Evidence Brief: Ophthalmology plus: diabetic retinopathy; retinal detachment; cataracts; glaucoma

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Produced by the Knowledge Management team Evidence Briefs offer an overview of the published reports, research, and evidence on a workforce-related topic.

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- Complete Evidence Brief list – link for Workforce, Training and Education staff
- Complete Evidence Brief list – link for External staff

1. Diabetic Retinopathy

Key publications – the big picture

Addressing the burden of diabetic retinopathy and health workforce shortages: a look at task shifting
Source: NCD Alliance
Publication date: 9th November 2020
Diabetic retinopathy (DR) is a noncommunicable disease (NCD) and the leading cause of irreversible blindness among the working age population worldwide, having a severe impact on households and economies. However, DR is preventable and manageable if mechanisms for regular screening, early detection, and treatment are in place, and through optimised blood glucose and blood pressure management.

Managing diabetes in primary care: how does the configuration of the workforce affect quality of care?
Source: King's College London
Publication date: November 2013
This project continues a programme of work led by the NNRU that has sought to explore the relationship between workforce configuration in the health service and patient outcomes. In a nutshell we seek to address: what difference does it make who provides care and treatment to patients? The ramifications of different workforce models have been more thoroughly investigated in the acute sector, but there has been far less research undertaken to determine the impact of employing different combinations of staff in primary care.

Diabetic Retinopathy Guidelines
Source: The Royal College of Ophthalmologists
Publication date: December 2012
The aim of the guidelines is to provide evidence-based, clinical guidance for the best management of different aspects of diabetic eye disease. The foundations of the guidelines are based on evidence taken form the literature and published trials of therapies as well as consensus opinion of a representative expert panel convened by the Royal College of Ophthalmologists with an interest in this condition. The scope of the guidelines is limited to management of diabetic retinopathy with special focus on sight threatening retinopathy. It offers guidance regarding service set up to facilitate delivery of optimal clinical care for patients with retinopathy. The guidelines are prepared primarily for ophthalmologists, however they are relevant to other healthcare professionals, service providers and commissioning organisations as well as patient groups. The guidelines do not cover rare, complex, complicated or unusual cases. It is recommended that readers refer to other relevant sources of information such as summaries of product characteristics (SPCs) for pharmaceutical products as well as NICE and GMC guidance. The new guidelines incorporate established and applicable information and guidance from the previous version with revision while some chapters are extensively revised and some new chapters are added. As stated in the previous version, the guidelines are advisory and are not intended as a set of rigid rules, since individual patients require tailored treatment for their particular condition. However, it is hoped that if used appropriately, the guidelines will lead to a uniformly high standard of management of patients with diabetic retinopathy.

Published Peer Reviewed Research

Learning from Covid-19

Implementing the new normal in ophthalmology care beyond COVID-19 Abstract only*
Author(s): Chandra et al.
Source: European Journal of Ophthalmology 31(2) pp. 321-327
Publication date: March 2021
The COVID-19 pandemic has altered the clinical landscape immeasurably. The need to physical distance requires rethinking how we deliver ophthalmic care. Within healthcare, we will need to focus our resources on the five T's: Utilising technology, multidisciplinary clinical teams with wide professional talents need to work efficiently to reduce patient contact time. With regular testing, this will allow us to reduce the risk further. We also must acknowledge the explosion of different modalities to train our future ophthalmologists and the global challenges and advantages that these bring. Finally, we must not forget the psychological impact that this pandemic will have on ophthalmologists and ancillary staff, and need to have robust mechanisms for support.Copyright © The Author(s) 2020.

New models of care

Evaluation of a New Model of Care for People with Complications of Diabetic Retinopathy: The EMERALD Study
Author(s): Lois et al.
Source: Ophthalmology 128(4)
Publication date: April 2021
PURPOSE The increasing diabetes prevalence and advent of new treatments for its major visual-threatening complications (diabetic macular edema [DME] and proliferative diabetic retinopathy [PDR]), which require frequent life-long follow-up, have increased hospital demands markedly. Subsequent delays in patient's evaluation and treatment are causing sight loss. Strategies to increase capacity are needed urgently. The retinopathy (EMERALD) study tested diagnostic accuracy, acceptability, and costs of a new health care pathway for people with previously treated DME or PDR.DESIGN Prospective, multicenter, case-referent, cross-sectional, diagnostic accuracy study undertaken in 13 hospitals in the United Kingdom. PARTICIPANTS Adults with type 1 or 2 diabetes previously successfully treated DME or PDR who, at the time of enrollment, had active or inactive disease. METHODS A new health care pathway entailing multimodal imaging (spectral-domain OCT for DME, and 7-field Early Treatment Diabetic Retinopathy Study [ETDRS] and ultra-widefield [UWF] fundus images for PDR) interpreted by trained nonmedical staff (ophthalmic graders) to detect reactivation of disease was compared with the current standard care (face-to-face examination by ophthalmologists).MAIN OUTCOME MEASURES Primary outcome: sensitivity of the new pathway. SECONDARY OUTCOMES specificity; agreement between pathways; costs; acceptability; proportions requiring subsequent ophthalmologist assessment, unable to undergo imaging, and with inadequate images or indeterminate findings. RESULTS The new pathway showed sensitivity of 97% (95% confidence interval [CI], 92%-99%) and specificity of 31% (95% CI, 23%-40%) to detect DME. For PDR, sensitivity and specificity using 7-field ETDRS images (85% [95% CI, 77%-91%] and 48% [95% CI, 41%-56%], respectively) or UWF images (83% [95% CI, 75%-89%] and 54% [95% CI, 46%-61%], respectively) were comparable. For detection of high-risk PDR, sensitivity and specificity were higher when using UWF images (87% [95% CI, 78%-93%] and 49% [95% CI, 42%-56%], respectively, for UWF versus 80% [95% CI, 69-88%] and 40% [95% CI, 34%-47%], respectively, for 7-field ETDRS images). Participants preferred ophthalmologists' assessments; in their absence, they preferred immediate

feedback by graders, maintaining periodic ophthalmologist evaluations. When compared with the current standard of care, the new pathway could save £1390 per 100 DME visits and between £461 and £1189 per 100 PDR visits. CONCLUSIONS The new pathway has acceptable sensitivity and would release resources. Users' suggestions should guide implementation.

New ways of working

Patients views on a new surveillance pathway involving allied non-medical staff for people with treated diabetic macular oedema and proliferative diabetic retinopathy
Item Type: Journal Article
Authors: Lois, N.;Saad, A.;Azuara-Blanco, A.;Styles, C.;Bailey, C.;McAuley, D.;Steel, D. H.;Ghanchi, F. D.;Menon, G.;Eleftheriadis, H.;Efraimidis, S.;Cook, J.;Wang, A.;Sones, W.;Acharya, N.;Waugh, N.;Mistry, H.;Maredza, M.;Fatum, S.;Sivaprasad, S., et al
Publication Date: 2023
Journal: Eye (Basingstoke) 37(6), pp. 1155-1159
Abstract: Background/Objective: To explore acceptability by patients and health care professionals of a new surveillance pathway for people with previously treated and stable diabetic macular oedema (DMO) and/or proliferative diabetic retinopathy (PDR). Subject/Methods: Structured discussions in 10 focus groups with patients; two with ophthalmic photographers/graders, and one with ophthalmologists, held across the UK as part of a large diagnostic accuracy study (EMERALD). Result(s): The most prominent issues raised by patients concerned (i) expertise of the various professionals within clinic, (ii) quality of interactions with clinic professionals, especially the flow of information from professionals to patients, and (iii) wish to be treated holistically. Ophthalmologists suggested such issues could be best dealt with via a programme of patient education and tended to overlook deeper implications of patient concerns for the organisation of services. Conclusion(s): For patients, the clinical service should not only include the identification and treatment of disease but also exchange of information, reassurance, and mitigation of anxiety. Alterations in the standard care pathway need to take account of such concerns and their implications, in addition to any assessments of 'efficiency' that may flow from changes in diagnostic technology, or the division of professional labour.Copyright © 2022, Crown.

Conference abstract: The use of quality improvement continuing medical education to improve the evaluation of diabetic retinopathy
Author(s): Robinson and Esgro
Source: Diabetes 67(Supplement 1)
Publication date: July 2018
Rationale: Diabetic Retinopathy (DR) is a leading cause of vision loss worldwide. While regular screening can lead to earlier interventions, reduce vision loss, and improve patient outcomes, baseline screening in patients at risk for DR has traditionally been low. Method(s): To improve screening rates for DR, Vindico Medical Education and staff from the Cole Eye Institute at the Cleveland Clinic (CC) developed and executed a quality improvement CME (QI-CME) initiative within a closed network of endocrinologists and primary care physicians (PCPs) who see patients with diabetes. Interventions included a series of live, print, and web-based CME activities focused on the timely referral of patients with diabetes for ophthalmic evaluation. Result(s): At baseline, 95.5% and 71% of endocrinologists and PCPs, respectively, asked their patients about ophthalmologic signs and symptoms, though there was significant delay in the time between initial patient visit and follow-up with ophthalmology among the providers (173.2 days for endocrinologists and 184.8 days for PCPs). After delivery of the QI-CME within the closed system, there were significant gains in

knowledge and competence as well as a 125-day and 130-day reduction in time between initial patient visit and ophthalmology follow-up, among endocrinologists and PCPs, respectively. Conclusion(s): This program demonstrated that the sequential delivery of targeted CME coupled with patient chart reviews within a closed health system is a relatively simplistic, yet powerful model to address this practice gap toward improved patient outcomes by avoided vision loss. Notably, this model may be easily adopted to engage additional pertinent audiences, such as ophthalmologists, or to different therapeutic areas that rely on timely referral to a specialist for appropriate care.

Task sharing in the eye care workforce: Screening, detection, and management of diabetic retinopathy in Pakistan. A case study Abstract only*
Author(s): Shah et al.
Source: The International Journal of Health Planning and Management 33(3)
Publication date: March 2018
PURPOSE Diabetic retinopathy (DR) is a preventable cause of vision loss. Reducing vision loss due to DR and providing access to eye care services for people with diabetes have been severely constrained by a shortage in the number of ophthalmologists. This study aimed to explore the potential for task sharing in the eye care workforce for screening, detection, and management of DR. METHODS Using purposive sampling, 24 participants were recruited from four selected hospitals in 2 provinces in Pakistan. Face-to-face interviews were conducted to explore the potential for task sharing in DR management. RESULTS Amongst 24 participants recruited, 22 (91.7%) including administrators (n = 3), ophthalmologists (n = 10), optometrists (n = 3), mid-level eye care workers (n = 4), and endocrinologist (2) participated in the study. All participants indicated the need for an organised screening program for DR detection through task sharing. Participants suggested that people with diabetes can be sent directly to an optometrist for initial eye exams, rather than making them wait to be examined by an ophthalmologist. Factors favouring task sharing included the name task sharing rather than task shifting and a high demand for eye care services. Major barriers to implementation of task sharing included the lack of a trained eye care workforce in the healthcare system and the lack of coordination amongst health professionals and policy makers. CONCLUSION Participants were accepting task sharing approach and believed that task sharing could improve access to eye care services for people with diabetes and better utilise the services of eye and healthcare providers.

An Innovative Australian Outreach Model of Diabetic Retinopathy Screening in Remote Communities
Author(s): Glasson et al.
Source: Journal of Diabetes Research
Publication date: 2016
Background. Up to 98% of visual loss secondary to diabetic retinopathy (DR) can be prevented with early detection and treatment. Despite this, less than 50% of Australian and American diabetics receive appropriate screening. Diabetic patients living in rural and remote communities are further disadvantaged by limited access to ophthalmology services. Research Design and Methods. DR screening using a nonmydriatic fundal camera was performed as part of a multidisciplinary diabetes service already visiting remote communities. Images were onforwarded to a distant general practitioner who identified and graded retinopathy, with screen-positive patients referred to ophthalmology. This retrospective, descriptive study aims to compare the proportion of remote diabetic patients receiving appropriate DR screening prior to and following implementation of the service. Results. Of the 141 patients in 11 communities who underwent DR screening, 16.3% had received appropriate DR screening prior to the implementation of the service. In addition, 36.2% of patients had

never been screened. Following the introduction of the service, 66.3% of patients underwent appropriate DR screening (p = 0.00025). Conclusion. This innovative model has greatly improved accessibility to DR screening in remote communities, thereby reducing preventable blindness. It provides a holistic, locally appropriate diabetes service and utilises existing infrastructure and health workforce more efficiently.

Patient experience

Experience of patients with diabetic retinopathy: A qualitative study Abstract only*
Item Type: Journal Article
Authors: Shi, Jinghua;Zhang, Can;Zhao, Qingqing;Zhang, Ximei;Guo, Lixia and Jia, Tingting
Publication Date: 2023
Journal: Journal of Advanced Nursing (John Wiley & Sons, Inc.) 79(5), pp. 1789-1798
Abstract: Aims: To understand the status quo and needs of self-management of patients with diabetic retinopathy (DR) and to provide a reference for formulating management programs that meet the needs of these patients. Design: A qualitative interview study. Methods: Semi-structured, in-depth interviews were conducted between November and December 2021. A purposive sample of 15 patients with DR who were hospitalized in the Retinal Department of Eye Hospital was recruited. Colaizzi's analysis was used to organize and analyse the interview data. This study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist. Results: The experience of patients with DR can be summarized into four themes: (1) lack of DR knowledge, (2) low quality of life, (3) poor self-management behaviour and (4) seek for support from many aspects. Conclusion: Patients with DR lack disease knowledge and have poor self-management abilities and adherence. Medical staff should provide personalized care according to the patient's self-management status and needs, promote the establishment of self-management behaviours and prevent and delay disease progression. Impact This study helps assist medical staff in the early management of patients with DR and provides a reference for the construction of prevention programs for patients.

The experience of diabetic retinopathy patients during hospital-to-home full-cycle care: A qualitative study
Item Type: Journal Article
Authors: Zhang, Mengyue;Zhang, ChunHua;Chen, Chen;Liu, Linjie;Liang, Youping;Hong, YiRong;Chen, Yanyan and Shi, Yinghui
Publication Date: 2023
Journal: BMC Nursing 22(1), pp. 1-10
Abstract: Background: Diabetic retinopathy (DR) is one of the major blinding eye diseases worldwide. Psychological, emotional and social problems of DR patients are prominent. The aim of this study is to explore the experiences of patients with different phases of DR from hospital to home based on the "Timing It Right" framework, and to provide a reference for formulating corresponding intervention strategies. Methods: The phenomenological method and semi-structured interviews were used in this study. A total of 40 patients with DR in different phases were recruited from a tertiary eye hospital between April and August 2022. Colaizzi's analysis method was used to analyse the interview data. Results: Based on the "Timing It Right" framework, different experiences in five phases of DR before and after Pars Plana Vitrectomy (PPV) were extracted. The patients experienced complicated emotional reactions and inadequate coping skills during the pre-surgery phase, increased uncertainty during the post-surgery phase, insufficient confidence and the decision to change during the discharge preparation phase, eagerness for professional support and moving forward in exploration during the discharge adjustment

phase, and courageous acceptance and positive integration during the discharge adaptation phase. Conclusion: The experiences of DR patients with vitrectomy in different phases of disease are ever-changing, and medical staff should provide personalized support and guidance to help DR patients get through the hard times smoothly and enhance the quality of hospital-family holistic care.

Primary care

Evaluation of the initial implementation of a nationwide diabetic retinopathy screening programme in primary care: a multimethod study
Author(s): Khou et al.
Source: BMJ open 11(8) e044805
Publication date: 2021
Objectives: The Australian Government funded a nationwide diabetic retinopathy screening programme to improve visual outcomes for people with diabetes. This study examined the benefits and barriers of the programme, image interpretation pathways and assessed the characteristics of people who had their fundus photos graded by a telereading service which was available as a part of the programme. Design: Multimethod: survey and retrospective review of referral forms. Setting: Twenty-two primary healthcare facilities from urban, regional, rural and remote areas of Australia, and one telereading service operated by a referral-only eye clinic in metropolitan Sydney, Australia. Participants: Twenty-seven primary healthcare workers out of 110 contacted completed a survey, and 145 patient referrals were reviewed. Results: Manifest qualitative content analysis showed that primary healthcare workers reported that the benefits of the screening programme included improved patient outcomes and increased awareness and knowledge of diabetic retinopathy. Barriers related to staffing issues and limited referral pathways. Image grading was performed by a variety of primary healthcare workers, with one responder indicating the utilisation of a diabetic retinopathy reading service. Of the people with fundus photos graded by the reading service, 26.2% were reported to have diabetes. Overall, 12.3% of eyes were diagnosed with diabetic retinopathy. Photo quality was rated as excellent in 46.2% of photos. Referral to an optometrist for diabetic retinopathy was recommended in 4.1% of cases, and to an ophthalmologist in 6.9% of cases. Conclusions: This nationwide diabetic retinopathy screening programme was perceived to increase access to diabetic retinopathy screening in regional, rural and remote areas of Australia. The telereading service has diagnosed diabetic retinopathy and other ocular pathologies in images it has received. Key barriers, such as access to ophthalmologists and optometrists, must be overcome to improve visual outcomes.

Feasibility of a multifaceted implementation intervention to improve attendance at diabetic retinopathy screening in primary care in Ireland: a cluster randomised pilot trial
Item Type: Journal Article
Authors: Riordan, Fiona;Murphy, Aileen;Dillon, Christina;Browne, John;Kearney, Patricia M.;Smith, Susan M. and McHugh, Sheena M.
Publication Date: 2021
Journal: BMJ Open 11(10), pp. e051951
Abstract: OBJECTIVES: Diabetic retinopathy screening (DRS) uptake is suboptimal in many countries with limited evidence available on interventions to enhance DRS uptake in primary care. We investigated the feasibility and preliminary effects of an intervention to improve uptake of Ireland's national DRS programme, Diabetic RetinaScreen, among patients with type 1 or type 2 diabetes., DESIGN/SETTING: We conducted a cluster randomised pilot trial, embedded process evaluation and cost analysis in general practice, July 2019 to January 2020., PARTICIPANTS: Eight practices participated in the trial. For the

process evaluation, surveys were conducted with 25 staff at intervention practices. Interviews were conducted with nine staff at intervention practices, and 10 patients who received the intervention., INTERVENTIONS: The intervention comprised practice reimbursement, an audit of attendance, electronic prompts targeting professionals, General Practice-endorsed patient reminders and a patient information leaflet. Practices were randomly allocated to intervention (n=4) or wait-list control (n=4) (usual care)., OUTCOMES: Staff and patient interviews explored their perspectives on the intervention. Patient registration and attendance, including intention to attend, were measured at baseline and 6 months. Microcosting was used to estimate intervention delivery cost., RESULTS: The process evaluation identified that enablers of feasibility included practice culture and capacity to protect time, systems to organise care, and staff skills, and workarounds to improve intervention 'fit'. At 6 months, 22/71 (31%) of baseline non-attenders in intervention practices subsequently attended screening compared with 15/87 (17%) in control practices. The total delivery cost across intervention practices (patients=363) was 2509, averaging 627 per practice and 6.91 per audited patient. Continuation criteria supported proceeding to a definitive trial., CONCLUSIONS: The Improving Diabetes Eye screening Attendance intervention is feasible in primary care; however, consideration should be given to how best to facilitate local tailoring. A definitive trial of clinical and cost-effectiveness is required with preliminary results suggesting a positive effect on uptake., TRIAL REGISTRATION NUMBER: NCT03901898.

Barriers and facilitators to diabetic retinopathy screening within Australian primary care
Item Type: Journal Article
Authors: Watson, M. J. G.;McCluskey, P. J.;Grigg, J. R.;Kanagasingam, Y.;Daire, J. and Estai, M.
Publication Date: 2021
Journal: BMC Family Practice 22(1), pp. 239
Abstract: BACKGROUND: Despite recent incentives through Medicare (Australia's universal health insurance scheme) to increase retinal screening rates in primary care, comprehensive diabetic retinopathy (DR) screening has not been reached in Australia. The current study aimed to identify key factors affecting the delivery of diabetic retinopathy (DR) screening in Australian general practices. METHOD(S): A descriptive qualitative study involving in-depth interviews was carried out from November 2019 to March 2020. Using purposive snowballing sampling, 15 general practitioners (GPs) were recruited from urban and rural general practices in New South Wales and Western Australia. A semi-structured interview guide was used to collect data from participants. All interviews were conducted over the phone by one facilitator, and each interview lasted up to 45min. The Socio-Ecological Model was used to inform the content of the interview topic guides and subsequent data analysis. Recorded data were transcribed verbatim, and thematic analysis was conducted to identify and classify recurrent themes. RESULT(S): Of 15 GPs interviewed, 13 were male doctors, and the mean age was 54.7+/-15.5years. Seven participants were practising in urban areas, while eight were practising in regional or remote areas. All participants had access to a direct ophthalmoscope, but none owned retinal cameras. None of the participants reported performing DR screening. Only three participants were aware of the Medicare Benefits Schedule (MBS) items 12,325 and 12,326 that allow GPs to bill for retinal screening. Seven themes, a combination of facilitators and barriers, emerged from interviews with the GPs. Despite the strong belief in their role in managing chronic diseases, barriers such as costs of retinal cameras, time constraints, lack of skills to make DR diagnosis, and

unawareness of Medicare incentives for non-mydriatic retinal photography made it difficult to conduct DR screening in general practice. However, several enabling strategies to deliver DR screening within primary care include increasing GPs' access to continuing professional development, subsidising the cost of retinal cameras, and the need for a champion ace to take the responsibility of retinal photography. CONCLUSION(S): This study identified essential areas at the system level that require addressing to promote the broader implementation of DR screening, in particular, a nationwide awareness campaign to maximise the use of MBS items, improve GPs' competency, and subsidise costs of the retinal cameras for small and rural general practices.

Factors determining uptake of diabetic retinopathy screening in Oxfordshire
Author(s): Moreton et al.
Source: Diabetic Medicine 34(7) pp. 993-999
Publication date: July 2017
Aims: To investigate variables at the demographic and primary care practice levels that influence the uptake of diabetic retinopathy screening. Methods: Data were extracted from the management software of one screening programme for 21 797 people registered with 79 general practices. Uptake was examined by gender, age group, modality of screening (mobile unit at general practice versus high-street optometrist), and by general practice. A telephone survey of high-street optometrists provided information on the availability of screening appointments. Results: Uptake was 82.4% during the study period, and was higher for men (83.2%) than for women (81.5%) (P = 0.001). Uptake varied by age group (P < 0.001), being lowest in those aged 12–39 years (67%). Uptake was higher for people invited to a general practice for screening by a mobile unit (83.5%) than for those invited for screening by a high-street optometrist (82%) (P = 0.006). After adjusting for these factors and for socio-economic deprivation score at the location of the general practice, heterogeneity in uptake rate was still observed between some practices. Our survey of optometrists indicated wide variation in the availability of time slots for screening during the week and of screening appointment provision. Conclusions: Diabetic retinopathy screening services do not achieve high uptake among the youngest or oldest age groups. Practices in the least deprived areas had the highest uptake. Variation in uptake between general practices after adjustment for individual-level variables and deprivation suggests that practice-level factors may have an important role in determining rates of screening attendance.

Successfully implementing a diabetic retinopathy screening service in general practice: What does the evidence tell us?
Author(s): Crossland Jackson
Source: Australian Family Physician 46(7)
Publication date: July 2017
BACKGROUND We previously showed that general-practice based screening for diabetic retinopathy significantly improves recording of screening outcomes and follow-up for Australians with type 2 diabetes. In 2016, two Medicare Benefits Schedule item numbers were launched to support screening in general practice. However, there is little evidence-based information to guide practices in successfully implementing screening models for diabetic retinopathy. The objective of this study was to develop an evidence-based framework to guide successful general-practice based screening for diabetic retinopathy. METHODS Thematic analysis was used to identify and classify recurrent themes from qualitative and observational data gathered from general practices and staff undertaking successful screening for diabetic retinopathy. RESULTS Seven themes (a combination of enablers and potential risks) were identified as key components of successful screening for diabetic retinopathy in general practice.

Accuracy of diabetic retinopathy screening by trained non-physician graders using non-mydriatic fundus camera
Author(s): Bhargava et al.
Source: Singapore Medical Journal 53(11)
Publication date: 2012
INTRODUCTION We compared the agreement of diabetic retinopathy (DR) assessment between trained non-physician graders (NPGs) and family physicians (FPs) in a primary healthcare setting. METHODS This was a cross-sectional study conducted retrospectively over a period of one month. The participants were diabetic patients from two primary healthcare clinics (polyclinics) in Singapore. Single-field digital retinal images were obtained using a non-mydriatic 45-degree fundus camera. Retinal images were graded for the presence or absence of DR by FPs at the polyclinics and by NPGs at a central ocular grading centre. The FPs' and NPGs' assessments of DR were compared with readings by a single retinal specialist (reference standard).RESULTSA total of 367 diabetic patients (706 eyes) were included in the study. The mean age of the patients was 63 years, and the majority were Chinese (83.8%). For DR assessment, the agreement between NPGs and the retinal specialist was substantial (κ = 0.66), while the agreement between FPs and the retinal specialist was only fair (κ = 0.40). NPGs' assessment showed higher sensitivity (70% vs. 45%) and comparable specificity (94% vs. 92%) as compared to FPs' assessment. The area under the receiver operating characteristic curve of NPGs' assessment of DR was greater than that of the FPs' (0.82 vs. 0.69, p < 0.001).CONCLUSION This study has demonstrated that trained NPGs are able to provide good detection of DR and maculopathy from fundus photographs. Our findings suggest that DR screening by trained NPGs may provide a cost effective alternative to FPs.

Staff perceptions, experiences, and views

Attitudes, access and anguish: a qualitative interview study of staff and patients' experiences of diabetic retinopathy
Author(s): Hipwell et al.
Source: BMJ Open 4(e005498)
Publication date: 2014
OBJECTIVE To examine the experiences of patients, health professionals and screeners; their interactions with and understandings of diabetic retinopathy screening (DRS); and how these influence uptake. DESIGN Purposive, qualitative design using multi-perspectival, semi-structured interviews and thematic analysis. SETTING Three UK Screening Programme regions with different service-delivery modes, minority ethnic and deprivation levels across rural, urban and inner-city areas, in general practitioner practices and patients' homes.PARTICIPANTS62 including 38 patients (22 regular-screening attenders, 16 non-regular attenders) and 24 professionals (15 primary care professionals and 9 screeners). RESULTS Antecedents to attendance included knowledge about diabetic retinopathy and screening; antecedents to non-attendance included psychological, pragmatic and social factors. Confusion between photographs taken at routine eye tests and DRS photographs was identified. The differing regional invitation methods and screening locations were discussed, with convenience and transport safety being over-riding considerations for patients. Some patients mentioned significant pain and visual disturbance from mydriasis drops as a deterrent to attendance. CONCLUSIONS In this, the first study to consider multiperspectival experiential accounts, we identified that proactive coordination of care involving patients, primary care and screening programmes, prior to, during and after screening is required. Multiple factors, prior to, during and after screening, are involved in the attendance and non-attendance for DRS. Further research is needed to establish whether patient self-

management educational interventions and the pharmacological reformulation of shorter acting mydriasis drops, may improve uptake of DRS. This might, in turn, reduce preventable vision loss and its associated costs to individuals and their families, and to health and social care providers, reducing current inequalities.

Pharmacy staff opinions regarding diabetic retinopathy screenings in the community setting: findings from a brief survey
Author(s): Law et al.
Source: America Health and Drug Benefits 6(9) pp. 548-552
Publication date: November 2013
BACKGROUND Diabetic retinopathy is a retinal vascular disorder that affects more than 4.1 million people in the United States. New methods of detecting and ensuring adequate follow-up of this life-altering disease are vital to improving patient outcomes. Wills Eye Hospital and the Centers for Disease Control and Prevention are conducting a collaborative study to initiate a novel diabetic retinopathy screening in the community setting. OBJECTIVE To evaluate the feasibility of a more widespread, large-scale implementation of this novel model of care for diabetic retinopathy screening in the community setting. METHODS A simple, self-administered survey was distributed to pharmacists, pharmacy technicians, student pharmacists, and Wills Eye Hospital interns. The survey consisted of open-ended questions and responders were given 1 week to respond. A total of 22 surveys were distributed and 16 were completed. The responses were culled and analyzed to assess the feasibility of implementing this novel screening model in the pharmacy. RESULTS The response rate to this pilot survey was 72%. The majority of the responding pharmacy staff members indicated that diabetic retinopathy screening in community pharmacies would greatly benefit patients and could improve patient care. However, they also noted barriers to implementing the screening, such as concerns about the cost of carrying out the screenings, the cost of the equipment needed to be purchased, and the lack of time and shortage of pharmacy staff. CONCLUSION The potential exists for pharmacists to positively influence diabetes care by implementing retinopathy care through the early detection of the disease and reinforcement of the need for follow-up; however, real-world barriers must be addressed before widespread adoption of such a novel model of care becomes feasible.

Supply

Do we have enough ophthalmologists to manage vision-threatening diabetic retinopathy? A global perspective
Author(s): Teo et al.
Source: Eye (London, England) 34(7) pp. 1255-1261
Publication date: July 2020
We aimed to estimate the supply of ophthalmologists in relation to the global and regional burden of vision-threatening diabetic retinopathy (VTDR). Diabetes mellitus (DM) population data from seven world regions were obtained from the International Diabetes Federation Atlas 2017. A systematic review was performed to include population-, community-based studies that reported country-specific VTDR prevalence. Random effect meta-analysis was then performed to estimate global and regional VTDR prevalence. VTDR prevalence estimates coupled with DM population data were then used to estimate the number of VTDR cases. Global and regional number of ophthalmologists were derived from the International Council of Ophthalmology Report 2015. Fifty studies (17 from Western Pacific [WP], nine North America and Caribbean [NAC], nine Middle East and North Africa [MENA], five Europe, eight South East Asia [SEA], one South and Central America [SACA] and one from Africa) were included. Global VTDR prevalence was 7.26% (95% CI, 6.18-8.32%). Regional VTDR prevalence was 14.35% in Africa, 11.21% in MENA, 10.00% in NAC, 6.32% in Europe, 6.22% in WP, 5.83% in SACA and 2.97% in SEA. Globally, there were

7.16 ophthalmologists per 1000 VTDR patients. Europe had the highest ophthalmologist per 1000 VTDR patient ratio at 18.03 followed by SACA (17.41), while NAC, MENA and Africa had the lowest at 4.90, 4.81 and 0.91 respectively. Across regions, the ophthalmologist densities ranged from 0.91 to 18.03 per 1000 VTDR patients, with NAC, MENA and Africa having less than 5 ophthalmologists per 1000 patients. These findings will aid global and regional policy planning and healthcare resource allocation for VTDR management.

Technology

Examining the Role of Telemedicine in Diabetic Retinopathy
Item Type: Journal Article
Authors: Land, Matthew R.;Patel, Parth A.;Bui, Tommy;Jiao, Cheng;Ali, Arsalan;Ibnamasud, Shadman;Patel, Prem N. and Sheth, Veeral
Publication Date: 2023
Journal: Journal of Clinical Medicine 12(10)
Abstract: With the increasing prevalence of diabetic retinopathy (DR), screening is of the utmost importance to prevent vision loss for patients and reduce financial costs for the healthcare system. Unfortunately, it appears that the capacity of optometrists and ophthalmologists to adequately perform in-person screenings of DR will be insufficient within the coming years. Telemedicine offers the opportunity to expand access to screening while reducing the economic and temporal burden associated with current in-person protocols. The present literature review summarizes the latest developments in telemedicine for DR screening, considerations for stakeholders, barriers to implementation, and future directions in this area. As the role of telemedicine in DR screening continues to expand, further work will be necessary to continually optimize practices and improve long-term patient outcomes.

Diagnostic test accuracy of artificial intelligence in screening for referable diabetic retinopathy in real-world settings: A systematic review and meta-analysis
Item Type: Journal Article
Authors: Uy, Holijah;Fielding, Christopher;Hohlfeld, Ameer;Ochodo, Eleanor;Opare, Abraham;Mukonda, Elton;Minnies, Deon and Engel, Mark E.
Publication Date: 2023
Journal: PLOS Global Public Health 3(9), pp. e0002160
Abstract: Retrospective studies on artificial intelligence (AI) in screening for diabetic retinopathy (DR) have shown promising results in addressing the mismatch between the capacity to implement DR screening and increasing DR incidence. This review sought to evaluate the diagnostic test accuracy (DTA) of AI in screening for referable diabetic retinopathy (RDR) in real-world settings. We searched CENTRAL, PubMed, CINAHL, Scopus, and Web of Science on 9 February 2023. We included prospective DTA studies assessing AI against trained human graders (HGs) in screening for RDR in patients with diabetes. Two reviewers independently extracted data and assessed methodological quality against QUADAS-2 criteria. We used the hierarchical summary receiver operating characteristics (HSROC) model to pool estimates of sensitivity and specificity and, forest plots and SROC plots to visually examine heterogeneity in accuracy estimates. From our initial search results of 3899 studies, we included 15 studies comprising 17 datasets. Meta-analyses revealed a sensitivity of 95.33% (95%CI: 90.60-100%) and specificity of 92.01% (95%CI: 87.61-96.42%) for patient-level analysis (10 datasets, N = 45,785) while, for the eye-level analysis, sensitivity was 91.24% (95%CI: 79.15-100%) and specificity, 93.90% (95%CI: 90.63-97.16%) (7 datasets, N = 15,390). Subgroup analyses did not provide variations in the diagnostic accuracy of country classification and DR classification criteria. However, a moderate increase was observed in diagnostic accuracy in the primary-level healthcare

settings: sensitivity of 99.35% (95%CI: 96.85-100%), specificity of 93.72% (95%CI: 88.83-98.61%) and, a minimal decrease in the tertiary-level healthcare settings: sensitivity of 94.71% (95%CI: 89.00-100%), specificity of 90.88% (95%CI: 83.22-98.53%). Sensitivity analyses did not show any variations in studies that included diabetic macular edema in the RDR definition, nor studies with >=3 HGs. This review provides evidence, for the first time from prospective studies, for the effectiveness of AI in screening for RDR in real-world settings. The results may serve to strengthen existing guidelines to improve current practices.

Tele-ophthalmology and artificial intelligence for diabetic retinopathy screening

Source: The Lancet Global Health Commission on Global Eye Health

Publication date: February 2021

The International Diabetes Federation estimates that currently there are approximately 463 million people living with diabetes worldwide, requiring regular diabetic eye care, preferably by imaging the retina, in order to provide timely treatment to those with sight threatening disease.[1] Since 2000, in many parts of the world teleophthalmology using mobile fundus cameras have enabled a large proportion of those requiring retinal photography to be imaged.[2,3] However, the human workforce skilled in analysing these images is insufficient in size, with marked distributional imbalances between populations in need and practioners.[2,4]

Artificial intelligence for teleophthalmology-based diabetic retinopathy screening in a national programme: an economic analysis modelling

Author(s): Xie et al.

Source: The Lancet Digital Health 2(5) e240-e249

Publication date: April 2020

Background: Deep learning is a novel machine learning technique that has been shown to be as effective as human graders in detecting diabetic retinopathy from fundus photographs. We used a cost-minimisation analysis to evaluate the potential savings of two deep learning approaches as compared with the current human assessment: a semi-automated deep learning model as a triage filter before secondary human assessment; and a fully automated deep learning model without human assessment. Methods: In this economic analysis modelling study, using 39 006 consecutive patients with diabetes in a national diabetic retinopathy screening programme in Singapore in 2015, we used a decision tree model and TreeAge Pro to compare the actual cost of screening this cohort with human graders against the simulated cost for semi-automated and fully automated screening models. Model parameters included diabetic retinopathy prevalence rates, diabetic retinopathy screening costs under each screening model, cost of medical consultation, and diagnostic performance (ie, sensitivity and specificity). The primary outcome was total cost for each screening model. Deterministic sensitivity analyses were done to gauge the sensitivity of the results to key model assumptions. Findings: From the health system perspective, the semi-automated screening model was the least expensive of the three models, at US$62 per patient per year. The fully automated model was $66 per patient per year, and the human assessment model was $77 per patient per year. The savings to the Singapore health system associated with switching to the semi-automated model are estimated to be $489 000, which is roughly 20% of the current annual screening cost. By 2050, Singapore is

projected to have 1 million people with diabetes; at this time, the estimated annual savings would be $15 million. Interpretation: This study provides a strong economic rationale for using deep learning systems as an assistive tool to screen for diabetic retinopathy. Funding: Ministry of Health, Singapore.

Blind spots in telemedicine: a qualitative study of staff workarounds to resolve gaps in diabetes management
Author(s): Bouskill et al.
Source: BMC Health Services Research 18(617)
Publication date: August 2018
BACKGROUND Novel telemedicine platforms have expanded access to critical retinal screening into primary care settings. This increased access has contributed to improved retinal screening uptake for diabetic patients, particularly those treated in Federally Qualified Health Centers ('safety net' clinics). The aim of this study was to understand how the implementation of telemedical screening for diabetic retinopathy within primary care settings is improving the delivery of critical preventative services, while also introducing changes into clinic workflows and creating additional tasks and responsibilities within resource-constrained clinics. METHODS A qualitative approach was employed to track workflows and perspectives from a range of medical personnel involved in the telemedicine platform for diabetic retinopathy screening and subsequent follow-up treatment. Data were collected through semi-structured interviews and participant observation at three geographically-dispersed Federally Qualified Health Centers in California. Qualitative analysis was performed using standard thematic analytic approaches within a qualitative data analysis software program. RESULTS The introduction of telemedicine platforms, such as diabetic retinopathy screening, into primary care settings is creating additional strain on medical personnel across the diabetes eye care management spectrum. Central issues are related to scheduling patients, issuing referrals for follow-up care and treatment, and challenges to improving adherence to treatment and diabetes management. These issues are overcome in many cases through workarounds, or when medical staff work outside of their job descriptions, purview, and permission to move patients through the diabetes management continuum. CONCLUSIONS This study demonstrates how the implementation of a novel telemedical platform for diabetic retinopathy screening contributes to the phenomenon of workarounds that account for additional tasks and patient volume. These workarounds should not be considered a sustainable model of health care delivery, but rather as an initial step to understanding where issues are and how clinics can adapt to the inclusion of telemedicine and ultimately increase access to care. The presence of workarounds suggests that as telemedicine is expanded, adequate resources, as well as collaborative, cross-sectoral co-design of new workflows must be simultaneously provided. Systematic bolstering of resources would contribute to more consistent success of telemedicine screening platforms and improved treatment and prevention of disease-related complications.

Training and education

Conference Abstract: International students undertaking UK university-validated distance-learning courses in diabetic retinopathy screening (DRS) See p. 14
Author(s): Aldington et al.
Source: European Journal of Ophthalmology
Publication date: 2020
DESIGN. Web-based University-awarded distance learning courses PURPOSE. Providing international staff with access to formalised education and validated qualifications in DR screening concepts, methods and practice to enhance patient care and ultimately reduce visual loss from complications of diabetes METHODS. One main plus two subsidiary on-line

webbased distance-learning courses provided to staff located outside the United Kingdom. The full 'Certificate of Higher Education in DR Screening' (Cert-HE) award comprises 5 modules, each of 8-weeks' duration: 1. Introduction to the study of diabetic retinopathy; 2. Diabetic eye screening: programmes, processes and protocols; 3. Preparing the patient for Diabetic Eye Screening; 4. Performing Retinal Screening; 5. Assessing retinal images. Learners undertaking the subsidiary 'University Certificate in Imaging for DR Screening' take modules 1 to 4. Learners on the 'University Certificate in Grading for DR Screening' complete modules 1, 2 and 5 RESULTS. Since the first course in 2015, 270 learners from 26 non-UK countries have registered on a qualification: 140 taking the full Cert-HE; 109 to take the Univ. Cert. in Grading and 21 on the Univ. Cert. in Imaging. There are 18 current learners (17 on Cert-HE and 1 on Imaging) who only commenced during 2019. Of the 252 learners who could have qualified by end of December 2019, 118 were awarded the full Cert-HE, 107 completed the Grading qualification and 20 completing the Imaging qualification plus 7 learners unfortunately leaving before qualification. Four of the 7 left due to leaving workplace or profession, only one person cited competing work pressures, one had funding difficulties and one who returned to Medical School. Three of the 7 were from Jamaica with one each from Malawi, Nigeria, Philippines and Saudi Arabia. Seventy-six successful learners were from China, 50 from the Republic of Ireland, 23 from Jamaica, 17 from St. Lucia and 10 each from Italy and Tanzania. The remaining 20 countries each provided 1 to 9 successful learners CONCLUSIONS. Staff working in diabetic retinopathy screening services in 26 non-UK countries had little problem accessing and taking on-line distance-learning courses with fewer than 3% failing to qualify.

Upskilling

Knowledge of Primary Prevention of Diabetic Retinopathy among General Ophthalmologists, Mid Level Eye Care Personnel and General Physicians in Oman

Author(s): Khandekar et al,

Source: Middle East African Journal of Ophthalmology 18(3) pp. 204-208

Publication date: July 2011

OBJECTIVE We present the outcomes of knowledge of diabetes and associated ocular complications among personnel comprising the eye care team in Oman. MATERIALS AND METHODSA closed ended questionnaire was administered during November 2008 and November 2009 to eye care team members in six regions of Oman, where trainings were held. All participants of these trainings were included in our study. The questionnaire comprised 15 questions that tested the knowledge of the diagnosis and treatment of diabetes and its ocular complications. They circled the most suitable reply for a list of choices. The replies were compared with the gold standard (answers from a medical retina specialist, a diabetologist's and general ophthalmologists answers). The participants were divided into two groups; acceptable (more than 50% score compared to gold standard) and less than desired (less than 50% score compared to gold standard.) We estimated the areas of acceptable level of knowledge in different subgroups. RESULTS All 87 (100%) of eye care team members participated. Of the 42 general ophthalmologists, 30 (71.4%) had an acceptable level of knowledge about primary prevention, ideal blood sugar and blood pressure levels and complication of diabetes. The acceptable level of knowledge among mid level eye care providers and general physicians was found in 15 (54.5%) and 4 (33.3%) respondents respectively. CONCLUSION Less than the desired number of participants of the eye care team had an acceptable level of knowledge about primary

prevention, ideal blood sugar and blood pressure levels and complications of diabetes. The training of eye care personnel need to enhance knowledge in the weak areas is identified in this study.

eLearning

NHS population screening: education and training
Source: NHS England
Publication date: Last updated July 2023
Resources to support screening professionals in their initial training and continuing professional development (CPD).

Diabetic eye screening: education and training
Source: Public Health England
Publication date: Last updated May 2018
Training and continuing professional development (CPD) for people working in the diabetic eye screening (DES) programme in England.

Competency Frameworks

An integrated career and competency framework for adult diabetes nursing 5th edition
Source: Trend Diabetes
Publication date: Updated September 2022
See section 24 p. 33 “Retinopathy”
The framework can be used in a number of ways to develop and promote nurses’ knowledge and skills. For example, to provide:• Help for individual nurses to plan their professional development in diabetes care.• Guidance for employers on assessing the competence required at various levels of diabetes nursing.• A reference for planning educational programmes.• Information for commissioners to identify appropriate staff required to deliver diabetes services to meet local need

2. Retinal detachment

Learning from Covid-19

Evaluation of Urgent Retinal Practice and Safety Measures for Physicians and Patients During COVID-19 Pandemic
Item Type: Journal Article
Authors: Alagorie, A. R.;Sorour, O. A.;Eltoukhy, H. and Nassar, E.
Publication Date: 2022
Journal: Clinical Ophthalmology 16, pp. 1197-1205
Abstract: Purpose: To assess the impact of the COVID-19 pandemic on urgent retina practice and factors influencing adherence of physicians and patients to safety measures. Method(s): In this clinical audit, urgent or emergent vitreoretinal surgical disorders that presented to our hospital during the period of 15th March-15th May 2020 were compared with the period just before the pandemic declaration (15th December 2019-15th February 2020). Additionally, two questionnaires assessing the adherence to safety measures were circulated to the medical personnel and a sample of patients. The collected data were analyzed, and accordingly, recommendations were proposed to the hospital administration and specific corrective measures were applied. The outcome of applying these corrective measures was assessed in the re-audit cycle during the period of 15th June-15th August 2020. Result(s): There was a significant decrease in the number of urgent or emergent vitreoretinal surgical disorders that presented to our hospital during the pandemic (161 versus 302 cases in a similar period before the pandemic; p = 0.022). Just with the pandemic recession, there was a significant increase in the number of

urgent cases (391 versus 161 cases during the pandemic; p = 0.006), also there was an increased number of complex cases. Residents and fellows were less compliant than attending physicians in adherence to safety measures. Conclusion(s): Delayed presentation of urgent retinal cases during the pandemic highlights the importance of public awareness of urgent conditions that need immediate medical or surgical care. Attention to young physicians during the pandemic is crucial as they are less adherent to safety measures due to work overload.Copyright © 2022 Alagorie et al.

Early impact of COVID-19 outbreak on eye care: Insights from EUROCOVCAT group
Author(s): Toro et al.
Source: European Journal of Ophthalmology 31(1) pp. 5-9
Publication date: January 2021
The recent outbreak of coronavirus disease 2019 (COVID-19) has been declared a public health emergency worldwide. The scientific community has put in much effort and published studies that described COVID-19's biology, transmission, clinical diagnosis, candidate therapeutics, and vaccines. However, to date, only a few data are available on the impact of COVID-19 pandemic on ophthalmological care in different health care systems, its future consequences in terms of disability, and access to sight-saving cures for many patients. To reduce human-to-human transmission of the virus and also ensure supply of infrastructures, human resources, and disposable medical devices to many regions, it is crucial to assess risks and postpone non-essential outpatient visits and elective surgical procedures, especially in older patients and those with comorbidities. This delay or suspension in essential eye procedures may cause significant and rapid vision impairment to irreversible blindness. Determining the risk-benefit profile of treating these ocular pathologies is a public health issue of supreme priority, even though many patients benefiting from therapeutic treatments are elderly, who are more vulnerable to COVID-19. If not reversible, this process could lead to a dramatic increase in disability and unsustainable social costs for many Governments.Copyright © The Author(s) 2020.

New ways of working

Non-Physician delivered intravitreal injection service is feasible and safe - A systematic review
Author(s): Rasul et al.
Source: Danish Medical Journal
Publication date: May 2016
Introduction: Non-physicians such as nurses are trained to give injections into the vitreous body of the eye to meet the increasing demand for intravitreal therapy with vascular endothelial growth factor inhibitors against common eye diseases, e.g. age-related macular degeneration and diabetic retinopathy. We systematically reviewed the existing literature to provide an overview of the experiences in this transformational process. Method(s): We searched for literature on 22 September 2015 using PubMed, Embase, the Cochrane Library, CINAHL and the Web of Science. Eligible studies had to address any outcome based on non-physician delivered intravitreal therapy regardless of the study design. Being non-physician was defined as the injecting personnel n ot being a physician, but no further restrictions were made. Result(s): Five studies were included with a total of 31,303 injections having been performed by 16 nurses. The studies found that having nurses perform the intravitreal injections produced to a short-term capacity improvement and liberated physicians for other clinical work. Training was provided through courses and direct supervision. The rates of endophthalmitis were 0-0.40, which is comparable to reported rates when the intravitreal therapy is given by physicians. Conclusion(s): Non-physician delivered intravitreal

therapy seems feasible and safe. Copyright © 2016, Danish Medical Association. All rights reserved.

Transformational change: Nurses substituting for ophthalmologists for intravitreal injections - A quality-improvement report
Author(s): Michelotti et al.
Source: Clinical Ophthalmology
Publication date: April 2014
Background: The dramatic increase in need for anti-vascular endothelial growth factor (anti-VEGF) intravitreal therapy in the treatment of retinal disease and the absence of an equivalent increase in ophthalmologists to undertake such intravitreal injections created a patient-safety risk. Timing of intravitreal therapy (IVT) is critical to prevent vision loss and local clinics lacked capacity to treat patients appropriately. We aimed to improve capacity for IVT by nurse injections. Material(s) and Method(s): A multidisciplinary prospective service-improvement process was undertaken at two adjacent general hospitals in the northwest of England. IVT injections by nurses were a principal component of solution development. After we had obtained appropriate institutional approval, experienced ophthalmic nurses were trained, supervised, and assessed to undertake IVT. Ophthalmologists directly supervised the first 200 injections, and a retina specialist was always on site. Result(s): Nurses undertook 3,355 intravitreal injections between June 2012 and November 2013, with minor adverse events (0.3% subconjunctival hemorrhage and corneal abrasion). There were no patient complaints at either hospital. Conclusion(s): Experienced ophthalmic nurses quickly learned how to perform such injections safely. IVT by nurses was well accepted by patients and staff. Hospital A trained three nurses sequentially for improved flexibility in scheduling. Novel use of appropriately trained nonmedical staff can improve efficiency and access in an overburdened service with time-sensitive disease. Retinal assessment was undertaken by ophthalmologists only. Improved access to IVT is important, as treatment with anti-VEGF therapy reduces blindness at population levels. © 2014 Michelotti et al.

Primary care

Evaluating referrals of flashing lights and floaters coming into secondary care from primary care Abstract only*
Item Type: Journal Article
Authors: Rehan, S. and McPherson, R.
Publication Date: 2024
Journal: Clinical and Experimental Optometry
Abstract: Clinical Relevance: Optometrists should look to take every opportunity to expand their knowledge, understanding and skills pertaining to vitreoretinal conditions. Background(s): Despite the existence of acute eye care schemes and the up-skilling of optometrists, many units are still noticing large numbers of poor-quality referrals with high false positive rates. The authors pondered whether these schemes are effective. Method(s): At two different time points, a prospective analysis of patients took place, of all the flashing lights and floaters referrals coming into secondary care at the Royal Glamorgan Hospital, Wales, UK. The following data was captured: the exact source of the primary care referral, the diagnosis being queried, the secondary care diagnoses made and the secondary care management decisions. The accuracy of retinal break and Shafer's sign detection were also directly compared between primary care and secondary care using Cohen's Kappa Coefficient. Result(s): For the 2018 period, n = 51 patients were included. For the 2022-23 period n = 100 patients were included. The majority of referrals during both periods were from optometrists (>80%) via the WECS pathway. The most common diagnoses being queried were retinal breaks (~50%), followed by retinal detachments (~20%). Interestingly up to 20% of patients seen in secondary care were diagnosed as normal examinations

and ~ 20%. Over 1/3 of patients were discharged after their first visit to the EEC. Statistically significant differences were found between the accuracy of retinal tear and Shafer's identification between the primary and secondary care settings. Conclusion(s): A high number of false positive referrals are coming into secondary care from the WECS pathway and clear training and education needs have been identified. Copyright © 2024 Optometry Australia.

Staffing

Association of staffing with Incidence of delayed retinal break or detachment after posterior vitreous detachment in a resident urgent care clinic Abstract only*
Author(s): Patel et al.
Source: Graefe's archive for clinical and experimental ophthalmology 260(3) pp. 791-798
Publication date: 2021
Purpose: To compare the incidence rate of delayed retinal break or detachment after diagnosis of acute, symptomatic posterior vitreous detachment (PVD) in a resident-run urgent care clinic (UCC) when staffed by a retina attending, non-retina ophthalmology attending, optometrist, or ophthalmology resident only. Methods: Retrospective consecutive case series. Of the 594 patients with acute, symptomatic PVD evaluated in the UCC at Penn State Eye Center between 1/1/2016 and 10/10/2019, 454 were included in the study; 140 were excluded because they were diagnosed with a retinal break or detachment on presentation to the UCC, had media opacity precluding examination, or had no follow-up within one year. Demographics, presenting examination findings, and type of staffing were recorded; subsequent visits up to 1 year were analyzed for presence of delayed retinal break or detachment.
Results: Among 491 eyes of 454 patients with a mean follow-up of 147 days, ten delayed breaks (10/491, 2.0%) and three delayed detachments (3/491, 0.6%) were discovered. Incidence rates of delayed breaks and detachments were 1.8% (5/282) and 0.7% (2/282), respectively, in the retina attending group, 1.0% (1/105) and 1.0% (1/105) in the non-retina ophthalmology attending group, 4.7% (3/64) and 0% (0/64) in the optometrist group, and 2.5% (1/40) and 0% (0/40) in the ophthalmology resident only group. There was no statistically significant difference in the incidence of delayed break or detachment among the staffing groups (P = 0.7312), but this study was underpowered to detect a statistically significant difference among staffing groups. Patients with a delayed break or detachment were more likely to have lattice degeneration (P = 0.0265) or a history of retinal break in the contralateral eye (P = 0.0014), and most eyes (10 [76.9%]) with a delayed break or detachment were left eyes (P = 0.0466). Conclusions: The overall rate of delayed retinal break or detachment in the current study is similar to previously published rates among retinal physician and retinal fellow examiners. Although no statistically significant difference among staffing groups in the incidence rates of delayed retinal tears or detachments was identified in the study, it is important to note that the optometry and ophthalmology resident only groups had higher incidence rates of delayed retinal breaks than did the retina and non-retina ophthalmology attending groups, and this may be clinically important. Larger cohort studies would be needed in order to have the power to detect statistically significant differences among staffing groups. Varied staffing for acute, symptomatic PVD may assist with resource allocation in similar settings.

Competency Frameworks

Ophthalmology Common Clinical Competency Framework
This Framework has been developed further into a curriculum for each of these areas, and eye health professionals, supervisors

and trainers are encouraged to familiarise themselves with the areas of the curriculum most relevant to them.

Medical Retina Curriculum

3. Cataracts

Key publications – the big picture

Cataract Services Workforce Guidance
Source: The Royal College of Ophthalmologists
Publication date: 30th March 2021
Cataract surgery is the UK's most common elective operation. Approximately half a million operations are performed each year and demand is set to increase 25% over the next decade, as the population ages.
Cataract services around the UK are being redesigned to increase their capacity, through streamlining pathways and integration with primary care optometry, as described in the RCOphth / GIRFT Cataract Hubs and High Flow Cataract Lists (2021).

Cataract workforce calculator tool
Source: The Royal College of Ophthalmologists
Publication date: 14th March 2021
The workforce calculator tool has been designed to predict the staffing requirements for different patient pathways to serve the local population needs. It provides detail on number of surgical lists, and the total annual and weekly ophthalmologist sessions needed, taking into account the primary eye care workforce.

Published Peer Review Research

Demographics

Gender gap and declining surgical activity among new graduates: cataract surgery in Ontario
Author(s): Micieli et al.
Source: Canadian Journal of Ophthalmology51(3) pp. 154-160
Publication date: June 2016
OBJECTIVE To investigate the proportion of ophthalmologists performing cataract surgery; the volume performed; and the influence of career stage, sex, and trends over time. DESIGN Population-based study of cataract surgical practice patterns among all ophthalmologists in Ontario, Canada, from April 1999 to March 2013.PARTICIPANTSAll active ophthalmologists in Ontario, Canada, providing government health care for the provincial population of approximately 13 million. METHODS The IntelliHealth database operated by the Ministry of Health and Long Term Care, which has excellent accuracy for procedure performance, was used to obtain anonymized physician services. RESULTS The percentage of ophthalmologists performing cataract surgery decreased (68% to 64%), but the yearly mean number of cataract surgeries performed per person increased 1.5 times (307.7 to 470.2). The percentage of early-career ophthalmologists performing cataract surgery declined from 85% to 62%, and this was accompanied by a decline in the median number of cases performed per early-career surgeon (from 243.0 to 169.5). This decline in surgical activity among new graduates was accompanied by growth in the percentage of high-volume and late-career surgeons. In each of the years studied, males performed more surgeries per person than their female counterparts, and this gap grew from 1.4 times to 1.7 times more cataract surgery from 2000 to 2013. CONCLUSIONS Early-career ophthalmologists are becoming less active with

cataract surgery, which may be explained by the increasing surgical activity among late-career and high-volume ophthalmologists. A large sex and volume gap exists among cataract surgeons, which continues to increase.

New ways of working

Cataract surgery redesign: meeting increasing demand, training, audit and patient-centered care
Author(s): Ah-See et al.
Source: Clinical Ophthalmology 15 pp. 289-297
Publication date: 2021
Objective The demand for cataract surgery in Fife (a well-defined region in southeast Scotland) was steadily increasing over 15 years. Cataract surgery was therefore being outsourced to meet demand with consequences on list mix, training needs, patient experience and staff morale. We aimed to redesign our services to meet local demand, retain a patient-centered service and continue to fulfil training needs. Methods We quantified cataract surgery delivery over an 18-month period: before, during and after redesign of services. We studied numbers of operations, trainee cases and number of outsourced cases. We also considered the economic implications of the redesign. Results We studied three periods (each of six months duration): before redesign (BR), redesign period (RP) and post-redesign (PR). Data were collected on total operation numbers, number of cases performed by trainees, and numbers performed out with normal working hours (weekend lists) and external providers. An economic analysis examined the cost of outsourcing cataracts during BR and RP and the costs of the redesign, including building, equipment and additional nursing staff. Conclusion Regional fulfilment of cataract surgery provision remains a continuous challenge within the NHS. We show that with minimal investment, smart redesign process and collaborative working, increased local provision is possible while fulfilling trainee needs and achieving the necessary clinical audits and national standards.

Conference Abstract: A realist evaluation of collaborative care models
Author(s): Ford et al.
Source: Investigative Ophthalmology & Visual Science 60(5475)
Publication date: July 2019
Purpose: Chronic eye diseases place high demand on eye care services. To improve access, some health systems use 'collaborative' care involving multidisciplinary teams of nurses, optometrists and ophthalmologists to deliver standardised care. This study aims to understand factors for successful implementation and scalability of collaborative care. Method(s): Semi-structured interviews were conducted in Finland and UK from Sep-Oct 2018; with 13 health system stakeholders, including clinicians, managers and administrators. Qualitative data were analysed using a realist framework to identify contexts, mechanisms, and outcomes of implementation. Result(s): Context: Collaborative care covered glaucoma, DR, AMD, and cataract. National policy and targets often pre-empted the introduction of such models. It was unanimously reported as a necessity to improve access and equity under limited resources. Mechanisms: System change was always clinician-led and relied on using existing resources to gain support of hospitals. Task-shifting meant better skill use across teams. Some felt clinicians also needed courage and motivation. Often monetary incentives were used. Training enhanced optometrist and nurse skills; and regular feedback fostered confidence in decision making. Ophthalmologists also felt that these mechanisms built the trust needed to shift clinical responsibility. Models relied on centralised IT systems for communication and sharing patient records-this was integral to success or failure. Audits were used to measure and benchmark success. However, many felt that current IT systems did not adequately support all

aspects of the model. Outcome(s): Success was primarily measured by patient volume and staff productivity. Other success measures were cost, wait-time, hospital capacity, or maintaining clinical care. Indirect benefits included staff satisfaction from upskilling/opportunities and improved understanding of care pathways. However, staff reported stress when the system failed. Models were suited for patients of all ages with low level disease; and patients were mostly satisfied. Clinicians suggested the models were less suited to patients with comorbidities, rapid changes, or mobility and cognitive issues. Conclusion(s): A range of factors lead to the success of collaborative care models, and learning from these can inform adoption and scalability in other settings.

Re-configuring the Model of Eye Care in Ireland - integrating community and hospital care

Author(s): Kelly and Power

Source: International Journal of Integrated Care 17(A204)

Publication date: October 2017

Introduction: Ireland continues to experience significant population growth with the greatest increases in the over 65 years age group. Increasing patient numbers and the growing incidence of chronic diseases are placing an enormous strain on the current model of eye care delivery. Even with the current population, waiting lists for ophthalmology outpatient appointments and inpatient procedures are among the longest and most numerous in the health service. The diagnosis and treatment of many chronic eye conditions is currently delivered in acute hospitals, whereas much of these interventions could be delivered in the primary care setting in a decentralised model. Description of policy context and objective: The National Clinical Programme (NCP) for Ophthalmology has determined that in line with Government policies such as Future Health, the majority of services should be provided within the primary care setting. As such, integration of acute and primary care services is essential in order to allow for rebalancing of access and delivery of eye care services from acute hospitals to primary care. The aim is to provide high-quality, consistent, efficient and effective care. Targeted population: The NCP takes a whole population approach with particular emphasis on the paediatric and geriatric population Highlights: The key recommendations of the Model of Eye Care are: 1. Development of multidisciplinary primary eye care teams with all team members working in the same location. This will require investment in community clinics, both in staff numbers and in equipment, and better integration between community and hospital care. 2. Investment in information technology, including standardised equipment and electronic health records, to enable a hub-and-spoke regional delivery of care and an integrated system. 3. Expansion of theatre access and establishment of stand-alone high-volume consultant-led cataract theatres with a full complement of support staff in order to facilitate a timelier response from the surgical centres, thereby keeping waiting times to a minimum. 4. Establishment of clear and concise clinical referral pathways in order to minimise unnecessary referrals. This will include a focus on effectiveness and efficiency of eye care services delivery. Conclusions: The NCP has developed a Model of Eye Care based on the key recommendations and is working towards its implementation which will require engagement across the HSE Divisions as appropriate in order to ensure that diagnosis, treatment and management are integrated across the service, underpinned by an electronic health record which will allow ease of audit and collection of data. This will in turn allow standardisation of quality of care and assessment of effectiveness of the Programme. Aspects of the programme such as the MDTs will be progressed through the Primary Care Division, while other aspects such as expanded theatre access will be progressed through the Acute Division. Close cooperation and regular sharing of information will be necessary across both the Primary Care and Acute Divisions. A close relationship will identify any gaps in service

and allow development of business cases for proposals to fill those gaps as well as informing ongoing service planning and delivery.

Productivity

Time and Motion Studies to assess surgical productivity in cataract theatre lists within the National Health Service: Immediate Sequential Bilateral Cataract Surgery versus Delayed Sequential Bilateral Cataract Surgery
Item Type: Journal Article
Authors: Naderi, K.;Lam, C. F. J.;Low, S.;Bhogal, M.;Jameel, A.;Theodoraki, K.;Lai, L.;Garcia, L. O.;Roberts, H.;Robbie, S. and O'Brart, D.
Publication Date: 2023
Journal: Eye (Basingstoke) 37(18), pp. 3751-3756
Abstract: Background: To compare productivity of National Health Service cataract lists performing unilateral cataract (UC) surgery vs Immediate Sequential Bilateral Cataract Surgery (ISBCS). Method(s): Five 4-hour lists with ISBCS cases and five with UC were observed using time and motion studies (TMS). Individual tasks and timings of each staff member in theatre was recorded by two observers. All operations were performed by consultant surgeons under local anaesthesia (LA). Result(s): Median number of eyes operated per 4-hour list was 8 (range 6-8) in the ISBCS group and 5 (5-7) in the UC group (p = 0.028). Mean total theatre time (defined as time between the entry of the first patient and the exit of the last patient from theatre) was 177.12 (SD 73.62) minutes in the ISBCS group and 139.16 (SD 47.73) minutes in the UC group (p = 0.36). Mean time to complete two consecutive unilateral cataract surgery operations was 48.71 minutes compared to 42.23 minutes for a single ISBCS case (13.30% time saved). Based on our collected TMS data, a possible 5 consecutive ISBCS cases and 1 UC (total 11 cataract surgeries) could be performed during a four-hour theatre session, with a theatre utilisation quotient of 97.20%, contrasting to nine consecutive UC, with a theatre utilisation quotient of 90.40%. Discussion(s): Performing consecutive ISBCS cases under LA on routine cataract surgery lists can increase surgical efficiency. TMS are a useful way to investigate surgical productivity and test theoretical models for efficiency improvements.

Supply

Adequacy of the ophthalmology workforce under Ontario's Local Health Integration Networks Abstract only*
Author(s): Lin et al.
Source: Canadian Journal of Ophthalmology 51(3)
Publication date: June 2016
OBJECTIVE To determine the current distribution of ophthalmologists across Ontario's Local Health Integration Networks (LHINs) and the influence on LHIN-specific cataract surgery wait times. DESIGN Cross-sectional study. PARTICIPANTS Ophthalmologists listed in the College of Physicians and Surgeons (CPSO) database and the Canadian population. METHODS A list of ophthalmologists and their practice locations were obtained from the CPSO website. The total population count for Ontario was obtained from the Statistics Canada census. The population counts for the population aged 65 years and older were generated using the Canadian Socioeconomic Information Management System (CANSIM) table 109-5425. Cataract surgery wait times were obtained from the Ontario Ministry of Health. Statistical analysis was completed using Microsoft Excel using StatPlus software. RESULTS There are currently 3.28 ophthalmologists per 100 000 total population in Ontario. LHIN-specific ratios ranged from 8.87 (Toronto Central) to 1.67 (Central West), with 3 out of 14 LHINs having met the previously recommended ratio of 3.37.

Median cataract surgery wait times ranged from 30 to 72 days. Although the number of cataract surgeries performed was positively correlated with the population aged 65 years and older ($p < 0.001$), there was no statistically significant association between wait times and number of cataract cases per 1000 population ($p = 0.41$). CONCLUSIONS Although Ontario appears to have a sufficient number of ophthalmologists overall, there is significant variation in the distribution of the ophthalmology workforce at the LHIN level. This variation did not appear to significantly influence LHIN-specific cataract surgery wait times.

Training and Education

International Council of Ophthalmology-Small Incision Cataract Surgery rubric: A roadmap to evaluate cataract surgical skill acquisition during residency training
Item Type: Journal Article
Authors: Jariwala, Shivani B.;Kapadia, Priti R. Rameshbhai and Patel, Hiteshree R.
Publication Date: 2022
Journal: Indian Journal of Ophthalmology 70(3), pp. 814-819
Abstract: PURPOSE: The International Council of Ophthalmology-Small Incision Cataract Surgery (ICO-SICS) rubric is a tool to grade SICS steps from novice to competent. The study aimed to evaluate the progress of residents' surgical skills by using the ICO-SICS rubric and the perceptions of residents and faculties about its use., METHODS: This prospective educational interventional study, done in the Ophthalmology department between September 2019 and February-2020 included 14 residents and five faculties. Faculties scored residents' SICS by ICO-SICS-rubric (four sessions/resident) and helped them identify three steps as "area of focus" to work upon. Feedback was taken using a semi-structured pretested questionnaire. Focus group discussion was done for residents. Data were entered in MS Excel and analyzed using SPSS. Perception analysis presented as percentage of written responses., RESULTS: Step-wise rubric score showed improvement for initial SICS steps and wound closure ($P < 0.05$). Critical surgical steps and scores for three areas of focus steps showed no statistically significant improvement. Three steps as an area of focus changed partly for 11 residents and completely for three residents at the end of 6 months. Perception analysis of faculty and residents showed that the ICO-SICS rubric is a good tool to record surgical performance, identify steps needing improvement and provide structured feedback hence opined to continue it. Residents considered it as an effective learning and assessment tool., CONCLUSION: ICO-SICS rubric is a good teaching tool and helps to assess the progress of surgical skills. Identification of areas of poor performance and feedback given motivates them to focus on those areas leading to continuous professional development, resulting in competent surgeons performing SICS surgery independently at the end of the residency.

Case Studies

Diverting assessment of routine patients to an upskilled nursing workforce
Source: Australian Commission on Safety and Quality in Health Care
Publication date: 2021
The outpatient Eye Clinic at Westmead Hospital services the Greater Western Sydney region, home to most of Australia’s recently arrived refugees and immigrants and a fifth of all First Nations Australians. Unemployment is higher than average and incomes are lower than average. At the start of 2020, patients referred to the clinic for cataract care were waiting up to 18 months for specialist assessment. Clinical Nurse Consultant (CNC), Ophthalmology, Tracey Wilson, Nurse Unit Manager

(NUM), Lai Bergan, and Head of Ophthalmology, A/Prof. Andrew White, were eager to identify areas where the nursing team could make a contribution, streamlining the processes between referral and surgery, and increasing the clinic's overall capacity. The One-Stop Cataract Assessment (OSCA) Clinic pilot began in 2020.

Courses

Ophthalmic Practitioner Training (OPT) Cataract module
Source: NHS England Workforce, training and education Kent, Surrey and Sussex
With an ageing population and rising expectations, the demand for cataract services has never been greater! Yet, this demand continues to rise. This has not been matched by a rise in resources however, with fewer surgeons in the UK compared to other European countries. There is therefore, a huge opportunity to re-design and streamline services to improve efficiency and reconfigure the patient pathway.

Competency Frameworks

Ophthalmology Common Clinical Competency Framework
This Framework has been developed further into a curriculum for each of these areas, and eye health professionals, supervisors and trainers are encouraged to familiarise themselves with the areas of the curriculum most relevant to them.

Cataract curriculum

4. Glaucoma

Published Peer Reviewed Research

Competencies

Conference abstract: Improving digital competency of ophthalmic clinicians and allied health professionals p. 281
Item Type: Journal Article
Authors: Raja, L.;Wagner, S.;Kayal, A.;Pedersen, M.;Keane, P. and Sim, D.
Publication Date: 2021
Journal: Ophthalmologica 244
Abstract: Purpose According to the Royal College of Ophthalmologists' Workforce Census conducted in 2018, the UK has seen a large increase in demand for ophthalmic services in the last 10 years, owing to the ageing population and advent of novel therapies. With 9 million outpatient appointments annually and a forecasted rise of 40%, the current workforce is ill-equipped to meet the growing demand. The implications of this imbalance is highlighted by 22 patients facing severe visual loss every month waiting to access ophthalmic services. The NHS long term plan seeks to mitigate the disparity between demand and supply through digital transformation. Increasing utility of ophthalmic allied health professionals undertaking extended roles is also forming part of the response. To harmonise these strands, it is pivotal to improve the digital literacy of the NHS workforce. The aim of our study was to design and implement a comprehensive digital health education programme to improve telemedicine competency in clinicians and allied health professionals. Methods We designed and created a comprehensive and bespoke modular program incorporating diagnostic imaging, telemedicine and digital health. We identified

important curricula objectives using the clinical teaching cycle. Course tutors were recruited based on their expertise in the various specialist fields. Teaching content was initially produced on PowerPoint, which was subsequently transcribed to a cloud based learning platform. Using this application, we published SCORM- and Tin Can API compliant courses that play seamlessly in learning management systems of smartphones, tablets, laptops and desktops. We evaluated the utility of this education program by collecting feedback from the inaugural cohort of students using a questionnaire. An anonymous, online survey was sent to 14 students partaking in the course. The questionnaire was created using Google Forms, a secure online platform and distributed via email. Responses were uploaded automatically and anonymously. The 65-item questionnaire was designed using a combination of quantitative and qualitative closed, multiple-choice and open questions. Demographic data such as age, region of practice and years in practice were procured. The main body of questions focused on students perspectives' on different aspects of telemedicine and their competency before and after undertaking the course. Opinion was primarily gauged using di l d Lik t l ti g Results The curriculum was divided into four modules: diagnostic imaging in retina (1), cornea and glaucoma (2), telemedicine (3) and digital health (4). The inaugural cohort consisted of 14 students, 8 of whom completed the feedback questionnaire. The level of competency ranged from ophthalmic photographer (n=1), retinal image grader (n=1), optometrist (n=1) to junior medical doctor (n=2) and ophthalmology consultant (n=1). Only 37.5% (n=3) of respondents practiced in the UK; whereas, 62.5% (n=5) practiced outside the UK. Most participants (75%, n=6) were predominantly operating in a primary care setting. Exploration of students' motives for enrolling on the course identified the following pull factors/stimuli: 100% (n=8) reported a desire to hone their image interpretation skills and 75% (n=6) aspired to facilitate digital transformation in healthcare. All participants (n=8) reported 4-5 out of 5 on importance of telemedicine for patient care delivery during and following the COVID-19 pandemic (on a likert scale where 5 is the most important). 75% of respondents felt that the course was relevant in addressing the challenges of socially-distanced patient care (4-5/5 on a Likert scale where 5 was the most relevant). Conclusions Based on the findings of our study, we conclude that there is an appetite for telemedicine based courses to improve digital competency. Areas of importance highlighted by the survey were setting up a diagnostic imaging service, virtual clinics, implementing home monitoring tools and artificial intelligence in ophthalmology. Prioritisation of certain competencies were highly dependent on the individuals as clinicians tended to rank diagnostic imaging and modules assisting decision making more highly in terms of importance; whereas, optometrists and ophthalmic technicians regarded virtual clinic set-up with higher significance. Almost half of attendees were based outside the UK suggesting there is a global scarcity of accreditation opportunities within this field. We conclude that courses aimed at enhancing digital literacy will be pivotal in facilitating the NHS workforce into the digital era, and to prepare them to embrace the challenges of the present and the future.

Equality, Diversity, and Inclusion

Improving Racial Diversity in the Ophthalmology Workforce: A Call to Action for Leaders in Ophthalmology
Author(s): Aguwa et al.
Source: American Journal of Ophthalmology 223
Publication date: March 2021
Racial injustice and disparities have been at the forefront of discussions in the United States during recent months. The tragic incidents of police brutality and the ravishing effects of COVID-19 on underrepresented minorities (URMs)—Black/African American, Hispanic/Latinx, and Native American—

have highlighted the consequences of systemic racism that have been embedded in our country's history.1 URMs are hospitalized owing to COVID-19 at 4 to 5 times the rate of White people.2 Social determinants of health, such as employment, insurance, income, environmental exposures, and healthcare access, are underlying contributors, among others, to this health disparity.1 Yet, numerous studies have demonstrated that racial and ethnic disparities in both health and healthcare persist after controlling for these social factors—a concerning finding that demonstrates the consequences of systemic racism and implicit bias.

Leadership

Leadership development facilitated by the "sandwich" and related glaucoma fellowship programs Full text available with NHS OpenAthens account*
Item Type: Journal Article
Authors: Liu, V.;Whitford, R. and Damji, K. F.
Publication Date: 2021
Journal: Leadership in Health Services (Bradford, England) ahead-of-print
Abstract: PURPOSE: The purpose of this paper is to evaluate leadership training in the Sandwich Glaucoma Fellowship (SGF), a program in which fellows learn skills in a developed world institution and their home country to become leaders in glaucoma care. DESIGN/METHODOLOGY/APPROACH: This paper is a retrospective, qualitative and quantitative evaluation. Participants of the SGF between 2007 and 2019 were provided a survey eliciting demographic information, leadership training exposure, development of leadership competencies and feedback for the fellowship program. FINDINGS: Seven of nine alumni responded. The fellowship strongly impacted leadership competencies including integrity (8.8, 95% CI 7.8-9.8), work ethic (8.64, 95% CI 7.7-9.6) and empathy (8.6, 95% CI 7.7-9.5). A total of 85% of alumni indicated positive changes in their professional status and described an increasing role in mentorship of colleagues or residents as a result of new skills. Lack of formal leadership training was noted by three respondents. Informal mentorship equipped fellows practicing in regions of Sub Saharan Africa with competencies to rise in their own leadership and mentoring roles related to enhancing glaucoma management. Suggested higher-order learning objectives and a formal curriculum can be included to optimize leadership training catered to the individual fellow experience. ORIGINALITY/VALUE: Leadership is necessary in health care and specifically in the context of low- and middle-income countries to bring about sustainable developments. The SGF contains a unique "Sandwich" design, focusing on the acquisition of medical and leadership skills. This evaluation outlines successes and challenges of this, and similar fellowship programs. Other programs can use a similar model to promote the development of skills in partnership with the fellows' home country to strengthen health-care leaders.Copyright © Emerald Publishing Limited.

Learning from Covid-19

How glaucoma care changed for the better after the pandemic
Item Type: Journal Article
Authors: Vinod, K. and Sidoti, P. A.
Publication Date: 2022
Journal: Current Opinion in Ophthalmology 33(2), pp. 59-66
Abstract: Purpose of review. The current article reviews enhancements to the delivery of glaucoma care that developed in response to the coronavirus disease 19 (COVID-19) pandemic and are likely to persist beyond its resolution. Recent findings Literature from the review period (2020-2021) includes reports highlighting contributions of the ophthalmology community to global health during the pandemic. Glaucoma practices worldwide have instituted more robust infection control measures

to mitigate severe acute respiratory syndrome coronavirus 2 transmission in the outpatient setting, and many of these modifications will endure in the post-COVID era. Operational adjustments have led to the provision of more efficient glaucoma care. A hybrid care model involving technician-based diagnostic testing and subsequent virtual consultation with a glaucoma specialist has evolved as a useful adjunct to traditional face-to-face encounters with patients.SummaryGlaucoma specialists, patients, and staff have adapted to a 'new normal' of glaucoma care delivery during the COVID-19 pandemic. Although innovation has propelled several improvements to glaucoma care during this global health crisis, significant barriers to more widespread implementation of teleglaucoma still exist. Whether, and in what capacity, the pandemic has permanently altered glaucoma practice patterns remains to be seen. Copyright © 2022 Lippincott Williams and Wilkins. All rights reserved.

Glaucoma care during the coronavirus disease 2019 pandemic
Abstract only*
Author(s): Vinod and Sidoti
Source: Current Opinion in Ophthalmology 32(2) pp. 75-82
Publication date: March 2021
PURPOSE OF REVIEW The current article reviews the impact of the coronavirus disease 2019 (COVID-19) pandemic on the delivery of ophthalmic, and specifically, glaucoma care. RECENT FINDINGS Literature from the review period includes case series demonstrating the presence of severe acute respiratory syndrome coronavirus 2 RNA in the conjunctival secretions of patients with laboratory-confirmed COVID-19. The global ophthalmology community published reports outlining the enhanced infection control measures undertaken by different institutions around the world to mitigate transmission of the novel coronavirus. Telemedicine has been increasingly implemented in glaucoma practices to reduce in-office patient volume. New data regarding the efficacy and feasibility of tools for home monitoring of intraocular pressure, virtual visual field testing, and remote disc photography are reviewed.SUMMARYCOVID-19 has posed a global public health threat due to the severity of its contagion and associated morbidity and mortality. Glaucoma specialists have responded to the pandemic with innovative modifications to reduce viral transmission and optimize patient and staff safety in the office and operating room. The role of teleglaucoma has expanded and will continue to evolve as remote diagnostic devices undergo further refinement and validation.

Drive-through Intraocular Pressure Checks during the COVID-19 Pandemic Abstract only*
Author(s): Baughman et al.
Source: Journal of Glaucoma 30(3) pp. 223-226
Publication date: March 2021
Precis: A drive-through clinic was created to obtain intraocular pressure measurements before a virtual visit with their provider, in order to provide care for patients in the Kellogg Glaucoma Clinic while minimizing risk of COVID-19 transmission.
Purpose(s):The aim of this study was to establish a drive-through clinic model to provide glaucoma care for patients while mini mizing the risk of COVID-19 transmission.Patients and Methods:A drive-through clinic was created by adapting a 1-lane, 1-way driveway adjacent to the Kellogg Eye Center building entrance. Patients were physicianselected from the Glaucoma Clinic at Kellogg Eye Center as existing patients who required intraocular pressure (IOP) checks and therapeutic management and were chosen based on their ability to be managed with an IOP measurement primarily. The entrance was otherwise closed to the public, allowing staff to utilize an adjacent vestibule with glass walls and sliding doors as a staffroom. Patients were instructed to arrive within a 15-minute time window at which time they would drive through the lane and stop their cars under an awning over the driveway. Ophthalmic technicians wearing appropriate personal protective equipment then approached

each car, confirmed patient information, and measured IOP. Once the data were recorded using a mobile workstation, the physician was able to complete each visit by discussing the findings and therapeutic plan with the patient, either in-person in real time or virtually by phone or video visit at a later time. Result(s):A total of 241 visits were completed over 14 half day clinic sessions, with number of drive-through visits ranging from 5 to 45 per session. Conclusion(s):It is possible to institute a drive-through model of IOP checks for glaucoma patients which is efficient and minimizes the risk of exposure to COVID-19 for patients and staff.

New ways of working

Providing capacity in glaucoma care using trained and accredited optometrists: A qualitative evaluation
Item Type: Journal Article
Authors: Gunn, P. J. G.;Read, S.;Dickinson, C.;Fenerty, C. H. and Harper, R. A.
Publication Date: 2023
Journal: Eye (Basingstoke)
Abstract: Introduction: The role of optometrists in glaucoma within primary and secondary care has been well described. Whilst many studies examined safety and clinical effectiveness, there is a paucity of qualitative research evaluating enablers and barriers for optometrists delivering glaucoma care. The aims of this study are to investigate qualitatively, and from a multi-stakeholder perspective whether optometric glaucoma care is accepted as an effective alternative to traditional models and what contextual factors impact upon their success. Method(s): Patients were recruited from clinics at Manchester Royal Eye Hospital and nationally via a Glaucoma UK registrant database. Optometrists, ophthalmologists, and other stakeholders involved in glaucoma services were recruited via direct contact and through an optometry educational event. Interviews and focus groups were recorded and transcribed anonymously, then analysed using the framework method and NVivo 12. Result(s): Interviews and focus groups were conducted with 38 participants including 14 optometrists and 6 ophthalmologists (from all 4 UK nations), and 15 patients and 3 commissioners/other stakeholders. Themes emerging related to: enablers and drivers; challenges and barriers; training; laser; professional practice; the role of other health professionals; commissioning; COVID-19; and patient experience. Conclusion(s): Success in developing glaucoma services with optometrists and other health professionals is reliant on multi-stakeholder input, investment in technology and training, inter-professional respect and appropriate time and funding to set up and deliver services. The multi-stakeholder perspective affirms there is notable support for developing glaucoma services delivered by optometrists in primary and secondary care, with caveats around training, appropriate case selection and clinical responsibility.

Transforming glaucoma care pathways: current glaucoma accreditation in UK optometry
Item Type: Journal Article
Authors: Harper, R. A.;Gunn, P. J. G.;Spry, P. G. D.;Fenerty, C. H.;Crabb, D. P. and Bowen, M.
Publication Date: 2022
Journal: Eye (Basingstoke) 36(4), pp. 676-678
The Royal College of Ophthalmologists' Way Forward project predicted the number of people in the UK with glaucoma would increase by 22% from 2015 to 2025 and by 44% from 2015 to 2035, while conceding this growth might underestimate demand [1]. The coronavirus pandemic has since thrown into stark relief the mismatch between capacity and demand, and the already long-established need for alternative pathways [2]. There is clearly a pressing need for out-patient transformation. One such

option, given the potential workforce, is development of pathways involving primary care optometry beyond referral filtering. At the same time, ophthalmic services guidance from the Royal College of Ophthalmologists is set to provide the link between risk stratification in glaucoma and non-medical health care professional (HCP) accreditation levels required to undertake relevant roles in glaucoma pathways, including roles for optometrists.

Ophthalmic nurse practitioner assessment of glaucoma: evaluating agreement within an initiative to enhance capacity in glaucoma clinics
Item Type: Journal Article
Authors: Bubb, Lucy;Mathews, Divya;Oehring, Daniela and Harper, Robert A.
Publication Date: 2021
Journal: Eye (London, England) 35(12), pp. 3258-3265
Abstract: AIMS: A local service evaluation was conducted in order to compare clinical assessment measures and management decisions between an ophthalmic nurse practitioner and a reference standard glaucoma consultant, for patients referred into secondary care with suspected Chronic Open Angle Glaucoma or Ocular Hypertension., METHODS: One hundred patients were selected. A clinical pathway incorporating the assessment methods recommended by National Institute for Health and Care Excellence (NICE) Glaucoma update 2017 (NG81) was delivered by a single ophthalmic nurse practitioner and the reference standard glaucoma consultant. Clinical findings and outcomes were recorded, with both practitioners being masked to each other's findings. Agreement was determined employing Cohen's kappa, measuring inter-rater agreement allowing for chance agreement., RESULTS: Agreement was observed as follows: Visual field assessment (kappa k = 0.806, 95% CI 0.661-0.951); Optical Coherence Tomography evaluation (kappa k = 0.648, 95% CI 0.507-0.798); C:D Ratio assessment (Cronbach's alpha alpha = 0.96, 95% CI 0.88-0.94); Diagnosis (kappa k = 0.874, 95% CI 0.818-0.914); and Treatment planning (kappa kappa = 0.844, 95% CI 0.733-0.955). In three cases the nurse practitioner judged the optic nerve to appear normal, where the reference standard examiner detected glaucoma and commenced treatment., CONCLUSION: This service evaluation demonstrates how an ophthalmic nurse practitioner with appropriate theoretical knowledge and practical training, can develop skills to reach a high level of agreement in patient assessment and management for those patients with suspected glaucoma. Within the limitations of a single centre and single practitioner evaluation, our findings provide evidence that this model of capacity expansion ought to merit wider consideration in secondary care glaucoma services. Copyright © 2021. The Author(s), under exclusive licence to The Royal College of Ophthalmologists.

Virtual Clinics

The current use of glaucoma virtual clinics in Europe
Item Type: Journal Article
Authors: Azzopardi, M.;Prokosch-Willing, V.;Michelessi, M.;Fea, A. M.;Oddone, F. and Mercieca, K.
Publication Date: 2023
Journal: Eye (Basingstoke) 37(7), pp. 1350-1356
Abstract: Objectives: To assess and describe current utilisation, characteristics and perspectives on virtual glaucoma clinics (VGCs) amongst European glaucoma specialists. Method(s): Cross-sectional, anonymized, online questionnaire distributed to all European Glaucoma Society-registered specialists. Questions were stratified into five domains: Demographics, Questions about VGC use, Questions for non-VGC users, COVID-19 effects, and VGC advantages/disadvantages. Result(s): 30% of 169 participants currently use VGCs, with 53% based in the United Kingdom. Of those using VGCs, 85% reported higher

patient acceptance compared to traditional care. The commonest virtual model was asynchronous remote monitoring (54%). Nurses (49%) and ophthalmic technicians (46%) were mostly responsible for data collection, with two-thirds using a mixture of professionals. Consultant ophthalmologists were the main decision-makers in 51% of VGCs. Preferred cohorts were: ocular hypertension (85%), glaucoma suspects (80%), early/moderate glaucoma in worse eye (68%), stable glaucoma irrespective of treatment (59%) and stable glaucoma on monotherapy (51%). Commonest investigations were: IOP (90%), BCVA (88%), visual field testing (85%) and OCT (78%), with 33 different combinations. Reasons for face-to-face referral included: visual field progression (80%), 'above-target' IOP (63%), and OCT progression (51%). Reasons for not using VGCs included: lack of experience (47%), adequate systems in place (42%), no appropriate staff (34%) and insufficient time/money (34%). 55% of non-VGC users are interested in their use with 38% currently considering future implementation. 83% stated VGC consultations have increased during the COVID-19 pandemic; 86% of all participants felt that the pandemic has highlighted the importance of VGCs. Conclusion(s): A significant proportion of European glaucoma units are currently using VGCs, while others are considering implementation. Financial reimbursement and consensus guidelines are potentially crucial steps in VGC uptake. Copyright © 2022, The Author(s).

Expansion of patient eligibility for virtual glaucoma clinics: a long-term strategy to increase the capacity of high-quality glaucoma care

Item Type: Journal Article
Authors: Nikita, E.;Gazzard, G.;Sim, D. A.;Fasolo, S.;Kortum, K. and Jayaram, H.
Publication Date: 2021
Journal: British Journal of Ophthalmology 107(1), pp. 43-48
Abstract: Aims The virtual glaucoma clinic (VGC) is a well-established diagnostic pathway for delivery of glaucoma care. Current UK national guidance recommends VGCs for patients with ocular hypertension, glaucoma suspects or early glaucoma. This study evaluates whether expanded eligibility criteria, including other glaucoma phenotypes and disease stages, can deliver safe and effective care with a positive patient experience. Methods Records of over 8000 patients were reviewed in order to determine suitability for VGC attendance using expanded eligibility criteria. Patients with three prior consecutive visits within the glaucoma service were included. Follow-up interval, clinic type, visual acuity (VA), intraocular pressure (IOP) and visual field performance were recorded. Patient satisfaction was recorded for a sample of 118 patients. Results 2017 patients over 31 months were included. Two-thirds of eyes had ocular comorbidities, a fifth of eyes had undergone prior cataract surgery and 10% of eyes had undergone a prior laser treatment for glaucoma. After three visits, 32% of patients remained in the VGC, 42% were seen in face-to-face clinics and 25% were discharged. There were no clinically significant changes in VA, IOP and visual field performance during follow-up. 72% of patients expressed a preference to continue their care within VGCs. Conclusions This study demonstrates that VGCs with expanded patient eligibility criteria can deliver high-quality glaucoma care that is safe, effective and with high levels of patient satisfaction. This approach provides a long-term solution to adapt delivery of glaucoma care to our expanding and ageing population.Copyright ©

Shared care and virtual clinics for glaucoma in a hospital setting

Item Type: Journal Article
Authors: Simons, A. -S;Vercauteren, J.;Barbosa-breda, J. and Stalmans, I.
Publication Date: 2021
Journal: Journal of Clinical Medicine 10(20), pp. 4785
Abstract: Glaucoma patients require lifelong management, and

the prevalence of glaucoma is ex-pected to increase, resulting in capacity problems in many hospital eye departments. New models of care delivery are needed to offer requisite capacity. This review evaluates two alternative schemes for glaucoma care within a hospital, i.e., shared care (SC) and virtual clinics (VCs), whereby non-medical staff are entrusted with more responsibilities, and compares these schemes with the "tradi-tional" ophthalmologist-led outpatient service (standard care). A literature search was conducted in three large bibliographic databases (PubMed, Embase, and Trip), and the abstracts from the prior five annual meetings of the Association for Research in Vision and Ophthalmology were consulted. Twenty-nine were included in the review (14 on SC and 15 on VCs). Patients with low risk of vision loss were considered suitable for these approaches. Among the non-medical staff, optometrists were the most frequently involved. The quality of both schemes was good and improved with the non-medical staff being trained in glaucoma care. No evidence was found on patients feeling disadvan-taged by the lack of a doctor visit. Both schemes increased the hospital's efficiency. Both SC and VCs are promising approaches to tackle the upcoming capacity problems of hospital-based glaucoma care.

Virtual clinics for glaucoma care - Patients' and clinicians' experiences and perceptions: a qualitative evaluation
Author(s): Gunn et al.
Source: Eye (London, England) 36 pp. 209-18
Publication date: March 2021
BACKGROUND The role of glaucoma virtual clinics has developed to help meet demand for capacity within busy glaucoma services. There is limited research of patient and clinician experiences and perceptions of these clinics and the aim of this study is to provide further information to help improve patient experience and guide service delivery. METHODS A mixed methods research design was employed comprising of a patient satisfaction survey, and patient and clinician interviews. Consultant ophthalmologists were recruited from throughout the UK, and patients and data gathering clinical staff recruited from the Manchester Royal Eye Hospital and Bristol Eye Hospital. RESULTS We received a total of 148 patient satisfaction questionnaires with an overall response rate of 55.4%. Most respondents were diagnosed with primary open angle glaucoma (33.9%) at Manchester and glaucoma suspect status at Bristol (50.6%). Patients had high levels of confidence in the person conducting the tests (94.8% Manchester, 98.8% Bristol), and most were likely to recommend the service to family or friends (94.8% Manchester, 92.6% Bristol). We interviewed 10 consultant ophthalmologists, 10 data gathering staff and 20 patients. A number of key themes emerged from the transcribed interviews including: patient experience, clinician perception of patient experience, service delivery, staffing and staff experience, and patient safety. CONCLUSIONS Glaucoma virtual clinics can be acceptable to both clinicians and patients, including those with a varied complexity of glaucoma and glaucoma-related disease. Dissatisfaction seemed to relate to poor communication or processes and systems within the service rather than complexity of disease.

Acceptability and use of glaucoma virtual clinics in the UK: a national survey of clinical leads
Author(s): Gunn et al.
Source: BMJ Open Ophthalmology 3(1)
Publication date: 2018
Objective The purpose of this paper is to describe the findings of a national survey that aimed to estimate the proportion of Hospital Eye Service (HES) units using glaucoma virtual clinics, to determine how these services differ and to gauge clinicians' views and opinions on the safety and acceptability of this model of care compared with usual care. Methods and analysis This

12-question survey was disseminated nationally to 92 clinical lead consultant ophthalmologists using SurveyMonkey. Results The response rate was 45.7%. There were 21 out of the total 42 respondents (50.0%) who were based at an NHS Trust where glaucoma virtual clinics were already being used and a further 9 (21.4%) were planning to establish one. Clinical leads largely rated efficiency and patient safety to be at least equivalent to usual care (92.9%) and 81.0% perceived glaucoma virtual clinics to be acceptable to patients. The main reasons for not running glaucoma virtual clinics were insufficient staff (71.4%) and inadequate space (47.6%). The majority of those running virtual clinics used this model of care for 'lower risk' patients such as ocular hypertensives (90.5%) and glaucoma suspects. Conclusion Glaucoma virtual clinics are employed by a large proportion of HES units, with many seeking to develop such services. Clinical leads largely rate efficiency, patient safety and the perception of patient acceptability to be at least equivalent to usual care.

A technician-delivered 'virtual clinic' for triaging low-risk glaucoma referrals
Author(s): Kotecha et al.
Source: Eye (London, England) 31 pp. 899-905
Publication date: 2017
Purpose The purpose of this study is to describe the outcomes of a technician-delivered glaucoma referral triaging service with 'virtual review' of resultant data by a consultant ophthalmologist. Patients and methods The Glaucoma Screening Clinic reviewed new optometrist or GP-initiated glaucoma suspect referrals into a specialist ophthalmic hospital. Patients underwent testing by three ophthalmic technicians in a dedicated clinical facility. Data were reviewed at a different time and date by a consultant glaucoma ophthalmologist. Approximately 10% of discharged patients were reviewed in a face-to-face consultant-led clinic to examine the false-negative rate of the service. Results Between 1 March 2014 and 31 March 2016, 1380 patients were seen in the clinic. The number of patients discharged following consultant virtual review was 855 (62%). The positive predictive value of onward referrals was 84%. Three of the 82 patients brought back for face-to-face review were deemed to require treatment, equating to negative predictive value of 96%.ConclusionsOur technician-delivered glaucoma referral triaging clinic incorporates consultant 'virtual review' to provide a service model that significantly reduces the number of onward referrals into the glaucoma outpatient department. This model may be an alternative to departments where there are difficulties in implementing optometrist-led community-based referral.

Self-management

Self-management challenges and support needs among patients with primary glaucoma: a qualitative study
Item Type: Journal Article
Authors: Hua, Yiting;LU, Hujie;Dai, Jingyao;Zhou, Yewei;Zhou, Wenzhe;Wang, Aisun;Chen, Yanyan and Liang, Youping
Publication Date: 2023
Journal: BMC Nursing , pp. 1-10
Abstract: Background: Self-management plays an important role in the disease management of glaucoma patients. The effectiveness of the program can be improved by assessing the patient's perspective and needs to tailor self-management support. Most studies have focused on assessing one of these self-management behaviours, such as medication adherence, and there is a lack of systematic assessment of the support needs and challenges of self-management for patients with glaucoma. Therefore, in this study, we conducted an in-depth investigation into the self-management challenges and support needs of patients with primary glaucoma, providing a basis for nursing staff to implement self-management support. Method: The phenomenological method and semistructured interviews

were used in this study. A total of 20 patients with primary glaucoma were recruited between June and December 2022. Colaizzi's analysis method was used to analyse the interview data. Results: Challenges for patients include becoming an expert in glaucoma, managing negative emotions, adapting to daily life changes and resuming social activities. To address these challenges, four themes of patient self-management support needs were identified: (1) health information support, (2) social support, (3) psychological support, and (4) daily living support. Conclusion: Patients with primary glaucoma experience varying degrees of challenge in dealing with medical, emotional, and social aspects. Comprehending the support needs of patients, healthcare professionals should deliver targeted, personalized and comprehensive self-management interventions to enhance their capacity of patients to perform self-management and improve their quality of life.

Services

Burden of Glaucoma in the United Kingdom: A Multicenter Analysis of United Kingdom Glaucoma Services
Item Type: Journal Article
Authors: Fu, Dun Jack;Ademisoye, Ebenezer;Shih, Vanessa;McNaught, Andrew I. and Khawaja, Anthony P.
Publication Date: 2023
Journal: Ophthalmology.Glaucoma 6(1), pp. 106-115
Abstract: OBJECTIVE: To determine the spectrum of glaucoma-associated health care resource utilization among outpatients attending National Health Service (NHS) hospital glaucoma clinics and the costs of managing glaucoma in this setting., DESIGN: Retrospective observational cohort study using electronic medical record data., SUBJECTS: Patients aged >= 18 years attending 5 NHS glaucoma clinics in the United Kingdom (2013-2018) with >= 12 months of continuous electronic medical record data., METHODS: Deidentified Medisoft Ophthalmology electronic medical record data (January 2013-December 2018) from 43 742 eligible patients were categorized by year of clinic visit. Extracted information included patient demographics, glaucoma diagnoses, topical glaucoma medication prescription start/stop dates, types/numbers of glaucoma clinic visits, glaucoma investigations (visual acuity, intraocular pressure, visual field, and OCT), and glaucoma procedures received over 12 months after the first ("index") visit of the specified year. Direct glaucoma-related health care costs (clinic visits, investigations, procedures, and ongoing glaucoma medication initiated in the clinic) were estimated from event volumes and unit costs (UK national tariffs) and expressed from the direct-payer perspective., MAIN OUTCOME MEASURES: Glaucoma diagnoses and topical glaucoma medication use at the index clinic visit; numbers of glaucoma clinic visits, investigations and procedures; and glaucoma-related health care costs over 12 months postindex., RESULTS: For the 2016 cohort (n = 21 719), the estimated average total cost of NHS-provided glaucoma care over 12 months was 405 per patient (medical staff services 209, glaucoma investigations 126, glaucoma medication 40, glaucoma procedures 26). Among this cohort, 40.8% had ocular hypertension/suspected glaucoma, 70% had 0-to-mild visual field impairment, and 14% had undergone a glaucoma procedure. Over 12 months, patients received (mean) 2.0 glaucoma clinic visits and 1.5 visual field tests, and 7% underwent glaucoma procedure(s). Results were similar for the other years examined., CONCLUSIONS: Cost estimates for managing patients with glaucoma in the UK are required for effective service planning. Appreciable proportions of patients managed in NHS glaucoma clinics may be considered at low risk of blindness (glaucoma suspects and those with ocular hypertension with mild visual field loss) and may be more appropriately managed with alternative, more affordable models of care.

Surgery

Ophthalmic surgery in New Zealand: analysis of 410,099 surgical procedures and nationwide surgical intervention rates from 2009 to 2018 Abstract only*
Item Type: Journal Article
Authors: Hossain, R. R.;Guest, S.;Wallace, H. B. and McKelvie, J.
Publication Date: 2023
Journal: Eye (Basingstoke) 37(8), pp. 1583-1589
Abstract: Background: Surgical intervention rates (SIR) provide a proxy measure of disease burden, surgical capacity, and the relative risk-benefit ratio of surgery. The current study assessed decade trends in ophthalmic surgery and calculated SIRs for all major classes of commonly performed ophthalmic procedures in New Zealand. Method(s): Retrospective population-based analysis of all ophthalmic surgical procedures performed in New Zealand from 2009 to 2018. National and regional datasets from public and private health sectors and industry were analysed. SIRs were calculated for all major ophthalmic procedures, and subgrouped by patient demographics. Result(s): There were 410,099 ophthalmic surgical procedures completed with a 25.3% overall increase over 10 years. Procedures were mostly government-funded (51%, n = 210,830) with 71% of patients aged over 64 years. Cataract surgery (78%, n = 318,564) had the highest mean SIR (703/100,000/year) and increased by 25% during the study period, consistent with population growth in the over 64 years old age group. Vitrectomy surgery had the second highest mean SIR (67/100,000/year) and increased by 50%, well above national population growth during the study period. Other SIRs included conjunctival lesion-biopsy (38/100,000/year), glaucoma (33/100,000/year), strabismus (20/100,000/year), dacryocystorhinostomy (10/100,000/year), and keratoplasty surgery (4/100,000/year). Conclusion(s): This comprehensive review of New Zealand ophthalmic surgery reports increasing SIRs that cannot be explained by population growth alone. Cataract surgery numbers increased year on year consistent with the increase in the over 64 years old population. Vitrectomy surgery growth exceeded that of the national population, including those over 64 years. Copyright © 2022, The Author(s), under exclusive licence to The Royal College of Ophthalmologists.

Training and Education

Expanding the traditional role of optometry: Current practice patterns and attitudes to enhanced glaucoma services in Ireland
Author(s):Barrett and Loughman
Source: Journal of Optometry 11(4)
Publication date: October-December 2018
Purpose: To investigate current diagnostic equipment availability and usage for glaucoma case-finding within community optometric practice, and to explore optometrists' attitudes towards an enhanced scope of clinical practice. Methods: An anonymous survey was developed, validated, and distributed to all optometrists in Ireland. Results: 199 optometrists (27% of registrants) responded to the survey. 87% had access to the traditional triad of tests necessary to conduct adequate glaucoma case finding. Standard automated perimetry was the most commonly absent (13%) of the three essential screening tests. 64% of respondents indicated that monocular direct ophthalmoscopy was their first choice technique for fundus examination. 47% of respondents had access to contact applanation tonometry, though just 14% used it as first choice during routine eye examinations. Among the 73 participants with access to both contact and non-contact tonometry (NCT), 80.8%, used NCT preferentially. The significant majority (98%) indicated an interest in enhanced glaucoma services with 57% agreeing

that postgraduate training was an essential prerequisite to any increase in scope of practice. Conclusion: Irish optometrists are well equipped with the traditional tests used in glaucoma detection. However, implementation of enhanced referral schemes or glaucoma monitoring or management services would require equipment upgrades and associated training in at least half of the surveyed practices. There is strong interest in furthering optometric professional development and expanding the traditional role boundaries of optometrists, incorporating further education as an essential prerequisite to an enhanced scope of practice.

Barriers to glaucoma case finding as perceived by optometrists in Ireland
Author(s): Barrett et al.
Source: Clinical and Experimental Optometry 101(1) pp. 90-99
Publication date: July 2017
BACKGROUND This research was designed to provide an in-depth exploration of the perceptions of optometrists relating to the challenges of glaucoma case finding in the Irish health-care system. METHODS A survey was developed, piloted and distributed for anonymous completion by optometrists registered to practise in Ireland. The survey included 10 five-level Likert items exploring potential barriers to glaucoma detection and a free-text box for participants to comment more broadly. RESULTS One hundred and ninety-nine optometrists (27 per cent of registrants) responded to the survey. Among the barriers identified, there was notable agreement (71 per cent) with the need for extra training on glaucoma detection. Logistic regression showed that optometrists without postgraduate qualifications were more likely to agree with the need for extra training (OR 3.2, 95 per cent CI 1.3-8.1). Respondents largely agreed (61 per cent) that patient unwillingness to pay additional fees for supplementary glaucoma-specific tests was also a barrier. Appointment times of less than 30 minutes were significantly associated with six of the 10 proposed barriers to glaucoma detection. A logistic regression analysis (n = 179) confirmed that the time allotted per appointment was a significant predictor of the agreement time of optometrists as a barrier ($\chi 2$ [1] = 13.52, $p < 0.001$). Multiple linear regression showed that optometrists with less experience, charging lower fees, and working in large multiples or franchised practices have the shortest appointment times. CONCLUSION The strong link found between postgraduate education and the confidence of optometrists in detecting glaucoma indicates that optometrists wishing to increase their scope of practice in the new legislative environment in Ireland may more actively seek training in areas of interest. The responses also indicate a lack of funding for the level of diagnostic testing required for accurate glaucoma diagnosis. Recent increases in the state's eye examination fees look likely to address the identified time and financial barriers to glaucoma detection in Ireland. Future work should look to analyse the effects of increased funding on optometric case finding for glaucoma.

Validity and reliability of eye healthcare professionals in the assessment of glaucoma - a systematic review Abstract only*
Author(s): Scheetz et al.
Source: International Journal of Clinical Practice 69(6) pp. 689-702
Publication date: June 2015
OBJECTIVE(S)To explore the validity and reliability of eye healthcare professionals with different levels of training in diagnosing and/or identifying glaucomatous progression. CLINICAL RELEVANCE Substantial pressure is being placed on our current eye healthcare workforce by chronic diseases such as glaucoma. Shared care schemes and role expansion of professionals other than ophthalmologists are being proposed to alleviate this pressure. A sound evidence base is imperative to determine whether other allied health professionals are skilled

and clinically competent, when it comes to taking on these new roles in glaucoma management. METHODS A systematic review of research articles identified in MEDLINE, CINAHL, Embase, Scopus and Cochrane Library was performed. Studies which investigated rater reliability of various health professionals in diagnosing and/or identifying glaucoma progression against a reference standard were included. RESULTS Of the 4088 publications identified by the initial database search, 32 met the inclusion criteria. The majority of studies demonstrated positive results, with most finding moderate to substantial agreement for inter- and intra-rater reliability across all testing modalities. The eye health professionals with ophthalmology training consistently attained the greatest agreement. When allied health professionals with different levels of training were compared, those who had completed residency training were significantly better than those who had not. CONCLUSION The studies included in this review show promising results, including those raters without ophthalmology training. A lack of power calculations, unequal sample sizes in some studies and the diversity of the testing procedures used make it difficult to make sound inferences.

Courses

Ophthalmic Practitioner Training (OPT) Glaucoma module
Source: NHS England Workforce, training and education Kent, Surrey and Sussex
Glaucoma is the biggest cause of irreversible blindness worldwide. Its prevalence increases with increasing age. With gradually ageing populations, the burden of this disease increases year on year. Glaucoma has historically been managed by ophthalmologists in hospital eye services. However, the rapidly increasing workload has meant changes in service delivery. These days more and more patients are managed by optometrists and specialist nurses under the guidance of consultant ophthalmologists.

Competency Frameworks

Ophthalmology Common Clinical Competency Framework
This Framework has been developed further into a curriculum for each of these areas, and eye health professionals, supervisors and trainers are encouraged to familiarise themselves with the areas of the curriculum most relevant to them.

Glaucoma curriculum

Primary Care Framework for first contact care
Source: College of Optometrists
Publication date: June 2016 (revision February 2018)
This document has been developed using the best evidence available (NICE guidance, NICE Quality Standards, NHS Evidence, ophthalmic research literature, case studies and service audit) and relates solely to the commissioning of NHS Primary EyeCare Services in England beyond the NHS sight testing service. Most primary eye care is already delivered in optical practices. However, in many areas, there is no effective primary and community services to free up Hospital Eye Service (HES)capacity. To tackle this problem, inline with recommendations of The Five Year Forward View(5YFV)1, the Clinical Council for Eye Health Commissioning (CCEHC)has already developed a framework for Community Ophthalmology2. Appropriate risk stratification of patients, more consistent pathways of care and use of the framework models will together lead to better value eye health care, better patient experience and better outcomes. As a result, HES clinics can focus on those patients who really need consultant expertise. This framework outlines the broad components of the Primary Eye Care Service

in England. This is needed to support the clinical decision-making of primary eye care practitioners up to the point of referral. This document is not relevant to Scotland or Wales, where Primary Eye Care is contracted as a national service. What can be managed within the Primary Eye Care Service depends on skills and equipment, and on the risk of deterioration of the patient's condition but will typically include the ability to:
•manage a wide range of low-risk primary eye conditions
•address the needs of a patient presenting with an acute eye condition (first contact)
•conduct re-checks to confirm abnormal test results (detected by a NHS eye test/ eye examination) as outlined in NICE Glaucoma guidance (NG81)3and Standard (QS7)4,5
•further refine the decision to refer e.g. where risks and benefits are discussed with the patient prior to referral for cataract surgery (NICE Cataract guidance1.2(NG77)

The Star for workforce redesign

More resources and tools are available in the Star

Statistics

You can find relevant statistics on the Health and Care Statistics Landscape under **"Health and Care"**

National Data Programme

Workforce, Training and Education staff can look at the National Data Warehouse (NDL) SharePoint site to find out more about datasets and Tableau products.

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