Evidence Brief: Ophthalmology

Contents

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

Key publications – the big picture

NHS Long Term Workforce Plan
Source: NHS England
Publication date: June 2023
The first comprehensive workforce plan for the NHS, putting staffing on a sustainable footing and improving patient care. It focuses on retaining existing talent and making the best use of new technology alongside the biggest recruitment drive in health service history.

Census report: Facing workforce shortages and backlogs in the aftermath of Covid-19: the 2022 census of the ophthalmology consultant, trainee and SAS workforce
Source: The Royal College of Ophthalmologists
Publication date: March 2023
The Royal College of Ophthalmologists (RCOphth) has today published the results of its 2022 workforce census, highlighting the scale of staff shortages in NHS ophthalmology services and how they will continue to worsen over the coming years without immediate action. The report also finds increasing concerns regarding the impact of independent sector providers (private companies undertaking NHS-funded services) delivering NHS ophthalmology care.

The future of primary eye care – principles and priorities
Source: FODO – The Association of Eye Care Providers
Publication date: 2023
Recognising that primary eye care in the UK is one of the world's most advanced eye care services, principles and priorities for primary eye care calls for more to be done to ensure patients can access the right care in the right place at the right time to tackle avoidable sight loss.

East of England Eyecare Workforce Transformation through increasing capacity and capability, integrating advancing practice initiatives and the Ophthalmic Practitioner Training programme (OPT) Phase 1: Final Report
Source: Health Education England and University of East Anglia
Publication date: 26th October 2022
A three phased project aims to address the integration of eyecare workforce development within wider initiatives (across population groups/specialties) and strengthen workforce capability and capacity to deliver eyecare on a whole-system basis across East of England. 1.2. Phase 1 aimed to 1) build the foundation for growing capability and capability of the whole workforce across different contexts to meet the needs of people with actual/potential eye conditions to optimise existing workforce 'assets', while taking a supportive approach to identifying and addressing learning needs and 2) make recommendations for Health Education England (Eastern); Integrated Care Systems (ICSs) and Higher Education Institutes (HEIs) to inform subsequent stages.

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.

We are the NHS: People Plan 2020/21 – action for us all
Source: NHS
Publication date: July 2020
Our NHS is made up of 1.3 million people who care for the people of this country with skill, compassion and dedication. Action from the Interim People Plan was already being taken to

increase the support and recognition for our people. Then the start of COVID-19 changed everything. Colleagues and loved ones were lost, and our people gave more of themselves than ever before. The public responded with appreciation and warmth. The clapping has now stopped, but our people must remain at the heart of our NHS, and the nation, as we rebuild.

Ophthalmology GIRFT Programme National Specialty Report
Source: Getting It Right First Time (GIRFT)
Publication date: December 2019
The ophthalmology national report from the Getting It Right First Time (GIRFT) programme features 22 recommendations to improve units treating the major sight-threatening conditions, including cataract, glaucoma, wet age-related macular degeneration (wet AMD) and diabetic retinopathy.
See p. 57 “Workforce and workspace”

The NHS Long Term Plan
Source: NHS
Publication date: Updated August 2019
The NHS Long Term Plan was developed in partnership with those who know the NHS best – frontline health and care staff, patients and their families and other experts.

Primary eye care, community ophthalmology and general ophthalmology
Source: The Royal College of Ophthalmologists and the College of Optometrists
Publication date: February 2019
This document concentrates on the commissioning and provision of eye health and ophthalmology services in England. It is intended to provide an overview of what should be in place across the eye health service system. Ophthalmology accounts for 8% of the 94 million hospital outpatient attendances and is the busiest outpatient attendance specialty.1 With demand already overwhelming many hospital eye services (HES), addressing the challenge of an ageing population and delivering new treatments is a problem for which we must find a solution. More innovative approaches for the management of acute and chronic eye disease are necessary to provide safe and sustainable services.

Handbook: Transforming elective care services ophthalmology
Source: NHS England
Publication date: January 2019
This handbook has been created to support the improvement of local health and care systems for ophthalmology elective care services.

Case Studies

Rapid deployment of ophthalmology video consultations at Moorfields Eye Hospital
Source: NHS England
Publication date: January 2022
Moorfields Eye Hospital NHS Foundation Trust is one of the largest providers of ophthalmology services in Europe. Between 2018 and 2019, the trust handled early 800,000 patient encounters, resulting in around 100,000 patients attending its main accident and emergency (A&E) department or an emergency satellite clinic.
The COVID-19 pandemic and subsequent UK lockdown in March 2020 created two immediate challenges for the trust: how to identify and manage the most critical emergencies while minimising hospital visits, and how to provide care to those patients for whom prolonged care disruption could lead to significant harm or loss of vision.

Optometry First Toolkit
Source: NHS England
Eye care services in England are under pressure and must urgently innovate if they are to meet the needs of our population safely and sustainably. This is especially true for long term conditions like glaucoma where existing services are struggling to meet follow-up needs and patients are at greater risk of avoidable sight loss. Optometry First is a service commissioning and design principle to help manage this growing demand in a sustainable way by establishing a co-ordinated and comprehensive primary eye care service as part of the wider eye care delivery system, reducing pressure on the hospital eye service (HES) and benefiting patients and the wider NHS. It covers primary eye care's contribution to both recovery and the transformation of eye care services to meet need.

Case studies are included in the Getting It Right First Time Ophthalmology report

Post Covid-19 surgical ophthalmology pathway
Source: The Academy of NHS Fab Stuff
Publication date: December 2020
As a result of Covid-19 Tetbury Hospital has developed and is delivering an ophthalmology surgical pathway within current and ongoing Covid-19 guidelines. We are able to continue to deliver an efficient and effective and safe surgical pathway for patients.

How artificial intelligence is revolutionising ophthalmology
Source: National Institute for Health Research
Publication date: December 2020
This research collaboration involved clinical input from ophthalmologists at Moorfields, scientific input from researchers at UCL, and computer science and engineering expertise from DeepMind. Within two years, the collaborators had developed an algorithm that could identify signs of eye disease using historic, anonymised eye scans. The research, published in *Nature Medicine*, showed that the AI system could recommend the correct referral decision to the same accuracy as world-leading eye experts for a number of different eye diseases. This was a massive breakthrough.

Eye Clinic Liaison Officer service continues to help patients across the Bay
Source: The Academy of NHS Fab Stuff
Publication date: June 2020
A cross-bay service is continuing to support people in Lancaster, Barrow and Kendal, with eye conditions during the coronavirus (COVID-19) pandemic. The Eye Clinic Liaison Officer (ECLO) service is based in the Macular Clinic at Westmorland General Hospital and also offers a service at Furness General Hospital and Royal Lancaster Infirmary. The ECLO service is still helping to support people via telephone and email whilst abiding with social distancing guidelines that have been put in place by the Government.

Eye care digital playbook
Source: NHS England Transformation Directorate
This resource provides support to clinical teams and organisations that are looking for digital tools that support the delivery of patient pathways. We concentrate on ophthalmology pathways and how to share diagnostics and undertake monitoring at home. We welcome feedback on the playbooks, including ideas for further case studies. To get in touch, please email digital.playbooks@nhs.net

EyesWise
Source: NHS England
EyesWise is the Elective Care Transformation Programme's project to save sight and improve people's lives, in collaboration with the Royal College of Ophthalmologists. It aims to ensure

people in England who need consultant led care get it as quickly as possible, and others are spared the need to attend specialist eye clinics. (see also Transforming elective care services ophthalmology)

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”** and use the **“Cancer”** filter

General Ophthalmic Services Workforce Statistics
Source: NHS Digital
In December 2019 we advised users of this publication series that the data source for this series of Official Statistics was being withdrawn and that the publication in 2020 (for the 2019 calendar year) would be the last release using the original data source. We committed to investigating suitable alternative data sources to ascertain whether it would be possible to continue the series. However, no suitable data source is available to us and as a result, we are unable to continue the series.

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.

Published Peer Reviewed Research

Burnout

An eye center-wide burnout intervention: resilience program and burnout survey
Author(s): Rosdahl and Kingsolver
Source: Digital Journal of Ophthalmology 25(1)
Publication date: January 2019
Purpose: Burnout affects half of doctors in the United States. Programs to decrease burnout and foster resilience are needed to prevent loss of doctors in the workforce and maintain quality care. To ameliorate burnout at our eye center, we developed a resilience program and used a survey to identify additional groups with higher burnout for future interventions. […] Results: A total of 593 individuals were invited to participate, of whom 252 completed the survey. Overall, 37% of the respondents reported being emotionally exhausted, and 17% had experienced depersonalization. With regard to work-life balance, 43% of the respondents were satisfied and 34% were dissatisfied. Burnout was higher in respondents who participated in clinical care (P = 0.001), particularly among ophthalmic technicians (P = 0.044). Feedback from the doctors participating in the "Doctors Lounge" suggested perceived benefits, including enhanced collegiality, life skills, and improved self-management. Conclusions: Our baseline burnout survey showed higher burnout in our clinical workers, particularly in our ophthalmic technicians. Planning for next year will include the providers identified in the survey.

Career Pathways

Alternative career paths for ophthalmologists Abstract only*
Item Type: Journal Article
Authors: Callaway, Natalia F. and Cunningham, Emmett T.,Jr
Publication Date: 2023
Journal: Current Opinion in Ophthalmology 34(5), pp. 369-373
Abstract: PURPOSE: Traditionally, ophthalmologists complete training and then choose a clinical care setting. The skills required to become an ophthalmologist can be applied to a variety of alternative career paths within and beyond healthcare. Not unexpectedly, therefore, there is a growing trend for ophthalmologists to explore alternative career paths in both healthcare and the life science industry more broadly. In this invited editorial, we summarize the more commonly considered 'alternative career paths,' and provide personal perspectives that have helped us and others when weighing such options., RECENT FINDINGS: Prior to pursuing an alternative career path, it is important to reflect on one's motivations and goals. A number of alternative careers paths are available, and the choice of when and what to pursue is both personal and personalizable. While it can be difficult to know a priori whether and to what extent a given path will be both enjoyable and rewarding, insights and advice from those who have walked that path before you can be invaluable. We review the more common paths of administrative leadership, entrepreneurship and innovation, product development, healthcare policy, nonprofit organizations, and investing, noting that these are just examples of the many options currently available., SUMMARY: Ophthalmologists should feel empowered to design a career that is both purposeful and personally meaningful, as this will result ultimately in the greatest happiness and fulfillment. There is a world of opportunity available to those who are willing to explore and create their own path.

Identification of Factors that May Predict Career Trajectory Among Neuro-Ophthalmology Fellows Abstract only*
Item Type: Journal Article
Authors: Patel, Aakash N.;Tian, Jing and Henderson, Amanda D.
Publication Date: 2023
Journal: Journal of Neuro-Ophthalmology : The Official Journal of the North American Neuro-Ophthalmology Society 43(3), pp. 303-306
Abstract: BACKGROUND: There is modest literature regarding fellowship applicant factors that may predict future career achievement. We aim to characterize neuro-ophthalmology fellows and identify and analyze characteristics that may predict future career trajectory., METHODS: Data, including demographic information, academic background, scholarly activities, and practice information, were collected using publicly available sources, on individuals who completed neuro-ophthalmology fellowships from 2015 to 2021. Summary statistics describing the cohort were calculated. Prefellowship characteristics were compared with postfellowship characteristics to evaluate which prefellowship characteristics may predict postfellowship academic productivity and career achievement., RESULTS: Data were collected on 174 individuals (41.6% men, 58.4% women). Sixty-five percent were residency-trained in ophthalmology, 31% neurology, 1.7% both, and 1.7% pediatric neurology. Fifty-eight percent completed residency in the US, 8% in Canada, 32% internationally, and 2% in multiple locations. Among those practicing in the US/Canada, 63.8% practice at academic centers, 35.3% private practice, and 0.9% at both. Thirty-one percent completed additional subspecialty training and 17.8% additional graduate degrees. Completion of additional fellowship training or graduate degrees, and publication of more papers before fellowship, correlated with later academic productivity. There were no significant correlations between completion of an additional fellowship or

graduate degree with current practice environment or attainment of leadership roles. There were no significant correlations between total publishing productivity prefellowship and practice environment or leadership roles postfellowship., CONCLUSIONS: Additional graduate degrees/subspecialty training, and prefellowship academic productivity, correlated with later academic productivity among neuro-ophthalmologists, suggesting that these metrics may be helpful in predicting future academic performance among fellowship applicants. Copyright © 2023 by North American Neuro-Ophthalmology Society.

Factors Influencing Career Decisions and Satisfaction Among Newly Practicing Ophthalmologists
Item Type: Journal Article
Authors: Gedde, Steven J.;Feuer, William J.;Crane, Ashley M. and Shi, Wei
Publication Date: 2022
Journal: American Journal of Ophthalmology 234, pp. 285-326
Abstract: PURPOSE: To describe the career choices of newly practicing ophthalmologists and explore factors influencing career decisions and satisfaction., METHODS: A cross-sectional study was conducted using data from an electronic survey of ophthalmologists who completed training within the prior 5 years. The survey included questions about demographic information, medical education, current practice, factors affecting career choices, and career satisfaction. Statistical comparisons were made based on gender, type of practice, subspecialty training, and practice area., RESULTS: Surveys were completed by 696 (32%) newly practicing ophthalmologists, including 276 (40%) women, 179 (29%) academicians, and 465 (67%) subspecialists. A higher proportion of female respondents entered academics than male respondents (36% vs 26%, P = .009). Female and male respondents pursued fellowship training with similar frequency (64% vs 68%, P = .32), but men were more likely to seek vitreoretinal fellowships (30% vs 11%, P < .001) and women were more likely to undertake fellowships in pediatric ophthalmology (21% vs 8%, P < .001), uveitis (10% vs 2%, P = .002), and neuro-ophthalmology (6% vs 2%, P = .042). A total of 514 (83%) respondents reported being happy with work life., CONCLUSIONS: The career choices of newly practicing ophthalmologists differ based on gender, type of practice, subspecialty training, and practice area. Many factors affect career decisions, and they have varying influence on subgroups within ophthalmology. Ophthalmologists have high levels of career satisfaction. This information may prove useful when developing workforce strategies to meet future eye care needs. NOTE: Publication of this article is sponsored by the American Ophthalmological Society. Copyright © 2021 Elsevier Inc. All rights reserved.

Predictors of ophthalmology career success (POCS) study
Item Type: Journal Article
Authors: Das, Aditi;Smith, Daniel and Mathew, Rashmi G.
Publication Date: 2021
Journal: BMJ Open Ophthalmology 6(1), pp. e000735
Abstract: OBJECTIVE: Ophthalmology is the busiest outpatient specialty with demand predicted to rise over 40% in the next 20 years. A significant increase in the number of trainee ophthalmologists is required to fill currently vacant consultant posts and meet the UK's workforce demands by 2038. Our aim was to understand what determines success in ophthalmology training, in order to inform future ophthalmologists, refine recruitment and facilitate workforce planning., METHODS AND ANALYSIS: This was a retrospective longitudinal cohort study using routinely collected data available from UK Medical Education Database (UKMED) (https://www.ukmed.ac.uk/). Data were analysed on 1350 candidates who had applied for ophthalmology specialty training (OST) between 2012 and 2018, as well as 495 candidates who had attempted Fellow of the Royal College of Ophthalmologists (FRCOphth) Part 1 between

2013 and 2018. Participants who had not obtained their primary medical qualification from the UK medical schools were excluded. Primary outcome measures included gaining a place on the OST programme and passing the FRCOphth Part 1 examination on first attempt., RESULTS: Higher education performance measure decile scores at medical school are strongly predictive in securing an OST post and passing the part 1 examination first time (p<0.001). Candidates who attempt FRCOphth Part 1 prior to their ST1 application are more likely to get a place on OST on first attempt. Socioeconomic factors, gender and ethnicity do not influence success in OST entry. Male trainees are more likely to pass FRCOphth Part 1 on their first attempt., CONCLUSION: This study is the first quantitative assessment of the factors that determine success in OST recruitment and ophthalmology postgraduate examinations in the UK. Similar studies should be undertaken in all other medical and surgical specialties to understand what factors predict success.

Covid-19

Evaluation of the Manchester COVID-19 Urgent Eyecare Service (CUES)
Item Type: Journal Article
Authors: Kanabar, Rahul;Craven, Wendy;Wilson, Helen;Rietdyke, Rebecca;Dhawahir-Scala, Felipe;Jinkinson, Matthew;Newman, William D. and Harper, Robert A.
Publication Date: 2022
Journal: Eye (London, England) 36(4), pp. 850-858
Abstract: INTRODUCTION: Pressure on capacity in ophthalmology alongside the coronavirus (COVID-19) pandemic led to the development of the COVID-19 Urgent Eyecare Service (CUES), allowing patients to receive a prompt ophthalmic consultation, including remotely. The aim of this study was to conduct a service evaluation of CUES in Manchester., METHODS: Data were collected both prospectively and retrospectively from both primary and secondary care over an 8-week period from June to August 2020., RESULTS: In primary care CUES in Greater Manchester (GM) 2461 patients were assessed, with a majority self-referring to the service (68.7%, n = 1844). 91.7% of cases initially screened for CUES were deemed eligible and given a telemedicine appointment in GM; 53.3% of these cases required face-to-face consultation. 14.3% of cases seen within in GM CUES (351 out of 2461) were provisionally referred to secondary care. Contemporaneously the main provider emergency eyecare department (EED) attendances were reduced by 37.7% per month between April and December 2020 inclusive, compared to the same months in 2019. Patients attending a CUES face-to-face assessment were more likely to have a diagnosis in agreement with secondary care, compared to patients referred in from telemedicine assessment only (P < 0.05)., CONCLUSION: This evaluation of CUES demonstrates a high level of primary care activity alongside a sustained reduction in EED cases. The case-mix of patients seen within EED following referral appears to be of a less benign nature than those cases seen prior to the introduction of CUES.

Digital health during COVID-19: lessons from operationalising new models of care in ophthalmology
Item Type: Journal Article
Authors: Gunasekeran, Dinesh V.;Tham, Yih-Chung;Ting, Daniel S. W.;Tan, Gavin S. W. and Wong, Tien Y.
Publication Date: 2021
Journal: The Lancet.Digital Health 3(2), pp. e124-e134
Abstract: The COVID-19 pandemic has resulted in massive disruptions within health care, both directly as a result of the infectious disease outbreak, and indirectly because of public

health measures to mitigate against transmission. This disruption has caused rapid dynamic fluctuations in demand, capacity, and even contextual aspects of health care. Therefore, the traditional face-to-face patient-physician care model has had to be re-examined in many countries, with digital technology and new models of care being rapidly deployed to meet the various challenges of the pandemic. This Viewpoint highlights new models in ophthalmology that have adapted to incorporate digital health solutions such as telehealth, artificial intelligence decision support for triaging and clinical care, and home monitoring. These models can be operationalised for different clinical applications based on the technology, clinical need, demand from patients, and manpower availability, ranging from out-of-hospital models including the hub-and-spoke pre-hospital model, to front-line models such as the inflow funnel model and monitoring models such as the so-called lighthouse model for provider-led monitoring. Lessons learnt from operationalising these models for ophthalmology in the context of COVID-19 are discussed, along with their relevance for other specialty domains.

The Role and Views of Ophthalmologists During the COVID-19 Pandemic

Item Type: Journal Article
Authors: Kortuem, Friederike C.;Ziemssen, Focke;Kortuem, Karsten U. and Kortuem, Constanze
Publication Date: 2021
Journal: Clinical Ophthalmology (Auckland, N.Z.) 15, pp. 3947-3956
Abstract: PURPOSE: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic forced ophthalmologists to adjust their working conditions to ensure patient and staff safety, while still providing effective and timely treatment. This international survey among ophthalmologists was initiated to capture what actions ophthalmologists were taking and what their opinions were on the risks of infection in their workplace, the delay in treatment, the use of telemedicine and telephone for appointments, and the regional specifications and measures implemented by the respective authorities., METHODS: An open-source web tool was used to develop an online survey, to which ophthalmologists worldwide were invited via e-mail using international mailing lists (Media Mice, Singapore; Texere Publishing Inc, USA; CGO Gerling) and incentivized using a lottery. The physicians provided their level of agreement relating to the offered statements and gave free answers to the questions regarding the actions taken (conducted November 5th 2020 to December 20th 2020)., RESULTS: After 91,000 invitations, responses were collected from 1122 ophthalmologists. Despite the use of large international mailing lists, mainly doctors from Europe participated. Half of the participants expressed great concern about possible SARS-CoV-2 infection in their patients. A significant number of younger ophthalmologists (50 years: 69.6%, n = 181) feared the delays that COVID-19 could cause to treatment. Reductions in patient numbers were broadly observed, with more ophthalmologists of younger age reporting greater declines. Nearly all ophthalmologists indicated that they provided disinfectant and the majority also used masks and questionnaires for screening. For 60.3% (n = 412) of ophthalmologists, telephone calls reduced the risk of 'no-shows'; 71.6% (n = 497) disagreed that telemedical evaluation is possible without slit lamp findings and fundus photos; and 57.0% of participants felt content with the governmental measures during the COVID-19 pandemic., CONCLUSION: The COVID-19 pandemic has significantly influenced the work of ophthalmologists. Based on the limited response rate, certain statements were only possible to evaluate for the European Union: with a noticeable reduction in patient numbers, delay in treatment was a major worry. Measures to protect and reassure

patients should be undertaken, especially regarding those with vision-threatening diseases requiring treatment. Copyright © 2021 Kortuem et al.

Redeployment of ophthalmologists in the United Kingdom during the Coronavirus Disease Pandemic
Item Type: Journal Article
Authors: Lim, Christina;De Silva, Ian;Moussa, George;Islam, Tahir;Osman, Lina;Malick, Huzaifa;Deol, Sundeep;Youssef, Moheeb;Farrag, Abdelsattar;Ashraf, Rehana;Burgula, Sreekala and Thompson, Jonathan
Publication Date: 2021
Journal: European Journal of Ophthalmology 31(5), pp. 2268-2274
Abstract: BACKGROUND: During the current coronavirus (COVID-19) pandemic, some ophthalmologists across the United Kingdom (UK) have been redeployed to areas of need across the National Health Service (NHS). This survey was performed to assess aspects of this process including training & education, tasks expected, availability of personal protection equipment (PPE) used and the overall anxiety of ophthalmologists around their redeployment., METHOD: Online anonymous survey around the existing guidance on safe redeployment of secondary care NHS staff and PPE use by NHS England and Public Health England respectively. The survey was open to all ophthalmologists across the UK irrespective of their redeployment status., FINDINGS: 145 surveys were completed and returned during a 2-week period between 17th April 2020 and 1st May 2020, when 52% of ophthalmologists were redeployed. The majority of this group consisted of ophthalmologists in training (79%). 81% of those redeployed were assigned to areas of the hospital where patients with confirmed Coronavirus disease were being treated as inpatients. There was a statistically significant improvement in anxiety level following redeployment which was mainly attributed to the support received by staff within the redeployed area. 71% of the redeployed group were found to have sufficient PPE was provided for the area they worked in., INTERPRETATION: This is the first national survey performed on redeployment of ophthalmologists in the UK. The study showed that ophthalmologists across all grades were able to contribute in most aspects of patient care. Anxiety of redeployment was reduced by prior training and good support in the redeployment area.

Prevalence of SARS-CoV-2 amongst ophthalmologists throughout the first and second waves of the pandemic
Item Type: Journal Article
Authors: Sacchi, Matteo;Lizzio, Rosario Alfio Umberto;Villani, Edoardo;Tagliabue, Elena;Monsellato, Gianluca;Pajardi, Giorgio;Luccarelli, Saverio and Nucci, Paolo
Publication Date: 2021
Journal: Medicine 100(50), pp. e28192
Abstract: ABSTRACT: The study aims to investigate the prevalence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection among ophthalmology unit staff throughout the first and second waves of the outbreak, in order to verify the effectiveness of the measures adopted in containing the contagion.A retrospective observational study was conducted involving staff members, who received a naso/oropharyngeal swab when complaining of SARS-CoV-2 symptoms and once a month as a screening measure. They were tested for SARS-CoV-2 antibodies as a screening measure during the first and the second wave. Clinical activities performed during the outbreak were compared with those performed during the same period in 2019 and correlated with the number of coronavirus disease-2019 eye care workers.Analysis included 25 workers. Clinical infection was 0% and 12% whereas the prevalence of SARS-CoV-2 antibodies ranged from 4% to 8% in the first and second wave, respectively. The increase in the prevalence of

SARS-CoV-2 infection between the first and the second wave was not significant (1/25 vs 3/25, P = .6092). Clinical activities significantly decreased during the first wave compared with the same period in 2019 (3256 vs 10,075, P < .0001, -68% to 2019), but increased during the second wave (8208 vs 3256, P < .0001, +152% to the first wave). Despite the increase in routine activities during the second wave, we did not observe a significant increase in SARS-CoV-2 prevalence. Strict protection measures seemed to contain the rate of contagion among the ophthalmology unit members even in a high-volume clinical setting in one of the most affected area by the coronavirus disease-2019 outbreak. Copyright © 2021 the Author(s). Published by Wolters Kluwer Health, Inc.

COVID-19 and its effect on the provision of ophthalmic care in the United Kingdom
Author(s): Attzs and Lakhani
Source: International Journal of Clinical Practice 75(7)
Publication date: February 2021
The first quarter of 2020 gave light to a novel virus, Coronavirus 2019 (COVID-19), causing a pandemic of unbridled proportions. The National Health Service in the United Kingdom issued guidance to ensure that capacity was increased in acute medical settings, to prepare for the surge of COVID-19 cases. The Royal College of Ophthalmologists followed suit with guidance on the curtailment of all elective activity, aimed at protecting both patients and staff. Ophthalmology is one of the busiest outpatient specialities, and risk stratification of patients with appointments cancelled or on review lists was paramount to ensure there was no serious, permanent harm to sight. Our way of working, as we knew it, had to change in a short period of time. Local emergency eye care was changed from a walk in service, with the implementation of a strict triage protocol. Ophthalmologists, as well as Otorhinolaryngology colleagues, were identified as being at high risk of infection, due to the close proximity of clinical examination. The redesign of clinical areas to allow for social distancing, slit lamp barriers and personal protective equipment was all implemented. This time of relative pause has provided the opportunity to harness new ways of working, including the streamlining of services, reduction of backlog and the incorporation of telemedicine. Health preparedness is a new lexicon to Ophthalmology departments across the world, and it will now have to be stringently implemented in the ophthalmic setting.

When ophthalmologists step up to the COVID-19 frontlines
Author(s): Li et al.
Source: Eye 34L 1237-1238
Publication date: July 2020
Drawing from experiences from the 2003 severe acute respiratory syndrome (SARS) outbreak in Singapore, the National Centre for Infectious Disease (NCID), a 330-bed capacity national facility was set up to handle infectious disease outbreaks. During such an outbreak, physicians and anaesthetists are critically needed in the outbreak wards and intensive care units. Ophthalmologists can contribute meaningfully during such times too. Since 31st January 2020, ophthalmologists, together with various surgical disciplines, augmented the staffing levels of NCID, the main centre where COVID-19 suspects were screened and treated. The role was to run the screening centre (SC), where suspect cases were screened. As of 31st March 2020, 51 ophthalmologists of all ranks (Medical Officers to Consultants) had been deployed to the SC safely. Recognising that age and co-morbidities result in less favourable outcomes in COVID-19 patients, those of age >60 years old and/or with cardiovascular risk factors [1] were excluded from deployment.

Could telehealth help eye care practitioners adapt contact lens services during the COVID-19 pandemic?
Author(s): Nagra et al.
Source: Contact lens & Anterior Eye 43
Publication date: June 2020
The COVID-19 pandemic has necessitated government-imposed restrictions on social interactions and travel. For many, the guidance has led to new ways of working, most notably a shift towards working remotely. While eye care practitioners (ECPs) may continue to provide urgent or emergency eye care, in many cases the travel restrictions present a unique challenge by preventing conventional face-to-face examination. Telephone triage provides a useful starting point for establishing at-risk and emergency patients; but patient examination is central to contact lens patient care. The indeterminate period over which conventional practice will be suspended, and the risk that resumption of 'normal' practice could be impeded by a potential secondary peak in COVID-19 cases, hastens the need for practitioners to adapt their delivery of eyecare. Specifically, it is prudent to reflect upon supportive evidence for more comprehensive approaches to teleoptometry in contact lens practice. Smartphone based ocular imaging is an area which has seen considerable growth, particularly for imaging the posterior eye. Smartphone imaging of the anterior eye requires additional specialised instrumentation unlikely to be available to patients at home. Further, there is only limited evidence for self-administered image capture. In general, digital photographs, are useful for detection of gross anterior eye changes, but subtle changes are less discernible. For the assessment of visual acuity, many electronic test charts have been validated for use by practitioners. Research into self-administered visual acuity measures remains limited. The absence of a comprehensive evidence base for teleoptometry limits ECPs, particularly during this pandemic. Knowledge gaps ought to be addressed to facilitate development of optometry specific evidence-based guidance for telecare. In particular, advances in ocular self-imaging could help move this field forwards.

Education and training

Leadership in ophthalmology training: Opportunities and risks of medical specialist education
Item Type: Journal Article
Authors: Seitz, Berthold;Turner, Christina;Hamon, Loic;Sneyers, Alberic;Alles, Felix;Maamri, Amine;Goebels-Kummerow, Susanne;Fiorentzis, Miltiadis and Bechrakis, Nikolaos E.
Publication Date: 2024
Journal: Fuhrung in Der Augenarztlichen Ausbildung : Chancen Und Risiken Der Facharztweiterbildung. 121, pp. 48-60
Abstract: Medical specialist training requires constant improvement and adaptation of the contents to the current situation. Nowadays, young physicians have the opportunity to select among the most renowned institutions and can choose the one most qualified for their training. Hospitals on the other hand still have the desire to recruit highly qualified physicians for their resident programs, which requires a good, well-rounded and reliable offer by the department under good leadership. Thus, among other issues a modern and multilingual homepage is already an important instrument for successfully addressing applicants and winning them over for the department. In addition to a well-planned and structured training plan (e.g., the "Homburg Curriculum") and a so-called "resident guide", many other additional offers are nowadays part of a successful training, such as structured internal and external specialist training courses, well thought out research concepts available to all interested parties, wet labs for practical exercises on pig's eyes and as the latest most innovative addition, a virtual reality simulator. Due to a structured curriculum with regular continuous education during the daily early morning meetings and an exchange program with another university eye hospital, not only

the residents can benefit but ultimately also the department itself. In addition, future specialists are involved in the respective organization (so-called "service teams") from the very beginning. This conveys a great deal of knowledge and expertise but also organizational skills and thus improves the quality of training. In any case, standardized residency training with a view beyond the horizon, which is transparently organized and reliably carried out, improves the quality of training in order to become a certified ophthalmologist and increases the satisfaction of the residents. A department which is committed and can offer a wide range of services will benefit from motivated and satisfied employees in a good interpersonal climate, which in the end benefits not only the team but also the patients. Copyright © 2024. The Author(s).

Benefits and challenges to ophthalmology training via the Specialist Training Program
Item Type: Journal Article
Authors: Jessup, Belinda;Allen, Penny;Khanal, Santosh;Baker-Smith, Victoria and Barnett, Tony
Publication Date: 2023a
Journal: The Australian Journal of Rural Health 31(2), pp. 230-243
Abstract: INTRODUCTION: The Specialist Training Program (STP) is a commonwealth funding initiative to support specialist medical training positions in regional, rural and remote areas, and in private settings. The program helps to improve the skills and distribution of the specialist medical workforce by providing trainees experience of a broader range of healthcare settings., OBJECTIVE: To examine the benefits and challenges of ophthalmology training delivered by the STP in regional, rural, remote, and/or private settings across Australia., DESIGN: Qualitative design involving semi-structured in-depth interviews with thirty-two participants experienced in the delivery of ophthalmology training at STP posts including ophthalmology trainees (n = 8), STP supervisors and clinical tutors (n = 16), and other stakeholders (n = 8)., FINDINGS: Training delivered at STP posts was reportedly beneficial for ophthalmology trainees, their supervisors and the broader community given it enabled exposure to regional, rural, remote and private settings, access to unique learning opportunities, provided workforce support and renewal, and affordable ophthalmic care. However, all participants also reported challenges including difficulties achieving work/life balance, unmet training expectations, a lack of professional support, and financial and administrative burden. Malalignment between trainee preferences for STP posts, low STP literacy and limited regional, rural and remote training experiences were also seen as missed opportunities to foster future rural ophthalmic workforce development., DISCUSSION: The STP improves access to ophthalmic care in underserved populations while enabling valuable rural and/or private practice exposure for medical specialist trainees and workforce support for supervising ophthalmologists., CONCLUSION: Efforts are needed to improve the quality of training experiences provided at STP posts and post sustainability. Although research is needed to investigate the longer-term benefits of the STP to rural and/or private workforce recruitment and retention, RANZCO should develop further regional, rural and remote STP posts to help realise future rural practice intention amongst ophthalmology trainees. Copyright © 2022 The Authors. Australian Journal of Rural Health published by John Wiley & Sons Australia, Ltd on behalf of National Rural Health Alliance Ltd.

Beyond the 'big smoke': Enabling supervision of ophthalmology trainees in regional, rural and remote Australia
Item Type: Journal Article
Authors: Jessup, Belinda;Allen, Penny;Khanal, Santosh;Baker-Smith, Victoria and Barnett, Tony
Publication Date: 2023b
Journal: The Australian Journal of Rural Health 31(3), pp. 503-513

Abstract: OBJECTIVE: Expansion of opportunities for ophthalmology training beyond the 'big smoke' is anticipated to support the future distribution of ophthalmologists in regional, rural and remote areas of Australia. However, little is known about what enables supervision outside of metropolitan tertiary hospital settings that would contribute to positive training experiences for specialist medical trainees and encourage them to leave the 'big smoke' once qualified. The aim of this study was therefore to explore the perceived enablers of ophthalmology trainee supervision in regional, rural and remote health settings across Australia., SETTING: Australia., PARTICIPANTS: Ophthalmologists working in regional, rural or remote health settings with experience and/or interest in supervising ophthalmology trainees (n = 16)., DESIGN: Qualitative design involving semistructured interviews., RESULTS: Seven key enablers of ophthalmology trainee supervision in regional, rural and remote health settings were identified: adequate physical infrastructure, resources and funding to host a trainee; availability of online curriculum and teaching resources so as to ensure equity of training opportunities; pre-established training posts, driven by supervision 'champions'; a critical mass of ophthalmologists to help share the supervisory load; relationships and support between training posts, the training network and the Specialist Medical College; alignment of trainee competence and attitude with the needs of the training setting; and the recognition of reciprocal benefits for supervisors through supporting trainees, including workforce support and renewal., CONCLUSION: With training experiences beyond the 'big smoke' anticipated to influence future ophthalmology workforce distribution, implementation of enablers of trainee supervision should occur in regional, rural and remote health settings wherever possible. Copyright © 2023 The Authors. Australian Journal of Rural Health published by John Wiley & Sons Australia, Ltd on behalf of National Rural Health Alliance Ltd.

Ophthalmology in England: how is training geared to supply our future workforce? Full text available with NHS OpenAthens account*
Item Type: Journal Article
Authors: Shah, Vishal;Marshall, Jordan;Abu-Bakra, Mohammed and Flanagan, Declan
Publication Date: 2023
Journal: Eye (London, England) 37(10), pp. 1951-1952
Training in ophthalmology is currently a 7-year postgraduate run-through programme, where doctors with a full GMC registration are taken through a curriculum to qualify as a consultant ophthalmologist. Understanding their profile, numbers and distribution provides an insight into the state of the ophthalmology workforce at present and into the future.

Student perspectives of extended clinical placements in optometry: a qualitative study
Item Type: Journal Article
Authors: Kirkman, Jacqueline M.;Bentley, Sharon A.;Armitage, James A.;Wood-Bradley, Ryan and Woods, Craig A.
Publication Date: 2022
Journal: BMC Medical Education 22(1), pp. 59
Abstract: BACKGROUND: The number of students enrolled in health courses at Australian universities is rising, increasing demand for clinical placements. Optometry students have historically undertaken clinical training in short-block rotations at university-led teaching clinics in metropolitan locations. This is changing, with some optometry programs adopting extended placements. These placements are conducted in community-based practices, with many incorporating a rural component to the training. This study explored factors which influence placement success and satisfaction from the perspective of optometry students., METHODS: Nine focus groups were undertaken with 42 final year optometry students upon completion of a 26-week placement (of which at least half was

undertaken in a non-metropolitan area, or area where a shortage of optometrists has been identified). Focus groups were audio recorded and transcribed verbatim. Thematic analysis was conducted according to Braun and Clarke's 6 step method., RESULTS: Four key themes were identified during analysis. 'Changing identity', related to how the students grew both personally and professionally, with the extended placement being considered the vital component that allowed students to begin thinking of themselves as clinicians. The theme 'Dealing with complex dynamics and circumstances' predominantly described instances where the student-supervisor relationship was strained, resulting in high levels of anxiety made worse by a perceived lack of university support. 'Optometrist under instruction', related to students feeling that the placement was an ideal opportunity to trial the everyday reality of work without the obligation of an ongoing commitment or employment contract. Finally, the theme 'Rural practice is more rewarding', was about a chance to seek different experiences, meet new people and challenge themselves professionally., CONCLUSION: While the majority of students enjoyed their placement and felt that it was the key component of their training that equipped them for future practice, it is clear that universities and placement providers must provide both students and supervisors thorough and explicit guidance covering placement expectations. Furthermore, student support systems should be embedded into placement programs to ensure where issues arise, they are dealt with promptly and successfully. It is vital that ongoing professional development and pedagogical training for supervisors underpins continued accreditation. Copyright © 2022. The Author(s).

Ophthalmology Education Leadership Attitudes Toward Mentorship of Female Medical Students Abstract only*
Item Type: Journal Article
Authors: Paul, Megan;Dweck, Monica and Chadha, Nisha
Publication Date: 2022
Journal: American Journal of Ophthalmology 243, pp. 149-157
Abstract: PURPOSE: Numerous studies have emphasized the influence of gender-specific mentors in medical students' career decisions, but this has not been explored fully in ophthalmology. Therefore, this study evaluated ophthalmology educators' attitudes toward female mentorship, to better understand how this may relate to medical students' career development and training., DESIGN: Cross-sectional study., METHODS: A 22-question survey was sent to Association of University Professors of Ophthalmology (AUPO) chairs, program directors (PDs), and medical student educators (MSEs). The number of female students applying to ophthalmology residency was compared to the number of female ophthalmology faculty using AUPO and Association of American Medical Colleges (AAMC) workforce data. Student t tests and chi2 were used for analyses, all at a threshold significance level of P <.05., RESULTS: 75 members responded, including 30 of 72 MSEs (41.7%), 34 of 114 PDs (29.8%), and 17 of 135 chairs (12.6%). Of respondents, 55.4% identified as female and 44.6% as male. Male and female members had 47.9% and 47.6% female mentees, respectively (P = .45). However, 21.2% of male versus 56.1% of female members agreed that a mentee of the same gender was important (P < .01). Furthermore, 13 of 40 female members (32.5%) reported having a significant female mentor themselves vs 1 of 29 male members (3%) (P < .01)., CONCLUSIONS: Male and female AUPO members reported no difference in female mentees, but females were more likely to feel gender-specific mentorship was important, suggesting room for further development of this resource. Expansion of female mentorship in ophthalmology can promote equity in training and help address the lack of female representation in leadership.

Delivering a modified continuous objective structured clinical examination for ophthalmology residents through a hybrid online method
Item Type: Journal Article
Authors: Nusanti, Syntia;Dearaini;Bani, Anna Puspitasari;Kartasasmita, Arief S.;Muhammad Ichsan, Andi;Virgana, Rova;Anggraini, Neni;Rahayu, Tri;Irfani, Irawati;Edwar, Lukman;Rifada, Maula;Yudantha, Anggun Rama;Ismail, Muhammad Abrar;Komaratih, Evelyn;Wildan, Arief and Knoch, Andrew M. H.
Publication Date: 2021
Journal: Korean Journal of Medical Education 33(4), pp. 419-430
Abstract: Since coronavirus disease 2019 was declared a global pandemic by the World Health Organization, it has become a challenging situation to continue medical education, including in Indonesia. The situation prohibited face-to-face (direct) educational activities in clinical settings, therefore also postponing examinations involving especially procedural skills. Adaptations were urgently needed to maintain the delivery of high-stake examinations to sustain the number of ophthalmology graduates and the continuation of eye health service. Objective structured clinical examination (OSCE) has been one of our widely used method to assess clinical competencies for ophthalmology residents, and is the one method that involves gatherings, close contact of examiners, examinees and patients, therefore the most difficult to adjust. Pandemic challenges brought technical changes in our delivering the OSCE to online, maximizing digital platforms of meetings, while still concerned to guarding the safety of candidates, patients and staffs. OSCE scenarios were also made as timely efficient as possible by changing continuous station models to a cascade one. The purpose of this article is to document our experience in conducting a feasible and reproducible OSCE in this pandemic era filled with limitations.

A systematic review of simulation-based training tools for technical and non-technical skills in ophthalmology
Author(s): Lee et al.
Source: Eye 34(10)
Publication date: March 2020
To evaluate all simulation models for ophthalmology technical and non-technical skills training and the strength of evidence to support their validity and effectiveness. A systematic search was performed using PubMed and Embase for studies published from inception to 01/07/2019. Studies were analysed according to the training modality: virtual reality; wet-lab; dry-lab models; e-learning. The educational impact of studies was evaluated using Messick's validity framework and McGaghie's model of translational outcomes for evaluating effectiveness. One hundred and thirty-one studies were included in this review, with 93 different simulators described. Fifty-three studies were based on virtual reality tools; 47 on wet-lab models; 26 on dry-lab models; 5 on e-learning. Only two studies provided evidence for all five sources of validity assessment. Models with the strongest validity evidence were the Eyesi Surgical, Eyesi Direct Ophthalmoscope and Eye Surgical Skills Assessment Test. Effectiveness ratings for simulator models were mostly limited to level 2 (contained effects) with the exception of the Sophocle vitreoretinal surgery simulator, which was shown at level 3 (downstream effects), and the Eyesi at level 5 (target effects) for cataract surgery. A wide range of models have been described but only the Eyesi has undergone comprehensive investigation. The main weakness is in the poor quality of study design, with a predominance of descriptive reports showing limited validity evidence and few studies investigating the effects of simulation training on patient outcomes. More robust research is needed to enable effective implementation of simulation tools into current training curriculums.

Advancing ophthalmology medical student education: international insights and strategies for enhanced teaching
Abstract only*
Author(s): Succar et al.
Source: Survey of Ophthalmology 62(2) pp. 263-271
Publication date: March 2020
Enhancing medical student education in ophthalmology can lead to improved eye health care delivery and patient outcomes across all primary care and specialty disciplines. There has been a resurgence of interest in delivering high-quality ophthalmic medical student education. This educational revival is both timely and topical. A general consensus has emerged that, rather than focusing solely on increasing teaching time, strategies are needed to focus on how to optimize the limited time allotted to ophthalmology. All physicians should be prepared to provide competent and confident ophthalmic care based on exciting innovations in ophthalmic curricula content, teaching methodologies, instructional design, learning objectives, and assessment methods. We provide an update on new and innovative ophthalmic teaching and learning practices. We critically appraise and summarize novel educational strategies from around the world that can be universally applicable in enhancing ophthalmology teaching in medical school curricula. It is our hope that, although there is marginalization of ophthalmology training, these strategies can be used to further improve teaching and learning in the limited time available in medical curricula and provide an impetus for further research and innovations in teaching ophthalmology to medical students.

Determining the needs of ophthalmic trainees entering into specialist training and how they can be met
Author(s): Walkden et al.
Source: Advances in Medical Education and Practice 10 pp. 201-206
Publication date: April 2019
Problem: Starting ophthalmic specialty training can be daunting as new basic clinical examination and surgical skills must be acquired before meaningful assessment of patients can begin. No formal clinical induction currently exists with the aim to teach clinical and practical skills to new starters. Aim and objectives: To determine the experience and needs of ophthalmic trainees entering into specialist training. Using this information we developed and implemented a clinical skills training programme for Ophthalmology ST1s. Intervention: Using SMART objectives, PDSA cycles and Chartered Institute of Personnel Development guidance we implemented a clinical skills induction week. Pre-course skills evaluation took place in the form of a questionnaire in order to tailor the course content to the skill level of the group. Course material was made and simulation techniques devised for teaching practical skills. Qualitative data was collected via a pre- and post-course questionnaire. Outcome: All 9 participants rated the course as “extremely useful” it increased their confidence in terms of commencing clinical ophthalmology. 100% of participants felt that this course should be delivered to new ST1s. All participants reported improved confidence in managing ophthalmic emergencies and their clinical skills technique. Lessons learned: A sustainable induction programme was implemented tailored to the prior experience and skills of ST1 trainees. All participants felt it improved their confidence and clinical skills prior to commencing clinical activities. Basic clinical skills can be taught in a cost effective manner early on in postgraduate training. Keywords: ophthalmic training, starting ophthalmology, ophthalmology run-through training, ophthalmic clinical skills, ophthalmic training needs.

Effectiveness of flipped classroom combined with team-. Case-, lecture-, and evidence-based learning on ophthalmology teaching for eight-year program students
Author(s): Ding et al.
Source: BMC Medical Education 419

Publication date: November 2019
Background: This study aimed to investigate the benefits and challenges of the flipped classroom combined with team-, case-, lecture- and evidence-based learning (FC-TCLEBL) for ophthalmology teaching for eight-year program students. […] Results: Both the students and teachers were more satisfied with the FC-TCLEBL model. More students in the FC-TCLEBL group agreed that the course helped them to develop skills in creative thinking, problem solving, and teamwork. Students in the FC-TCLEBL group spent significantly more time preparing for class than those in the LBC group, but the time spent on review was significantly lower in the FC-TCLEBL group. The students from the FC-TCLEBL group performed better in a post-test on diabetic retinopathy (DR) as compared to the LBC group. Conclusions: FC-TCLEBL teaching model is effective and suitable for ophthalmology teaching.

Status of Canadian undergraduate medical education in ophthalmology Abstract only*
Author(s): Gostimir et al.
Source: Canadian Journal of Ophthalmology 53(5) pp. 474-479
Publication date: October 2018
Objective: To use the perspectives of undergraduate program directors to assess the current structure and adequacy of undergraduate ophthalmology curricula at Canadian medical schools. Results: Responses were obtained from 7 of the 14 (50%) program directors. All of the respondents represented metropolitan institutions of greater than 100 seats. After combining survey and web site data, only 5 of 14 (35.7%) schools were found to have a mandatory clinical clerkship ophthalmology rotation. In each case, the mandatory rotation is less than 2 weeks. A core curriculum based on the International Council of Ophthalmology (ICO) guidelines is used in only 20% of schools. Extracurricular ophthalmology exposure in the form of research opportunities and interest groups exists in 100% and 71.4% of schools, respectively. Conclusions: The proportion of schools requiring mandatory clerkship ophthalmology rotations is only 35.7%. However, most departments use strategies to optimize the limited time allotted to ophthalmology rotations during medical school. A greater degree of adherence to the ICO curriculum guidelines may help to ensure that medical students develop an appropriate level of proficiency in managing patients with eye disease.

Sharpening the focus on ophthalmology teaching: perceptions of medical students and junior medical officers Abstract only*
Author(s): Zhang et al.
Source: Clinical & Experimental Ophthalmology 46(9) pp. 984-993
Publication date: June 2018
Importance: Worldwide, ophthalmology teaching is being reduced or eliminated from medical school curricula. The current state of ophthalmic teaching in Australia is unknown.
Background: To evaluate the perceptions of junior medical officers (JMOs) and medical students on ophthalmology teaching in Australian medical schools. Design: Survey-based cross-sectional study. Participant: A total of 838 JMOs and medical students from across Australia. […] Results: Four hundred and thirty-two (51.6%) surveys were received from JMOs and 406 (48.4%) from medical students. The most common form of teaching received were lectures (71.3% JMOs, 65.5% medical students), while the most preferred type were hospital tutorials (37.7% JMOs, 61.6% medical students). Mean confidence in ophthalmology-specific skills and knowledge topics were not high for medical students (skills: 2.66/5, 95% confidence interval [CI] = 2.55–2.76; knowledge: 2.88/5, 95% CI = 2.80–2.96) and JMOs (skills: 2.52/5, 95% CI = 2.43–2.60; knowledge: 2.84/5, 95% CI = 2.77–2.91). Many participants voiced the need for more ophthalmology teaching, particularly clinically oriented opportunities. Conclusions and relevance: JMOs and medical

students do not show high levels of confidence in basic ophthalmological clinical skills and knowledge, and report inadequate emphasis on ophthalmology during medical school.

Enhancing Medical Student Education by Implementing a Competency-based Ophthalmology Curriculum
Author(s): Succar et al.
Source: Asia-Pacific Journal of Ophthalmology 6(1) pp. 59-63
Publication date: January 2017
Purpose: To evaluate innovative educational strategies that help optimize ophthalmology teaching in a crowded medical curriculum. The knowledge acquisition and perceptions of medical students undertaking the revised competency-based curriculum were compared with the prior content-based curriculum within the Sydney Medical Program. […] Results: In the original curriculum there was an improvement of 19.9% from pre- to post-test scores [2.15; 95% confidence interval (CI), 1.35-2.94; P < 0.001] and a greater improvement of 31.6% from pre- to post-test (3.50; 95% CI, 3.03-3.97; P < 0.001) in the revised curriculum. When assessing retained knowledge at 12 months, students from the revised curriculum scored 11.5% higher than students from the original curriculum (1.56; 95% CI, 0.42-2.71; P = 0.008). In addition, qualitative feedback also improved, with the rotation being highly valued. Conclusions: The revised ophthalmic curriculum resulted in an increase in academic performance and a higher degree of student satisfaction. Given the gradual decline of ophthalmic education in the standard medical school curriculum, our results are timely in providing guidance for minimum ophthalmic curriculum exposure and strategies to improve ophthalmic education in medical schools.

Present and future of the undergraduate ophthalmology curriculum: a survey of UK medical schools
Author(s): Hill et al.
Source: International Journal of Medical Education 8 pp. 389-395
Publication date: 2017
Objectives: To investigate the current undergraduate ophthalmology curricula provided by the UK medical schools, evaluate how they compare with the guidelines of the Royal College of Ophthalmologists (RCOphth) and International Council for Ophthalmology (ICO), and determine the views of the UK ophthalmology teaching leads on the future direction of the curriculum. […] Results: A response rate of 93% (n=29/31) was achieved. The knowledge and clinical skills taught by the UK medical schools match the RCOphth guidelines, but fail to meet the ICO recommendations. A diverse range of assessment methods are used by UK medical schools during ophthalmology rotations. Variation was also observed in the organisation and methods of ophthalmology teaching. However, a significant consensus about the future direction of the curriculum was reported by teaching leads. Conclusions: Comprehensive RCOphth guidance, and resource sharing between medical schools could help to ensure ophthalmology's continuing presence in the medical curriculum and improve the effectiveness of undergraduate ophthalmology teaching, while reducing the workload of local teaching departments and medical schools.

A systematic review of best practices in teaching ophthalmology to medical students Abstract only*
Author(s): Succar et al.
Source: Survey of Ophthalmology 61(1) pp. 83-94
Publication date: January 2016
Ophthalmic medical student education is a cornerstone to improving eye health care globally. We review the current state of the literature, listing barriers to potential best practices for undergraduate ophthalmology teaching and learning within medical curricula. We describe recent advances and pedagogical approaches in ophthalmic education and propose specific recommendations for further improvements and

research. Future research should concentrate on developing teaching and learning innovations that may result in a more time- and resource-effective models for interactive and integrated learning. As well as demonstrating that a competency-based approach results not just in better eye health, but also improvements in patient care, education, and medical care in general. By optimizing teaching available through improved evidence-based education, the ultimate goal is to increase medical students' knowledge and produce graduates who are highly trained in eye examination skills, resulting in improved patient eye care through timely diagnosis, referrals, and treatment.

Undergraduate ophthalmology education – survey of UK medical schools Abstract only*
Author(s): Baylis et al.
Source: Medical Teache 33(6)
Publication date: 2011
Changes in the UK undergraduate medical curriculum mean that a clinical placement in ophthalmology is no longer a requirement. An ophthalmic assessment is necessary for a full physical examination and failure to elicit and interpret signs could mean missing sight and life-threatening pathology. This study was to investigate current undergraduate ophthalmology teaching. An email questionnaire, about the content and delivery of the ophthalmology teaching, was sent to each UK medical school in 2007/2008. The response rate was 83%. Nineteen (79%) medical schools had a compulsory attachment to the ophthalmology department with an average length of 7.6 days (range 3.5–15 days). There was variation as to how ophthalmology was included in the curriculum. Teaching methods and standards also varied. Finally, assessments ranged from formal written and practical exams in some medical schools to informal or non-existent ones in others. The most striking finding was the variation in ophthalmology education a student may receive, with some students receiving none. It is necessary to improve the profile of ophthalmology and ensure that all students achieve a minimum basic standard.

Equality, Diversity, and Inclusion

Closing the Gender Gap Among Canadian Ophthalmology Societies Abstract only*
Item Type: Journal Article
Authors: Parvand, Mahraz;Eslami, Maryam;Doughty, Natalie;Yeung, Sonia N. and Kherani, Femida
Publication Date: 2024
Journal: Seminars in Ophthalmology 39(2), pp. 150-157
Abstract: OBJECTIVE: To evaluate gender distribution in Canadian ophthalmology societies' leadership and to determine associations between gender, academic productivity, and institutional rank., METHODS: We identified members and assessed their gender composition using publicly available updated webpages. SCOPUS database was used to gather research metrics., RESULTS: In this study, data was collected from 12 Canadian ophthalmology societies, which included 277 executive committee members. Of these, 70.5% (196) were male and 29.1% (81) were female ($p < .0001$). Males were significantly more prevalent in presidential leadership roles (39 males vs. 23 females, $p = .02$), while females were more represented in other leadership categories (77 females vs. 61 males, $p = .03$). The Canadian Ophthalmological Society (COS) showed an upward trend in female representation from 19.2% in 2016 to 42.3% in 2021. Research productivity showed a positive correlation with society leadership rank, with a correlation coefficient of 0.732 for the m-index ($p < .001$) and 0.356 for the h-index ($p < .05$). Academic rank was also positively correlated with society leadership rank, with a correlation coefficient of 0.536 ($p < .001$). There was no significant difference in h-index (12.7 +/- 1.0 for males vs. 13.8 +/- 1.5 for females, $p = .85$) or number of

publications (48.6 +/- 5.1 for males vs. 60.0 +/- 11.3 for females, p = .83) between male and female executive members, but females had a higher m-index (0.67 +/- 0.05) compared to males (0.58 +/- 0.03, p < .05). In academic rank, males were more likely to be associate professors (25% vs. 5% for females, p = .0001) or instructors (14.8% vs. 6.3% for females, p = .05), while a higher proportion of females held assistant professor positions (47.5% for females vs. 30.1% for males, p = .006)., CONCLUSION: In this study, we found that males were more prevalent in executive positions, particularly in presidential roles among Canadian ophthalmology societies. The gender distribution in leadership reflected the gender composition of practicing ophthalmologists in Canada. There was a positive correlation between research productivity and society rank, as well as academic position and society rank. Male and female executive members had similar h-index and number of publications, but females had a higher m-index. These findings highlight the need for continued efforts to address gender disparities in ophthalmology leadership.

Sex Disparities in Ophthalmology From Training Through Practice: A Systematic Review Abstract only*
Item Type: Journal Article
Authors: Rousta, Nikki;Hussein, Isra M. and Kohly, Radha P.
Publication Date: 2024
Journal: JAMA Ophthalmology 142(2), pp. 146-154
Abstract: Importance: Sex-based research in medicine has revealed inequities against females on almost every metric at almost every career stage; ophthalmology is no exception., Objective: To systematically review the experiences of females in ophthalmology (FiO) from training through practice in high-income countries (HICs)., Evidence Review: A systematic review of English-language studies, published between January 1990 and May 2022, relating to FiO in HICs was performed. PubMed, MEDLINE, and Embase electronic databases were searched, as well as the Journal of Academic Ophthalmology as it was not indexed in the searched databases. Studies were organized by theme at each career stage, starting in medical school when an interest in ophthalmology is expressed, and extending up to retirement., Findings: A total of 91 studies, 87 cross-sectional and 4 cohort, were included. In medical school, mentorship and recruitment of female students into ophthalmology was influenced by sex bias, with fewer females identifying with ophthalmologist mentors and gender stereotypes perpetuated in reference letters written by both male and female referees. In residency, females had unequal learning opportunities, with lower surgical case volumes than male trainees and fewer females pursued fellowships in lucrative subspecialties. In practice, female ophthalmologists had lower incomes, less academic success, and poorer representation in leadership roles. Female ophthalmologists had a greater scholarly impact factor than their male counterparts, but this was only after approximately 30 years of publication experience. Pervasive throughout all stages of training and practice was the experience of greater sexual harassment among females from both patients and colleagues. Despite these disparities, some studies found that females reported equal overall career satisfaction rating with males in ophthalmology, whereas others suggested higher burnout rates., Conclusions and Relevance: Ophthalmology is approaching sex parity, however, the increase in the proportion of females in ophthalmology had not translated to an increase in female representation in leadership positions. Sex disparities persisted across many domains including recruitment, training, practice patterns, academic productivity, and income. Interventions may improve sex equity in the field.

Impact of Gender and Underrepresented in Medicine Status on Research Productivity Among Ophthalmology Residency Applicants Abstract only*
Item Type: Journal Article

Authors: Sun, Emily;Tian, Jing;Eltemsah, Loaah;Srikumaran, Divya;Sun, Grace;Chow, Jessica and Woreta, Fasika
Publication Date: 2024
Journal: American Journal of Ophthalmology 257, pp. 1-11
Abstract: PURPOSE: Insufficient representation of women and underrepresented in medicine (URiM) students remains a problem among the ophthalmology workforce. In the residency selection process, research productivity is an important factor. We aimed to determine the average research output listed by applicants and assess for differences by gender and race., DESIGN: Retrospective cohort study., METHODS: All San Francisco Match applications to the Wilmer Eye Institute for the 2019, 2020, and 2021 ophthalmology residency cycles were retrospectively reviewed. Each applicant's number of published research articles was recorded and subclassified into first-author publications in any field, publications in ophthalmology, and first-author publications in ophthalmology. Multivariable logistic regression was performed to determine factors associated with successful publication., RESULTS: A total of 1376 applications were reviewed. On average, women had a greater number of publications in ophthalmology (2.08 vs 1.73, P = .05) and presentations (4.52 vs 4.09, P = .01) compared with men. Self-identified URiMs were less likely to list publications in ophthalmology (odds ratio OR] 0.650, P = .05) and first-author publications in ophthalmology (OR 0.570, P = .02) compared to non-URiMs., CONCLUSIONS: Our findings highlight disparities in research productivity by self-identified URiM status. On the other hand, women had similar if not higher research outputs than men. Greater research mentorship and opportunities to support URiM students may facilitate the recruitment of diverse trainees to ophthalmology programs. Copyright © 2023 Elsevier Inc. All rights reserved.

Disparities in Promotion and Retention Rates Among Underrepresented in Medicine Faculty in U.S. Ophthalmology Departments Abstract only*
Item Type: Journal Article
Authors: Udeh, Adanna;Huh, Dana;Young, Terri;Knight, O'R and Woreta, Fasika
Publication Date: 2024
Journal: American Journal of Ophthalmology 258, pp. 1-7
Abstract: PURPOSE: This study examines the rates and trends of faculty promotions within the field of ophthalmology, with comparative emphasis on the rates of promotion among underrepresented in medicine (URiM) faculty., DESIGN: A retrospective panel study was conducted using the Association of American Medical Colleges Faculty Roster database., METHODS: We used the Association of American Medical Colleges Faculty Roster data to assess trends in academic faculty promotions within U.S. ophthalmology departments. Full-time assistant and associate professors appointed between 2000 and 2010 were included in the analysis, and tracked until November 2021 to determine promotion rates. Pearson chi2 and Fisher exact tests were used to evaluate differences in promotion and retention rates based on gender, race and ethnicity, advanced degree, and tenure status., RESULTS: The demographics of 1436 assistant and 680 associate faculty members were obtained for analysis through the Association of American Medical Colleges. Black faculty had lower promotion rates when compared with White faculty (20% vs 37%, P < .001). Faculty with MD and PhD degrees demonstrated higher promotion rates than faculty with MD degrees alone (59% vs 36%, P < .001). In addition, faculty not on tenure track had lower rates of promotion than those on tenure track (35% vs 48%, P < .001). With respect to faculty retention, among assistant and associate professors combined, Black faculty and faculty without tenure track appointments were more likely to leave academic medicine (46% vs 33%, P < .001) and (36% vs 27%, P < .001), respectively., CONCLUSION: In this study, promotion rates varied significantly by race/ethnicity. Specifically, Black faculty

had lower rates of promotion and retention in academic medicine. These findings underscore the need to explore and implement strategies and policies to address equity in promotion rates and retention of URiM faculty within academic ophthalmology. Copyright © 2023 Elsevier Inc. All rights reserved.

Advancing Inclusive Research (AIR) Site Alliance: Facilitating the inclusion of historically underrepresented people in oncology and ophthalmology clinical research
Item Type: Journal Article
Authors: Vidal, Gregory A.;Chalela, Patricia;Curry, Andrea N.;El-Rayes, Bassel;Halmos, Balazs;Herrera, Alex F.;Kapoor, Kapil G.;Kaur, Supreet;Mahadevan, Daruka;Mesa, Ruben;Ramirez, Amelie;Sleckman, Barry;Wagner, Alan L.;Bhagat, Ruma;Brown, Isabel;Cruz, Leia;Funwie, Audrey;Highsmith, Quita;Richie, Nicole and McKenzie, Meghan
Publication Date: 2024
Journal: Contemporary Clinical Trials 137, pp. 107416
Abstract: BACKGROUND: The Advancing Inclusive Research (AIR) Site Alliance is composed of clinical research centers that partner with Genentech, a biotechnology company, to advance the representation of diverse patient populations in its oncology and ophthalmology clinical trials, test recruitment, and retention approaches and establish best practices to leverage across the industry to achieve health equity., METHODS: Through a data-driven selection process, Genentech identified 6 oncology and 3 ophthalmology partners that focus on reaching historically underrepresented patients in clinical trials and worked collaboratively to share knowledge and explore original ways of increasing clinical study access for every patient, including sites co-creation of a Protocol Entry Criteria Guideline with inclusion principles., RESULTS: For patients, three publicly available educational videos about clinical trials were created in multiple languages. The AIR Site Alliance has also defined invoiceable services for sites to enhance patient support; this has been built into the new study budget templates for sustainability. For healthcare professionals (HCPs), the first-of-its-kind AIR Educational Program was developed to focus on identifying and addressing bias and engaging historically underrepresented patient populations in trials. The sites also co-created videos for HCPs and patients on why advancing inclusive research matters. Over 16 regional health equity symposia have been delivered for patients, HCPs, and community leaders., CONCLUSIONS: This AIR Site Alliance is a model for other site alliances, including Kenya, South Africa, the United Kingdom, and Canada. Such alliances will build a robust and sustainable research ecosystem that includes diverse patient groups and encourages change across the healthcare system. Copyright © 2024 The Authors. Published by Elsevier Inc. All rights reserved.

Gender Representation Among Ophthalmology Fellowship Directors in 2022 Abstract only*
Item Type: Journal Article
Authors: Vought, Rita;Vought, Victoria;Lin, Myriam;Nguyen, Helen;Szirth, Bernard;Khouri, Albert S. and Habiel, Miriam
Publication Date: 2024
Journal: American Journal of Ophthalmology 259, pp. 166-171
Abstract: PURPOSE: Women are underrepresented in several medical specialties, including ophthalmology. Reducing disparities is critical in diversifying perspectives and increasing equity within ophthalmology, both of which can ultimately improve care delivery. We examined ophthalmic fellowship programs directors in the United States to investigate gender disparities by subspecialty., DESIGN: Cross-sectional study., METHODS: This was a retrospective cross-sectional study of ophthalmology fellowship program directors in academic medical centers. The primary outcome measure was a descriptive analysis of current fellowship directors in 2022 when stratified by subspecialty and demographic features., RESULTS: Analysis

was conducted on 358 fellowship directors in the United States. Twenty-nine percent of directors were women. Female directors had significantly fewer years since residency graduation compared with male peers (17 vs 24; P < .001); however, no differences were observed by program type (P = .896) or location (P = 0.104). Differences in female director representation were observed by subspecialty (P < .001), with the greatest percentage of women in pediatric ophthalmology (54%), other (oncology and pathology) fellowships (50%), and medical retina (40%). The subspecialties with the lowest percentage of female directors were oculoplastic and reconstructive surgery (13%) surgical retina and vitreous (16%)., CONCLUSION: There are disparities in female representation in academic leadership positions across ophthalmic subspecialties. Addressing this difference may have critical impacts on career advancement and opportunities available for marginalized groups in medicine.

Diversity, equity and inclusion in ophthalmology Abstract only*
Item Type: Journal Article
Authors: Aguwa, Ugochi T.;Williams, Basil K.,Jr and Woreta, Fasika A.
Publication Date: 2023
Journal: Current Opinion in Ophthalmology 34(5), pp. 378-381
Abstract: PURPOSE OF REVIEW: Diversity, equity and inclusion (DEI) initiatives in ophthalmology have received increased attention in recent years. This review will highlight disparities, barriers to workforce diversity, as well as current and future efforts to improve DEI in ophthalmology., RECENT FINDINGS: Racial, ethnic, socioeconomic and sex disparities exist in vision health and across many ophthalmology subspecialties. The pervasive disparities result from factors such as a lack of access to eye care. In addition, ophthalmology is one of the least diverse specialties at the resident and faculty level. The lack of diversity has also been documented in ophthalmology clinical trials, wherein participant demographics do not reflect the diversity of the U.S. population., SUMMARY: Addressing social determinants of health including racism and discrimination is necessary to promote equity in vision health. Diversifying the workforce and expanding the representation of marginalized groups in clinical research are also paramount. Supporting existing programmes and creating new ones focusing on improving workforce diversity and reducing eye care disparities are essential to ensure equity in vision health for all Americans.

Pay Gap among Female and Male Ophthalmologists Compared with Other Specialties Abstract only*
Item Type: Journal Article
Authors: Felfeli, Tina;Canizares, Mayilee;Jin, Ya-Ping and Buys, Yvonne M.
Publication Date: 2022
Journal: Ophthalmology 129(1), pp. 111-113
Reports of physician remuneration suggest that sex-based differences in payments exist. However, many of these studies have relied on self-reported income from surveys or Medicare or Medicaid payments capturing a subset of physician payments. We aimed to determine whether female and male ophthalmologists are paid differently despite similar workload based on Ontario Health Insurance Plan (OHIP) fee-for-service billings and to compare these results with those of other surgical, medical procedural, and medical nonprocedural specialty groups. Although fee-for-service systems are thought to be less susceptible to pay discrepancies, referral patterns, operating room access, choice of procedures, frequencies of visits, and so-called creative billing may result in sex disparities in remuneration in fee-for-service systems. 1

An Eye on Gender Equality: A Review of the Evolving Role and Representation of Women in Ophthalmology Abstract only*

Item Type: Journal Article
Authors: Gill, Hannah K.;Niederer, Rachael L.;Shriver, Erin M.;Gordon, Lynn K.;Coleman, Anne L. and Danesh-Meyer, Helen
Publication Date: 2022
Journal: American Journal of Ophthalmology 236, pp. 232-240
Abstract: PURPOSE: In recent decades, women have achieved greater representation in ophthalmology. Globally, women now constitute approximately 25%-30% of ophthalmologists and 35%-45% of trainees. Nevertheless, women remain under-represented in key areas, including positions of professional and academic leadership and ophthalmic surgical subspecialization. Furthermore, there is evidence that women in ophthalmology encounter more bias and discrimination across multiple domains than men, including a gender-pay gap that is wider than in many other surgical subspecialties. Women ophthalmologists and trainees report sharply differing training experiences from male peers, including fewer opportunities to operate, more bullying and harassment, less access to mentorship, and contrasting expectations around contributions to family life., DESIGN: Perspective., METHODS: An extensive literature search was undertaken to compile and review papers published with a focus on gender equity across ophthalmology, surgery, and medicine., RESULTS: We identified 8 broad domains that were widely discussed: leadership, research and academics, income, surgical exposure and subspecialization, harassment, career satisfaction, mentorship, and family and marital differences. We have summarized the current research across each of these areas, and discussed possible solutions to reduce the inequities reported., CONCLUSIONS: This review draws on current research published around representation and experiences of women in ophthalmology and suggests that there are opportunities to improve gender inequity. Copyright © 2021 Elsevier Inc. All rights reserved.

The Significance of Female Faculty and Department Leadership to the Gender Balance of Ophthalmology Residents Abstract only*
Item Type: Journal Article
Authors: Goldstein, Tova;Lessen, Samantha;Moon, Jee-Young;Tsui, Irena and Rosenberg, Jamie B.
Publication Date: 2022
Journal: American Journal of Ophthalmology 238, pp. 181-186
Abstract: PURPOSE: To examine the gender balance of academic ophthalmology departments by determining the association between the rates of female residents in ophthalmology programs and department chair/residency program director (PD) gender and rate of female faculty within the department., DESIGN: Retrospective cross-sectional study., METHODS: Demographic information on ophthalmology programs, including size, location, and gender distribution of leadership, faculty, and residents was collected from public online resources. Departments with residency programs were included for analyses if they were both Accreditation Council Graduate Medical Education accredited and available for application through the San Francisco Match for the 2020-2021 application cycle. For analyses, a binomial regression was fitted to identify factors associated with the female faculty and resident proportions., RESULTS: In 117 total programs, 16.7% of chairs and 37.7% of PDs were female. There were more female residents at programs with female PDs (P = .02), with more female faculty (P < .001), and at larger departments (P = .001) and residency programs (P = .04). In multivariate analysis, more female faculty members increased the odds of having more female residents (P < .001). Chair gender did not correlate with the proportion of female faculty or residents. There were the most female residents in the Northeast and the fewest in the Southwest (P = .003)., CONCLUSIONS: Although gender of department chair did not correlate with proportion of female faculty or residents, programs with more female faculty members

had more female residents. Deans and programs should strive for departmental diversity and the recruitment and success of female residents to ensure the use of their full academic capital.

Enhancing Diversity in the Ophthalmology Workforce
Item Type: Journal Article
Authors: Woreta, Fasika A.;Gordon, Lynn K.;Knight, O'R;Randolph, Jessica D.;Zebardast, Nazlee and Perez-Gonzalez, Cesar
Publication Date: 2022
Journal: Ophthalmology 129(10), pp. e127-e136
Abstract: Health care teams are most effective at addressing complex problems and improving health outcomes for underserved populations when team members bring diverse life experiences and perspectives to the effort. With rates of visual impairment expected to increase in the United States by 2050, especially among minority populations, diversification of the ophthalmology workforce will be critical in reducing disparities in access to and quality of vision health care. Currently, ophthalmology is less diverse with respect to race, ethnicity, and gender than graduating medical classes and other medical specialties, as well as the general US population. In addition, data on diversity in sexual orientation and gender identity, socioeconomic status, and disability are lacking in ophthalmology. The Minority Ophthalmology Mentoring and Rabb-Venable Excellence in Ophthalmology Programs are examples of initiatives to increase racial and ethnic diversity in the workforce and can serve as models for increasing other aspects of inclusiveness. Other strategies for improving vision health care for all Americans include continuing to support existing diversity programs and creating new ones; addressing unconscious and implicit bias in medical school, residency, and faculty selections; conducting holistic reviews of medical school and residency applications; diversifying selection committees and leadership; and encouraging faculty development of underrepresented groups.

Gender and ethnic diversity in global ophthalmology and optometry association leadership: a time for change
Item Type: Journal Article
Authors: Yashadhana, Aryati;Clarke, Neriah A.;Zhang, Justine H.;Ahmad, Jawad;Mdala, Shaffi;Morjaria, Priya;Yoshizaki, Miho;Kyari, Fatima;Burton, Matthew J. and Ramke, Jacqueline
Publication Date: 2021
Journal: Ophthalmic & Physiological Optics : The Journal of the British College of Ophthalmic Opticians (Optometrists) 41(3), pp. 623-629
Abstract: PURPOSE: To assess the diversity of leadership bodies of member organisations of the International Council of Ophthalmology (ICO) and the World Council of Optometry (WCO) in terms of: (1) the proportion who are women in all world regions, and (2) the proportion who are ethnic minority women and men in Eurocentric high-income regions., METHODS: We undertook a cross-sectional study of board members and chairs of ICO and WCO member organisations using a desk-based assessment of member organisation websites during February and March 2020. Gender and ethnicity of board members and chairs were collected using a combination of validated algorithmic software and manual assessment, based on names and photographs where available. Gender proportions were calculated across Global Burden of Disease super-regions, and gender and ethnicity proportions in the high-income regions of Australasia, North America and Western Europe., RESULTS: Globally, approximately one in three board members were women for both ICO (34%) and WCO (35%) members, and one in three ICO (32%) and one in five WCO (22%) chairpersons were women. Women held at least 50% of posts in only three of the 26 (12%) leadership structures assessed; these were based in Latin America and the Caribbean (59% of WCO board

positions held by women, and 56% of WCO chairs), and Southeast Asia, East Asia and Oceania (55% of ICO chairs). In the Eurocentric high-income regions, white men held more than half of all board (56%) and chair (58%) positions and white women held a further quarter of positions (26% of board and 27% of chair positions). Ethnic minority women held the fewest number of board (6%) and chair (7%) positions., CONCLUSIONS: Improvements in gender parity are needed in member organisations of the WCO and ICO across all world regions. In high-income regions, efforts to address inequity at the intersection of gender and ethnicity are also needed. Potential strategies to enable inclusive leadership must be centred on structurally enabled diversity and inclusion goals to support the professional progression of women, and people from ethnic minorities in global optometry and ophthalmology. Copyright © 2021 The Authors. Ophthalmic and Physiological Optics published by John Wiley & Sons Ltd on behalf of College of Optometrists.

Ophthalmology Departments Remain Among the Least Diverse Clinical Departments at United States Medical Schools
Author(s): Fairless et al.
Source: Ophthalmology 128(8)
Publication date: January 2021

PURPOSE The current demographics of the ophthalmology workforce do not reflect the diverse United States population, which has implications for addressing health disparities. The demographics of ophthalmology department faculty may influence the recruitment of underrepresented students into the field. This study sought to determine how the racial and ethnic demographics of ophthalmology department faculty compare with those of other clinical departments at United States medical schools. DESIGN Secondary data analysis of medical school faculty demographic data from the 2019 American Association of Medical Colleges (AAMC) Faculty Roster. PARTICIPANTS Clinical faculty and department chairs at United States medical schools. METHODS We analyzed the racial and ethnic demographics of clinical department faculty and department chairpersons using data from the 2019 AAMC Faculty Roster. We calculated the proportion of underrepresented minority (URM) faculty in ophthalmology and in 17 other clinical departments. We analyzed these data for statistically significant differences between ophthalmology and other clinical departments. In addition, we compared the percentage of URM ophthalmology faculty with the proportion of URM persons among graduating United States medical students and in the United States population using data from the Medical School Graduation Questionnaire and the United States census, respectively. MAIN OUTCOME MEASURES The proportion of URM persons, defined as Black, Hispanic or Latino, Native American, or Native Hawaiian or Pacific Islander among clinical faculty and department chairs. RESULTS Ophthalmology faculty are less racially and ethnically diverse than graduating medical students and the general United States population. When compared with 17 other clinical departments, ophthalmology has the third-lowest proportion of URM faculty, with only radiology and orthopedic surgery having a smaller proportion of URM faculty. These differences were statistically significant in most departments (12 of 18). No statistically significant difference was found in the proportion of URM department chairs in ophthalmology compared with most other clinical departments, although the absolute number of URM chairs in ophthalmology is low at only 8 chairpersons. CONCLUSIONS More work must be done to increase the recruitment of URM physicians into ophthalmology faculty positions to obtain parity with other clinical departments and with the diverse patient populations that physicians serve.

Enhancing Māori and Pasifika graduate interest in ophthalmology surgical training in New Zealand/Aotearoa: Barriers and opportunities Abstract only*
Author(s): Freundlich et al.
Source: Clinical and Experimental Ophthalmology 48(6)
Publication date: August 2020
IMPORTANCE Improving the representation of indigenous ophthalmologists in New Zealand. BACKGROUND Māori, indigenous to New Zealand/Aotearoa and Pacific Peoples indigenous to Pacific Island Nations living in New Zealand, experience poorer health outcomes across several ophthalmic conditions. The Royal Australian and New Zealand College of Ophthalmologists have identified indigenous workforce development as a priority. DESIGN Mixed-methods study, utilizing retrospective analysis of Medical Schools Outcomes Database and Longitudinal Tracking Project responses, and prospective interviews with Māori/Pasifika medical graduates. PARTICIPANTS This study involved 64 medical graduates from the University of Auckland (UoA) and the University of Otago, and six Māori/Pasifika medical postgraduates in New Zealand. METHODS Retrospective analysis of medical graduate responses who ranked ophthalmology among their top-three preferred specialties in the Medical Schools Outcomes Database and Longitudinal Tracking Project. Prospective semi-structured interviews with Māori/Pasifika medical postgraduates. MAIN OUTCOME MEASURES Specialty training influencing factors and prevocational ophthalmology experience. RESULTS A total of 64 (6.7%) out of 954 medical graduates from the UoA and University of Otago ranked ophthalmology among their top-three preferred training specialties (2012-2017). Of the 64 graduates, six (9.3%) identified as Māori/Pasifika. No significant difference in influencing factors between Māori/Pasifika and non-Māori/Pasifika students was identified. Both groups ranked intellectual content, procedural skills, specialty exposure and mentorship as highly influential. Qualitative interviews with Māori/Pasifika graduates highlighted positive experiences in ophthalmology but limited exposure overall. Negative anecdotes and unclear training pathways discouraged Māori/Pasifika interest in Ophthalmology training. CONCLUSIONS AND RELEVANCE Māori/Pasifika graduate interest in ophthalmology training was relatively low. Valuable insights include enhancing specialty exposure, mentor development, promoting Māori/Pasifika connections and clarifying training pathways for future graduates.

Residency Program Directors of United State Ophthalmology Programs: a descriptive analysis Abstract only*
Author(s): Kloosterboer et al.
Source: American Journal of Ophthalmology 209 pp. 71-76
Publication date: January 2020
Purpose: To analyze the academic background, scholarly achievements, and demographic characteristics of all US ophthalmology residency program directors (PDs). Design: Cross-sectional study. […] Results: A total of 116 program directors were analyzed. Eighty-four of 116 (72%) PDs were male. The average age was 50.0 years old. The mean age at appointment was 42.9 years old. Ninety-three percent graduated from an American medical school, and 97% received an MD degree. Twenty percent of PDs completed an additional graduate degree, most commonly a master's degree (7 of 23) and doctor of philosophy (7 of 23). Seventy-eight percent completed a fellowship, with the most frequent in glaucoma (24%), cornea and external diseases (22%), and neuroophthalmology (21%). The mean number of publications according to PubMed was 17.6 (range, 0–92). There were no significant differences between the average number of publications by male PDs and those by female PDs (19.2 ± 20.5 vs. 13.5 ± 23.1, respectively; P = 0.21). On average, the H-index was 8.7 (range, 0–35) and was higher in male than in female PDs (9.8 ± 8.3 vs. 5.4 ± 4.0, respectively; P = 0.01). Conclusions: Ophthalmology PDs are predominantly male with

fellowship training in glaucoma, cornea, or neuro-ophthalmology. Women remain underrepresented, and future efforts should be aimed at addressing this disparity.

Michigan Ophthalmology Pipeline: Exploring a Mentorship Model to Increase Diversity in Ophthalmology
Author(s): Shaner et al.
Source: Journal of Academic Ophthalmology 12(01)
Publication date: 2020
Background: Ethnic concordance between physicians and patients improves compliance and therapeutic benefit. Current literature shows a lack of diversity within ophthalmology. Thus, we aimed to develop a longitudinal mentorship program between first year ophthalmology residents (PGY2s) and first year medical students (M1s) coming from minority communities underrepresented in medicine (URM) to provide early exposure to the field. […] Results: All 2017 M1s stated increased interest in ophthalmology, felt “satisfied” or “very satisfied” with the program, and completed all requirements. At the year-end, the mean educational value of the program for 2017 M1s was rated 4.33/5, and interest in ophthalmology 4.67/5. Quality of the clinical experiences for 2017 PGY2s 3.5/5, and the overall effectiveness of the program 3.5/5. At the year-end, the average educational value of the program for 2018 M1s was 4.4/5, and interest in ophthalmology 4.0/5. Quality of the clinical experiences for 2018 PGY2s was 3.1/5, and the overall effectiveness of the program was 3.4/5.Conclusion: Our “pipeline” program represents an ongoing effort to increase URM interest in ophthalmology. Continued assessment to identify areas for growth and improvement can optimize the program to aid other programs in initiating efforts to tackle this important issue.

Current and future status of diversity in ophthalmologist workforce
Author(s): Xierali et al.
Source: JAMA Ophthalmology 134(9)
Publication date: September 2016
Importance: Increasing the level of diversity among ophthalmologists may help reduce disparities in eye care.
Objective: To assess the current and future status of diversity among ophthalmologists in the workforce by sex, race, and ethnicity in the context of the available number of medical students in the United States.[…] Results: Women and minority groups traditionally underrepresented in medicine (URM)—black, Hispanic, American Indian, Alaskan Native, Native Hawaiian, and Pacific Islander—were underrepresented as practicing ophthalmologists (22.7% and 6%, respectively), ophthalmology faculty (35.1% and 5.7%, respectively), and ophthalmology residents (44.3% and 7.7%, respectively), compared with the US population (50.8% and 30.7%, respectively). During the past decade, there had been a modest increase in the proportion of female practicing ophthalmologists who graduated from US medical schools in 1980 or later (from 23.8% to 27.1%; P < .001); however, no increase in URM ophthalmologists was identified (from 7.2% to 7.2%; P = .90). Residents showed a similar pattern, with an increase in the proportion of female residents (from 35.6% to 44.3%; P = .001) and a slight decrease in the proportion of URM residents (from 8.7% to 7.7%; P = .04). The proportion of URM groups among ophthalmology faculty also slightly decreased during the study period (from 6.2% to 5.7%; P = .01). However, a higher proportion of URM ophthalmologists practiced in medically underserved areas (P < .001). Conclusions and Relevance: Women and URM groups remain underrepresented in the ophthalmologist workforce despite an available pool of medical students. Given the prevalent racial and ethnic disparities in eye care and an increasingly diverse society, future research and training efforts that increase the

level of diversity among medical students and residents seems warranted.

Decadelong profile of women in ophthalmic publications Abstract only*
Author(s): Franco-Cardenas et al.
Source: JAMA Ophthalmology 133(3) pp. 255-260
Publication date: March 2015
IMPORTANCE In recent decades, there has been an increase in the number of women practicing medicine. We believe this shift may be reaching academic publications in ophthalmology and changing gender trends. OBJECTIVE To determine whether there has been an increase in women publishing academic articles and editorials in ophthalmology during the past decade. […] RESULTS Our analysis included 671 original articles (336 from 2000 and 335 from 2010) and 89 editorials. The percentage of original articles with a woman as first author increased from 23.2% in 2000 to 32.5% in 2010, a difference of 9.3% (95% CI, 23.3%-32.5%; P = .005). The percentage of original articles with a woman last author increased from 16.4% in 2000 to 24.2% in 2010, a difference of 7.8% (95% CI, 16.4%-24.2%; P = .01). The percentage of original articles with a woman first author increased in Asia from 1.2% in 2000 to 8.4% in 2010, a difference of 7.2% (95% CI, 1.2%-8.4%; P < .001). The percentage of articles with a woman last author increased in Europe from 2.2% in 2000 to 7.5% in 2010, a difference of 5.3% (95% CI, 2.2%-7.5%; P < .001) and in Asia from 0% in 2000 to 6.0% in 2010, a difference of 6.0% (95% CI, 0%-6%; P < .001). Editorials were written predominantly by men: 33 of 38 editorials (87%) in 2000 and 46 of 51 (90%) in 2010, a difference of 3% (95% CI, 87%-90%; P = .62), showing a trend toward decreased editorial authorship by women during the past decade. CONCLUSIONS AND RELEVANCE Our data suggest an increase in women publishing original investigations in ophthalmic literature, but no increase in editorial authorship.

Aging and feminization of the physician workforce in Canada: comparing ophthalmologists to all other physicians Abstract only*
Author(s): Buys et al.
Source: Canadian Journal of Ophthalmology 49(3) pp. 291-296
Publication date: June 2014
OBJECTIVE To describe the changing demographic of ophthalmologists compared with all other physicians in Canada. […] RESULTS The mean age of physicians is increasing over time; however, the mean age of ophthalmologists has been greater than all other physicians since 1972 by a mean of 2.4 years. In 2011, the mean age of all ophthalmologists was 53.1 years compared with 50.4 years for all other physicians. The yearly mean age of female ophthalmologists (48 in 2011) and all other female physicians (46.1 in 2011) was younger than males. The proportion of female ophthalmologists has increased from 3.1% to 20.5% from 1970 to 2011. This is significantly less than all other specialties where the proportion increased from 7.8% to 36.8% (p < 0.001). The proportion of female ophthalmologists varies significantly among the provinces from 7.1% in Newfoundland and Labrador to 31.1% in Quebec in 2011. CONCLUSIONS The mean age of all physicians is increasing over time with ophthalmologists being, on average, 2.3 years older than other physicians. Although the proportion of female physicians is increasing, the rate of increase is less in ophthalmology compared with all other physicians and varies significantly between provinces.

Integrated Care

Implementing integrated care in ophthalmology: a community case study
Item Type: Journal Article
Authors: Nikita, Eleni;Allen, Richard;Khambati, Hussein;Tsounis, Christos;Tucker, William;Malcolmson, Kirsten;Hingorani, Melanie and Marjoram, Zoe

Publication Date: 2023
Journal: Frontiers in Medicine 10, pp. 1150525
Abstract: Introduction: In 2017, in a context of financial and patient care challenges, Moorfields Eye Hospital in the borough of Croydon launched the first Ophthalmology Integrated Care Contract in the United Kingdom., Description: A realistic, systematic approach is presented for an efficient implementation of an integrated care ophthalmology contract under a lead provider. The main elements of the new contract are portrayed., Discussion: A new healthcare contract that would lead to system-wide transformation requires significant time commitment, vision, shared narrative, leadership, multi-functional working culture, shared accountability of all participating parties and education and support of all parties involved. Key levers to elevate the quality of care are collaborative relationships between health professionals, investing in information and technology and facilitating bottom-up innovation., Conclusion: System-wide changes such, as integrated care contracts are possible, although the interplay between context, design and implementation is more complex than expected. Copyright © 2023 Nikita, Allen, Khambati, Tsounis, Tucker, Malcolmson, Hingorani and Marjoram.

The application of a person-centred approach to process improvement in ophthalmology services in the North East of the Republic of Ireland
Item Type: Journal Article
Authors: Teeling, Seán Paul;Keown, Anne-Marie;Cunningham, Úna and Keegan, David
Publication Date: 2023
Journal: International Practice Development Journal 13(1), pp. 1-18
Abstract: Background: Ophthalmology in the Republic of Ireland has one of the longest waiting lists in healthcare, with around 44,000 people awaiting a first outpatient appointment. In the north-east region, 12,500 people are waiting. The North-Eastern Region Integrated Eye Care Service (NERIECS) was established in 2021 to improve patient care and access to services. A key driver for the team was to understand 'how we work together' to enable a shared vision of change within regional services. Aim: To support hospital and community ophthalmology services, which comprise eight organisations in the region, to prepare for the development of system-level integration of eyecare services. Methods: We integrated a popular process-improvement methodology, Lean Six Sigma, with a person-centred approach to support staff to develop a shared vision of change and to deliver improvements for ophthalmology services. Findings: The integrated approach enabled staff to work in ways that supported the development of good quality, person-centred care that takes account of the outcomes for and experiences of ophthalmology patients and their families, and of staff. Conclusions: Our work builds on a recent study that identified coherence in the underlying philosophy, intention, method and outcomes of Lean Six Sigma and person-centred approaches to healthcare improvement, highlighting the added value of an integrated approach in enabling improvement that positively impacts patient outcomes and healthcare culture. Implications for practice: * The application of an integrated approach to process improvement in healthcare is shown to be effective beyond a single study site, having a positive impact across geographic and organisational boundaries, and across levels of care (primary, secondary, tertiary and post-acute) * The integrated approach puts the focus on synergies between both methodological approaches and avoids improvement work being reduced to the use of a decontextualised toolkit.

Leadership

Leadership in ophthalmology by humanity and competence
Abstract only*
Item Type: Journal Article
Authors: Bechrakis, Nikolaos E. and Gass, Philip
Publication Date: 2024
Journal: Fuhrung in Der Augenheilkunde Durch Menschlichkeit Und Kompetenz. 121, pp. 40-47
Abstract: Leadership in healthcare institutions has a direct impact on the practice of the medical and nursing professions. The respective leadership style that is cultivated in a medical institution therefore has a direct impact on the personnel and thus a direct impact on the treatment of patients, in both senses of the word. Leadership in healthcare should therefore inspire, motivate, and guide healthcare workers to use their individual and collective skills as well as the available resources in the best possible way for the benefit of patients. This is the task and obligation of all those working in the healthcare system. The German Society of Ophthalmology (DOG) has established a leadership academy for ophthalmologists to meet the requirements of the modern healthcare market for leadership qualifications. Copyright © 2024. The Author(s), under exclusive licence to Springer Medizin Verlag GmbH, ein Teil von Springer Nature.

Leadership Development in Ophthalmology: Current Impact and Future Needs
Item Type: Journal Article
Authors: Berkowitz, Sean T.;Law, Janice C.;Sternberg, Paul,Jr and Patel, Shriji
Publication Date: 2021
Journal: Journal of Academic Ophthalmology (2017) 13(1), pp. e32-e39
Abstract: Importance There is a lack of peer-reviewed literature on leadership development programs (LDP) in ophthalmology. Research into LDP demographics, outcomes, and methodology is needed. Objective The aim of the study is to evaluate the extent to which LDPs targeting ophthalmologists meet the needs of emerging leaders. Design The design type of the study is cross-sectional analysis. Setting This study involves international setting. Participants The participants involved were ophthalmologists at any career level. Methods Routine internet search was used to identify LDPs targeting ophthalmologists. LDPs identified were categorized by the outcome data available into four levels based on prior literature. Participants were assessed using previously validated software for gender (Gender-API, 2020) and race or ethnicity (NamSor, 2020) Results Nine programs were identified which were classified into LDP generations. The first LDP in ophthalmology was the American Academy of Ophthalmology (AAO) LDP, which served as the nidus for the formation of four multinational LDPs, together forming the Global LDP. These LDPs were similar in size and scope; program size ranging from nine to 30 participants; a length of 1 to 2 years; with similar curricular offerings; with funding primarily derived from cost-sharing with a nominating society. The second generation of ophthalmology LDPs in the United States has targeted female scientists or faculty (Women's LDP by ARVO) and academic ophthalmology leaders (Academic LDP by Association of University Professors of Ophthalmology). The AAO's LDP appears increasingly diverse with approximately 13% women at inception, gradually increasing from 40 to 65% women in the last 5 years (n = 389). There has also been a notable increase in ethnic diversity. Conclusion and Relevance AAO LDP is the preeminent leadership training program for ophthalmologists, and it has influenced the creation of a new generation of LDP offerings. There remains a paucity of LDP evaluation metrics and reported outcomes. Newer iterations are successfully targeting academic leadership and attempting to address known disparities in

gender and race or ethnicity. Further expansion of LDPs and related research can ensure equity and diversity in the pipeline.

The Impact of the American Academy of Ophthalmology's Leadership Development Program: Experience from the First 20 Years

Item Type: Journal Article

Authors: Tsai, Linda M.;Schroth, Holly A.;Schmidt, Gail E. and Sternberg, Paul,Jr

Publication Date: 2021

Journal: Journal of Academic Ophthalmology (2017) 13(2), pp. e138-e143

Abstract: Objective This study aimed to analyze the effectiveness of the American Academy of Ophthalmology (AAO)'s Leadership Development Program (LDP), report the program's impact on participants in attaining ophthalmic leadership positions, and identify opportunities to improve future LDP programming. Design An open cohort study was performed on AAO LDP graduates by using an online questionnaire and retrospective monitoring. Participants and Methods AAO LDP graduates from 1999 to 2019 participated in the study. A Likert-scale survey was distributed via email. Online responses were submitted anonymously to a team at the Berkeley Haas School of Business for analysis. A separate review of gender demographics and ophthalmic leadership positions held by graduates was performed. Main Outcomes Measures Regression analysis was performed to determine whether survey results supported a meaningful relationship between the measured impact and the AAO LDP program's perceived effectiveness. Ascension into leadership positions of AAO-related organizations at the national, regional, state, and subspecialty level by AAO LDP graduates was collated. Results Of 381 potential respondents, 203 survey responses were returned (53.3%). 158 reported that they are currently holding a leadership position (77.8%). Statistical analyses indicated that the overall value of the program was seen as highly effective (M = 4.6), and that the development programs combined contributed significantly to AAO LDP being judged as effective overall, $F(11,191) = 24.79$; $p < 0.001$ with an R^2 of 0.59. Longitudinal tracking of the 383 graduates revealed that 268 (70.0%) have served as AAO committee/task force members, councilors, or representatives to outside organizations. A total of 242 (63.2%) graduates have served as president or chair of a state, subspecialty, or specialized interest ophthalmology society. 25 (6.5%) have served at the highest level of AAO leadership and two have been elected AAO President. A higher percentage of participants identifying as female was found in the LDP program compared with both U.S. overall and trainee ophthalmic populations. Conclusion The AAO LDP has fulfilled its initial goals of effectively developing a large cohort of ophthalmologists interested in and prepared to take on leadership roles across the profession. Development of more specific outcome measures to evaluate the program, as well as direct optimal programming, are needed to further the success of its aims.

Academic background, professional experience, and research achievements of United States academic ophthalmology leadership Abstract only*
Author(s): Gershoni et al,
Source: Irish Journal of Medical Science 190(4) pp. 1605-1611
Publication date: January 2021
PURPOSE To characterize the academic background, professional experience, and scholarly achievements of United States (US) academic ophthalmologists serving in leadership positions. METHODS This is a cross-sectional study. An online search of publicly available resources was conducted for demographics, background, research productivity, and academic appointments of academic ophthalmologists in leadership positions: chairperson (CP), vice chair (VC), service director (SD), and program director (PD). RESULTS Five hundred and fifty-one academic ophthalmologists in leadership positions were analyzed. A male predominance was found in all positions, ranging from 86% male CPs to 68% of SDs. Eighty-nine percent were graduates of US medical schools, and 97% completed their residency in a US ophthalmology program. Harvard Medical School and The Johns Hopkins University School of Medicine and their affiliated programs were the most frequently attended by leaders. The most common subspecialties among leaders were surgical retina (21%), cornea (18%), and glaucoma (16%). Overall, 18% of leaders are endowed professors, 34% are full professors, 25% are associate professors, and 20% are assistant professors. Overall, 28% of department leaders were residents and 16% were fellows in their current program. Chairpersons, followed by their vice, are the most academically proficient leaders within their departments, having the largest number of publications and h, hc, hm, and AWCR bibliometric indices. CONCLUSIONS Ophthalmology leaders in all positions are highly accomplished with an established interest in research. Typically, CPs and their VCs have a longer duration of professional experience with a greater research output and a superior median academic appointment. Gender discrepancies within leadership positions are evident.

Leadership in Ophthalmology: the role of physicians-MBAs
Abstract only*
Author(s): Pathipati and Tsai
Source: American Journal of Ophthalmology 188 pp. 70-73
Publication date: April 2018
PURPOSEAs American health care evolves, an increasing number of doctors are pursuing MBAs. However, relatively little is known about how business training translates into their future careers. This study characterizes ophthalmologists who have completed MBAs and identifies opportunities for physician leadership in the field. […] RESULTS Physician-MBAs in ophthalmology are 80% male; 80% are fellowship trained; and 28% are in primarily nonclinical roles and 55% participate in significant nonclinical activity. Hospital administration is most common (31%), followed by pharmaceutical administration (7%) and consulting (5%). Older ophthalmologist-MBAs were more likely to work in nonclinical roles, with 79% of those who completed residency before 2000 engaged in significant nonclinical activity compared to 30% of those who completed residency after 2000. The most common employers of physician-MBAs in ophthalmology are academic medical centers (43%), large group practices (30%), and private practices (13%). CONCLUSIONS The majority of ophthalmologist-MBAs work in primarily clinical roles, although a sizable proportion hold nonclinical positions. Moving forward, we anticipate an increased role for physician leaders in health care administration, policy, and entrepreneurship. While formal management training is not necessary for these roles, a growing number of physicians have sought out MBAs to support their nonclinical interests.

Leadership of United States Academic Departments of Ophthalmology: Chairperson characteristics, accomplishments, and personal insights Abstract only*
Author(s): Dotan et al.
Source: American Journal of Ophthalmology 186 pp. 69-76
Publication date: February 2018
PURPOSE To report on the characteristics, accomplishments, and past experiences of current academic ophthalmology department chairs. […] RESULTS Fifty-five chair responses were received (96% male, mean age 57 years, mean term 7 years). The majority were American medical graduates (93%), full professors of ophthalmology (93%), and permanent chairs (96%). All completed their residency in the US and 96% completed a fellowship (25% vitreoretinal surgery, 22% cornea and external disease, and 20% glaucoma). On average, chairs authored 98 peer-reviewed articles, 2 books, and 11 book chapters. They were also significantly involved in peer-reviewed journal literature, serving as editors (20%), associate editors (18%), or editorial board members (60%). The majority of chairs indicated they decided to seek their position late in their career, having already become a full (33%) or associate professor (26%), primarily owing to a desire to build and promote an academic ophthalmology department (61%). Chairs regarded their experience as head of service as most important for their current performance as department heads. Their principal advice to aspiring ophthalmology chairs was to focus on developing skills as a clinician, researcher, and educator ("triple threat"). CONCLUSIONS Overall, academic department chairs are accomplished leaders in ophthalmology and prolific authors with an established academic record. Chairs regarded their previous leadership roles within the department as invaluable to their effectiveness as chair.

New and extended roles

Changing practice for the non-medical ophthalmic hospital workforce in the UK-a snapshot survey
Author(s): Greenwood et al.
Source: Eye 35(7)
Publication date: September 2020
BACKGROUND/OBJECTIVES To obtain a picture of the current status, training and governance for advanced practice and extended roles in the ophthalmic hospital non-medical workforce. METHODS A 10 question, quantitative survey was designed with multidisciplinary members of the UK Ophthalmology Alliance and sent to the membership to obtain information on expanded non-medical roles.RESULTS34 of the 58 UKOA member hospitals responded (58% response rate). All responding units were using registered optometrists, orthoptists and nurses to undertake expanded outpatient roles and 28/34 (82%) had expanded roles for undertaking procedures. Some units had large numbers of staff undertaking these roles. There were noticeable trends for certain professional groups to undertake certain roles. For example, nurses were undertaking most procedures, apart from lasers which were mainly delivered by optometrists. Nurses had the lowest banding and optometrists the highest for apparently similar roles. Training was mostly in-house apprenticeship style although some formal external qualifications were undertaken. CONCLUSIONS Ophthalmology is developing many innovative roles for the non-medical workforce and, with the launch of the OCCCF training, this is likely to increase. Terminology is confusing and a categorisation suitable for ophthalmology is proposed.

New ways of working

Acute community ophthalmology services provided by independent prescribing optometrists supporting hospital eye services during the COVID-19 outbreak
Item Type: Journal Article
Authors: Ansari, Ejaz;Patel, Manish and Harle, Deacon
Publication Date: 2022
Journal: Journal of Optometry 15(2), pp. 175-178
Abstract: BACKGROUND: Specialised Independent Prescribing (IP) community optometrists provided acute eye care during the COVID-19 crisis ensuring that over-stretched hospital emergency eye care was supported, therefore local overall urgent eye care provision was not affected., SUBJECTS/METHODS: Number of cases seen by hospital Rapid Access Clinic (RAC) between January 2020 and June 2020 were compared to number of cases seen by IP optometrists in community Acute Primary Care Ophthalmology Service (APCOS) during the same time period. Specifically, comparisons were made between the number of cases seen in RAC and the number of cases seen by APCOS during the period before COVID-19 emergency (January-March 2020) and for a similar timeframe thereafter (April-June 2020). Numbers treated by APCOS alone and those referred to RAC were also determined. The change in case numbers between the different healthcare settings was also studied., RESULTS: Increase in cases seen by APCOS between April (n = 391) and June (n = 641). Number of cases seen by RAC declined from 652 in March to 372 in April, increasing to 610 by June. This was still below maximum number of monthly cases seen by RAC pre-lockdown in January (861). Most of the cases seen by APCOS were managed in the community with 4% referred to RAC., CONCLUSIONS: Ophthalmology services delivered by IP specialised optometrists can safely and efficiently treat and manage the vast majority of urgent cases and mitigate the reduced capacity within hospital emergency eye clinics. Our experience provides insights into care pathways for urgent eye cases in the future. Copyright © 2021 Spanish General Council of Optometry. Published by Elsevier Espana, S.L.U. All rights reserved.

Evaluation of a New Model of Care for People with Complications of Diabetic Retinopathy: The EMERALD Study
Item Type: Journal Article
Authors: Lois, Noemi;Cook, Jonathan A.;Wang, Ariel;Aldington, Stephen;Mistry, Hema;Maredza, Mandy;McAuley, Danny;Aslam, Tariq;Bailey, Clare;Chong, Victor;Ganchi, Faruque;Scanlon, Peter;Sivaprasad, Sobha;Steel, David H.;Styles, Caroline;Azuara-Blanco, Augusto;Prior, Lindsay and Waugh, Norman
Publication Date: 2021
Journal: Ophthalmology 128(4), pp. 561-573
Abstract: 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.

Nursing

An integrative literature review of the effectiveness of nurse-led clinics in ophthalmology Abstract only*
Author(s): Drury et al.
Source: Insight 42(2) pp. 22-28
Publication date: March 2017
The purpose of this review was to determine the best available evidence related to the effectiveness of nurse-led clinics in ophthalmology. The review question was: How effective are nurse-led clinics in ophthalmology? Specifically, the objectives were to identify whether nurse-led clinics:
- Reduced re-presentation rates,
- Reduced surgical complications,
- Alleviated anxiety, and
- Promoted patient satisfaction.

Glaucoma diagnosis and treatment: the role of the ophthalmic nurse Abstract only*
Author(s): Joshua J Ney
Source: Insight 41(1)
Publication date: 2016
Glaucoma is one of the single largest causes of irreversible blindness. Glaucomatous vision loss is preventable with the appropriate diagnostic testing and treatment. Ophthalmic nurses play and important role in ensuring the success of glaucoma diagnosis and treatment.

Quality Improvement

Using Lean Six Sigma techniques to improve efficiency in outpatient ophthalmology clinics
Item Type: Journal Article
Authors: Kam, Andrew W.;Collins, Scott;Park, Tae;Mihail, Michael;Stanaway, Fiona F.;Lewis, Noni L.;Polya, Daniel;Fraser-Bell, Samantha;Roberts, Timothy V. and Smith, James E. H.
Publication Date: 2021
Journal: BMC Health Services Research 21(1), pp. 38
Abstract: BACKGROUND: Increasing patient numbers, complexity of patient management, and healthcare resource limitations have resulted in prolonged patient wait times, decreased quality of service, and decreased patient satisfaction in many outpatient services worldwide. This study investigated the impact of Lean Six Sigma, a service improvement methodology originally from manufacturing, in reducing patient wait times and increasing service capacity in a publicly-funded, tertiary referral outpatient ophthalmology clinic., METHODS: This quality improvement study compared results from two five-months audits of operational data pre- and post-implementation of Lean Six Sigma. A baseline audit was conducted to determine duration and variability of patient in-clinic time and number of patients seen per clinic session. Staff interviews and a time-in-motion study were conducted to identify issues reducing clinic service efficiency. Solutions were developed to address these root causes including: clinic schedule amendments, creation of dedicated postoperative clinics, and clear documentation templates. A post-implementation audit was conducted, and the results compared with baseline audit data. Significant differences in patient in-clinic time pre- and post-solution implementation were assessed using Mann-Whitney test. Differences in variability of patient in-clinic times were assessed using Brown-Forsythe test. Differences in numbers of patients seen per clinic session were assessed using Student's t-test., RESULTS: During the baseline audit period, 19.4 patients were seen per 240-minute clinic session. Median patient in-clinic time was 131 minutes with an interquartile range of 133 minutes (84-217 minutes, quartile 1- quartile 3). Targeted low/negligible cost solutions were implemented to reduce in-clinic times. During the post-implementation audit period, the number of patients seen per session increased 9% to 21.1 ($p = 0.016$). There was significant reduction in duration ($p < 0.001$) and variability ($p < 0.001$) of patient in-clinic time (median 107 minutes, interquartile range 91 minutes 71-162 minutes])., CONCLUSIONS: Lean Six Sigma techniques may be used to reduce duration and variability of patient in-clinic time and increase service capacity in outpatient ophthalmology clinics without additional resource input.

Supply

2017 National Optometry Workforce Survey Abstract only*
Author(s): Heath et al.
Source: Optometry and Vision Science 98(5)
Publication date: May 2021
Significance: Planning for the effective delivery of eye care, on all levels, depends on an accurate and detailed knowledge of the optometric workforce and an understanding of demographic/behavioral trends to meet future needs of the public. Purpose: The purposes of this study were to assess the current and future supply of doctors of optometry and to examine in-depth trends related to (1) demographic shifts, (2) sex-based differences, (3) differences in practice behaviors in between self-employed and employed optometrists, and (4) the concept of additional capacity within the profession. Methods: The 2017 National Optometry Workforce Survey (31 items) was distributed to 4050 optometrists, randomly sampled from a population of 45,033 currently licensed and practicing optometrists listed in the American Optometric Association's Optometry Master Data File.

A stratified sampling method was applied to the population of optometrists using primary license state, age, and sex as variables to ensure a representative sample. Results: With a response rate of 29% (1158 responses), the sample ensured a 95% confidence interval with a margin of error of <5%. Key results include finding no significant differences between men and women for hours worked (38.9 vs. 37.5), productivity (patient visits per hour, 2.0 vs. 1.9), or career options/professional growth satisfaction with 65% for both. The data indicate a likely range of additional patient capacity of 2.29 to 2.57 patients per week (5.05 to 5.65 million annually profession-wide). Conclusions: The optometric workforce for the next decade is projected to grow 0.6 to 0.7% more annually than the U.S. population. The study found additional capacity for the profession more limited than previously suggested. Findings also illustrate an evolving/equitable workforce based on sex, in terms of both productivity and satisfaction. The trend toward employed versus self-employed was marked with 44% reporting they are employed, up from 29% in 2012.

Demographics and distribution of new entrants to the optometry profession in Australia Abstract only*
Author(s): Duffy et al.
Source: Clinical and Experimental Optometry
Publication date: March 2021
CLINICAL RELEVANCE An assessment of the total number, demographics and geographic distribution of new entrants to the optometry profession in Australia can assist planning for workforce requirements. BACKGROUND Over the past decade, the number of registered optometrists in Australia has increased by 30.1 per cent, a rate that is greater than the population growth of the country (12.1 per cent). Concerns have been expressed about the size of the optometry workforce in a context of increasing numbers of graduating optometrists. This paper analyses data obtained from the Australian Health Practitioner Regulation Agency (AHPRA) about new entrants to the profession and their initial practice location during the period 1 July 2010 to 30 June 2018.METHODSA de-identified dataset was obtained from AHPRA that revealed the following characteristics of new entrants: qualification, gender, year of birth (in five-year bands), registration type, registration endorsement and principal place of practice including its Remoteness Area classification. RESULTS Data for 1,680 entrants were eligible for analysis; 80 per cent graduated from an Australian university, 12 per cent graduated from the optometry program in New Zealand, and seven per cent were graduates of an overseas university. The remaining two per cent registered via the Trans-Tasman Mutual Recognition Agreement, although the dataset did not include the qualification. The United Kingdom and Republic of Ireland provided the majority of overseas entrants (60 per cent). Most (75 per cent) entrants commenced practice in a major Australian city. Graduates of Australian universities tended to commence practice in the state in which they trained or an adjacent state or territory. Juxtaposed on the data outlined above is the high proportion (42 per cent) of overseas-trained optometrists commencing practice in Western Australia. CONCLUSION Coincident with the newer optometry programs producing graduates is the increased number of optometrists entering the Australian workforce over the past decade, with the majority commencing practice in major cities. Australia-trained optometrists tend to commence practice in the state where their training was undertaken. New entrants to the optometry profession can be generalised as graduates of an Australian optometry program, female, aged in their early-mid 20s and qualified for therapeutic practice.

Mismatch in Supply and Demand for Neuro-Ophthalmic Care
Abstract only*
Author(s): DeBusk et al.
Source: Journal of Neuro-Ophthalmology 42(1) pp. 62-67

Publication date: March 2021
BACKGROUND Previous research suggests the number of neuro-ophthalmologists in the United States may be below a level that provides sufficient access to neuro-ophthalmic care in much of the United States. However, national estimates of the amount of clinical time spent on neuro-ophthalmology are lacking. METHODS The North American Neuro-Ophthalmology Society administered a survey on professional time allocation to its active members. Survey response was 95%. The survey characterized the hours each week each respondent allocated to overall work, clinical work, clinical work in ophthalmology/neurology, and clinical work in neuro-ophthalmology specifically. The survey additionally collected information regarding demographics, current wait times to be seen for new patients, and the difference in clinical time spent in neuro-ophthalmology spent between the current day compared with that shortly after completing clinical training. Linear regression was used to identify potential relationships between the above and average wait time. RESULTS On average, responding physicians spent 70% of their clinical time on neuro-ophthalmology. In 6 states, there were no reported practicing neuro-ophthalmologists, and in only 8 states was the clinical full-time equivalent to population ratio below the suggested threshold of 1 for every 1.2 million. The median wait time for a new patient was 6 weeks. This wait time was associated with the fraction of clinical time spent in neuro-ophthalmology (0.2 weeks longer wait for a 10 percentage point increase in the fraction of time spent in neuro-ophthalmology; P = 0.02), and suggestively associated with training (training in ophthalmology was associated with 1.0 week shorter wait time; P = 0.06).CONCLUSION The survey suggests that neuro-ophthalmologists are unable to see patients in a timely manner and a decreasing number of clinicians are entering the field. Future interventions should be considered to incentivize neuro-ophthalmology training in ophthalmology and neurology residents such that the United States population is able to appropriately access neuro-ophthalmic care.

Workforce Shortage for Retinopathy of Prematurity Care and Emerging Role of Telehealth and Artificial Intelligence Abstract only*
Author(s): Barrero-Castillero et al.
Source: Paediatric Clinics of North American 67(4)
Publication date: August 2020
Retinopathy of prematurity (ROP) is the leading cause of childhood blindness in very-low-birthweight and very preterm infants in the United States. With improved survival of smaller babies, more infants are at risk for ROP, yet there is an increasing shortage of providers to screen and treat ROP. Through a literature review of new and emerging technologies, screening criteria, and analysis of a national survey of pediatric ophthalmologists and retinal specialists, the authors found the shortage of ophthalmology workforce for ROP a serious and growing concern. When used appropriately, emerging technologies have the potential to mitigate gaps in the ROP workforce.

Do we have enough ophthalmologists to manage vision-threatening diabetic retinopathy? A global perspective Abstract only*
Author(s): Teo et al.
Source: Eye 34
Publication date: 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.

Estimated number of ophthalmologists worldwide (International Council of Ophthalmology update): will we meet the needs?
Author(s): Reskinoff et al.
Source: The British Journal of Ophthalmology 104
Publication date: April 2020
BACKGROUND/AIMS To estimate 2015 global ophthalmologist data and analyse their relationship to income groups, prevalence rates of blindness and visual impairment and gross domestic product (GDP) per capita. METHODS Online surveys were emailed to presidents/chairpersons of national societies of ophthalmology and Ministry of Health representatives from all 194 countries to capture the number and density (per million population) of ophthalmologists, the number/density performing cataract surgery and refraction, and annual ophthalmologist population growth trends. Correlations between these data and income group, GDP per capita and prevalence rates of blindness and visual impairment were analysed. RESULTS In 2015, there were an estimated 232 866 ophthalmologists in 194 countries. Income was positively associated with ophthalmologist density (a mean 3.7 per million population in low-income countries vs a mean 76.2 in high-income countries). Most countries reported positive growth (94/156; 60.3%). There was a weak, inverse correlation between the prevalence of blindness and the ophthalmologist density. There were weak, positive correlations between the density of ophthalmologists performing cataract surgery and GDP per capita and the prevalence of blindness, as well as between GDP per capita and the density of ophthalmologists doing refractions. CONCLUSIONS Although the estimated global ophthalmologist workforce appears to be growing, the appropriate distribution of the eye care workforce and the development of comprehensive eye care delivery systems are needed to ensure that eye care needs are universally met.

Workforce Issues in Paediatric Ophthalmology Full text available via NHS OpenAthens account*
Author(s): Bernstein et al.
Source: Journal of Paediatric Ophthalmology and Strabismus 57(1)
Publication date: January 2020
The fate of pediatric ophthalmology may be in jeopardy. For the past 20 years, there has been declining interest in the field compared to other subspecialties in ophthalmology, as fellowship positions and jobs remain unfilled. Of those fellows who do match in pediatric ophthalmology and strabismus, many are international medical graduates who often return to their native countries to practice, further diminishing the supply of pediatric

ophthalmologists in the United States. In previous surveys, resident graduates have expressed disinterest in the field, reluctance to work with children, inadequate reimbursements, and insufficient interactions with faculty as reasons not to pursue this subspecialty. Millions of people throughout the United States do not have access to pediatric ophthalmologists, highlighting the issue of unequal distribution. As more pediatric ophthalmologists retire, there is concern that there will not be enough providers to meet the demands of this subspecialty. Although many of these factors deterring residents from entering this field have been resolved, the major issue of financial reimbursements has not been adequately addressed. [J Pediatr Ophthalmol Strabismus. 2020;57(1):9-11.].

Could adoption of the rural pipeline concept redress Australian optometry workforce issues? Abstract only*
Author(s): Kirkman et al.
Source: Clinical and Experimental Optometry 102(6)
Publication date: November 2019
People living in rural and remote areas have poorer ocular health outcomes compared with those living in metropolitan areas. Reasons for this are multiple and complex but access to care is consistently reported as a defining factor. The geographic maldistribution of eye-care professionals is a major obstacle for regional, rural and remote Australians seeking care. Research from the medical profession suggests adopting the 'rural pipeline' concept to address the issue of maldistribution. This approach appears to have had some success in medicine, and involves recruiting students from a rural background, exposing students to rural practice through placements and offering graduates incentives and support to practice rurally. Lessons could be learnt from the medical field as there is a dearth of literature describing the utilisation of the rural pipeline in allied health. However, given the differences between professions it cannot be assumed factors and results will be the same. A greater understanding is required to determine whether optometry is a profession which may benefit from the rural pipeline concept.

Optometric supply and demand in Australia: 2011-2036 Abstract only*
Author(s): Healy et al.
Source: Clinical and Experimental Optometry 98(3)
Publication date: May 2015
Background: The effective size of the optometric workforce is dependent on graduate numbers, retention rates and immigration and is influenced by age, gender and working hours of optometrists. This paper presents modelling results of the relationship between the projected Australian optometric workforce and projected demand for optometric services for the period 2011 to 2036. Nine hypothetical optometric supply-side and demand-side scenarios are presented. Methods: Data from the Australian Bureau of Statistics on age and gender of people listing optometry as their major qualification in the 2011 census were projected over a 25-year period, accounting for factors such as concordance with Health Workforce Australia figures for registered optometrists in Australia in 2011, ageing, attrition, hours worked, new graduates and immigration. Data were compared to the numbers of optometrists calculated as necessary to meet the demand for services of the Australian population to 2036 using nine different scenarios. Results: It was estimated that there would be a surplus of over 1,200 equivalent full-time optometrists (EFTO) in 2036 for the highest service demand scenario of 13.8 million Medicare services, where 21 hours of a 38-hour week per EFTO were allowed for the provision of optometric services under Medicare. Substantial surpluses were predicted in all states and territories except Queensland, Tasmania and the Northern Territory where predicted supply was within six EFTO of predicted demand. Conclusions: Projections using current weightings for mortality, attrition, proportion of optometrists in active practice, working

hours, immigration, new graduates and 21 hours per EFTO per week available for Medicare services indicate that in 2036, there will be excess optometrists in relation to projected demand for services, if service utilisation is maintained at current levels or increased by 10 or 20 per cent. Substantially greater excesses result if each EFTO has 28 or 35 hours per week available for Medicare services.

Optometry Services in Ontario: Supply – and Demand-side factors from 2011 to 2036
Author(s): Leaonard et al.
Source: Healthcare Policy 10(1) pp. 60-72
Publication date: 2014
Optometric labour market projections are provided. First, population growth and ageing-based estimates of the rate of increase of eye-care services in Ontario from 2011 to 2036 are presented, holding the age–sex structure of utilization constant. Then, using data on the 2011 supply and working hours of Ontario's optometrists, the number of optometrists needed to keep the level of optometric services per age–sex-adjusted person comparable over time is estimated. The projections suggest that the number of Ontario optometrists should grow by approximately 30–40 full-time equivalents per year; to offset retirements and account for decreasing work hours, this suggests 77–90 new practitioners are required each year. However, in recent years, the number of Ontario optometrists has been growing faster than this, suggesting either that demand has exceeded supply and/or surpluses will accumulate if this trend continues.

Technology

Social Media in Neuro-Ophthalmology: Paradigms, Opportunities, and Strategies Abstract only*
Item Type: Journal Article
Authors: Lai, Kevin E.;Antonio, Aileen A.;Ko, Melissa W.;Epling, Joel P.;Nguyen, Anne X. and Carey, Andrew R.
Publication Date: 2023
Journal: Journal of Neuro-Ophthalmology : The Official Journal of the North American Neuro-Ophthalmology Society 43(3), pp. 295-302
Abstract: BACKGROUND: Social media (SoMe) is an integral part of life in the 21st century. Its potential for rapid dissemination and amplification of information offers opportunities for neuro-ophthalmologists to have an outsized voice to share expert-level knowledge with the public, other medical professionals, policymakers, and trainees. However, there are also potential pitfalls, because SoMe may spread incorrect or misleading information. Understanding and using SoMe enables neuro-ophthalmologists to influence and educate that would otherwise be limited by workforce shortages., EVIDENCE ACQUISITION: A PubMed search for the terms "social media" AND "neuro-ophthalmology," "social media" AND "ophthalmology," and "social media" AND "neurology" was performed., RESULTS: Seventy-two neurology articles, 70 ophthalmology articles, and 3 neuro-ophthalmology articles were analyzed. A large proportion of the articles were published in the last 3 years (2020, 2021, 2022). Most articles were analyses of SoMe content; other domains included engagement analysis such as Altmetric analysis, utilization survey, advisory opinion/commentary, literature review, and other. SoMe has been used in medicine to share and recruit for scientific research, medical education, advocacy, mentorship and medical professional networking, and branding, marketing, practice building, and influencing. The American Academy of Neurology,

American Academy of Ophthalmology, and North American Neuro-Ophthalmology Society have developed guidelines on the use of SoMe., CONCLUSIONS: Neuro-ophthalmologists may benefit greatly from harnessing SoMe for the purposes of academics, advocacy, networking, and marketing. Regularly creating appropriate professional SoMe content can enable the neuro-ophthalmologist to make a global impact. Copyright © 2023 by North American Neuro-Ophthalmology Society.

Artificial intelligence in ophthalmology: The path to the real-world clinic
Item Type: Journal Article
Authors: Li, Zhongwen;Wang, Lei;Wu, Xuefang;Jiang, Jiewei;Qiang, Wei;Xie, He;Zhou, Hongjian;Wu, Shanjun;Shao, Yi and Chen, Wei
Publication Date: 2023
Journal: Cell Reports.Medicine 4(7), pp. 101095
Abstract: Artificial intelligence (AI) has great potential to transform healthcare by enhancing the workflow and productivity of clinicians, enabling existing staff to serve more patients, improving patient outcomes, and reducing health disparities. In the field of ophthalmology, AI systems have shown performance comparable with or even better than experienced ophthalmologists in tasks such as diabetic retinopathy detection and grading. However, despite these quite good results, very few AI systems have been deployed in real-world clinical settings, challenging the true value of these systems. This review provides an overview of the current main AI applications in ophthalmology, describes the challenges that need to be overcome prior to clinical implementation of the AI systems, and discusses the strategies that may pave the way to the clinical translation of these systems. Copyright © 2023 The Authors. Published by Elsevier Inc. All rights reserved.

Impact of an email advice service on filtering and refining ophthalmology referrals in England Abstract only*
Item Type: Journal Article
Authors: Ong, Ariel Yuhan;Naughton, Aoife;Hornby, Stella and Shwe-Tin, Audrey
Publication Date: 2023
Journal: International Ophthalmology 43(11), pp. 4019-4025
Abstract: PURPOSE: The growing capacity-demand imbalance has necessitated the accelerated digital transformation of eye care services. The role of Oxford Eye Hospital's (OEH) email advice service has become even more relevant in the post-Covid era. We sought to evaluate its impact on referrals to secondary care., METHODS: The consultant-led OEH email advice service primarily targets primary eye care personnel (optometrists and GPs) requiring clinical advice on patient referral. Emails received between September and November 2020 were analysed for demographic data, contents, characteristics, and outcomes. Thematic analysis was performed. A user feedback survey was conducted., RESULTS: A total of 828 emails were received over the 3-month study period (mean 9.1/day). They were predominantly from optometrists (77.9%) and general practitioners (16.1%). Of the 81.0% (671) relating to clinical advice, over half (54.8%) included images from a variety of modalities, and following review, over half (55.5%) were deemed suitable for management in the community, while 36.5% were referred directly to appropriate subspecialty clinics. Only 8.1% required urgent assessment in eye casualty. Thematic analysis showed that this service was most useful for retinal lesions, optical coherence tomography abnormalities, and borderline abnormal optic discs. No adverse events were identified. User feedback was very positive., CONCLUSION: A secure email advice service is a safe and low-maintenance modality that provides direct and efficient two-way communication between primary and secondary eye care professionals. It allows rapid response to clinical queries, referral filtering and refinement, and

streamlining of patient referral pathways. Users (predominantly optometrists) were overwhelmingly positive about its usefulness in clinical practice. Copyright © 2023. The Author(s), under exclusive licence to Springer Nature B.V.

Application of Artificial Intelligence in the Early Detection of Retinopathy of Prematurity: Review of the Literature
Item Type: Journal Article
Authors: Shah, Shivani;Slaney, Elizabeth;VerHage, Erik;Chen, Jinghua;Dias, Raquel;Abdelmalik, Bishoy;Weaver, Alex and Neu, Josef
Publication Date: 2023
Journal: Neonatology 120(5), pp. 558-565
Abstract: Retinopathy of prematurity (ROP) is a potentially blinding disease in premature neonates that requires a skilled workforce for diagnosis, monitoring, and treatment. Artificial intelligence is a valuable tool that clinicians employ to reduce the screening burden on ophthalmologists and neonatologists and improve the detection of treatment-requiring ROP. Neural networks such as convolutional neural networks and deep learning (DL) systems are used to calculate a vascular severity score (VSS), an important component of various risk models. These DL systems have been validated in various studies, which are reviewed here. Most importantly, we discuss a promising study that validated a DL system that could predict the development of ROP despite a lack of clinical evidence of disease on the first retinal examination. Additionally, there is promise in utilizing these systems through telemedicine in more rural and resource-limited areas. This review highlights the value of these DL systems in early ROP diagnosis. Copyright © 2023 S. Karger AG, Basel.

Navigating Personal and Professional Development Through Social Media in Ophthalmology
Item Type: Journal Article
Authors: He, Bonnie;Tanya, Stuti M.;Costello, Fiona;Kherani, Femida;Shamie, Neda and Zhu, Dagny
Publication Date: 2022
Journal: Clinical Ophthalmology (Auckland, N.Z.) 16, pp. 2263-2274
Abstract: Background: Although social media use among physicians skyrocketed during the COVID-19 pandemic, its role for networking, mentorship, and support among ophthalmologists remains unknown. The objective of this study was to elucidate how ophthalmologists use social media for navigating challenges related to personal and professional development., Methods: This was a cross-sectional survey study conducted during the height of the COVID-19 pandemic. A 40-item questionnaire investigating the usage of social media was developed and distributed to active social media users in ophthalmology including trainees and practitioners from November 2020 to December 2020 via social media channels. Quantitative responses were analyzed using descriptive and basic statistics, while a thematic analysis was conducted to examine the qualitative responses., Results: One hundred and forty-nine respondents (67% women) completed the survey, with 56% of participants between the ages of 25-35 years old. Women were more likely to report experiencing workplace discrimination ($p < 0.005$) and work-life imbalance ($p < 0.05$) compared to men, and social media was found to be useful in addressing those challenges in addition to parenting and mentorship ($p < 0.005$ and $p < 0.001$, respectively). Compared to their older counterparts, younger ophthalmologists (<45 years old) cited more challenges with practice management ($p < 0.005$) and turned to social media for corresponding guidance ($p < 0.05$). Compared to late career ophthalmologists, trainees were more likely to report difficulties with career development ($p < 0.05$), practice management ($p < 0.0001$), and financial planning ($p < 0.05$), and found social media beneficial for learning financial literacy ($p < 0.05$). A qualitative analysis of the free-response

texts found both positive and negative viewpoints of social media use in ophthalmology., Conclusion: Social media is an invaluable tool for enhancing professional and personal growth for ophthalmologists, particularly for women, trainees, and younger surgeons through education and community-building. Future directions include exploring how social media can be used to improve mentorship, outreach, and training in ophthalmology.

A survey of clinicians on the use of artificial intelligence in ophthalmology, dermatology, radiology and radiation oncology
Author(s): Scheetz et al.
Source: Scientific Reports 11: 6193
Publication date: March 2021
Artificial intelligence technology has advanced rapidly in recent years and has the potential to improve healthcare outcomes. However, technology uptake will be largely driven by clinicians, and there is a paucity of data regarding the attitude that clinicians have to this new technology. In June-August 2019 we conducted an online survey of fellows and trainees of three specialty colleges (ophthalmology, radiology/radiation oncology, dermatology) in Australia and New Zealand on artificial intelligence. There were 632 complete responses (n = 305, 230, and 97, respectively), equating to a response rate of 20.4%, 5.1%, and 13.2% for the above colleges, respectively. The majority (n = 449, 71.0%) believed artificial intelligence would improve their field of medicine, and that medical workforce needs would be impacted by the technology within the next decade (n = 542, 85.8%). Improved disease screening and streamlining of monotonous tasks were identified as key benefits of artificial intelligence. The divestment of healthcare to technology companies and medical liability implications were the greatest concerns. Education was identified as a priority to prepare clinicians for the implementation of artificial intelligence in healthcare. This survey highlights parallels between the perceptions of different clinician groups in Australia and New Zealand about artificial intelligence in medicine. Artificial intelligence was recognized as valuable technology that will have wide-ranging impacts on healthcare.

The Electronic Health Record in Ophthalmology: Usability Evaluation Tools for Health Care Professionals
Author(s): Logeswaran et al.
Source: Ophthalmology Therapy 10 pp. 13-20
Publication date: 2021
Introduction: The adoption of the electronic health record (EHR) has grown rapidly in ophthalmology. However, despite its potential advantages, its implementation has often led to dissatisfaction amongst health care professionals (HCP). This can be addressed using a user centred design (UCD) which is based on the philosophy that ‘the final product should suit the users, rather than making the users suit the product’. There is often no agreed best practice on the role of HCPs in the UCD process. In this paper, we describe practical qualitative methodologies that can be used by HCPs in the design, implementation and evaluation of ophthalmology EHRs. Methods: A review of current qualitative usability methodologies was conducted by practising ophthalmologists who are also qualified health informaticians. Results: We identified several qualitative methodologies that could be used for EHR evaluation. These include: 1 Tools for user centred design: shadowing and autoethnography, semi-structured interviews and questionnaires 2 Tools for summative testing: card sort and reverse card sort, retrospective think aloud protocol, wireframing, screenshot testing and heat maps Conclusion: High-yield, low-fidelity tools can be used to engage HCPs with the process of ophthalmology EHR design, implementation and evaluation. These methods can be used by HCPs without the requirement for prior training in usability science, and by clinical centres without significant technical requirements.

Clinical Outcomes of a Hospital-Based Teleophthalmology Service: What happens to patients in a Virtual Clinic? Abstract only*
Author(s): Kern et al.
Source: Ophthalmology Retina 3(5) pp. 422-428
Publication date: May 2019
PURPOSE: Demographic changes as well as increasing referral rates from national screening services put pressure on available ophthalmologic resources in the United Kingdom. To improve resource allocation, virtual medical retina clinics were introduced in 2016 in Moorfields Eye Hospital, South Division. The scope of this work was to assess clinical outcomes of patients followed up in a virtual clinic setting.[…] RESULTS: Seven hundred twelve of 728 patients received a clinical outcome. Four hundred ninety-seven patients (70%) were eligible for further virtual follow-up after the second virtual clinic visit, whereas 15% each (107 and 108 patients) were either discharged or referred to a face-to-face clinic. In total, 661 patients attended their appointments in person and were reviewed by trained staff. Seventeen patients were referred for urgent treatment and 8 patients were not suitable for virtual follow-up. In 542 (82%) of all patients, diabetic retinopathy was the most common diagnosis. CONCLUSIONS: This study reports clinical outcomes of a virtual model of care for medical retina clinics that imply safety of patient care in this clinic setting. This clinic format optimizes the use of already available resources and increases the skills of our existing workforce while maintaining high-quality clinical standards.

Teaching ophthalmology for machines
Author(s): Gonçalves dos Santos Martins et al.
Source: Open Ophthalmology Journal 12 pp. 127-129
Publication date: June 2018
Physicians and engineers are currently working together to improve early ophthalmology diagnosis and follow-up. Algorithms are created for what is being called machine learning to assist medical decision-making and improve medical care. With the aim of providing better health service to populations, research has been done to develop new protocols of care that involve the use of artificial intelligence as a new tool for physicians to diagnose their patients more effectively and quickly.

Evaluation of eLearning for the teaching of undergraduate ophthalmology at medical school: a randomized controlled crossover study
Author(s): Petrarca et al.
Source: Eye 32
Publication date: May 2018
Aim: To compare ophthalmology teaching delivered by eLearning with traditional lectures, in terms of undergraduate performance and satisfaction. […] Results: The mean examination score for questions taught by eLearning was 58% (95% CI, 55.7–59.6), versus 55% (95% CI 53.1–56.8) for traditional lectures (P = 0.047). Across all topics students were more satisfied with eLearning than traditional lectures, with 87% (95% CI 84.5–88.4) rating eLearning as ‘excellent’ or ‘good’ versus 65% (95% CI 62.0–67.4) for lectures (p < 0.0001). Overall 180 (75.6%) preferred eLearning compared to traditional lectures, with 166 (69.7%) rating eLearning ‘much better’ or ‘better,’ 61 (25.6%) ‘neutral’ and 11 (4.6%) ‘worse’ or ‘much worse.’ Conclusions: Student satisfaction and examination performance are both enhanced by ophthalmology eLearning. Similar eLearning modules may be suitable for other specialties and postgraduate learning.

Real-time teleophthalmology video consultation: an analysis of patient satisfaction in rural Western Australia Abstract only*
Author(s): Host et al.
Source: Clinical and Experimental Optometry
Publication date: April 2017

BACKGROUND: Teleophthalmology, particularly real-time video consultation, holds great potential in Australia and similar countries worldwide, where geography, population and medical workforce distribution make it difficult to provide specialist eye services outside of major cities. Assessment and referrals from rural optometrists are vital to the success of teleophthalmology. While there is good evidence for the efficacy of such services, there is limited evidence for patient satisfaction with video consultation […] RESULTS One hundred and nine of the 137 eligible patients completed the questionnaire (79.6 per cent; 55 per cent male; mean age 64.61 years). The majority of the participants were either 'Very satisfied' (69.1 per cent) or 'Satisfied' (24.5 per cent) with the service. No one reported being either 'Dissatisfied' or 'Very dissatisfied'. Linear regression did not reveal any demographic or follow-up variables as predictive of greater total satisfaction; however, participants who were older, felt they could easily explain their medical problems to the doctor in the video consultation and believed that telemedicine enabled them to save money and time, and were more likely to report higher overall satisfaction. CONCLUSION Teleophthalmology is a promising new way to overcome barriers to the delivery of eye care services to rural and remote populations. This study demonstrates a high level of overall satisfaction with teleophthalmological video consultation and patients are accepting of this emerging consultation modality, regardless of age.

A technician-delivered ‘virtual clinic’ for triaging low-risk glaucoma referrals
Author(s): Kotecha et al.
Source: Eye 31 pp. 899-905
Publication date: June 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. […] 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 refinement schemes.

Supply and perceived demand for teleophthalmology in triage consultations in California Emergency Departments
Author(s): Wedekind et al.
Source: JAMA Ophthalmology 134(5)
Publication date: May 2016
Importance: Determining the perceived supply and potential demand for teleophthalmology in emergency departments could help mitigate coverage gaps in emergency ophthalmic care. Objective: To evaluate the perceived current need for and availability of ophthalmologist coverage in California emergency departments and the potential effect of telemedicine for ophthalmology triage and consultation. […] Results: Of the 187 emergency departments surveyed, 18 of 37 rural facilities (48.6%) reported availability of emergency ophthalmology coverage, compared with 112 of 150 nonrural facilities (74.7%). Rural facilities reported a mean (SD) of 23.72 (14.15) miles between the facility and referral location, while nonrural facilities reported a mean of 4.41 (10.23) miles (19.3% difference). On a scale of 1 to 5 (where 1 signifies very low value and 5 signifies very high value), 124 of 187 nurse managers (66.3%) and 80 of 121 physicians (66.1%) rated teleophthalmology as having high

or very high value for triage purposes. The most frequently cited potential advantage of emergency teleophthalmology was assistance in patient triage and immediate real-time electronic communication, and the most frequently cited potential disadvantages were unknown cost of contracting and maintenance and concern that eye trauma might make photographs or videos less conclusive. Conclusions and Relevance: Availability of ophthalmology coverage for emergency eye care is limited, particularly among rural emergency departments in California. Surveyed emergency department nurse managers and physicians indicated moderately high interest and perceived value for a teleophthalmology solution for remote triage and consultation. Overall, the study suggests that teleophthalmology could play a role in mitigating coverage gaps in emergency ophthalmic care and could be further investigated through similar studies in other regions.

Workforce

Ophthalmology Workforce Projections in the United States, 2020 to 2035
Item Type: Journal Article
Authors: Berkowitz, Sean T.;Finn, Avni P.;Parikh, Ravi;Kuriyan, Ajay E. and Patel, Shriji
Publication Date: 2024
Journal: Ophthalmology 131(2), pp. 133-139
Abstract: PURPOSE: To analyze ophthalmology workforce supply and demand projections from 2020 to 2035., DESIGN: Observational cohort study using data from the National Center for Health Workforce Analysis (NCHWA)., METHODS: Data accessed from the Department of Health and Human Services, Health Resources and Services Administration (HRSA) website were compiled to analyze the workforce supply and demand projections for ophthalmologists from 2020 to 2035., MAIN OUTCOME MEASURES: Projected workforce adequacy over time., RESULTS: From 2020 to 2035, the total ophthalmology supply is projected to decrease by 2650 full-time equivalent (FTE) ophthalmologists (12% decline) and total demand is projected to increase by 5150 FTE ophthalmologists (24% increase), representing a supply and demand mismatch of 30% workforce inadequacy. The level of projected adequacy was markedly different based on rurality by year 2035 with 77% workforce adequacy versus 29% workforce adequacy in metro and nonmetro geographies, respectively. By year 2035, ophthalmology is projected to have the second worst rate of workforce adequacy (70%) of 38 medical and surgical specialties studied., CONCLUSIONS: The HRSA's Health Workforce Simulation Model forecasts a sizeable shortage of ophthalmology supply relative to demand by the year 2035, with substantial geographic disparities. Ophthalmology is one of the medical specialties with the lowest rate of projected workforce adequacy by 2035. Further dedicated workforce supply and demand research for ophthalmology and allied professionals is needed to validate these projections, which may have significant future implications for patients and providers., FINANCIAL DISCLOSURE(S): Proprietary or commercial disclosure may be found in the Footnotes and Disclosures at the end of this article.

The genetic counselor workforce in inherited retinal disease clinics: a descriptive assessment Abstract only*
Item Type: Journal Article
Authors: Alabek, Michelle;Andersen, Katherine;Everett, Lesley and Marra, Molly
Publication Date: 2023
Journal: Ophthalmic Genetics 44(6), pp. 553-558
Abstract: BACKGROUND: Genetic counselors (GCs) have practiced in Inherited Retinal Disease (IRD) clinics for several

decades. In this small subspecialty of genetic counseling, GCs are critical for patient understanding of genetic information, which can have prognostic, systemic, family planning and therapeutic implications. Recently, both access to genetic testing for IRDs and the number of genes associated with IRDs (>350) has increased dramatically. However, the practice models and roles of IRD GCs have not been previously described., MATERIALS AND METHODS: GCs working in academic IRD clinics were surveyed to assess their experience, clinical practices, and roles performed. The collected data was compared to the broader genetic counseling profession and to other specialties using publicly available data on GC professional practices., RESULTS: While roles of IRD GCs were overlapping with those of the overall genetic counseling profession, all survey respondents reported diverse roles that included both clinical and non-clinical duties, spending up to half their time on research and educational responsibilities. Most respondents (89%) felt that their clinic's MD to GC ratio was too high, while clinical load varied. IRD GCs report varying degrees of prior genetic counseling and ophthalmology-specific experience but unanimously desire additional subspecialty-specific training., CONCLUSIONS: This descriptive assessment of a small subspecialty suggests a need for growth in the number of GCs practicing in IRD clinics and could help to inform development of new GC positions in IRD centers. It also highlights the desire for additional GC-specific education and may be relevant to curriculum development within GC programs.

Demographics and distribution of the optometry profession in Australia: 2011 to 2019 Abstract only*
Item Type: Journal Article
Authors: Duffy, Jane F.;Kirkman, Jacqueline M.;Woods, Craig A. and Douglass, Amanda G.
Publication Date: 2023
Journal: Clinical & Experimental Optometry 106(8), pp. 911-919

Abstract: CLINICAL RELEVANCE: An assessment of the total number, demographics and geographic distribution of optometrists in Australia may inform policy to address the maldistribution of the workforce., BACKGROUND: Concerns have been expressed about the growth of the optometry workforce in the context of, in the last decade, the establishment of four new optometry programs in addition to the three long-standing programs., METHODS: This paper analysed data obtained from the Australian Health Practitioner Regulation Agency about registered optometrists during the period 1 January 2012 to 31 December 2019. The de-identified dataset included information about registered optometrists in Australia: their first year of registration, gender, year of birth (in five-year bands), optometry qualification, registration type including endorsement for therapeutic practice and the postcode of the principal place of practice., RESULTS: Data for 6,596 registrants were obtained over the study period during which the number of female optometrists increased significantly. The age profile of the profession shifted, with younger age bands becoming a significantly greater proportion of the profession. The majority of the profession comprised optometrists with a qualification from one of the three long-standing Australian optometry programs. Graduates of those programs accounted for 75.1% of registered optometrists in 2019, while 14.3% held a qualification from an overseas institution. The proportion of optometrists practising in major Australian cities was greater than the proportion of the population in those locations. A concomitant low proportion of optometrists, relative to population size, was found in regional and remote areas., CONCLUSION: Optometrists practising in Australia can be generalised as mostly female graduates of one of the three long-standing optometry programs holding general registration with a therapeutic endorsement, and with a principal place of practice located in a major Australian city. A significant maldistribution of the workforce was found that did not change

significantly during the study period.

Scope of practice of optometrists working in the UK Hospital Eye Service: Second national survey
Item Type: Journal Article
Authors: Gunn, Patrick J. G.;Creer, Rosalind C.;Bowen, Michael;Tromans, Cindy;Jackson, Andrew Jonathan;Tompkin, Andrew P. and Harper, Robert A.
Publication Date: 2022
Journal: Ophthalmic & Physiological Optics : The Journal of the British College of Ophthalmic Opticians (Optometrists) 42(3), pp. 428-439
Abstract: PURPOSE: As the landscape in ophthalmology and related commissioning continues to change, there is a pressing need to re-evaluate the current scope of practice of hospital optometrists working within secondary care in the UK. We aim to establish if the skills or services delivered by optometrists have changed to meet varying demands, and to better understand what changes in practice may have arisen as a result of COVID-19., METHOD: A survey developed from that used in 2015 was disseminated to 129 optometry Hospital Eye Service (HES) leads in September 2020, including questions on department workforce; core services; extended roles; procedures undertaken within extended roles; level of autonomy; arrangements for prescribing; training and accreditation, and service changes in response to COVID-19., RESULTS: Ninety responses were received (70% response rate) from within England (76%), Scotland (22%) and Northern Ireland (2%). Whole time equivalents within units ranged from 0.4-79.2 (median of 2.5). In comparison to the 2015 survey, there was an increase in the proportion of units delivering extended roles, with glaucoma (88%) remaining the most common extended role, and new areas of practice in uveitis (21%) and vitreoretinal (13%) services. There was increased use of independent prescribing (67%) in comparison to 18% in 2015 and there was an increase in optometrists delivering laser interventions. In response to COVID-19, optometrists were increasingly delivering telephone consultations and there were new collaborations between primary and secondary care., CONCLUSIONS: Optometrists' scope of practice continues to develop in the HES with an increased variety of roles and an apparent increase in the number of units employing optometrists, often working in roles historically performed by medical practitioners. Such changes appear necessary in recovery and transformation within ophthalmology, alongside wider optometry changes arising at the interface of primary and secondary care. Copyright © 2022 The Authors. Ophthalmic and Physiological Optics published by John Wiley & Sons Ltd on behalf of College of Optometrists.

Considerations for Training and Workforce Development to Enhance Rural and Remote Ophthalmology Practise in Australia: A Scoping Review
Item Type: Journal Article
Authors: Obamiro, Kehinde;Jessup, Belinda;Allen, Penny;Baker-Smith, Victoria;Khanal, Santosh and Barnett, Tony
Publication Date: 2022
Journal: International Journal of Environmental Research and Public Health 19(14)
Abstract: Australia has one of the lowest per capita numbers of ophthalmologists among OECD countries, and they predominantly practise in metropolitan centres of the country. Increasing the size and distribution of the ophthalmology workforce is of critical importance. The objective of this review was to investigate the context of rural ophthalmology training and practise in Australia and how they relate to future ophthalmology workforce development. This scoping review was informed by Arksey and O'Malley's framework and the methodology described by Coloqhuon et al. The search yielded 428 articles, of which 261 were screened for eligibility. Following the screening, a total of 75 articles were included in the study. Themes

identified relating to rural ophthalmology training and practise included: Indigenous eye health; access and utilisation of ophthalmology-related services; service delivery models for ophthalmic care; ophthalmology workforce demographics; and ophthalmology workforce education and training for rural and remote practise. With an anticipated undersupply and maldistribution of ophthalmologists in the coming decade, efforts to improve training must focus on how to build a sizeable, fit-for-purpose workforce to address eye health needs across Australia. More research focusing on ophthalmology workforce distribution is needed to help identify evidence-based solutions for workforce maldistribution. Several strategies to better prepare the future ophthalmology workforce for rural practise were identified, including incorporating telehealth into ophthalmology training settings; collaborating with other health workers, especially optometrists and specialist nurses in eyecare delivery; and exposing trainees to more patients of Indigenous background.

Demographics and distribution of new entrants to the optometry profession in Australia Abstract only*
Item Type: Journal Article
Authors: Duffy, Jane F.;Douglass, Amanda G.;Hammond, David S. and Woods, Craig A.
Publication Date: 2021
Journal: Clinical & Experimental Optometry 104(2), pp. 222-228
Abstract: CLINICAL RELEVANCE: An assessment of the total number, demographics and geographic distribution of new entrants to the optometry profession in Australia can assist planning for workforce requirements., BACKGROUND: Over the past decade, the number of registered optometrists in Australia has increased by 30.1 per cent, a rate that is greater than the population growth of the country (12.1 per cent). Concerns have been expressed about the size of the optometry workforce in a context of increasing numbers of graduating optometrists. This paper analyses data obtained from the Australian Health Practitioner Regulation Agency (AHPRA) about new entrants to the profession and their initial practice location during the period 1 July 2010 to 30 June 2018., METHODS: A de-identified dataset was obtained from AHPRA that revealed the following characteristics of new entrants: qualification, gender, year of birth (in five-year bands), registration type, registration endorsement and principal place of practice including its Remoteness Area classification., RESULTS: Data for 1,680 entrants were eligible for analysis; 80 per cent graduated from an Australian university, 12 per cent graduated from the optometry program in New Zealand, and seven per cent were graduates of an overseas university. The remaining two per cent registered via the Trans-Tasman Mutual Recognition Agreement, although the dataset did not include the qualification. The United Kingdom and Republic of Ireland provided the majority of overseas entrants (60 per cent). Most (75 per cent) entrants commenced practice in a major Australian city. Graduates of Australian universities tended to commence practice in the state in which they trained or an adjacent state or territory. Juxtaposed on the data outlined above is the high proportion (42 per cent) of overseas-trained optometrists commencing practice in Western Australia., CONCLUSION: Coincident with the newer optometry programs producing graduates is the increased number of optometrists entering the Australian workforce over the past decade, with the majority commencing practice in major cities. Australia-trained optometrists tend to commence practice in the state where their training was undertaken. New entrants to the optometry profession can be generalised as graduates of an Australian optometry program, female, aged in their early-mid 20s and qualified for therapeutic practice.

Geographic distribution of eye-care practitioners in Aotearoa/New Zealand: implications for future eye health workforce Abstract only*
Author(s): Chapman et al.

Source: Clinical and Experimental Optometry 103(4)
Publication date: July 2020
BACKGROUND The New Zealand Ministry of Health provides funding for the delivery of health care across regions via 20 District Health Boards. Funding includes the subsidisation of therapeutic pharmaceutical agents/drugs. The distribution of optometrists and ophthalmologists across the regions was investigated to understand the accessibility of eye care in New Zealand. Changes made to the optometrists' scope of practice in 2005 and in 2014 increased the range of drugs that suitably qualified optometrists could prescribe. Therefore, the distribution of optometrists authorised to prescribe drugs and those not authorised to prescribe drugs was also investigated. METHODS Information from the New Zealand Optometrists and Dispensing Opticians Board register and information from the Medical Council's website were used to create a database of ophthalmic practitioners and their locations. The $\chi 2$ goodness-of-fit test was carried out to determine whether the distribution of the number of practitioners across the regions was in proportion to the population of the regions. RESULTS Ophthalmologists were distributed across the regions in proportion to the regional population size. However, optometrists were concentrated in Auckland and other regions with high populations. Optometrists authorised to prescribe drugs comprised over 74 per cent of optometrists and were the majority of optometrists in most regions. Many of the regions with populations less than 200,000 had high population-to-practitioner ratios, indicating that they may not have sufficient numbers of ophthalmic practitioners in order to provide for the ocular needs of the community. CONCLUSION Better distribution of the optometric workforce could make eye care more accessible in many regions of New Zealand.

Competency Frameworks

Eye Care Competency Framework
Source: World Health Organisation
Publication date: May 2022
The WHO Eye care competency framework (ECCF) is a tool that will provide a set of global comprehensive competencies and activities. This tool will enable planning and development of eye care workforce to be aligned to a recognized standard of competencies and activities and will assist with maintaining an effective eye care workforce in terms of composition, deployment and ongoing availability to meet population needs. The ECCF can be used by education and training institutions, policy-makers and regulation authorities, eye care service providers, and non-governmental organizations.

The Ophthalmic Common Clinical Competency Framework – Curriculum
Source: NHS England
The Ophthalmic Common Clinical Competency Framework (OCCCF) provides standards and guidance for the knowledge and skills required for non-medical eye healthcare professionals to deliver patient care. It is well known that there is a need for a systematic patient-centred approach to multi-disciplinary education and training in order to ensure standardised and recognised competences across all ophthalmic secondary care locations in the UK.

Ophthalmic Specialist Training Curriculum
Source: The Royal College of Ophthalmologists
The OST Curriculum is underpinned by an e-Portfolio system, where you should record your progress against the learning outcomes.

Community Ophthalmology Framework
Source: Royal College of Ophthalmologists
Publication date: July 2015
This document outlines the broad components of a Community Ophthalmology Service. Such a service is distinct from primary and secondary care services and is defined by the functions it performs and its composition, such as the use of multidisciplinary teams with a targeted case load.

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