

2015 EDUCATING THE EDUCATORS

JANUARY 28 JW MARRIOTT STARR PASS HOTEL TUCSON, ARIZONA



PROVIDED BY ASSOCIATION OF UNIVERSITY PROFESSORS OF OPHTHALMOLOGY PROGRAM DIRECTORS COUNCIL Meeting Syllabus

Educating the Educators 2015

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 Educator's conference in Tucson, Arizona.

In its 12th 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 **Dr. Laura Green** and **Laura Pearl** lead a workshop on *Interview Skills*, and **Dr. Edward Callahan** speak on *Fostering Resilience*. In addition, a review committee consisting of our peers has selected terrific topics for both oral and poster presentations. We look forward to seeing you in Tucson and hope you enjoy the meeting!

NURU.

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

Bharna

Bhavna P. Sheth, MD, MBA Co-Chair, Educating the Educators

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Educating the Educators 2015 Program

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8:15 AM – 8:30 AM	Welcome and Announcem		
8:30 AM – 8:40 AM	San Francisco Matching P	Arizona 6/7	
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12:00 PM – 1:30 PM	Lunch (included) and Post	Ania Terrace	
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5:30 PM – 7:00 PM	Reception for Registered Educating the Educators Participants – Supported by San Francisco Match		

Free Paper Session – Part I

A Global Ophthalmology Curriculum for Ophthalmology Residency

PETER COOMBS, MD*; GRACE SUN, MD

Background:

Interest in global health has increased in recent years, especially among younger physicians. While there is much interest in global health in ophthalmology residency training, it was only formally recognized for the first time last year when the Accreditation Council for Graduate Medical Education (ACGME) residency committee for ophthalmology announced guidelines to allow for credit for international electives. Still, there is currently no formal comprehensive global ophthalmology curriculum for ophthalmology residents.

Purpose:

The goals of this project were to outline a formal curriculum for global ophthalmology in residency training.

Methods:

A literature review of current global health curricula and international electives in residency training programs was performed. These findings were evaluated in the context of ACGME core competencies as well as the new Ophthalmology Milestone Project (OMP).

Results:

We present a comprehensive global ophthalmology curriculum, including both didactics and clinical experience, that aligns with the goals of the ACGME core competencies and OMP. We also discuss existing educational resources, which can serve as a starting point for educators to develop a global ophthalmology residency curriculum.

Conclusions:

We believe a formal global ophthalmology curriculum should be a core part of training for future ophthalmologists.

Milestones: Superior Tools for Identifying the Problem/Failing Resident - Reflections of a Program Director

KIMBERLY CROWDER, MD*

Background:

From 2012-2014 the program director (myself), chairman and faculty of the ophthalmology residency program, along with the DIO at the University of Mississippi Medical Center underwent many trials and tribulations with an ophthalmology resident struggling in all competency areas. I was repeatedly told by faculty from as early as the second half of the PGY-2 year that this resident was not up to par to complete an ophthalmology residency. However, very little written documentation was provided at the beginning to back up these comments, despite our program regularly using evaluation tools from the recommended Ophthalmology "Toolbox".

Purpose:

First, to examine traditional ophthalmology assessment tools used at our program (OCEX, OCAT, global, and 360 degree evaluations) and illustrate why they were not adequate in all cases, especially for this struggling resident. Second, to show how newly edited assessment tools using Opthhalmology Milestones based grading can more accurately assess a resident's progress. And, finally, how from one program director's perspective, using the Milestones would have allowed the program to identify the severity to which this resident was underperforming much earlier in training.

Methods:

Compare and contrast traditional Ophthalmology assessement tool wording with the University of Mississippi's Ophthalmology CCC's revised wording/ grading of the same tools, making them Milestone worthy (in our opinion). Illustrate why our problem resident was able to "fly under the radar" using the traditional tools.

Results:

In the case of this one resident, the traditional tools failed and in the opinion of this program director, the Milestones would have allowed a much more accurate assessment of this resident's performance in multiple competency areas.

Conclusions:

I am a Program Director who is already a believer in the value of the Milestones.

A Novel Call Log Application Helps Assess Resident Milestone Achievement

ABIGAIL FAHIM, MD, PHD*; BLAKE V. FAUSETT, MD, PHD; MATTHEW MANRY; SHAHZAD I. MIAN, MD

Background:

With the advent of the Ophthalmology Milestone Project, educators across the country are seeking new ways to better assess resident performance. Residents currently keep records of every patient seen on call in accordance with Accreditation Council for Graduate Medical Education (ACGME) requirements, and these logs are potential sources of valuable information on resident clinical experience and progress if stored in an easily accessible format.

Purpose:

To develop a user-friendly iPad application for call log documentation that allows organized collection of data regarding the resident call experience.

Methods:

An application was developed to document the date and time of each page, patient information, encounter type, initial differential diagnosis, start and finish times of the encounter, final diagnosis, trauma score, and the plan. The application was implemented for primary call residents at the Kellogg Eye Center starting January 1st, 2014 and preliminary data was gathered for 11 months.

Results:

The number of patients seen per call ranged from 0 to 21 with a mode of 3. The average number of patients seen on a weeknight was 4.3 versus 10.0 on a weekend day. Additional data was compiled for individual residents and the program as a group regarding types of consults seen (emergency room versus inpatient), types of diagnoses seen, and duration of encounters.

Conclusions:

The digital call log application is a useful tool for ascertaining numerous parameters of the resident call experience. This will be helpful in assessing the call system as a whole for quality improvement as well as evaluating individual residents according to ACGME milestones.

QR Codes and Google Docs: An Easy and Inexpensive Portable Evaluation System

AMY M. FOWLER, MD*; CHRISTOPHER POSTLETHWAIT

Background:

With institution of the Milestones Project, our program was searching for a way to utilize mobile computing devices - primarily smartphones - to easily and effectively capture and manage evaluation data. After attending a presentation on QR codes at the 2014 ACGME Annual Meeting (by Danny Barnhill, MD and Kellin Reynolds, MD from LSU Health Sciences Center New Orleans) we felt we could adapt this technology to our program.

Purpose:

Our goals were to develop a mobile electronic evaluation system that:

- 1. is inexpensive and technically easy to set up.
- 2. is easy to use by faculty, residents and medical students.
- 3. allows us to incorporate required milestone indices into our existing evaluation tools.
- 4. helps us track faculty and resident attendance at conferences

Methods:

A single survey was created using Google Docs that allows for completion of various evaluations depending on the option selected on the introduction page. Evaluations such as Surgical Skills, Lecture Skills, and other "one-off" assessments that can be troublesome to obtain were each built into a separate page of this survey. This allows for any responses to be aggregated automatically into one large, easily manipulated spreadsheet. One copy of this master survey was then created for each resident and renamed appropriately. From there, the live-form links to each survey were entered into a (free) Google url shortener and unique QR codes corresponding to each residents' survey were generated. These QR codes were then placed on laminated badges and were given to each appropriate resident to be worn with their hospital ID badge. Upon request, these codes can be scanned by any smartphone, which then opens that resident's survey in the user's mobile browser. To prevent any residents from filling out their own surveys, responses by a faculty member are sent back to that faculty member semiannually in aggregate form for verification.

This same system was also implemented into the conference attendance and medical student feedback systems. Lecture attendance is tracked when an evaluator (faculty or resident) completes the "Lecture Skills Evaluation" for the presenting resident by scanning that resident's QR code. This helps ensure valuable feedback for the resident from both faculty and peers. Attendance is then verified by the time stamp on the survey results, which can also be used for CME reporting.

Results:

We just implemented this starting July 1, 2014, but to date we are having excellent compliance and utilization. In January I will be able to present our 6 month data and how that data was used at the mid year evaluations by the CCC.

Conclusions:

We are excited that this system will help tremendously with the new quantities of data we need to manage and report in our residency program. Best of all, it is a free system and does not require special computer programming capabilities.

Implementation and Results of a Mental Skills Curriculum for Ophthalmology Residents

CARRIE HAPP, MD*; EVAN WAXMAN, MD, PHD; AIMEE KIMBALL, PHD

Background:

At the EE meeting of 2013, Dr. Travis Frazier, described a mental skills curriculum for the residents of the Madigan Army program, focusing on 'grace under fire' in surgical training. Ophthalmologists in training and clinical practice face challenges in clinical, academic, surgical, career advancement and personal arenas. We believe residents should receive training in facing these endeavors.

Purpose:

To describe and evaluate a mental skills curriculum in a non-military residency that includes resilience for residents facing broad and multifaceted stressors of ophthalmic training and practice.

Methods:

Eighteen residents were given a survey to evaluate mental toughness and perceived stress before and after undergoing a mental skills curriculum created by a sports psychologist to address management of residency stressors.

Results:

Residents were more confident in handling training related and personal problems. They showed improved mental toughness. Residents were more inclined to have a pre-encounter routine for each clinical and surgical patient and to set daily and long term career goals.

Conclusions:

Free Paper Session – Part II

A successful mental skills curriculum can be implemented in a non-military residency. Mental resilience training can be expanded to other challenges faced by surgical residents both in and out of the operating room.

Evaluation of Visual Acuity and Refractive Error After Implementation of Advanced Resident Training

BENNETT YAU-BUN HONG*; JILL MAHON; ALI TORAB PARHIZ, MD; TIMOTHY CHOU, MD; TEHMINA HAQUE, MD; AZIN ABAZARI, MD; KEVIN KAPLOWITZ, MD; ROBERT A. HONKANEN, MD

Background:

To improve resident phacoemulsification outcomes a structured curriculum was instituted focusing on biometry with continuous outcome measures by having the residents track their refractive outcomes.

Purpose:

To determine whether the resident curriculum changes impacted phacoemulsification visual outcomes. We hypothesize that surgeries done after the new curriculum result in less refractive error.

Methods:

242 cataract surgeries performed by residents after the curriculum change(Group A) were compared to 223 cases performed by 4 residents before the new curriculum(Group B). Predicted postoperative refractive error(PPOR) was compared to the the postoperative refractive error(POR) measured by refraction. The mean absolute difference(MAD) between PPOR and POR was compared with a student's t-test.

Results:

Mean axial length and age were similar in both groups. In Group A, 36.8% of patients had a MAD<0.25 diopters, vs 18.4% in Group B. The MAD was<0.5 diopters in 71.1% of Group A vs 42.6% of Group B. The MAD was<1 diopter in 94.2% of Group A vs 74.4% of Group B, all with p<0.05. Postoperative VA was similar among both groups, with 61.5% of patients achieving 20/20 or better vision, 81.5% achieving 20/25 or better, and 93.5% achieving 20/40 or better.

Conclusions:

Residents' refractive predictions significantly improved after initiating a formal cataract curriculum, demonstrating that improvements in resident surgical outcomes are possible with a structured curriculum reinforcing outcome measures.

Cost Analysis of Objective Resident Cataract Surgery Assessments

YOUSUF KHALIFA, MD, FACS*; KIRAN NANDIGAM; WILLIAM GENSHEIMER, MD

Background:

The cost of surgical training tools has not been studied. With tightening departmental budgets, selection of appropriate training tools must include an understanding of their cost.

Purpose:

To compare cost of 8 ophthalmology resident surgical training tools.

Methods:

A cost analysis model was created to compile all relevant costs in running each tool in a medium-sized ophthalmology program. Quantitative cost estimates were obtained based on cost of tools, cost of time in evaluations, and supply and maintenance costs.

Results:

For wet laboratory simulation, EyeSi is the least expensive cataract surgery simulation method; however, EyeSi is only capable of evaluating simulated cataract surgery rehearsal and requires supplementation with other evaluative methods for operating room performance and for non-cataract wet lab training and evaluation. The most expensive training tool is ESSAT. The two most affordable methods for resident evaluation in operating room performance are OASIS and GRASIS.

Conclusions:

Cost-based analysis of ophthalmology resident surgical training tools are needed so residency programs can implement tools that are valid, reliable, objective, and cost-effective. There is no perfect training system at this time.

Revitalizing a Surgical Training Program; The Results of a Program Improvement Plan

CAROLYN KLOEK, MD*; JOHN LOEWENSTEIN, MD

Background:

In 2011 the Harvard Medical School (HMS) residency program in ophthalmology received ACGME citations in surgical training including insufficient surgical volume as well as not providing an equivalent surgical experience for residents.

Purpose:

To report the results of a program improvement plan to enhance the quality of the surgical training experience in this program.

Methods:

A program improvement plan was created and implemented with changes including:

- Further development of pre-operating room training and surgical curriculum for cataract surgery and subspecialty rotations
- PGY-4 resident rotations were restructured with increased focus on surgical training
- Increased attention to surgical logs including faculty and trainee education regarding logging and close surgical log oversight at the program level
- Establishing an on-going dialogue about resident surgical training in many settings including recurring resident and faculty meetings and creating a residency education retreat with a focus on resident surgical experience

Results:

The class of 2010 graduated with an average of 124 cataracts, 5 glaucoma filtering procedures, and 274 primary surgical procedures (range 201-325, median 288). The graduating class of 2014 had an average of 179 cataracts, 14 glaucoma filtering procedures, and 531 primary surgical procedures (range 412-723, median 505).

Conclusions:

Implementation of the program improvement plan strengthened the surgical experience of the HMS ophthalmology residents and did not detract from the other core elements of the residency training program including the scholarly nature of our program. The described changes did not fix the issue of discrepancy in overall surgical volume.

Comparing Resident Cataract Surgery Outcomes Under Novice Versus Experienced Attending Supervision

SIDHARTH PURI*; AMANDA KIELY MD; JIANGXIA WANG, MA, MS; ALONZO S. WOODFIELD MD; SARAS RAMANATHAN, MD; SHAMEEMA SIKDER, MD

Background:

While studies have investigated resident experience and complications, there is limited understanding of how attending experience may impact surgical success.

Purpose:

To determine whether novice or experienced attending supervision influences complications in resident-performed phacoemulsification.

Methods:

Resident-performed phacoemulsification supervised by one novice attending (N=189) and experienced attending (N=172) over one year were included. Data included: resident year, patient age, gender, pre-operative risk factors (4+ dense/white/brunescent cataract, Flomax, Zonular Dialysis, Pseudoexfoliation, Glaucoma flag, Post Vitrectomy, PDR flag), intra-operative risk factors (Trypan blue, iris hooks), and intra-operative complications (Capsule tears, Vitreous loss, Zonular dialysis, Zonular dehiscence, Burns, Nuclear fragment loss, Descemet's tear). Experienced attending data were compared against those of the novice attending.

Results:

Regarding pre-operative risks, novice attending cases more likely involved 4+ cataract (p=0.005), Flomax (p<0.001), or glaucoma risk (p=0.001). For intraoperative risks, novice attending cases more likely involved Trypan blue (p<0.001). Regarding complications, novice attending cases were associated with vitreous loss (p=0.002) and anterior chamber tears (p<0.001). The novice attending was more likely to have greater complications than the experienced attending.

Conclusions:

Early cases for the novice attending were accompanied by greater complications (vitreous loss and anterior capsule tear), likely due to a learning curve. Training programs may focus on these specific areas.

Residents' Knowledge of and Perceived Competence in Ophthalmic "Handoffs"

SARAH H. VAN TASSEL, MD*; BENJAMIN M. LEVINE, MD; GRACE SUN, MD

Background:

Competency in transitions of care is an ACGME requirement. Numerous handoff procedures have been proposed, and studies demonstrate fewer errors and improved patient safety with evidence-based handoff strategies. However, ophthalmic handoffs remain challenging. Obstacles include the consult service nature of ophthalmology, different "vital signs," and often vision-threatening rather than life-threatening illnesses.

Purpose:

Investigate residents' knowledge of and perceived competence in handoffs.

Methods:

Anonymous survey of residents in a medium-sized, urban, university hospital program.

Results:

Residents perceived their own handoffs and handoffs from their co-residents as safe and efficient. Most residents perceived their co-residents' handoff strategies as evidence-based, but half of residents "disagreed" or were "undecided" regarding whether their own handoff strategies were evidenced-based. Six of eight residents reported having heard of I-PASS, but only one resident knew the mnemonic; two residents gave an incorrect or no answer to the question "What is I-PASS?"

Conclusions:

Residents perceived handoffs as safe and efficient. They were more likely to perceive co-residents' handoff strategies as evidence-based compared to their own. Knowledge of our institution's preferred handoff strategy was low. Additional quality improvement cycles will be implemented to adapt the I-PASS model to ophthalmic handoffs to improve safety and evidenced-based practice.

A Structured Wetlab Curriculum with Videography Assessments

MATTHEW WADE, MD*; JEREMIAH TAO, MD; ROGER STEINERT, MD

Background:

Resident surgical education utilizes a large amount of resources (especially attending and operating room time). Surgical simulators are expensive and do not simulate basic skills such as suturing. Residents gain surgical skills at different rates.

Purpose:

To report results from a structured wetlab curriculum combining supervised and unsupervised practice where basic surgical skill mastery is confirmed by submitting unedited timed digital videographic records to the supervising surgeon.

Methods:

9 residents at a teaching institution were enrolled. Suturing pass points include placing 8 sutures through clear corneal, scleral/limbal/corneal, penetrating keratoplasty and stellate incisions. Phacoemulsification pass points include: divide/conquer, horizontal chop, vertical chop techniques on Kitaro eyes. Pass point attempts are timed (minutes). Assessments are made via digital videography. A log of practice hours is required of each resident. Study endpoints include: time required to complete skills at baseline and 4 months and number of practice hours required to achieve skill mastery.

Results:

Baseline and 4 month data will be collected and presented by the time of the meeting.

Conclusions:

A wetlab curriculum which confirms skill mastery by videographic record gives objective goals for residents to strive for and allows residents to proceed at their own pace

Poster Abstracts

Resident Cataract Surgery Outcomes After Implementing a Wet Laboratory Curriculum Using the Kitaro Training System

YOUSUF KHALIFA, MD, FACS*; WILLIAM GENSHEIMER, MD

Background:

Kitaro is a relatively new surgical training tool that we used to develop a cataract surgery training course. We were interested to see if the Kitaro curriculum improved resident surgical performance.

Purpose:

To determine if there was a difference in resident cataract surgery intraoperative complications, surgical times, and visual acuity outcomes after implementation of a new formal wet laboratory cataract surgery curriculum using the Kitaro training system.

Methods:

The first fifty cataract surgical cases of six residents on their primary third year cataract surgery rotation with a single attending surgeon from the academic year before and after implementation of a cataract surgery wet laboratory curriculum using the Kitaro training system.

Results:

The number of cases with intraoperative complications was significantly decreased (odds ratio [OR], 0.35; 95% confidence interval [CI], 0.16 to 0.76; P<0.01) and surgical time was significantly decreased (P< 0.01) after implementation of the wet laboratory curriculum.

Conclusions:

Implementation of a formal wet laboratory cataract surgery curriculum using the Kitaro training system significantly decreased resident cataract surgery intraoperative complications and surgical times.

Creating Evidence-based Treatment Guidelines for Common Ocular Emergencies at Children's Hospital of Pittsburgh of UPMC

NISREEN MESIWALA, MD*; AHMARA ROSS, MD; CARRIE HAPP, MD; AKSHAR ABBOTT, MD; AMANDA WAY, MD; ROXY FU, MD; SALWA ABDEL-AZIZ, MD; ELLEN MITCHELL, MD; CHRISTIN SYLVESTER, MD; KANWAL NISCHAL, MD; SWATI AGARWAL, MD; MARGARITA CARDENAS-VILLAS, MD; LEA ANN LOPE, MD

Background:

Creating treatment pathways enable evidence-based treatment steps to be employed systematically and highlight areas that need further study.

Purpose:

To create standardized, evidence-based guidelines for treatment of ocular emergencies encountered at Children's Hospital of Pittsburgh.

Methods:

Residents researched common pediatric ocular diagnoses (hyphema, ruptured globe, preseptal/orbital cellulitis, corneal abrasions, chemical injuries, eyelid lacerations). Treatment algorithms were created using evidence from the medical literature. Treatment steps not proven in the literature were discussed among residents and faculty. Upon consensus, the guidelines were then shared with other hospital teams that co-managing patients for agreement.

Results:

Evidence-based guidelines of each ocular emergency was created as a tool for residents/fellows/faculty to use when treating patients in order to provide the best treatment effectively and efficiently. This project also highlighted areas of treatment yet to be proven in the literature and open for future resident research projects.

Conclusions:

This project enabled residents to familiarize with pediatric ocular emergencies before taking call. Residents gained experience researching medical literature, best-practice guidelines and leading discussions on unproven treatment aspects in order to agree on a departmental-wide algorithm. Ultimately, the resident-derived protocols standardized treating pediatric ocular emergencies using evidence-based medicine.

Use of an App for Ophthalmic Education of Non-ophthalmology Physicians

SHAHZAD I. MIAN, MD*; JONATHAN TROBE, MD; ABIGAIL FAHIM, MD, PHD

Background:

There are limited resources for non-ophthalmologists to gain basic medical knowledge in ophthalmic diagnoses and basic examination skills. Webbased resources and apps provide easy access to materials in real time.

Purpose:

To develop an app that provides access to common ophthalmic disorders and basic examination skills.

Methods:

The Eyes Have It is a web-based teaching tool used by physicians to gain basic knowledge of ophthalmic conditions. The material in the teaching tool was converted into an easier to use app format.

Results:

The Eyes Have It app formats common ophthalmic conditions in an easy to access package with videos and animations to increase learning efficiency.

Conclusions:

The app allows improved learning for non-ophthalmologists in managing common ophthalmic conditions.

Improving Resident Surgical Skills - How to Teach Residents Pars Plana Vitrectomy

HREEM PATEL, MD*; ANJALI TANNAN, MD; JACK A. COHEN, MD

Background:

Vitreoretinal surgery is often lacking in resident education. Oftentimes ACGME requirements are fulfilled by surgical observation only. Surgical retina is one of the only subspecialty where residents do not get hands-on experience during their training. These skills are important because they improve overall surgical ability and increase comfort with complex anterior segment surgery.

Purpose:

To demonstrate how educators can educate residents and increase competence in vitreoretinal surgical skills.

Methods:

Surgical videos of PGY-3 and PGY-4 residents were reviewed. All residents participated in weekly vitreoretinal surgery with one physician. Surgical responsibility increased as competence increased. Resident skills were evaluated to determine competency.

Results:

Evaluation of surgical video demonstrates that with appropriate guidance, residents can become skilled and competent in basic vitreoretinal skills including core vitrectomy, endolaser, and membrane peeling.

Conclusions:

Vitreoretinal surgical skills are useful in both anterior segment and posterior segment surgery. Residents who gain experience in this skill become more well-rounded physicians and surgeons. With appropriate guidance and supervision, residents can quickly and easily master basic vitreoretinal surgical skills.

Evaluation of On-call Activities for a First-Year Ophthalmology Resident at the University of Iowa

BRADLEY SACHER, MD*; JESSE VISLISEL, MD; JEFFERY WELDER, MD; CLIFTON BLAKE PERRY, MD; JONATHON HAGER, MD; THOMAS OETTING, MD

Background:

Residency programs are faced with the challenge each year of teaching new residents what they consider the most high-yield clinical information. It is difficult, however, to assess without data regarding what types of clinical scenarios arise most on-call.

Purpose:

This project aims to identify the type and frequency of different clinical presentations that will be seen during on-call activities in one year.

Methods:

In this retrospective study, each first-year ophthalmology residents collected anonymous data from on-call activities from September, 2012 thru September, 2013. This information was analyzed to find the frequency of each chief problem and what category of knowledge this included.

Results:

In one year, the residents evaluated 1152 patients. Notably, on any given call-night one has a 74% chance of seeing an orbital fracture, 25% chance of an eyelid laceration, 19% chance of a corneal abrasion, 18% chance of a retinal detachment and 15% chance of an open globe injury.

Conclusions:

A first year ophthalmology resident should be well prepared to see orbital fractures, eyelid lacerations, open globe injuries and retinal detachments. The skill sets for these cases should be emphasized early in training and reviewed throughout residency.

Digital Surgical Passport

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Background:

One challenge of surgical teaching is that trainees need to progress through surgical stages in a stepwise fashion while working with different attending surgeons.

Purpose:

In order to track the progression of surgical experiences and skills of each trainee, we have implemented a passport to record surgical experiences and competence, both in the practice lab and in the operating room.

Methods:

We implemented a digital passport, in conjunction with a cataract surgical curriculum, for first year residents in our program.

Results:

The use of the digital passport is limited by lack of perceived importance by trainees and preceptors. Residents report forgetting to get sign-off, and preceptors are not all aware of the passport requirement. However, the attendings familiar with the passport support its use and believe it will be helpful in increasing resident participation in the operating room.

Conclusions:

With specific resident incentives, integration with milestones assessment and increased attending familiarity with the document, we expect adaptation of the digital passport to increase.

A Modified Action Sports Camera for High-Quality and Cost-Effective Operating Room Videography

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Background:

Videography is important in surgical training but its use may be limited due to technical challenges and costs (high-resolution, mounted digital operating room video systems priced in the tens of thousands of USD).

Purpose:

We describe and evaluate a modified, commercially available, high-definition action sports camera for capturing high-quality oculofacial and strabismus surgical video footage.

Methods:

A GoPro Hero3+ camera (GoPro, Inc., San Mateo, CA) was mounted in the operating suite using standard hardware. Two lens configurations were tested: the standard lens and a modified setup using a 16mm lens (RageCams, Inc., Sparta, MI). We assessed image resolution (using ImageJ software; National Institute of Health, USA), field-of-view, implementation cost, ease-of-use, and limitations.

Results:

The standard (out-of-box) GoPro lens system was easy to mount and position with the Jaws: Flex Clamp[™], but produced a wide-angle view that was suboptimal for surgery (98.0 x 65.7 degrees; Figure 2A). Increasing magnification by positioning the camera closer to the surgical field was impractical, as the setup interfered with the surgical space. Reconfiguration with a 16mm lens presented technical challenges, however it achieved an appropriate field-of-view (19.9 x 11.2 degrees; Figure 2B) with the camera at an appropriate distance from the surgical workspace. Resolution was excellent with the resolution grid showing a resolution greater than 50 line pairs per inch (Figure 3). The total cost of the system was less than \$800 USD. The system was highly user friendly; the GoPro App adds further functionality, including mobile phone- or tablet-based control and monitoring, although the preview picture is poorer quality than the actual video. High-resolution, real-time display required an HD monitor, but was easy to configure.

Conclusions:

he modified action camera with the 16mm lens was effective in capturing high-resolution digital surgical video recordings with a suitable field-of-view at a fraction of the cost of marketed operating room video systems.

Learner and Information Characteristics that Predict Ophthalmic Knowledge among Residents at a Single Institution

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Background:

Didactic sessions are an important required part of ophthalmology residency programs, but there is little evidence available regarding how best to teach residents clinical knowledge.

Purpose:

To identify features associated with the assimilation of glaucoma-related knowledge by ophthalmology residents at a single institution.

Methods:

Twenty residents at the Wilmer Eye Institute were given knowledge assessments after each of five teaching sessions spanning an academic year. Significant learner and information-related predictors of correct responses to the knowledge assessment questions were determined from generalized estimating equation (GEE) logistic regression models.

Results:

A multivariate GEE model showed that residents who had completed the glaucoma clinical rotation were more likely to answer questions correctly (OR=1.91, CI=1.39-2.62, p<0.01). Furthermore, correct responses were more likely for questions whose answer was informed by multiple educational resources (OR=1.70, 95% CI 1.14-2.54, p<0.01) and for questions that appeared on assessments administered later in the academic year (OR=1.15, 95% CI=1.07-1.24, p<0.01). Question topic and OKAP score had no impact on the likelihood of correct answers ($p \ge 0.18$ for all).

Conclusions:

This single-institution study suggests that the most important information for residents to learn should be presented in a variety of methods. Clinical experiences are also crucial with regards to knowledge acquisition.