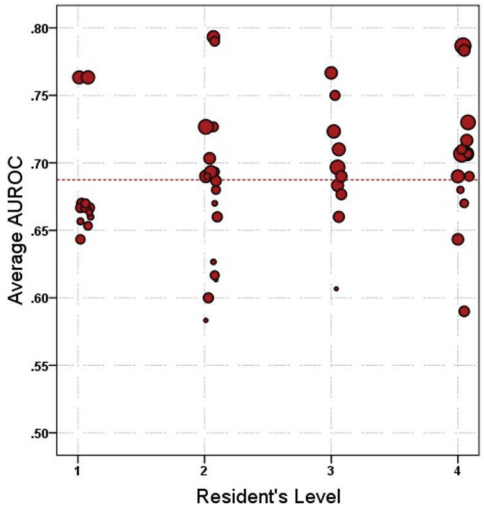
(relationship between mean performance and mean difference in performance was -0.056, p=0.64).
Conclusions: Senior residents had better performance and less variability on repeated tests compared to junior residents . Discus allows efficient and precise assessment of resident's performance at assessing optic disc photographs in patients with glaucoma.



Mean AUROC of three tests.
Commercial Relationships: Faisal A. Almobarak, None; **Paul Artes**, None; **Abdullah Alfawaz**, None

Program Number: 135 **Poster Board Number:** B0269
Presentation Time: 8:30 AM–10:15 AM
A survey of the evolving role of virtual eye surgery simulators in ophthalmic graduate medical education
Yasir Ahmed, Ingrid U. Scott. Ophthalmology, Penn State Hershey Medical Center, Hershey, PA.
Purpose: To survey ophthalmology residency program directors (PDs) with regards to their familiarity, experiences, and attitudes towards virtual eye surgery (VES) simulators. Recently reported data concerning virtual reality training to operating room performance for VES simulators may impact their adoption in ophthalmology residency training programs.
Methods: This study received an exemption from the Penn State College of Medicine IRB. An anonymous survey consisting of multiple choice and Likert style questions was created on www.surveymonkey.com. The survey link was sent to the 116 ACGME Ophthalmology Residency Program Directors listed on the AMA online database (www.ama-assn.org/go/freida). Any outdated or undeliverable addresses were verified with the AUPO database 2014. Each survey question was analyzed independently with respect to the total number of responses to the question.
Results: The response rate was 35% (41/116). A VES simulator was used by 78% (32/41) of ophthalmology residency training programs. Among the programs without a VES simulator, cost was the main limiting factor in 89% (8/9). Among programs using VES simulators, 97% (28/29) used the EyeSi simulator (VRmagic, Mannheim, Germany), 80% (24/30) mandated the use of a VES simulator in the residency curriculum, and 83% (25/30) used it to evaluate resident surgical skills quantitatively. A VES simulator had been personally used by 85% (33/39) of PDs; 54% (21/39) of PDs reported that department faculty used a VES simulator to help residents improve surgical skills. Most PDs agreed that VES is a useful tool for improving and measuring resident surgical skills and that it could be incorporated into the resident training model given the current level of evidence but they did not support VES evolving into a mandatory component of resident training.
Conclusions: VES has become prevalent in US ophthalmology residency training programs. This may be due, at least in part, to recent evidence showing improved operating room performance associated with virtual reality training. The VES simulator is also being increasingly integrated into the resident surgical teaching model due to its valuation as a useful surgical training modality. However, the expense of a VES simulator is a barrier to its use in some programs and may represent the main obstacle to its integration as a mandatory component of ophthalmic surgical training.
Commercial Relationships: Yasir Ahmed, None; **Ingrid U. Scott**, None

Program Number: 136 **Poster Board Number:** B0270
Presentation Time: 8:30 AM–10:15 AM
Assessment of the BIONIKO prosthetic surgical training tools
Ken Steinegger, Ali Dirani, Ciara Bergin, Cedric Mayer, François Majo, Francine Behar-Cohen, Jean-Antoine C Pournaras. University Hospital, Hôpital Ophtalmique Jules-Gonin, Lausanne 7, Switzerland.
Purpose: Prosthetic models of components of the eye have been developed as surgical training aids in ophthalmology. This study was designed to examine the utility of the rhexis-model and the kerato-model developed by BIONIKO LLC (Miami, Florida, US) as a training tools for surgically naive residents. The aim was to quantify the improvement in surgical skills afforded, in terms of change in speed and accuracy when performing capsulorhexis and corneal sutures.
Methods: Nineteen surgically naive ophthalmology residents participated in this study. Every resident had 10 rhexis-models and 5 kerato-models for training. Performance was assessed based on the outcome of the first 2 rhexis-model/the first kerato-model and compared to the outcome from the last 2 rhexis-model/the last kerato-mode. Between the assessment points the resident trained independently using the remaining 6 rhexis-model and 3 kerato-model prostheses provided. A "capsulorhexis score" based on time taken, corneal wound integrity, shape and centration of the rhexis was developed to reflect overall performance. Similarily a "kerato score" based on average time taken to perform sutures, position and integrity of the graft, symmetry, radiality and tightness of the corneal sutures was also developed. Paired t-tests were used to compare pre and post training outcome measures.
Results: In rhexis-model, comparing outcomes at the beginning and at the end of training, the maneuver was performed 39% faster (3.6 minutes vs 2.2 minutes, $p<0.01$); circularity improved by 42% (0.43 vs 0.25, where 0 represents a perfect circle $p<0.01$) and rhexis decentration significantly decreased (0.83 mm vs 0.47 mm, $p<0.01$). In the kerato-model, corneal sutures were performed 42% faster (9.6mins vs 5.5 mins, $p<0.01$) Position, integrity of the graft, symmetry, radiality and tightness also improved significantly[b1] . The capsulorhexis and kerato scores improved significantly from 2 and 13.8 before training to 5 and 23.1 at the end of training ($p<0.01$ for both respectively).
Conclusions: The BIONIKO prosthetic models were shown to be effective training tools for improving the accuracy and speed of surgically naive residents in performing the capsulorhexis and corneal sutures. Also since there is no special storage, sanitary or expiration considerations these tools have the potential to simplify practice and maintenance in surgical skills laboratories.
Commercial Relationships: Ken Steinegger, None; **Ali Dirani**, None; **Ciara Bergin**, None; **Cedric Mayer**, None; **François Majo**,

None; **Francine Behar-Cohen**, None; **Jean-Antoine C Pournaras**, None

Program Number: 137 **Poster Board Number:** B0271
Presentation Time: 8:30 AM–10:15 AM
Evaluating the Utility of Postoperative Photos as Educational Tools in Trichiasis Surgery Training
Richard S. Dykstra[1], Shannath L. Merbs[2], Beatriz E. Munoz[2], Emily W. Gower[1, 3]. [1]Epidemiology, Wake Forest School of Medicine, Winston Salem, NC; [2]Wilmer Eye Institute, Johns Hopkins Sch of Medicine, Baltimore, MD; [3]Ophthalmology, Wake Forest School of Medicine, Winston-Salem, NC.
Purpose: In trachomatous trichiasis (TT) surgery, poor surgical quality contributes significantly to high postoperative TT rates. We examined 1) the accuracy of experts in evaluating a standard set of immediate post-op photos and 2) the expert trainers' perceived benefits of such photos for improving training.
Methods: We compiled a series of post-op photos with an equal distribution of each outcome of interest: good quality, over-rotation, under-rotation, and eyelid contour abnormality (ECA). We assigned each photo a gold-standard grade, based on our team consensus. We asked a group of TT surgery experts, including ophthalmologists and ophthalmic nurses to participate. First, we showed a series of immediate post-op photos to discuss common surgical mistakes and long-term consequences. Next, the participants evaluated 122 immediate post-op photos and recorded the most apparent surgical mistake (none, over-rotation, under-rotation, or ECA). We compared participant responses to our gold standard answers. Participants completed a questionnaire regarding their opinions on the feasibility and potential benefit of these photos as educational tools.
Results: 19 participants evaluated the photos and completed the questionnaire. Overall, participant responses agreed with the gold standard 84% of the time. Individual participant scores ranged from 67%-98%; 15 agreed with the gold standard response on at least 80% of the photos. Participants had the least difficulty identifying eyelids with under- or over-correction (84 and 89% accuracy, respectively). However, the gold standard photos for ECA were difficult to identify; only 74% of the time did participants correctly record ECA. For these, many participants recommended having the option to mark multiple mistakes. Participants agreed that post-op photos would be beneficial for improving the classroom (94%), live-surgery (100%), and examination (94%) portions of training. They indicated that the photos would be useful for demonstrating common mistakes (100%), good surgical outcomes (89%), and long-term complications (79%).
Conclusions: This study showed significant promise for developing a set of training materials that can be used both in teaching and examining trichiasis surgery trainees. From these findings, we can begin to develop meaningful, internationally-standardized educational tools based on documented consensus and discussion.
Commercial Relationships: Richard S. Dykstra, None; **Shannath L. Merbs**, None; **Beatriz E. Munoz**, None; **Emily W. Gower**, None
Support: NIH Grant R21 EY02303

Program Number: 138 **Poster Board Number:** B0272
Presentation Time: 8:30 AM–10:15 AM
Resident compliance with the American Academy of Ophthalmology (AAO) Preferred Practice Patterns (PPPs) for Primary Open-Angle Glaucoma Suspects (POAGS)
Melanie Mihlstin[1], Jia Yin[1], Mark S. Juzych[1], Kromrei Heidi[2], Frank Hwang[1]. [1]Ophthalmology, Kresge Eye Institute, Detroit, MI; [2]GME, Wayne State University School of Medicine, Detroit, MI.
Purpose: POAG is a leading cause of irreversible blindness in the United States and other industrial countries [1-3]. Epidemiological studies found that fewer than 50% of cases of visual field loss due to glaucoma have been diagnosed [4-6]. Visual field loss and progression of glaucoma are major concerns when following patients suspected of having glaucoma or POAGS. To address these risks the AAO developed PPPs for POAGS patients based on scientific data and clinical trial data when available [7, 8]. Monitoring adherence to these guidelines ensures residents deliver quality patient care early in their careers and integrates evidence-based medicine into residency curricula [9, 10]. The purpose of this study was to examine conformance with the AAO PPPs for the evaluation of POAGS in a resident ophthalmology clinic.
Methods: 200 charts were selected for a retrospective chart review of new adult patients diagnosed with POAGS using the ICD-9 code for glaucoma suspect who underwent evaluation between Nov 2010 and May 2014 at the Kresge Eye Institute resident ophthalmology clinic. These clinic visits were evaluated for 17 different PPP elements. Compliance rates for the elements of PPPs were averaged in all charts, averaged per resident, compared among 39 residents and then were compared between 1st, 2nd and 3rd year of residency.
Results: Mean compliance was 73.8% for all charts (n=200), 74.4% for 1st residents, 74.5% for 2nd and 73.3% for 3rd. Compliance rates were high (>90%) for 9 elements, which included most elements of the physical examination and history. Documentation of ocular history, central corneal thickness, gonioscopy, optic nerve head and retinal nerve fiber layer analysis and visual field ranged from 40% to 80%. Documentation was lowest for patient education elements which ranged from 0% to 10%. Compliance was not significantly (P0.05) different between residents or between different resident years for any of the elements.
Conclusions: Residents' compliance for most elements was high for most elements in the PPP guidelines for POAGS. However, documentation of patient education was very poor. Adherence to AAO PPPs can be a helpful method of evaluating resident performance during training. A target level of compliance should be set and maintained to ensure that residents are developing quality and evidence-based patient care skills.
Commercial Relationships: Melanie Mihlstin, None; **Jia Yin**, None; **Mark S. Juzych**, None; **Kromrei Heidi**, None; **Frank Hwang**, None
Support: N/A

Program Number: 139 **Poster Board Number:** B0273
Presentation Time: 8:30 AM–10:15 AM
Current Practice Patterns in the Treatment of Periocular Infantile Hemangiomas
Christopher Weller, Ravi Patel, Jason R. Mayer, Michael Wilkinson, Ingrid U. Scott, Ajay Soni. Ophthalmology, Penn State Hershey Eye Center, Middletown, PA.
Purpose: To investigate whether the emergence of systemic and topical non-selective beta-blocker therapy has altered the practice patterns of pediatric ophthalmologists when treating infantile hemangiomas in the periocular region.
Methods: An anonymous fourteen question survey was constructed using surveymonkey.com. Participants were recruited for voluntary participation through advertisement in an AAPOS newsletter and postings on a pediatric ophthalmology listserv.
Results: A total of 205 fellowship trained pediatric ophthalmologists completed the survey. Respondents chose private (48%), academic (30%), or combination (22%) when asked to characterize their current practice landscape. Most respondents (71%) completed training greater than ten years ago. A majority (81%) noted their approach to the treatment of infantile hemangiomas changed over the past 5 years, with the most common change being the use of non-