypertension, a family history with a first degree relative being affected by glaucoma, and exfoliation (in patients over 65 years). The risk is four times higher for those of African ethnicity.

Increasing demands on secondary care

In recent years there has been a realisation that chronic disease management represents a huge challenge to the NHS. Hospital episode statistics for England show that there were 6.2 million outpatient attendances in 2010-11. Of this total, approximately 9% were for ophthalmology, with about 1.7 million new and 4.6 million review appointments, giving a new to follow-up (N:F) ratio of 1:2.7. In recent times there has been a huge emphasis placed on minimising new patient waiting times to reach referral time targets. This has resulted in a shift of resources away from review visits for monitoring chronic disease, with these being increasingly viewed as unnecessary and wasteful. For many secondary care providers there is pressure to further reduce this N:F ratio to less than 1:2.5. While this is reasonable in the context of streamlining elective surgery, for example cataract, for chronic disease management, such as COAG, it may be detrimental to patient care and potentially harmful to patients. Indeed a low N:F ratio would indicate a poor service where chronic disease management is concerned.

The NICE Glaucoma Guideline – recommendations on service provision

The NICE Guideline was the first guideline ever to include recommendations on service provision. The guideline set out an evidence-based framework which enables optometrists and other healthcare professionals to play an increasing role in the medical management of COAG and OHT in accordance with clinical risk and case complexity based at three defined skill levels:

1. Optometrists and other healthcare professionals involved in the diagnosis of OHT, suspect COAG status and preliminary identification of COAG, should be trained in case detection and referral refinement and be able to identify abnormalities based on relevant clinical tests and assessments. They should understand the principles of diagnosis of OHT and COAG and be able to perform and interpret all of the following:
   - Medical and ocular history
   - Differential diagnosis
   - GAT
   - Semi-automated perimetry (SAP): central threshold testing
   - Stereoscopic slit lamp biomicroscopic examination of the anterior segment
   - Examination of the posterior segment using a slit-lamp binocular indirect ophthalmoscope
   - Gonioscopy
   - Van Herrick’s peripheral anterior chamber depth measurement
   - CCT

2. Individuals with a diagnosis of OHT, suspected COAG (Figure 2), or COAG should be monitored and treated by a trained optometrist/healthcare professional who has:
   - A specialist (glaucoma) qualification (when not working under the supervision of a consultant ophthalmologist – see later)
   - Relevant experience
   - Ability to detect change in clinical status

Such practitioners should be trained to make management decisions on the following:

- Risk factors for conversion of OHT to COAG, that is age, mean IOP, CCT and vertical cup-to-disc (C/D) ratio
- Presence of other risk factors associated with increased risk of developing COAG
- Co-existing pathologies
- Risk of vision loss
- Detection of change in clinical status, for example anterior chamber angles changing from open to narrow on gonioscopy
- Pharmacology of IOP-lowering medications
- Appropriate treatment changes

3. The lowest risk group – that is patients with a confirmed diagnosis of OHT (who may be receiving treatment already) or suspected COAG and who have an established management plan, may be monitored (but not treated) by an optometrist or other suitably trained practitioner with knowledge of OHT and COAG, relevant experience, and the ability to detect change in clinical status. At this level, community-based optometrists are well placed to take on a number of roles now being advocated by the Local Optical Committee Support Unit (LOCSU – see later), as all the entry-level requirements are within core competencies laid out by the GOC and the College of Optometrists.

Definition of supervision

The NICE Glaucoma guideline did not define the term “working under the supervision” of a consultant ophthalmologist. In December 2010, joint guidance was issued by the College of Optometrists and Royal College of Ophthalmologists with the purpose of setting out principles of supervision in the context of the NICE Guideline on Glaucoma. This document is...
1 CET POINT

essential reading for all those optometrists who work in glaucoma-related shared care schemes and defines responsibilities. It implies that optometrists who have been working in well-managed schemes supervised by the Hospital Eye Service (HES) do not have to gain additional qualifications to be able to continue to work in such schemes. This does not, of course, undervalue the benefits of acquiring additional formal qualifications, such as the College of Optometrists’ glaucoma-related higher qualifications now available from a number of providers. The following points are from this guidance:

- Supervision is a key part of clinical governance.
- The supervisor must, therefore, formally assess the competence and experience of the optometrist before determining the level of supervision required. The necessary knowledge and skills for working with various case mix complexities have been specified in the NICE guideline above. The level of supervision lies on a scale, from being on the premises and immediately checking the optometrist’s findings and decision-making, to supervision by audit (in this case, retrospective analysis of process of care), depending on the competence and experience of the optometrist.

Emerging shared care models for glaucoma management

With the NICE Glaucoma guideline’s recommendations on organisation of care now established, new ways to transfer the management of stable glaucoma and OHT into the community have been proposed, as well as care pathways which reduce unnecessary referrals to the HES in the first place. These would increase capacity within overburdened HES glaucoma clinics to cater for patients who require “high tech” interventions for more complex needs, such as surgery and unstable cases requiring complicated, multiple therapy. High trained hospital-based optometrists have proved to be very effective in the overall management of more complex caseloads requiring secondary care interventions. NICE estimates that of the 169,500 patients with COAG, suspect COAG and OHT currently managed in the HES, 56,320 could be managed in the community. This produces an estimated shift in resources of £7.4 m when applied to the estimated cost per year of more regular monitoring intervals of £132.50 per patient. NICE notes that services can be commissioned from a range of providers including the HES, community ophthalmology and optometry services.

Repeat measurement schemes and LOCSU

In order to facilitate a reduction of referrals of suspect glaucoma to the HES and to increase “care in the community” for glaucoma-related conditions, repeat IOP measurement schemes involving community optometrists are now being established, as supported by LOCSU (Figure 3). These can significantly reduce false positive referrals into the HES and are relatively easy to introduce. IOP refinement requires accurate repeat readings; therefore repeat measures using either GAT or Perkins only are acceptable in any NHS funded enhanced service.

LOCSU has been working in collaboration with Webstar Health, leaders in the field of primary care software integration, to develop packages which will benefit commissioners, LOCs and practices providing such services. A software package called OptoManager has been developed as an electronic patient record for Level 1 of the pathway, which is currently in use in certain areas already.

This platform will standardise data collection and will ensure audit data is readily available. It can generate paper referrals, or can provide for electronic referral via a referral management centre.

Evaluation of data in Sunderland, Stockport, Bexley and North Tyneside PCTs shows that a reduction in referrals of up to 76% can be expected following implementation of a glaucoma repeat readings service provided by community optometrists. Recent studies have also demonstrated substantial cost benefits, while onward referral for refinement by an accredited optometrist was essentially cost neutral.

While there are some costs of setting up such schemes, repeat measurement paves the way for developing and enhancing local programmes which may achieve more long-term savings. Evidence, so far, suggests the risk of false negatives in repeat measure schemes, where a patient with glaucoma is not referred to the HES, appears to be low.

LOCSU referral pathway Level 1a

Patients who are identified as having IOP >21 mmHg and no other signs of glaucoma during a GOS or private sight test will have immediate GAT or Perkins tonometry. This service falls within core competencies for optometrists. There are four possible outcomes from this first repeat of pressures (Figure 3):

- All patients with IOP >31 mmHg should be referred for OHT diagnosis without further IOP refinement.
- Patients with IOP of 22-31 mmHg need to proceed to Level 1a Part 2.
- IOP which differs between the eyes by 5 mmHg or more should proceed to Level 1a Part 2.
- All other IOP results are within normal limits and the patient can be discharged.

LOCSU referral pathway Level 1a (Part 2)

- Patient attends for a second repeat GAT or Perkins tonometry on a separate occasion.
- Measurements which confirm earlier findings should result in referral to the HES.
LOCSU referral pathway Level 1b: Visual fields repeat measures
• Patients who are identified as having suspicious visual fields during a GOS or private sight test will have visual fields repeated on a separate occasion. This service falls within core competencies for optometrists.

LOCSU referral pathway Level 2: OHT and suspect COAG monitoring
• Patients who have a confirmed diagnosis of OHT or suspect COAG should follow the OHT or suspect COAG monitoring pathway and be monitored at regular intervals as specified by NICE. Patients will be referred to this pathway from the community OHT diagnostic clinic or secondary care with an individual management plan (Figure 4, overleaf on page 58).
• The skills required for this pathway are also covered by the core competencies for optometrists.

Referral refinement
Referral refinement describes a two-tier assessment in which an initial suspicious finding is validated by a subsequent enhanced assessment and which adds value beyond that achieved through a simple repeat measures scheme.

A referral refinement service involves trained and accredited optometrists/ophthalmic medical practitioners working in accordance with NICE guidance. The College of Optometrists recommends optometrists in referral refinement services undertake a Professional Higher Certificate in Glaucoma from one of its accredited providers if they do not work under the supervision of a consultant, in order to allow them to diagnose OHT and COAG and monitor those with OHT. The cost of training must be incorporated into any referral refinement scheme.

Glucoma care in the future
With full implementation of the NICE Glaucoma guideline nationally, it is likely that there will be a number of key changes:
• The increasing referrals of patients from primary care will lead to more people being treated for glaucoma-related disease as more patients will routinely undergo appropriate and timely clinical investigations, as recommended by NICE.
• The number of people diagnosed with glaucoma will also increase because of better detection rates, optimum use of available technology and adherence to NICE guideline treatment and management recommendations.
• Specialists should have more time to deal with complex cases with “low risk” patient cohorts being managed in the community.
• There will be a greater reliance on optic nerve head assessment rather than visual fields (which are notoriously unreliable) for detecting/monitoring glaucomatous disease progression. One of the NICE guideline recommendations is for newly diagnosed patients to undergo optic disc imaging for future reference.
• With much improved reliable audit data now available for glaucoma surgical procedures, the evidence base is now available to support more glaucoma patients having surgery as part of their management.
• By streamlining care pathways with more patients being managed in the community this should produce increased HES capacity with fewer appointments being cancelled or postponed.

The Health and Social Care Act (2012) represents the most significant overall changes to the structure of the NHS since its inception. It has paved the way for major changes in chronic care management, with GP-led clinical commissioning groups (CCGs) enabling patients to be referred to ‘any willing provider’. Competition is to be actively encouraged in an attempt to drive down costs and achieve maximum efficiency savings. There are inherent dangers associated with such radical changes to the health system, which if not guarded against could actually result in worsening of care for glaucoma patients. In the face of independent sector competition, centres of excellence could be forced to reduce their overall quality of care in order to remain competitive in this open market. CCGs may only award contracts for limited (short-term) periods of time, which could result in poor continuity of care in the long-term.

Communication is essential in any shared care scheme, with timely communication costing money. There are concerns that without a robust electronic referral mechanism and communication network between secondary care and the community, feedback will be limited and ultimately undermine effectiveness and add to overall costs. Most importantly, in any shared care scheme, collaboration between providers, clinicians and commissioners should take precedence over competition.

Some independent sector ‘willing providers’ may only provide a bare minimum service at a lower level than previous local HES services in order to minimise costs and drive efficiency savings for the CCGs. This could lead to reduced research potential, with cohort studies more difficult to conduct with greater fragmentation of services.

There is also the danger of ill-advised CCGs diverting too much money into setting up shared care schemes which result in over-monitoring of
low risk groups, which might unnecessarily increase false positive referral rates. This would then have a knock-on effect for patient groups considered at high risk. This could also lead to inappropriate or overtreatment of those who do not require it and delayed treatment for higher risk groups.

While shifting resources could free-up capacity within the HES, costs of community provision should be assessed locally, as there may be additional costs of training and audit of community optometrists. Any shared care scheme must be audited against NICE standards to compare quality and attendance rates in the community to those in the HES. A recent study by Mandalos and colleagues reported a higher rate of patients not attending among those being reviewed by community optometrists for OHT monitoring, compared with hospital appointments.

**Conclusion**
The main problem with glaucoma care is that current capacity in secondary care is not, and will not be, sufficient to meet growing demand. Service re-design is therefore essential and should include all relevant healthcare input and take full advantage of the skills of optometrists. Certainly the lowest risk groups of glaucoma patients could be managed appropriately in the community by optometrists without any further training beyond the core competencies. Higher risk groups involving more complex caseloads can be managed by appropriately trained optometrists, as has been demonstrated so successfully by certain HES units around the country, such as Bristol and Manchester.

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**Figure 4 LOCSU OHT monitoring pathway** (reproduced courtesy of LOCSU)