

Ophthalmology Update

November 2025



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Updates to NICE guidance

Idebenone for treating visual impairment in Leber’s hereditary optic neuropathy in people 12 years and over

Technology appraisal guidance

Reference number:TA1093

Published: 28 August 2025

<https://www.nice.org.uk/guidance/ta1093>

Polihexanide eye drops for treating acanthamoeba keratitis in people 12 years and over [ID6497]

In development

Reference number:GID-TA11643

Expected publication date: 28 January 2026

<https://www.nice.org.uk/guidance/indevelopment/gid-ta11643>

and a further 9 in development:

<https://www.nice.org.uk/guidance/conditions-and-diseases/eye-conditions>

A selection of papers from Medline and CINHAL <6 months

1. Global, regional, and national burden of household air pollution, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021

Item Type: Journal Article

Publication Date: 2025

Journal: Lancet (London, England) 405(10485), pp. 1167–1181

Abstract: Background: Despite a substantial reduction in the use of solid fuels for cooking worldwide, exposure to household air pollution (HAP) remains a leading global risk factor, contributing considerably to the burden of disease. We present a comprehensive analysis of spatial patterns and temporal trends in exposure and attributable disease from 1990 to 2021, featuring substantial methodological updates compared with previous iterations of the Global Burden of Diseases, Injuries, and Risk Factors Study, including improved exposure estimations accounting for specific fuel types.; **Methods:** We estimated HAP exposure and trends and attributable burden for cataract, chronic obstructive pulmonary disease, ischaemic heart disease, lower respiratory infections, tracheal cancer, bronchus cancer, lung cancer, stroke, type 2 diabetes, and causes mediated via adverse reproductive outcomes for 204 countries and territories from 1990 to 2021. We first estimated the mean fuel type-specific concentrations (in $\mu\text{g}/\text{m}^3$) of fine particulate matter (PM_{2.5}) pollution to which individuals using solid fuels for cooking were exposed, categorised by fuel type, location, year, age, and sex. Using a systematic review of the epidemiological literature and a newly developed meta-regression tool (meta-regression: Bayesian, regularised, trimmed), we derived disease-specific, non-parametric exposure-response curves to estimate relative risk as a function of PM_{2.5} concentration. We combined our exposure estimates and relative risks to estimate population attributable fractions and attributable burden for each cause by sex, age, location, and year.; **Findings:** In 2021, 2.67 billion (95% uncertainty interval UI] 2.63-2.71) people, 33.8% (95% UI 33.2-34.3) of the global population, were exposed to HAP from all sources at a mean concentration of 84.2 $\mu\text{g}/\text{m}^3$. Although these figures show a notable reduction in the percentage of the global population exposed in 1990 (56.7%, 56.4-57.1), in absolute terms, there has been only a decline of 0.35 billion (10%) from the 3.02 billion people exposed to HAP in 1990. In 2021, 111 million (95% UI 75.1-164) global disability-adjusted life-years (DALYs) were attributable to HAP, accounting for 3.9% (95% UI 2.6-5.7) of all DALYs. The rate of global, HAP-attributable DALYs in 2021 was 1500.3 (95% UI 1028.4-2195.6) age-standardised DALYs per 100 000 population, a decline of 63.8% since 1990, when HAP-attributable DALYs comprised 4147.7 (3101.4-5104.6) age-standardised DALYs per 100 000 population. HAP-attributable burden remained highest in sub-Saharan Africa and south Asia, with 4044.1 (3103.4-5219.7) and 3213.5 (2165.4-4409.4) age-standardised DALYs per 100 000 population, respectively. The rate of HAP-attributable DALYs was higher for males (1530.5, 1023.4-2263.6) than for females (1318.5, 866.1-1977.2). Approximately one-third of the HAP-attributable burden (518.1, 410.1-641.7) was mediated via short gestation and low birthweight. Decomposition of trends and drivers behind changes in the HAP-attributable burden highlighted that declines in exposures were counteracted by population growth in most regions of the world, especially sub-Saharan Africa.; **Interpretation:** Although the burden attributable to HAP has decreased considerably, HAP remains a substantial risk factor, especially in sub-Saharan Africa and south Asia. Our comprehensive estimates of HAP exposure and attributable burden offer a robust and reliable resource for health policy makers and practitioners to precisely target and tailor health interventions. Given the persistent and substantial impact of HAP in many regions and countries, it is imperative to accelerate efforts to transition under-resourced communities to cleaner household energy sources. Such initiatives are crucial for mitigating health risks and promoting sustainable development, ultimately improving the quality of life and health outcomes for millions of people.; **Funding:** Bill & Melinda Gates Foundation. (Copyright © 2025 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY license. Published by Elsevier Ltd.. All rights reserved.)

Access or request full text: [https://libkey.io/10.1016/S0140-6736\(24\)02840-X](https://libkey.io/10.1016/S0140-6736(24)02840-X)

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40118081&provid=e_host

2. Patient safety in eye care: a multi-method analysis of reported incidents involving implementation of care and clinical assessment in England and Wales

Item Type: Journal Article

Authors: Acton, Jennifer H.;McFadzean, Joy;Lau, Chun Yun;Foo, Jih Wenn and Carson-Stevens, Andrew

Publication Date: 2025

Journal: Eye (London, England) 39(8), pp. 1486–1494

Abstract: Background/objectives: Patient safety is a global health priority, yet there is limited research into how ophthalmology is responding to this. There is evidence that a review of patient harm related to eye care and the associated patient safety incidents is needed. We aimed to characterise patient safety incidents involving eye care by: identifying the most frequently reported incidents involving clinical care; and characterising the nature of incidents leading to severe vision loss.; **Methods:** The data comprised patient safety incidents reported between 2018 and 2022 to the National Reporting and Learning System and the NHS England Learn from Patient Safety Events system. Reports were searched for eye-related terms (ICD-11) and those reports relating to implementation of care and clinical assessment were included. A descriptive analysis was undertaken to characterise the most frequent incident types and their contributory factors, followed by a thematic analysis of incidents relating to severe vision loss.; **Results:** Of the 836 reports identified, insufficient care (n = 416) and delayed diagnosis (n = 234) featured most. Patient harm occurred related to vision loss (n = 449), delays in treatment (n = 182), and disease progression (n = 121). Among 220 reports that resulted in severe vision loss, patients with Glaucoma and Age-related Macular Degeneration were impacted by delays in monitoring and management, loss to follow-up, disease progression due to insufficient care and system failures.; **Conclusions:** In this characterisation of eye-related incident reports in a national population, potential areas of interest toward safer eye care include addressing delays in patients receiving care and insufficient care such as inconsistent monitoring in glaucoma. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1038/s41433-025-03669-6>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39948402&provid=e_host

3. Real-World Safety and Efficacy of 156 U - 195 U OnabotulinumtoxinA in Adults With Chronic Migraine: Results From the REPOSE Study

Item Type: Journal Article

Authors: Ahmed, F.;Gaul, C.;Kollewe, K.;Singh, R. C. and Sommer, K.

Publication Date: 2025

Journal: BMC Neurology 25(1), pp. 197

Abstract: Background: The phase 3 PREEMPT clinical trials confirmed the efficacy and safety of 155 U - 195 U

onabotulinumtoxinA for individuals with chronic migraine (CM) and is the licensed dose in Canada and Europe. This analysis aimed to analyze the efficacy and safety parameters of 155 U - 195 U onabotulinumtoxinA in participants with CM from the real-world REPOSE study.; **Methods:** REPOSE (NCT01686581) was a 2-year, prospective, observational, noninterventional, open-label study that described the real-world use of onabotulinumtoxinA in adults with CM in Europe. Participants received onabotulinumtoxinA approximately every 12 weeks and were monitored for 24 months after starting treatment. Data on participant-estimated mean headache-day frequency in the last month (MHD), Migraine-Specific Quality of Life Questionnaire (MSQ) scores, and adverse events (AEs) were collected at each treatment visit. Participants in the safety analysis population (those who received at least one dose of onabotulinumtoxinA) were stratified into two groups based on the dosage received at four or more treatment visits: 155 U onabotulinumtoxinA and 156 U - 195 U onabotulinumtoxinA groups.; **Results:** A total of 641 participants were enrolled at 77 centers. Of those, 218 participants received 155 U \geq 4 treatment visits, and 77 participants received 156 U-195 U onabotulinumtoxinA \geq 4 treatment visits. Between-group baseline characteristics were similar. Reductions from baseline in MHD frequency were observed at both doses (156 U - 195 U range, -8.7 to -14.2 MHDs; 155 U range, -8.2 to -11.9 MHDs). Mean change from baseline in MSQ domain scores improved across administration visits for both 155 U onabotulinumtoxinA and 156 U - 195 U onabotulinumtoxinA groups. Treatment with 156 U - 195 U onabotulinumtoxinA was safe and generally well-tolerated with no new safety signals identified. Adverse drug reactions (ADR) were reported in 51/218 in the 155 U group and 10/77 participants in the 156 U - 195 U group; serious adverse drug reactions were 3/218 and 1/77, respectively. The most frequently reported ADR across both dose groups was eyelid ptosis, followed by neck pain, musculoskeletal stiffness.; **Conclusions:** These real-world findings of the safety and efficacy of the 155 U - 195 U onabotulinumtoxinA doses are consistent with data from the PREEMPT clinical trials as a treatment option for CM patients.; Trial Registration: NCT01686581. Name of registry: ClinicalTrials.gov. URL of registry: Date of retrospective registration: September 18, 2012. Date of enrolment of first patient: July 23, 2012. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1186/s12883-025-04087-7>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40329224&profid=e_host

4. High patient acceptance of immediately sequential bilateral cataract surgery (ISBCS) as part of a one-stop see-and-treat pathway within an innovative NHS cataract unit

Item Type: Journal Article

Authors: Alsusa, Maher;Ahmad, Shakeel;Smith, Zoe;Evans, Sam;Wilkinson, Elizabeth and Roberts, Harry

Publication Date: 2025

Journal: Eye (London, England) 39(6), pp. 1165–1169

Abstract: Background: Constituting ~0.5% of all NHS cataract operations, national provision of immediately sequential bilateral cataract surgery (ISBCS) is limited. Combining offering ISBCS within a novel one-stop see-and-treat (S&T) cataract pathway would offer patients the opportunity for two cataract operations in a single hospital visit. Patient acceptance of ISBCS amongst urban populations has been investigated. However, little is understood about ISBCS acceptance rurally.; **Methods:** Retrospective observational study at the Nightingale Hospital, Exeter investigating patient acceptance of ISBCS within S&T; following the implementation of a S&T cataract pathway entailing a pre-operative patient-clinician telephone consultation and subsequently scheduled single date of assessment and surgery. Patient acceptance and factors potentially influencing decisions were investigated.; **Results:** 200 patient telephone consultations between 22nd August 2023 and 9th January 2024 were evaluated. 198 (99%) patients referred were suitable for S&T cataract surgery, of whom 109 (54.5%) were deemed eligible for offering ISBCS S&T cataract surgery. Of the eligible participants, 78 (71.56%)

favoured ISBCS. No significant differences in age, sex, distance from hospital or refractive data were identified between ISBCS accepting and declining participants.; **Conclusions:** Our results illustrate a high patient acceptance rate (71.56%) of ISBCS within our population in contrast with published national rates. Offering ISBCS within a S&T model would allow patients to benefit from having both cataracts assessed and treated within a single hospital visit. (© 2024. The Author(s).)

Access or request full text: <https://libkey.io/10.1038/s41433-024-03567-3>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39748109&provid=ehost>

5. Safety and efficacy of a novel 'One-Visit, Both-Cataracts' high-volume see-and-treat immediate sequential bilateral cataract surgery service in a public healthcare setting

Item Type: Journal Article

Authors: Alsusa, Maher;Ahmad, Shakeel;Smith, Zoe;Tutchings, Emma;Evans, Sam;Wilkinson, Elizabeth and Roberts, Harry

Publication Date: 2025

Journal: Eye (London, England) 39(7), pp. 1414–1419

Abstract: **Purpose:** To evaluate the safety and efficacy of a novel cataract surgery pathway that combines a See-and-Treat (S&T) model with Immediate Sequential Bilateral Cataract Surgery (ISBCS) at the Nightingale Hospital, Exeter, UK.; **Methods:** A retrospective observational study was conducted on 102 consecutive patients (204 eyes) who underwent S&T ISBCS between July 2023 and July 2024. Patients were triaged based on referral information and underwent preoperative telephone consultations. On the day of surgery, clinical assessment and bilateral cataract surgery were completed in a single visit. Data collected included patient demographics, intraoperative and postoperative outcomes, and complications.; **Results:** Of the 127 patients listed, 102 (84.3%) completed S&T ISBCS. No intraoperative complications were recorded. Fourteen patients (13.7%) required unplanned postoperative consultations, with most cases being non-sight-threatening and self-resolving. Cystoid macular oedema (CMO) was reported in 2.9% of eyes, with no cases of visual loss or endophthalmitis.; **Conclusion:** The S&T ISBCS model demonstrated safety and efficiency in delivering cataract care, with a high one-visit completion rate and low complication rates. This model offers significant time and resource savings whilst maintaining patient safety. It holds potential for broader implementation in healthcare settings facing increased demand for cataract services. Further studies are recommended to assess long-term outcomes and optimise this approach. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1038/s41433-025-03659-8>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39924581&provid=ehost>

6. Study Finds Modest Link Between Semaglutide and a Type of Vision Impairment

Item Type: Journal Article

Authors: Anderer, S.

Publication Date: 2025

Journal: JAMA 333(14), pp. 1196

Access or request full text: <https://libkey.io/10.1001/jama.2025.1351>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40053340&prolid=ehost>

7. Outcomes of cataract surgery training among ophthalmology trainees in the independent sector and within the NHS

Item Type: Journal Article

Authors: Chen, Yunzi;Crothers, Oonagh;Ting, Darren Shu Jeng;Severn, Philip and Mansoor, Qasim

Publication Date: 2025

Journal: BMJ Open Ophthalmology 10(1)

Abstract: Objective: The surge in National Health Service (NHS) cataract procedures in the independent sector (IS) has reduced opportunities for cataract surgical training among ophthalmology trainees. This study aims to analyse IS cataract surgery training outcomes and explore its potential as a supplement to NHS-based training by comparing IS outcomes with NHS and National Ophthalmology Database (NOD) standards.; **Methods and Analysis:** Two trainees (ST5 and ST3) trained in IS high volume and standard NHS lists. A comprehensive IS training programme included modular cataract training, structured feedback framework and non-technical skills development. Prospective data concerning case numbers, complexity, take-over, outcomes and complication rates were collected and compared.; **Results:** In total, 161 IS and 62 NHS cases were analysed. On average, trainees did 6 cases/12 patient lists in IS versus 3 cases/6 patient lists in NHS. IS cases had similar complexity to NHS cases (43% IS vs 35% in NHS, $p=0.32$, adjusted $p=1$). Intraoperative complications (3% IS vs 5% NHS, $p=0.53$, adjusted $p=1$) and posterior capsule ruptures (1% IS vs 0% NHS, $p=0.38$, adjusted $p=1$) were similar, aligning with NOD standards. Based on cases without any ocular comorbidity, the proportion of eyes achieving a good visual outcome ($\geq 6/12$ Snellen vision) was similar between IS (100%) and NHS (96%) ($p=0.12$, adjusted $p=1$). Surgical efficiency was maintained with all lists completed within 4 hours.; **Conclusion:** A structured training programme on high-volume lists within IS setting provided two trainees with valuable exposure to diverse cataract cases while ensuring safety and efficiency, producing training outcomes comparable to the NHS and NOD standards. This is a pilot study, and a much larger multicentre study will be required before the widespread introduction of training in cataract surgery in the IS can be recommended. (© Author(s) (or their employer(s)) 2025. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ Group.)

Access or request full text: <https://libkey.io/10.1136/bmjophth-2024-001716>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39904547&prolid=ehost>

8. Real-World Data of the First UK Series of MINIject Supraciliary Glaucoma Implant with 6 Months Follow-Up

Item Type: Journal Article

Authors: Dimitriou, Chrysostomos;Dervenis, Panagiotis;Tan, Jeremy C. K.;Wong, Caroline;Tanner, Luke;Nitiapapand, Rynda;Fazal, Ihsan;Chatzithanasis, Georgios;Lolos, Dimitrios;Stavropoulos,

Dimitrios;Dervenis, Nikolaos and Lascaratos, Gerassimos

Publication Date: 2025

Journal: Ophthalmology and Therapy

Abstract: Introduction: This study evaluates the efficacy and safety of the MINIject (iStar Medical, Wavre, Belgium) supraciliary implant for the treatment of glaucoma.; **Methods:** Patients with medically uncontrolled primary open angle glaucoma, primary angle closure glaucoma and normal tension glaucoma were included. This first in the UK, retrospective, single-centre, interventional study evaluated the implantation of the MINIject in 50 eyes, including 11 stand-alone cases and 39 cases combined with phacoemulsification. The primary outcome was mean reduction of intraocular pressure (IOP) at 6 months. We also report the proportion of eyes that achieved a final IOP ≤ 21 mmHg and > 5 mmHg with an IOP reduction of $\geq 20\%$ with/without medication use.; **Results:** Mean (\pm standard deviation) baseline IOP was 18.4 ± 4.7 mmHg on 2.1 ± 1.1 medications. There was a significant decrease in IOP at 6 months (-6.3 ; 95% confidence interval CI] -2.9 to -9.7 mmHg, $P < 0.05$), whilst 57.8% of eyes achieved this combined with 20% reduction in IOP. Adverse events occurred in 15.6% ($n = 7$) of eyes. No sight-threatening events occurred.; **Conclusions:** This study shows promising IOP-lowering results and medication reduction over 6 months with few adverse events. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1007/s40123-025-01221-z>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40779091&profiid=ehost>

9. Real-world outcomes of selective laser trabeculoplasty and medical treatment in primary open-angle glaucoma and ocular hypertension

Item Type: Journal Article

Authors: Fu, Dun Jack;Sharma, Ishta;Farwana, Reem;Faes, Livia;Lascaratos, Gerassimos;Gazzard, Gus;Khawaja, Anthony;Hammond, Christopher and Kailani, Obed

Publication Date: 2025

Journal: BMJ Open Ophthalmology 10(1)

Abstract: Objective: Report effectiveness of selective laser trabeculoplasty (SLT) and topical medical therapy for treatment initiation and escalation.; **Design:** Multicentre, retrospective cohort study covering an observation period of 10 years.; **Participants:** Patients with ocular hypertension or primary open-angle glaucoma initiating intraocular pressure (IOP)-lowering therapy, or escalating from a single topical agent.; **Main Outcome Measures:** Kaplan-Meier estimate for duration of treatment success, defined by the time between treatment event to treatment failure, defined as meeting one of the following: a 21 mm Hg at 2 consecutive clinic visits; or subsequent intensification of glaucoma treatment (subsequent increase in medical drops, SLT (re-)treatment, incisional glaucoma therapy).; **Results:** A total of 4564 eyes (mean baseline IOP 21.8 SD 7.0 mm Hg) of 2708 patients were included. The median time to treatment failure (ie, duration for which treatment success can be expected for 50% of patients) was 1.72 years (95% CI 1.63 to 1.79) following initiation of a topical agent and 1.35 (95% CI 1.13 to 1.73) years after initial SLT.Following escalation in those already on a single topical agent, the median treatment failure time was 1.32 years (95% CI 1.23 to 1.44) for 2 topical agents and 1.53 years (95% CI 1.35 to 2.03) for a single topical agent and SLT.; **Conclusion:** This retrospective analysis reports the real-world effect of SLT and topical medical therapy on IOP and treatment success following the most common treatment scenarios: initiation of IOP-lowering treatment and intensification from a single topical drop. Due to the non-randomised nature of this study, it is not possible to draw firm conclusions regarding the comparative effectiveness of drop and SLT. (© Author(s) (or their employer(s)) 2025. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions.

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Access or request full text: <https://libkey.io/10.1136/bmjophth-2025-002151>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40685164&prolid=ehost>

10. Effect of eye care clinical guidelines training on nurses' knowledge, attitude, and practice and eye complications among critically ill patients: pre and post-study design

Item Type: Journal Article

Authors: Ghattas, Amina Hemida Salem

Publication Date: 2025

Journal: BMC Nursing 24(1), pp. 1–15

Abstract: Background: Eye care plays a vital role in delivering holistic nursing to patients in intensive care units (ICUs), particularly those with impaired ocular defense mechanisms due to factors such as infections, medication use, or mechanical ventilation. Despite its importance, eye care is often overlooked as clinical attention is typically focused on sustaining critical bodily functions. To prevent ocular complications, nurses must be well-educated and proficient in eye assessment, accurate diagnosis, and the application of current evidence-based protocols—skills that can be developed through formal education and ongoing practical training. **Aim:** This study aimed to evaluate the impact of implementing an Eye Care Clinical Guidelines (ECCG) training program on nurses' knowledge, attitudes, and practices, as well as its effect on reducing eye complications in critically ill ICU patients. **Methods:** A pretest-posttest quasi-experimental design was used, involving two participant groups: 75 nurses and 100 patients. Key outcomes—nurses' knowledge, attitudes, and practices, along with the incidence of eye complications—were measured before and after the ECCG training intervention. Comparisons were made between pre- and post-intervention results to assess the effectiveness of the training. **Results:** The study included 75 ICU nurses and 100 critically ill patients. Post-intervention, nurses demonstrated significantly improved knowledge and practice scores related to eye care ($P \leq 0.001$), although changes in attitude scores were not statistically significant ($p = 0.147$). Furthermore, the incidence of eye complications decreased from 84% in the pre-intervention group to 46% in the post-intervention group, showing a highly significant difference ($p < 0.001$). **Conclusions:** The ECCG training significantly enhanced ICU nurses' knowledge and practices and contributed to a marked reduction in eye complications among critically ill patients. It is therefore recommended that Egyptian ICUs adopt standardized eye care guidelines and protocols to improve patient outcomes and the overall quality of care. Clinical trial number: Not applicable.

Access or request full text: <https://libkey.io/10.1186/s12912-025-03390-5>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=186288568&prolid=ehost>

11. Outsourcing NHS cataract care has delivered big profits to private firms, report finds

Item Type: Journal Article

Authors: Iacobucci, Gareth

Publication Date: 2025

Journal: BMJ (Clinical Research Ed.) 389, pp. r855

Access or request full text: <https://libkey.io/10.1136/bmj.r855>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40300800&prolid=e_host

12. Effect of video-based educational program on ICU nurses' awareness and practices regarding the prevention and care of exposure keratopathy among unconscious and mechanical ventilated patients: a quasi experimental study

Item Type: Journal Article

Authors: Jkhlab, Murad;Elhatty, Ismail A.;Fashafsheh, Imad;Miqdadi, Ahmad I. and Fashafsheh, Nawras

Publication Date: 2025

Journal: BMC Nursing 24(1), pp. 1–8

Abstract: Objectives: To assess the effect of video-based educational program on staff nurses' awareness and practices regarding risk factors and prevention of exposure keratopathy (EK) among mechanically ventilated and unconscious patients. **Methods:** This study employed a quasi-experimental, pretest-posttest interventional design involving a sample of 109 intensive care unit (ICU) nurses currently employed in private hospitals. **Results:** Univariate analyses revealed a significant relationship between participants' age, gender, and years of experience with their practice at the post-test. Additionally, there was a significant improvement in participants' awareness after the intervention for the total mean score and all items ($p < 0.001$), except for question 8: "Are patients with incomplete lid closure referred to an ophthalmologist?" ($p = 0.063$). Regarding ICU nurses' practices in eye care, there was a significant improvement in all items after the intervention ($p < 0.001$). **Conclusion:** The findings of this study revealed that the educational intervention significantly improved ICU nurses' awareness and practices regarding the risk factors and prevention of EK among mechanically ventilated and unconscious patients. Moreover, these findings emphasize the effectiveness of educational interventions in improving nurses' awareness and their ability to effectively implement preventive measures. Clinical trial number: Not applicable.

Access or request full text: <https://libkey.io/10.1186/s12912-025-03504-z>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=186463725&prolid=e_host

13. Diagnosis and Treatment of Type 2 Diabetes in Adults: A Review

Item Type: Journal Article

Authors: Kalyani, Rita R.;Neumiller, Joshua J.;Maruthur, Nisa M. and Wexler, Deborah J.

Publication Date: 2025

Journal: JAMA

Abstract: Importance: Type 2 diabetes involves progressive loss of insulin secretion from pancreatic β cells in

the setting of insulin resistance and manifests clinically as hyperglycemia. Type 2 diabetes accounts for 90% to 95% of all cases of diabetes globally, with estimates ranging from 589 million to 828 million people worldwide. In the US, type 2 diabetes affects approximately 1 in 6 adults.; **Observations:** Risk factors for type 2 diabetes include older age, family history, overweight or obesity, physical inactivity, gestational diabetes, Hispanic ethnicity, and American Indian or Alaska Native, Asian, or Black race. Diabetes is diagnosed if fasting plasma glucose is greater than or equal to 126 mg/dL, hemoglobin A1C is greater than or equal to 6.5%, or 2-hour glucose during 75-g oral glucose tolerance testing is greater than or equal to 200 mg/dL. Approximately one-third of adults with type 2 diabetes have cardiovascular disease and 10.1% have severe vision difficulty or blindness. The prevalence of type 2 diabetes is 39.2% among patients with kidney failure. Although weight management is an important component of treatment for type 2 diabetes, no specific diet has been proven to be most effective for improving health outcomes. Physical activity can reduce hemoglobin A1C by 0.4% to 1.0% and improve cardiovascular risk factors (ie, hypertension and dyslipidemia). Randomized clinical trials have reported absolute reductions in microvascular disease (3.5%), such as retinopathy and nephropathy, myocardial infarction (3.3%-6.2%), and mortality (2.7%-4.9%), with intensive glucose-lowering strategies (hemoglobin A1C <7%) vs conventional treatment 2 decades after trial completion. First-line medications for type 2 diabetes include metformin and, in patients with cardiovascular or kidney comorbidities or at high cardiovascular risk, glucagon-like peptide-1 receptor agonists (GLP-1RAs) or sodium-glucose cotransporter 2 inhibitors (SGLT2is). Common add-on medications include dual glucose-dependent insulinotropic polypeptide (GIP)/GLP-1RAs, dipeptidyl peptidase-4 inhibitors, sulfonylureas, and thiazolidinediones. Approximately one-third of patients with type 2 diabetes require treatment with insulin during their lifetime. Several randomized clinical trials have demonstrated benefits of specific SGLT2i and GLP-1RA medications compared with placebo for atherosclerotic cardiovascular disease (12%-26% risk reduction), heart failure (18%-25% risk reduction), and kidney disease (24%-39% risk reduction) over 2 to 5 years. Most trial participants with type 2 diabetes were taking metformin. High-potency GLP-1RA and dual GIP/GLP-1RA medications result in weight loss of greater than 5% in most individuals with type 2 diabetes, and weight loss may exceed 10%.; **Conclusions:** Type 2 diabetes affects up to 14% of the global population and is associated with preventable long-term complications, such as cardiovascular disease, kidney failure, vision loss, and increased mortality. In addition to lifestyle modifications including diet, exercise, and weight management, metformin is generally first-line therapy for attainment of hemoglobin A1C targets. For individuals with type 2 diabetes and cardiovascular or kidney disease or at high cardiovascular risk, guidelines recommend early treatment with SGLT2i and/or GLP-1RA medications.

Access or request full text: <https://libkey.io/10.1001/jama.2025.5956>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40549398&provid=ehost>

14. Selective Laser Trabeculoplasty After Medical Treatment for Glaucoma or Ocular Hypertension

Item Type: Journal Article

Authors: Konstantakopoulou, E.;Gazzard, G.;Garway-Heath, D.;Adeleke, M.;Ambler, G.;Vickerstaff, V.;Bunce, C.;Nathwani, N. and Barton, K.

Publication Date: 2025

Journal: JAMA Ophthalmology 143(4), pp. 295–302

Abstract: Importance: Primary selective laser trabeculoplasty (SLT) is a safe primary treatment for open-angle glaucoma (OAG) and ocular hypertension (OHT). However, there is limited evidence on its use as a secondary treatment, ie, after prior use of ocular hypotensive eye drops.; **Objective:** To evaluate outcomes following SLT

after using hypotensive eye drops for at least 3 years.; Design, Setting, and Participants: This is a post hoc exploratory analysis of data from a multicenter randomized clinical trial conducted within the UK National Health Service. Participants were patients with OAG or OHT who participated in the LiGHT trial. Data were analyzed from February 2021 to December 2024.; Intervention: Participants were initially randomized to either primary SLT or primary hypotensive eye drops and remained on the allocated treatment pathway for 3 years. Participants using eye drops were then allowed to have secondary SLT as a treatment switch (to reduce their medication load) or as a treatment escalation (if more intense treatment was needed). Participants were treated and monitored according to a predefined protocol.; **Main Outcomes and Measures:** The outcomes of interest were rates of incisional glaucoma surgery, medication use, and intraocular pressure.; **Results:** In total, 633 participants entered the extension of the LiGHT trial, and 524 participants (82.8%) completed the extension (72 months). Of 320 participants receiving primary hypotensive eye drops, 112 (35.0%) received SLT: 70 participants switched to SLT, 29 participants had SLT as a treatment escalation, and 13 participants had SLT as a treatment escalation in 1 eye and as a treatment switch in the other eye. Switching to SLT was associated with a reduction in the number of medications (mean SD], 1.38 0.62] to 0.59 0.92] active ingredients; mean difference, 0.79 95% CI 0.66 to 0.93] active ingredients; $P < .001$). At 72 months, 69 eyes that switched to SLT (60.5%) needed no medical or surgical treatment, and 62 eyes receiving 1 drug before switching (83.8%) needed no medical treatment. Escalating to SLT was associated with a mean intraocular pressure reduction of 4.6 mm Hg (21.8%), and 30 eyes (62.5%) reached target intraocular pressure at 72 months without the need for surgery; 9 eyes (18.7%) needed a trabeculectomy.; **Conclusions and Relevance:** This secondary analysis of a randomized clinical trial found that secondary SLT was associated with a reduction in the medication load for stable, medically treated eyes. For medically uncontrolled eyes, there is evidence that SLT could provide additional intraocular pressure control, but the need for trabeculectomy was not eliminated.; Trial Registration: isrctn.org Identifier: ISRCTN32038223.

Access or request full text: <https://libkey.io/10.1001/jamaophthalmol.2024.6492>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39976961&profiid=e_host

15. A Study of 24-h Efficacy and Safety of Sepetaprost vs. Latanoprost in Patients with Primary Open-Angle Glaucoma or Ocular Hypertension

Item Type: Journal Article

Authors: Konstas, Anastasios-Georgios;Garhöfer, Gerhard;Lübke, Jan;Voykov, Bogomil and Ropo, Auli

Publication Date: 2025

Journal: Advances in Therapy 42(8), pp. 3810–3825

Abstract: Introduction: Understanding the 24-h efficacy and safety of a novel therapy option, sepetaprost ophthalmic solution 0.002% vs. latanoprost ophthalmic solution 0.005%, may delineate its future position in glaucoma treatment.; **Methods:** In this exploratory study (EudraCT 2020-004836-93), adults with primary open-angle glaucoma (POAG) or ocular hypertension (OHT) were randomized to sepetaprost or latanoprost for 3 months following a ≤ 35 -day screening period. The primary endpoint was mean 24-h intraocular pressure (IOP) at month 3 with sepetaprost vs. latanoprost. Safety outcomes included rate of adverse events (AEs).; **Results:** Overall, 33 participants received treatment (sepetaprost, $n = 17$; latanoprost, $n = 16$). Mean 24-h IOP was numerically lower with sepetaprost vs. latanoprost at month 3 (- 0.88 mmHg; 95% confidence interval CI] - 2.89, 1.14; not statistically significant at the 0.05 level NS]). Mean change from baseline in IOP at month 3 ranged from - 5.63 to - 7.00 mmHg for sepetaprost and - 3.84 to - 6.66 mmHg for latanoprost. Lower nocturnal IOP was observed with sepetaprost vs. latanoprost at month 3 (- 1.61 mmHg difference; 95% CI - 4.05, 0.83; not statistically significant; however, the 90% CI was - 5.27, - 0.17 and therefore, nominal statistical

significance was achieved at the 0.10 level). Mean difference between groups indicated similar, or numerically lower, IOP with sepetaprost at individual time points at week 6 and month 3. At 36 and 48 h following sepetaprost cessation, mean IOP was lower vs. baseline IOP at the same time points. AEs occurred in 13 (76.5%) vs. 11 (68.8%) participants treated with sepetaprost vs. latanoprost.; **Conclusion:** In participants with POAG or OHT, mean 24-h IOP and nocturnal IOP at month 3 were consistently numerically lower with sepetaprost vs. latanoprost. Safety profiles were similar between groups.; Trial Registration: EudraCT 2020-004836-93. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1007/s12325-025-03227-2>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40493333&prolid=e_host

16. Factors Affecting the Lifetime Cost of Myopia and the Impact of Active Myopia Treatments in Europe

Item Type: Journal Article

Authors: Lee, Ling;De Angelis, Laura;Barclay, Erica;Tahhan, Nina;Saunders, Kathryn;McConnell, Emma;Ghorbani-Mojarrad, Neema;Dahlmann-Noor, Annegret;Jaselsky, Anton;Leveziel, Nicolas;Bremond-Gignac, Dominique;Resnikoff, Serge and Fricke, Timothy R.

Publication Date: 2025

Journal: American Journal of Ophthalmology 278, pp. 212–221

Abstract: Purpose: There are an increasing number of effective myopia control options available; however, their financial impacts are unclear. We estimated lifetime costs of myopia under 5 scenarios in France and the United Kingdom (UK): traditional myopia management (single vision correction), low-dose atropine, anti-myopia spectacles, anti-myopia soft contact lenses, and orthokeratology.; **Design:** Model-based cost estimate.; **Methods:** Each modeled scenario began with an 8-year-old child presenting with -0.75 DS. Natural progression data were used to determine the likelihood of possible refractive outcomes for children predicted to be at risk for faster and slower myopia progression until adulthood followed by an assumed exponential decay to zero progression by age 25 years. Societal care costs (direct and indirect) were collected from published sources, key informants, and informal surveys. Predicted progression rates for those at risk for slower and faster progression, costs, protocols, and risks were used to estimate and compare lifetime cost of myopia and its associated complications under each scenario. All future costs were discounted by 3% per year for sensitivity analysis. The main outcome measures were the lifetime cost of myopia, and cost ratio (myopia control cost divided by traditional care cost).; **Results:** Estimated lifetime cost of myopia using a traditional approach was US\$32,492/US\$22,606 for those predicted to experience faster/slower myopia progression in France, and US\$48,170/US\$29,664 in the UK. For those at risk for faster progression in France and the UK, cost ratios for the myopia control options ranged from 0.60 to 0.81, and 0.50 to 0.69, respectively. For those at risk for slower progression in France and the UK, the cost ratios ranged from 0.81 to 1.10, and 0.73 to 1.00, respectively. Female individuals incurred higher lifetime costs due to higher contact lens wear rates, prevalence of vision impairment, and longer life expectancy.; **Conclusions:** Investment in myopia control during childhood in Europe likely reduces the total lifetime cost of myopia compared to traditional care via reduced refractive progression, need for complex lenses, and risk of pathology and vision loss. Children predicted to experience faster myopia progression derive the greatest economic advantage from myopia control. (Copyright © 2025 The Authors. Published by Elsevier Inc. All rights reserved.)

Access or request full text: <https://libkey.io/10.1016/j.ajo.2025.06.034>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40545012&prolid=ehost>

17. Causal Links Between Corneal Biomechanics and Myopia: Evidence from Bidirectional Mendelian Randomization in the UK Biobank

Item Type: Journal Article

Authors: Li, Xuefei;Luo, Shenglong;Lin, Kuangching;Soha, Hera;Shen, Meixiao;Lu, Fan and Wang, Junjie

Publication Date: 2025

Journal: Bioengineering (Basel, Switzerland) 12(4)

Abstract: Background: Myopia is a leading cause of visual impairment worldwide, and accumulating evidence suggests that biomechanics may be closely linked to its development. Understanding this relationship may help clarify the underlying mechanisms of myopia and guide treatment strategies. The aim of the study is to investigate the causal relationship between myopia and corneal biomechanics using the UK Biobank (UKB) database.; **Methods:** Data from 11,064 eyes in the UKB, including refraction results and Ocular Response Analyzer (ORA) measurements, were analyzed. Eyes were categorized by spherical equivalent (SE) into emmetropia, mild myopia, moderate myopia, and high myopia. One-way ANOVA assessed differences in corneal biomechanical parameters across the varying myopia groups, while Quantile Regression (QR) explored the relationship between these parameters and myopia severity across the different quantiles. A Mendelian randomization (MR) analysis was employed to explore the causal relationships.; **Results:** Significant differences in corneal biomechanical parameters and intraocular pressure (IOP) were observed across the myopia levels ($p < 0.001$). High myopia was associated with lower corneal hysteresis (CH), a lower corneal resistance factor (CRF), and increased IOP. The QR analysis demonstrated that lower corneal biomechanics were associated with higher degrees of myopia, with the impact of corneal biomechanics becoming more pronounced as the myopia severity increased. The MR analysis indicated that low CH (OR = 0.9943, $p = 0.004$) and CRF (OR = 0.9946, $p = 0.002$) values were risk factors for myopia, while no causal effect was found when the myopia was treated as the exposure and corneal biomechanics as the outcome.; **Conclusions:** This study establishes a causal relationship where reduced corneal biomechanics contribute to myopia, while myopia itself does not directly affect biomechanics. Corneal biomechanics could serve as a biomarker for assessing high myopia risk. These findings offer new insights into high myopia's pathological mechanisms and targeted prevention.

Access or request full text: <https://libkey.io/10.3390/bioengineering12040412>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40281772&prolid=ehost>

18. Are diabetes and blood sugar control associated with the diagnosis of eye diseases? An English prospective observational study of glaucoma, diabetic eye disease, macular degeneration and cataract diagnosis trajectories in older age

Item Type: Journal Article

Authors: Lin, Caitlin and Jivraj, Stephen

Publication Date: 2025

Journal: BMJ Open 15(6), pp. e091816

Abstract: Background: The growing global burden of diabetes suggests a currently unrealised growth in prevalence of eye disease. This prospective observational study addresses gaps in evidence of blood sugar control as a risk factor for the diagnosis of glaucoma, diabetic eye disease, macular degeneration and cataract using waves 2-9 (2004-2019) of the English Longitudinal Study of Ageing.; **Methods:** Logistic regression modelling is used to predict the probability of self-reported diagnosis of four eye conditions separately over a 14-year period in a community-dwelling sample in England. Analysis of approximately 29 000 person observations over eight study waves from around 5600 participants for each eye disease is conducted with an average of 5.7 waves per participant. Participants' baseline blood sugar control is categorised as non-diabetic (diabetes not previously diagnosed and glycated haemoglobin (HbA1c)<6.5), controlled (diabetes previously diagnosed and HbA1c<6.5), uncontrolled (diabetes previously diagnosed and HbA1c≥6.5) and undiagnosed (diabetes not previously diagnosed and HbA1c≥6.5). Controls at baseline for age, sex, physical activity level, body mass index and smoking status are included in the regression analysis.; **Results:** The mean age of the sample is 66 and 53% are female. The main finding from this study is that older adults in England who are controlling a diabetes diagnosis have a lower probability of developing glaucoma, diabetic eye disease or macular degeneration compared with those either without a diabetes diagnosis or with uncontrolled diabetes. Compared with those with controlled diabetes, the adjusted odds of developing glaucoma was 1.29 times higher (95% CI 1.01 to 1.65) among those not diabetic; the adjusted odds of developing diabetic eye disease was 1.20 times higher (95% CI 1.00 to 1.45) among those with uncontrolled diabetes; and the adjusted odds of developing macular degeneration was 1.38 times higher (95% CI 1.04 to 1.82) among those with undiagnosed diabetes. There was no statistically significant difference in the probability of developing cataracts by category of blood sugar control.; **Conclusion:** This study illustrates the importance of blood sugar control in the development of eye diseases and therefore supports more regular screening measures for eye disease in older age among groups at risk of diabetes. (© Author(s) (or their employer(s)) 2025. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ Group.)

Access or request full text: <https://libkey.io/10.1136/bmjopen-2024-091816>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40588392&profiid=e_host

19. Preliminary antifibrotic and vasoconstrictor effects of adrenaline in Schlemm's canal and suprachoroidal minimally invasive glaucoma surgery in primary open-angle glaucoma

Item Type: Journal Article

Authors: Luo, Jinyuan;Fajardo-Sanchez, Julia;Qin, Mengqi;Patel, Brihitejas;Mahtani, Karishma;Ho, Henrietta and Yu-Wai-Man, Cynthia

Publication Date: 2025

Journal: Graefe's Archive for Clinical and Experimental Ophthalmology = Albrecht Von Graefes Archiv Fur Klinische Und Experimentelle Ophthalmologie 263(2), pp. 489–500

Abstract: Purpose: To investigate the antifibrotic and vasoconstrictor effects of adrenaline in Schlemm's canal and suprachoroidal minimally invasive glaucoma surgery (MIGS).; **Methods:** Human trabecular meshwork (TM) cells were treated with different concentrations of adrenaline (0%, 0.0005%, 0.01%), and we measured the effects on contractility, cell viability and the expression of key cell cycle and fibrosis genes. Adrenaline 0.05% was also injected intracamerally in five primary open-angle glaucoma patients undergoing iStent inject or MINIject surgery combined with phacoemulsification. All patients were assessed for ocular and systemic adverse reactions, including the effects on intraoperative pupil size, preoperative and postoperative visual acuity, intraocular pressure, and anterior segment OCT results.; **Results:** Adrenaline significantly

reduced the contractility of TM cells in a dose-dependent manner (87.8%, 80.6%, 7.9% matrix contraction with adrenaline 0%, 0.0005%, 0.01%, respectively). Adrenaline did not exhibit any significant cytotoxicity even at high concentrations ($P > 0.05$). Adrenaline 0.01% significantly downregulated the expression of key cell cycle genes in the G2 and M phases, and also decreased the expression of MRTFB and ACTA2 genes ($P < 0.05$). Intracameral injections of adrenaline 0.05% in the five MIGS patients did not result in any ocular or systemic adverse effects.; **Conclusion:** We recommend intracameral injections of adrenaline 0.05% as a cheap and safe drug to be used before MIGS insertion. Adrenaline decreases the risk of bleeding from the trabecular meshwork and also exhibits antifibrotic effects by arresting the cell cycle, thereby increasing the postoperative success rates in MIGS.; **Key Message:** What is known Fibrosis is the main cause of surgical failure in minimally invasive glaucoma surgery (MIGS). Mitomycin-C and 5-fluorouracil are too toxic to be used inside the eye. What is new Adrenaline reduced the contractility of trabecular meshwork cells and inhibited the expression of key cell cycle genes and fibrosis genes, without significant cytotoxicity. Intracameral injection of adrenaline 0.05% did not result in any ocular or systemic adverse reactions in MIGS patients. (© 2024. The Author(s).)

Access or request full text: <https://libkey.io/10.1007/s00417-024-06642-3>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39347799&prolid=ehost>

20. Associations between serum lipids and glaucoma: a cohort study of 400 229 UK Biobank participants

Item Type: Journal Article

Authors: Ma, Yiyuan;Wu, Yue;Hu, Leyi;Chen, Wen;Zhang, Xinyu;Zheng, Danying;Congdon, Nathan;Jin, Guangming and Liu, Zhenzhen

Publication Date: 2025

Journal: The British Journal of Ophthalmology 109(7), pp. 775–783

Abstract: Purpose: To examine the associations of commonly-used serum lipid measures (high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), total cholesterol (TC) and triglycerides (TG)) with glaucoma.; **Methods:** This prospective cohort study included 400 229 participants from the UK Biobank. Cox regression and restricted cubic spline models and polygenic risk scores were employed to investigate the associations between serum lipids and glaucoma.; **Results:** Over a mean follow-up of 14.44 years, 6868 (1.72%) participants developed glaucoma. Multivariate Cox regression revealed that higher levels of HDL-C were associated with an increased risk of glaucoma (HR for 1-SD increase in HDL-C 1.05, 95% CI 1.02 to 1.08, $p=0.001$), while elevated levels of LDL-C (HR 0.96, 95% CI 0.94 to 0.99, $p=0.005$), TC (HR 0.97, 95% CI 0.94 to 1.00, $p=0.037$) and TG (HR 0.96, 95% CI 0.94 to 0.99, $p=0.008$) were all associated with reduced risk. The analysis examining the associations between polygenic risk score of serum lipids and glaucoma showed per 1-SD increment of HDL-C genetic risk was associated with a 5% greater hazard of glaucoma (HR 1.05, 95% CI 1.00 to 1.11, $p=0.031$). However, the polygenic risk score of LDL-C, TC, and TG did not show a significant association with glaucoma.; **Conclusions:** Elevated HDL-C is associated with an increased risk of glaucoma, while elevated LDL-C, TC, and TG levels are associated with a lower risk of glaucoma. This study enhances our understanding of the association between lipid profile and glaucoma and warrants further investigation of lipid-focused treatments in glaucoma management. (© Author(s) (or their employer(s)) 2025. No commercial re-use. See rights and permissions. Published by BMJ Group.)

Access or request full text: <https://libkey.io/10.1136/bjo-2024-326062>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39904580&prolid=e>

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21. Glaucoma: what community nurses should know

Item Type: Journal Article

Authors: Perry, Margaret

Publication Date: Aug ,2025

Journal: Journal of Community Nursing 39(4), pp. 55–59

Abstract: Glaucoma is a serious eye condition, comprising a group of eye diseases, and is a leading cause of sight loss around the world. It has several forms, with primary open angle glaucoma (POAG) the most common. Glaucoma can affect people of all ages but is more prevalent among older adults. It is a progressive condition and has a huge impact on quality of life, affecting the person's ability to continue to lead a normal life. This article focuses on glaucoma in adults, and provides information on symptoms, risk factors, diagnosis and treatment. The aim is to help nurses and non-medical prescribers to recognise and refer suspected cases, improving outcomes and quality of life for all those affected by this devastating disease.

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=187277749&profid=ehost>

22. Rare genetic variation in PTPRB is associated with central serous chorioretinopathy, varicose veins and glaucoma

Item Type: Journal Article

Authors: Rämö, J. T.;Gorman, B. R.;Weng, L. C.;Jurgens, S. J.;Singhanetr, P.;Tieger, M. G.;van Dijk, E. H.;Halladay, C. W.;Wang, X.;Hauser, B. M.;Kim, S. H.;Brinks, J.;Choi, S. H.;Luo, Y.;Pyarajan, S.;Nealon, C. L.;Gorin, M. B.;Wu, W. C.;Anthony, S. A.;Roncone, D. P., et al

Publication Date: 2025

Journal: Nature Communications 16(1), pp. 4127

Abstract: Central serous chorioretinopathy is an eye disease characterized by fluid buildup under the central retina whose etiology is not well understood. Abnormal choroidal veins in central serous chorioretinopathy patients have been shown to have similarities with varicose veins. To identify potential mechanisms, we analyzed genotype data from 1,477 patients and 455,449 controls in FinnGen. We identified an association for a low-frequency (allele frequency = 0.5%) missense variant (rs113791087) in PTPRB, the gene encoding vascular endothelial protein tyrosine phosphatase (odds ratio=2.85, $P = 4.5 \times 10^{-9}$). This was confirmed in a meta-analysis of 2,452 patients and 865,767 controls from 4 studies (odds ratio=3.06, $P = 7.4 \times 10^{-15}$). Rs113791087 was associated with a 56% higher prevalence of retinal abnormalities (35.3% vs 22.6%, $P = 8.0 \times 10^{-4}$) in 708 UK Biobank participants and, surprisingly, with increased risk of varicose veins (odds ratio=1.31, $P = 2.3 \times 10^{-11}$) and reduced risk of glaucoma (odds ratio=0.82, $P = 6.9 \times 10^{-9}$). Predicted loss-of-function variants in PTPRB, though rare in number, were associated with central serous chorioretinopathy in All of Us (odds ratio=17.09, $P = 0.018$). These findings highlight the significance of vascular endothelial protein tyrosine phosphatase in diverse ocular and systemic veno-vascular diseases. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1038/s41467-025-58686-6>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40319023&profid=e_host

23. Topical antibiotics for treating bacterial keratitis: a network meta-analysis

Item Type: Journal Article

Authors: Song, Anna;Yang, Yunfei;Henein, Christin;Bunce, Catey;Qureshi, Riaz and Ting, Darren S. J.

Publication Date: 2025

Journal: The Cochrane Database of Systematic Reviews 7, pp. CD015350

Abstract: Background: Infectious keratitis, commonly known as corneal infection, is a major cause of blindness, affecting approximately six million people globally and resulting in around two million cases of monocular blindness annually. The incidence varies widely worldwide, with higher rates in low- and middle-income countries due to various risk factors, including agricultural injuries and other accidental trauma, limited access to health care, and low levels of health literacy. Bacterial keratitis (BK) is the most prevalent form in higher-income regions, contributing to significant morbidity and healthcare burden. If not diagnosed and treated promptly, BK can damage the cornea and result in corneal scarring, visual impairment and/or blindness. Broad-spectrum topical antibiotics remain the primary treatment, with regional microbiological profiles and antimicrobial resistance patterns influencing therapeutic choices. However, in view of the substantial heterogeneity in clinical practice, the optimal choice of topical antibiotics for BK remains uncertain. Addressing this unanswered question may help inform current practice and improve the clinical outcomes of BK.; **Objectives:** To compare the benefits and harms of topical antibiotics for treating BK and to rank interventions by performing a systematic review and network meta-analysis (NMA).; **Search Methods:** We searched CENTRAL, MEDLINE, Embase, two other databases, and two trials registries together with reference checking and contact with study authors (where necessary). The latest search date was 8 August 2024. There were no restrictions on language or year of publication.; **Selection Criteria:** We included randomized controlled trials (RCTs) in which different types of topical antibiotics (e.g. ciprofloxacin, moxifloxacin, vancomycin, etc.) and/or placebo were compared in participants with BK (diagnosed clinically or microbiologically, or both).; **Data Collection and Analysis:** We used standard Cochrane methodology. Our outcomes were mean days to healing, mean size of epithelial defect, mean size of infiltrate, mean corrected and uncorrected distance visual acuity, and adverse effects. We assessed risk of bias using the RoB 2 tool and the certainty of evidence using the CINeMA framework for the primary NMA results of our critical outcome.; **Main Results:** We included 23 parallel-group RCTs that enrolled 2692 participants diagnosed with BK. The studies were conducted in Australia, Canada, India, Iran, Israel, Japan, the Philippines, Serbia, Thailand, the UK, and the USA. The majority of participants were of working age, with a mean age ranging from 26 to 66 years, and 58% were male. We classified six types of interventions: fluoroquinolone monotherapy, cephalosporin monotherapy, penicillin monotherapy, dual therapy, triple therapy, and other monotherapy (povidone-iodine, honey, placebo), yielding 10 pair-wise comparisons. We judged 12 studies (54.5%) to be at high risk of bias and 10 studies (45.5%) to raise some concerns for bias. Based on the critical outcome (mean days to healing) analyzed by surface under the cumulative ranking curve (SUCRA), vancomycin + ceftazidime (SUCRA of 83.8), moxifloxacin (SUCRA of 83.1), and cefazolin + tobramycin (SUCRA of 71.3) were shown to be the most effective treatments for BK. When compared with ciprofloxacin monotherapy (the comparison group), the following showed evidence of faster healing time (by more than two to seven days): moxifloxacin (mean difference MD] - 6.81, 95% confidence interval CI] -13.83 to 0.20; moderate-certainty evidence), vancomycin + ceftazidime (MD -6.18, 95% CI -10.24 to -2.12; low-certainty evidence), cefazolin + tobramycin (MD -5.57, 95% CI -12.87 to 1.74; moderate-certainty evidence), gatifloxacin (MD -3.84, 95% CI -9.12 to 1.43; low-certainty evidence), cefazolin + gentamicin (MD -2.58, 95% CI -6.45 to 1.30; low-certainty evidence), and honey (MD -2.44, 95% CI -4.42 to -0.46; low-certainty evidence). Conversely, lomefloxacin (MD -0.94, 95% CI -3.88 to 2.00; moderate-certainty

evidence) and ofloxacin (MD -0.70, 95% CI -0.90 to -0.50; high-certainty evidence) showed similar healing time to ciprofloxacin with less than one-day difference. Compared with vancomycin + ceftazidime, ofloxacin (MD 5.48, 95% CI 1.41 to 9.55; low-certainty evidence), lomefloxacin (MD 5.24, 95% CI 1.50 to 8.98; low-certainty evidence), and cefazolin + gentamicin (MD 3.60, 95% CI 2.38 to 4.82; low-certainty evidence) showed evidence of longer time to heal (by three to six days). Of the important outcomes, including mean size of epithelial defect, mean size of infiltrate, mean corrected and uncorrected distance visual acuity, and adverse effects, only the odds of non-serious harms/non-severe harms (ranging from ocular discomfort, hyperemia, toxicity, conjunctivitis, and superficial punctate keratitis to the need for therapeutic keratoplasty) had sufficient data for analysis. The three interventions least likely to cause harm were vancomycin + ceftazidime (SUCRA of 93.1), cefazolin + gentamicin (SUCRA of 82.5), and chlorhexidine + cefazolin (SUCRA of 77.0). Regarding the odds of any non-serious or non-severe harm, vancomycin + ceftazidime was associated with fewer harms than ciprofloxacin (odds ratio [OR] 0.07, 95% CI 0.01 to 0.92), gatifloxacin (OR 0.05, 95% CI 0.00 to 0.90), and cefazolin + tobramycin (OR 0.05, 95% CI 0.00 to 0.75), whereas cefuroxime + gentamicin was found to cause more harms than ofloxacin (OR 16.13, 95% CI 1.88 to 138.47), moxifloxacin (OR 20.31, 95% CI 1.15 to 358.25), cefazolin + gentamicin (OR 96.41, 95% CI 2.52 to 3692.25), and cefazolin + chlorhexidine (OR 0.01, 95% CI 0.00 to 0.71). We did not assess the certainty of evidence for harms.; **Authors' Conclusions:** In our NMA, mostly moderate- to very low-certainty evidence suggests that vancomycin + ceftazidime combination therapy, moxifloxacin monotherapy, and cefazolin + tobramycin combination therapy may be the most effective treatments for BK in terms of corneal healing time, whereas ciprofloxacin monotherapy is the least effective. Given that most evidence was not of high certainty, the results of this NMA should be interpreted with caution, and future research could potentially alter these findings.; **Funding:** RQ receives grant support from the National Eye Institute (UG1EY020522). DSJT acknowledges support from the Medical Research Council/Fight for Sight Clinical Research Fellowship (MR/T001674/1) and the Birmingham Health Partners Fellowship. CH receives grant support from Glaucoma UK (183772), National Institute for Health Research Clinical Lectureship (CL-2020-18-009). The views expressed in this publication are those of the author(s) and not necessarily those of the NIHR, NHS, or the UK Department of Health and Social Care.; Registration: Protocol available via doi: 10.1002/14651858.CD015350. (Copyright © 2025 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.)

Access or request full text: <https://libkey.io/10.1002/14651858.CD015350.pub2>

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40728038&profid=e_host

24. Multisensory stimulation to reduce procedural pain in retinopathy of prematurity: A randomized controlled trial

Item Type: Journal Article

Authors: Tasdemir, Halil Ibrahim

Publication Date: 2025

Journal: Nursing in Critical Care 30(4), pp. 1–12

Abstract: Background: Retinopathy is frequently seen in the neonatal intensive care unit (NICU), and its examination is a painful procedure for infants. Aim: This randomized active-controlled trial aimed to investigate the impact of multisensory stimulation (MSS) on neonatal pain during retinopathy of prematurity (ROP) examinations, in comparison with a white noise (WN) and control group receiving standard care. Study **Design:** Conducted as a three-arm, randomized controlled trial, the study was implemented in the NICU of a local university hospital. Recruitment spanned from July 2023 to November 2023, with preterm infants (gestational age < 37 weeks) randomly assigned to either a MSS, WN or a control group. MSS components

included visual, auditory, tactile, olfactory and gustatory stimuli, all designed to create a synergistic, comforting environment for the infant during the procedure. Procedural pain, heart rate and oxygen saturation were assessed at various stages before and after ROP examinations. **Results:** Analysis of 90 participants revealed that the MSS group exhibited lower Premature Infant Pain Profile (PIPP) scores than the WN and control groups (mean difference: -2.12 , 95% confidence interval CI]: -2.62 to -1.62 ; odds ratio OR]: 0.004 , 95% CI 0.001 , 0.012], $p < 0.001$). Additionally, heart rates were significantly lower in the MSS group (mean difference: -15.3 beats/min, 95% CI: -20.5 to -10.1 ; OR: 0.025 , 95% CI 0.008 , 0.073], $p < .001$) and oxygen saturation levels were higher (mean difference: 3.2% , 95% CI: 1.8% to 4.6% ; OR: 1.12 , 95% CI 1.05 , 1.20], $p < .001$) than in the other groups. **Conclusions:** MSS emerges as a favourable, safe and non-pharmacological intervention for pain management in ROP and similar procedures. Relevance to Clinical Practice: Multisensory stimulation can be effectively integrated into the routine care provided by critical care nurses during retinopathy of prematurity examinations in preterm infants. This non-pharmacological intervention offers a practical approach for critical care nurses to reduce procedural pain and improve physiological stability in this vulnerable population.

Access or request full text: <https://libkey.io/10.1111/nicc.13200>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=186997795&prolid=ehost>

25. Long term analysis of microbiological isolates and antibiotic susceptibilities in acute-onset postoperative endophthalmitis: a UK multicentre study

Item Type: Journal Article

Authors: Teh, Boon Lin; Ong, Ariel Yuhan; Mehta, Ankur; Hoang, Vy; Settle, Chris; Lotery, Andrew J.; Charbel Issa, Peter; Smith, Jonathan and Steel, David H.

Publication Date: 2025

Journal: Eye (London, England) 39(8), pp. 1470–1475

Abstract: Objectives: To review the trend of microbial isolates for postoperative endophthalmitis (POE) in the United Kingdom (UK) and determine the sensitivity to current empirical intravitreal antibiotic treatment.; **Methods:** We conducted a long term multicentre consecutive case review of POE across 3 geographically distant tertiary eye centres in the UK: Sunderland Eye Infirmary (2000-2022), Oxford Eye Hospital (2016-2022), and Southampton General Hospital (2016-2022). Data on the microbial samples taken and results including sensitivities to antibiotics agents given were collected. Poisson regression was used to analyse microbial trends and outcomes were considered statistically significant at a level of $p < 0.05$.; **Results:** 179 consecutive eyes of 177 patients with POE met our inclusion criteria. The most common primary procedure was phacoemulsification and IOL insertion followed by intravitreal injections. 104 (58.1%) were culture positive and most were Gram-positive bacteria (85, 81.7%). The microbial trend consistently showed Staphylococcus epidermidis and unspecified coagulase-negative Staphylococci to be the most prevalent pathogens. Poisson regression showed no statistically significant change in any of the bacterial isolates over our study period. Antibiotic sensitivity data was available for 74% of the culture positive samples (77/104). All Gram-positive bacteria (68/68, 100%) and most (8/9, 88.9%) Gram-negative bacteria were sensitive to the empirical antibiotics (Vancomycin and Ceftazidime/Amikacin) given at presentation.; **Conclusions:** Most of the bacterial isolates causing POE in the UK are Gram-positive bacteria, and the trend has remained stable over more than two decades. Current empirical treatment with intravitreal Vancomycin and Ceftazidime/Amikacin provides effective broad coverage for the vast majority of cases. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1038/s41433-025-03673-w>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39939392&prolid=ehost>

26. Ultrasound guided Ru106 plaque brachytherapy for treatment of exudative retinal detachment in children with diffuse choroidal haemangioma

Item Type: Journal Article

Authors: Venkataraman, Anusha;Al-Gilgawi, Ali;Stoker, Ian;Reddy, M. A. and Sagoo, Mandeep S.

Publication Date: 2025

Journal: Eye (London, England) 39(3), pp. 533–537

Abstract: Purpose: To evaluate the efficacy of ultrasound-guided ruthenium (Ru 106) plaque brachytherapy for treatment of exudative retinal detachment in diffuse choroidal haemangioma (DCH).; **Methods:** Retrospective analysis of four paediatric patients treated with ultrasound-guided Ru 106 plaque brachytherapy for DCH with total exudative retinal detachment directed to the thickest part of the DCH. A dose of 40 Gy to the tumour apex was delivered in all patients. The outcomes of treatment were regression of DCH, resolution of retinal detachment, development of neovascular glaucoma or any other radiation-associated complications which were assessed clinically and with B scan ultrasonography.; **Results:** There were 4 eyes included in the study, with a mean (median, range) age of 8.75 (8.4, 3-15) years. The pre-operative tumour thickness was 5.0 (5.12, 4.2-5.5) mm. The visual acuity ranged from 0.8-2.8 LogMAR and 3 of 4 eyes had only light perception at presentation. One eye had been treated with goniotomy for pre-existing secondary glaucoma and was on topical antihypertensive medications. At a mean follow-up of 14.6 months (10.5 months, 6-30 months), all patients showed regression of the tumour. The mean tumour thickness reduced to 2.05 mm (2.44 mm, 1.1-2.6 mm) post-operatively. All patients (4/4) had complete resolution of the retinal detachment. The visual acuity remained stable in all the patients with none of the patients developing neovascular glaucoma or any other radiation-related complications.; **Conclusion:** Ultrasound-guided Ru 106 plaque brachytherapy is an effective treatment strategy as a primary treatment in the absence of external beam radiotherapy, to achieve tumour regression and resolution of retinal detachment in DCH. (© 2025. The Author(s).)

Access or request full text: <https://libkey.io/10.1038/s41433-024-03562-8>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39809880&prolid=ehost>

27. Role of Endocannabinoids in Glaucoma: A Review

Item Type: Journal Article

Authors: Warjri, G. B.;Gowtham, L.;Venkatraman, V.;Velpandian, T.;Dada, T. and Angmo, D.

Publication Date: 2025

Journal: Journal of Current Glaucoma Practice 19(1), pp. 28–37

Abstract: Aims: A review of the published literature was done to understand the role of endocannabinoids in glaucoma.; **Background:** As evidence mounts that intraocular pressure (IOP) is not the only factor in the pathogenesis and progression of glaucoma, a look into other aspects is the need of the hour. From the first

instance of a drop in IOP linked to marijuana in the 1970s to the present, research has been ongoing, mostly in animals and in vitro models, with a scarcity of human studies, to delve into the world of the endocannabinoid system (ECS).; **Methods:** PubMed, ScienceDirect, and Google Scholar were searched for studies relating to endocannabinoids and their role in glaucoma.; **Results:** The ECS comprises ligands, receptors, and the synthesizing and degrading enzymes and is ubiquitous throughout the human body, including the visual system, from the eye to the occipital lobe. Apart from the IOP-lowering effect of the system, another property being investigated and implicated as an attribute of its receptors is neuroprotection. This neuroprotection seems to be mediated by excitotoxicity reduction and changes in vascular tone by acting on cannabinoid receptors.; **Conclusion:** The possibilities are indeed immense, and further research into the complex relationship between ECS and glaucoma is imperative to enable us to develop therapies for this otherwise chronic, progressive neuropathy, where the only armament in our hands is early diagnosis and maintenance therapy.; **Clinical Significance:** We still do not have drugs for the prevention of retinal ganglion cell loss and for neuroprotection in glaucoma. Drugs that target cannabinoid receptors can revolutionize glaucoma management owing to their IOP-lowering action and neuroprotective effects. Based on the findings, we argue that further studies on the ECS and its implications in glaucoma are warranted to develop newer, effective, and better-targeted treatment strategies.; **How to Cite This Article:** Warjri GB, Gowtham L, Venkatraman V, et al . Role of Endocannabinoids in Glaucoma: A Review. J Curr Glaucoma Pract 2025;19(1):28-37. (Copyright © 2025; The Author(s).)

Access or request full text: <https://libkey.io/10.5005/jp-journals-10078-1467>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40417140&prolid=ehost>

28. Validating and Updating the OHTS-EGPS Model Predicting 5-year Glaucoma Risk among Ocular Hypertension Patients Using Electronic Records

Item Type: Journal Article

Authors: Wright, David M.;Azulara-Blanco, Augusto;Cardwell, Chris;Montesano, Giovanni;Crabb, David P.;Gazzard, Gus;King, Anthony J.;Hernández, Rodolfo;Morgan, James E.;Higgins, Bethany and Takwoingi, Yemisi

Publication Date: 2025

Journal: Ophthalmology.Glaucoma 8(2), pp. 143–151

Abstract: Objective: To validate and update the Ocular Hypertension Treatment Study-European Glaucoma Prevention Study (OHTS-EGPS) model predicting risk of conversion from ocular hypertension (OHT) to glaucoma using electronic medical records (EMR).; **Design:** Evaluation and update of a risk prediction algorithm using EMRs and linked visual field (VF) tests.; **Participants:** Newly diagnosed OHT patients attending hospital glaucoma services in England. Inclusion criteria are as follows: intraocular pressure (IOP) 22 to 32 mmHg (either eye); normal baseline VF test, defined as Glaucoma Hemifield Test (GHT) "within normal range" in a reliable VF test; at least 2 VF tests in total; no significant ocular comorbidities.; **Methods:** Risk factors are as follows: age, ethnicity, sex, IOP, vertical cup-to-disc ratio, central corneal thickness, VF pattern standard deviation, family history of glaucoma, systemic hypertension, diabetes mellitus, and glaucoma treatment. Glaucoma conversion was defined as 2 consecutive and reliable VF tests with GHT "outside normal limits" and/or need for glaucoma surgery. For validation, the OHTS-EGPS model was applied to predict a patient's risk of developing glaucoma in 5 years. In the updating stage, the OHTS model was refitted by re-estimating the baseline hazard and regression coefficients. The updated model was cross-validated and several variants were explored.; **Main Outcome Measures:** Measures of discriminative ability (c-index) and calibration (calibration slope) were calculated and pooled across hospitals using random effects meta-analysis.; **Results:** From a total

of 138 461 patients from 10 hospital glaucoma services in England, 9030 patients with OHT fitted the inclusion criteria. A total of 1530 (16.9%) patients converted to glaucoma during this follow-up period. The OHTS-EGPS model provided a pooled c-index of 0.61 (95% confidence interval: 0.60-0.63), ranging from 0.55 to 0.67 between hospitals. The pooled calibration slope was 0.45 (0.38-0.51), ranging from 0.25 to 0.64 among hospitals. The overall refitted model performed better than the OHTS-EGPS model, with a pooled c-index of 0.67 (0.65-0.69), ranging from 0.65 to 0.75 between hospitals.; **Conclusions:** We performed an external validation of the OHTS-EGPS model in a large English population. Refitting the model achieved modest improvements in performance. Given the poor performance of the OHTS-EGPS model in our population, one should use caution in its application to populations that differ from those in the OHTS and EGPS.; **Financial Disclosure(s):** Proprietary or commercial disclosure may be found in the Footnotes and Disclosures at the end of this article. (Copyright © 2024 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.)

Access or request full text: <https://libkey.io/10.1016/j.ogla.2024.10.009>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39505150&prolid=ehost>

29. A bibliometric analysis of strabismus (from 2004 to 2023)

Item Type: Journal Article

Authors: Xiu, Yanghui;Zhang, Yujie;Su, Yu;Zhu, Chufan and Liu, Zhen

Publication Date: 2025

Journal: Frontiers in Medicine 12, pp. 1488817

Abstract: Over the past two decades, strabismus research has evolved significantly, driven by innovations in AI-assisted diagnostics, minimally invasive surgical techniques, and a heightened focus on psychosocial outcomes and systemic disease linkages. This bibliometric analysis of 4,515 articles from the Web of Science Core Collection (2004-2023) maps global research trends, identifying the United States of America (USA), China, and the United Kingdom (UK) as leading contributors. A keyword co-occurrence analysis highlights a shift toward innovative treatments, including non-surgical interventions, and highlights the growing interest in interdisciplinary approaches that integrate clinical practice with psychological and social dimensions of strabismus. In conclusion, this bibliometric review provides a comprehensive overview of current strabismus research and identifies key areas for further investigation, serving as a valuable resource for researchers and clinicians aiming to advance the field. (Copyright © 2025 Xiu, Zhang, Su, Zhu and Liu.)

Access or request full text: <https://libkey.io/10.3389/fmed.2025.1488817>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40357290&prolid=ehost>

30. Exploring the Mechanisms Linking Depression and Glaucoma: A Cohort Study of UK Biobank

Item Type: Journal Article

Authors: Yao, Xueming;Jiang, Yuhan;Yang, Hongxi;Guo, Ju;Wang, Xiaohong;Grzybowski, Andrzej;Li, Mulin Jun and Yan, Hua

Publication Date: 2025

Journal: Translational Vision Science & Technology 14(7), pp. 5

Abstract: Purpose: Depression and glaucoma are globally prevalent disorders with emerging evidence suggesting a potential inter-relation. This study aims to gain an in-depth understanding of their association and shared mechanisms.; **Methods:** We investigated the association between depression and glaucoma using data from 348,537 Caucasian patients in the UK Biobank, including 7544 with glaucoma and 22,153 with depression. We performed Cox regression, logistic regression, mediation analyses, genetic association analysis, and Mendelian randomization.; **Results:** Logistic regression indicated that depression increased the odds of glaucoma by 1.63 times (95% confidence interval CI] = 1.51-1.77) and glaucoma increased the odds of depression by 1.61 times (95% CI = 1.49-1.74). Cox regression showed a hazard ratio of 1.35 for glaucoma incidence in individuals with depression (95% CI = 1.07-1.70). The risk of glaucoma was consistently approximately 60% higher across various genetic components of depression. We examined 1463 protein markers, identifying 200 markers associated with depression, some of which are linked to lipid metabolism. Mediation analysis suggested lipid metabolism as a mediator among these two diseases, with proteins like ANPEP, CCL3, and VWA1 playing significant roles. Genetic correlation analysis revealed a substantial genetic connection among depression, glaucoma, and lipid metabolism traits.; **Conclusions:** Significant associations between depression and glaucoma were observed, with lipid metabolism playing a crucial role in their diagnosis and treatment.; **Translational Relevance:** Our research underscores the inter-relation between glaucoma and depression, highlighting the importance of lipid metabolism in their clinical management.

Access or request full text: <https://libkey.io/10.1167/tvst.14.7.5>

URL: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40622201&profid=ehost>

31. Exploring Effects of Age at the Onset of Myopia on Multiple Diseases Using Electronic Health Records

Item Type: Journal Article

Authors: Zhang, Xiayin;Wang, Shan;Huang, Yu;Xie, Yanjie;Seth, Ishith;Bulloch, Gabriella;Lai, Chunran;Hu, Yijun;Shang, Xianwen;He, Mingguang;Zhu, Zhuoting and Yu, Honghua

Publication Date: 2025

Journal: Ophthalmology Science 5(5), pp. 100819

Abstract: Purpose: To examine whether genetic predisposition to age at the onset of myopia is associated with the development of future diseases.; **Design:** Mendelian randomization phenome-wide association study (MR-PheWAS) from the UK Biobank.; **Participants:** A polygenic risk score (PRS) for age at the onset of myopia was constructed using 80 variants selected from a genome-wide association study. Participants were eligible if they had available genetic information during recruitment between March 13, 2006, and October 1, 2010. Disease outcomes were mapped to phenotype codes (phecodes) based on hospital episode statistics and causes of death up to April 29, 2021.; **Methods:** The analysis of phenome-wide association studies (PheWAS) identified possible associations between the age of myopia-onset PRS and a range of disease outcomes. Cox proportional hazards analysis and 2-sample Mendelian randomization (MR) further confirmed associations between PRS and diseases passing Bonferroni correction. The disease-trajectory analysis explored the sequential patterns in childhood-onset and adult-onset groups.; **Main Outcome Measures:** Disease outcomes related to age at the onset of myopia.; **Results:** Our study population comprised 315 568 UK Biobank

participants, and 1000 unique phecodes from 17 different disease categories were included for analysis. After Bonferroni correction, PheWAS identified younger age at myopia-onset PRS was associated with hospital-diagnosed myopia and 13 other outcomes when using the Bonferroni threshold (all $P < 5.0 \times 10^{-5}$). Eleven distinct disease associations with dose-response effects were confirmed using Cox proportional hazards analysis with stratified PRS. Two-sample MR analyses provided further support for the effects of younger age at myopia on higher risks of retinal detachments, cataracts, disorders of the vitreous body, and hypothyroidism, whereas older age of the onset of myopia conferred a higher risk of primary angle-closure glaucoma. Temporal analyses indicated myopia preceded the above disorders in both the childhood-onset and adult-onset groups.; **Conclusions:** This data-driven MR-PheWAS identified a range of ocular disorders and hypothyroidism that were related to age at the onset of myopia. Our results highlight the importance of treating younger-onset myopia and the management of myopia-related comorbidities.; Financial Disclosures: The author(s) have no proprietary or commercial interest in any materials discussed in this article. (Crown Copyright © 2025 Published by Elsevier Inc. on behalf of the American Academy of Ophthalmology.)

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