

2017

EDUCATING THE
EDUCATORS

PROVIDED BY
ASSOCIATION OF UNIVERSITY
PROFESSORS OF OPHTHALMOLOGY
PROGRAM DIRECTORS COUNCIL

JANUARY 25
SAN DIEGO, CALIFORNIA

MEETING SYLLABUS



Association of University
Professors of Ophthalmology

Educating the Educators 2017

MEETING SUPPORT

This educational activity is supported in part by:

- An independent medical educational grant from **Shire**
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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 San Diego, California.

In its 14th year, the Educating the Educators meeting continues to be the leading forum for all educators, including residency 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 **Thomas A. Oetting**, **Susan M. Culican** and **Susan Forster** lead a symposium on Faculty Development and Engagement, and **Drs. James C. Dewar** and **Stephanie B. Dewar**, from the Departments of Family Medicine and Pediatrics, respectively, at the University of Pittsburgh Medical Center, will deliver a presentation on Feedback Skills and Learning on the Fly. Two free sessions will allow you to hear from a wide variety of our peers. One session on general topics, and the other focusing on faculty development, a very hot topic in GME circles these days.

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.

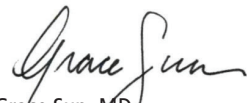
We look forward to seeing you in San Diego, and hope you enjoy the meeting!



Jake Waxman, MD, PhD
Co-Chair, Educating the Educators
Member-at-Large
AUPO Program Directors Council



Laura K. Green, MD
Co-Chair, Educating the Educators
Member-at-Large
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Co-Chair, Educating the Educators
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Educating the Educators 2017 Program

Wednesday, January 25

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| 7:00 AM – 8:00 AM | New Program Directors Breakfast (by invitation) | Marina Ballroom E |
| 7:00 AM – 8:00 AM | Registration and Continental Breakfast | Marina Ballroom Foyer |
| 8:00 AM – 8:05 AM | Welcome and Announcements – <i>Moderator: Laura K. Green, MD</i> | Marina Ballroom F-G |
| 8:05 AM – 8:30 AM | Organization Updates | Marina Ballroom F-G |
| | 8:05 AM – 8:12 AM San Francisco Match Updates – <i>Speaker: Dennis Thomatos</i> | |
| | 8:12 AM – 8:17 AM O. K. A. P. Updates – <i>Speaker: Kathryn Peters, PMP</i> | |
| | 8:17 AM – 8:24 AM AAO Young Ophthalmologists Update – <i>Speaker: Jeff Pettey, MD</i> | |
| | 8:24 AM – 8:30 AM AAO Committee for Resident Education: Simulation and ONE Network Updates – <i>Speaker: Jean Hausheer, MD</i> | |
| 8:30 AM – 10:10 AM | Faculty Development and Engagement Symposium – <i>Moderator: Grace Sun, MD</i> | Marina Ballroom F-G |
| | 8:30 AM – 8:50 AM Self-Study: A Personal Experience – <i>Speaker: Laura K. Green, MD</i> | |
| | 8:50 AM – 9:10 AM Teaching Portfolio – <i>Speaker: Evan (Jake) Waxman, MD, PhD</i> | |
| | 9:10 AM – 9:30 AM Difficult Documents – <i>Speaker: Thomas A. Oetting, MD</i> | |
| | 9:30 AM – 9:50 AM Teaching Faculty to Do Evaluations – <i>Speaker: Susan M. Culican, MD, PhD</i> | |
| | 9:50 AM – 10:10 AM Residents as Teachers – <i>Speaker: Susan H. Forster, MD</i> | |
| 10:10 AM – 10:30 AM | Break and Poster Viewing | Marina Ballroom Foyer |
| 10:30 AM – 12:00 PM | Free Paper Session: Faculty and Curriculum Development – <i>Moderator: Laura K. Green, MD</i> | Marina Ballroom F-G |
| | 10:30 AM – 10:40 AM Complication Rates of Resident Performed Cataract Surgery: Impact of Early Introduction of Cataract Surgery Training – <i>Speaker: Erika M. Ellis, MD</i> | |
| | 10:40 AM – 10:50 AM Strategies for Remediating Residents Struggling with Surgery – <i>Speaker: R. Michael Siatkowski, MD</i> | |
| | 10:50 AM – 11:00 AM Use of the EyeSi Surgical Simulator in Resident Education – <i>Speaker: Michelle M. Kron-Gray, MD, PhD</i> | |
| | 11:00 AM – 11:10 AM Effect of Implementation of a Longitudinal Surgical Curriculum on Intra-Operative Complication Rates in Resident-Performed Cataract Surgery – <i>Speaker: Karen Jeng-Miller, MD</i> | |
| | 11:10 AM – 11:20 AM A Structured Cataract Surgery Curriculum Improves Quality and Patient Safety – <i>Speaker: Bryan J. Winn, MD</i> | |
| | 11:20 AM – 11:30 AM Problem-Based Optics Curriculum – <i>Speaker: Thomas S. Hwang, MD</i> | |
| | 11:30 AM – 11:40 AM Breaking Bad: An Assessment of Physician Interpersonal Skills and Training on Delivering Bad News – <i>Speaker: Nicole M. Fuerst, MD</i> | |
| | 11:40 AM – 12:00 PM Panel Discussion – <i>Moderator: Laura K. Green, MD</i> | |
| 12:00 PM – 1:15 PM | Lunch (included) | Coronado Terrace |
| 1:15 PM – 2:45 PM | Free Paper Session: Resident Education – <i>Moderator: Evan (Jake) Waxman, MD, PhD</i> | Marina Ballroom F-G |
| | 1:15 PM – 1:25 PM Evaluating the Adequacy of Current Intern Year Programs in Preparing Residents for Their Training in Ophthalmology – <i>Speaker: Hercules D. Logothetis, MD</i> | |
| | 1:25 PM – 1:35 PM Our Paths to an Integrated Internship – <i>Speakers: Andrew J. Hendershot, MD; Susan Culican, MD; Vivek Patel, MD</i> | |
| | 1:35 PM – 1:45 PM The International Council of Ophthalmology 360-Degree Assessment Tool: Development and Validation – <i>Speaker: Ana Gabriela Palis, MD</i> | |
| | 1:45 PM – 1:55 PM Supervision and Autonomy of Ophthalmology Residents in the Outpatient Clinic – <i>Speaker: Divya Srikumaran, MD</i> | |

Educating the Educators 2016 Program

Wednesday, January 25

| | | |
|-------------------|---|-----------------------|
| 1:55 PM – 2:05 PM | What Do Ophthalmology Administrators and Clinician-Educators in the U.S. Believe is the Most Important Question Facing the Future of Education in Ophthalmology – <i>Speaker: Elizabeth Urias, MD</i> | Marina Ballroom F-G |
| 2:05 PM – 2:15 PM | Quality Improvement: A New High-throughput Semi-automated Analysis of Glaucoma Care in a Resident-Run Ophthalmology Clinic – <i>Speaker: Pratap Challa, MD</i> | |
| 2:15 PM – 2:25 PM | The Impact of a Work RVU Compensation Model on Medical Student and Resident Education – <i>Speaker: Matthew J. Nutaitis, MD</i> | |
| 2:25 PM – 2:45 PM | Panel Discussion – <i>Moderator: Evan (Jake) Waxman, MD, PhD</i> | |
| 2:45 PM – 3:05 PM | Break and Poster Viewing | Marina Ballroom Foyer |
| 3:05 PM – 4:05 PM | Invited Guest Lecturers – Feedback / Learning on the Fly – <i>Speakers: James C. Dewar, MD; Stephanie B. Dewar, MD</i> | Marina Ballroom F-G |
| 4:05 PM – 4:15 PM | Conclusion and Adjournment – <i>Moderator: Evan (Jake) Waxman, MD, PhD</i> | |
| 5:00 PM – 6:30 PM | Educating the Educators Reception | Bayside Pavillion |

Free Paper Session – Part I

Faculty and Curriculum Development

Complication Rates of Resident Performed Cataract Surgery: Impact of Early Introduction of Cataract Surgery Training

ERIKA M. ELLIS, MD*[†]; JEFFREY E. LEE, MD; WELDON W. HAW, MD; DAVID B. GRANET, MD; CHRIS W. HEICHEL, MD

Background:

In most Ophthalmology residency programs in the US, residents begin to perform cataract surgery as primary surgeon during the second year of residency. In 2011, the UC San Diego Ophthalmology residency program began introducing cataract surgery to first year residents in appropriately selected cataract surgery cases.

Purpose:

In this study, we aim to investigate the impact of early introduction of cataract surgery on complication rates in resident performed cataract surgeries.

Methods:

This retrospective chart review looked at all cataract surgery cases performed by two classes of residents in the UC San Diego Ophthalmology residency program, one class before and one class after early introduction of cataract surgery. Patient charts were reviewed to identify complications of cataract surgery. Statistical analysis was used to compare the rates of complications between late and early introduction of cataract surgery training groups.

Results:

Preliminary analysis shows early introduction of cataract surgery was correlated to a lower anterior vitrectomy rate (2.96% vs 7.59%, $p = 0.00$).

Conclusions:

Early exposure to cataract surgery provides residents with more time to develop their technical skills and surgical judgment, which can improve patient outcomes as well as develop more experienced and competent surgeons.

Strategies for Remediating Residents Struggling with Surgery

R. MICHAEL SIATKOWSKI, MD*

Background:

Due to duty hours, medicolegal issues, and curriculum changes, medical students today often have less experience in learning procedural skills. Moreover, there is no standardized instrument routinely used by US medical schools to measure students' technical skill levels, or to identify those who may not be ideal candidates for a surgical specialty. As a result, ophthalmology residents are frequently more naive with both macro and microsurgical skills compared to those from 10-20 years ago, and there is a greater chance for students with limited technical skills potential to match into ophthalmology. Both scenarios can result in a steeper surgical learning curve which may require specific remediation strategies.

Purpose:

To share surgical remediation strategies for struggling residents developed at the Dean McGee Eye Institute and illustrate their use via a series of real-life case studies.

Methods:

The PD and key surgical teaching faculty developed an algorithm for identifying etiologies for residents challenged by learning ophthalmic surgery. These included assessment/intervention for tremor/other physical issues, anxiety or overconfidence, other psychological issues, substance abuse, and unwillingness to practice. Portions of this algorithm were utilized in the training of four different residents over a 6-year period.

Results:

Strategies were fully successful in 3 of the 4 residents and partially successful in the other. Appropriate language was also developed to document nuances of differences between the cases. As a result of this experience, our program revamped our surgical education in the wet lab with a new course structure, technical skills exams, and implementation beginning in the first month of residency.

Conclusions:

For a variety of reasons, programs may encounter residents with steeper surgical learning curves than in the past few decades. Development of a step-wise approach to this challenge provides an effective and fair method to assist these struggling residents.

Use of the EyeSi Surgical Simulator in Resident Education

MICHELLE M. KRON-GRAY, MD, PHD*; TAYLOR S. BLACHLEY, MS; DAVID C. MUSCH, PHD; SHAHZAD I. MIAN, MD

Background:

Phacoemulsification is an important and challenging skill. The development of the EyeSi surgical simulator (VR Magic, Mannheim, Germany) allows for simulation before residents perform their first phacoemulsifications. Our study focused on early EyeSi training time and characteristics of early resident cases.

Purpose:

To correlate hours spent on the EyeSi with intraoperative phacoemulsification characteristics and surgical outcomes.

Methods:

Surgical logs from the first 20 phacoemulsifications from 33 residents (660 cases from 2010-2016) were analyzed. Preoperative, intraoperative, and postoperative data were collected and complications graded 1-4 (4 indicated an anterior vitrectomy). Data were analyzed using descriptive statistics, univariate and multivariate logistic regression models.

Results:

In a univariate model, an increase of one hour on the EyeSi before a resident's first phacoemulsification was associated with 10% reduced odds of a type 4 complication ($p=0.002$). Similarly, one additional hour on the capsulorhexis modules was associated with 35% reduced odds of a type 4 complication ($p=0.002$). Additionally, an increase in simulator time before first surgery significantly correlated with a decreased average case length ($p=0.03$).

Conclusions:

Our study demonstrates the importance of each hour of simulator time, especially the capsulorhexis modules, in decreasing the odds of vitreous loss during initial phacoemulsifications, highlighting its utility in residency education.

Effect of Implementation of a Longitudinal Surgical Curriculum on Intra-operative Complication Rates in Resident-performed Cataract Surgery

KAREN JENG-MILLER, MD*; **SHEILA BORBOLI-GEROGIANNIS, MD;** **CAROLYN KLOEK, MD**

Background:

A longitudinal cataract surgery curriculum was created, modified annually based on feedback, and implemented over a 10-year period at Mass Eye and Ear (MEE).

Purpose:

To measure the effect of the implementation of a cataract surgery curriculum on intraoperative complications.

Methods:

Resident ACGME surgical logs from residency classes graduating in 2004 and 2014, representing pre- and post-curriculum implementation periods, were reviewed. 1195 cataract surgery cases in which the resident was primary surgeon at Mass Eye and Ear were identified. A retrospective review of these cases was performed.

Results:

Residents in the class of 2014 (n=8) logged a median of 161.0 (151.5-228.5) primary cataract surgeries as compared to the class of 2004 (n=7) who logged 119.0 (107.0-120.0). The incidence of posterior capsule tear/vitreous loss/anterior vitrectomy (PCT/VL/AV) was significantly lower in 2014 than in 2004 (1.6% vs. 7.1% p<0.0001). Compared to the class of 2004, the risk of PCT/VL/AV was 77% lower among the class of 2014 (RR: 0.23; 95% CI: (0.11-0.46, P<0.0001). PCT/VL/AV rates remained less than 2% for the graduating classes of 2015 and 2016.

Conclusions:

A cataract surgery training curriculum spanning all 3-years of residency training with a focus on patient safety has yielded one of the lowest intraoperative complication rates in resident-performed cataract surgeries and has helped increase the surgical volume in one training program.

A Structured Cataract Surgery Curriculum Improves Quality and Patient Safety

BRYAN J. WINN, MD*; ROYCE W. S. CHEN, MD; LEEJEE H. SUH, MD; ROSLYN M. STAHL, MD; GEORGE A. CIOFFI, MD

Background:

Resident cataract surgical complication rates are highest in the beginning of the learning curve and are associated with higher rates of morbidity.

Purpose:

To measure the effect of a structured cataract surgical curriculum on complication rates in a single ophthalmology residency program.

Methods:

A structured surgical curriculum was designed consisting of reading assignments, an annual resident cataract symposium, Eyesi simulator training, wet lab curriculum, accelerated participation in phacoemulsification steps, structured surgical mentorship, and implementation of a standardized surgical technique with consistent faculty supervision for the first 25 cases. The number of cases, complication and dropped nuclei rates were calculated for the three years before and two years after curriculum implementation.

Results:

989 cataract surgeries were performed prior to curriculum implementation with a 10.9% complication and a 1.7% dropped nuclei rate. After curriculum implementation, 897 surgeries were performed with a 2.6% complication and a 0.5% dropped nuclei rate. Differences in complication and dropped nuclei rates were statistically significant ($p < 0.00001$ and $p = 0.0116$, respectively).

Conclusions:

Developing and implementing a structured cataract surgical curriculum can substantially improve quality and patient safety as they relate to resident surgical outcomes.

Problem-based Optics Curriculum

THOMAS S. HWANG, MD*; **TAMMIE KRISCIUNAS, OD;** **DANIEL TU, MD, PHD**

Background:

A lecture-based optics curriculum can result in an uneven transfer of knowledge and be burdensome for instructors.

Purpose:

To describe one program's experience with a problem-based optics curriculum for residents.

Methods:

We developed a 4-session, self-teaching curriculum with problem sets that corresponded with each session. We instructed the residents to complete the problem sets prepare to explain the material to their peers. Faculty preceptors supervised but did not lead the discussion. Residents took turns explaining each problem to a small group. We compared the residents' performance on Ophthalmic Knowledge Assessment Program (OKAP) 4 years before and after the curriculum change.

Results:

The new curriculum covered all material from the previous didactic series without increasing in-class time or faculty preparation time. The average optics subsection scores before and after the change were 50.5 and 57.3. The average scores for all other subjects for the respective time periods were 52.5 and 53.2. The proportions of residents scoring below the 50th percentile on the optics subsection before and after the change were 56.1% and 23.7%.

Conclusions:

A problem-based curriculum for optics can improve resident performance on OKAP and reduce instructor workload.

Breaking Bad: An Assessment of Physician Interpersonal Skills and Training on Delivering Bad News

NICOLE M. FUERST, MD*; JESSICA S. WATSON, MD; NICOLE A. LANGELIER, MD; R. EGEN ATKINSON, MD; COLLIN RUSSELL, BS; VINCENT PALLADINO; WEI PAN, MS; GUI-SHUANG YING, PHD; PAUL J. TAPINO, MD; JOAN M. O'BRIEN, MD

Background:

Non-ophthalmology literature has demonstrated that the manner in which bad news is given to patients can have a significant effect on patients' well-being, perceptions of their disease, and relationship with their physician. While studies have shown that people rank vision loss amongst their greatest health fears, there is limited literature on breaking bad news in ophthalmology.

Purpose:

To assess patient experience in receiving bad news from ophthalmologists and to evaluate ophthalmologists' ability to deliver bad news.

Methods:

A prospective study was developed in conjunction with ophthalmologic biostatisticians. Patients (N=151, mean age 60 years) at a single academic center who had received bad news from their ophthalmologist were surveyed. Ophthalmologists and ophthalmologists-in-training (N=202) were also surveyed. Questions were rated on a five-point Likert scale.

Results:

Patients rated their physicians higher than physicians rated themselves with regard to ability to deliver bad news (score of 4.2 vs. 3.5, $p<0.01$). Multivariate analysis showed frequent delivery of bad news ($p=0.02$) and years of practice were associated with better self-perceived ability to deliver bad news ($p<.001$). Having received formal training in breaking bad news was not significantly associated with better perceived ability score. (3.51 vs. 3.39, $p=0.27$). Most patients (97.5%) and physicians (92.1%) believe delivering bad news can be taught.

Conclusions:

Physicians and patients agree that delivering bad news can be learned. Patients are less critical of their physicians' ability to deliver bad news than physicians are themselves. Further study of best methods to deliver bad news is clearly indicated for the field of ophthalmology.

Free Paper Session – Part II

Resident Education

Evaluating the Adequacy of Current Intern Year Programs in Preparing Residents for their Training in Ophthalmology

HERCULES D. LOGOTHETIS, MD*; DMITRY PYATETSKY; JEANINE BAQAI; NICHOLAS VOLPE

Background:

Presently, ophthalmology residents are required to complete intern years prior to beginning ophthalmology residency. Intern year options include internal medicine, general surgery, and transitional year programs. Existing literature has evaluated the transition from medical school to intern year, but minimal literature exists regarding the transition from intern year to ophthalmology residency. Current literature indicates that increased clinical exposure in ophthalmology correlates with increased scores on knowledge assessments. There is reason to believe that increased exposure to ophthalmology during intern year better prepares residents for ophthalmology training. Unfortunately, there is presently no literature providing direct evidence regarding the most important factors/experiences in preparing residents for ophthalmology training.

Purpose:

Controversy exists regarding how effective current intern year residency programs are at preparing residents for training in Ophthalmology. We investigated the hypothesis that residents who completed Ophthalmology rotations during intern year and within the same hospital system as their Ophthalmology residency felt prepared during their transition into Ophthalmology training.

Methods:

We completed an observational, cross-sectional study of American Ophthalmology PGY-2 residents. 80 surveys were submitted of which 63 were analyzed based on established inclusion criteria. Participants responded to a 22 question online survey addressing how residents chose their intern year, intern year curriculum, exposure to ophthalmology in medical school and during intern year, sense of preparation for ophthalmology residency, comfort with various ocular pathologies, and factors that build confidence prior to Ophthalmology residency. A Likert scale format was used for the majority of survey questions. Kruskal Wallis testing and Fisher's Exact testing were used to compare outcome variables amongst three groups defined by sense of preparation for Ophthalmology training.

Results:

63.5% of residents felt intern year experience is relevant to training in Ophthalmology while 20.6% felt it is not. Quality of life and location were found to be the most important factors in choosing intern year programs. 32.34% of residents either agreed or strongly agreed they felt prepared for the start of Ophthalmology residency while 42.85% disagreed or strongly disagreed. 84.12% of residents felt independent practice in a resident run clinic is the best preparation for Ophthalmology residency. Residents who felt most prepared for Ophthalmology training spent more time on Ophthalmology rotations in medical school ($p=0.05$)/intern year ($p=0.02$) and worked patients up independently during their intern year Ophthalmology rotation ($p=0.01$).

Conclusions:

Residents who felt prepared for the start of Ophthalmology residency had more quality clinical Ophthalmology experience than residents who did not feel prepared. No statistically significant correlation was found between completion of intern year at the same institution as Ophthalmology residency and subjective feeling of preparedness for residency.

Our Paths to an Integrated Internship

ANDREW J. HENDERSHOT, MD*; THOMAS OETTING, MD; SUSAN CULICAN, MD, PHD*; VIVEK PATEL, MD*

Background:

Based on the information and topics of discussion at the 2016 AUPO meeting, it seems likely that the integrated internship is the future of ophthalmology training. The authors have recently, or are in the process of moving from the more traditional model to a program with an integrated internship.

Purpose:

The goal is to help other program directors take steps towards having an integrated internship.

Methods:

The lecture will cover our timelines and steps taken along the way. We will also discuss the hurdles we encountered and how we have worked through issues. We will present our current status as January 2017, and discuss plans for our interns in the coming years.

Results:

Our programs have recently or are in the process of incorporating an integrated internship. The process of how we got here will be discussed. Each speaker has had a different track and has created differing intern experiences.

Conclusions:

Medical students are asking for integrated internships and the AUPO has supported this as the future of ophthalmology training in the paper published in "Ophthalmology" in July of 2016. By walking through the steps we took to develop our programs we hope to inspire and help other program directors.

The International Council of Ophthalmology 360-degree Assessment Tool: Development and Validation

ANA GABRIELA PALIS, MD*; KARL C. GOLNIK, MD; HELENA P. FILIPE, MD; EDUARDO P. MAYORGA, MD; PRASHANT GARG, MD

Background:

The ACGME and ABMS recommend 360-degree assessments for evaluation of interpersonal and communication skills, professional behaviors, and some aspects of patient care and system-based practice. No such tool has been yet developed for ophthalmology nor has received international content validation.

Purpose:

To develop a valid, internationally applicable, ophthalmology specific 360-degree assessment tool.

Methods:

A literature review was conducted. Questions from several publications were listed and classified according to different groups of assessors. A panel of international authors reviewed it and voted on questions that seemed more appropriate for international use. The list was trimmed to reduce redundancy and to make it as brief as possible but still capture the essential components for each category. A second panel of international ophthalmic educators reviewed the international applicability and appropriateness of this collated list; relevant comments and suggestions were incorporated.

Results:

A tool for the evaluation of Interpersonal and Communication Skills, Professionalism and System-based practice was developed. The tool has face and content validity.

Conclusions:

This assessment tool can be used internationally for giving formative feedback based on the opinions of the different groups of people that interact with residents.

Supervision and Autonomy of Ophthalmology Residents in the Outpatient Clinic

DIVYA SRIKUMARAN, MD*; **ERIC SINGMAN, MD, PHD;** **LAURA GREEN, MD;** **PETER MCDONNELL, MD;** **JING TIAN, MS**

Background:

The ACGME considers the development of trainee autonomy critical to resident education. However, little is published about this area for ophthalmology residents in the outpatient clinic setting.

Purpose:

This study aimed at exploring the landscape of ophthalmology outpatient clinics with respect to trainee autonomy in the United States.

Methods:

A survey link was emailed to the program directors of all ACGME-accredited ophthalmology programs in the US. Questions explored whether programs hosted a continuity clinic where residents provided care to their own patients and the degree of faculty oversight in those clinics. Other metrics queried included number of trainees and faculty, clinic setting and parameters for faculty interaction.

Results:

94% of programs completed surveys; 69% indicated that trainees hosted continuity clinics. Of those, 28% did not require faculty to discuss and/or see each patient, although 84% required faculty to sign all resident charts. 67% of programs reported that their clinics provided more than half the resident surgical volumes.

Conclusions:

The majority of programs host a continuity clinic where residents follow their own patients; most require faculty review of both patients and medical documentation created by resident encounters. This information could provide an adjunctive resource to ACGME efforts to gauge autonomy.

What do Ophthalmology Administrators and Clinician-educators in the U.S. Believe is the Most Important Question Facing the Future of Education in Ophthalmology?

JEFF PETTEY, MD; ELIZABETH ANN URIAS, MD*

Background:

Recent changes in U.S. demographics, healthcare system, financial resources, and technology are challenging traditional methods of delivering medical education.

Purpose:

To describe what ophthalmology administrators and clinician-educators in the U.S. believe is the most important question facing the future of education in ophthalmology.

Methods:

Survey responses of ophthalmology residency program administrators and clinician educators who attended the 2015 Annual Association of University Professors of Ophthalmology meeting were categorized into 1 of the following subject areas: (1) Residency Positions (2) Role of ophthalmology in body of medicine (3) Healthcare System Changes (4) Need for Innovative ways to Educate (5) Faculty Participation (6) International Outreach (7) Integrating Optometry with Ophthalmology (8) Ensuring quality of applicants and residents (9) Financial/administrative changes (10) Developing innovative training curriculum.

Results:

85 responses were obtained. The leading subjects were "financial/administrative changes" (n=22), "need for innovative ways to educate" (n=21) and "developing innovative training curriculum" (n=15). All other subjects had less than 10 responses each. Department Chairs were concerned with financial/administrative changes, while Program Directors were concerned with the need for innovative ways to educate.

Conclusions:

To describe what ophthalmology administrators and clinician-educators in the U.S. believe is the most important question facing the future of education in ophthalmology.

Quality Improvement: A New High-throughput Semi-automated Analysis of Glaucoma Care in a Resident-run Ophthalmology Clinic

PRATAP CHALLA, MD*; BOZHO TODORICH, MD, PHD; KENNETH GOLDBERG, MD; KURIAN KURUVILLA, PHD

Background:

To develop a high-throughput, comprehensive, semi-automated method to analyze practice patterns of care for glaucoma patients in a resident-run ophthalmology clinic. To develop a semi-automated method of objectively measuring milestone achievements and monitor progress towards attaining core competencies.

Purpose:

Development of a high-throughput, comprehensive, semi-automated method to analyze practice patterns of care for glaucoma patients in a resident-run ophthalmology clinic.

Methods:

Ophthalmology resident notes of glaucoma patients were extracted from Durham VA CPRS electronic record. Programmed script was used to extract components of clinical encounter identified as important for glaucoma care by the Preferred Practice Patterns (PPPs) of American Academy of Ophthalmology (AAO). Keyword-based binary algorithm was employed to cross-tabulate percentage of notes containing the key components of clinical encounter. Separate manual analysis of randomly selected 102 notes was performed by a blinded investigator to validate the automated analysis. The results were reported as fraction or percentage of notes containing each component of encounter. A 20% concordance between manual and automated was defined a priori as acceptable to validate automated analysis.

Results:

The study showed high concordance (<20% difference) between manual and automated analysis for all components of encounter. Residents performed well in documenting most components of history, exam, treatment plan and follow-up. The documentation of therapeutic counseling was significantly lacking in the analyzed notes in both automatic and manual analysis (0.2% notes documented counseling).

Conclusions:

Automated analysis is a novel, comprehensive and efficient method to evaluate concordance with AAO PPP of glaucoma care in an electronic medical record. This analysis could be extended to other common ophthalmic conditions. As such, this method can be used to improve quality of care, documentation and as an adjunct in resident education to objectively measure milestone achievements and monitoring progress towards attaining core competencies.

The Impact of a Work RVU Compensation Model on Medical Student and Resident Education

MATTHEW J. NUTAITIS, MD*; EDWARD W. CHEESEMAN JR., MD

Background:

Traditional teaching in the clinical setting is being challenged by the focus on achieving work Relative Value Unit (wRVU) goals with maximal patient throughput, and the financial bottom line. The unfortunate net result may be that faculty feel more concerned about maintaining their wRVU salary goals rather than devoting the requisite time to teaching, which may be uncompensated.

Purpose:

To examine the impact of the wRVU compensation model on medical student and resident education at our state academic institution.

Methods:

A comprehensive literature review was performed to explore compensation models in an academic setting. A survey was conducted among all residents and faculty in the Ophthalmology department to gain their impressions of the impact of the wRVU model on their educational experience and teaching opportunities respectively.

Results:

Survey data as well as a review of the literature suggests a compromise in faculty teaching opportunities under a wRVU model. This is particularly true when a system providing recognition for Educational Value Units (EVU) is not in place.

Conclusions:

Despite ongoing financial pressures in the academic environment, it is important to realize that failure to provide recognition and compensation for the educational role may compromise the teaching of medical students and residents in Ophthalmology.

Poster Abstracts

A Preliminary Study on Crowdsourcing for Intraoperative Surgical Skill Assessment in Capsulorhexis

SHAMEEMA SIKDER, MD*; S. SWAROOP VEDULA, MBBS, PHD; LAUREN FANG; AVIGYAN SINHA; APURV H. SHEKHAR; AUSTIN REITER, PHD; GREGORY D. HAGER, PHD

Background:

As demands increase on our faculty to review the performance of residents in the pursuit of competency, we initiated this project to seek alternative means for surgical performance assessment.

Purpose:

Crowdsourcing has been shown to efficiently yield accurate skill assessments in simulation and prostatectomy, but its application to eye surgery has yet to be established. Our objective was to determine reliability and validity of intraoperative technical skill assessment by a collective of surgically untrained individuals ("crowd") for capsulorhexis.

Methods:

Experts and crowd, comprising six individuals each, viewed videos of capsulorhexis and responded to a survey that included questions from the capsulorhexis component within OSCAR and OSACSS, in addition to overall questions on circularity, overall performance, competence, and operating surgeon's appointment status (faculty vs. trainee). We assessed reliability within groups using an intraclass correlation (ICC; 2,1) and limits of agreement (LA) between groups through a Bland-Altman analysis. We assessed validity of crowd ratings using correlation coefficients and accuracy.

Results:

The ICC was fair to moderate for all questions. ICC for commencement of flap & follow-through in OSCAR was lower for the crowd than for experts but differences between groups did not appear to be statistically significant. LA were approximately one unit on a scale of 1-5 for all questions except for those from OSCAR (scale of 2-5). Crowd ratings were highly correlated with expert ratings for all questions ($P < 0.01$). Accuracy of crowd assessment of competency was 0.75 and surgeon's appointment status was 0.85.

Conclusions:

Assessments of intraoperative skill during capsulorhexis by a crowd appeared to be interchangeable and highly correlated with expert ratings.

Cataract Video Coaching: Surgical Curriculum Enhancement in a U.S. Residency Program

STEVEN H TUCKER, MD*; **JEREMY JONES, MD*;** **MARIA AARON, MD;** **YOUSUF KHALIFA, MD**

Background:

Several surgical specialties have included video coaching sessions in resident training which have proven to be useful and effective. There is little in the literature regarding similar programs in ophthalmology training.

Purpose:

To examine the perceived utility of a video coaching curriculum in cataract surgery training.

Methods:

A curriculum was developed with a resident presenting surgical cases to a group of students, residents, and faculty. All participants filled out a survey focused on video coaching, performance, and an Objective Structured Assessment of Technical Skill (OSATS) evaluation. 13 presenting residents, 99 observing residents, and 35 faculty provided responses for 12 sessions.

Results:

The average OSATS score was lower for presenting residents (3.32) compared to observing residents (4.14) and faculty (4.20) ($P < 0.01$). 100% of residents and faculty found benefit in video coaching with the subcategories of avoiding errors and overall performance rated as the most beneficial. 100% of residents felt comfortable presenting cases with zero preferring an alternative setting.

Conclusions:

There was a consensus that a structured video coaching curriculum was beneficial for cataract surgery preparation. All participants were comfortable taking part in the curriculum and did not prefer an alternative. Resident presenters undervalued their performance compared to evaluators.

Comparison of Resident Self Versus Clinical Competency Committee's Assessment of Milestones

DIVYA SRIKUMARAN, MD*; JING TIAN, MS; PRADEEP RAMULU, MD, PHD; MICHAEL BOLAND, MD, PHD; FASIKA WORETA, MD, MPH; NICHOLAS MAHONEY, MD

Background:

In 2013, the ACGME instituted milestones assessments as a method of outcomes-based accreditation. One potential benefit of milestones is enhanced feedback to trainees with clear delineation of strengths and weaknesses. Previous studies have suggested that resident self-assessed competency varies significantly from faculty using Likert scales; however, the ability to self-assess using explicit milestones descriptors has not been studied.

Purpose:

To determine the correlation between resident self-assessment (SA) and clinical competency committee (CCC) milestones assessment.

Methods:

Residents in the Wilmer Ophthalmology Residency training program from July 2014 to June 2016 submitted milestones self-assessments prior to receiving individual reports from the CCC. Correlation coefficients were calculated comparing the SA to CCC scores.

Results:

There was a strong correlation between SA and CCC scores in one medical knowledge milestone (medical knowledge-2, $r=0.75$ p value <0.01), one professionalism milestone (professionalism-2, $r=0.66$ p value <0.001) and one patient care milestone (patient care-7, $r=0.64$ p value 0.002). There was no significant correlation for the remaining 20 milestones studied.

Conclusions:

The self-assessment process helps resident reflect on their performance; however, SA and CCC scores are not highly correlated despite the explicit anchors. Improving the quality of feedback may improve a resident's ability to self-assess accurately.

Current Practices in Residents' Surgical Skills Assessment

JEANINE BAQAI, MD*^{*}; NICHOLAS HACKETT, BA; LESLIE NEEMS, MD; NICHOLAS VOLPE, MD

Background:

The Accreditation Council for Graduate Medical Education requires the assessment of resident surgical competence. Evaluation methods vary within and in between programs.

Purpose:

The purpose is to assess Program Directors' satisfaction with their current evaluation system of residents' surgical skills to help identify any need for new evaluation methods.

Methods:

A survey was sent to program directors at ophthalmology residency programs. Current practices were assessed.

Results:

Among the respondents, 28% perform an evaluation of most individual resident procedures immediately, while 52% wait until the end of the rotation. 80% spend less than 10 minutes writing evaluations. 86% note they would prefer to give feedback as soon as the case is finished, 71% prefer to have knowledge of a resident's experience/performance before operating with him or her, and 55% feel that a smartphone would be the best evaluation platform. 95% believe resident autonomy correlates with intraoperative skill level.

Conclusions:

Program Directors prefer a method of resident assessment that allows them to give rapid feedback upon case completion. A smartphone application that allows for prompt feedback may obviate these difficulties, while also providing data on prior performance to the evaluator.

Elective Flexibility During Residency: Focusing on the Future

CHRISTOPHER RICKS, MD*[†]; JEFF PETTEY, MD; BRIAN STAGG, MD

Background:

Residency training focuses on preparation for comprehensive ophthalmology and fellowship training. However, these two goals may be competitive for finite training resources and training time with consequences to trainees. By utilizing elective rotations, training programs can uniquely address individual trainees' needs to accomplish both of these goals.

Purpose:

To evaluate the perceived effectiveness of flexible elective time for preparation of ophthalmologists for fellowship and career and to explore the possibility of increasing elective time.

Methods:

A survey was sent to recently graduated residents (2006-2015) from the Moran Eye Center. The survey explored how elective time was used and the perceived effectiveness of that time in preparing them for their fellowship or career.

Results:

Preliminary results indicate that a majority of graduated residents would have liked more schedule flexibility and elective time. Our early results also indicate that more schedule flexibility during the PGY-4 year leads to increased preparedness and confidence in fellowship and career.

Conclusions:

Residency programs may increase the preparedness and confidence of their trainees by offering more schedule flexibility during PGY-4 year.

First Year Ophthalmology Residency Call Structure and its Association with Resident Anxiety and Confidence

**AKOSUA NTI, MD*;
GUI-SHUANG YING, PHD;
PAUL TAPINO, MD;
WEI PAN, MS;
VICTORIA ADDIS, MD**

Background:

There is little research on how first year Ophthalmology residents are prepared for independent call in United States residencies.

Purpose:

To identify and describe first, how first year Ophthalmology residents are prepared for call; second, how first year call is structured; and lastly, evaluate the association, if any, between call structure, anxiety, and confidence levels across US ophthalmology residents.

Methods:

Data on call structure and preparation was collected by a national online survey of residency program directors (PDs) and first year residents. Anxiety and confidence were assessed using the Endler Multidimensional Anxiety Scale.

Results:

36 PDs and 127 residents completed the survey. 100% of PDs reported a buddy call system. 73.2% of residents reported a preparatory course at the beginning of residency. There was no association between the presence of buddy call and resident anxiety ($p=0.60$). A preparatory course was associated with lower anxiety score ($p=0.05$) and cognitive worry score ($p=0.02$) in residents. There was no association between anxiety level and the month that residents started taking primary call ($p=0.85$).

Conclusions:

Preparatory courses are associated with less anxiety amongst residents on call.

Integration of a Physician Assistant into an Ophthalmology Consult Service in an Academic Setting

DIVYA SRIKUMARAN, MD*; **MARK D'SOUZA, MBBS, PA;** **MICHAEL BOLAND, MD, PHD;** **ERIC SINGMAN, MD, PHD**

Background:

Residents in the Wilmer ophthalmology residency program provide daily in-house ophthalmology call coverage for the Johns Hopkins Hospital. In 2013 the residency contracted to 5 resident per year and a physician's assistant (PA) was hired to assist with consult coverage.

Purpose:

To describe a model for incorporation of a PA into the consult service and the impact on the residency program.

Methods:

A PA was hired to assist with day time consult coverage three and half days per week including during resident didactics.

Results:

First years residents were assigned to alternate clinical assignments for about 140 shifts per year. A second year resident provided back up for the PA and was called for complex, educationally valuable or surgical cases. Coverage during didactics enabled improved resident attendance. The PA also provided supervision and teaching to emergency medicine residents and won teaching awards for this effort. Data on patient wait times and financial profitability and a survey of resident perception is currently pending but will be available for the meeting.

Conclusions:

A PA can be a valuable asset to an ophthalmology department and residency program. Development of PA ophthalmic skills training programs may expand the pool of qualified and interested candidates.

Modeling Neuroanatomy with Fruit and Vegetables: A Novel Exercise Teaching Teamwork and Neuroophthalmology

TIMOTHY J. MARTIN, MD*

Background:

Instruction in neuroanatomy can be tedious and mind-numbing. This project uses model-building as a unique alternative to teach the neuroanatomy of the visual system.

Purpose:

The goal of this activity is for residents to learn and visualize neuroanatomical pathways by building a large-scale model of the brainstem and orbital regions. A secondary goal is to strengthen team-building skills.

Methods:

Residents were first given diagrams and illustrations of neuroanatomical pathways of the visual system. Infrastructure components were supplied (e.g. wooden dowels, pipe cleaners, wire). Residents then chose fruit and vegetables to represent structures (such as a bunch of bananas to represent CN III subnuclei), arranged them anatomically, and "wired" them according to the neuroanatomical pathways.

Results:

The group produced an anatomically-sound, large-scale model of the visual motor and pupillary light-reflex pathways; successfully modeling many key anatomical relationships. The residents then gave tours of the model for students and faculty, discussing the functional implications of lesions at key anatomical locations. The consensus was that this was a fun and very effective learning tool.

Conclusions:

The challenge of building a model of the neuroanatomical pathways of the visual system out of fruit and vegetables created an entertaining, team-building activity with painless learning of key neuroophthalmologic concepts.

Streamlined Milestones Reporting

THOMAS S. HWANG, MD*[†]; DANIEL TU, MD, PHD

Background:

Milestones reporting is complex and can be burdensome for program directors and Clinical Competency Committees (CCC).

Purpose:

To describe a streamlined Milestones reporting process.

Methods:

We identified subcompetencies (SC) that are relevant to clinical rotations and designed an evaluation form that includes only those SCs. The evaluators were asked to report whether the resident met, exceeded or fell below expectations for their level of training. A comment was required if the resident exceeded or fell below the expectation. "Meets expectation" was normalized for each training level. For SCs not relevant to clinical rotations, the program director submitted Milestones to the CCC. The CCC evaluated the numbers and comments against the ACGME Milestones document. A customized evaluation form on the MedHub system compiled the information.

Results:

The Milestones rating collected through a normalized and simplified evaluation form allowed rapid collection of SC level trainee data. The CCC was able to quickly assess the residents' competency and identify potential trouble areas. The average scores given by the system were congruent with the CCC's general impression of the residents' progress.

Conclusions:

An efficient, simplified Milestones reporting scheme can assist the CCC in assessing resident competency and identifying potential areas of improvement.

Surgical Safety Checklists for Cataract Surgery in a Large Ophthalmology Residency

W. ALLAN STEIGLEMAN, MD*[†]; TAMANNA O'DEA, MD

Background:

In 2008, the World Health Organization (WHO) issued guidelines to reduce medical errors and improve patient safety. One such recommended measure was the use of a surgical safety checklist akin to that now commonplace in aviation.

Purpose:

A version of the WHO checklist was adapted for cataract surgery by the ophthalmology residency program at the San Antonio Uniformed Services Health Education Consortium (SAUSHEC). This checklist was created and implemented to help reduce common preoperative, intraoperative and postoperative errors and easily forgotten steps during the various parts of cataract surgery.

Methods:

The customized SAUSHEC checklist was utilized before all cataract surgeries for approximately 3 months in early 2016. An online anonymous survey of surgery team members including attending surgeons, resident surgeons, anesthesia providers, circulating nurses and scrub technicians seeking feedback on the utility of the checklist was conducted.

Results:

Eleven total responses were recorded with the following breakdown: 1 anesthesia provider, 4 attending surgeons, 4 resident surgeons and 2 circulating nurses.

Conclusions:

Overall responses were positive for use of the checklist. One notable finding was that 100% of the respondents indicated they would want a surgical safety checklist used if they or a family member were having surgery. Despite the small sample size and a largely redundant simultaneous legacy 'time-out' procedure, multiple errors were prevented as a result of the use of the checklist.

The Efficacy of Using Online Computer-based Training to Supplement Didactic Classroom Training

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Background:

Evolving technologies are being used to teach ophthalmic skills. A consideration is whether incoming residents could benefit from online computer-based training currently being used by ophthalmic technicians for some basic skills.

Purpose:

The purpose of this project was to investigate whether resident ophthalmologists achieved higher scores and pass rates on a standard ophthalmology multiple-choice exam and a computer-simulated skills exam if the residents supplemented didactic classroom training with computer-based training modules.

Methods:

Initially, 52 resident ophthalmologists from 13 participating hospital residency programs were selected and placed into either a control group or a study group. In Phase I, all participants completed an initial standard ophthalmology multiple-choice exam covering four core clinical skills. They also received didactic classroom teaching. The study group additionally received approximately six hours of online computer-based training. Following that, the participants completed two exams - a computer simulated skills exam and a repeat of the multiple-choice exam. The outcomes on the skills exams and the multiple-choice exams were assessed to determine whether the study group performance exceeded the control group performance. In Phase II, the exams for both groups were repeated after six months. Performance results were analyzed to determine whether there were measurable differences and lasting effects from the online computer-based training.

Results:

Twenty-one participants completed the one-year longitudinal study - ten were in the control group and eleven were in the study group. In Phase I, the study group mean score exceeded the control group mean score a statistically significant 12.6% on the multiple-choice exam. For the computer-based skills test, the study group mean score was 18.4% greater than the control group mean score. When the exams were repeated in Phase II, the differences in mean scores between the study group and the control group for both the multiple-choice exam and for the computer-based skills exam were not statistically significant. The null hypothesis, that the means were the same, could not be rejected.

Conclusions:

Resident ophthalmologists who supplemented didactic classroom training with online computer-based training initially achieved higher mean scores on a standard ophthalmology multiple-choice exam and on a computer-based skills exam than those who did not have the supplemental training. After six months, both groups were retested and the mean scores for the study group and the control group were found to be essentially the same.

Trouble in Paradise: A Busy Surgical Program Finds Itself Needing to Provide Extra Surgical Training

KELLY MITCHELL, MD*

Background: A program with high resident surgical numbers and experienced, full time, faculty surgical teachers realizes the need to provide an extra surgical training experience for a resident who demonstrated flat trajectory of early surgical skill growth.

Purpose: To review our experience during the early resident surgical experience so that we can optimize surgical educational processes and resources for the surgically at risk residents.

Methods: A retrospective review of resident records of both subjects (residents who were evaluated as below expected surgical adapters) and controls (residents who were evaluated as expected surgical adapters) to try to identify: 1) Signals that surgical skill growth may need extra intervention; 2) Opportunities for residency scouting and engagement

Results:

- Recent 10 year review of 28 Graduates
- No fellows at our institution. Full-time surgical faculty supervise all procedures.
- During study period, average number of resident primary cataract surgeries per graduate was 244. This average was in the top 94% of ACGME programs for that period. Also, our total case log resident primary surgery percentile average was in the top 88% of ACGME programs for that period.
- Study Definitions:
 - Controls were defined as residents that were evaluated as acceptable or within the expected range for surgical skills throughout their residency.
 - Suspects were those residents that were evaluated by one or a minority of the surgical attendings as having borderline surgical skills during 1 but not more than 2 rotations. These residents improved to the control group with unstructured intervention (self-paced practice).
 - Subjects were defined as residents evaluated by the majority of surgical attendings as having inadequate/below expected level for surgical skills. These residents required structured early or extended intervention.
- 14.0% (4/28) of study period graduates were defined as Subjects
- 86.0% (24/28) of study period graduates were defined as Controls
- 100% (4/4) subjects became manifest during early intraocular/strabismus/oculoplastic surgery training.
- 21% (5/24) controls were suspects during early intraocular/strabismus/oculoplastic surgery training.
- 100% 5/5 suspects of the control group responded to unstructured intervention.
- 75% (3/4) subjects responded to early intervention.
- Early intervention was defined as required additional surgical practice time with specific tasks assigned based on noted surgical deficit. For example, extra suturing for suturing skills and simulator (Eyesi) training time for intraocular skills. This additional surgical practice time was in addition to the standard, required surgical practice time. The length of the early intervention averaged 4 months. The range was 2 to 6 months
- 100% (1/1) subjects responded to extended intervention. Extended intervention was employed when a resident was unable to demonstrate the expected surgical skills. This was preceded by two cycles of early intervention with inability to demonstrate the expected surgical skills. Extended intervention required extending the residency time period for that resident.
- 75% (3/4) of our subjects perceived some inconsistency with feedback from surgical attendings. This included our one subject that successfully completed the extended intervention.

Conclusions:

- Over a ten year period in our surgically busy program about 35% of our residents demonstrated surgical skills which fell outside the expected range at some point during their residency.
- Early strabismus, cataract, or oculoplastic surgery skill deficits should be quickly recognized and educational interventions promptly initiated.
- Early intervention (whether structured or not) helped 89% of these residents. Structured intervention aimed at the specific skill deficit seemed most effective for those residents with the largest deficits.
- Resident perception of feedback from surgical attendings seemed important.

Even in a busy surgical program, extended intervention for surgical training that mandated extension of the residency period was necessary and successful. With successful application of early intervention, use of extended intervention should be infrequent.

Notes

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Save the Date!

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