

Selective laser trabeculoplasty (SLT) performed by optometrists for patients with glaucoma and ocular hypertension: a scoping review protocol

Lee Jones ,^{1,2} Evgenia Konstantakopoulou,^{1,2,3} Gus Gazzard^{1,2}

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¹Moorfields Eye Hospital NHS Foundation Trust, London, UK

²Institute of Ophthalmology, University College London, London, UK

³Division of Optics and Optometry, University of West Attica, Attica, Greece

Correspondence to

Professor Gus Gazzard; g.gazzard@nhs.net

ABSTRACT

Introduction In the UK, the National Institute for Health and Clinical Excellence are amending guidelines to support use of selective laser trabeculoplasty (SLT) as a first-line treatment for patients with glaucoma and ocular hypertension. The procedure is quick, effective in lowering intraocular pressure, cost-effective for the National Health Service and offers an equivalent safety profile to other therapies. The procedure is typically performed by an ophthalmologist; however, there is potential for suitably trained non-medical professionals to deliver the therapy. This scoping review will identify service delivery models where SLT is delivered by non-medical professionals worldwide, with a focus on optometrists.

Methods and analysis A systematic search of the following databases will be conducted: CINAHL; MEDLINE Complete; Embase; HMIC and Ovid Emcare. For inclusion, studies must examine healthcare models of SLT delivery by optometrists and describe one of the following outcomes: training procedures; clinical effectiveness; safety and cost-effectiveness. A search of grey literature will be conducted via professional societies; national health departments; medicine regulatory bodies; charities and conference proceedings. Two reviewers will independently screen titles, abstracts and full-texts articles, followed by charting of data. This evidence synthesis will summarise findings narratively, supplemented with tables and descriptive statistics.

Ethics and dissemination The review focuses on published articles and therefore ethical approval is not required. The findings will be relevant to key stakeholders including health service managers, policymakers, clinicians and patients. The findings of this review will be disseminated through peer-reviewed publications, conference presentations and summary reports for key stakeholders.

RATIONALE

Glaucoma is a chronic ocular condition causing non-recoverable loss of vision. The most prevalent form is open-angle glaucoma, resulting in over 1 million glaucoma-related outpatient visits in the hospital eye service (HES) annually.¹ Approximately 15% of outpatient appointments in glaucoma clinics are due to ocular hypertension (OHT),² a

condition where intraocular pressure (IOP) is consistently measured at greater than 2 SD above the population mean IOP, without the presence of clinical evidence of glaucomatous optic nerve damage or visual field defect. OHT is, however, a good predictor for onset of glaucoma.³ The number of people in the UK with glaucoma is expected to rise by 44% by 2035, along with a 16% increase in the patients diagnosed with OHT and 18% increase in glaucoma suspects,⁴ who are also monitored in the HES.

The number of patients referred into the HES is rapidly increasing. Explanations for this surge in patients include an ageing population, changes to national guidelines and improvements in disease detection by primary eye care services.^{5–7} Consequently, ophthalmic units have become the busiest outpatient service within the publicly funded National Health Service (NHS), with 7.8 million hospital attendances in ophthalmology in England in 2018–2019.⁸ Glaucoma care is a significant contributor to the large patient numbers seen in the HES. For example, once referred, patients with glaucoma are expected to have, on average, 40 follow-up visits over their lifetime.⁹ Provision of an effective glaucoma care service is challenged further by a shortfall in ophthalmologists observed worldwide, leading to a call for urgent action to alleviate growing pressure on the HES.¹⁰

In response to concerns regarding mounting pressure, the NHS published the Long Term Plan in 2019; a strategy describing plans to redesign patient care services to meet current challenges.¹¹ Attempts to reduce delays and manage the backlog of patients with glaucoma and OHT in the HES are being sought by a number of means, including establishing evening or weekend clinics, recruiting more ophthalmologists, sourcing external provision, refinement of referral pathways and implementation of



'virtual' telemedicine services.^{4 12 13} To increase capacity and reduce costs, approximately 90% of glaucoma clinics in the UK have incorporated non-medical professionals, primarily optometrists, into their outpatient services.⁴ In addition to capacity issues, the cost of treating glaucoma is also significant; during 2012, there were over 8 million items dispensed for the lowering of IOP (currently the only modifiable risk factor in glaucoma and OHT), resulting in a cost of over £105 million.¹⁴

Selective laser trabeculoplasty (SLT) is an outpatient procedure used to reduce IOP in glaucoma/OHT. The results of the LiGHT (Laser in Glaucoma and Ocular Hypertension) trial indicated that SLT can be a safe, efficient and cost-effective way of reducing IOP in the majority of the patients treated, without the need for drops.¹⁵ Following the outcomes of the LiGHT trial, the National Institute for Health and Clinical Excellence (NICE) has decided to update guidance to reflect the above outcomes and recognise the role of SLT as a first-line treatment option for patients with newly diagnosed glaucoma or OHT.¹⁶ The NICE surveillance report noted that, although most centres would already have the necessary equipment for SLT delivery, there may be resourcing issues in relation to an increase in laser procedures, and the likely need to upskill non-medical professionals to support the delivery of SLT. This is an important area for research as currently, SLT is almost exclusively delivered by ophthalmologists across NHS hospitals in the UK.

Objectives

- ▶ Identify the current infrastructure of SLT delivery by optometrists in the UK and worldwide.
- ▶ Describe the training procedures for this model of healthcare delivery.
- ▶ Collect and summarise evidence on clinical effectiveness, safety and cost-effectiveness of existing infrastructures where SLT is delivered by optometrists.

METHODS AND ANALYSIS

The decision to conduct a scoping review was based on published guidance regarding methodological approaches when undertaking an evidence synthesis.¹⁷ Specifically, the literature suggests that when the aim of the review is to identify characteristics of different healthcare systems, as with this evidence synthesis, a scoping review would likely be most appropriate. Moreover, a scoping approach is particularly suitable when discussing workforce organisations, where they have been implemented, who they have targeted and what types of conditions they have focused on.¹⁸ This protocol will follow best practice for conducting scoping reviews as outlined by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).¹⁹ We will follow a framework for conducting scoping reviews to ensure all aspects of the process are undertaken using rigorous and transparent methods.²⁰

Inclusion and exclusion criteria

This scoping review will include research studies of any design and methodological approach. There will be no limit on publication dates. Only studies where the full text is available and in English language will be included. Studies must address the exposure of interest (ie, glaucoma or OHT). Sources may be from both private and public sector. There will be no requirement for studies to include specific outcomes relating to, for example, efficacy of optometrist delivered SLT. Sources where an SLT extended role for optometrists is conceptualised will be included, as relevant details may be discussed, such as a proposed training infrastructure. While a broad range of search terms relating to non-medical professionals will be included, the review will focus on optometrists due to their clinical readiness in areas pertinent to SLT delivery including use of slit lamp, gonioscopy and Goldmann applanation tonometry. We will exclude articles where the aim is to measure equivalence of SLT outcomes between ophthalmologists-in-training and consultant ophthalmologists, as the purpose of this review is to investigate non-medical SLT training and delivery.

Search strategy

The search will be conducted in the following databases: CINAHL (Complete Cumulative Index of Nursing and Allied Health Literature), via EBSCOhost; MEDLINE Complete; Embase; HMCIC (Health Management Information Consortium) and Ovid Emcare, via Ovid. All databases will be searched from inception date. As advised by The Cochrane Handbook for Systematic Reviews of Interventions, the research team devised an initial list of medical subject headings (MeSH) to help develop the search terms. The MeSH were entered into PubMed to identify terms which may use a different word to describe the same concept (eg, 'doctor' and 'physician'). The list of search terms was complete once MeSH had been searched for all terms. The sensitivity of the final terms was assessed in a trial search. We will search reference lists of all included research articles to identify any further potentially relevant studies. It is anticipated that our planned search will identify primary research studies (ie, empirical evidence) relating to SLT performed by non-medical professionals. To accompany this, we will conduct a search of relevant grey literature sources (ie, clinical guidelines and reports). The grey literature search strategy was decided among the research team with consultation from the National Institute of Health Research (NIHR) Applied Research Collaboration North Thames. The resources for the grey literature search will include professional societies; national health departments; medicine regulatory bodies; charities and conference proceedings. In addition to web searching, we will develop a standardised email to send to professional societies enquiring about current status of optometrist delivered SLT in locations including Canada, USA, Australia, New Zealand and South Africa.

Search terms

('ophthalmologist*' OR 'hospital medical staff*' OR 'junior physician*' OR 'hospital registrar*' OR 'hospital attending physician*' OR 'hospital medical staff*' OR 'resident*' OR 'nonmedical internship*' OR 'non-medical residenc*' OR 'non-medical internship*' OR 'non-medical residenc*' OR 'allied health personnel' OR 'allied health professional*' OR 'healthcare assistant*' OR 'healthcare support worker*' OR 'paramedic*' OR 'paramedic personnel' OR 'population programme specialist*' OR 'optometrist*') AND ('trabeculoplast*' OR 'trabeculectom*' OR 'goniotom*')

Study selection

Two reviewers (LJ and EK) will independently screen the titles and abstracts of the identified studies using the inclusion/exclusion criteria that were decided a priori. Any discrepancies between the reviewers will be resolved through discussions with a third reviewer (GG) until a consensus is achieved. Full text articles, reports and guidelines will then be obtained for further screening. The studies will be assessed for suitability

using a web-based screening software (Covidence; Veritas Health Innovation Ltd, Melbourne, Australia; available at <http://www.covidence.org>). A PRISMA flow diagram will be completed to summarise the study selection process.

Data charting

After completion of the selection process, all articles relevant to the review will undergo data charting. Data will be extracted following recommended methods,¹⁹ whereby a custom form will be developed in Microsoft Excel to capture relevant details within the articles and guidelines (table 1). A pilot data extraction will be performed to assess equivalence between the two reviewers. We envisage the data extraction to be an iterative process, where new fields may be added to the form throughout the process. Following recommendations from the Cochrane Collaboration, we will contact authors of eligible primary studies via email to obtain any additional information on unclear items.

Table 1 Data charting for empirical and grey literature

Domain/subdomain	Description
1. Document characteristics	
Reference type	Empirical study, review, commentary, guidelines and so on
Title	Title of publication
Authors	Authors of publication
Publication year	Year of publication
Full citation	Citation of publication
Web link	Link to online source
2. Study characteristics	
Design	Observational study, experimental, qualitative and so on
Setting	For example, hospital eye service
Location	Country of publication
Population	Study eligibility criteria
Sample size	Number of participants in study
Study objectives	What is the study research question (if relevant)?
3. Characteristics of service delivery and outcomes	
Staffing of service	For example, number of staff in service, profile of staff (optometrists, hospital nurse, allied health professional and so on)
Training	For example, number of hours training, number of SLT procedures performed, details of supervision
Clinical effectiveness	Details of SLT efficacy (eg, evidence of sustained stable IOP)
Safety	Aspects relating to safety of procedure (eg, reporting of adverse events)
Cost-effectiveness	Details relating to service costings
Other outcomes	Any other study outcomes
Limitations	Limitations described by authors, and any other limitations identified
Implications and conclusions	Implications and conclusions as described by authors

IOP, intraocular pressure; SLT, selective laser trabeculoplasty.



Data synthesis

We will report the data using systematic narrative synthesis whereby the relevant literature will be used to generate a comprehensive evidence base of the infrastructure of SLT delivered by non-medical professionals. This will primarily be a textual approach where results will be presented narratively, supplemented with tables and descriptive statistics, and statistical analysis where possible. The study findings will be grouped depending on the similarities and differences in the outcomes assessed and themes will be identified to summarise healthcare models where SLT is delivered by non-medical professionals. Displaying information in this way will highlight the available evidence to the specific questions of the review.

Patient and public involvement

This scoping review protocol did not involve patients. However, stakeholder views, particularly patients, are an important consideration when considering the infrastructure of SLT delivery by non-medical professionals. Thus, the research team are undertaking a parallel investigation of stakeholder views (ophthalmologists, optometrists, patients and hospital managers) of this model of healthcare delivery.

Ethics and dissemination

Ethical approval for this scoping review was not required. We will publish the review in an open-access, peer-reviewed journal and publicise our findings at national and international meetings.

CONCLUSION

The overall aim of this review will be to summarise the nature of the existing literature regarding SLT delivered by optometrists to patients with glaucoma and OHT. By synthesising the relevant literature, we will gain an understanding of the various infrastructure currently in place where this model of healthcare delivery is used. Specifically, the review will highlight aspects of relevant training, clinical effectiveness, cost-effectiveness, and safety of non-medical professionals delivering SLT. To our knowledge, there has been no previous review of the existing literature.

In 2016, the Royal College of Ophthalmologists introduced the Ophthalmic Common Clinical Competency Framework (OCCCF), which aims to upskill non-medical professionals in the HES to develop new competencies in areas of the highest patient throughput, such as glaucoma care. A further purpose of the OCCCF is to standardise the necessary skill set across the eye health system to ensure consistent quality of service provision. The topic of this review is particularly timely and we anticipate our findings could be useful in informing development of future training frameworks. This review is the first phase in a series of research projects assessing implementation of a healthcare delivery model whereby non-medical professionals, such as optometrists, could deliver SLT. We

believe the findings of this review will provide important evidence regarding non-medical professionals delivering SLT that will be useful to a number of stakeholders including policymakers, health service managers and service users.

Contributors LJ and EK developed and refined the search strategy and drafted the protocol with suggestions from GG. All authors read and approved the final protocol.

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Competing interests None declared.

Patient consent for publication Not required.

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Data availability statement No data are available.

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ORCID iD

Lee Jones <http://orcid.org/0000-0002-8030-1211>

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