



2016

EDUCATING THE
EDUCATORS

JANUARY 27
FT LAUDERDALE MARRIOTT HARBOR BEACH RESORT
FT LAUDERDALE, FLORIDA



PROVIDED BY
ASSOCIATION OF UNIVERSITY PROFESSORS OF OPHTHALMOLOGY
PROGRAM DIRECTORS COUNCIL

Meeting Syllabus

Educating the Educators 2016

MEETING SUPPORT

Educating the Educators is supported by an independent medical education grant from Alcon Research, Ltd.

The Educating the Educators Reception is sponsored by the San Francisco Matching Program.

The Association of University Professors of Ophthalmology's Program Directors Council welcomes you to the annual Educating the Educators conference in Fort Lauderdale, Florida.

In its 13th year, the Educating the Educators meeting continues to be the leading forum for all educators, including residency program directors, associate program directors, medical student educators, program coordinators, and chairs to share ideas and best practices related to ophthalmic education.

This year, we are pleased to have Drs. Matthew Fitzgerald, Philip Custer and Robert Gold lead a symposium on Patient Safety and Quality Improvement and Dr. Susan Culican will speak on Evidence-Based Evaluations. A review committee consisting of our peers has had the difficult job of selecting outstanding oral and poster presentations from among a record number of excellent submissions.

We will complete the day with an exciting and motivating guest lecture presented by Miami Dolphins Wide Receiver Coach, Kenneth O'Keefe.

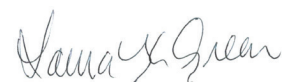
We look forward to seeing you in Fort Lauderdale and hope you enjoy the meeting!



R. Michael Siatkowski, MD
Co-Chair, Educating the Educators
Member-at-Large
AUPO Program Directors Council



Evan "Jake" Waxman, MD, PhD
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Educating the Educators 2016 Program

Wednesday, January 27

7:00 AM – 8:00 AM	Registration and Continental Breakfast	Caribbean Foyer
8:00 AM – 8:03 AM	Welcome and Announcements	
8:03 AM – 8:13 AM	History of Educating the Educators Thomas A. Oetting, MD President, AUPO Program Directors Council University of Iowa	
8:13 AM – 8:45 AM	Organizational Updates	
8:13 AM – 8:21 AM	San Francisco Match Program Update Dennis S. Thomatos	
8:21 AM – 8:29 AM	O.K.A.P Update Kathryn Peters	
8:29 AM – 8:37 AM	AAO, Young Ophthalmologist Update Jeff H. Pettey, MD	
8:37 AM – 8:45 AM	Updates from AAO Committee for Resident Education: Simulation and O.N.E. Network Jean R. Hausheer, MD	
8:45 AM – 10:15 AM	Patient Safety / Quality Improvement Symposium: The Quality Renaissance, Patient Safety Paradigm Shift and Patient Centered Care Revolution Matthew E. Fitzgerald, DrPH Public Director, American Board of Ophthalmology Senior Consultant, Quality Improvement, Signature Consulting Group Why "Safety" is Relevant in Ophthalmic Education Philip L. Custer, MD Director of Task Force on Patient Safety, American Board of Ophthalmology Professor, Ophthalmology and Visual Sciences, Washington University School of Medicine, St. Louis Using Checklists to Prevent Patient Harm Robert S. Gold, MD, FAAP Board of Directors, Ophthalmology Mutual Risk Company (OMIC) Eye Physicians Central Florida	
10:15 AM – 10:35 AM	BREAK	
10:35 AM – 11:53 PM	Free Paper Session I (Patient Safety and Quality/Practice Improvement)	
11:53 AM – 12:10 PM	Panel Discussion	
12:10 PM – 1:10 PM	LUNCH (included)	Dunes/Coconut Terraces
1:10 PM – 1:40 PM	Invited Lecture – Toward Evidence-Based Evaluation: A Proposal for a Collaborative Effort to Gather Cumulative Aggregate Data on Resident Surgical Experience Susan M. Culican, MD, PhD Program Director, Washington University	
1:40 PM – 3:00 PM	Free Paper Session II (General Education Projects and Best Practices)	
3:00 PM – 3:30 PM	Panel Discussion	
3:30 PM – 3:45 PM	BREAK	
3:45 PM – 4:45 PM	Guest Lecture – "Stick a Fork in It" Lessons Learned from 50 Years of Football Coach Kenneth O'Keefe Miami Dolphins Wide Receiver Coach	
4:45 PM – 5:00 PM	Wrap-Up and Adjournment	
5:00 PM – 6:30 PM	RECEPTION	Dunes/Coconut Terraces

Free Paper Session – Part I

PATIENT SAFETY AND QUALITY/PRACTICE IMPROVEMENT

Quality Improvement Curriculum in an Ophthalmology Residency Program: Evaluation of a Group Model

NATASHA V. NAYAK, MD*[†]; ANITA GUPTA, MD

Background:

The Accreditation Council for Graduate Medical Education has recently mandated resident participation in quality improvement (QI), requiring residency programs to consider various ways to integrate QI into their curricula. To date there are no published reports of QI curriculum for ophthalmology residents.

Purpose:

To describe a novel QI curriculum and evaluate its efficacy in ophthalmology residency education.

Methods:

All ophthalmology residents (n=21) in a single residency program participated in the QI curriculum over the 2014-2015 academic year, consisting of didactics, project design/selection (one project/class), and project implementation. Knowledge and attitudes were assessed pre- and post- curriculum, using various tools including a modified Quality Improvement Knowledge Assessment Tool and a QI Self-Assessment survey.

Results:

48% of residents had never been involved in prior QI activities. Residents' self-assessment in QI methodology was significantly higher across each domain at the completion of the curriculum ($p < 0.05$). Post-curriculum questionnaires revealed residents were more knowledgeable about QI. 90% agreed that the QI curriculum reinforced important QI theories/principles; 90% agreed that the group format was an effective alternative to independent projects.

Conclusions:

A QI curriculum including didactics and resident-chosen group projects can improve resident skills in QI.

Developing Successful Resident-Directed Quality Improvement Projects

R. MICHAEL SIATKOWSKI, MD*

Background:

The ACGME requires residents to be involved in Quality Improvement (QI) projects during their training, but many residents and faculty members have little experience in design or execution of such projects.

Purpose:

To report outcomes of successfully designed and completed resident-led QI projects in a medium-sized residency.

Methods:

Retrospective review of project design and pre- and post-intervention measurements among resident-led QI projects at the Dean McGee Eye Institute from 2011-2015.

Results:

QI projects were undertaken in the following areas:

1. Enhancing faculty/fellow supervision of inpatient consultations for patients with highest complexity and/or medical acuity.
2. Improving resident adherence to AAO Preferred Practice Patterns for primary open-angle glaucoma.
3. Increasing percentage of diabetic patients seen in the resident comprehensive ophthalmology clinic who have established appointments with primary care providers.
4. Improving percentage of functionally monocular patients seen by faculty who received prescriptions for protective eyewear.
5. Maximizing faculty attendance for subspecialty clinic patients seen at the VA clinic.

Conclusion:

Well-designed QI projects can be successfully directed by residents and can result in improvements in resident education, patient care, or both. In addition, such projects can help to develop proficiency in multiple areas and competencies such as teamwork, communication skills, patient safety, systems-based practice, and professionalism.

Application of Lean Services Methodology to Improve Ophthalmology Resident Clinic Performance, Efficiency, and Patient Care

RACHEL WOZNIAK, MD, PHD*; MARK DUEME, MPH; BENJAMIN HAMMOND, MD; RONALD PLOTNIK, MD, MBA

Background:

Lean Services is the application of the Toyota Production System (TPS) methodology of continuous improvement in order to maximize value for customers through reduction of waste in service operations. The University of Rochester uses Lean education methodologies to optimize health care delivery, usually at the Department level. Residents are not typically included as primary stakeholders.

Purpose:

To use Lean Services methodology to improve efficiency and performance in an Ophthalmology Resident Clinic setting.

Methods:

Time studies, resource analysis, and resident workflows were defined and analyzed, in an effort to determine time spent in various activities including check in and out, examination, attending staffing, and diagnostic testing. Break-even analysis was performed to justify added expenditures.

Results:

Changes to workflows were instituted to improve efficiency including spatial reorganization, modified preceptor roles, improved diagnostic testing flexibility, and increases in instrumentation. Additionally, we were able to prove financial benefit of additional technician support.

Conclusion:

The Lean Services methodology provides a framework for resident based initiatives to improve efficiency. Residents can be a driving force in the Lean process, and as primary stake holders, can reduce waste, optimize workflows, enhance the educational experience, improve patient care, and increase patient and physician satisfaction.

Engaging Residents in Quality Improvement and Patient Safety Through a Novel, Experiential Curriculum

CAROLYN KLOEK, MD*; PETER VELDMAN, MD; TERESA CHEN, MD

Background:

Quality improvement (QI) and patient safety are important areas in resident education.

Purpose:

To implement a curriculum for an ophthalmology residency in which residents actively participate in hospital QI and safety initiatives.

Methods:

A QI and safety curriculum was implemented in which residents: 1) design and complete a QI project during residency under the mentorship of a faculty member, 2) attend steering committee for quality (SCQ) meetings at the residency's sponsoring institution, Massachusetts Eye and Ear (MEE), and 3) participate in the collection of cataract surgery outcomes data, from which they are given their individual outcomes data (i.e. percentage of cases within 1D of refractive target, vitreous loss rates) for cases where they were primary surgeon.

Results:

All 7 graduating residents in June 2015 completed a QI project that was overseen by the Chief Quality Officer at MEE and rotated on the SCQ. Cataract surgery outcomes were reported to each resident. Vitreous loss ranged from 0 to 1.9%, and residents achieved results within 1D of target 94 to 100% of the time.

Conclusion:

A QI and safety curriculum that actively engages residents was successfully implemented.

Sharp Injuries in Ophthalmology Residency: Results of a Resident Quality Improvement Project

**ALIYA Z. JIWANI, MD*;
JO ANNE RICCA, NP;
CAROLYN KLOEK, MD**

Background:

While sharp injuries may occur more frequently in residents than other health care workers, few studies in the US examine sharp injuries in residents and none specifically examine ophthalmology residents.

Purpose:

To characterize sharp injuries among ophthalmology residents at a high volume academic center with a high number of resident procedures.

Methods:

Retrospective review of ophthalmology resident sharp incident reports at Massachusetts Eye and Ear Infirmary's (MEEI) occupational health from 2009-2014. Anonymous survey of 24 current MEEI ophthalmology residents in June 2015.

Results:

For the chart review, the 27 sharp injuries occurred more frequently in PGY-2s, during oculoplastics procedures and with suture needles. For the survey, 83% responded. Of the respondents, 45% (9/20) self-reported at least one sharp stick during ophthalmology residency, but 2 of these residents failed to report the injuries. 70% of respondents knew how to report a sharp injury at the primary teaching site, but only 10-20% knew how to do so at the other 7 sites. Qualitative comments were collected about factors contributing to the injury, reasons for non-reporting and the reporting process.

Conclusion:

Education in sharp safety to decrease injuries and improve reporting rates may be helpful.

Effect of Surgical Teacher Tracking on Resident Participation in Cataract Surgery

JOHN LLOYD, MD, FRCSC*; SHERIF EL-DEFRAWY, MD, PHD, FRCSC; DAVID YAN, MD, FRCSC; GRAHAM BELOVAY, MD

Background:

Contribution to cataract surgical teaching by supervising surgeons is paramount for residents to learn cataract surgery. However, each surgeon has to balance teaching with completing their case list and risk of complications. As a result there is often a large variability in the amount of teaching done.

Purpose:

To determine the effect of tracking resident participation in cataract surgery with departmental targets and linking this to available resources on the amount of surgical teaching residents receive.

Methods:

Cataract surgeons at the Kensington Eye Institute (KEI) were required to record resident involvement in each cataract surgery. A weighted scale was used to quantify the number of cases performed by residents: observed=0, <50%=0.25, >50%=0.75, and full case=1.0.

Results:

- Total number of available teaching cases: 5014(2013) vs. 4795(2014) ($p=0.76$)
- The monitoring and reporting of teaching rates and linking to available resources resulted in:
 - A significant increase in the number of cases that residents participated in
 - A larger increase in teaching by those who did not do as much in the past

Conclusion:

The monitoring of teaching rates in cataract surgery and the linking of this to resource availability at an academic teaching facility significantly increased resident involvement, especially amongst surgeons who taught less frequently.

Free Paper Session – Part II

GENERAL EDUCATION PROJECTS AND BEST PRACTICES

The Effect of Fine Motor Skill Activities on Surgical Simulator (EYESi®) Performance

ANTHONY T. CHUNG*; LUCAS T. LECI, MD; MICHAEL D. GRIESS, MD; THOMAS A. OETTING, MD; ERIN M. SHRIVER, MD, FACS

Background:

Video game play has been shown to improve skill acquisition on laparoscopic simulators. However, few studies have analyzed the influence of demographic factors on ophthalmic surgical skills. EYESi® has shown significant construct validity for simulation of cataract surgery.

Purpose:

Determine if history of fine motor activity impacts EYESi® performance.

Methods:

Participants included medical students and ophthalmology interns. Demographic information, handedness, and time spent performing video games, musical instruments, and other fine motor activities were obtained. All participants performed 3 EYESi® tasks twice (navigation, forceps, and bimanual training) and scores were averaged.

Results:

Twenty-six participants (17 males, 9 females) completed 255 EYESi® tasks. Twenty-four participants were right handed. Nineteen participants reported regular video game history. Twenty-five participants played a musical instrument. Nine participants reported other fine motor activities including knitting and dissecting. Those reporting regular video game play performed significantly better on navigation training compared to those that did not (score of 53 and 39 respectively, $p = 0.03$), and trended towards better performance on forceps training (33 and 21 respectively, $p = 0.08$). There was no correlation between video game quantity, musical instruments, or fine motor activities and simulation performance.

Conclusion:

Video game play, regardless of duration, improves ophthalmic surgical skills.

Mentorship of the Cataract Surgery Educator

SARAS RAMANATHAN, MD*

Background:

Formal mentorship helps ophthalmology basic scientists to launch scholarly careers. However, little is known about mentorship of clinical educators, specifically cataract surgery educators. Yet they must develop skills to take a scholarly approach to teaching, assessment, curriculum development, advising, and leadership.

Purpose:

To describe the mentorship received by academic cataract surgery educators to promote career advancement.

Methods:

In this qualitative study, the Massachusetts Eye and Ear Infirmary (MEEI) Intensive Cataract Surgery Course faculty was surveyed regarding mentorship quality and quantity. Thirty of 39 members completed 22-open and closed items. Researchers conducted a content analysis of qualitative answers, triangulating with participants to verify resulting categories.

Results:

Respondents were clinical educators (70%) at associate professor rank (52%). Informal mentorship was sought by 44%. Mentorship discussions centered on surgical/clinical teaching, clinical care, work-life balance, long-term career planning and national networking. Those without mentorship cited a perceived lack of utility or lack of qualified individual, but noted that mentorship would likely help with funding, grant writing, research design, manuscript preparation, national networking, educator's portfolio and surgical teaching.

Conclusion:

Successful cataract surgery educators received little formal mentorship. A formal mentorship program would promote further success in academic scholarship and career advancement.

Online Mapping Tool for Tracking Resident Surgical Procedures

ANDREW THLIVERIS, PHD, MD*; **STEPHEN K. SAUER, MD;** **DANIEL W. KNOCH, MD**

Background:

Historically, it has been easy to track the total number of cases a resident performs but more difficult to track detailed resident progress (specifically, what parts of the cataract procedure the resident performs) in the operating room. This difficulty is compounded when the resident is surgically active at different institutions and working with multiple faculty who may not receive timely, on-going or complete information about a resident's surgical competency. Consequently, there can be a high degree of variation of what the resident is allowed to do in the operating room between different teaching faculty based on perceived resident experience. Further, native resident surgical aptitude and rate of skill acquisition can create large variations of procedure numbers between residents. There has been no formal detailed tool to track and analyze these factors and their impact on a resident's progress.

Purpose:

We describe an on-line resident mapping tool for tracking cataract and other surgical procedures, which enables teaching faculty to document their on-going intra-operative resident assessments and view each resident's composite detailed surgical experience over the course of their residency.

Methods:

We developed a HIPPA compliant, on-line novel surgical case log using Google-docs that has multiple functions. First, it identifies which parts of each cataract procedure the resident performs. For the cataract procedure, six categories are tracked including lens insertion, cortical removal, lens quadrant removal, groove, capsulorhexis and wound construction. Second, it identifies which faculty supervised the procedure. Third, it identifies surgical complications by institution. Fourth, it enables comments on the case to be entered by both resident and faculty. All surgical teaching faculty as well as the program director were given access to the log. Participating residents entered their cases with their comments within 24 hours. The resident then sends a link to the surgical attending for review and comments.

Results:

Surgical data for 15 residents over 3 years was collected using the on-line resident mapping tool. The tool allowed complete transparency, enabling a variety of issues to be addressed. First, many misconceptions regarding events transpiring in the operating room were eliminated, resulting in more consistent training. Second, the tool allowed for almost seamless on-going review of resident progress, allowing early, highly-specific interventions for residents that were struggling. Third, we observed a significant improvement in the number of cataract cases given to residents since implementing the tool. Lastly, the tool allowed early intervention for two residents in whom skill acquisition was noted to be lagging.

Conclusion:

We developed a novel on-line resident mapping tool for tracking surgical procedures which has been extremely useful in training ophthalmology residents. The tool addressed several significant issues in training residents in the operating room. One important reason for this is that the web-based log allowed complete transparency. Often it has been difficult to determine why residents are not given cases or advancing their skills at an expected pace. We found that our tool eliminated many misconceptions regarding events transpiring in the operating room. The tool allowed for almost seamless near real-time review of resident progress resulting in detailed, highly-specific interventions for residents if needed. Most importantly, we feel this tracking tool will allow residency programs to address variation in resident surgical numbers that can be an area of concern with ACGME site visits.

Perceptions of Ophthalmology Residents and Alumni Regarding Fellowship Training Necessity, and Internship and Residency Curriculum

YASMIN BRADFIELD, MD*; **ANDREW THLIVERIS, MD, PHD;** **LAURA WAYMAN, MD;** **ANDREW BARKMEIER, MD;** **TARA UHLER, MD**

Background:

Currently, increasing ophthalmology residents are pursuing fellowships. It is unknown if residency training deficiencies is a cause.

Purpose:

The purpose is understanding resident and alumni perceptions regarding fellowship training necessity, internship and residency curriculum improvements.

Methods:

Surveys were sent to ophthalmology residents matching into a fellowship in 2015, as well as to resident alumni from 4 institutions, regardless of completing a fellowship.

Results:

Eighty-seven responses were received. Of current residents pursuing a fellowship, 92% were intellectually interested in the subspecialty, 54% stated it improved marketability for employment, and 30% felt residency didn't adequately train them for subspecialty practice. Intraocular surgery in the first year was a proposed curriculum improvement. Of alumni, most who completed fellowships felt subspecialty training was necessary. Half supported a subspecialty elective within residency not replacing fellowship training. Curriculum changes included earlier and increased surgical volume, seminars on practice management, increased autonomy and continuity clinics. In both groups, an overwhelming majority didn't support residency extension for cataract or subspecialty training, although most supported 6 months of ophthalmology training during internship.

Conclusion:

Ophthalmology residency graduates didn't pursue a fellowship due to deficits in residency training. Proposed curriculum improvements include ophthalmology training during internship and intraocular surgery in the first year of residency.

Using OCEX to Assess Clinical Progression During Ophthalmology Residency

GRACE L. PALEY, MD, PHD*; THOMAS SHUTE, MD*; SUSAN M. CULICAN, MD, PHD

Background:

The Ophthalmic Clinical Evaluation Exercise (OCEX) meets the Accreditation Council for Graduate Medical Education (ACGME) requirement of reliability and validity as an assessment tool (Ophthalmology. 2005 Oct;112(10):1649-54.) Despite this, residents in our program felt that the evaluations were generally not useful to gauge their clinical competency.

Purpose:

Does OCEX capture progression of clinical skills over time?

Methods:

- Retrospective analysis on OCEX evaluations for 14 residents over three years in one program.
- Component scores were averaged to generate mean scores for each evaluation.
- Linear regression analysis for mean OCEX scores over time.
- One-way ANOVA with repeated measures to compare mean OCEX scores aggregated over an academic year between resident classes. Subanalyses on related groups of skills.

Results:

OCEX scores failed to show mean improvement over time ($p=0.15$). Resident clinical performance, (mean OCEX scores aggregated by year of training), improved over time but was not statistically significant ($F(1.11,13.34)=2.34$, $p=0.148$). Significant improvement was observed for aggregate technical ophthalmic skillsets ($F(1.07,12.89)=5.63$, $p=0.032$) but not for professionalism, communication, or assessment and plan ($F(1.19,14.27)=1.004$, $p=0.35$).

Conclusion:

OCEX has limited capacity to monitor longitudinal development of resident proficiency. Failure to demonstrate progression may be limited by evaluator conformity with grading scale anchors.

Cost Effective and Innovative Corneal Suturing Simulator in an Ophthalmology Residency Program

SHANNON M. MCCOLE, MD*; DAVID NASH, MD; DEBORA GARCIA-ZALISNAK, MD; CRAIG GOODMURPHY, PHD

Background:

Perfecting corneal suturing is one of the most challenging aspects in ophthalmology training. Not only is the technique difficult to master, but there are very limited ways to practice suturing before performing the actual surgery. Many residency programs have wet labs during the year, but these are far and few in between. Some programs have the luxury of being able to practice on human eyes from an eye bank, but these require sterile conditions and are difficult to mount the right way and maintain a physiologic intraocular pressure. Lastly, residents can use animal eyes, most often pigs, to practice but again they can be difficult to obtain and setting the eyes up correctly is a challenge on its own. After a PUBMED search, we found no corneal suture practice technique using a simulator cornea that is easy to set up, non sterile, reproducible and resembles the physiologic cornea in depth as well as in tension. However, there are studies using 3-dimension printers and molding to produce fetal simulators for medical students to learn ultrasound techniques. Our purpose was to create a simulated cornea that simulates the human cornea in depth, texture and tension that residents that easily set up for practice in a non-sterile setting of their choosing.

Purpose:

To determine whether Eastern Virginia Medical School (EVMS) Ophthalmology residents can improve their corneal suturing technique by practicing on a created simulator cornea. Hypotheses: EVMS Ophthalmology residents will improve their corneal suturing technique by practicing on this simulator cornea and this cornea will provide a safe and effective teaching tool for future residents.

Methods:

Design of corneal simulator: A synthetic cornea was made by partially dipping an eyeball shaped clay mold into heated rubber that was then allowed to dry. The rubber mold was then removed and placed on a model replica human eye created with a 3-dimension printer. Design of study: An attending ophthalmologist was chosen as the standard or expert for instruction purposes. An instructional video was created of the attending ophthalmologist instructing proper corneal suture technique based on the corneal suturing technique outlined in the Basic Clinical Science Series. All residents watched the instructional video and performed a repair of a linear laceration on a simulator cornea. They were evaluated on proper holding of the needle, position of needle entry into the simulator, length and symmetry of the individual sutures, spacing between sutures, suture depth, and time to complete repair of a 10mm laceration. All residents were then asked to practice on one to two simulation corneas per week for 3 weeks. At the end of the practice period, the residents were each retested using the same faculty observer. The same suture evaluation criteria were utilized and compared to initial resident performance and between resident years. The individual scores were then plotted, tracking pre and post test performance, and comparing results by PGY year.

Results:

- Each resident level improved overall competency with practice
- Repair efficiency improved in both PGY2 and PGY3 groups
- Needle handling remained stable in each group
- Corneal entry scores improved in PGY2 and PGY3 levels
- Suture length and depth was mostly stable in all PGY levels
- No outcomes were statistically significant using a Student T-test. This is thought to be due to low power/low study sample size.

This project is currently being expanded to several other residency programs, and we hope to have this increased data available to present at the AUPO.

Conclusion:

This small study shows that resident competency in corneal suturing can be improved through the use of a novel, non biologic cornea simulator that we developed. We are currently in the process of expanding this study to several other residency programs, and will plan to present that data in our final analysis of this innovative resident education device.

Using the Resident Retreat for Professional Development

BRYAN J. WINN, MD*; **ROYCE W. S. CHEN, MD;** **GEORGE A. CIOFFI, MD**

Background:

Although critical for success, professional development concepts are often lacking in traditional ophthalmology residency curricula.

Purpose:

To describe a residency retreat focused on professional and personal development.

Methods:

Residents and residency program faculty leadership traveled off-campus for a two-day, intensive retreat. The location was chosen to minimize outside interruption and establish an atmosphere of relaxation and concentration. Call responsibilities were relieved. Days were divided into 90-minute sessions, alternating non-work-related activities with workshops focusing on leadership skills, teambuilding, communication, quality improvement with metric setting/PDSA cycle, and wellness. Attendees were assigned a non-medical book relevant to personal and professional development to be analyzed and discussed in a "book club" format. A SWOT analysis of the residency program was performed, including development of a strategy for improvement. Quality initiatives were planned and developed. Attendees completed a post-retreat survey.

Results:

The retreat was felt to be a valuable experience by residents and faculty. It provided an intensive environment where attendees could engage as a team in both personal and professional development.

Conclusion:

The residency retreat is a valuable component of the ophthalmology curriculum that can be used to deliver concepts often missing from traditional didactic programs.

Development and Evaluation of an Intelligent Eye Simulation System for Cataract Surgery

SHAHZAD I. MIAN, MD; ROLAND CHEN; LEE KIANG, MD, PHD*

Background:

A high complication rate (capsular rupture and vitreous loss) of around 10% has been reported in multiple studies in cataract surgeries operated by residents. The currently available synthetic eyes for wet lab are not able to simulate these complications.

Purpose:

This study aims to develop and validate an intelligent eye simulation system with the ability to simulate and detect the occurrence of complications during training.

Methods:

We engineered materials for each component of the simulator to simulate different features involved in each surgical step. An intelligent system was attached to the simulator to monitor the occurrence of complications by alerting the user when it occurs. A content validity form was used to evaluate the realism of the developed simulator against the commercial available synthetic eye.

Results:

The developed simulator provides adequately realistic experience for corneal incision and phacoemulsification. The material for anterior capsule requires further improvement. The intelligent system alerts user when the posterior capsule is ruptured.

Conclusion:

This simulation system can be a valuable training tool. Educational intervention and follow up study are needed to further assess the effectiveness of this system.

Poster Abstracts

Online Residency Program: Are We There Yet?

RAMESH AYYALA, MD, FRCS, FRCOPHTH

Background:

The lack of minimum standards in resident education worldwide is resulting in poorly trained ophthalmologists in these communities contributing to poor patient outcomes.

Purpose:

To improve the standards of ophthalmology resident training on a global scale.

Methods:

The current proposal requires the creation of an online tool that can be easily deployed in any training program to help address resident learning, specifically in the areas of didactic lectures, self assessment, case presentations (grand round style), year end board review courses and standardized examinations.

Results:

We succeeded in creating an online tool that has 100 + lectures on all core topics by experts; 1500 + multiple choice questions for self assessment that are both lecture specific and exam centered and clinical case presentations to educate the residents in patient care. Lectures are designed to impart core knowledge and help transfer surgical training.

Conclusion:

The program we have set forth will address the lack of standardized global ophthalmology education, using novel digital courseware. Results from the course deployment in several programs will be presented.

Ophthalmology in the Dark: Emergency Care at New York Eye & Ear Infirmary During Hurricane Sandy

ANITA GUPTA, MD*; DIPIKA JOSHI, MD

Background:

Hurricane Sandy devastated New York City leaving its community without electricity, reliable transportation, or adequate shelter. Despite limited resources, the New York Eye & Ear Infirmary remained open during this crisis, serving patients who needed urgent ophthalmologic care.

Purpose:

To examine diagnoses encountered in ophthalmology urgent care visits during the week of Hurricane Sandy, and explore ways to prepare for emergency ophthalmic care during times of crisis.

Methods:

Medical records of all patients presenting for urgent ophthalmologic care during the week of Hurricane Sandy (10/29/12 - 11/2/12) were retrospectively reviewed. Data collected included demographic information and diagnosis. Institutional policies regarding emergency preparedness and procedures were also reviewed.

Results:

Forty-nine patients, (31 female) at an average of 50 years old were reviewed. The most common diagnosis was trauma (26%). Other common diagnoses included retinal pathology (18%), infection (14%) and inflammatory disease (14%). Institutional emergency protocols were followed successfully during this time.

Conclusion:

This study describes the typical types of patients and eye problems that can be encountered during natural disasters, and provides insight into what preparation is necessary when caring for patients in these sorts of settings.

Assessing Educational Needs in Geriatric Care in Ophthalmology

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Background:

Vision loss is a leading cause of disability for individuals over age 60. Older patients present with complex needs; it is critical that eye care providers have competence in geriatric care. No prior study has assessed self-reported competencies in geriatric care issues among eye care providers.

Purpose:

To assess educational needs in geriatric care among eye care providers at the Flaum Eye Institute.

Methods:

Data was collected using an electronic survey distributed to 35 training and practicing eye care providers.

Results:

27 of 35 (77%) surveys were returned. Results indicated a majority of patients were over age 65 (mean 66.4%). 63% of providers reported little to no prior geriatric care education, and 46.4% indicated a moderate interest in geriatric issues. Respondents had high confidence levels in many geriatric domains, and moderate-low confidence levels in others. Differences were also observed in confidence levels between residents-in-training and practicing providers.

Conclusion:

At this institution, ophthalmologists reported limited prior education in geriatric care and identified opportunities for geriatric education. This pilot study serves as a guide to augment geriatric education of ophthalmologists and improve eye care for the aging U.S. population.

Development of a Resident Continuity Clinic

ARIANE D. KAPLAN, MD; SHAHZAD I. MIAN, MD; LEE KIANG, MD*

Background:

In 2013 the Department of Ophthalmology & Visual Sciences at the University of Michigan established a Resident Continuity Clinic (RCC) with the intent of enhancing resident education during their three year training program.

Purpose:

To build physician-patient continuity in a comprehensive ophthalmology setting allowing residents to follow disease processes, clinical management and surgical outcomes over the three years of the residency training program.

Methods:

Twenty-one residents in the University of Michigan ophthalmology residency program were assigned to one of three clinical settings: the University of Michigan Kellogg Eye Center, a satellite comprehensive ophthalmology clinic affiliated with the Kellogg Eye Center, or the Veteran Affairs Ann Arbor Healthcare System. At each site, the resident was assigned an attending physician to act as their mentor, to staff patients in the clinic, and to provide surgical guidance for operative cases.

Results:

Since establishing the RCC in July 2013, 21 residents (PFY-2, PGY-3, and PGY-4) have been assigned to a clinical setting: 5 to the Kellogg Eye Center, 10 to a satellite clinic affiliated with the Kellogg Eye Center, and 6 to the Veterans Affairs Ann Arbor Healthcare System. Thirteen attending physicians were assigned as mentors.

Conclusion:

Providing continuity of care during residency training should enhance education allowing for long term follow up of disease processes, clinical management and surgical outcomes.

Qualities of the Ideal Vitreoretinal Fellow and Attending: Perspectives of the Attendings and Fellows

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Background:

Fellowship training is pursued by over 60 percent of ophthalmology residents in the United States and is considered one of the most important stages in a physician's career. In 2014, there were over 400 ophthalmology sub-specialty fellowship positions in compliance with the Association of University Professors of Ophthalmology Fellowship Compliance Committee (AUPO FCC) and the American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS). Among these, vitreoretinal fellowship programs accounted for just over 100 positions or 25% of all the accredited fellows in training. The clinical experiences and surgical skills acquired during fellowship form the basis of the fellows' future practice of medicine. Improving the effectiveness of a fellowship requires an understanding of the qualities of both the ideal fellow and attending. Despite the increased emphasis on standardizing advanced training by the AUPO, there has been little empirical research on identifying desirable qualities of both fellows and attendings that can maximize the training experience.

Purpose:

This study was designed to identify the ideal qualities of a vitreoretinal surgical attending and fellow using survey responses from the 5th Annual Massachusetts Eye and Ear Vitrectomy Course.

Methods:

The authors surveyed vitreoretinal attendings and new first year vitreoretinal fellows, participants in the 5th Annual Massachusetts Eye and Ear Infirmary Vitrectomy Course (July 2014). The survey contained a list of 24 positive characteristics. Attendings and fellows were asked to choose the five most desirable characteristics of the ideal fellow and rank them 1 to 5, with 1 being the most desirable. Fellows were also asked to choose the five most desirable characteristics of the ideal attending. Consensus rank lists were constructed using a Borda Count method. Rank lists were compared to each other using the Spearman rank-order correlation coefficient.

Results:

Twenty-six out of 29 vitreoretinal attendings responded to the survey and twenty out of 20 new first year vitreoretinal fellows participated. The top two fellow qualities most desirable to attendings were "good judgment" and "passionate about work," whereas the top two attending qualities most desirable to fellows were "passionate about work" and "skillful communication." The top two qualities that fellows chose for the ideal fellow differed and were "integrity" and "professionalism." When comparing the qualities that make the ideal fellow between the attendings and the fellows, there was no significant difference. (correlation coefficient $r = 0.74$). There was, however, a significant difference between the chosen qualities of an ideal attending compared to those of an ideal fellow. (correlation coefficients $r = 0.28$ and $r = 0.31$).

Conclusion:

Fellows and attendings agree on the qualities that make the ideal vitreoretinal fellow, which include "good judgment," "integrity," and being "passionate about work." Although the ideal vitreoretinal attending according to the fellows was also "passionate about work," the qualities of the ideal attending were statistically different than those of the ideal fellow, with more emphasis on "patience" and "skillful communication."

Optimizing the Resident Urgent Care Clinic: Our Experience Before and After the Addition of a Triage Nurse

TIMOTHY J. MARTIN, MD*; **DANIEL NELSON, MD;** **CHRIS KOMANSKI, MD;** **GRIER BOMAR, BS;** **R. G. WEAVER, MD;** **CRAIG GREVEN, MD**

Background:

Office staff who make routine appointments are not typically qualified to assess urgent calls from patients or referring providers. In our academic ophthalmology outpatient clinic, these urgent requests were passed to the on-call resident--who spent much of the day returning calls rather than seeing patients-until we changed to a triage nurse-based system.

Purpose:

The purpose of this study is to compare the number and type of patient visits, and other measures of cost/revenue and efficiency, between the previous resident-based triage and the new triage nurse-based system.

Methods:

This study is an IRB approved, retrospective chart review of 628 urgent patient encounters. Two distinct 30 workday (6-week) periods (representing the resident-based and nurse-based triage systems) were compared; looking at patient, resident, clinic, and cost/revenue factors.

Results:

The nurse-based triage system increased patient access by 61%, increased resident efficiency (greater number of urgent patients seen during office hours, 12.8 vs.6 patients), and was cost-effective compared to the previous system.

Conclusion:

The addition of a dedicated triage nurse improved patient care and resident satisfaction, and was cost-effective.

The Tale of Two Resident Pricks: A Safety Fable

KELLY T. MITCHELL, MD*; **GEORGE JOSEPH, MD;** **IDEAN NIKROOYAN, MD**

Background:

Intravitreal therapy is the preferred medical therapy for many vision threatening diseases. Intravitreal injection training of residents is required by the ACGME with a minimum of 10 injections. In 2014, the national data indicated that the resident average was 82 injections. Our 2014 graduating residents averaged 180 injections. Over a short period of time, two residents stuck themselves during two intravitreal injections. Our program wants to teach a safe intravitreal injection technique.

Purpose:

In this study, we reviewed our intravitreal injection protocols to identify unsafe practices and to look for ways to make the procedure safer.

Methods:

Nearly all of the intravitreal injections are performed by our retina service physicians. We reviewed each physicians' injection protocols. We analyzed the physical space where injections were performed and the actual work flow between the ophthalmic technician, attending physician and resident physician during an intravitreal injection.

Results:

We identified unsafe practices that were routinely performed during intravitreal injections. We were able to make these unsafe practices safer with minimal impact in work flow, personnel training, resident education, and clinical efficiency. (specific findings will be discussed)

Conclusion:

Residencies should train residents on how to safely perform intravitreal injections. After two resident needle stick injuries, we made our procedure safer.

Assessment of an Integrated Residency in Ophthalmology (AIRO)

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Background:

Post graduate year two (PGY-2) ophthalmology residents start training facing a steep learning curve. A PGY-1 year with a more robust ophthalmology experience may have a positive impact on ophthalmology training. The literature lacks data assessing the clinical skill, efficiency, confidence, stress, and ophthalmic knowledge level of PGY-2 residents. Implementing curriculum change that is acceptable for residents, administrators, regulatory bodies, and professional societies would be easier with outcomes data.

Purpose:

Assess for differences between residents completing a non-integrated PGY-1 year and residents completing an integrated PGY-1 year at the University of Iowa.

Methods:

Assess resident stress and confidence level via survey at various times during training. Obtain objective data on clinical skill, efficiency, and ophthalmic knowledge upon completion of an integrated or non-integrated PGY-1 year.

Results:

Integrated PGY-1 residents have statistically significant less stress and statistically insignificant more confidence as measured by survey than those completing a non-integrated ophthalmology residency (p value < 0.05). Those completing an integrated PGY-1 year have statistically better ophthalmic exam skills and management skills than non-integrated PGY-1 residents (p value < 0.05). Data collection assessing ophthalmic knowledge is on-going.

Conclusion:

Preliminary data suggest an integrated ophthalmology PGY-1 year can yield a positive impact on early ophthalmic training.

Benchmarking to Support Resident Education: Baseline Data for Academic Outpatient Ophthalmology

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Background:

The Wilmer General Eye Services (GES) at the Johns Hopkins Hospital is the clinic where residents provide supervised comprehensive medical and surgical care to ophthalmology patients. The clinic schedule and supervision structure allows for a progressive increase in trainee responsibility, with graduated autonomy and longitudinal continuity of care over the three years of ophthalmology residency training. The authors felt this was a reasonable site to explore benchmarking an academic clinic in parallel with benchmarking efforts currently underway by the American Academy of Ophthalmology.

Purpose:

This study sought to determine the educational contribution that the Wilmer General Eye Services clinic, a clinic hosted by resident physicians, makes to the resident surgical experiences. In addition, it was intended to create benchmarks for patient volumes, cataract surgery yield and room utilization as part of an educational initiative to introduce residents in metrics commonly employed in practice management.

Methods:

The electronic surgical posting system database was explored to determine the numbers of cases scheduled for patients seen by residents in the GES. In addition residents' self-reported Accreditation Council for Graduate Medical Education (ACGME) surgical logs were collected for comparison. Finally transactional databases were queried to determine clinic volumes of new and established patients. The proportion of resident surgeries (1st surgeon and assistant) provided by GES patients, cataract surgery yield and new patient rates were calculated. Data was collected from July 1st, 2014 until March 31st, 2015.

Results:

The percentage of cataract, oculoplastics, cornea and glaucoma surgeries in which a resident was 1st surgeon and the patient came from the GES was 91.3, 76.1, 65.6, and 93.9 respectively. The new patient rate was 28.1% and room utilization was 50.4%. Cataract surgery yield was 29.2 (bottom quartile compared to private practice values).

Conclusion:

The GES provides a significant proportion of primary surgeon opportunities for the residents, and in some instances, the majority of cases. Compared to benchmarks available for private practices, the new patient rate is high while the cataract surgery yield is relatively low. The room utilization is lower than the 85% preferred by the hospital system. These are the first benchmarks of this type for an academic resident ophthalmology practice in the United States.

VERUS: Continuous Curvilinear Capsulorhexis Using a Novel Guiding Device

JEFFREY SOOHOO, MD*; NARESH MANDAVA, MD; DARREN GREGORY, MD; RICHARD DAVIDSON, MD; MICHAEL TARAVELLA, MD; MALIK KAHOOK, MD

Background:

A central, round, and continuous curvilinear capsulorhexis (CCC) is a critical part of cataract extraction procedures. Performing a CCC safely, accurately, and reliably is one of the most difficult skill transfer steps for trainees and teachers alike.

Purpose:

To describe the use of a novel capsulotomy guide for resident training.

Methods:

The VERUS ophthalmic caliper (Mile High Ophthalmics, Denver, CO) has been introduced into our operating rooms as a tool to help both novice and experienced surgeons create a well-centered and accurately sized CCC.

Results:

Our early experience with the device consistently results in a well-centered and sized CCC. Proper technique when using this device, particularly ensuring appropriate dispersive viscoelastic fill and adherence of the device to the anterior capsule, is essential and requires minor modifications to traditional CCC maneuvers. The device may also prevent a rhexis from running radially by providing both a visual guide as well as a physical barrier during tissue manipulation.

Conclusion:

The VERUS device is a useful tool for creating a well-centered and circular CCC. It is useful for both novice and experienced surgeons, and is a cost-effective option compared to other capsulotomy devices such as the Fugo blade and femtosecond laser.

A Cost Consciousness Curriculum for Ophthalmology Trainees

SARAH H. VAN TASSEL, MD*; RU-IK CHEE, MD; BRYAN J. WINN, MD; ROYCE W. S. CHEN, MD; GRACE SUN, MD

Background:

Healthcare expenditures are rising at an unsustainable rate, in part due to unnecessary health resource utilization. Graduate medical education is a time during which residents are keen to develop habits related to practicing evidence-based medicine, resource stewardship, and cost consciousness. To this end, the Ophthalmology Milestone Project, set forth by the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Ophthalmology, requires residents to learn to incorporate cost-effectiveness into patient care. However, there is currently no formal comprehensive cost consciousness curriculum for ophthalmology residents.

Purpose:

Develop an ophthalmology curriculum for cost consciousness.

Methods:

Literature review of existing cost consciousness resources and relevant competencies in the Ophthalmology Milestone Project.

Results:

We present a comprehensive cost conscious curriculum that aligns with the goals of the ACGME core competencies. We demonstrate the increasing costs of health care and increasing use of quality metrics and patient outcomes on physician evaluation and compensation with a focus on ophthalmology. We emphasize the importance of evidence-based medicine in guiding medical decision making with respect to resource use and allocation, and we emphasize the role of ophthalmologists in resource stewardship.

Conclusion:

We outline an ophthalmology cost consciousness curriculum that should be a core part of training of future ophthalmologists.

Factors Influencing Resident OKAP Performance

JENNIFER WILLIAMSON, MD*; ROBERT VAN DER VAART, MD; AMY FOWLER, MD; KEVIN GERTSCH, MD

Background:

To date, there are no published studies correlating resident OKAP preparation techniques or AOA status with OKAP performance.

Purpose:

To evaluate and correlate resident OKAP preparation, program OKAP support, and AOA status with OKAP scores.

Methods:

An 18 question online survey link was emailed to all ACGME-accredited ophthalmology residency program coordinators to distribute to their residents.

Results:

There were 181 evenly distributed responses. Popular study materials included question banks (93% of respondents), BCSC books (82%), review books (79%), lectures (63%), review courses (23%), and audio materials (23%). "OphthoQuestions" was ranked as the most valuable tool and employed by 95.5% of question bank users. Review courses were highly rated. Residents scoring in the 80th percentile or higher were more likely to attend review courses and use audio resources. AOA status did correlate with higher scores. Most programs (86%) paid for the BCSC series, while questions banks (37%) and review courses (27%) were less frequently funded.

Conclusion:

Residents rely heavily on question banks, BCSC books, and review books although these are not fully funded by many programs. The results of this survey can be employed by residents and programs to adopt practices that are labeled very effective by high OKAP performers.

COACH Ophthalmology: An Online Cognitive Pre-training Tool for Medical Students, Residents and Fellows

BRYAN J. WINN, MD*; **ROYCE W. S. CHEN, MD;** **GEORGE A. CIOFFI, MD**

Background:

COACH (Comprehensive Online Archived Care Heuristic) is an educational platform designed and developed at Columbia University that provides learners with pre-training needed for tasks they will subsequently perform.

Purpose:

The goal of COACH Ophthalmology is to help medical students, ophthalmology residents and fellows prepare for practice through a system of cognitive pre-training.

Methods:

The Department of Ophthalmology at Columbia University partnered with COACH to develop an online cognitive pre-training curriculum specifically for ophthalmology.

Results:

Operative guides including diagrams and text, detailing attending-specific aspects of ophthalmic procedures were created. Sample surgical dictations, surgeons' preference cards, and perioperative care instructions were archived. Narrated surgical videos explain key steps of procedures, required instrumentation, orientation to anatomy, and discussion of potential errors. Service guides describe the care for patients on various ophthalmology services, including attending-specific preferences. Rotation goals and objectives, pre-lecture reading assignments, selected scientific articles, video recorded lectures and conferences, and a library of classic and unusual ophthalmic images (photos, OCT, angiography, CT/MRI) and videos were compiled, indexed and archived.

Conclusion:

COACH Ophthalmology is an online, cognitive, pre-training tool that prepares students, residents and fellows for effective learning.

The Post-Match Survey: A Tool for Interview Day Quality Improvement

BRYAN J. WINN, MD*; **ROYCE W.S. CHEN, MD;** **GEORGE A. CIOFFI, MD**

Background:

Attractiveness of a residency program is often determined by impressions made during the interview day.

Purpose:

To describe a method for surveying candidates in order to improve the experience during interview day.

Methods:

An anonymous online survey request was emailed to all ranked applicants after the match. Applicants were asked to grade the program based on their impressions of academic reputation, educational atmosphere, research opportunities, success of graduates, surgical volume, resident happiness, professionalism of program coordinator, and dedication of the chair and program director. They were asked to grade aspects of the interview day such as the amount of time spent with residents, interview format, and interactions with faculty and staff, and comment on ways to improve the program and interview experience.

Results:

Surveys were collected in 2013, 2014 and 2015. 42% to 79% of applicants completed the survey. Survey analyses led to changes in interview day format including abandoning panel interviews, increasing face-time with residents and faculty, and improving the tour. Survey results improved with subsequent interview day format iterations.

Conclusion:

The post-match survey is a valuable tool for improving the quality of the residency interview experience.

A Novel Approach to In-hospital Care: The Ophthalmic Hospitalist

JULES WINOKUR, MD*; **MATTHEW GORSKI;** **SALMAN YOUSUF;** **ADNAN MALLICK;** **IRA A. UDELL, MD**

Background:

In many ophthalmology programs, clinics are located separately from the main hospital center, making supervision of residents for emergency room (ER) and inpatient consults difficult.

Purpose:

To investigate the novel position of the ophthalmic hospitalist to meet the needs of ER and hospitalized patients, provide appropriate resident supervision, and ensure high quality patient care.

Methods:

ER and inpatient medical records were reviewed from the ophthalmology consultation service over a six month period.

Results:

A total of 551 patient encounters were recorded for 426 patients; 68 (16%) patients required subsequent evaluations during hospitalization. Development of an acute ophthalmic problem (58%) prompted consultation more often than evaluation of a chronic problem (20%) or request for screening (22%). Approximately one-third (32%) of all consultations were for conditions that could have led to loss of vision or life.

Conclusion:

Having an ophthalmologist dedicated to providing care for hospitalized patients allowed for timely evaluation of patients with complex vision and/or life-threatening diseases. The position of the ophthalmic hospitalist described herein may be used as a model for similar health care systems. Having reliable ophthalmology coverage in the hospital may improve resident education and elevate the quality of care.

Patients of Ophthalmology Urgent Care: Who, When and Why?

LUNA XU, MD*[†]; AIMEE CHANG; KELLIE GERGOUDIS; CHIRAG SHAH; ANITA GUPTA, MD

Background:

The New York Eye and Ear Infirmary holds one of the few tertiary ophthalmologic urgent care centers in the country that is staffed by residents and faculty.

Purpose:

To examine the time and reason for patients to present to a tertiary ophthalmology urgent care center, and explore ways to improve patient care in this setting.

Methods:

Medical records of all patients presenting to urgent care during July 2014 were retrospectively reviewed. Data collected included time of presentation, gender, age, and diagnosis.

Results:

Charts of 708 patients (52.7% women) at an average age of 44 years old were reviewed. The most common diagnosis included corneal abrasion, vitreous detachment, acute conjunctivitis, and elevated intraocular pressure. A statistically significant number of patients presented during weekday after business hours and weekends compared to normal business hours ($p < 0.01$). No statistically significant difference was detected between the severity of diagnosis and time of presentation, however, educational opportunities in patient care exist for ophthalmology residents in urgent care regardless of hour.

Conclusion:

Ophthalmology urgent care serves an important role in patient care and in residency education. Additional physician and support is recommended to serve the increased demand of ophthalmology urgent care during evening hours and weekends.

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