Evidence Brief: Ophthalmology

Contents

HEE Knowledge Management Team, March 2020

Key publications – the big picture

Interim People Plan NHS, June 2019
Our Interim NHS People Plan, developed collaboratively with national leaders and partners, sets a vision for how people working in the NHS will be supported to deliver care and identifies the actions we will take to help them.

The NHS Long Term Plan NHS, 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 Royal College of Ophthalmologists, 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 NHS England, January 2019
This handbook has been created to support the improvement of local health and care systems for ophthalmology elective care services.

Getting it Right First Time (GIRFT) ophthalmology national report NHS Improvement, 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”

Opthalmology outpatients – safe and efficient processes Royal College of Ophthalmologists, February 2018
Ophthalmology is the second busiest outpatient specialty and demand is outstripping capacity, with the risk of delays, particularly to follow up patients which can result in permanent loss of vision. It is crucial to ensure robust processes to ensure effective safe use of resources to

deliver outpatient care. This document outlines some key principles and aims to support national programmes involved in reconfiguration of ophthalmology services for improvement such as the National Elective Care Transformation programme, Getting it Right First Time and Right Care.

Workforce Census 2018 Royal College of Ophthalmologists

The combination of an aging population and expansion in diagnostic and treatment options continues to overwhelm ophthalmic services across the UK, despite significant transformation by the ophthalmic profession in the way services are delivered. Ophthalmology is a major specialty, managing nine million outpatient appointments every year and 6% of all surgery, making it the busiest outpatient department in the NHS. We do this with approximately 1,500 ophthalmologists in the UK. However, the latest RCOphth workforce census confirms what we hear daily from our members and our patients – there are not enough ophthalmologists to cope and that this crisis is getting worse. The census highlights the continuing serious shortage of ophthalmologists, a widespread use of locums, which is expensive and can create significant risk to patients, as well as many unfilled posts.

Report | Infographic

Workforce Census 2016: A picture of the size and shape of the UK ophthalmic medical workforce Royal College of Ophthalmologists, March 2017

The RCOphth, with the publication of its most recent Workforce Census 2016 report with data from 75% of hospital eye units in the UK, places another important piece of the jigsaw depicting the current state of secondary NHS ophthalmology care. The report indicates that throughout the UK, departments are struggling to provide the service required by their population. Around a half of the units have unfilled consultant and/or SAS positions, over 90% are undertaking waiting list initiative surgery or clinics, with a similar proportion estimating that they require between one and five additional consultant ophthalmologists over the next two years. Are there enough trainees in the UK to satisfy demand for new and replacement consultant positions in the next two years? Probably not according to the report. The RCOphth continues to lobby for additional training numbers (there have been many more applicants than available posts since run through training commenced in 2012), but the current government position is to freeze the number of training posts for the next ten years.

The Way Forward Resources 2017, Royal College of Ophthalmologists

The increasing demand for hospital eye services (HES) is not being met and continues to grow – currently seeing nearly 10% of all outpatient appointments and performing

6% of the surgery in the UK. The Way Forward was commissioned by The Royal College of Ophthalmologists to identify current methods of working and schemes devised by ophthalmology departments in the UK to help meet the increasing demand in ophthalmic services. The information aims to offer a helpful resource for ophthalmologists who are seeking to develop their services to meet capacity needs.

Blog post: Creating a community of care on eye health NHS England, January 2019

The chief operating officer with the Local Optical Committee Support Unit (LOCSU) explains how local optical practices can play a significant role providing patient-centred, preventative health:
Sight is the sense we fear losing most and a growing elderly population is more likely to suffer sight issues. There are almost two million people in the UK living with sight loss – this is expected to double by 2050. Many people think that a sight test is just about checking whether your vision needs correcting with glasses or contact lenses. But checking a patient's sight could transform their health and wellbeing through the identification of other health issues.

National Ophthalmology Workstream: Hospital Eye Services – Progress, Priorities & Practical Actions for a Safe, Sustainable Service across Scotland NHS Scotland, April 2017

This report sets out significant progress that has already been achieved across hospital eye services in Scotland. It also explores future opportunities for further gain and innovation. Above all it sets out opportunities and tools for clinicians to be the architects of future change in the delivery of ophthalmic care in a modern health service. This exemplar work has already delivered benefits and there is much more to achieve.
See Section 5.2.3 "Workforce"

Digital Ophthalmology in Scotland: Benefits to patient care and education Clinical Ophthalmology, 2019

Tackling visual impairment remains an important public health issue. Due to limited resources and the increasing demand on hospital eye services (HES), delivery of quality eye care within the community is essential. Training of clinical ophthalmic specialists and allied health-care professionals in the detection and management of common eye conditions can thus help to reduce the burden of eye disease and improve prognostic outcomes. Digital imaging has become a useful tool in facilitating eye-care delivery in both the community and hospital setting. In the last decade, the advent of electronic image exchange via a centralized referral unit in Scotland has revolutionized screening for ophthalmic disease, referrals, and shared care between community

and HES clinicians. A government-led initiative known as the Scottish Eyecare Integration Project introduced electronic transfer of digital images within referrals from community optometrists to HES, which greatly reduced outpatient waiting times and improved patient satisfaction.

Case Studies

EyesWise (Elective Care Transformation Programme Project) NHS England, n.d.
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)

HEE Star

More resources and tools are available if you search for **"Ophthalmic"** in the HEE Star:
https://www.hee.nhs.uk/our-work/hee-star

This includes a video on HEE's YouTube channel "Advancing clinical practice in ophthalmology" which looks at the Ophthalmic Common Clinical Competency Framework

Statistics

You can find statistics on the Health and Care Statistics Landscape under
https://gss.civilservice.gov.uk/hc-statistics-landscape/

NHS Digital also published a supplementary analysis on the wider goals of the Opthalmology transformation programme in addition to their Provisional Monthly Episode Statistics for Admitted Patient Care in June 2019. You can see the full release here.

HEE National Data Programme

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

Published Peer Reviewed Research

Supply

Optometric supply and demand in Australia: 2011-2036 Clinical & Experimental Optometry, May 2015

*Athens log in required**

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 […] 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.

Workforce supply of eye care providers in Canada: optometrists, ophthalmologists, and subspecialty ophthalmologists Canadian Journal of Ophthalmology, December 2015 *Abstract only**

OBJECTIVE To assess the population distribution of optometrists, ophthalmologists, and subspecialist ophthalmologists in Canada […] RESULTS In 2012 there were 5729 optometrists and 1164 ophthalmologists, of which 524 ophthalmologists (45%) were subspecialized, representing 4.92 optometrists per ophthalmologist. For every 100,000 Canadians there were 3.35 ophthalmologists (1.84 comprehensive and 1.51 subspecialists) and 16.48 optometrists. Of the 148 census areas, 1 (0.7%, Yellowknife) had no optometrist and 43 (29%) had no ophthalmologist. The greatest proportions of ophthalmology subspecialists were in surgical retina (20.6%) and the lowest was ocular pathology (1.5%).CONCLUSIONS Although benchmarks regarding the ideal balance among number of optometrists, ophthalmologists, and subspecialists in relation to population are unknown, we found that all census regions had at least 1 ophthalmologist or optometrist. Forty-five percent of ophthalmologists identified a subspecialty interest, of which the majority was surgical retina. This information may be of value to training ophthalmologists when deciding on a subspecialty and practice location.

A workforce in crisis: a case study to expand allied ophthalmic personnel Canadian Journal of Ophthalmology, August 2016 *Abstract only**

OBJECTIVE To examine how the development of allied ophthalmic personnel training programs affects human resource capacity. […] RESULTS Current human resource capacity development and deployment is inadequate to provide the needed eye care services

in Canada. A competency-based curriculum and accreditation model as the platform to develop formal academic training programs is essential. Access to quality eye care and patient services can be met by task-shifting from ophthalmologists to appropriately trained allied ophthalmic personnel. CONCLUSION Establishing formal training programs is one important strategy to supplying a well-skilled, trained, and qualified ophthalmic workforce. This initiative meets the criteria required for quality, relevance, equity, and cost-effectiveness to meet the future demands for ophthalmic patient care.

Optometry services in Ontario: supply - and demand-side factors from 2011 to 2036 Healthcare Policy, 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 2$ 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.

Adequacy of the ophthalmology workforce under Ontario's Local Health Integration Networks Canadian Journal of Ophthalmology, June 2016 *Abstract only**

OBJECTIVE To determine the current distribution of ophthalmologists across Ontario's Local Health Integration Networks (LHINs) and the influence on LHIN-specific cataract surgery wait times. […] RESULTS There are currently 3.28 ophthalmologists per 100 000 total population in Ontario. LHIN-specific ratios ranged from 8.87 (Toronto Central) to 1.67 (Central West), with 3 out of 14 LHINs having met the previously recommended ratio of 3.37. Median cataract surgery wait times ranged from 30 to 72 days. Although the number of cataract surgeries performed was positively correlated with the population aged 65 years and older ($p < 0.001$), there was no statistically significant association between wait times and number of cataract cases per 1000 population ($p = 0.41$).CONCLUSIONS Although Ontario appears to have a sufficient number of ophthalmologists overall, there is significant variation in the distribution of the ophthalmology workforce at the LHIN level. This variation did not appear to significantly influence LHIN-specific cataract surgery wait times.

Future trends in ophthalmology health human resources in Canada Canadian journal of Ophthalmology, June 2016 *Abstract only**

Projections of future Canadian ratios of ophthalmologists to population have fluctuated because of changes in numbers of residency spots and retirement rates. Although this ratio plateaued in recent years, the ratio of ophthalmologists to the population over 65 years of age is projected to steadily deteriorate. All graduating residents are going to be needed to meet the upcoming workload, yet current graduates are finding increasing difficulty obtaining full-

time positions with operating room privileges. This problem is affecting all specialties who require hospital facilities, and exploration of this problem by the Royal College, Canadian Medical Association (CMA), Resident Doctors of Canada, and council of the Provincial Deputy Ministers of Health is presented. Proposed solutions to the current job shortages include residents starting in positions outside of major metropolitan areas, clinicians in practice giving up some operating room time to make way for new graduates, government increasing infrastructure commensurate with the increased number of medical school positions, and optimizing use of current resources by running operating rooms for longer hours and on the weekends.

Could adoption of the rural pipeline concept redress Australian optometry workforce issues? Clinical & Experimental Optometry, November 2019 *Abstract only**

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.

Leadership

Leadership in Ophthalmology: the role of physicians-MBAs American Journal of Ophthalmology, April 2018 *Abstract only**

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 American journal of Ophthalmology, February 2018 *Abstract only**

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.

Diversity

Current and future status of diversity in ophthalmologist workforce JAMA Ophthalmology, 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.

Michigan Ophthalmology Pipeline: Exploring a Mentorship Model to Increase Diversity in Ophthalmology Journal of Academic Ophthalmology, 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.

Residency Program Directors of United State Ophthalmology Programs: a descriptive analysis American Journal of Ophthalmology, 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.

Aging and feminization of the physician workforce in Canada: comparing ophthalmologists to all other physicians Canadian Journal of Ophthalmology, June 2014 *Abstract only**

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.

Decadelong profile of women in ophthalmic publications

JAMA Ophthalmology, 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.

Women in Ophthalmology to focus on leadership, diversity and science at Summer Symposium

Ocular Surgery News, June 2019 *Office365 log in required**

The symposium kicks off with a keynote session featuring presentations and discussions that include "Diversity and Equality in Medicine: A Perspective from the AMA," "Building Equality in Medicine" and a breakout session with "Chairs in Ophthalmology" New this year is the first Women in Ophthalmology Charity Golf Tournament, which will benefit Orbis International as part of WIO's philanthropic international outreach, and making a return appearance on the program is the "Battle of the MIGS" and "Dry Eye" wet labs, among others. Empowering female ophthalmologists to elevate their aspirations and gain the tools they need to meet the challenges of the future is the reason this meeting is so popular every year" Professional development Empowerment comes in the form of professional development, from over 20 hours of CME sessions, to mentorship, leadership and self-care talks, to skill development in communication training, workshops in negotiations and practice management. [...]we are proud to announce a new WIO philanthropic venture - a charity golf tournament to kick off the meeting on Thursday, proceeds of which will be donated to Orbis International.

Collaboration

The role of optometry in collaborative eye care Clinical & Experimental Optometry, May 2016
The National Framework for Action to Promote Eye Health and Prevent Avoidable Blindness and Vision Loss calls for improvements in communication and co-ordination of the fragmented eye health-care system. Collaborative care would reduce duplication of services and minimise confusion within the community, leading to continuity of care and improved services

Education

Undergraduate ophthalmology education – survey of UK medical schools Medical Teacher, 2011 *Abstract only**
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.

A systematic review of best practices in teaching ophthalmology to medical students Survey of Ophthalmology, January 2016 *Abstract only**
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.

Sharpening the focus on ophthalmology teaching: perceptions of medical students and junior medical officers Experimental Ophthalmology, June 2018 *Abstract only**
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.

Effectiveness of flipped classroom combined with team-. Case-, lecture-, and evidence-based learning on ophthalmology teaching for eight-year program students
BMC Medical Education, 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.

Advancing ophthalmology medical student education: international insights and strategies for enhanced teaching Survey of Ophthalmology, March 2020 *Abstract only**
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.

Present and future of the undergraduate ophthalmology curriculum: a survey of UK medical schools International Journal of Medical Education, 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.

Enhancing Medical Student Education by Implementing a Competency-based Ophthalmology Curriculum Asia-Pacific Journal of Ophthalmology, 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.

Status of Canadian undergraduate medical education in ophthalmology Canadian Journal of Ophthalmology, October 2018 *Abstract only**

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.

Determining the needs of ophthalmic trainees entering into specialist training and how they can be met Advances in Medical Education and Practice, 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.

Technology

Evaluation of eLearning for the teaching of undergraduate ophthalmology at medical school: a randomized controlled crossover study Eye, 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.

Teaching ophthalmology for machines Open Ophthalmology Journal, 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.

A technician-delivered 'virtual clinic' for triaging low-risk glaucoma referrals Eye, 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.

Clinical Outcomes of a Hospital-Based Teleophthalmology Service: What happens to patients in a Virtual Clinic? Ophthalmology, May 2019 *Abstract only**

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.

Real-time teleophthalmology video consultation: an analysis of patient satisfaction in rural Western Australia Clinical & Experimental Optometry, January 2018

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.

Supply and perceived demand for teleophthalmology in triage consultations in California Emergency Departments
JAMA Opthalmology, 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.

Nursing

Glaucoma diagnosis and treatment: the role of the ophthalmic nurse Insight (American Society of Ophthalmic Registered Nurses), 2016 *Abstract only**
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.

An integrative literature review of the effectiveness of nurse-led clinics in ophthalmology Insight (American Society of Ophthalmic Registered Nurses) *Abstract only**
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.

Burnout

An eye center-wide burnout intervention: resilience program and burnout survey Digital Journal of Ophthalmology, 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.

Competency Frameworks

Ophthalmic Common Clinical Competency Framework
Royal College of Ophthalmologists, 2016
The Ophthalmic Common Clinical Competency Framework (OCCCF), developed in 2016, provides standards and guidance for the knowledge and skills required for non-medical eye healthcare professionals to deliver patient care in a multidisciplinary team setting. The Framework has been developed into a curriculum in 2019, with corresponding work-place based assessments and resources, covering four clinical areas; acute and emergency eye care, cataract assessment, glaucoma and medical retina.

Community Ophthalmology Framework Royal College of Ophthalmologists, 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.
More on the Ophthalmic Clinical Competency Framework – Curriculum for HEE

Medical ophthalmology curriculum General Medical Council (GMC), November 2017
The purpose of this curriculum is to define the process of training and the competencies needed for the award of a certificate of completion of training (CCT) in Medical Ophthalmology.

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